

Limpopo Province: Department of Transport Tender PUDP 8



In association with Sekhukhune District Municipality



First Integrated Transport Plan for The Sekhukhune District Municipality

Final Report

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Integrated Transport Plan for the Sekhukhune District Municipality

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1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Limpopo Department of Transport appointed ARCUS GIBB (Pty) Ltd on 26 January 2004, to prepare the Integrated Transport Plan (ITP) for the Sekhukhune District Municipality (SDM), as required in terms of Section 27 of the National Land Transport Transition Act, No. 22 of 2000 as amended (NLTTA). The ITP attends to public transport and private mode, infrastructure, facilities, and services.

The Local Government system in South Africa was introduced in the present form by the new Constitution of the country (Constitution Act No. 108 of 1996, as amended). Chapter 7 of the Constitution deals with matters related to Local Government. Therefore Sekhukhune District Municipality is also established in terms of this Constitution as well as the Municipal Demarcation Act and the Municipal Structures Act.

Part B of Schedule 4, read together with section 155(6)(a) and (7) of the Constitution, lists a number of functions that are to be performed by Local Government. Among the functions is municipal planning and municipal public transport services. Emanating from the mandate of the Constitution the Municipal Structures Act (No. 117) of 2003 was developed and state in section 81(1)(a) that District Municipalities should prepare Integrated Development Plans (IDPs).

The Integrated Transport Plan constitutes a transport sector input into the IDP process.

In implementing the NLTTA, the Minister of Transport published the minimum requirements for the preparation of the ITP (Regulation Gazette no. 25245 dated 1 August 2003). These requirements provide minimum requirements for the structure and contents of the ITP document.

There was a data collection process, which preceded the ITP, and the aim of that process was to have an idea as to what was the current situation in the District in terms of transportation utility. One of the data collection process was called the Current Public Transport Record (CPTR). The CPTR information was collected in 2003 and was prepared by Lidwala Consulting Engineers (Pty) Ltd, and the client was the Mpumalanga Department of Transport. The final CPTR report was completed in May 2003. This included surveys of taxi operations at taxi ranks. As this was the first CPTR for SDM and as experienced elsewhere, there were several constraints. There were several shortcomings in the CPTR. No additional surveys were carried out to fill the data gaps.

However, the Taxi Council was approached to provide additional data, and the Northern Province Provincial Gazette 980, 8 April 2004 recorded the verified routes in the SDM.

Subsequently, the Operating License Strategy, Rationalisation Plan, and Public Transport Plan for SDM were prepared, and are components of the Integrated Transport Plan.

There was further research on road infrastructure development plans, operations plans such as Road Safety, Travel Demand Management, freight and commodity flow data

collection, demographic data, etc. The ITP and Land Development Objectives should be complementary.

1.2 STATUS QUO

The SDM is a cross border District Municipality with the Limpopo Province and Mpumalanga Province. The SDM is mostly rural, with 95% of the total population residing in the rural areas, and 5% in the urban areas. Most communities are sparsely populated in low-density villages. The relatively densely populated semi-urban areas are Groblersdal and Marble Hall, Burgersfort, Jane Furse, Orighstad, Steelpoort, and Driekop. There are no Transport Authorities and Metropolitan Municipalities in the SDM.

There is gradual economic development specifically in agriculture, mining, and tourism. Mining is significant in the Greater Tubatse LM. There is speculation that Steelpoort is the one of the fastest growing towns in South Africa due to the mining activities. The projected growth for all major towns in the SDM is 1.2% annually till 2006 and thereafter 1% annually till 2008. However, the unemployment rate is very high (70% of economically active people) in the SDM. Car ownership is low and commuters depend on public transportation. Further, mobility of communities is a serious concern.

The major public transport services are bus and taxi operations, and are addressed in detail in the RATPLAN and OLS respectively. There are no commuter rail services in the SDM. Improvements to Land Transport are significant to sustain momentum in the current economic growth in the SDM.

The ITP is relevant for the period from September 2004 to September 2009, and the five-year implementation plan and budget will be reviewed annually.

1.3 METHOD

The Operating License Strategy, Rationalisation Plan, and Public Transport Plan for SDM were prepared by ARCUS GIBB (Pty) Ltd, and guide the preparation of the Integrated Transport Plan.

The NLTTA section 27(2) indicates that the ITP must formulate the planning authority's official vision, policy and objectives, consistent with the national and provincial policies, due regard being given to any relevant integrated development planning or land development objectives, and must at least:

- (a) Specify the changes to the planning authority's land transport policies and strategies since the previous year's five-year plan;
- (b) Include a list that must –
 - Show, in order of precedence, the projects and project segments to be carried out in that five-year period, and the cost of each project; and
 - Be prepared with due regard to relevant integrated development plans, and land development objectives set in terms of section 27 of the Development Facilitation Act, 1995 (Act 67 of 1995), or, where applicable, in terms of a law of the province;

- (c) Include all modes and infrastructure, including new or amended roads and commercial developments having an impact on the land transport system, and land transport aspects of airports and harbours;
- (d) Including the planning authority's public transport plan;
- (e) Set out a general strategy for travel demand management;
- (f) Set out a road and transport infrastructure provision, improvement and maintenance strategy; and
- (g) Set out a general strategy or plan for the movement of hazardous substances contemplated in section 2 (1) of the Hazardous Substances Act.

In addition the requirements describe the principles for preparing an ITP as follows:

- (a) The plans must pay due attention to the development of rural areas;
- (b) Transport for special categories of passengers must receive special attention;
- (c) The development of the ITP must take cognisance of the fact that rail is currently a national competency until devolved in terms of section 28 of the NLTTA, and subsidised bus services are a provincial competency until devolved to transport authorities in terms of section 10(13)(f) of the NLTTA;
- (d) The ITP must be synchronised with other planning initiatives and it must indicate how it is integrated into the municipal integrated development plans, the development objective process and the municipal budgeting process;
- (e) The preparation of the ITP must include the consultation and participation of interested and affected parties required for the preparation of the IDP in terms of Chapter 4 and section 29(1)(b) of the Local Government Municipal Systems Act, 2000 (Act No 32 of 2000).

Since this is the first ITP for the SDM, it is not practical to transform the transportation system in a short period of time. The paradigm shift in the restructuring of the Land transportation system should be a process.

The results and recommendations are not prescriptive, and this document should be considered a guideline and applied with discretion.

1.4 The Road Network, Traffic, & Transportation

Traditionally road projects were prioritised according to traffic volumes and pavement conditions. The new criteria for prioritisation of road projects include traffic volumes, pavement conditions, public transport, passenger volumes, tourism, and freight, with due consideration for Spatial Development Initiatives, Tourism Clusters, Socio-economic developments, RAL priorities, SANRAL projects, and District Municipality Priorities.

The following needs are identified with respect to road infrastructure, specifically for the District Municipality:

- (a) Road Management System
 - Road Signs Management
 - Pavement Management System
 - Traffic Management
 - Hazardous Location Management

- Bridge Management
- (b) Road Master Plan
 - Road Classification System
 - Maintenance and upgrading
 - Deviation route for hazardous materials and heavy vehicle
 - GIS and Road Maps
- (c) Congestion Management
 - Travel Demand Management
 - Transportation System Management mechanisms such as bus lanes and reversible lanes, and signal optimisation and synchronisation.
- (d) Environmental Management
- (e) Non-motorised Transport Plan
 - Infrastructure for pedestrians, bicycles, and people with special needs
- (f) Road Safety
 - Education
 - Emergency services (Disaster Management Centre)
 - Hazardous locations and application of engineering

1.5 RESULTS

1.5.1 District Roads & Local Roads (infrastructure and maintenance)

Roads in the Sekhukhune District are well connected by means of provincial arterial routes, to include the R37, R36 and R555, however, the 350 km of roads are degrading rapidly due to a lack of maintenance and rehabilitation.

In addition to the above roads, the local access roads are gravel and predominantly utilised by buses and taxis. The condition of these roads is below standard. They require upgrading, improved storm water management, lighting, parking, and other road furniture. There are also internal village streets and these are generally in a bad state. Once the major roads have undergone general upgrading, attention can be given to the upgrading the minor roads. The SDM provides a budget in the IDP for roads but it is not based on a road prioritisation plan and management system.

There is no pavement management data, traffic data, etc. to prioritise the upgrading of roads. However, the Road Agency Limpopo, South African National Roads Agency Limited, Limpopo In Motion Report, Limpopo 2020 Infrastructure Study, Public Transport Plan, and correspondence with the Transport Forum realised a list of roads that should be prioritised. The list of roads and map are in **Appendix E**.

The RAL must provide initial support and resources to the District Municipalities to manage the Road Network. Specifically, the RAL must provide the Road Management System (RMS), training, and, technical support for an interim period to ensure consistency and continuation of the database at District Municipality level. The RMS is a holistic database and includes the pavement management, bridge management, and traffic management data.

Further, the Department of Public Works and the Roads Agency Limpopo must also provide machinery to the District Municipality and support staff to ensure adequate capacity at District Municipality level to proceed with the road maintenance program.

Traffic Engineering and Integrated Land Use and Transportation Planning projects are carried out at random, and there is no explicit emphasis on the application of engineering principles, and the involvement of Professional Engineers in Transportation Planning and Engineering. The following components of the ITP requires further attention:

1. The Road Master Plan must distinguish between the District Municipality Roads and the Local Municipality Roads. There is a need for the total road system in the SDM to be classified according to administration and functionality.
2. There is need for a Road Management System:
 - Pavement Management System with at least a Visual Condition database (The IDP 2004/2005 identified the paving of Leeuwfontein Street in the Greater Marble Hall as a project with a budget of R782 000.)
 - Bridge Management System with at least a Visual Condition Database (The IDP 2004/2005 identified the Tsimanyani-Mohlotsi Low Level Bridge in Greater Marble Hall as a project with a budget of R274 000.)
 - Road Signs and Road Marking Management System
 - Mapping of routes
3. Currently, the road safety programs are the competency of the Department of Transport. The District Municipality must be more active with the implementation of Road Safety programs through engineering, education, and enforcement interventions.
4. During road construction projects, there is need for adequate information to the public via the media indicating road closures, deviations, expected delays, and alternate routes.
5. The establishment of a Disaster Management Centre to function as a Central Communications Centre, and the application of the Incident Management System are critical components of the Road Safety and Public Safety initiative. The District Municipality must prepare an incident management protocol; Law Enforcement must align itself with the incident management system of the Province and the National Roads Agency Limited. A Disaster Management Plan is proposed in the IDP 2004/2005 and the project scope should include these needs. The budget for the Framework is R800 000, and the establishment of the Disaster Management Centre is R5m.
6. There is need for the upgrading of road signs and an urgent need for the posting of emergency numbers along roads.
7. There is need for stringent monitoring of contracts in terms of quality and environmental protection. For example, road markings are not tested during painting according to the project specification in the contract document. Hence, performance-based contracts for road marking are necessary.
8. The towns of Burgersfort, Marble Hall and Groblersdal are in need of an integrated land-use and transportation-planning model to determine traffic patterns and guide further developments. There is need for consistent monitoring of traffic operations as traffic models are data driven. Siyazi Limpopo (Pty) Ltd completed a traffic study for the town of Burgersfort.
9. By observation congestion is not significant in the urban areas, however there are opportunities to improve traffic operations through the implementation of TDM and TSM, such as bus lanes and contra flow lanes, and signal optimisation and synchronisation.

10. The majority mode of transport is walking in the SDM. Thus, it is appropriate to develop a non-motorised transport plan with emphasis on sidewalks, bicycles, and optimisation of donkey carts.
11. The District Municipality together with the Department of Transport must motivate the Department of Environmental Affairs and Tourism to fund the strategic plan for tourism in the SDM or the Limpopo Province as a whole, and to address the branding of routes and the implementation of tourism signs. A Tourism Plan is proposed in the IDP 2004/2005 and the project scope should include these needs.
12. The environmental Management Framework proposed in the IDP must incorporate the discussion in **Section 8.6**.

1.5.2 Information Management

There is need for a transportation management system for the District Municipality. The glorified mechanism is a Geographic Information System (GIS), and could be relatively expensive. However, the benefits are exponential when operated and managed efficiently. The following data collection should be maintained preferably on GIS:

- Road Network
- Spatial Plans
- Road Classification
- Pavement Management
- Traffic Counts (heavy, light, overloaded, peak volumes, speed, etc)
- Bridge Management
- CPTR (Bus, taxi, pedestrian, bicycle, and donkey cart routes and facilities)
- Road Furniture
- Hazardous Zones
- Census Data
- Housing, Schools, Medical, Water, and Sanitation Locations

The data will not only assist in the review of the ITP but will assist in incident management, road safety, law enforcement operations, project planning and prioritisation, etc.

1.5.3 Capacity Building & Skills Transfer

It is evident that the Province requires skilled workers specifically in the Civil Engineering profession both at Public and Private sectors. Ironically, the tertiary institutions in the Limpopo Province do not offer Civil Engineering degrees and diplomas!

Another serious concern is that, Traffic Engineering, and Integrated Land Use and Transportation Planning projects are carried out at random, and there is no explicit emphasis on the application of engineering principles, and the involvement of Professional Engineers in Transportation Planning and Engineering. Effectively, this results in liability to the District Municipality in case of injuries and fatalities due to the application of undefined standards.

1.5.4 Key Performance Indicators

The District Municipality must establish a performance management system as required by the Municipal Systems Act 32, 2000, Chapter 6. The District Municipality

must promote a culture of performance management among political structures, political office bearers, councillors, and administrators.

The process of integrated transport planning should be dynamic and characterised by the continuous review and testing of goals and objectives against key performance indicators. The District Municipality must apply key performance indicators (KPIs) to monitor progress in the implementation of policies and projects, and to monitor its performance as an implementing agent.

According to the Municipal Systems Act 32, 2000, the results of performance measures must be audited as part of the Municipality's internal auditing process and audit annually by the Auditor-General, and made known to the public through the Annual Report.

1.5.5 Institutional Transformation

Due to the capacity constraints, the option of establishing a Transport Authority is not the appropriate administrative mechanism yet for the SDM. There is need for additional capacity and skills to implement Integrated Land Use and Transportation Planning and Traffic Engineering in the SDM.

The District Transport Forum must be formalised by the Municipal Manager to function like that of the 'Urban Transport Board' as described in the Urban Transport Act 78, 1977. The formalisation of the Transport Forum to function as a committee established by the Municipality could be justified by the Municipal Structures Act 117, 1998 Section 79. The Transport Forum must be responsible for the following:

- Identify transportation needs
- Approve transport plans prepared by planning authorities
- Consultation with stakeholders
- Influence policies
- Investigate Public-Private Partnership opportunities to optimise funding mechanism and maximise service delivery
- Implement the projects identified in the Integrated Transport Plan
- Measure performance by Key Performance Indicators

The Transport Forum should meet at least every quarter, and the District Municipality must budget for the functioning of the Transport Forum.

1.6 Conclusion - Strategic Thrusts

The SDM will focus its efforts and resources on the following strategic components of Transportation:

1.6.1 Capacity and Skills Development

- (a) Training of officials in integrated Transportation Planning and Land Use Planning
- (b) Recruitment of Transport Planners and Engineers
- (c) Procurement of consulting engineering services for consistent and continuous advice and random projects

1.6.2 Address Service Backlog

- (a) Motivate subsidised public transport coverage in the SDM with the objective of reducing the cost of travel
- (b) Install public transport infrastructure such as shelters, lay-bys, and inter-modal facilities
- (c) Upgrade road infrastructure and streets between residential and business nodes

1.6.3 Travel Demand Management (TDM)

- (a) Manage congestion through TDM measures such as signalisation, bus lanes, reversible lanes in urban areas, and upgrading intersections, etc.
- (b) Develop non-motorised transport plan and implement projects

1.6.4 Road Safety

- (a) Develop a Central Communications Centre for Incident Management
- (b) Road Safety audits
- (c) Addressing hazardous locations
- (d) Motivate law enforcement at strategic locations
- (e) Education and communication campaigns

The way forward is to motivate the prioritised projects in the Integrated Transport Plan (ITP) to the Integrated Development Plan (IDP). The construction and maintenance of public transport facilities and roads are in most cases labour intensive, and are appropriate mechanisms to accentuate **job creation**.

DOCUMENT APPROVED BY THE EXECUTIVE MAYOR OF THE SEKHUKHUNE DISTRICT MUNICIPALITY IN TERMS OF DELEGATED POWERS IN ACCORDANCE WITH SECTION 59 OF THE MUNICIPAL SYSTEMS ACT, ACT 32 OF 2000.

DATE

EXECUTIVE MAYOR

2 INTRODUCTION

There has been a significant change in transport policy since the White Paper on National Transport Policy, 1996. There is recognition of the transportation imbalance, and the need to undo the practice of the Apartheid planning principles, that is, decentralised residential nodes with limited access and mobility to economic activity nodes mostly for the Previously Disadvantaged. This is the first Integrated Transport Plan for the Sekhukhune District Municipality, and is the initial step to an improved Transportation System.

This strategy document is prepared for **Sekhukhune District Municipality (SDM)** and the recommendations are applicable for a period of at most five years from the date that it will be first published in the Provincial Government gazette. The Operating License Strategy (June 2004), Rationalisation Plan (June 2004), and Public Transport Plan (July 2004) are supporting plans for the SDM Integrated Transport Plan.

2.1 Background

The Limpopo Department of Transport appointed ARCUS GIBB (Pty) Ltd on 26 January 2004, to prepare the Integrated Transport Plan (ITP) for the Sekhukhune District Municipality (SDM), as required in terms of Section 27 of the National Land Transport Transition Act, No. 22 of 2000 as amended (NLTTA). The ITP attends to public transport and private mode, infrastructure, facilities, and services.

The Local Government system in South Africa was introduced in the present form by the new Constitution of the country (Constitution Act No. 108 of 1996, as amended). Chapter 7 of the Constitution deals with matters related to Local Government. Therefore Sekhukhune District Municipality is also established in terms of this Constitution as well as the Municipal Demarcation Act and the Municipal Structures Act.

Part B of Schedule 4, read together with section 155(6)(a) and (7) of the Constitution, lists a number of functions that are to be performed by Local Government. Among the functions is municipal planning and municipal public transport services. Emanating from the mandate of the Constitution the Municipal Structures Act (No. 117) of 2003 was developed and state in section 81(1)(a) that District Municipalities should prepare Integrated Development Plans (IDPs).

The Integrated Transport Plan constitutes a transport sector input into the IDP process.

In implementing the NLTTA, the Minister of Transport published the minimum requirements for the preparation of the ITP (Regulation Gazette no. 25245 dated 1 August 2003). These requirements provide minimum requirements for the structure and contents of the ITP document.

There was a data collection process, which preceded the ITP, and the aim of that process was to have an idea as to what was the current situation in the District in terms of transportation utility. One of the data collection process was called the Current Public Transport Record (CPTR). The CPTR information was collected in 2003 and was prepared by Lidwala Consulting Engineers (Pty) Ltd, and the client was the Mpumalanga Department of Transport. The final CPTR report was

completed in May 2003. This included surveys of taxi operations at taxi ranks. As this was the first CPTR for SDM and as experienced elsewhere, there were several constraints. There were several shortcomings in the CPTR. No additional surveys were carried out to fill the data gaps.

However, the Taxi Council was approached to provide additional data, and the Northern Province Provincial Gazette 980, 8 April 2004 recorded the verified routes in the SDM.

Subsequently, the Operating License Strategy, Rationalisation Plan, and Public Transport Plan for SDM were prepared, and are components of the Integrated Transport Plan.

There was further research on road infrastructure development plans, operations plans such as Road Safety, Travel Demand Management, freight and commodity flow data collection, demographic data, etc. The ITP and Land Development Objectives should be complementary.

2.2 Transparency

To the extent possible, the project operated transparently, open to scrutiny from all stakeholders. Due to the consultative process, the Transport Forum comprising of representatives from the relevant stakeholders contributed to the preparation of the ITP. Nevertheless, the recommendations are considered confidential until the Limpopo and Mpumalanga Departments of Transport endorse the report.

2.3 Capacity Building

One of the components of the project was to build technical capacity at the respective Municipalities and internally for the consultant, by the involvement of officials and staff on the project.

ARCUS GIBB postgraduate team members utilised the project to attain better understanding on the planning procedures of the South African Transportation Policies and re-development of the South African transportation system, specifically in the Limpopo Province.

Limpopo Provincial, District, and Local Government officials were presented with planning procedures and principles, analysis of public transportation data, and the criteria in preparation of recommendations for the restructuring of the public transport system. This is considered empowerment to officials who are not Transportation Engineers and Planners by profession, but project managers at the respective Departments. It is accepted that most officials involved in this project now have a better understanding on the planning and preparation of an Integrated Transport Plan (ITP), and are able to provide stronger leadership in subsequent projects.

2.4 Purpose of the Integrated Transport Plan (ITP)

The NLTTA section 27(2) indicates that the ITP must formulate the planning authority's official vision, policy and objectives, consistent with the national and

provincial policies, due regard being given to any relevant integrated development planning or land development objectives, and must at least:

- a) Specify the changes to the planning authority's land transport policies and strategies since the previous year's five-year plan;
- b) Include a list that must –
 - Show, in order of precedence, the projects and project segments to be carried out in that five-year period, and the cost of each project; and
 - Be prepared with due regard to relevant integrated development plans, and land development objectives set in terms of Section 27 of the Development Facilitation Act, 1995 (Act 67 of 1995), or, where applicable, in terms of a law of the province;
- c) Include all modes and infrastructure, including new or amended roads and commercial developments having an impact on the land transport system, and land transport aspects of airports and harbours;
- d) Including the planning authority's public transport plan;
- e) Set out a general strategy for travel demand management;
- f) Set out a road and transport infrastructure provision, improvement and maintenance strategy; and
- g) Set out a general strategy or plan for the movement of hazardous substances contemplated in section 2 (1) of the Hazardous Substances Act.

In addition the requirements describe the principles for preparing an ITP as follows:

- a) The plans must pay due attention to the development of rural areas;
- b) Transport for special categories of passengers must receive special attention;
- c) The development of the ITP must take cognisance of the fact that rail is currently a national competency until devolved in terms of section 28 of the NLTTA, and subsidised bus services are a provincial competency until devolved to transport authorities in terms of section 10(13)(f) of the NLTTA;
- d) The ITP must be synchronised with other planning initiatives and it must indicate how it is integrated into the municipal integrated development plans, the development objective process and the municipal budgeting process;
- e) The preparation of the ITP must include the consultation and participation of interested and affected parties required for the preparation of the IDP in terms of Chapter 4 and section 29(1)(b) of the Local Government Municipal Systems Act, 2000 (Act No 32 of 2000).

Since this is the first ITP for the SDM, it is not practical to transform the transportation system in a short period of time. The paradigm shift in the restructuring of the Land Transportation system should be a process.

2.5 Scope of the Work

The scope and approach towards the formulation of an ITP for the SDM are based on the requirements set out in the NLTTA, Act 22 of 2002, Part 7, Section 27.

Based on the "Integrated Transport Plan: Minimum Requirements in terms of the NLTTA", the ITP for the SDM should contain the following topics:

- a) Chapter 1: Introduction
- b) Chapter 2: Land transport vision, goals and objectives
- c) Chapter 3: Land transport status quo
- d) Chapter 4: Spatial framework
- e) Chapter 5: Needs assessment
- f) Chapter 6: Public transport proposals
- g) Chapter 7: Private and freight transport proposals
- h) Chapter 8: Institutional Arrangements
- i) Chapter 9: Plan of Action and Projects
- j) Chapter 10: Funding
- k) Chapter 11: Stakeholder consultation
- l) Chapter 12: Bibliography

2.6 Study Area

The study area is the Sekhukhune District Municipality. The locality map is in **Appendix A**. The Census 2001 population data for the SDM is in **Table 2.1**. There are five Local Municipalities in the SDM:

- Greater Groblersdal
- Greater Marble Hall
- Greater Tubatse
- Fetakgomo
- Makhuduthamaga

Table 2.1 – Population by Local Municipality

Local Municipality	Population	Employed	Unemployed	Physical Disabled
Greater Marble Hall	121 323	15 666	12 731	1159
Greater Groblersdal	220 739	20 166	23 918	3140
Greater Tubatse	270 122	19 189	30 673	2521
Makhuduthamaga	262 903	10 746	32 333	965
Fetakgomo	92 092	4 855	10 455	985
Total	967 179	70 622	110 110	8770

The SDM is a cross border District Municipality with the Limpopo Province and Mpumalanga Province.

The SDM is mostly rural, with 95% of the total population residing in the rural areas, and 5% in the urban areas. Most communities are sparsely populated in low-density villages. The relatively densely populated semi-urban areas are Groblersdal and Marble Hall, Burgersfort, Jane Furse, Orighstad, Steelpoort, and Driekop. There are no Transport Authorities and Metropolitans Municipalities in the SDM.

There is gradual economic development specifically in agriculture, mining, and tourism. Mining is significant in the Greater Tubatse LM. There is speculation that Steelpoort is the one of the fastest growing towns in South Africa due to the mining activities. The projected growth for all major towns in the SDM is 1.2% annually till 2006 and thereafter 1% annually till 2008. However, the unemployment rate is very high (70% of economically active people) in the SDM.

Car ownership is low and commuters depend on public transportation. Further, mobility of communities is a serious concern.

The major public transport services are bus and taxi operations, and are addressed in detail in the RATPLAN and OLS respectively. There are no commuter rail services in the SDM. Improvements to Land Transport are significant to sustain momentum in the current economic growth in the SDM.

The ITP is relevant for the period from September 2004 to September 2009, and the five-year implementation plan and budget will be reviewed annually.

2.7 Deliverables

The specific deliverable for the project is a report on the ITP for the Sekhukhune District Municipality, with recommendations on the following Land Transport strategies:

- Improvements to public transport
- Improvements to Road Infrastructure and operations
- Freight
- Modal integration
- Travel Demand Management
- Transportation of Hazardous Materials

The list of definitions and maps are attached as Appendices.

2.8 Implementation of the Integrated Transport Plan (ITP)

This is the first Integrated Transport Plan (ITP) for the SDM. It is accepted that the ITP will have to be refined and expanded over time, to eventually satisfy both legislative and practical requirements. An incremental and flexible approach is adopted during the development of the first ITP. The ITP must be reviewed and updated annually. The results and recommendations are not prescriptive, and this document should be considered a guideline and applied with discretion.

3 PUBLIC TRANSPORT VISION, GOALS, AND OBJECTIVES

3.1 White Paper on National Transport Policy

The Vision for SA transport is of a system, which will:

Provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports Government strategies for economic and social development whilst being environmentally and economically sustainable.

The SA transportation system is inadequate to meet the basic accessibility needs (to work, health care, schools, shops), and many developing rural and urban areas. In order to meet basic accessibility needs the transport services offered must be affordable to the user. The transport system will aim to minimise the constraints to the mobility of passengers and goods, maximising speed and service, while allowing customers choice of transport mode or combination of transport modes where it is economically and financially viable to offer a choice of modes. This demands a flexible transport system and transport planning process that can respond to customer requirements, while providing on-line information to the user to allow choices to be made. It also requires infrastructure to be tailored to the needs of the transport operators and end customers.

Government will seek a reduction in the cost to the state of the subsidisation of transport operations, predicted on a more effective and efficient public transport system being developed.

3.1.1 Strategic Objectives

To encourage more efficient urban land use structure correcting spatial imbalances and reducing travel distances and times for commuting to a limit of about 40km or one hour in each direction.

3.1.2 Customer-based

- To ensure that passenger transport services address user needs, including those of commuters, pensioners, the aged, scholars, the disabled, tourists, and long distance passengers.
- Walking distance to be less than 1km in urban areas. Commuters should be spending less than 10% of disposal income on transport.
- To replace operator permits with permissions issued in terms of approved transport plans.

3.2 National Land Transport Transition Act, Act 22 of 2000

Section 4 (1) (a) (iv) - The following principles apply with regard to the determination, formulation, development, and application of land transport policy – are so designed as to have appropriate modes selected and planned for on the basis of where they have the highest impact on reducing the total systems cost of travel, and this decision

should be informed by an appropriate assessment of the impact on the customer and anticipated customer reaction to such change.

Section 4(1) (k) - The needs of special categories of passengers must be considered in planning and providing public transport infrastructure, facilities, and services, and these needs should be met as may be possible by the system provided for mainstream public transport.

Section 18 - Transport planning must be viewed as being a co-coordinated and continuous process. Land transport planning must be integrated with land development processes. Land transport planning must focus on the most effective and economic way of moving people. High priority should be given to public transport through, inter alia, developing high utilisation public transport corridors, which are connected by development nodes within the corridors. Accessibility and utilisation of public transport services, facilities, and infrastructure must be enhanced. The adverse impact of transport on the environment must be minimised. Co-ordination and integration within, and between, land transport modes must be ensured.

The chronological sequence of the policies described in this chapter indicates the inter-relationship between the subsequent plans derived from the policies, and is described in **Figure 3.1**.

3.2.1 Section 27 - Integrated Transport Plans

The Integrated Transport Plan must formulate the planning authority's official vision, policy and objectives, consistent with national and provincial policies, due regard being had to any relevant integrated development planning or land development objectives, and must at least –

(a) Specify the changes to the planning authority's land transport policies and strategies since the previous year's five-year plan;

(b) Include a list that must-

Show, in order of precedence, the projects and project segments to be carried out in that five-year period, and the cost of each project; and

Be prepared with due regard to relevant integrated development plans, and land development objectives set in terms of section 27 of the Development Facilitation Act, 1995 (Act No. 67 of 1995), or, where applicable, in terms of a law of the province;

(c) Include all modes and infrastructure, including new or amended roads and commercial developments having an impact on the land transport system, and land transport aspects of airports and harbours;

(d) Include the planning authority's detailed budget, including funding sources, with regard to land transport for the relevant financial year in the format prescribed by MEC;

(e) Include the planning authority's public transport plan;

(f) Set out a general strategy for travel demand management;

(g) Set out a road and transport infrastructure provision, improvement and maintenance strategy; and

(h) Set out a general strategy or plan for the movement of hazardous substances contemplated in section 2(1) of Hazardous Substances Act, 1973 (Act No. 15 of 1973), by road along designated routes, in accordance with the strategy or plan in the provincial transport framework contemplated in section 22(3)(1).

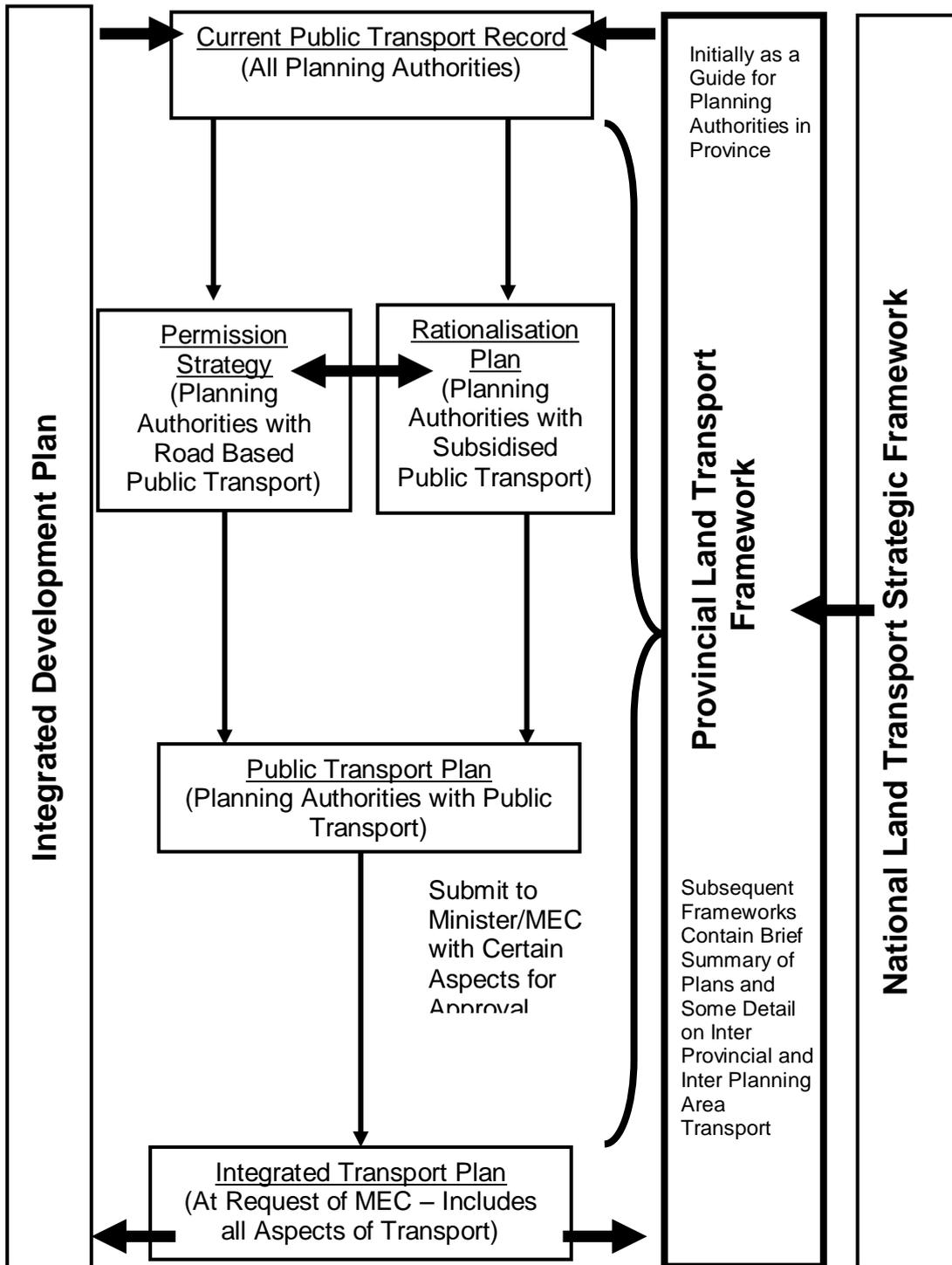


Figure 3.1: Hierarchy of Transport Plans

An Integrated Transport Plan must be in accordance with requirements and in the manner and form as the Minister may prescribe in consultation with the MECs, but the MEC may prescribe the content of integrated transport plans in addition to such requirements.

The plan must by the date so determined be submitted to the MEC for approval, which approval must relate only to the matters mentioned in section 24(4)(b).

A person may not transport hazardous substances contemplated in section 2(1) of the Hazardous Substances Act, 1973 (Act No. 15 of 1973), in the area of a planning

authority, except on a route determined under paragraph (h) of subsection (2), where such a route has been determined and published under section 29(1), and any person who does so is guilty of an offence.

In addition the requirements describe the principles for preparing an ITP as follows:

- (a) The plans must pay due attention to the development of rural areas;
- (b) Transport for special categories of passengers must receive special attention
- (c) The development of the ITP must take cognisance of the fact that rail is currently a national competency until devolved in terms of section 28 of the NLTTA, and subsidised bus services are a provincial competency until devolved to transport authorities in terms of section 10(13)(f) of the NLTTA;
- (d) The ITP must be synchronised with other planning initiatives and it must indicate how it is integrated into the municipal integrated development plans, the development objective process and the municipal budgeting process
- (e) The preparation of the ITP must include the consultation and participation of interested and affected parties required for the preparation of the IDP in terms of Chapter 4 and section 29(1)(b) of the Local Government: Municipal Systems Act, 2000 (Act No 32 of 2000).

3.3 Moving South Africa – Status Quo of the Land Transport System

3.3.1 Public Transportation

The study identified six market segments and concluded that in the short to medium term the prioritised customers should be the poor and very poor rural and urban passengers, who are also considered as “stranded customers” and the “survival customers” who currently cannot afford transport or captive to the cheapest mode of public transport.

The current public transport system does not meet customer needs in terms of travel time, level of choice, and cost. Almost 50% of public transport users are dissatisfied with travel times, and only 10% of commuters have a choice of three modes. The system is of limited use for scholars, given its orientation around the need of commuters and the limited level of off-peak service.

Given the low level of road adequacy in most rural communities, *Moving South Africa* expected to find a high degree of customer dissatisfaction, especially with travel times. However, in the customer research process, rural passengers uniformly declared a high level of satisfaction with travel times, regardless of the purpose of the trip. They gave these opinions despite travelling 40-45 minutes each way for work.

Overall, then, a portrait of relatively undemanding rural transport customers emerges, where people feel reasonably satisfied, even though they enjoy service levels far below the level available to urban public transport passengers. This may relate to the fact that many rural customers have not been exposed to higher levels of service in urban areas, and to the fact that their sense of the opportunity cost of their time is generally lower than that of their urban counterparts.

South African public transport is relatively high cost compared to international benchmarks: services cost users 32% more than world averages, primary because of the distance they travel. The result is higher system costs, deteriorating

infrastructure, higher user costs, and poorer service for those users who are captive to system. More generally, ineffective public transport severely restricts labour mobility, impinges on worker productivity, and impedes social integration.

Part of the problem derives from unclear and fragmented institutional arrangements and lack of capacity at planning authorities.

The best example of the planning gap appears in the uneconomic role of the modes currently at work in South African cities. In most countries, rail, with the highest fixed cost and the lowest marginal cost of taking an additional passenger, carries a substantial base load of passengers. Buses carry the next band, and the peak-load traffic travels on taxi, which has the lowest fixed cost and the highest marginal cost of the three modes. In South Africa the typical modal roles are reversed, and taxis carry the base load of traffic.

The result is an additional system cost of at least R500 million per annum, the equivalent of almost 18% of the total annual direct subsidy to the system. This phenomenon is the direct consequence of a lack of integrated planning, because on many routes it allows taxi competition to reduce the ability of buses and trains to recover their higher fixed cost investments. The RDP recognised this modal warping, and recommended roles for each mode that more closely match their natural economics.

3.3.2 Land Use Planning

Current land use planning and development initiatives are perpetuating the spatial legacy by locating new housing far from major business centres, and from primary rail and road networks.

3.3.3 Freight Transportation

There are three significant freight corridors identified through the Limpopo Province, which are:

- (a) N1 from Pretoria to Zimbabwe through Polokwane, Makhado, and Beit Bridge Border Post
- (b) N11 from Witbank to Botswana through Groblersdal, Mokopane, and Groblersbrug Border Post
- (c) R37 from Lydenburg to Polokwane, through Burgersfort and Lebowakgomo.

Specifically the R37 traverse through the SDM.

At the highest level, the strategy requires three main streams of strategic action to achieve the vision. These are:

- (a) Building density in the transport system through focusing freight flows in select corridors
- (b) Effectively using the different modes within the transport system
- (c) Improving firm-level competitiveness

One of the benefits of reducing costs will be the restoration of value-based competition between rail and road. In International settings, long haul rail costs generally average below 70% of those of road, whereas currently in South Africa rail and road freight have similar costs.

Thus, Moving South Africa envisions a future land transport environment in which there is high-density demand on a few corridors, fed by substantial feeder volume. Road freight will predominate on lower volume lines where a high variable cost is more appropriate, feeding into both rail and road long-haul operations. This, in turn, will raise demand for more efficient inter-modal transfers, and the general competition will create higher demand for increased rail savings to customers.

Moving South Africa identified strategic actions in Road Freight Infrastructure and operations, which are:

- (a) Define the freight network
- (b) Manage road infrastructure investment
- (c) Charge road haulers for road use and externalities
- (d) Enforce limits on gross vehicle mass (GVM)

3.3.4 Private Mode

While congestion is not a significant challenge in the SDM, most towns are in need for road space management due to the increase in public transport and non-motorised transportation.

Gradually, increased car usage will divert passengers from public transport. There is opportunity to be pro-active in addressing potential congestion. There is need for Travel Demand Management, such as parking control, improved public transport service, encouraging high occupancy travel, etc.

The strategic actions for road infrastructure and operations are:

- (a) Define the strategic tourism network
- (b) Manage road infrastructure investment
- (c) Charge road users for road use and externalities

3.3.5 Tourism

The transport sector must be guided by the tourism strategic plan to prevent it from becoming a bottleneck on development.

3.3.6 Aviation

Moving South Africa identified strategic actions for Aviation infrastructure:

- (a) In conjunction with the tourism strategy, identify which airports are to be the principal hubs for specific segments in the future
- (b) Co-ordinate upgrades to air navigation safety with the SADC
- (c) Charge carriers for externalities

3.3.7 Rural Roads

- (a) Identify data on the degree of needs for access roads
- (b) Identify which roads can be self-sustaining and create sufficiently high levels of internal economic returns
- (c) Identify which roads are primarily “developmental” in character and cannot create sufficient economic return to be self-sustaining

- (d) Make investments time-specific, in line with the expected timeline for achieving the social access objective
 - (e) Monitor and review social road investments regularly for performance against the access objectives
-

3.4 National Land Transport Strategic Framework 2002-2007

3.4.1 Priority for Public Transport and Promotion of Non-Motorised Transport

For the purposes of land transport planning and the provision of land transport infrastructure and facilities, public transport must be given higher priority than private transport. This will entail the implementation of effective Travel Demand Management (TDM) measures to promote more efficient private car usage and to free up resources for public transport upgrading and promotion.

All spheres of government must promote public transport and the efficient flow of inter-provincial transport and cross-border road transport.

Land transport planning and provision must pay greater attention to promoting the safe and efficient use of non-motorised transport modes such as walking and cycling.

3.4.2 Transport Planning

The basis of the new policy is a change from a supply-driven to a demand-driven land transport system. For this reason, transport planning integrating all three spheres of government, as provided for in the National Land Transport Transition Act (NLTTA), must be the lever for change from a supply to a demand or needs-driven transport system, formulated in terms of these transport plans.

More specifically, transport plans must be developed so as to:

- a) Enhance the effective functioning of cities, towns and rural areas through the integrated planning of transport infrastructure and facilities, transport operations (including freight movement), bulk services and public transport services. This should be done within the context of integrated development plans and the land development objectives set in terms of the Development Facilitation Act, or, where applicable, land development objectives of that nature set in terms of relevant provincial laws;
- b) Direct employment opportunities and activities, mixed land uses and high-density residential development into high-utilisation public transport corridors, interconnected through development nodes within the corridors;
- c) Discourage urban sprawl which tends to undermine effective public transport services;
- d) Give priority to infilling and densification along public transport corridors;
- e) Give higher priority to public transport than private transport by ensuring that adequate public transport services are provided and by applying Travel Demand Management (TDM) measures to promote more efficient use of private transport;
- f) Enhance access to public transport services and facilities, and enhance transport functionality in the case of persons with disabilities.

Transport plans must also give guidance with respect to routes for the transport of hazardous goods.

Local transport plans will address the integration of rail services within the overall transport system and these plans will inform the national-level institutions responsible for rail service provision. As such there will be close co-operation and information sharing between the local planning authorities and the authorities responsible for rail services.

3.4.3 Roads

A revised and prioritised strategic countrywide road network will be identified and appropriate institutions in the national, provincial and municipal spheres of government will manage it.

This countrywide road network will be needs based, and it must support development priorities. The network may include some toll roads where they are financially viable and where they can contribute substantially to the funding of sections of the network.

3.4.4 Freight Transport

A more balanced sharing of freight transport between road, rail and pipeline modes will be promoted and will be based on economic and efficiency grounds that incorporate the total costs of each mode to the economy.

Government will strive to ensure enhanced quality and safety in the road and rail freight environment, and increased participation by previously disadvantaged freight operators will be encouraged.

3.4.5 Transport and the Environment

Land transport must be so designed as to have the least harmful impact on the environment. Air pollution from vehicle exhaust emissions and visual pollution by means of outdoor advertising will receive particular attention.

3.4.6 Transport and Tourism

Land transport planning, infrastructure and operations must take cognisance of, and be supportive of, tourism strategies in the interests of development.

3.4.7 Key Performance Indicators

Separate key performance indicators (KPIs) will be published for policy implementation (initially relating to public transport, land transport safety and rural accessibility) and the implementation of the National Land Transport Strategic Framework (NLTSF).

3.5 Limpopo Province Land Transport Framework (Limpopo In Motion)

3.5.1 Transportation Vision Statement for the Limpopo Province

The transportation vision is a safe, affordable, accessible, effective, efficient, and sustainable integrated transport system that meets the needs of stakeholders and customers.

3.5.2 Transportation Mission Statement for the Limpopo Province

The transportation mission is to develop, co-ordinate, implement, and manage an integrated, multi-modal transport system by:

- (a) Effectively and optimally utilising and developing available resources
- (b) Encouraging and providing a safe transport environment for all users
- (c) Planning and facilitating transport infrastructure provisioning and operations
- (d) Being transparent, accountable, and responsible

3.5.3 Transportation Goals for the Limpopo Province

The transportation goals for the Province are:

- (a) To develop, co-ordinate, implement, and manage an integrated, multi-modal transport system
- (b) To support the process of democratisation, and reconstruction and development.
- (c) To act as a catalyst for social upliftment and economic growth
- (d) To ensure that the system is balanced, equitable, and non-discriminatory
- (e) To ensure that the system is reliable, effective, efficient, safe, accessible, affordable, and environmentally friendly

3.5.4 Objectives for Transportation in the Limpopo Province

The relevant transportation objectives are:

- (a) To monitor the need in the Province, identify issues and set priorities for transport within the framework of social and economic reconstruction and development objectives in the Province.
- (b) To regulate and control the transport system to ensure that its full potential can be achieved

3.5.5 Policy Principals for Transportation in the Limpopo Province

- (a) Social needs and Priorities – emphasis should be placed on the social needs of the disadvantaged communities, especially those in rural and other under-developed areas.
- (b) Role of Government and the private sector – The limited ownership profile of the transport providers requires restructuring in order to broaden and democratise the current dispensation. There is need to ensure wider participation by the disadvantaged communities in the provision and maintenance of the transport system.
- (c) Economic – the transport sector should be aimed at increased employment of the workforce.
- (d) Financial Framework – the extent of subsidisation for public transportation and funding for infrastructure, and the priority and funding balance between them.
- (e) Financial Framework – the affordability problem for both the passengers in terms of fare levels and for the Government in terms of the budget requirements
- (f) Land Transport service provision – Subsidised services or any transport service for which public transport permits are required, should only be within the framework of an approved transport plan.

3.5.6 Limpopo Province Integrated Rural Development Framework

One of the mechanisms to achieve sustainable model integration is to ensure that the provision of public transport is business driven and based on sound business principles. Rural areas are defined as the sparsely populated areas in which people farm or depend on natural resources, including the villages and small towns that are dispersed through these areas. They include the large settlements in the former homelands created by Apartheid removals, which depend for their survival on migratory labour system and remittances. They are characterised by high level of poverty and economic underdevelopment. These areas should serve as the immediate focus of rural development.

The Poverty Report (1998) reveals that in the Limpopo Province, almost 18-percent of the people live in rural areas and live below the poverty line.

Access to quality employment is a paramount aspect towards sustainable livelihoods and thereby reducing poverty and inequality. The lack of access to physical infrastructure such as electricity, clean water, proper roads and housing are closely linked to poverty.

(a) Strategies Based on Policy

1. Provide effective financial and economic support to public transport
2. Promote the most cost-effective mode of transport
3. Implement measures to promote shorter travelling distances
4. Focus on prioritised economic activity nodes and transport nodes in the Transport plans.
5. Identify minimum service levels of the public transport services serving economic activity nodes.
6. Develop a holistic and integrated funding strategy focusing on maximising the transport budget from the Provincial allocation, and by achieving efficiency gains through better utilisation of available funds
7. Explore the possibility of additional funding sources

(b) Projects Based on the Strategy

1. Develop PTP, RATPLAN, PTP, and ITP
2. Feasibility Study for Seshego – Polokwane Rail Commuter System
3. Feasibility Study for rail system along the Dilokong Corridor
4. Determine the routes where taxis play a more prominent role
5. Implement the recommendations of the Public Transport Plan (PTP), Operating License Strategy, Rationalisation Plan, and the ITP
6. Determine transport needs of learners, elderly, and disabled
7. Investigate incentives for improved levels of efficiency and effectiveness of public transport services
8. Investigate alternative funding options – the role of Public Private Partnerships (PPP)
9. Develop Key Performance Indicators to measure the performance of service providers

3.6 Municipal Structures Act (117/1998) - Powers and Functions of Municipalities

3.6.1 Chapter 5 Section 83 – General

A District Municipality must seek to achieve the integrated, sustainable and equitable social and economic development of its area as a whole by—

- (a) Ensuring integrated development planning for the District as a whole;
- (b) Promoting bulk infrastructure development and services for the District as a whole;
- (c) Building the capacity of Local Municipalities in its area to perform their functions and exercise their powers where such capacity is lacking; and
- (d) Promoting the equitable distribution of resources between the Local Municipalities in its area to ensure appropriate levels of municipal services within the area.

3.6.2 Chapter 5 Section 84 - Division of Functions and Powers Between District and Local Municipalities

A District Municipality has the following functions and powers:

- (a) Integrated development planning for the District Municipality as a whole including a framework for Integrated Development Plans for the Local Municipalities within the area of the District Municipality taking into account the Integrated Development Plans of those Local Municipalities.
- (b) Bulk supply of water that affects a significant proportion of Municipalities in the District.
- (c) Bulk supply of electricity that affects a significant proportion of Municipalities in the District.
- (d) Bulk sewage purification works and main sewage disposal that affects a significant proportion of Municipalities in the District.
- (e) Solid waste disposal sites serving the area of the District Municipality as a whole.
- (f) Municipal roads, which form an integral part of a road transport system for the area of the District Municipality as a whole.
- (g) Regulation of passenger transport services.
- (h) Municipal airports serving the area of the District Municipality as a whole.
- (i) Municipal health services serving the area of the District Municipality as a whole.
- (j) Fire fighting services serving the area of the District Municipality as a whole.
- (k) The establishment, conduct and control of fresh produce markets and abattoirs serving the area of the District Municipality as a whole.
- (l) The establishment conducts and control of cemeteries and crematoria serving the District as a whole.
- (m) Promotion of local tourism for the area of the District Municipality.
- (n) Municipal public works relating to any of the above functions or any other functions assigned to the District Municipality.

- (o) The receipt, allocation and if applicable the distribution of grants made to the District Municipality.
 - (p) The imposition and collection of tax levies and duties as related to the above functions or as may be assigned to the District Municipality in terms of National legislation.
-

3.7 Sekhukhune IDP 2004/2005 Review

3.7.1 Vision of the SDM

A custodian of integrated sustainable service delivery in partnership with Local Municipalities and communities.

3.7.2 Mission of the SDM

The mission of the SDM is, to provide creative development solutions through:

- (a) A co-ordinated framework for District Developmental planning
- (b) Fostering active community involvement
- (c) Creating a learning organisation conducive for development of human capital
- (d) Enhancing sound inter-governmental relations through good governance
- (e) Equitable distribution of resources

Under the strategic plan for transport and related projects only road infrastructure is addressed. There are no plans and projects for the public transportation system, except for the upgrading of roads. The 2004/2005 IDP Review Process is not aligned with the recommendations of the current transport plans.

3.8 Strategic Thrusts

The SDM will focus its efforts and resources on the following strategic components of Transportation:

3.8.1 Capacity and Skills Development

- a) Training of officials in integrated Transportation Planning and Land Use Planning
- b) Recruitment of Transport Planners and Engineers
- c) Procurement of consulting engineering services for consistent and continuous advice and random projects

3.8.2 Address Service Backlog

- a) Motivate subsidised public transport coverage in the SDM with the objective of reducing the cost of travel
- b) Install public transport infrastructure such as shelters, lay-bys, and inter-modal facilities
- c) Upgrade road infrastructure and streets between residential and business nodes

3.8.3 Travel Demand Management (TDM)

- a) Manage congestion through TDM measures such as signalisation, bus lanes, reversible lanes in urban areas, and upgrading intersections, etc.
- b) Develop non-motorised transport plan and implement projects

3.8.4 Road Safety

- a) Develop a Central Communications Centre for Incident Management
 - b) Road Safety audits
 - c) Addressing hazardous locations
 - d) Motivate law enforcement at strategic locations
 - e) Education and communication campaigns
-

3.9 Adoption of Policy

In addition to the Provincial Land Transport Framework in the form “Limpopo in Motion”, the policy framework compiled in this chapter provides particular guidance for the provision of an Integrated Transport Plan (ITP).

The SDM Transport Forum, Limpopo Department of Transport, and Mpumalanga Department of Transport are the key stakeholders for the endorsement of the policy framework for the Integrated Transport Plan (ITP).

4 LAND TRANSPORT STATUS QUO

4.1 Status Quo of Public Transport in the SDM

This section of the ITP contains a brief description of the Transportation System in the SDM. The information was obtained from the CPTR data collected in 2003 and other planning documents from the Provincial Department Transport.

The assessment of the CPTR data realised there was no data on the bus services in the SDM. A secondary source (Siyazi) provided bus data for the Greater Tubatse LM, including bus services contracted by the mines. The project team obtained data directly from GNT for SDM, and SUMS data from the Mpumalanga Department of Transport. There is no detailed operational data for non-subsidised services in the SDM, except for the GNT bus data in the Tubatse Local Municipality.

The SUMS database confirmed some of the information obtained from GNT, such as routes and the subsidy claimed per month. The SUMS information is deemed more reliable since an independent auditor audits the payment certificate.

The verified taxi routes in Provincial Gazette 980, 8 April 2004 do not correspond with all the routes identified in the CPTR. In general, the CPTR data was of little assistance in preparing the Rationalisation Plan for SDM because it had no data on the bus services in the SDM. Nevertheless, there are several other constraints in the database, which are:

1. There is no CPTR database, except for the CPTR report
2. There is no data on special needs passengers
3. There are no GIS co-ordinates for the road network and public transport facilities
4. There is no data on in-vehicle waiting time and queues, walking time, transfers, and en-route number of passengers boarding and alighting to determine the real demand and reliability of the service
5. The road pavement condition is not adequately described

4.1.1 Taxi Operations in the SDM

Within the Sekhukhune District Municipality, there are several factors determining the nature, the distance, and utilisation of routes and operational methods of the taxi industry. Among other factors is the location of towns and villages, dominant economic activities in the area and employment status within Sekhukhune District Municipality. As a result of these factors, operation of the taxi industry in certain areas and the type of service provided are irregular – i.e. use is sometimes made on certain routes as a result of demand and the pavement conditions of the road.

On the basis of the survey conducted, 115 taxi routes were identified in Sekhukhune District Municipality.

The average utilisation for the taxi mode in the SDM is about 10 passengers per trip that is, 22600 passengers, and 26665 available seats.

Information on operational vehicles is based on the data gathered on the day of survey and thus might be excluding taxi operators not operating on that day. There are approximately 1900 taxi vehicles in the SDM. There is no data to ascertain the legal and illegal vehicles.

The secondary source, Siyazi Limpopo (Pty) Ltd also provided comprehensive data for the Greater Tubatse Local Municipality (GTLM).

(a) Facilities in GTLM

There is a lack of public transport facilities, as more than 85% of the taxi facilities are informal. The following figures illustrate the state of the ranks in the GTLM area:

- 28,6 % of taxi facilities are on-street facilities
- 85,7 % of taxi facilities are informal facilities
- 8,6 % of taxi facilities have lighting
- 17,6 % of taxi facilities are paved
- 2,9 % of taxi facilities have public telephones
- 14,3 % of taxi facilities have offices
- 11,4% of taxi facilities have shelters
- 14,3% of taxi facilities has ablution facilities.

(b) Capacity utilisation of ranks and termini in GTLM

The capacity utilisation of many of the informal ranks could not be measured, as there was either no capacity or no provision of facilities such as shelters, paving and amenities. Disorderly operations at informal or poorly planned ranks sometimes give rise to conflict among operators.

(c) Routes in GTLM

The findings of the taxi route surveys that were conducted show that there were 71 taxi routes in the GTLM but the outward-bound and inward-bound routes were separately described.

It is important to note that there are currently no subsidised services in the GTLM area. Great North Transport is the only bus operator that provides a commuter service, and has a total of 16 routes in the Greater Tubatse Municipal area.

No commuter train service is provided in Greater Tubatse Municipality.

(d) Waiting times in GTLM

The summarised information on the waiting times and the number of passengers and vehicles left in the queues when the sample vehicle left, clearly indicates that there is a general over-supply of taxi services. The results also show that in general, the average waiting time for a long-distance taxi is approximately twice the average waiting time for a taxi operating on a local route.

No waiting-time survey was done for the bus services, as they run according to a fixed timetable.

4.1.2 Bus Operations in the SDM

The dominant travel pattern of passengers is home to work in the morning and return in the evening. On most routes the demand peaks during the morning forward trip and evening return trip.

Currently, the GNT bus service in the Greater Marble Hall and Greater Groblersdal LM are provided through interim contracts, and the GNT bus service in the Greater Tubatse LM is not subsidised. Historically, there was no commuter demand in the Tubatse LM. The Mpumalanga Department of Transport is the custodian for bus subsidies in the SDM. The current interim contracts expired and are renewed on a monthly basis until the new contracts are prepared. The Mpumalanga Department of Transport is currently preparing negotiated contracts.

There are also a number of non-subsidised operators, which either operates independently or on contracts with the local mines.

The current bus operation may be described as the conventional fixed route, fixed schedule system. It is evident that commuter travel is the main travel pattern in the SDM for the subsidised bus service. There are some very long routes (from 40km to 120km), and intuitively the journey time is in excess of two hours. Some buses depart as early as 3:40am. These factors question the standard of living for many people commuting long distance, and motivate the correlation between Rural Development and Target Subsidies, in the short term.

There is also speculation that a high demand for weekend travel exists. Most people in the rural areas tend to do business in the towns on Saturdays only. It is highly likely that weekend demand may even supersede the weekday peak period for some routes. The bus schedules indicate morning and afternoon commuter trips on Saturdays, for some routes. The need for additional service on weekends is assessed.

The road conditions are generally very poor, especially in the rural areas. Such road conditions are a significant factor on the operating life of the rolling stock, operating costs, and level of service to the passenger.

4.1.3 Commuter Rail Operations in the SDM

Currently, there are no other existing commuters rails services in the SDM.

4.1.4 Metered Taxis in the SDM

There is no data in the CPTR. Hence, information on metered taxis should be reported in the next CPTR effort.

4.2 Major Public Transport Facilities in SDM

Table 4.1 indicates the major public transport facilities in the SDM:

Table 4.1 – Major Public Transport Facilities in SDM

Facility Name	Status - Formal/Informal
1. Jane Furse Taxi Rank	Formal
2. Groblersdal Taxi Rank	Formal
3. Marble Hall Taxi Rank	Formal
4. Burgersfort (Eastern Leolo) Taxi Rank	Informal
5. Wayside Taxi Rank	Informal
6. Jane Furse Plaza Taxi Rank	Formal
7. Maroni Taxi Rank	Formal
8. Tsimanyani Taxi Rank	Informal
9. Vleeschboom Taxi Rank	Formal
10. Leeukop Taxi Rank	Formal
11. Leborogong Taxi Rank	Informal
12. Praktiseer Taxi Rank	Informal
13. Steelpoort Total Garage Taxi Rank	Informal
14. Ngwaabe Taxi Rank	Informal
15 Burgersfort Bus Rank	Formal

4.3 RATPLAN - Subsidies and Contracts

From the analysis of the bus operations data, the following is recommended:

1. There is need for improved communication and liaison, and coordination between the Mpumalanga and Limpopo Departments of Transport in the preparation of the subsidised contracts
2. In the short term, there is need for at least an interim contract in the Tubatse LM.
3. In the medium term, there is need for tendered contracts in the SDM.
4. For the interim contracts, in addition to subsidies for weekly and monthly tickets, cash fares should also be subsidised, as an incentive to increase patronage
5. The current interim contracts should include a subsidy for learners, students, and the elderly (Discounted fares should be categorised for learners, students, and the elderly)
6. Only bus journeys exceeding 10km should qualify for a subsidy
7. The option of increasing fares may be considered, as it is a mechanism to raise revenue and subsequently reduce subsidies. To the contrary, the service to the passenger should not be compromised considering the socio-economic circumstances of the passengers.
8. In addition to the new peak services proposed, there is need for midday services on higher density routes.
9. There is need to reduce journey time for most trips. The operator must provide a mechanism for prepayment of fares, and modify the doors on-board the bus fleet to expedite the boarding and alighting of passengers.

Also, to ensure effective and efficient service, the bus contracts must be monitored and audited regularly. For example, buses older than 15 years are not allowed to operate on tendered contracts. Hence, the following recommendations should be addressed in the next round of tendered contracts, and are consistent with the

recommendations from the NDOT Study – Report on the Optimisation of Subsidies, October 2002.

1. Tendered contracts should be drafted with flexibility over the duration of the contract. Such flexibility should allow for the rationalisation and restructuring of routes and services. Such flexibility could create uncertainty and risk for the operator and as a result increase tender price. Therefore, the client should have a defined plan for the restructuring of the public transport through this Rationalisation Plan, and should incorporate the recommendations into the tendered contract.
2. The budget must include escalation, contingencies, variations, and complimentary services
3. The longer the contract duration, the lower the risk of short-term macro-economic fluctuations has an impact on service delivery. This implies that the risk of the variability of external factors (e.g. exchange rates, fuel price) to the operator should, in theory, reduce in the longer period for which the contract is awarded.
4. Contracts should be at least 7 years
5. The contract must specify the minimum level of service conditions
6. Contracts should be performance based. Thus, the operator should be required to embark on an aggressive marketing exercise and apply innovative business practices to increase patronage. For example, revenue may be generated from advertising space on buses. Subsidy incentives should be provided for increased patronage, increasing operating speed and decreasing journey time, etc.
7. Current interim and negotiated contracts should be converted to tendered contracts and all contracts should be based on the net cost model, where the sensitivity of fares and subsidies are tested.
8. There must incentives to tender with smaller capacity vehicles (such as taxi co-operatives) to provide feeder services and midday services
9. Contracts must make provision for complimentary services, for example, elderly people travel free of charge
10. Make provision for automated fare collection, passenger information service (provision of routes maps, time tables, etc.)
11. Contracts must include measures for accessible transport for persons with special needs.
12. Internally, the Provincial Department of Transport must employ staff to monitor and audit effectiveness and efficiency of the bus contracts.
13. The budget must include escalation, contingencies, variations, and complimentary services
14. The longer the contract duration, the lower the risk of short-term macro-economic fluctuations has an impact on service delivery. This implies that the risk of the variability of external factors (e.g. exchange rates, fuel price) to the operator should, in theory, reduce in the longer period for which the contract is awarded.
15. Contracts should be at least 7 years
16. The contract must specify the minimum level of service conditions
17. Contracts should be performance based. Thus, the operator should be required to embark on an aggressive marketing exercise and apply innovative business practices to increase patronage. For example, revenue may be generated from advertising space on buses. Subsidy incentives should be provided for increased patronage, increasing operating speed and decreasing journey time, etc.

18. Current interim and negotiated contracts should be converted to tendered contracts and all contracts should be based on the net cost model, where the sensitivity of fares and subsidies are tested.
19. There must incentives to tender with smaller capacity vehicles (such as taxi co-operatives) to provide feeder services and midday services
20. Contracts must make provision for complimentary services, for example, elderly people travel free of charge
21. Make provision for automated fare collection, passenger information service (provision of routes maps, time tables, etc.)
22. Contracts must include measures for accessible transport for persons with special needs.
23. Internally, the Provincial Department of Transport must employ staff to monitor and audit effectiveness and efficiency of the bus contracts.

Currently, GNT is the prominent bus operator in the SDM, and operates an interim contract in the Greater Groblersdal and Greater Marble Hall LM. There is little opportunity for other operators in the SDM, and the negotiated contract must consider opportunities for emerging bus operators in the SDM.

The GNT Bus Service is currently in the process of restructuring. Therefore, it is likely that the parastatal could become an agency and its funding ring fenced. As a result, the subsidy implication for the Province could be negated. **Table 4.2** indicates the subsidy implication in the SDM for bus service.

Table 4.2 – Cost of New Bus Services

Local Municipality	No. of Trips/mth Needed	Total km/mth	Current Subsidy/mth (R)	Interim Contract (incl. Learners) (R)	Interim Contract (workers only) (R)	Tendered Contract (R)
Greater Groblersdal & Makhuduthamaga	2315	76 954	152 676	433 000	330 000	923 500
Greater Marble Hall & Makhuduthamaga	870	61 075	66 875	345 400	182 000	733 000
Greater Tubatse & Fetakgomo	7293	176 529	0	1 400 000	1 370 000	2 120 000
Total	10 478	314 558	219 551	2 178 400	1 882 000	3 776 500

4.4 OLS - Results & Recommendations

In general it can be concluded that there is a huge oversupply of taxis and in the interim no new licenses be approved. Steps must be taken to reduce the number of vehicles and licenses.

The following recommendations are made in terms of public transport in the SDM:

1. The Operating Licensing Strategy should be accepted and approved by all the role players and be implemented through a facilitation process
2. The Operating Licensing Strategy should be updated on an annual basis, and the recommended number of operating licenses per route is valid only until April 2006.

3. It is recommended that no further Licenses be issued due to the huge oversupply of taxi services.
4. Where new routes are introduced, the OLB must investigate the capacity and need for that particular route before issuing any new operating licenses, and must also consider transferring operators from oversupplied routes to the new routes.
5. There are several routes without operational data, and it was not possible to recommend the number of operating licenses. The OLB must therefore investigate the capacity and need of those routes when applications are submitted.
6. The CPTR information must be updated in an attempt to address the gaps in the information.
7. The law enforcement strategy should be prioritised to ensure peace and stability in the area.
8. Taxi co-operatives should be developed to benefit the local community and ensure local black economic empowerment, and tendering for subsidised routes.
9. Incorporate the donkey-cart mode in the non-motorised transport plan especially in the deep rural areas, and document standard specifications.
10. Assess the routes applicable for LDVs as public transport vehicles, and the MEC must act on NLTTA section 31.
11. Expedite the installation, training, and operation for the Registration Administration System and the Operating License Administration System.
12. 'Suitcase' permits should be converted to route based permits, and then upgraded to an operating license. The concept of permanent permits must be abolished and operating licenses must be issued for a specific duration of three to five years, consistently with the requirements of the NLLTA.

The Limpopo and Mpumalanga Departments of Transport must expedite the preparation and implementation of the Memorandum of Agreement with the taxi industry.

4.5 Public Transport Plan

4.5.1 Measures To Promote Public Transport

Historically, the provision of Public Transport was to provide the basic minimum. Subsidised bus service was designed to transport commuters from the 'townships' to the towns, in the apartheid regime. Most commuters' are captive to the bus and taxi modes of transportation. Hence, there was no need to market public transport, to improve services, infrastructure, rolling stock, and facilities. Due to the history of socio-economic struggles for most people in the SDM, the level of service was not a priority, but the mere availability of service was important. The same group of people are now accustomed to the basic services and are not aware of a better and improved level of service due to the lack of knowledge.

Gary Lawrence, in *A Forum on the Future of Sprawl*, in *The Amicus Journal*, Fall 1996, page 23 indicates that: If we try to induce people to use transit through guilt, while the automobile industry is saying, 'if you drive this car you're going to get more and better sex,' it's not an equal contest. In transit coaches, there's no place to put groceries, there's no place to hang dry cleaning. Every time you get on a bus the message is: We assume you're going to vandalise this; we assume you are going to be dirty. And

every time you get in the car the message is: We are going to pamper you the way you deserve to be pampered. As long as we have an 'alternative' that's not a real alternative psychologically, then the automobile is going to win. **It's not an issue of mobility. It's an issue of freedom and self-worth**" (emphasis added).

Currently, in the SDM, there is subsidised bus service in the Greater Marble Hall LM, Greater Groblersdal LM, and Makuduthamaga LM. There is no subsidised service in the Greater Tubatse LM. Since the SDM is a cross-border District Municipality, neither the Mpumalanga Province nor the Limpopo Province is assuming complete responsibility for the SDM in terms of the improvements to public transportation. For example, the physical state of the rolling stock is over fifteen years old, while the rolling stock of the neighbouring Capricorn DM received a major overhaul.

In the marketing of public transport in the SDM there is need for the development and implementation of a Passenger Charter, formation of a Transport forum, constant Market Research (Customer Care and Passenger Information), the development of an aesthetic theme for public transport facilities where people identify with and take ownership of public transportation. A major focus in promoting public transport is primarily for road based public transport.

Currently, the Greater Tubatse Transport Forum is established and is active in promoting the public transport system in the GTLM area.

4.5.2 The Needs of Persons with Disabilities

Based on the information obtained from the Sekhukhune District CPTR with specific reference to the GTLM area, the current public transport system does not seem to be user-friendly for disabled persons. The general lack of public transport infrastructure in the area is the main reason for this problem. It may even be stated that there are basically no public transport facilities available for disabled persons in the area.

4.5.3 The Needs of Learners, Students, and Elderly

The current bus subsidies budget makes little provision for learner transport. Subsidised buses serve mainly peak hour commuters and offer limited off-peak services to learners, students, and the elderly. Students and learners are a significant number in the morning peak periods. In the SDM, students, learners, and the elderly do not even qualify for concession fares, and pay the full adult fare. The Department of Transport policy does not allow for the subsidisation of learners, students, and the elderly.

At present there is no official public transport system for learners in the SDM. Most learners travel on foot or by public transport, private transport, and private school buses or privately arranged special transport.

The average household income in the SDM is R2100. The results from the Report on the Optimisation of Subsidies 2002 by the NDOT, reveals the average income spent on transport is 6% (less than the proposed maximum of 10%). However, if one learner per household travels by bus, then the household spending on transport is doubled.

4.5.4 Modal Integration, Infrastructure, and Facilities

In general there is a lack of public transport facilities in the area and the existing public transport facilities are in a poor condition due to the lack of monitoring and maintenance. Bus and taxi are the two main modes of public transport in the SDM.

Intuitively, bus and taxi are in direct competition especially in the peak periods. However, it is perceived that there is a specific market for each mode. There are a few examples of established facilities such as the taxi ranks in Jane Furse, and Burgersfort.

The SDM is geographically well covered by bus and taxi routes, except for Fetakgomo LM, but the pavement conditions of the public transport routes are in a poor condition. (The pavement is deteriorating rapidly due to the recent exponential increase in heavy vehicles from the mines.)

The rolling stock for buses and taxis are old, and in a poor condition. The lack of law enforcement means that a large percentage of public transport operators operate illegally without the required operating licences. There is little or no public transport to the newly established mines, particularly those along the Dilokong corridor.

In the SDM, there is little and uncoordinated effort in the provision of public transportation. For example, the bus service provider is expected to install bus shelters along the route. This is not mandatory for the operator, and is certainly the responsibility of the Local Municipality. As a result, passengers and vehicles have little or no protection from the elements.

There are extensive mining activities in the SDM and especially the GTLM and the need for public transport is significant. Some mines contract operators to specifically transport mine workers. Those operations are not subsidised by Government.

Hence, there is need to address not only the integration of modes but also public transport infrastructure and facilities. The CPTR data indicates the existing facilities and the physical condition, and the availability of utilities at each facility. This planning process also determines the compliance of the existing facilities to the proposed New Taxi Vehicles (according to the CSIR design guideline drafted for the NDOT in August 2001).

4.5.5 Fare System for Public Transport

Currently, the bus operator provides 5-day, 6-day, 22-day and 26-day tickets. The tickets are also zone based from 15km up to 60km. Most passengers are concentrated in an area, and most bus routes are residential to CBD. There is no significant number of passengers en-route. Therefore, the fare structure is relatively simple, which is a flat fare from the residential area to the CBD.

All fare collection is manual, and there is no electronic fare payment system, as it is not mandatory in the interim contracts. (Currently all negotiated and tendered contracts include electronic/automated fare paying systems.) Most passengers buy weekly tickets instead of monthly tickets for fear of loss.

The taxi mode uses a cash only flat fare for each route. The fare system for the taxi industry is inconsistent, because the rate (fare/trip) is based on estimates instead of empirical analyses. As a result the fare is not equitable.

The average household income in the SDM is R2100. The results from the Report on the Optimisation of Subsidies 2002 by the NDOT, reveals the average income spent on transport is 6% (less than the proposed maximum of 10%). However, if one or two learners per household travel by bus, then the real financial burden per household is significant.

4.6 Road Network

This section describes the road hierarchy in the SDM, in terms of National Roads, Provincial Roads, and District Roads, and their significance with respect to access and mobility for Public Transport, Freight, and Tourism.

Traditionally road projects were prioritised according to traffic volumes and pavement conditions. The new criteria for prioritisation of road projects include traffic volumes, pavement conditions, public transport, passenger volumes, tourism, and freight.

The following administrative classifications exists:

- National Roads
 - Provincial Roads
 - District Municipality Roads
 - Local Municipality Roads
-

4.7 National Roads

The National Roads Agency is the custodian for the National Road Network. Currently there are no National Roads declared in the jurisdiction of the SDM. However, several strategic roads are to be handed over from the Road Agency Limpopo to the National Roads Agency (NRA). The map is in **Appendix B**.

Specifically in the SDM, the R37 from Burgersfort to Atok (through to Polokwane) is planned to be transferred to the NRA. There are several other roads under the authority of the Road Agency Limpopo that are in the process of being transferred to the National Roads Agency Limited. The roads considered for transfer are in **Table 4.3**.

The section of road R37 through Burgersfort and also the section south of Burgersfort in the direction of Lydenburg currently fall under the jurisdiction of the Mpumalanga Department of Works. Road R555 belongs to the Mpumalanga Department of Transport Roads and Public Works, but also has National importance.

Table 4.3 – Roads to be transferred to SANRAL

Phase	Prov. Road No.	Approx. Length (Km)	Route Description	Transfer of Property
1	R37	160	R37 from Burgersfort at Mpumalanga border up to Polokwane	Sept. 2004
	N11	276	From Mpumalanga border near Marble Hall up to Martin's Drift at RSA / Botswana border	April 2006
	R33	88	R33 from Nylstroom up to the N11	Oct. 2006
2	R36	120	R36 from Orighstad up to Tzaneen	Oct. 2006
	R518	75	R518 from Potgietersrus up to the R37 at Lebowakgomo	Jan. 2007

The National Roads Agency planned projects over the next five years (2004 to 2009) in the SDM and is in **Table 4.4**. (These projects are not necessarily approved for implementation yet.)

Table 4.4 – NRA Proposed Projects

DM	Project Number	Route Description	Project Description	Estimated Budget (2004 – 2009)
SDM & CDM	R.037-010-2003/1	Burgersfort to Polokwane	Routine Maintenance	R24 240 000
SDM & CDM	R.037-010-2005/1	Lebowakgomo North to Lebowa Mine (Atok)	Road Widening – add shoulders	R87 000 000
SDM	R.037-020-2006/1	Lebowa Mine (Atok) to Modikwa Mine	Road Widening – add shoulders	R60 000 000
SDM	R.037-020-2005/1	Modikwa Mine to Burgersfort	Road Widening – add shoulders	R41 000 000
SDM, WDM, CDM	X.002-110-2004/1	Mpumalanaga to Groblersbrug(N11)	Routine Maintenance	R61 500 000

4.7.1 Toll Roads

According to the National Roads Agency Limited, there are no new toll roads planned for the Limpopo Province yet.

4.8 Provincial Roads

The Provincial and District road network is currently the responsibility of the Roads Agency Limpopo (RAL) and the Department of Public Works (Limpopo and Mpumalanga). The RAL utilise the Road Management System (RMS) as a tool for assisting with road network management.

There are several Provincial Roads in the SDM. According to the PLTF, the current RAL strategies are identified according to the Provincial Growth and Development Strategy (PGDS). The PGDS of the Limpopo Province is primarily focussed on the development needs and in particular the development corridors and economic development centres that have been identified and that are of economic importance to the province.

The assessment of roads, traffic counts and inspections of bridges are conducted and fed into the system. The RMS then reflects the road network conditions and predicts deterioration patterns. The system assists in prioritising road maintenance and rehabilitation projects.

In addition to the above roads, the local access roads are gravel and predominantly utilised by buses and taxis. The condition of these roads is below standard. They require upgrading and improved storm water management.

The RAL is in the process of demarcating roads for the SDM. There is a map with the demarcated routes, but the route description is not yet complete, and the formal transfer of authority is not yet enacted. As a result, there is no Roads Master Plan for

the SDM yet. The current practice for prioritising road projects are based on community requests and action by the Ward Councillors.

According to the IDP 2004/2005 Review, the Department of Public Works invested R20m for the upgrade of the Tompi-Seleka Road, between Flag Boshielo and the Eco-Tourism area. This route is significant for tourism traffic.

The Spatial Development Initiative (SDI) roads support corridor development initiatives and these roads would link up with other provincial roads and also ultimately lead to the border posts and the Maputo corridor. There are four sub-corridors in the province:

- Dilokong Sub-corridor
- Phalaborwa Sub-corridor
- Trans-Limpopo Sub-corridor
- East-West Sub-corridor.

The Dilokong Corridor and the Phalaborwa Corridor traverses through the SDM.

4.8.1 Dikolong Sub-corridor

There are three important roads along this corridor in a number of directions mainly within the Sekhukune district area:

- Polokwane to Burgersfort (P33/1 and P33/2), via Mafefe.
- Flag Boshielo Dam through Lebowakgomo and Mafefe, linking the Sekhukune district with the Phalaborwa and Kruger National Park areas.
- Chueniespoort via Boyne to Mankweng.

4.8.2 Phalaborwa Sub-corridor

The Phalaborwa corridor connects Mpumalanga (Hazyview) with Phalaborwa and Tzaneen via smaller towns to the west of the Kruger National Park. The following road sections form part of the corridor. There are two core routes:

- Route sections P17/3-5, D726, P112/1-3, P43/2, D1308 and P54/1
- Road section P146/1 from Klaserie to Blyde River, P116/1 from Hoedspruit to Ohrigstad via the Strijdom Tunnel, and P181/1 from the Oaks to Burgersfort.

4.9 Major Freight and Private Mode Corridors

Two provincial governments, namely Mpumalanga and Limpopo, are currently responsible for the roads in the SDM. The provincial roads in Limpopo are managed through the Roads Agency Limpopo, whereas the roads in Mpumalanga are managed by the Mpumalanga Department of Works, which is part of the Mpumalanga Department of Transport Roads and Public Works.

Three major roads, the R555, R37 and R36 traverse the area. Major towns such as Steelpoort, Burgersfort and Ohrigstad, and smaller towns such as Mooihoek and Bothashoek are located along these routes.

The highest concentration of private transport is currently in Burgersfort and also on Roads R37 and R555. Burgersfort is the main economic centre in the GTLM area, and the R37 and R555 are feeder routes to villages and mines. Road R36 to Ohrigstad and Road R37 to Lydenburg mostly cater for tourists as well as daily private vehicle trips. Traffic congestion in Burgersfort is significant and requires urgent attention.

The highest percentage of freight movement is restricted to the major corridor routes that serve the respective mines as well as the main economic nodes in the GTLM area, namely R37, R555 and R36. It should, however, be kept in mind that as a result of the expansion of specifically the residential areas of Burgersfort and Steelpoort, a large number of construction vehicles would enter the GTLM in future.

Though there are no specific figures on freight volumes at present, it is essential to protect the road infrastructure against overloading. Consequently the necessary law enforcement should be conducted.

Siyazi Limpopo (Pty) Ltd surveyed the traffic patterns in the Greater Tubatse Local Municipal Area as part of determining the status quo. The status quo report distinguished between light vehicles, heavy vehicles, buses and taxis. A restricted cordon survey was also conducted as part of the status quo determination to establish the following specific characteristics of Burgersfort:

- Distribution of modes
- Average number of persons per mode
- Percentage of vehicles using Burgersfort as a destination or origin
- Percentage of vehicles passing through Burgersfort
- The main trip purposes of road users at Burgersfort.

"Volume 1, Status quo: Greater Tubatse Local Municipality Status Quo input as part of the Sekhukhune District Municipality Current Public Transport Records, September 2003" contains more detailed information about the traffic counts and cordon survey as well as the existing institutional arrangements.

The results and recommendation of a new street layout for Burgersfort is in **Appendix C**.

The general description of most roads in the SDM is poor state of repair. The rural roads are poorly designed and not maintained with specific attention to storm water drainage.

4.9.1 Heavy Vehicle Overload Control

The Limpopo Department of Transport together with the National Roads Agency and CSIR is engaged with a National Strategy for Traffic Control Centres with specific emphasis on heavy vehicle overload control.

There are several new overload control centres planned for the Limpopo Province at Polokwane, Mokopane, along the R37, N11, and Beit Bridge – Zimbabwe Border Post. The progress of these plans will be confirmed in the National Strategy.

Current strategies that are actively being pursued focus mainly on overloading control and traffic regulation. Overloading control is mainly done through weighing bridges that are located at strategic positions along the main transport corridors.

The following weighing bridges are available in the Limpopo Province:

- Mantsole Traffic Control Centre
- Roedtan Traffic Control Centre
- Tzaneen/ Mooketsi Traffic Control Centre
- Messina Traffic Control Centre
- Groblersbrug Traffic Control Centre
- Vivo Traffic Control Centre
- Polokwane Traffic Control Centre
- Louis Trichardt Traffic Control Centre
- Northern Traffic Control Centre
- Baltimore Traffic Control Centre

Overloading issues in the Limpopo Province are mainly focused at the general trend that road freight operators, particularly those that travel on the international export routes towards neighbouring countries, exceed the allowed maximum load mass on the vehicles with major damaging effects on the roads and contributes to serious road safety problems.

Further, when law enforcement is active on the main corridors, operators deviate onto District and Local roads, which cause exponential damage to local roads, which were not designed for such loads.

4.10 Major Public Transport Corridors in SDM

The major roads that traverse the Greater Tubatse LM area include the R555, R37 and R36. Located along these major roads are the urban areas of the GTLM, namely Steelpoort, Burgersfort and Ohrigstad, as well as some smaller areas including Mooihoek and Bothashoek. All these areas, except for Ohrigstad, are grouped together near the intersection of the R555 and R37, which is roughly centrally located in the region. Ohrigstad is small urban area, predominantly a service centre, which is located on the eastern edge of the local municipal area. It is mostly affected by the R36 and traffic moving through the area from Lydenburg in the south to places such as Hoedspruit, Blyde River or Phalaborwa in the north.

Road R37 forms part of the Dilokong corridor that is defined as an area stretching from Polokwane in the north to Burgersfort in the south with Road R37 forming the spine of the corridor. There are numerous rural villages and a number of platinum and chrome mines along Road R37. This situation implies a high number of public transport vehicles travelling in the area. A greater number of vehicle trips are expected as a result of increased mining activities. Road R37 is of national, provincial and local importance.

Also the significant public transport corridors in the Greater Groblersdal LM are from Monsterlus to Groblersdal and Tsimanyane to Groblersdal. The significant public transport corridor in the Greater Marble Hall LM is from Leeufontein to Marble Hall.

4.11 Tourism Routes

Tourism is a potential economic factor but there is no strategic plan to proceed with projects. The SDM Planning and Economic Department is currently preparing a Tourism Plan for SDM.

4.12 Waste Management and Transportation

Waste removal is still provided only in economic centres like Marble Hall, Groblersdal, and Burgersfort. Fetakgomo and Makhuduthamaga do not have any form of refuse removal. The transportation of waste is in question, and is under investigation in the preparation of the SDM Waste Management Plan.

4.13 District Roads

The Roads Agency Limpopo is the custodian of all Provincial Roads in the Limpopo Province. The Department of Public Works also carries out maintenance. The Local Municipality identifies road maintenance and upgrade projects at random in consultation with the communities and Ward Councillors.

The Road Agency Limpopo is currently in the process of transferring roads to the District Municipality. Therefore, the District Municipality does not have a Road Master Plan yet, road classification system, and prioritised road projects yet.

4.14 Local roads

The Local Municipality is responsible for the maintenance of all the internal roads in the residential areas and villages. These internal roads do not have specific road numbers, and must be addressed in the Road Master Plan for the District Municipality.

4.15 Through Traffic & Congestion

Private mode and heavy vehicles travel through towns and contribute to the congestion on local streets. Further, the heavy vehicles impact the local street network pavement. Thus, the following will be considered in the ITP:

- Traffic Impact Study – allow for loading zones in the local street network
- Travel Demand Management – No heavy vehicles through town during peak periods
- Travel Demand Management – plan a by-pass street or corridor for heavy vehicles and transportation of hazardous materials.

4.16 Traffic Counts

Traffic count data is only available for National Roads and a few Provincial Roads. There is no available traffic count data for District Roads. As a result, traffic growth is not determined in this study.

4.17 Pavement Condition of Roads

The surface standard of the roads in the Limpopo Province are contained in the Road Management System of the Roads Agency Limpopo. There is no detailed pavement condition available to determine the life of the road, and to prepare a strategic plan for maintenance and upgrading.

4.18 Road Safety

International research indicates that road traffic accidents are going to be a leading cause of mortality and disability in the future. Global Road Safety Partnership projects that by the year 2020, road crashes will be the third leading burden on health worldwide exceeded only by cardiovascular diseases and major depression (1).

The key focus areas to address road safety are:

- Education
- Enforcement
- Engineering & Data Capturing
- Emergency Services

There is currently no provincial or local strategy for the transport of hazardous substances. Currently, the District Municipality does not implement road safety programs and projects. Road Safety is a competency of the Provincial Department of Transport. The DoT is active with the Arrive Alive Campaign that is emphasised during the festive seasons and school holidays. There is need for continuous focus on road safety. For example, in eThekweni, the accident patterns over the years indicate March, September and October as highest accident months. Thus, data collection is also significant in scheduling of resources to address road safety (1).

There is need for the District Municipality to address road safety at the Local level especially through education, emergency services, and the application of engineering. It is envisaged that the Disaster Management Centre will in future collate such data and enhance Transport Planning at the District Municipality to address hazardous locations.

5 INTEGRATED LAND USE AND TRANSPORTATION PLANNING

This section of the report contains the strategies and procedures to ensure integrated land-use and transport planning. The main aim is to fulfil the requirements of the NLTTA. The focus is therefore on the following:

- (a) Densification
- (b) Infilling
- (c) Mixed land-use
- (d) Rationalisation of transport and housing strategies

In order to promote the integration of land-use and transport, the strategies are formulated in a fashion that would support the development of existing corridors and nodes.

5.1 Sekhukhune District Municipality Demographics

Table 5.1 indicates the Census 2001 data. There are five Local Municipalities in the SDM:

- Greater Groblersdal
- Greater Marble Hall
- Greater Tubatse
- Fetakgomo
- Makhuduthamaga

Table 5.1 – Population by Local Municipality

Local Municipality	Population	Employed	Unemployed	Physical Disabled
Greater Marble Hall	121 323	15 666	12 731	1159
Greater Groblersdal	220 739	20 166	23 918	3140
Greater Tubatse	270 122	19 189	30 673	2521
Makhuduthamaga	262 921	10 744	32 335	965
Fetakgomo	92 092	4 855	10 455	985
Total	967 197	70 620	110 112	8770

The SDM is a cross border District Municipality with the Limpopo Province and Mpumalanga Province.

The SDM is mostly rural, with 95% of the total population residing in the rural areas, and 5% in the urban areas. Most communities are sparsely populated in low-density villages. The relatively densely populated semi-urban areas are Groblersdal and Marble Hall, Burgersfort, Jane Furse, Orighstad, Steelpoort, and Driekop. There are no Transport Authorities and Metropolitans Municipalities in the SDM.

There is gradual economic development specifically in agriculture, mining, and tourism. Mining is significant in the Greater Tubatse LM. There is speculation that Steelpoort is the one of the fastest growing towns in South Africa due to the mining activities. The

projected growth for all major towns in the SDM is 1.2% annually till 2006 and thereafter 1% annually till 2008. However, the unemployment rate is very high (70% of economically active people) in the SDM.

Car ownership is low and commuters depend on public transportation. Further, mobility of communities is a serious concern. The major public transport services are bus and taxi operations, and are addressed in detail in the RATPLAN and OLS respectively. There are no commuter rail services in the SDM. Improvements to Land Transport are significant to sustain momentum in the current economic growth in the SDM.

The age groups as described in **Table 5.2** indicates that the majority of the people are youth, and the household income described in **Table 5.3** indicates the majority of households have an income of less than R3500 per month.

The data effectively identifies the poor rural circumstances of the SDM, and that most people are dependent on public transportation or non-motorised transportation.

Age Group	No. of persons
0-4	116 031
5-14	281 551
15-34	323 634
34-64	187 535
65+	58 375

Table 5.2 – Population by Age Group

Household Income	No. of Persons
No Income	2429
R1-R400	18683
R401 – R800	11796
R801 – R1600	11954
R1601 – R3200	12660
R3201 – R6400	10089
R6401 – R12 800	2273
R12 801 – R25 600	442
R25 601 – R51 200	144
R51 201 – R102 400	81
R102 401 – R204 800	33
R204 801 +	36

Table 5.3 – Monthly Household Income

5.2 Integrated Development Plan (2004/2005)

The economy of Groblersdal depends much on agriculture, trade and Government services. Although agriculture is the dominant land use activity, only 30% of the land is

under commercial farming, due to scarcity of water. The District invested R25 million in 2004/2005 to revamp the irrigation schemes (IDP 2004/2005).

Agriculture and social services are the main economic contributors in the Marble Hall Local Municipality.

Mining, followed by Social Service (Government) are the most dominant economic contributor in the SDM. The highest level of mining activity is currently within the Tubatse Local Municipality and the Fetakgomo Local Municipality.

Social Services is the most dominant economic contributor in the Makhuduthamaga Local Municipality.

Government employs 16% of the total population of SDM and is thus a major contributor to the SDM economy.

At the moment a land use management plan for the Province has been prepared by the Department of Local Government and Housing in Limpopo, and must still be interpreted for the District and Local Municipality.

The distribution of the infrastructure resources in SDM still reflects heavily on the apartheid past of South Africa. It has three former homelands where the infrastructure services are almost non-existent.

5.2.1 Strategic Priorities

The following were identified as key priorities for the SDM.

1. Development of institutional capacity geared towards efficient delivery of services;
2. Development of an effective and efficient financial management system that ensures financial sustainability;
3. Facilitation of access to land to ensure development
4. Development of a framework for sustainable land use management for the entire District;
5. Maximisation of economic growth and development through developing Local economic opportunities and facilitation community empowerment;
6. Development of integrated infrastructure that support social and economic development;
7. Development of effective communications framework to inform internal and external clients;
8. Fostering of community participation and ownership of municipal programmes;
9. Development of a framework of co-ordinating governance structures and facilitation of sound intergovernmental relations.

Under priority number 6, transport, roads, and storm water are programmed. The District recognises that raising motivation and skills levels is essential to continued improved service delivery. As a result, skills development is top priority.

5.3 Status Quo Development Scenario and Projection

The discussion in this section is derived from the other studies, which are:

- SDM Draft Integrated Spatial Development Framework (2004)
- Limpopo 2020 – Integrated Infrastructure Development Plan (2003)
- SDM Local Economic Development Plan (2003)

One of the spatial-economic characteristics of Sekhukhune District is the scattered pattern of human settlement. The Spatial Rationale for Limpopo concluded that the Limpopo part of Sekhukhune comprised 529 settlements in 2002 with an average population of 1843 persons per settlement. This is below the provincial average of 2307 and well below the numbers required for urban viability. Thus in terms of the hierarchy of settlements, there are several fourth order settlements (village service areas in the SDM).

The following Spatial Development Initiatives (SDIs) were proclaimed in Limpopo to create economic clusters and linkages within a specific geographical area:

- Phalaborwa SDI, containing mining-, agro-industrial and tourism related developments
- Trans-Limpopo SDI focusing on eco-tourism and agriculture
- Dilokong SDI, with primarily mining developments

Figure 5.1 describes the corridors (courtesy of Limpopo 2020 – Integrated Infrastructure Development Plan, July 2003).

The Dilokong Corridor comprises of mining, agro-industrial and tourism related developments.

New platinum mine will be constructed in 2007 in the Mecklenburg area creating more than 2000 jobs, but this will be insufficient to reverse the gradually worsening unemployment situation that will exceed 70% from 2004 onwards.

A major new dam will be constructed by 2009 but its application will be mainly for the mining industry. Institutional capacity and cross-border management problems at the Provincial level, infrastructure and the skills levels of unemployed persons will hamper development progress. The Integrated Sustainable Rural Development Strategy will also remain a frustration

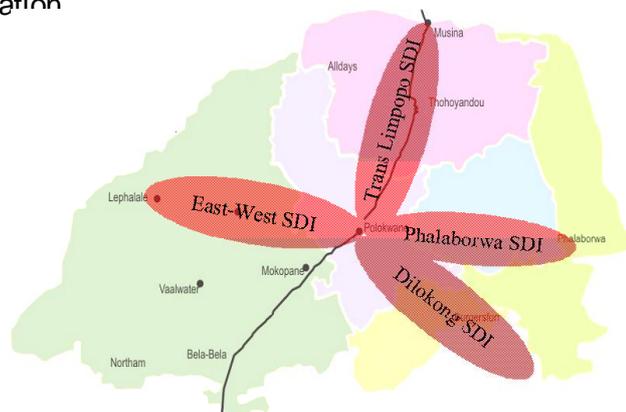


Figure 5.1 – Spatial Development Initiatives in the Limpopo Province

5.4 Economic Development Drivers and Projection

In order to accelerate economic development, specific targets have been set for capital investment, economic growth and job creation for each year from 2004 to 2014, in Limpopo Province. Seven competitive cluster value chains have been selected for priority attention as a basis to achieve the capital investment, sustainable economic growth, job creation, and economic and spatial diversification targets, as well as for the integration of public development interventions. The following four clusters occur in Sekhukhune District:

Mining (platinum) cluster on the Dilokong Corridor

Horticulture, mainly in Groblersdal and Marble Hall and specifically along the Lepelle River

- Red and white meat clusters across the entire District
- Tourism, with specific reference to main routes, family entertainment, the game industry and business travel as sub-clusters

5.4.1 Mining in Sekhukhune District

The major platinum expansion will take place over the next five years. The Platinum mining locations are described in **Figure 5.2**. The four areas where the new platinum mines will be concentrated include:

- The Lebowakgomo District (South)
- Groblersdal – Cluff mining
- Dilokong or Burgersfort / Steelpoort corridor (Joint Development Forum (JDF) who represent Anglo and Impala platinum)

The size and scale of the platinum industry will equal or possibly surpass the operations in Rustenburg in the North West Province, making Limpopo the largest national contributor of platinum. Most of the platinum concentrate from the above-described areas will be transported in the form of platinum concentrate to the Polokwane Smelter. The Greater Tubatse Local Municipality (GTLM) stated that with the exception of the creativity of the people, mining might be the only chance the GTLM could have to establish a self-sustainable basis for generating its own income and opportunities that are not dependent on funds from the Government.

From the above summary of the mining sector and particularly the expansion potential, it is clear that the role of public transport for the transport of mining employees, as well as the development of road and rail infrastructure to support mining activities, would be a very important priority for the future.



Figure 5.2 – Platinum Mines in the Limpopo Province

5.5 Tourist Attractions Along the Proposed Routes

Figure 5.3 is a graphical presentation of the primary tourism zone in the SDM:

Drakensberg Escarpment - Tourism development plan has been completed with the focus on development of the Tzaneen-, Doorndraai-, Ebenezer, and Flag Boshielo dams.



Figure 5.3 – Tourism Zones in the Limpopo Province

High-level project feasibility studies have been completed on several projects, for presentation to investors in order to attract investment in the tourism sector. According to a recent survey (16 municipalities participated), the condition of roads is considered to be the biggest threat to the tourism industry (11). Other public infrastructure requiring maintenance includes parking, signage and public transport.

The Golden Horse Shoe route (R572) has been identified to service the four key tourism zones, integrating the tourism industry within Limpopo. This route functions as a golden thread consolidating an eco-tourism wilderness of some 4 million hectares on the province's western, northern and eastern perimeters. A significant portion of this area already consists of publicly and privately owned game and nature reserves. The Golden horseshoe includes two Trans-Frontier Conservation areas, being firstly the Kruger National Park and neighbouring game reserves in Zimbabwe and Mozambique.

The second involving the development of a 500 000 hectare Peace Park bisected by the Limpopo river and incorporating public and private game reserves west of Messina in Limpopo, and in neighbouring Zimbabwe and Botswana. Limpopo Economic Development Enterprise stated, "The Golden Horseshoe has the real potential to attract at least R7 billion of investment and even to double the size of the Limpopo economy" (11).

5.6 Land Use Development

In general, residential densification in the urban areas should be the ultimate objective of integrated planning. Improving the quality of life, by travelling shorter distances on a daily basis (<40km or one hour), and maintaining the monthly travel cost below 10% of disposal income is dependant on the value to time of the passenger. Nevertheless, it is assumed that the value of time for the economically active passenger is relatively higher.

There is need for each town to identify its new urban boundary, and peripheral residential boundaries with objective of creating density, and minimising commuter journey time and cost.

However, a study by C Venter et.al (38), concludes that considering all costs and benefits associated with low-cost housing location in eight case study areas in Johannesburg and eThekweni, the empirical evidence did not indicate conclusively that more central locations have lower overall costs and higher livelihood benefits than ones located further away from the central city. While not necessarily universal, this finding does suggest that the notion of "well-located land", when used to assess the suitability of specific locations for subsidised housing, needs to be nuance enough to allow for important differences in household preferences and cost structures that are not simply related to the distance from the CBD.

5.7 Main Nodes for Business Activity

Burgersfort is the main focus of commercial activities in the GTLM. It is essential that Burgersfort be one of the focus points for public transport facilities and road network development. **Appendix C** indicates the proposed new road network system for the Burgersfort Central Business District (CBD), as designed by Siyazi Limpopo (Pty) Ltd in the GTLM ITP.

The road network in the CBD of Burgersfort was developed considering the following factors:

1. The existing road between Polokwane and Lydenburg through Burgersfort and vice versa in the CBD of Burgersfort should be developed as a public transport route together with the associated facilities.
2. Traffic circles should be utilised to regulate the intersections on this street to improve mobility and decrease journey time especially for public transport vehicles, and allow U-turns intuitively.
3. Providing dedicated crossing points, as elevated islands to enforce traffic calming as well should control the pedestrian movements on this street.

4. An alternative one-way system should be developed to accommodate the movements of private vehicles through Burgersfort from Polokwane to Lydenburg. One leg of the one-way pair is on the northern and southern side respectively of the existing through route.

Industrial developments should be located on the west side of Burgersfort to reduce the number of heavy vehicles through the Central Business District.

The relatively densely populated semi-urban areas are Groblersdal, Marble Hall, Burgersfort, Jane Furse, Orighstad, Steelpoort, and Driekop. There is gradual economic development specifically in agriculture, mining, and tourism. The projected growth for all major towns in the SDM is 1.2% annually till 2006 and thereafter 1% annually till 2008.

In view of the above-mentioned factors there is need for inter-modal facilities, upgrading of roads, and maintenance of infrastructure.

5.8 Transport Impact Studies for New Commercial Developments

Considering the dynamic changes to public transportation and the emphasis thereto in the National Land Transport Transition Act, it is equally necessary for the District and Local Municipalities to initiate the following concept.

Every new development must provide a Traffic Impact Study, if the development has a potential of generating more than 150 peak hour trips. The traditional Traffic Impact Study focused on mitigating the impact of the private car, and identifying bus stops along the road network. The guideline mandates the developer to provide access for private vehicles and commercial vehicles, and also requires the developer to finance its traffic impact on the local road network. Although the current guideline prioritises the integration of public transportation and development, the developer is not obligated to provide public transport facilities; neither are public-private partnerships for the development of public transport facilities encouraged. Rather, public transport facilities are considered as bulk services from the local authority. (Public transport facilities includes, direct vehicle and passenger access, including lay-bys, stairs, ramps, pedestrian crossings, protected walkways from the lay-by into the commercial centre, traffic calming in the periphery of the development, etc.).

Although the upgrading and improvement of the basic infrastructure is the responsibility of the local authority, the developer can as a result of the impact study, be instructed to implement specific mitigation measures. Where a development is large enough to warrant public transport facilities the developer is required to design and construct the facilities.

The developer should acknowledge that a public transport facility is in the interest of its commercial function, when social externalities like safety and comfort of its captive commuters/employees are accommodated.

In effect, a public-private partnership is conceived where the developer provides the necessary facilities and the local authority provides the shelter, sidewalks, route maps and schedules, and the necessary street furniture to enhance liveable communities.

5.9 Transport Impact Studies for New Residential Development

Every new township establishment should have an appointed public transportation operator, through a tendered process, or the new route/s should be added to an existing subsidy contract in proximity of the new development. This avoids destructive competition, the induced conflict among operators, over-supply of public transport services, and a fragmented public transport system in the area.

Thus, there is need for continuous liaison and co-ordination between Town Planning, Provincial Department of Housing, and Transport Planning including the OLB and Registrar, to ensure control in public transport supply in new residential developments.

5.10 By-Law for Transport Impact Studies for New Developments

The development of residential, retail, and office space are opportunities to improve the standard of public transport facilities with the support of the futuristic ideas of the developer. The location of the public transport facilities should be strategically orientated so that access, mobility, and road capacity for both public and private transportation are optimised. The integrated public transport facility should ensure a safe and convenient pedestrian access into the development.

Concurrently, the planning and design of an integrated facility must consider the aims and objectives of the affected operators (taxi and bus), the desire lines of pedestrians, and the proposed developer's responsibility towards public transportation.

Although the upgrading and improvement of the basic infrastructure is the responsibility of the local authority, the developer can as a result of the impact study, be instructed to implement specific mitigation measures. The guideline must obligate the developer to pay for the mitigation measures for private vehicles, and public transport vehicles where appropriate.

The developer must mitigate the impact of its development, and therefore, where a development is large enough to warrant a public transport facility for one or more public transport vehicles; the developer is required to design and construct the facility as part of its development. The Jane Furse Plaza rank in the SDM is a worthy example of transit-oriented development.

The developer is also required to design and construct immediate accesses from the facility into the development, including stairs, ramps, pedestrian crossings, protected walkways, shelters, and traffic calming, where physically possible.

The guideline must also specify parking requirements for private vehicles. Instead of requiring a minimum number of parking spaces for each new development, a maximum number of parking spaces must be provided. Thus, a ceiling on the supply of parking is introduced to meet two major objectives:

- To increase the use of transit and other modes
- To prevent an excessive concentration of vehicles in an area that should be human-oriented

5.11 Recommendations

In context of the Spatial Development Framework and Transportation, the ITP over the next five years, is a tool to facilitate implementation. The development of corridors must be aligned with residential and commercial developments. Currently, the mining, agriculture, and the CBD activities dictates to Transportation since such economic activities are relatively fixed geographically. Therefore, the residential developments should concentrate around these economic activities, and as a result improving transportation operations and optimising capital and operating costs.

5.11.1 Short Term

The District Municipality and Local Municipalities must identify sites for inter-modal facilities. There should be consultation with the relevant stakeholders.

Village Development Plans must include a transportation component to address public transport shelters, non-motorised transport such as donkey carts, and road safety education.

5.11.2 Medium Term

It was found that, in the *Manual for Traffic Impact Studies (RR93/635)*, National Department of Transportation, there are no explicit guidelines for the proactive measures in supplying public transportation in a new trip generator (township establishment, industrial area, etc).

According to RR93/635, Town Planning engages in “Forward Planning” and “Development Control”. Forward Planning is the formulation of development strategies, policies and plans to guide the physical development of regions, towns or cities. Development Control is public control over the development and use of land in order to achieve the aims of planning and to ensure order.

Considering the dynamic changes to public transportation and the emphasis thereto in the National Land Transport Transition Act, it is equally necessary for the District and Local Municipalities to initiate the following concept.

Every new township establishment should have an appointed public transportation operator, through a tendered process, or the new route/s should be added to an existing contract in proximity of the new development. This avoids destructive competition, the induced conflict among operators, over-supply of public transport services, and a fragmented public transport system in the area.

Thus, there is need for continuous liaison and co-ordination between Town Planning, Provincial Department of Housing, and Transport Planning including the OLB and Registrar, to ensure control in public transport supply in new developments.

5.11.3 Long Term

Ideally, the rural population should relocate to the urban area to attain densification. However, it is not practical and job opportunities in the urban areas dictate the desire to relocate from the deep rural areas to the urban areas. The relocation of the economically active people from the rural to the urban areas is gradual. Currently, many people travel long distances daily from home to work and back. Therefore, Town planning in the economic centres such as Groblersdal, Marble Hall, and Burgersfort,

etc., must plan suburban housing developments, and not perpetuate the planning practices of the Apartheid regime.

However, the cost of living in the urban areas is relatively higher and a disincentive for rural residents to relocate to the suburbs. Nevertheless, town planning must consider lower cost housing promoting densification, and as a result reduce travel time, the cost of travel and subsidies.

6 NEEDS ASSESSMENT

6.1 Strategic Thrusts

The minimum requirements for the preparation of an ITP states that the needs assessment as part of the PTP has to be reviewed together with the existing and future land-use frameworks and considering all modes and facilities.

The needs assessment done as part of the PTP can be defined in terms of the following:

- (a) Measures to promote public transport
- (b) The needs of persons with disabilities
- (c) The needs of learners
- (d) Modal integration, Infrastructure, & Facilities
- (e) Fare systems for public transport.

In addition to the minimum requirements, the SDM will focus its efforts and resources on the following strategic components of Transportation:

6.1.1 Capacity and Skills Development

- (a) Training of officials in Integrated Transportation Planning and Land Use Planning
- (b) Recruitment of Transport Planners and Engineers
- (c) Procurement of consulting engineering services for consistent and continuous advice and random projects

6.1.2 Address Service Backlog

- (a) Motivate subsidised public transport coverage in the SDM with the objective of reducing the cost of travel
- (b) Install public transport infrastructure such as shelters, lay-bys, and inter-modal facilities
- (c) Upgrade road infrastructure and streets between residential and business nodes

6.1.3 Travel Demand Management (TDM)

- (a) Manage congestion through TDM measures such as signalisation, bus lanes, reversible lanes in urban areas, and upgrading intersections, etc.
- (b) Develop non-motorised transport plan and implement projects

6.1.4 Road Safety

- (a) Develop a Central Communications Centre for Incident Management
- (b) Road Safety audits
- (c) Addressing hazardous locations
- (d) Motivate law enforcement at strategic locations
- (e) Education and communication campaigns

6.2 Measures to Promote Public Transport

6.2.1 Brief Summary of Relevant National and Provincial Strategies

The National Strategy is briefly summarised as follows:

- (a) For the purpose of land transport planning and the provision of land transport infrastructure and facilities, public transport must be given a higher priority than private transport. This will entail the implementation of effective Travel Demand Management (TDM) measures to promote the more efficient use of private cars and to free up resources for the upgrading and promotion of public transport.

All spheres of government have to promote public transport and the efficient flow of inter-provincial transport and cross-border road transport.

Land transport planning and provision should give greater attention to promoting the safe and efficient use of non-motorised transport modes, such as walking and cycling.

- (b) The basis of the new policy is a change from a supply-driven to a demand-driven land transport system. For this reason, transport planning integrating all three spheres of government, as provided for in the National Land Transport Transition Act (NLTTA), should be the lever for change from a supply-driven to a demand-driven or needs-driven transport system.

The Limpopo Province Transport Strategy is briefly summarised as follows:

- (a) Reduce the cost of transport to people
- (b) Support and develop the bus industry
- (c) Support and develop the taxi industry
- (d) Assist Municipalities with the provision of facilities
- (e) Provide an improved quality of service (safe, efficient, reliable, integrated, etc.)
- (f) Enhance non-motorised transport (pedestrian facilities, donkey carts, bicycles, etc.)

6.2.2 Specific Principles and Objectives

The following are some measures intended to promote public transport:

- (a) The provision of adequate public transport infrastructure, facilities and services
- (b) The increased utilisation of public transport services
- (c) The improvement of the image and acceptability of public transport, including:
 - Service quality and reliability;
 - Safety and security; and
 - Affordability.
- (d) The integration of transport and land-use in a way that will enhance the accessibility and utilisation of public transport
- (e) A higher priority to public transport than to private transport
- (f) The marketing of public transport services in general; for example by publishing information about routes, tariffs, and timetables
- (g) Training, skills development and capacity building in the public transport industry
- (h) Modal integration
- (i) Discourage direct competition between bus and taxi modes

6.3 The Needs of Persons with Disabilities

6.3.1 Brief Summary of Relevant National and Provincial Strategies

Section 4(1)(k) of the NLTTA requires the following with regard to the needs of persons with disabilities and of learners:

- (a) That their needs be considered in the planning and provision of public transport; and,
- (b) That their needs should as far as possible be met by the system provided for the mainstream public transport.

Persons with disabilities are defined in the Act as all persons whose mobility is restricted by temporary or permanent physical or mental disability, and includes the very young, the blind or partially sighted, and the deaf or hard of hearing.

Section 18(3)(e) of the Act further states that transport plans (including the PTP) have to be developed so as to enhance accessibility to public transport services and facilities, and transport functionality in the case of persons with disabilities.

The Accessible Transport Strategy (DOT) indicates the following minimum requirements:

- (a) Implement low-cost accessible features for ambulatory passengers. This will affect the exterior, entrance and interior designs of the three modes of public transport. Such accessible features are to be effected by reviewing the subsidy contract/tendering system and using it as leverage. This will be the case particularly with the bus and rail transport.
- (b) Metropolitan Municipalities shall facilitate the identification of accessible transport networks as well as corridors and link them to on-line infrastructure, in accordance with the guiding principles/recommendations of the NLTSF - towards achieving "reasonable accommodation", as part of their transport planning processes. The same is applicable to non-metropolitan municipalities falling under category B (i.e. Local) as well as those falling under category C (i.e. Districts).
- (c) Where accessible corridors cannot be created solely by introducing new vehicles with Class 1 improvements already built into them, existing vehicles already in operation will be retrofitted with Class 1 improvements to provide the required level of accessibility in the corridor.
- (d) Safety features to be introduced when existing vehicles are redesigned and refurbished. These safety features refer to the additional ones for usage by passengers with disabilities. All land transport operators shall make provision of suitable storage facilities for both long and short distance travel passengers to store their supportive devices (such as crutches, walking sticks, wheel chairs, etc) on rail coaches, buses and taxis, in support of inter-connectivity in the travel chain.

6.3.2 Specific Principles and Objectives

The following are the specific principles and objectives that have to be achieved as part of the development of a strategy addressing the needs of persons with disabilities:

- (a) Proper information systems and communication structures (before and during the journey)
- (b) Specialist transport services (e.g. dial-a-ride type services)
- (c) The design of vehicles/rolling stock so as to allow for people with disabilities (special and normal vehicles)
- (d) Customised design of public transport facilities, including ablution facilities
- (e) Ensuring access to public transport facilities and vehicles for the mobility impaired

At least Class 1 improvements, which are provisions for the blind and deaf, are mandatory for new buses, and in new bus contracts. Class 1 improvements are features that increase the accessibility of a transport system to all life cycle and impairment passengers, but not those who use wheelchairs. Such improvements include small design changes in vehicles (such as installing sufficient grab-rails, or using high-contrast colours on steps and hand-holds to improve visibility), improved infrastructure (such as sheltered and safe bus stops), and improved operational practices (such as keeping the vehicle stationary until elderly and disabled passengers are seated).

Class 1 improvements could also include the training of drivers to be sensitive to the needs of the blind and the hearing impaired. For example, when the blind passenger boards, the driver should note the alighting point of that passenger.

Class 2 improvements are features that allow wheelchair users to board and ride vehicles in their chairs. This is usually achieved through a combination of vehicle and infrastructure improvements, such as low-floor buses with sufficient kerbs, high-floor buses with wayside platforms.

6.4 The Needs of Learners, Students, and Elderly

6.4.1 Brief Summary of Relevant National and Provincial Strategies

One of the objectives of passenger transport strategies for the development of social services and mobility in the Limpopo Province is to improve passenger transport for learners, the elderly and persons with disabilities.

Section 44 of the NLTTA implies that learner transport complies with all the requirements of public transport.

There is no specific and clear policy on the subsidisation of learners, students, and the elderly at National and Provincial Government. This matter is debated between the Department of Education and the Department of Transport. The bus operators in the SDM are considering a discounted fare for learners, but is not formalised or implemented yet.

Thus, there is need for a directive from Central Government on the subsidisation of learners and students. Concurrently, the CPTR should include a survey on transportation of learners and students.

6.4.2 Specific Principles and Objectives

The principles and objectives for the transportation of learners, students, and the elderly in SDM are as follows:

- (a) To make commuting affordable and as a result subsidisation
 - (b) To make public transport accessible
 - (c) To enable learners and students to be punctual
 - (d) To implement and maintain non-motorised transport for learners
 - (e) To limit to less than 5 kilometres the distance learners have to walk to and from school
 - (f) To provide comfortable transport (to a lesser extent).
-

6.5 Modal Integration, Infrastructure, and Facilities

6.5.1 Brief Summary of Relevant National and Provincial Strategies

Modal integration is defined as the integration of some or all of the different public transport modes (mainly the minibus-taxi, bus and train modes) into the public transport system. These modes should be integrated in a way that would allow them to operate as a seamless public transport system, while providing an effective, efficient and affordable service to the user. The integration of public transport modes with other modes, such as the private motorcar, bicycle, metered taxi, tourist services or walking should also receive attention.

The more important Provincial transport strategies are:

- To promote modal integration and all modes of transport in a holistic manner
- To provide public transport facilities and infrastructure
- To assist District Municipalities to develop public transport transfer facilities of regional significance in urban areas

6.5.2 Specific Principles and Objectives

The primary elements considered for the modal integration process include the following:

- (a) Integrated network of routes
- (b) Integrated schedules (timetables)
- (c) Integrated transfer facilities
- (d) Integrated ticketing
- (e) Integrated tariff structures
- (f) Integrated information systems

Ideally, the focus areas of Modal Integration include:

- (a) Legislation (including Provincial legislation and / or regulations or by-laws)
- (b) Funding (including preference for providing financial assistance to modal integrated services and facilities, the involvement of the Private sector and financial incentives)

- (c) Co-ordinated planning processes at Provincial as well as Local Government level (including the PTP and planning guidelines)
- (d) Institutional structures that are co-ordinated (including modal integration committees)
- (e) The necessary implementation and monitoring (including pilot projects, a phased approach where preference is given to high-impact and low-cost projects)
- (f) Regulation and control (including the formalisation of the taxi industry and the regulation of all modes of public transport, with suitable law enforcement)
- (g) Consultation, marketing, and training (including a marketing strategy and ensuring that all role players are suitably informed and supportive)
- (h) Guidelines, norms, and standards (including conforming with certain standards and Provincial guidelines)

This is the first ITP for the SDM and the status quo indicates the poor and uncoordinated public transportation system. To achieve the elements described above is progressive and may be achieved over the next five or ten years hence. Nevertheless, the primary goal is to restructure the existing public transportation system in terms of basic facilities and infrastructure, optimising routes by eliminating parallel services, and providing equitable subsidies in the SDM.

Hence, the short-term proposals address the basic provisions for public transportation in the SDM, and the long-term proposals addresses the ideal public transport system in terms of the elements described above.

With reference to the discussion on roads in **Chapter 4**, the following needs are identified with respect to road infrastructure, specifically for the District Municipality:

- (a) Road Master Plan
 - Maintenance and upgrading
 - Deviation route for hazardous materials and heavy vehicle
 - Traffic Counts
 - Pavement Assessment
- (b) Road Signs Management
- (c) Congestion Management
 - Travel Demand Management
 - Transportation System Management mechanisms such as bus lanes and reversible lanes, and signal optimisation and synchronisation.
- (d) Road Safety
 - Education
 - Emergency services (Disaster Management Centre)
 - Hazardous locations and application of engineering
- (e) Non-motorised Transport Plan
 - Infrastructure for pedestrians, bicycles, and people with special needs

6.6 Fare System for Public Transport

6.6.1 Brief summary of Relevant National and Provincial Strategies

Section 26(2)(b)(ii) of the Act provides for the development of a strategy for fare systems for public transport, comprising fare structures, level and technology. Section 5(6)(b) and (c) indicates that the Minister may, after consultation with the MECs, set norms and standards of a general nature in respect of fares for subsidised public transport services by road or rail with a view to providing integrated ticketing and fare systems in public transport networks. It may further prescribe requirements for integrated fare systems comprising fare structures, levels and technology, to ensure compatibility between such systems.

Section 25, dealing with the Rationalisation Plan, also discusses different aspects of subsidies for public transport.

According to the Moving South Africa Strategy, the proposed maximum spending on travel should be less than 10% per household.

6.6.2 Specific Principles and Objectives

The Department of Transport, and the operators should prioritise the following fare policy goals:

(a) Customer Related

- Minimise revenue loss
- Maximise social equity
- Increase fare options
- Reduce complexity

(b) Financial

- Increase revenue
- Reduce fare evasion
- Improve revenue control
- Reduce fare collection costs
- Reduce use of cash

(c) Management Related

- Improve data collection
- Improve modal integration
- Increase pricing flexibility
- Maximise ease of implementation
- Improve operations
- Earn interest on prepaid revenues

Effectively, the fare structure in the SDM is a flat fare system, because the spatial location of passengers is such that all passengers reside at one node. However, the trip length for each node varies, and fares vary accordingly.

Flat fares are simple and make collection easy, but is not equitable and forfeits potential revenue for longer routes. Zone based fares are cumbersome and confusing to the driver and customers, and slows down operations. Zone based fares may be simplified with technological intervention, and is currently mandated in the tendered contracts.

6.7 Funding

Currently, there is no adequate funding to address the backlog of service provision. Hence, all new proposals impose additional costs to the backlog. Thus, there is need to identify various sources and mechanisms to generate funds for transport planning and implementation.

6.8 Institutional Arrangements

The SDM is a cross-border Municipality, and there is need for co-ordination between the planning authorities in the Limpopo and Mpumalanga Provinces. Further, there is need for capacity and skills specifically in transport planning and traffic engineering in the respective District and Local Municipalities.

Currently, there are no performance indicators to measure the level of service delivery. Therefore, Key Performance Indicators are required for the District and Local Municipalities.

7 PUBLIC TRANSPORT PROPOSALS

7.1 Measures to Promote Public Transport

The following proposals originated in the Public Transport Plan.

7.1.1 The Proposed Strategy

The proposed strategy to promote public transport in the SDM is to address the following components of Public Transportation:

- (a) Public Transport Service Improvements
 - Improve on-time performance
 - Provide schedules and enhance timetable availability
 - Decrease travel time
 - Improve cleanliness of the vehicles
 - Improve availability of information at ranks and stops
 - Maintain comfortable temperature in the vehicle
- (b) Resolve institutional arrangements between planning authorities
- (c) Market Research and Customer Satisfaction Surveys
- (d) Form a Transport Forum for the SDM
- (e) Expedite the formalisation of the taxi industry
- (f) Research Feeder and Distribution type services (bus and taxi modes) and design transfers on routes where a single bus does not serve both trip origin and destination, with a small surcharge
- (g) Develop non-motorised transport
- (h) Develop facilities
- (i) Automated Fare Control Implementation
- (j) Long distance taxi trips should be on a fixed time table to ensure reliability and convenience for the passenger
- (k) Policy on Design and Art for Community Projects - The inclusion of quality design, photography, and art are intended to motivate and inspire the community. Further, quality design not only adds social value to a project, but also improves the aesthetic value of the facility. The attractive environment provides a sense of comfort and security, which are elements of a liveable community. Specifically, impressive design and art can improve the appearance and safety of a facility, give vibrancy to its public spaces, and patronises people.

To create facilities that are integral components of communities, information about the character, makeup, and history of the neighbourhood should be developed and local residents and business could be involved in generating ideas for the project. Artists should be encouraged to interact with the community and may even choose to work directly with residents and business on a project. Buses, and taxis are more attractive through distinctive interior and exterior designs. Architects or artists should be included in the design of bus shelters and landscaping of integrated public transport systems, like public transport facilities at shopping centres.

(l) Embark on a marketing campaign

There is need for an extensive information campaign by the Department of Transport and the District Municipality to educate and sensitise passengers, by distributing flyers through employers, notices in buses, press releases, etc. The marketing plan, goals and objectives must be measurable. Part of the strategy should include selling available seats during weekends and holidays, such as “buy one get one free ride”, children under 16 years of age may ride free with a fare paying customer, etc. Similarly, slogans such as “routes to knowledge” for trips to academic institutions, “wheels of economic development” and “wheels to freedom”, etc., should be used in advertising campaigns.

7.1.2 Plan of Action

The following are some specific projects that could be implemented in order to promote public transport in the SDM:

- (a) Resolve institutional arrangements between the Mpumalanga and Limpopo Departments of Transport
- (b) Apply the recommendations of the OLS and RATPLAN
- (c) Update the CPTR, OLS and RATPLAN every two years
- (d) Identify a Public Transport aesthetic theme
- (e) Prepare and implement a Passenger Charter
- (f) Prepare a Memorandum of Understanding with service providers (bus, taxi, etc), and the Mpumalanga and Limpopo Provinces
- (g) Develop a route coding system for intra-provincial taxi operations (Mpumalanga and Limpopo Departments of Transport)
- (h) Provide subsidised service in the Greater Tubatse LM
- (i) Transform all subsidy contracts to negotiated or tendered contracts
- (j) Promote the formation of taxi co-operatives
- (k) Encourage taxi co-operatives to tender for subsidised routes and as a result eliminate direct competition between taxis and buses
- (l) Appoint an independent monitor for the subsidised service contracts
- (m) Mandate all design and construction projects to accommodate the disabled, pedestrians, bicycles, and the New Taxi Vehicles
- (n) Develop Key Performance Indicators in the public transport contracts (customer surveys, efficiency, reliability, etc.)
- (o) The Provincial Taxi Council must address the need to provide long distance service on a fixed schedule. (The peak periods for taxi operations per route are in the OLS).
- (p) Prepare and implement a communication strategy or marketing campaign
 - Guide to use the electronic fare equipment
 - Publicise security measures (security on board, at bus stops, etc.)
 - Transformation of the taxi industry, specifically the implementation of the New Taxi Vehicles
 - Fare price increases
 - Sensitise the public on the transportation of disabled persons

7.2 The Needs of Persons with Disabilities

7.2.1 The Proposed Strategy

The following strategy is relevant for persons with disabilities:

- (a) Sensitise the public on disabled persons, with specific focus on transportation of disabled persons
- (b) A member of the disabled community should be represented on the Transport Forum
- (c) Research the specific needs per route and design the provision of services accordingly, including the type of service, for example, dial-a-ride.
- (d) Determine the need to transform all bus and taxi vehicles to accommodate Class 2 type service
- (e) As there are currently little or no public transport facilities for people with disabilities, a strategy should be followed to ensure that the planning and development of all new public transport facilities would consider the needs of disabled persons.

Subsidised Transport for persons with disabilities should be addressed through the Class 1 improvements in the short to medium term. Further, there is need for data on the number of person with disabilities, and the particular need on specific routes. The District Municipality must also identify the NGOs currently providing the service to persons with disabilities. The Limpopo and Mpumalanga Departments of Transport must provide subsidies for such services where necessary and procure the services of operators including NGOs already supplying such services, to provide a specific service to persons with disabilities instead of major changes to the current bus fleet. Also, all buses in the current contracts must have Class 1 improvements.

Where there are no such services for persons with disabilities at all, the bus operators in the tendered and negotiated contracts could introduce paratransit service with customised vehicles at a marginal cost.

The SDM must ensure that all public transport facilities are designed and constructed with provisions for persons with disabilities. The standard design guideline is available from the National Department of Transport.

In the medium to long term the Department of Transport must implement Class 2 improvements where necessary, through the tendered and negotiated contracts. Again, it is feasible for the operator to supply a paratransit service instead of transforming the whole fleet.

7.2.2 Plan of Action

The following are relevant for the short-term plan of action:

(a) Class 1 improvements to current fleet

Currently, most buses have handrails. Buses should have high-contrast colours on steps and handrails to improve visibility. Therefore, the estimated cost for on-board improvements is minimal and is actually the standard vehicle specification, which should be addressed by the operator.

Taxi vehicles must comply with Class 1 improvements too.

(b) Data capturing

There is need for data on the number of persons with disabilities, and the particular need on specific routes. The District Municipality must also identify the NGOs currently providing the service to persons with disabilities. The Limpopo Department of Transport and Mpumalanga Department of Transport must provide subsidies for such services where necessary and procure the services of operators including NGOs already supplying such services, to provide a specific service to persons with disabilities instead of major changes to the current bus fleet.

The data capturing of transportation needs for persons with disabilities should be prioritised in the preparation of the next CPTR. Hence, there should be no additional cost for this exercise.

(c) Feasibility study for Paratransit service

The feasibility for a paratransit service should be an independent study. The Limpopo Department of Transport, the Mpumalanga Department of Transport, and the Sekhukhune District Municipality must motivate a pilot project in the SDM with assistance from the National Department of Transport.

Where there are no current services for persons with disabilities at all, there is opportunity for contracted paratransit service with the Limpopo and Mpumalanga Departments of Transport. The two Provincial Governments must consider this in the new subsidised bus contracts.

(d) Design and Construction

The Local Municipalities must upgrade infrastructure such as sheltered and safe bus stops, ramps, and provide relevant information.

The SDM must mandate all Local Municipalities to design and construct all public transport facilities with provisions for persons with disabilities. The standard design guideline is available from the National Department of Transport.

7.3 The Needs of Learners, Students, and Elderly

7.3.1 The Proposed Strategy

Primarily transportation of learners is a transportation matter and not an education matter and must be addressed by the Provincial Department/s of Transport. The planning of schools by the Provincial Department of Education should involve a transport planner and the Provincial Department of Transport, to ensure schools are developed in proximity of learners, and appropriate walkways, traffic safety, etc., are addressed pro-actively in the planning and design of the school.

1. Where schools are within a 5km radius, there is potential for non-motorised transportation such as bicycles and donkey carts for learners, including safer walkways.

2. Subsidies should be provided for school trips longer than 5km, provided that there is no school in the vicinity
3. The planning of schools must be within walking or cycling distance for the majority of learners.
4. Transport assistance should be directed to learners from low-income homes. (Most learners in the SDM are from low-income homes.)
5. Assistance to learners could include the provision of bicycles where appropriate
6. Although the strategy for the transport needs of learners should focus more on the learner than on the mode of transport, for reasons of safety and suitability it is necessary to give attention to the type of vehicles to be used. Addressing the needs of learners should also promote modal integration. The MEC for Transport in the Limpopo and Mpumalanga Provinces must declare the specific conditions for the use of open vans (bakkies) and trucks for the transportation of learners, according to the NLTTA Section 31.
7. The current interim contracts should include a subsidy for learners, students, and the elderly (Discounted fares should be categorized for learners, students, and the elderly)
8. The respective Provincial Departments of Transport and Education must coordinate efforts and funding for learner and student transportation

7.3.2 Plan of Action

Due to financial constraints and the magnitude of the issue it is extremely difficult to find specific solutions that would have an immediate impact on the transport of learners in the short term.

(a) Non-Motorised Transport

Bicycles offer greater benefits in terms of lower costs and negative impacts as well as contribute to the liveability of an area or city. In context, bicycles are appropriate mode of transport for commuting distances less than five kilometres such as mining housing schemes, and learners' access to schools within the community. Nevertheless, to achieve optimal use of bicycles, the public must be educated about the relationships between modes; the rights as well as the responsibilities of bicyclists must be defined by regulation; and those regulations must be enforced. Further, the public should be informed of the social and personal benefits of bicycles relative to other modes for the relevant categories of trips.

Also, the Local Municipalities must encourage the provision of safe bicycle parking at schools, shopping centres, and even at the work place.

Bicycle paths and lanes are the main infrastructure element defining bicycle transportation as a distinct system. The Local Municipalities must prepare a plan to encourage the use of bicycles and provide the necessary infrastructure.

The Provincial Department of Transport must prepare a campaign to promote the use of bicycles as one mode of non-motorised transport and support the District and Local Municipalities in the implementation of bicycle facilities.

Contracted buses should incorporate bicycle racks to encourage commuters to utilise bicycles for part of their journey where possible.

The respective Provincial Departments of Transport, Education, and the District Municipalities must develop a non-motorised transport plan and implement the specific needs of learners where pedestrian facilities, bicycles, and donkey-cart transport are appropriate.

(b) Pedestrian Travel

Walking is the most ubiquitous though often overlooked mode of travel and activity in all human settlements. The quality of the pedestrian system and its facilities is important for public transport commuters. In most towns in the SDM pedestrian volumes are significant. Thus, there is need for the provision and maintenance of sidewalks.

Paths and sidewalks are required for the basic safety and protection from motorised vehicles. Pedestrian planning must consider the enhancement of existing pedestrian systems or the provision of new ones. These consist of safe and attractive sidewalks and independent walkways in recreational areas, campuses, and major developments. The networks of paths should be both functional and aesthetically appealing.

The Local Municipalities must prioritise the maintenance and development of sidewalks and paths on the respective towns and residential areas with support from the District Municipality.

(c) Institutional Arrangement

There is need for the respective Provincial Departments of Transport and Education to co-ordinate efforts and funding for learner and student transportation.

(d) Subsidies for Learners, Students, and the Elderly

Subsidies should be provided for school trips longer than 5km, provided that there is no school in the vicinity. All students and the elderly must also qualify for bus subsidies. These must be addressed in the drafting of the new bus contracts.

7.4 Modal Integration, Infrastructure, and Facilities

7.4.1 The Proposed Strategy

In the short term there is need for the provision of basic infrastructure such as lay-bys with adequate passenger shelters en-route (mostly in residential areas and the CBD), inter-modal facilities at high density nodes at the origin and destination end of the route (to avoid vehicles traversing minor streets), including basic amenities and utilities such as a kiosk, ticket vending machines, rank management, lighting, ablution, water, seating, protection from the elements, security, provision for the disabled, and passenger information (maps, routes, timetables, notices, etc.).

These basic provisions must be monitored and maintained by the Local Municipality. The SDM and practitioners must refer to the Guideline for the Control and Management of Kombi Taxi Facilities (NDOT RR91/207), to enhance the management of facilities. The guideline is available from the National Department of Transport.

In the long term, the Mpumalanga Department of Public Works and the Roads Agency Limpopo must prioritise public transport routes in terms of passenger volumes instead of vehicle volumes, for upgrade and maintenance. It is evident that gravel roads and poorly maintained surfaced standard roads contribute significantly to the demise of the public transport rolling stock.

Further, in the long term there is need to design feeder and distribution services, where the smaller capacity vehicles such as the taxi provides a high frequency service at either end of the route, while the higher capacity vehicle such as the bus provides a trunk line service. Such inter-modal service requires taxi co-operatives and bus operators to tender for subsidised routes as joint venture entrepreneurs.

The following priorities should be addressed:

- (a) The Local Municipality must install lay-bys and shelters en-route (including urban and rural areas)
- (b) Low capital improvements include providing lighting, and standard street furniture and passenger information signs. The prioritisation of facilities is based on the utilisation in terms of passengers and vehicles.
- (c) All facilities should be designed according to the CSIR design guideline (Report No. CR-2001/57) to accommodate the proposed New Taxi Vehicles, until the new guideline is available from the NDOT.
- (d) All inter-modal facilities (especially in the CBD) must include the basic amenities and utilities, including a kiosk, and must accommodate taxi, bus, and metered taxi vehicles
- (e) All upgraded and new facilities should be designed with a specific architectural theme to configure inter-modal operations
- (f) An intra-provincial route coding system must define public transport routes, and public transport vehicles must display a corresponding distinguishing marker.
- (g) Focus development at nodal points such as Burgersfort, Jane Furse, Marble Hall, Groblersdal, Steelpoort, Driekop, River Cross, Ohrigstad, and Bothashoek
- (h) Design for pedestrian safety by segregating space for people from vehicles
- (i) Facilities must be located at a centralised area that is within walking distance (500m – 1000m) to the economic activities
- (j) All facilities must be designed with supporting pedestrian and bicycle infrastructure such as walkways and bicycle tracks
- (k) Passenger information must be posted at all facilities

7.4.2 Plan of Action

The plan of action is as follows:

- a) Develop new routes in line with the Operating Licence Strategy
- b) Develop public transport facilities along the following corridors:
 - Dilokong corridor (Road R37) from Driekop to Burgersfort
 - Road R555 from Orighstad to Burgersfort
 - Road R555 from Steelpoort to Burgersfort
 - R36 from Leboeng to Orighstad
 - Monsterlus to Groblersdal

- Tsimanyane to Groblersdal
 - Leeufontein to Marble Hall
- c) Develop inter-modal public transport facilities at the strategic nodal points, specifically at Burgersfort, Marble Hall, Groblersdal, Orighstad, Driekop, River Cross, and Steelpoort.
 - d) Implement low capital improvements (lighting, street furniture, passenger information, etc.) for some of the existing facilities as prioritised.
 - e) The Local Municipalities must develop by-laws together with the Sekhukhune District Municipality in order to ensure a stable and safe environment, and the integration of the bus and taxi mode
 - f) Develop an intra-provincial route coding system for taxi vehicles
 - g) Timetables, and route maps must be posted at all facilities

7.4.3 Management of Facilities

Over 80% of the facilities are informal, and facilities are scattered across the town and poses a high level of inconvenience to the passenger and operators. There is need for inter-modal facilities at strategic nodal points.

Facilities must be maintained to sustain efficient public transport services. However, maintenance and upgrading is costly. The following facilities management model is proposed.

(a) The Modalink Model

Modalink is a non-profit Section 21 company in Cape Town and was developed as a co-operative between the planning authority and the operators. The Board of Management comprises of representatives from the Public Sector and operators. Modalink charges a fee for each facility managed on behalf of the planning authority. There is dedicated funding from the planning authority and a Business Plan and an Operational Management Plan guides the co-operative's function and purpose.

Each facility has a steering committee with representation from the operators and other stakeholders. Modalink employs the security, cleaning services, and contractor to manage the facilities. Effectively, Modalink has no direct relationship with the facilities.

In this experience, it was found that taxi operators were willing to pay a levy provided that the levy was spent on the facility itself. The rank fees are utilised to pay the queue marshals, rank identification decals, and administration. However, the user pay principal is applied simply to engage a sense of ownership of the facility, and not to generate capital and operating funds. Current operations in Johannesburg and Cape Town indicate the acceptable range of user fees to be between R30-R40 per month.

Through this model, the rights of operators and passengers are protected and prioritised. Additional funds could be generated through advertising rights and business operation levies. Further, facilities are managed and maintained consistently and avoids vandalism, while public transport service is enhanced.

7.5 Fare System for Public Transport

7.5.1 The Proposed Strategy

The taxi industry in the SDM, and specifically the Local Municipalities, needs to function as co-operatives to achieve market related fares. The Provincial Taxi Council must determine a unit rate for taxi fares, and a ticket system for commuters.

Transfers should be designed to improve the quality of service. The cost to transfer should be free of charge for the first 10km, and the normal rate for the rest of the trip.

The operators need to consider the following measures in terms of fares, to enhance public transportation:

1. Simplify cash fares. Cheaper fares (less than R10) should be designed in increments of twenty cents; for example, R3.20 is easier to process than R3.15, and R5.00 relative to R4.90. More expensive fares (greater than R10) should be designed in increments of fifty cents, for example, R10.20 should rather be R10.00, and so on.
2. Passengers should be encouraged to purchase prepaid tickets. Students and learners should obtain a fifty percent discount, while pensioners travel free of charge.
3. The prominent employers in the SDM are the mines, Government offices, and shopping centres. Weekly and monthly tickets may be available at the offices of the employers for convenience and to reduce transaction time if tickets are sold on the bus or at other locations.
4. Ticket machines at transfer facilities, shopping centres, Government offices, and place of employment, must be maintained and protected.
5. Concurrently, employers should contribute to the cost of public transport tickets for its employees. There should be some form of corporate finance incentives for employers to contribute to public transport fares. The Provincial DoT must motivate to National Treasury for such incentives.
6. Introduce discounts or free ride incentives for passengers to buy a two-week pass, instead of a weekly pass. Incentives should be realistic, for example, a saving of R5 on a R200 ticket is not significant.
7. The fare system must be consistent for all subsidised contracts in the Limpopo Province to ensure equity among operators and the passengers. Similarly, the analysis shows that on average the subsidy and fare ratio is 1. The preferred subsidy to fare ratio should be 1.5.

7.5.2 Plan of Action

The plan of action is as follows:

1. The Limpopo and Mpumalanga Departments of Transport must develop a unit fare for subsidised bus operations, including consistent demarcation of zones to apply zone-based fares.
2. The Limpopo and Mpumalanga Departments of Transport must apply subsidy/fare ratio of 1.5 in the subsidy contracts.

3. The Provincial Taxi Council must determine a unit rate for taxi fares, and a ticket system for commuters.
4. The Limpopo and Mpumalanga Departments of Transport must engage employers to contribute to the cost of public transport tickets for its employees. There should be corporate finance incentives for employers that subsidise public transport fares. The Provincial DoT must motivate to National Treasury for such incentives.
5. The operator and the Department of Transport must maintain an organised database. The SUMS database as a component of the National Transport Register must be implemented and applied before the implementation of the new subsidy contracts
6. The Limpopo and Mpumalanga Departments of Transport must ensure that automated fare payment mechanisms are implemented as mandated in the subsidy contracts, and operators should be penalised accordingly for non-compliance.
7. The suggestions in the Proposed Strategy must be included in the subsidy contracts.
8. The Limpopo and Mpumalanga Departments of Transport must allow for concessions for learners, students, and the elderly in the subsidy contracts

8 THE ROAD NETWORK, TRAFFIC, AND TRANSPORTATION

This Chapter discusses the various transportation principles with respect to road infrastructure and traffic management, with reference to the **Status Quo** in **Chapter 4** and the **Needs Assessment** in **Chapter 6**. Further, proposals are presented specifically to address roads and traffic management.

Traditionally road projects were prioritised according to traffic volumes and pavement conditions. The new criteria for prioritisation of road projects include traffic volumes, pavement conditions, public transport, passenger volumes, tourism, and freight, with due consideration for Spatial Development Initiatives, Tourism Clusters, Socio-economic developments, RAL priorities, SANRAL projects, and District Municipality Priorities.

The following needs are identified with respect to road infrastructure, specifically for the District Municipality:

- a) Road Management System
 - Road Signs Management
 - Pavement Management System
 - Traffic Management
 - Hazardous Location Management
 - Bridge Management
- b) Road Master Plan
 - Road Classification System
 - Maintenance and upgrading
 - Deviation route for hazardous materials and heavy vehicle
 - GIS and Road Maps
- c) Congestion Management
 - Travel Demand Management
 - Transportation System Management mechanisms such as bus lanes and reversible lanes, and signal optimisation and synchronisation.
- d) Environmental Management
- e) Non-motorised Transport Plan
 - Infrastructure for pedestrians, bicycles, and people with special needs
- f) Road Safety
 - Education
 - Emergency services (Disaster Management Centre)
 - Hazardous locations and application of engineering

8.1 Road Management System

A Road Management System (RMS) is a formalized database tool to assist in assessing, prioritizing, and budgeting for maintenance, rehabilitation, and upgrading of the road system.

The system is necessary to avoid deficiencies in the planning, design, implementation, and maintenance phases and as a result contribute to road safety and decrease public liability claims against the road authority. The components of the RMS are Pavement

Management, Road Signs Management, Traffic Management, Bridge Management, Hazardous Location Management, etc.

Currently, the Road Agency Limpopo is the custodian of the RMS. It is imperative that the RAL copy the data to the District Municipality as well.

8.2 Road Classification System

8.2.1 Existing Road Classification System

The following administrative classifications exist:

- National Roads
- Provincial Roads
- District Municipality Roads
- Local Municipality Roads

National roads are proclaimed by the Department of Transport and the South African Roads Agency Limited, and are conventionally identified with an “N” prefix. Provincial roads perform regional arterial or collector function proclaimed by the Department of Transport and the Provincial Department of Roads and Public Works, and conventionally identified with a “P” prefix.

District roads are also proclaimed numbered roads conventionally with a “D” prefix to the number. These roads are normally proclaimed if they serve at least 7 separate residential units or organisations and carry at least 25 equivalent vehicle units (EVU’s) per day and if sufficient resources are available to construct and maintain them (42).

The Provincial and District road network is currently the responsibility of the Roads Agency Limpopo (RAL) and the Department of Public Works (Limpopo and Mpumalanga).

The RAL is in the process of demarcating roads for the SDM. There is a map with the demarcated routes, but the route description is not yet complete, and the formal transfer of authority is not yet enacted. As a result, there is no Roads Master Plan for the SDM yet. The current practice for prioritising road projects are based on community requests and action by the Ward Councillors.

8.3 Functional Classification & Geometric Standards

A comparison of the terminology is in **Table 8.1**. Classification is defined according to the South African Road Class System as proposed by the Department of Community Development and the classification used by the South African Institution of Civil Engineering (SAICE). The key functions of roads are distinguished by mobility and access. The extent and degree of access control defines the functional category of roads.

Table 8.1 – Classification of Roads

SA Road Class No.	Department of Community Development		SA Institution of Civil Engineering Terminology	
Class 1	Non-residential roads	Trunk roads	Major roads	Freeways
Class 2		Primary distributors		Major arterials
Class 3		District distributors		Minor arterials, Major collectors
Class 4	Residential roads	Local distributors	Minor roads	Minor collectors
Class 5		Residential access roads		Local streets

8.3.1 Class 1 Roads (Freeways)

Freeways are designed solely for mobility. There is no direct access to facilities along the road except through grade-separated interchanges. The primary purpose is the handling of major traffic movements of which the trip lengths are usually longer than 5 km.

The optimum spacing of freeways in urban areas varies from 5 km to 8 km in high-density areas and from 10 km to 13 km in suburban areas, depending on the density of traffic generation, topography, land-use and the adjoining street system. Grade separation and access control are used throughout. Freeways are designed for a speed of up to 130 km/h, the maximum gradient is 4% and the minimum radius is 1 500 m.

Currently, portions of the N11 through Groblersdal and Marble Hall may be regarded as freeway sections. However, strictly by definition, there are no Class 1 (Freeway) roads in the SDM.

8.3.2 Class 2 Roads (Major Arterial Roads)

Class 2 routes are classified as major arterials and are designed for mobility with trips usually longer than 2 km. A restricted number of intersections with Class 3 roads are allowed but no “on-street” parking facilities are permitted. The spacing of major arterials normally varies between 1 km and 3 km. Normally a road reserve width of 40 - 45 m is provided. The desirable design speed is 80 km/h and the minimum horizontal curve radius is approximately 300 m.

Currently, the R555 and the R37 are typical Class 2 roads.

8.3.3 Class 3 Roads (Minor Arterials/ Major Collectors)

Class 3 roads may be regarded as minor arterials or major collectors.

(a) Minor arterials

Minor arterials are designed for both mobility and access in a densely populated area. There is at-grade intersections at designated intervals, and accommodates pedestrians. The following basic parameters define a minor arterial:

- No direct access to the road from adjacent properties
- Minimum intersection spacing of 350 m for four way control

- Minimum intersection spacing of 100 m for three way control
- Maximum number of 6 intersections per kilometre
- No intersection closer than 200 m from a major intersection (i.e. intersection with a Class 2 road or another Class 3 road)
- Design speed of 70 - 90 km/h
- Adequate lane width to accommodate all types of vehicles, including trucks and buses
- Continuity

(b) Major collectors

Collectors are designed for both mobility and access in a densely populated area. Direct access is only permitted to large developments. There is at-grade intersections at designated intervals, and accommodates pedestrians too. The following basic parameters define a collector:

- Intersections with arterial roads generally within 1 km from any point on the collector road but in relation to the land development and amount of traffic to be served
- Minimum intersection spacing of 100m for four-way control
- Minimum intersection spacing of 80 m for three-way control
- Maximum number of 8 intersections per kilometre
- Restricted access
- Design speed of 50 - 70 km/h
- Adequate lane width to accommodate all types of vehicles, including buses and trucks.

8.3.4 Class 4 Roads (Minor Collectors)

Minor collector roads provide mobility and access specifically for local streets and adjacent developments. The following basic parameters define a collector:

- Four-way control intersection is discouraged, however, where necessary the minimum spacing is 100m
- The minimum spacing for adjacent three way control intersections is 80m
- The minimum spacing for staggered three way control intersections is 65m
- Access preferably limited to high density residential uses
- Design speed 50 km/h

8.3.5 Class 5 Roads (Local Streets)

The main function of local streets is to provide access. The primary considerations in selecting residential street standards are the characteristics of local residential traffic and residents' expectations. The speed limit for local streets is 40km/hr and may be subjected to traffic calming to accommodate pedestrians, public transportation, and on-street parking, etc.

8.4 Pavement Management System

A pavement management system is a clearly defined set of procedures for the collection of relevant pavement data to identify, quantify and prioritise pavement needs.

The minimum standard to which pavements have to conform refers to the most appropriate type of pavement and the level of deterioration at which maintenance or rehabilitation should be done to provide a desired level of service and riding quality. The volume of traffic, type of traffic, function of the road and level in the road hierarchy play a major role in the standard that should be upheld on a certain road.

The pavement standards have a major impact on the annual expenditure on road maintenance, the prioritising of road maintenance projects and also the design and cost of new roads. Further, pavement management is a component of road safety.

The comprehensive pavement management system comprises of the assessment of the condition of pavements from a surfacing, structural and functional point of view. However, due to cost, at least a visual assessment should be implemented.

The pavement management system is required to assist with the following:

- (a) Provide guidelines on which sections to be scheduled for rehabilitation and/or upgrading in a 2-5 year program.
- (b) Determine which sections should be resurfaced or re-gravelled over the next 2 years to defer incipient structural deterioration.
- (c) Determine the most cost effective type of maintenance.
- (d) Determine the required funding to carry out road maintenance to maintain an acceptable level of service, and to alleviate unnecessary expensive rehabilitation/reconstruction of the road network in the future.

8.5 Road Signs & Road Marking Management System

A Road Signs & Road Marking Management System is also a subsystem of the Road Management System that provides information on the status quo of road signs and road markings, and again, assists in prioritising maintenance and upgrading projects.

Bright retro-reflective markings guide drivers more effectively through darkness and rain. There are several new products and methods of road marking in the market, and the District Municipality must guard itself from inferior products and poor workmanship. It is imperative that the specification in the contract document for road construction projects and road marking contracts is performance based, that is, the reflectivity must comply to a specified minimum number of candelas after a year or two, etc.

The quality of road marking is not tested during painting according to the project specification in the contract document. Therefore, there is need for performance-based contracts for road marking, and to enforce testing of paint marking.

8.5.1 Tourism and Road Signs

The Local Economic Development Plan reveals the tourism potential to promote economic development and investment in the SDM. Tourism is an opportune mechanism to revitalise stagnating economies. The Mpumalanga Province and the Eastern Cape Province embarked on strategic planning for Tourism and one of the components of the strategy was the development of tourism routes and road signage.

At least one segment of the journey for most tourists irrespective of origin is on road. Therefore, tourism planning must consider the activities of the visitor. A tourist prefers to stage breaks during the trip for interest sake, and to rest.

A significant link with tourist route planning is road signage coupled with tourism route branding. Also, emergency numbers such as 10111, 112, and 10177 must be posted on all tourism routes at 50km intervals.

All road signs in Southern Africa must comply with the SADC Road Signs Manual, in terms of engineering design and location along the road. Tourism signs have a brown background with white text and white symbols.

The District Municipality together with the Department of Transport must motivate the Department of Environmental Affairs and Tourism to fund the strategic plan for tourism in the SDM or the Limpopo Province as a whole, and to address the branding of routes and the implementation of tourism signs.

The following should be addressed:

- (a) Motivate the branding of routes
- (a) Develop Liaison Structures with Regional Tourism Organisations
- (b) Develop an application procedure for tourism signs
 - The applicant must pay for the manufacture and installation of the sign
 - The applicant is responsible for the replacement of the sign
 - The applicant indemnifies the District Municipality against liability as a result of the sign

8.6 Environmental Management System for Road Projects

Historically, environmental management on construction sites were lenient. Open borrow pits and quarries are dangerous to traffic and human settlements. Spillage of sewer, fuels, and bitumen contaminate ground water. This component of the ITP is critical to rural settlements, as people and livestock are dependant on the natural environment for sustenance. Thus, all construction activities must take cognisance of environmental protection.

8.6.1 Environmental Management Plan

Urban planning must accommodate open space for recreation and social activities. Urban business centres must be more pedestrian friendly with pedestrian malls and decrease conflict with vehicles.

In the case of construction works, the contractor is normally instructed in the contract document to provide mitigation measures and management of environmental impacts.

In most cases, the cost for environmental management and mitigation measures are included in the contract. Damages due to negligence are the responsibility of the contractor.

For all road construction work, an Environmental Management Plan (EMP) is mandatory, and endorsed prior to the commencement of works on site. The project manager at the SDM must be conversant with the Environmental Management Plan and monitor the mitigation measures on site. Practices in the past ignored the rehabilitation of borrow pits and quarries, and dumping of construction waste material. As a result, the landscape is scarred borrow pits along roads are a risk to traffic. The EMP must address the following aspects:

- (a) Vegetation
 - (b) Water
 - (c) Fuel
 - (d) Sewage Treatment
 - (e) Waste Management
 - Solid Waste
 - Litter
 - Hazardous Waste
 - (f) Soil Management
 - (g) Drainage
 - (h) Earthworks
 - Quarries & Borrow Pits
 - Excavation, spoil sites, Batching Sites, & Stockpiles
 - (i) Impact and Mitigation measures
 - (j) Noise & Dust Control
 - (k) Records
 - (l) Restoration & Rehabilitation
-

8.7 Bridge Management System

The details of all bridges, culverts, and overhead road structures must be compiled in a database. Each structure should have a form of identification. The identification should also be on the structure.

Initially all structures should be inspected and the database should be developed. Information such as the identification, location by co-ordinates, location by road name and kilometre distance, structural capacity, lane capacity, hydraulic capacity, age of the structure, etc., should be included in the database.

The database will assist with the scheduling of maintenance, budgeting for maintenance, and upgrading of structures.

8.8 Incident Management System

The main objectives of incident management are to optimise the 'golden hour' and to prevent secondary incidents. Incident Management on roads is a component of General Disaster Management in the Region. However, the District Municipality does

not have a formalised Disaster Management Centre. For the purposes of road incidents there is need for a Central Communications Centre (CCC) where incidents are reported and responded to. The CCC is in most cases a police station or fire station, and operates 24 hours functioning as a call centre for emergencies, information, queries, and complaints. The CCC is also required to maintain records of crash data and other incidents, identify hazardous locations (with the data), and develop mitigation measures with the assistance of engineers. Incidents records include crashes and other incidents involving animals, pedestrians, and vehicles.

Incident Management System involves the monitoring of crashes, identification of hazardous locations, management of traffic at hazardous locations, and the implementation of law enforcement programs.

The CCC must be equipped with adequate resources to respond to incidents including incidents involving dangerous goods, and to assess proposed routes submitted by the operators, where operators are forwarding abnormal loads and hazardous goods.

The SDM must consult with the cell phone service providers to determine comprehensive cell phone coverage in the District Municipality, and also post emergency numbers such as 10111, 112, and 10177 on road signs at 50km intervals.

Apart from the N1, incident management systems are lacking on the provincial road network. (The only functional system planned was on the N1 as a joint venture between Gauteng and Limpopo Provinces. Tolcon and Intertoll are developing a new incident management plan for the N1 between Carousel and Kranskop and between Kranskop to Beitbridge).

The Limpopo Province serves as a transport corridor between South Africa and other African countries with regard to freight and public transport. Public transport is also a major transport mode to Gauteng and other provinces. There is no accident data to verify heavy vehicle crashes on the road network.

The current initiatives regarding the development of incident management systems should be extended to other transport corridors such as Phalaborwa, Dilokong and the East/West corridors (SDI's). The newly established Disaster Management Committee in the Limpopo Province should spearhead these initiatives.

8.9 Freight Transportation

8.9.1 Freight Transport and Overload Control

The economic significance of freight movement and the role it plays in the economic development of a region is well documented. The adverse effects associated with freight movement is also well known, i.e. increased accident risks, exhaust emissions, noise pollution, environmental intrusion, and the deterioration of road infrastructure due to overloading, etc.

There is no detail traffic data to determine the heavy vehicle volumes in the SDM. This will be addressed in the traffic management component of the Road Management System. However, due to the mining activities it is speculated that there is a significant number of heavy vehicles on the trunk routes in the SDM.

Although the majority of the roads used by freight are provincial roads, these roads form the backbone of the transportation road network system in the SDM and the SDM must ensure that RAL maintain those roads, that over-loading control is exercised, that climbing lanes are provided on routes where a high percentage of heavy vehicles occur and that facilities are provided for heavy vehicles.

Heavy vehicle movement cause congestion through towns. However, in most towns in the SDM there are no alternate routes or deviation routes through towns.

The effective control of the overloading of vehicles in order to minimise the damage caused to road pavements by high axle loading should be maintained. The National Roads Agency Limited and the Limpopo Department of Transport are currently preparing an Overload Control Strategy for the Limpopo Province. However, heavy vehicles attempt to avoid routes where overload control is implemented, and deviate through minor roads, that is, the District Roads and Local Municipality Roads. As a result the lower order roads are under strain. Therefore, the SDM must assist Law Enforcement (at Provincial Level) with traffic monitoring to curb heavy vehicles on local routes.

Further, alternative routes through towns for heavy vehicles must be identified, appropriately signed, maintained and enforced. Also, truck stops and climbing lanes on heavy vehicle routes must be considered. Further rest stops, convenient shops, and accommodation (truck inns) should be considered at the border posts and towns.

8.9.2 Rail Infrastructure

There is constant debate on road versus rail for the transportation of freight. In the Limpopo Province there is domestic freight and cross-border (international) freight flow. There is need to protect the road infrastructure and the Limpopo 2020 Study proposed a rail link through the Limpopo Province to the east coast of South Africa to transport raw materials from the mines, from Lephalale in the Waterberg DM to Polokwane in the CDM to Burgersfort in the SDM and Middelburg in the Mpumalanga Province to the coast. The proposed rail route is described in **Appendix D**.

According to the Limpopo 2020 Study, the export harbour will initially be a tie-in to the existing CoalLink to Richardsbay and could be expanded to Maputo for export. The estimated cost for the supply of the new 26 ton per axle rail line will be R10 million / kilometre. An estimated 450km rail line will cost in the order of R4, 5 billion.

First estimates from Kumba Resources indicate estimated coal exports via the rail line to Richardsbay of 18 million tons per annum. It is further expected that future coal production from Botswana and Zambia will be routed through Lephalale (Ellisras) on the proposed new line from Lephalale to Middelburg to Richardsbay or Maputo. First indications from Anglo Coal are that the 56 million ton per year capacity of existing CoalLink will be taken up by the Lephalale mining operations as / when Witbank becomes depleted.

The ITP for the SDM endorses the rail line proposed in the Limpopo 2020 Study.

8.9.3 Movement of Hazardous Material

The transportation of dangerous goods on roads in the province is discussed in Chapter VIII of the National Road Traffic Act, Act 93 of 1996. The legislation is prescriptive regarding the duties of the consignors, consignees and operators of

dangerous goods, products and vehicles. The legislation contains references to the South African National Standards (SANS) specifications.

Vehicles transporting hazardous materials have a distinguishing marker on the vehicle and a code identifying the material on the vehicle. The Classes of dangerous goods according to the SANS 10228 are:

- a) Class 1 – explosives
- b) Class 2 – gasses
- c) Class 3 – flammable liquids
- d) Class 4 – flammable solids, substances with potential of spontaneous combustion, and substances that are flammable when in contact with water
- e) Class 5 – oxidising substances and organic peroxides
- f) Class 6 – toxic and infectious substances
- g) Class 7 – radioactive material
- h) Class 8 – Corrosives
- i) Class 9 – miscellaneous substances and goods

The DM must accommodate the transportation of hazardous goods through its jurisdiction through the following:

- (a) By-passes or detours for heavy vehicles and hazardous materials
- (b) Avoid the transportation of hazardous goods through towns and sensitive areas
- (c) Evaluate route plans submitted by operators
- (d) To be equipped with an Incident Management System and protocols to respond to incidents involving hazardous goods
- (e) Law enforcement must be knowledgeable with dangerous goods protocols and legislation to manage offenders and incidents involving hazardous materials

There is need for signage for rest stops and detour routes for heavy vehicles and hazardous materials through the following towns:

- Burgerfort
- Groblersdal
- Marble Hall

8.10 Traffic Management

The Moving South Africa Study projected car ownership in 2010 to be 390-cars/1000 population in South Africa, at a growth rate of just under 1%. The Spatial Rationale for the Limpopo Province indicates a population growth rate of 1%. Although car ownership in the SDM is relatively low due to the socio-economic circumstances, it is accepted that there is a potential of at most a 1% increase in car ownership in the SDM due to the increasing economic developments and opportunities in the SDM over the next five years. Therefore, congestion in the urban areas must be considered pro-actively, and addressed in the Transport Plan. For example, traffic congestion in Burgersfort is already significant.

8.11 Transport Planning Model

Transport Models are tools that expedite decision-making through the assessment and evaluation of the status quo and new scenarios. A traffic model incorporates the development and application of travel forecasting to determine longer-term loading on the network and to plan for upgrading or extensions to the network.

Transport models provide graphical presentation of potential congestion on the road network for both vehicles and passengers. Further, the decision maker is equipped to justify projects to mitigate traffic impacts and budget appropriately.

The towns of Burgersfort, Marble Hall and Groblersdal are in need of an integrated land-use and transportation-planning model that incorporates the road network, public transport, land use developments, and other GIS data to optimise traffic management and to guide further developments.

The input data includes, origin and destination of people and vehicles, traffic volumes, population, available road and public transport capacity, land use, etc. Various scenarios can be modelled and tested to determine an optimal transportation system.

To maintain the model there is need to understand the household trip making behaviour in the region. Thus, updated traffic counts; origin-destination cordon surveys and/or household surveys are required.

Popular transport planning models in the market that models both public transport and private mode are EMME/2, SATURN, VISSUM, etc. The more appropriate model applicable for the relatively small towns in the SDM is a desktop model on MS Excel or a SATURN model.

In general there is need for traffic counting data on a regular basis especially on trunk roads to determine trends, to assist in planning, design, and law enforcement.

8.12 Travel Demand Management (TDM)

TDM focuses on actions to reduce the overall demand to travel or the net effect thereof and is not solely concerned with the transport system per se (28). The successful implementation of TDM measures depends not only on the technical innovation, but also on the awareness by the public, and efficient law enforcement. In South Africa the most common approach to TDM is the improvement to public transportation.

In the SDM, glorified, expansive TDM measures such as congestion pricing, High Occupancy Vehicle (HOV) lanes, High Occupancy Toll (HOT) lanes, etc., are not appropriate and applicable. Integrated land-use and transportation planning, improving public transport infrastructure and operations, Non-motorised Transport, Parking Management and Events Management Plan in urban areas are more appropriate TDM measures for the SDM.

Improvements to public transport infrastructure and operations are addressed in greater detail in the Public Transport Plan. Public Transport related TDM with specific reference to non-motorised transport, parking policies, and feeder and distribution services are discussed in Chapters 4, 5, and 7.

8.12.1 Events Management Plan

Major events occur at random and certainly on a daily basis. Therefore, in general, there is need for an events management plan for the towns of Burgersfort, Marble Hall and Groblersdal. With such events there is a short-term high demand for parking and pedestrian accommodation. Special events include sport events, marches, parades, long weekends, and holidays exodus, etc.

Public Transport demand is common at the start of a long weekend and holidays. Therefore, there is need for additional vehicles, law enforcement and patrols, and traffic management.

An events management plan is required and the following concepts should be considered:

- Park and Ride Service
- Regulated metered taxi operations
- Road Signage
- Communications
- Law Enforcement & Volunteers for traffic management
- Additional short term parking zones

Park and ride facilities should be secured to encourage people to utilise the facility.

8.12.2 Non-motorised Transport Plan

The District Municipality must prepare a non-motorised transport plan as proposed in the **Public Transport Plan** and should include a Master Plan for bicycle routes and pedestrian sidewalks. Effectively, the non-motorised transport plan must study learner travel behaviour, personal safety, road safety, and traffic congestion. The proposed routes should be captured on the GIS database.

Non-motorised transport projects should be prepared with the guideline document that was developed by the Department of Transport to plan and design safe pedestrian and bicycle facilities. (The manual was presented in Polokwane on 31 October to 1 November 2002 with provincial and local road safety officials, traffic officers and engineers.)

(a) Bicycle

Bicycles offer greater benefits in terms of lower costs and negative impacts as well as contribute to the liveability of an area or city. In context, bicycles are appropriate mode of transport for commuting distances less than five kilometres such as mining housing schemes, and learners' access to schools within the community. Nevertheless, to achieve optimal use of bicycles, the public must be educated about the relationships between modes; the rights as well as the responsibilities of bicyclists must be defined by regulation; and those regulations must be enforced. Further, the public should be informed of the social and personal benefits of bicycles relative to other modes for the relevant categories of trips.

Also, the Local Municipalities must encourage the provision of safe bicycle parking at schools, shopping centres, and even at the work place.

Bicycle paths and lanes are the main infrastructure element defining bicycle transportation as a distinct system. The Local Municipalities must prepare a plan to encourage the use of bicycles and provide the necessary infrastructure.

The Provincial Department of Transport must prepare a campaign to promote the use of bicycles as one mode of non-motorised transport and support the District and Local Municipalities in the implementation of bicycle facilities.

Contracted buses should incorporate bicycle racks to encourage commuters to utilise bicycles for part of their journey where possible.

The respective Provincial Departments of Transport, Education, and the District Municipality must develop a non-motorised transport plan and implement the specific needs of learners where pedestrian facilities, bicycles, and donkey-cart transport are appropriate.

(b) Donkey Carts

There is need for greater emphasis on the use of donkey carts in the rural areas for school transport and solid waste disposal. The donkey cart mode should be formalised and a basic standard of service in terms of mechanical safety and animal rights should be developed.

(c) Pedestrians

Walking is the most ubiquitous though often overlooked mode of travel and activity in all human settlements. The quality of the pedestrian system and its facilities is important for public transport commuters. In most towns in the SDM pedestrian volumes are significant. Thus, there is need for the provision and maintenance of sidewalks. Paths and sidewalks are required for the basic safety and protection from motorised vehicles. Pedestrian planning must consider the enhancement of existing pedestrian systems or the provision of new ones. These consist of safe and attractive sidewalks, independent walkways, and, in recreational areas, campuses, and major developments networks of paths that are both functional and aesthetically appealing.

Currently, informal traders occupy the sidewalk and jeopardise the safety of pedestrians and compromise the function of the sidewalk.

The Local Municipalities must prioritise the maintenance and development of sidewalks, paths, and designated areas for informal trade in the respective towns and residential areas with support from the District Municipality.

8.13 Transportation System Management (TSM)

The objective of TSM is to optimise the existing transportation infrastructure by initiating certain construction, operational and institutional actions to improve the functioning of the system (28). Minor upgrades to intersections, signalisation, climbing lanes, road signs, pavement management, paint marking and road stud maintenance are some examples of TSM. TSM are low cost, short term to medium term improvements to the existing transportation system to accommodate travel demand.

8.13.1 Road Signs

Recently there were name changes to towns, roads, and streets. Further, many road signs are aged and outdated and do not conform to the standards of the SADC Road Traffic Signs Manual. Therefore there is need to upgrade road signs including name boards, tourism signs, destination signs, and regulatory signs.

Signs could be upgraded through holistic road projects, but road projects are carried out by sections and implementation spans over several years. It is therefore proposed that a comprehensive road sign upgrade project be implemented for the District Municipality.

8.13.2 Urban Streets

Congestion management is one of the primary objectives in urban areas. TSM mechanisms are effective in urban areas to optimise traffic flow, reduce congestion, and as a result improve road safety, reduce emissions, etc. Some of the mechanisms include:

- Bus Lanes and Reversible Lanes
- Signal Optimisation and Synchronised
- Traffic Signals Maintenance & Management
- Access Management
- Parking Management

(a) Bus Lanes and Reversible Lanes

During peak periods public transport shares the road space with cars and freight vehicles. As discussed previously in this chapter, ideally freight vehicles should not be routed through the town and especially not during peak periods. However, where necessary, adequate parking and designation for loading zones must be provided. Further, during peak periods, bus lanes should be designated, as there is greater passenger volumes compared to mostly single occupancy cars. Reversible lanes are also effective during peak periods.

(b) Traffic Signals

Signal optimisation is obtained by updating signal-timing plans with updated traffic counts. There is need for a program to consistently obtain traffic counts at strategic signalised intersections to update the signal timing plans, in the absence of an automated system. Additionally signal synchronisation improves traffic flow. Careful consideration must be given where the street has a steep gradient and could result in run-away heavy vehicles. In general there is need for a specific program to maintain traffic signals.

(c) Road Access Management

Access Management is critical and must be addressed pro-actively in the Traffic Impact Study. Currently, the Road Access Management Guideline document is in development and should be applied in the design of streets.

(d) Parking

Further, for new developments, the Traffic Impact Study must specify parking requirements for private vehicles. Instead of requiring a minimum number of parking

spaces for each new development, a maximum number of parking spaces must be provided. Thus, a ceiling on the supply of parking is introduced.

Urban areas must develop a parking strategy and a mechanism to maximise user charges. The traditional parking meters are operated with coins, and seem to be inconvenient, as many people do not carry sufficient change.

Car guards could be formalised as a form of job creation and provide change. Alternatively parking payment machines must accommodate notes and credit cards. These options must be considered in the parking strategy.

The parking strategy must also include special needs parking, bicycle racks, and motorcycle parking.

8.14 Road Safety

International research indicates that road traffic accidents are going to be a leading cause of mortality and disability in the future. Global Road Safety Partnership projects by the year 2020, road crashes will be the third leading burden on health world-wide exceeded only by cardiovascular diseases and major depression (1).

The key focus areas to address road safety are:

- Education
- Enforcement
- Engineering & Data Capturing
- Emergency Services

There is currently no provincial or local strategy for the transport of hazardous substances. Currently, the District Municipality does not implement road safety programs and projects. Road Safety is a competency of the Provincial Department of Transport. The DoT is active with the Arrive Alive Campaign that is emphasised during the festive seasons and school holidays. There is need for continuous focus on road safety. For example, in eThekweni, the accident patterns over the years indicate March, September and October as highest accident months. Thus, data collection is also significant in scheduling of resources to address road safety (16).

The Limpopo Department of Transport developed a pedestrian management plan in 2003/2004 to promote pedestrian safety in the Province (Contract Report CR-2004/37). The information on pedestrian hazardous sites collected for the National Pedestrian Business Plan was used as a point of departure in the Limpopo Pedestrian Management Plan study. The following road sections were selected for investigation in the Pedestrian Management Plan study in the SDM – R37 Dilokong (near Burgersfort), Jane Furse, Glen Cowie, Phokoane and Nebo.

There is need for the District Municipality to address road safety at the Local level especially through education, emergency services, and the application of engineering. It is envisaged that the Disaster Management Centre will in future collate such data through the Incident Management System, and enhance Transport Planning at the District Municipality to address hazardous locations.

8.15 Road Safety Audits

Road safety audits identify hazardous locations and assist in improving the safety elements of the road network through low cost engineering. It is evident that basic road furniture such as fences, guardrails, road signs, etc., are missing and compromise road safety. Especially in the rural areas where stray animals and undulating terrain are common, there is a need for such basic road furniture. According to the Limpopo in Motion report, 11% of all road accidents in the Limpopo Province involve animals whereas the national average is about 3%.

The District Municipality is referred to the South African Road Safety Manual – 1999 (SARSM) as a guideline to implement road safety audits. Two approaches are proposed in the ITP to implement road safety audits – the pro-active approach and the reactive approach. Realistically both approaches are necessary.

Effectively, the purpose of Road safety audits according to SARSM is to:

- (a) Minimise the severity and accident risk of road traffic accidents that may be influenced by the road facility or adjacent environment.
- (b) Minimise the need for remedial measures after the opening of a new road project
- (c) Reduce the full life-cycle cost of a road project by reducing its accident cost
- (d) Create and maintain an awareness of safe design practice during all the stages of a road project

8.15.1 Pro-Active Audits

The South African Road Safety Manual introduces the concept of proactive road safety through Road Safety Assessments and Road Safety Audits. Road Safety Assessment is used at network level, whereas Hazardous Location Programmes are used at project level. Road Safety Audits is the intermediate phase.

Most road authorities treat high accident locations or accident 'red spots' reactively, in other words, after the accidents have happened.

Road Safety Assessments and Road Safety Audits are proactive. According to the South African Road Safety Manual (SARSM), Road Safety Assessments involve regular assessments of the entire road network in order to prioritise hazardous locations. The time between assessments could be up to a few years. Similar to any asset management system, this is a network-level assessment.

Road Safety Assessments and Road Safety Audits demand a higher level of resources than Hazardous Location Programmes. Once the network has been assessed and hazardous locations identified and prioritised, project-level assessments can take place. Hazardous locations are not necessarily high accident areas. Road Safety Assessments require a higher level of resources than Hazardous Locations Programmes.

Accident data does not form part of the input to the Road Safety Assessment. Each potential road safety problem is assessed by its degree and extent and the expected benefits of correcting the identified problems are determined. A ranking of the assessment indices will provide a prioritised list of hazardous locations, which are then further assessed by a Road Safety Audit.

Also, pro-active audits are carried out at design stage for new projects, as it is less expensive to change a line on a design/ construction drawing than to change an existing road safety problem. Further, Safety Audits are conducted during the construction phase as a construction zone can pose a significant danger to road users. The Road safety Audit process during construction can be seen as a check to ensure that the intended traffic accommodation plan provides for the necessary levels of road safety.

8.15.2 Reactive Audits

Reactive audits occur when hazardous locations are identified from accident data, patterns, and causes, and a road safety plan and strategy is developed. The more accurate and detailed the data is, the more focussed the strategies can be (37).

Hazardous Location Programmes are a series of remedial measures to reduce the number and severity of target accident types at specific locations. Hazardous Location Programmes focus on historically accident-prone areas to provide a list of remedial measures, while Road Safety Assessments and Road Safety Audits try to forecast where accidents could occur, in order to provide a list of remedial measures.

Projects to address road safety are categorised according to the 'four Es', which are:

- a) Education & Communication
- b) Enforcement
- c) Emergency Services
- d) Engineering & Data Capturing

Although the Province is responsible for Law Enforcement and Education Programs, it is imperative that the District Municipality is directly involved in Road Safety initiatives. The District Municipality could collate traffic data and identify hazardous locations that require law enforcement, engineering, or educational interventions.

(a) Education & Communication

Many of the poor rural community are also marginalized by low literacy levels, hence road safety educational and communication programmes needs to be dynamic and simplified. The following programs are recommended:

- Road safety education at schools
- Reflective armband programme, as proposed in the Limpopo in Motion Report
- Media campaigns in the local language
- Training and monitoring of volunteers such as scholar patrols

(b) Enforcement and Emergency Services

Law Enforcement is unfortunately constrained with small budgets and many law enforcement officers are not knowledgeable with Public Transport Enforcement. The frequency of traffic law enforcement on the provincial road network especially on weekends is inadequate due to the lack of funding, as well as due to the lack of patrol vehicles, and law enforcement equipment. (Working on weekends is considered overtime.)

The fragmentation of traffic law enforcement services between Provincial and Local authorities are uncoordinated.

Accident reporting and data collection and processing in the Province is not efficient. The implementation of Law Enforcement programs should be informed with empirical data.

Currently, there is no Disaster Management Centre in the District Municipality. There is need for Law Enforcement to be actively involved in the Incident Management System and for the District Municipality to expedite the establishment of the Disaster Management Centre. Additionally, the Province must upgrade its communications with the implementation of an Intelligent Transportation System; for example, the NaTIS database should be accessible in vehicles, which enhances enforcement on the road. Further, there is need for law enforcement to collate data in an organised database, and there is need for co-ordination between the District Municipality and the Provincial Law Enforcement Programs. The following projects are recommended:

- Development of an Incident Management System
- Development of a database for Officer's Accident Reports (OAR) forms
- Collaborate with traffic engineering at District Municipalities to collect speed data and implement speed enforcement
- Implement red-light violation cameras at strategic points on the network
- Implement frequent roadblocks to address driver fitness, vehicle roadworthiness, overload control, and criminal investigations, etc.

(c) Engineering and Data Collection

Addressing Road Safety through the '4 Es' allows for short-term low cost projects and long-term high cost projects. Education and Enforcement are relatively high cost initiatives. However, engineering intervention could be both low and high cost. The recommendation for hazardous locations could range from the implementation of road signs to realignment of the road. Road Safety Audits consider the following Engineering elements:

1. Geometry
 - Alignment
 - Cross section
 - Access
 - Sight distance
2. Road Furniture
 - Guardrails, steel ropes, and other barriers
 - Fencing
 - Kilometre Markers
 - Road Signs
 - Lighting
 - Road Studs
3. Road Marking, Road Signs, and Road Studs
4. Bridges
 - Width
 - Height
 - Guardrails or balustrades
5. Escape ramps
6. Environment

- Pedestrians and Animals
 - Terrain
 - Sight Distance
 - Weather and Pollution
 - Ribbon Development
 - Advertising
7. Pavement Conditions
- Surface Conditions – patches, potholes, edge breaks, bleeding
 - Riding quality, Skid resistance and Drainage
 - Structural Deformation
 - Provision of shoulders

There are several new products in the market to enhance road safety, specifically with road markings and Road Studs. For example, intelligent road studs were implemented in KZN and the results indicate a drastic reduction in crashes at specific hazardous locations.

When applying engineering improvement to hazardous locations a hierarchy of proposals per hazardous location must be documented to illustrate the cost and benefits of those projects.

In addition to implementing engineering improvements to hazardous locations, Traffic Calming is also a significant traffic management concept. It is evident on many higher order roads such as the R579 from Phokwane to Jane Furse to R555 in the SDM, there are speed humps, and the posted speed limit is 60km/hr, while the actual speed over the bump is 5km/hr. This practice is incorrect and could result in serious injuries to passengers, and liability claims against the Government. The posted speed sign at the speed hump indicates that the vehicles could drive over the speed hump at that specific speed. First, the speed humps on the R579 is an incorrect traffic calming measure, irrespective of the speed limit. A more appropriate traffic calming measure could be high visibility road signs and rumble strips. Thus, it is necessary to dwell on the implementation of traffic calming measures.

8.16 Traffic Calming

The objective of traffic calming measures is to moderate traffic behaviour, through physical and legislative interventions, with the aim to reduce vehicle speeds, and/or travel patterns contributing to a safer road environment, but with due regard to mobility and accessibility.

It seems like whenever the public/community complain about high-speed traffic or road safety, the common approach is to implement speed humps. Councillors, officials, and engineers must understand the application of Traffic Calming, and where and when to apply traffic calming measures.

Traffic calming investigations should be done with the participation of the Ward Councillor and the community. The process to determine the appropriate solution is described further and is guided by the following Technical Reports issued by the Department of Transport:

1. National Guideline for Traffic Calming – COD Report CR.-96/036

2. Design and implementation of speed humps COD Report CR 97/038
3. Design Guidelines for Mini Roundabouts COD Report CR – 97/039

8.16.1 Site Investigation

The road hierarchy of the problem area will be evaluated and the “traffic calming” class of road established. Physical features such as the surrounding road network, proximity of schools, road safety characteristics will also be evaluated at this point. The course of action could be Engineering, Enforcement, Education or a combination of the interventions.

8.16.2 Design Solutions

(a) Engineering

The following engineering options may be considered:

- Major engineering in which the problem requires substantive planning, design and construction. It would be proposed for inclusion in future budget programs.
- Traffic Systems Management in which the problem requires improvements to traffic management such as elimination of accident red spots, intersection improvements, traffic lights, etc. It would likewise be proposed for inclusion in future budget programs.
- Traffic calming in which the problem requires calming techniques for specific safety problems, etc. It would be proposed for inclusion on a priority program for detailed evaluation on Traffic Calming Techniques.

(b) Enforcement

Traffic calming measures include enforcement through the following:

- Technical traffic actions such as improvements to road signs and markings, parking prohibitions, etc.
- Law enforcement actions such as speed checks and moving violations by the Traffic Police.

8.16.3 Feasibility of Traffic Calming

Should the macro evaluation described above indicate the need for traffic calming measures, the feasibility of such measures should then be further tested and investigated using the following procedure:

Step 1: Revisit data and investigate the following:

- Current and future land use
- Accident statistics
- Traffic volumes and speed profile
- Pedestrian and cyclist volumes
- Road Geometry
- Public Transport Volumes
- Heavy vehicle Volumes

- Visual Assessment
- Damage to road furniture
- Skid Marks
- Pavement surface condition
- Road geometric Alignment – site distance
- Potential physical obstacles and distractions to the driver

Step 2: Determine the road classification for which the traffic calming measures are suggested.

Step 3: The principle philosophy in evaluating potential traffic calming is to eliminate hazards on minor roads and not later alter traffic characteristics on main roads. Potential traffic calming should be evaluated and prioritised using the first and second order principles:

(a) First order priorities:

1. No traffic calming measures are to be imposed on roads classified as Class 1, 2 or 3.
2. Traffic calming measures should only be considered where:
 - There are inherent safety problems caused by road layout, geometric constraints, sight distances, etc.
 - Claming measures will contribute directly to safety at schools, community centres, old age homes, hospitals, etc.

(b) Second order priorities:

Traffic calming measures must not cause traffic to deviate to other minor order roads.

Step 4: When the proposal is acceptable, then a detailed evaluation is required through the selection of an appropriate traffic calming measure.

Step 5: Implementation

Step 6: Review

To determine the effectiveness of the traffic calming measure, an analysis is necessary after implementation in terms of speed, flow and volumes. 'After' studies enhance future developments and justifies further investment in traffic calming measures.

8.17 Deduction and Recommendations

8.17.1 District Roads & Local Roads (infrastructure and maintenance)

Roads in the Sekhukhune District are well connected by means of provincial arterial routes, to include the R37, R36 and R555, however, the 350 km of roads are degrading rapidly due to a lack of maintenance and rehabilitation.

In addition to the above roads, the local access roads are gravel and predominantly utilised by buses and taxis. The condition of these roads is below standard. The roads require upgrading, improved storm water management, lighting, parking, and other road furniture. There are also internal village streets and these are generally in a bad state. Once the major roads have undergone general upgrading, attention can be given to the upgrading the minor roads. The SDM provides a budget in the IDP for roads but it is not based on a road prioritisation plan and management system.

There is no pavement management data, traffic data, etc. to prioritise the upgrading of roads. However, the Road Agency Limpopo, South African National Roads Agency Limited, Limpopo In Motion Report, Limpopo 2020 Infrastructure Study, Public Transport Plan, and correspondence with the Transport Forum realised a list of roads that should be prioritised. The list of roads and map are in **Appendix E**.

The RAL must provide initial support and resources to the District Municipalities to manage the Road Network. Specifically, the RAL must provide the data in the Road Management System (RMS), training, and, technical support for an interim period to ensure consistency and continuation at District Municipality level.

Further, the Department of Public Works and the Roads Agency Limpopo must also provide machinery to the District Municipality and support staff to ensure adequate capacity at District Municipality level to proceed with the road maintenance program.

Traffic Engineering and Integrated Land Use and Transportation Planning projects are carried out at random, and there is no explicit emphasis on the application of engineering principles, and the involvement of Professional Engineers in Transportation Planning and Engineering. The following components of the ITP requires further attention:

1. The Road Master Plan must distinguish between the District Municipality Roads and the Local Municipality Roads. There is a need for the total road system in the SDM to be classified according to administration and functionality.
2. There is need for a Road Management System:
 - Pavement Management System with at least a Visual Condition database (The IDP 2004/2005 identified the paving of Leeuwfontein Street in the Greater Marble Hall as a project with a budget of R782 000.)
 - Bridge Management System with at least a Visual Condition Database (The IDP 2004/2005 identified the Tsimanyani-Mohlotsi Low Level Bridge in Greater Marble Hall as a project with a budget of R274 000.)
 - Road Signs and Road Marking Management System
 - Mapping of routes
3. Currently, the road safety programs are the competency of the Department of Transport. The District Municipality must be more active with the implementation of Road Safety programs through engineering, education, and enforcement interventions. The road sections assessed in the Pedestrian Management Plan study should be investigated after six months say to determine the effectiveness of the road safety measures implemented.
4. During road construction projects, there is need for adequate information to the public via the media indicating road closures, deviations, expected delays, and alternate routes.

5. The establishment of a Disaster Management Centre to function as a Central Communications Centre, and the application of the Incident Management System are critical components of the Road Safety and Public Safety initiative. The District Municipality must prepare an incident management protocol; Law Enforcement must align itself with the incident management system of the Province and the National Roads Agency Limited. A Disaster Management Plan is proposed in the IDP 2004/2005 and the project scope should include these needs. The budget for the Framework is R800 000, and the establishment of the Disaster Management Centre is R5m.
6. There is need for the upgrading of road signs and an urgent need for the posting of emergency numbers along roads.
7. There is need for stringent monitoring of contracts in terms of quality and environmental protection. For example, road markings are not tested during painting according to the project specification in the contract document. Hence, performance-based contracts for road marking are necessary.
8. The towns of Burgersfort, Marble Hall and Groblersdal are in need of an integrated land-use and transportation-planning model to determine traffic patterns and guide further developments. There is need for consistent monitoring of traffic operations as traffic models are data driven. Siyazi Limpopo (Pty) Ltd completed a traffic study for the town of Burgersfort.
9. By observation congestion is not significant in the urban areas, however there are opportunities to improve traffic operations through the implementation of TDM and TSM, such as bus lanes and contra flow lanes, and signal optimisation and synchronisation.
10. The majority mode of transport is walking in the SDM. Thus, it is appropriate to develop a non-motorised transport plan with emphasis on sidewalks, bicycles, and optimisation of donkey carts.
11. The District Municipality together with the Department of Transport must motivate the Department of Environmental Affairs and Tourism to fund the strategic plan for tourism in the SDM or the Limpopo Province as a whole, and to address the branding of routes and the implementation of tourism signs. A Tourism Plan is proposed in the IDP 2004/2005 and the project scope should include these needs.
12. The environmental Management Framework proposed in the IDP must incorporate the discussion in **Section 8.6**.

9 INSTITUTIONAL ARRANGEMENTS

9.1 Institutional Challenges

According to the Limpopo In Motion report, the following institutional problems and issues were identified and are discussed further. To some extent the constantly changing environment that is brought about by the current South African government dispensation also creates some uncertainty about the **role of transport** within the broader picture of the economic and social system. As a result a review of the relevant elements of the transport function and the appropriate and correct **functions and responsibilities** need to be identified and allocated not only to the appropriate sphere of government but also to the correct institutions that are created to take care of these functions and responsibilities.

Institutional co-ordination is an automatic requirement and accordingly co-ordinating structures between these spheres of government are especially important to ensure that the total functional execution effectively reach the total area of jurisdiction of the Province, including the outlying rural areas and also to ensure that the activities of the various institutions are integrated so that the total function is governed in a holistic way.

Some examples regarding the correct **allocation of responsibilities** include the responsibility for learner transport in terms of both the financial burden and the task to plan and implement learner transport services. Where this responsibility involves two provincial departments, each with its own mission (i.e. interdepartmental arrangements), another example involves intra departmental or governmental arrangements namely the responsibility for all categories of roads, which could be either national, provincial and local road responsibilities.

A further issue is the question about where the responsibilities of government should start and end versus those of private sector and how **public-private partnerships** should be arranged to accommodate shared roles and concerns. A good example is the ownership, development and financing of modal transfer facilities and the interlinking facilities that are required to accommodate commercial land uses at the terminal facilities. The respective needs for government regulatory responsibilities and commercial activities should be accommodated.

The Municipal Structures Act (117/1998), was studied to determine the powers and functions of the District Municipality. In Chapter 5 Section 83, a District Municipality must seek to achieve the integrated, sustainable and equitable social and economic development of its area as a whole by—

- (a) Ensuring integrated development planning for the District as a whole
- (b) Promoting bulk infrastructure development and services for the District as a whole
- (c) Building the capacity of Local Municipalities in its area to perform their functions and exercise their powers where such capacity is lacking; and
- (d) Promoting the equitable distribution of resources between the Local Municipalities in its area to ensure appropriate levels of municipal services within the area.

Chapter 5 Section 84 describes the Division of Functions and Powers Between District and Local Municipalities.

A District Municipality has the following functions and powers:

- (a) Integrated development planning for the District Municipality as a whole including a framework for integrated development plans for the local municipalities within the area of the District Municipality taking into account the integrated development plans of those local municipalities.
- (b) Bulk supply of water that affects a significant proportion of Municipalities in the District.
- (c) Bulk supply of electricity that affects a significant proportion of Municipalities in the District.
- (d) Bulk sewage purification works and main sewage disposal that affects a significant proportion of Municipalities in the District.
- (e) Solid waste disposal sites serving the area of the District Municipality as a whole.
- (f) Municipal roads, which form an integral part of a road transport system for the area of the District Municipality as a whole.
- (g) Regulation of passenger transport services.
- (h) Municipal airports serving the area of the District Municipality as a whole.
- (i) Municipal health services serving the area of the District Municipality as a whole.
- (j) Fire fighting services serving the area of the District Municipality as a whole.
- (k) The establishment, conduct and control of fresh produce markets and abattoirs serving the area of the District Municipality as a whole.
- (l) The establishment conducts and control of cemeteries and crematoria serving the District as a whole.
- (m) Promotion of local tourism for the area of the District Municipality.
- (n) Municipal public works relating to any of the above functions or any other functions assigned to the District Municipality.
- (o) The receipt, allocation and if applicable the distribution of grants made to the District Municipality.
- (p) The imposition and collection of taxes levies and duties as related to the above functions or as may be assigned to the District Municipality in terms of National legislation.

In addition to the discussion in the **Public Transport Plan** on Institutional Arrangements the following issues are explored:

- Information Systems
- Public Private Partnership
- Capacity Building
- Key Performance Indicators
- Institutional Transformation

9.2 Information System

This is the first Integrated Transport Plan for the District Municipality. It is evident that except for the CPTR, that provides data on the public transport operations, there is little or no data on road operations with specific reference to pavement conditions, hazardous locations, traffic counts, traffic growth, freight, road signs and other road furniture inventory, etc.

As a result, the prioritisation of projects is not based on empirical data. In the ITP review process, there is need to determine the growth for public transport, private mode, and freight.

Therefore, there is need for a transportation management system for the District Municipality. The glorified mechanism is a Geographic Information System (GIS), and could be relatively expensive. However, the benefits are exponential when operated and managed efficiently. The following data collection should be maintained preferably on GIS:

- Road Network
- Spatial Plans
- Road Classification
- Pavement Management
- Traffic Counts (heavy, light, overloaded, peak volumes, speed, etc)
- Bridge Management
- CPTR (Bus, taxi, pedestrian, bicycle, and donkey cart routes and facilities)
- Road Furniture
- Hazardous Zones
- Census Data
- Housing, Schools, Medical, Water, and Sanitation Locations

The data will not only assist in the review of the ITP but will assist in incident management, road safety, law enforcement operations, project planning and prioritisation, etc.

9.3 Capacity Building

According to the Municipal Systems Act 32, 2000 Section 68 (1), the District Municipality must develop its Human Resources Capacity to a level that enable it to perform its function and exercise its power in an economical, efficient, effective, and accountable way, and for this purpose must comply with the Skills Development Act 81, 1998, and the Skills Development Levies Act 28, 1999.

In this section, the discussion follows the need for capacity development in line with demands for delivery, the development of a competent, appropriately skilled force and the role of the roads sector in employment creation and poverty alleviation. The critical shortage in human capital is highlighted, particularly Civil Engineers and Land Use Planners, and recommends that special initiatives be mounted to increase the numbers of engineers through immigration and to increase throughput at South African tertiary institutions. A dedicated and continuous capacity building process is required.

There is need for specialist skills at local authority level in Transport Management, Infrastructure Provision and Traffic Control, and Public Transport.

According to the Road Infrastructure Strategic Framework for South Africa report, the Limpopo Province has approximately 3800 roads related human capital in the public sector.

The roads based private sector consists mainly of consultants and contractors. There are approximately 6230 people employed in the consulting profession (Civil Engineering industry) and 48 200 people in the Civil Engineering Contracting industry (roads and bridges) in South Africa. The Limpopo Province has 5500 people in the civil engineering industry, of which approximately 2670 people are in the roads and bridges sector.

It is evident that the Province requires skilled workers specifically in the Civil Engineering profession both at Public and Private sectors. Ironically, the tertiary institutions in the Limpopo Province do not offer Civil Engineering degrees and diplomas!

Another serious concern is that, Traffic Engineering, and Integrated Land Use and Transportation Planning projects are carried out at random, and there is no explicit emphasis on the application of engineering principles, and the involvement of Professional Engineers in Transportation Planning and Engineering. Effectively, this results in liability to the District Municipality in case of injuries and fatalities due to the application of undefined standards.

9.4 Recommendations

1. Employ technical skills in the District Municipality and Local Municipality offices to carry out project management of transportation related projects.
 2. There is need for structured mentorship programs for young engineers and technicians, by providing in-house mentorship, secondment to consulting firms and construction site on a project basis; SETA accredited training programs, etc.
 3. Budget for bursaries for Civil Engineers and Technicians at undergraduate level and post graduate level specifically in Transportation Planning and Traffic Engineering.
 4. Enter into agreement with recognised tertiary institutions such as University of Pretoria, for accelerated development for current project managers.
 5. Appoint service providers such as Civil Engineering consultants (Registered Professionals with specialist skills in Transportation Planning, Traffic Engineering, and Land Use Planning) to assist with mentoring programs, project management, and ad-hoc project development.
-

9.5 Public – private partnership

9.5.1 Management of Facilities

Over 80% of the facilities are informal, and facilities are scattered across the town and poses a high level of inconvenience to the passenger and operators. There is need for inter-modal facilities at strategic nodal points.

Facilities must be maintained to sustain efficient public transport services. However, maintenance and upgrading is costly. The following facilities management model is proposed.

9.5.2 The Modalink Model

Modalink is a non-profit Section 21 company in Cape Town and was developed as a co-operative between the planning authority and the operators. The Board of Management comprises of representatives from the Public Sector and operators. Modalink charges a fee for each facility managed on behalf of the planning authority. There is dedicated funding from the planning authority and a Business Plan and an Operational Management Plan guides the co-operative's function and purpose.

Each facility has a steering committee with representation from the operators and other stakeholders. Modalink employs the security, cleaning services, and contractor to manage the facilities. Effectively, Modalink has no direct relationship with the facilities.

In this experience, it was found that taxi operators were willing to pay a levy provided that the levy was spent on the facility itself. The rank fees are utilised to pay the queue marshals, rank identification decals, and administration. However, the user pay principal is applied simply to engage a sense of ownership of the facility, and not to generate capital and operating funds. Current operations in Johannesburg and Cape Town indicate the acceptable range of user fees to be between R30-R40 per month.

Through this model, the rights of operators and passengers are protected and prioritised. Additional funds could be generated through advertising rights and business operation levies. Further, facilities are managed and maintained consistently and avoids vandalism, while public transport service is enhanced.

9.6 Deduction

Facilities must be maintained to sustain efficient public transport services. However, maintenance and upgrading is costly. The following facilities management model is proposed.

The District Municipality must adopt a facilities management model. The recommended model is similar to that of Modalink. There is need for a facilities management Manager in the District Municipality to facilitate co-operatives and funding for the management of various inter-modal facilities.

The PTP indicates the potential inter-modal facilities. The District Municipality must prepare a policy for imposing user charges at inter-modal Facilities.

9.7 Key Performance Indicators

The District Municipality must establish a performance management system as required by the Municipal Systems Act 32, 2000, Chapter 6. The District Municipality

must promote a culture of performance management among political structures, political office bearers, councillors, and administrators.
The process of integrated transport planning should be dynamic and characterised by the continuous review and testing of goals and objectives against key performance indicators.

The District Municipality must apply key performance indicators (KPIs) to monitor progress in the implementation of policies and projects, and to monitor its performance as an implementing agent.

Two types of KPIs are identified:

- Customer-based indicators, which measure the performance of the land transport system from the customer's point of view; and
- ITP-based indicators, which measure the progress of the District Municipality in implementing the policies and projects contained in the ITP.

The indicators are reflective of the following priority areas:

- Promotion of public transport usage,
- Promotion of access to Land transport, and
- Road safety

Table 9.1 shows the transport objectives, KPIs and recommended norms with regard to Transportation. The ITP Review will monitor the previous years performance. The Table differentiates between customer and transport authority KPIs.

The District Municipality must finalise a list of Key Performance Indicators and monitor itself in terms of service delivery on a quarterly basis.

According to the Municipal Systems Act 32, 2000, the results of performance measures must be audited as part of the Municipality's internal auditing process and be audited annually by the Auditor-General, and made known to the public through the Annual Report.

Table 9.1 – Proposed Key Performance Indicators

Transport Objective		KPI	KPI Norm
CUSTOMER KPIS			
1.	Minimise travel distance	Percentage of commuters travelling less than 40 km to work	% Commuters
2.	Minimise travel time	Percentage of commuters travelling less than 1 hour to work	% Commuters
3.	Access & Mobility	% of rural people living within 2 km of access to regular public transport services	% Commuters
4.	Minimise Cost of Travel	% of households spending more than 10% of disposable income on public transport	% Households
TRANSPORT AUTHORITY KPIS			
1.	Improved transport safety	Accidents per 100 000 vehicles by mode, and no. of pedestrian accidents	% Accidents
2.	Traffic Safety	Expenditure on No. of hazardous locations identified and addressed. (Road Safety projects and before and after studies.)	R/1000/population
3.	Provision of efficient, effective and sustainable transport infrastructure	Lane kilometres of freeways and arterials per 1 000 population	% Commuters
4.	Ensure sustainable and dedicated funding	Expenditure of road infrastructure, public transport infrastructure, planning and maintenance per 1 000 population	R/1000/population
5.	Level of media intervention and finance for promoting public transport	Expenditure on marketing Public Transport	R/1000/population
6.	Promoting Public Transport	Customer satisfaction surveys	Various
7.	Travel Demand Management & Transport System Management	Expenditure on infrastructure projects, and planning and design projects.	R/1000/population
8.	Formalisation of Taxi Industry	No. of permits converted to operating licenses	No. of OL/no. of permits
9.	Land-use restructuring	Amount of non-residential floor space and number of housing units developed in corridor and identification/infilling projects in Urban areas	various
10.	Institutional	No. of resolutions at Transport Forum Meetings	No.
11.	Capacity Building & Skills Development (internal)	Budget spent on internal training and bursaries for Transportation Related skills development	R/1000/employee
12.	Job Creation & Skills Development (external)	Budget spent on Training of emerging contractors	R/1000/person
13.		No. of emerging contractors employed (as lead contractor and sub-contractor), and budget spent.	R/contractor

9.8 Institutional transformation

9.8.1 Establishment of a Transport Authority

The NLTTA identifies three tiers of governing bodies for transportation. The Central and Provincial Departments of Transport are the first two in the hierarchy. The third tier of government for transportation is the District Municipality and Metropolitan Municipality. A Transport Authority (TA) is an institutional structure (an organ of state) alongside a Municipality consisting of a governing body of councillors, and with the responsibility of delivering transport-related services at the Municipal level of Government.

A TA is a juristic person established to function separately from the participating municipality or municipalities. The TA is governed and controlled by the governing body appointed for it in accordance with its founding agreement, which consists solely of councillors of the constituent municipality or municipalities. The founding agreement is between the MEC and the municipality or municipalities, including the declaration of a transport area (boundary). The TA must undertake at least six compulsory functions, and can choose from numerous additional voluntary functions.

1. Prepare, implement, and monitor Transport Plans
2. Develop land transport policy within its area based on National and Provincial guidelines
3. Perform financial planning with regard to land transport within or affecting the transport area
4. Manage the movement of persons and goods on land by co-ordinating such movement
5. Encourage, promote and facilitate public consultation, participation or involvement, to ensure effective communication with customers, communities, organised labour and transport operators
6. Call for tenders for public transport services to be operated in terms of commercial service contracts, prepare tender specifications and documents for that purpose, evaluate the tenders and award the tenders.
7. TA must comply with its obligations in the Municipal Structures Act Section 84 and 85 as discussed in **paragraph 9.1**. Hence, municipal roads, municipal airports, fire fighting/incident management, etc are included as functions of the Transport Authority.

These functions are devolved from both the national and provincial spheres, for example commuter rail, subsidised bus services and the regulation of public transport, etc. – all grouped into one effective and efficient institutional structure.

The Minister of Transport, the corresponding Province, and participating municipalities may fund a Transport Authority.

The function of a Transport Authority may vary according to the following:

- Comprehensive spectrum of transport responsibilities;

- Comprehensive responsibilities with a few exclusions such as law enforcement and commuter rail say.
- Restricted to specified responsibilities, for example, the provision of public transport facilities, and local roads only

The holistic advantage of the Transport Authority as a Governing Body for Transportation is a focal point of delivery, contact, and accountability for Transportation Services. Further advantages and disadvantages are discussed in **Table 9.2**, courtesy of the Department of Transport.

Table 9.2 - Advantages and disadvantages of a Transport Authority (46)

ADVANTAGES	DISADVANTAGES
Eradication of fragmentation resulting from transport provision being handled in three spheres of government	Possible perception of empire-building in land transport at the municipal sphere
Integrated transport service delivery across functions such as planning, operations, regulation, infrastructure, marketing and monitoring in the local sphere	Possible cases of unfounded mandates at the municipal sphere in terms of some of the optional functions (over and above the six compulsory functions)
Integrated and balanced transport service delivery across all modes of transport (public, private and non-motorised) at the local sphere	Possible uncertainty and loss of productivity due to institutional reorganisation resulting from the centralisation of land transport functions at the municipal sphere
Councillors dedicated to the transport function across the entire portfolio of transport functions and modes in the local sphere	Possible reduction of critical mass of some municipal departments below the level of viability
Executive responsibility for land transport in the local sphere	Possible complexities associated with cross (municipal) border transport authorities
Officials dedicated to the transport function across the entire spectrum of transport functions and modes in the local sphere	
Local accountability and meeting local land transport need	
A single "pot" of money for land transport in the local sphere	
Improved use of resources and funding in the local sphere	
A seamless market-facing entity for customers (commuters) to deal with in the local sphere	
Improved transport service delivery for commuters/customers in the local sphere	

The formation of a Transport Authority has significant implications in terms of skills and capacity, resources, organisational transformation, etc. The Municipality must be assured of political support and financial commitment. The establishment of a Transport Authority is as much a political process as a technical one (50). The District Municipality may consider the establishment of a Transport Authority. The MEC for

Transport must adjudicate the request and determine if the motivation has adequate administrative capacity, in terms of:

- Administrative development programmes within the province;
- Technical functional reasons which indicate clearly that it is more beneficial to deviate from the current administration.

9.8.2 The Current Administration

Central Government owns and operates the long-distance rail system as well as law enforcement. The Provincial Government is responsible for provincial roads, subsidised bus services on behalf of Central Government, regulates public transport, law enforcement (including Overload Control), Road Safety Programs, and transport planning on behalf of the District Municipalities.

The District Municipality is currently not resourced to prepare the Transport Plans and Law Enforcement. The Roads Agency Limpopo is in the process of devolving District Roads to the District Municipality. The Local Municipalities are responsible for the local street network. The District Municipality prepared its Local Economic Plan, Strategic Spatial Development Plan, Disaster Management Plan, Integrated Development Plan, and Environmental Management Plan.

The establishment of a Transport Authority intends to minimise fragmentation in the delivery of transport services at the District Municipality.

9.8.3 Deduction

The TA must perform six compulsory functions, which are:

1. Prepare transport plans,
2. Develop land transport policy,
3. Perform financial planning for land transport,
4. Manage the movement of persons and goods,
5. Facilitate public consultation in land transport, and
6. Perform the road-based contracting, and management of the District road network

The SDM is currently partially involved with Transport Plans, and road-based contracting, and is not directly responsible for the other compulsory functions. One of the key challenges in the District Municipality is the shortage of capacity and appropriate skills. Further, the SDM is one of the thirteen (13) nodes identified as strategic poverty alleviation nodes; hence economically the Municipality is not in a position to fund its operations from local rates and taxes.

Therefore, the SDM is not in a position to establish a Transport Authority and must consider an alternative lower cost Institutional Management Structure.

9.9 District Transport Forum

The Transport Forum is currently the 'technical committee' with representation and proposed representation from various transport sectors including, but not limited to:

- District Municipality Transport Manager
- Local Municipality Transport Managers

- Local Municipality Transport Forum Representation
- Transport Portfolio Committee
- Bus Operators Forum
- Taxi Council
- Law Enforcement
- SAPS
- Commuter Forum
- Technical Advisor
- Department of Transport
- Department of Public Works
- Department of Environmental Affairs and Tourism
- Local Municipality Transport Forums

The District Municipality and the constituent local municipalities together form the third sphere of Government. Transport planning and implementation should therefore be done in partnership to maximise opportunities.

According to the Municipal Structures Act Section 84 and 88, the District Municipality needs to assist the Local Municipalities in terms of the following:

- Building the capacity of Local Municipalities in its area to perform their functions and exercise their powers where such capacity is lacking;
- Promoting the equitable distribution of resources between the Local Municipalities in its area to ensure appropriate levels of municipal services within the area.
- The receipt, allocation and if applicable the distribution of grants made to the District Municipality.

Synergy and co-ordination between the District Municipality and the Local Municipalities could be achieved on the District Transport Forum.

9.10 Recommendation

1. Due to the capacity constraints, the option of establishing a Transport Authority is not the appropriate administrative mechanism yet for the SDM. There is need for additional capacity and skills to implement Integrated Land Use and Transportation Planning and Traffic Engineering in the SDM.
2. The District Transport Forum must be formalised by the Municipal Manager to function like that of the 'Urban Transport Board' as described in the Urban Transport Act 78, 1977. The formalisation of the Transport Forum to function as a committee established by the Municipality could be justified by the Municipal Structures Act 117, 1998 Section 79. The Transport Forum must be responsible for the following:
 - Identify transportation needs
 - Approve transport plans prepared by planning authorities
 - Consultation with stakeholders
 - Influence policies
 - Investigate Public-Private Partnership opportunities to optimise funding mechanism and maximise service delivery
 - Implement the projects identified in the Integrated Transport Plan
 - Measure performance by Key Performance Indicators
3. The Transport Forum should meet at least every quarter, and the District Municipality must budget for the functioning of the Transport Forum.

10 STAKEHOLDER CONSULTATION

10.1 Introduction

On approval of the ITP by the relevant MEC, Section 29(1) of the NLTTA requires that the prescribed particulars of the ITP be published in the Provincial Gazette by the planning authority. It can be an approved summary of the Plan, sufficiently describing the main features of the Plan, or if not to comprehensive, the whole plan.

The success of the consolidation of the transport plans is significantly dependent on the interaction with the relevant stakeholders. It is extremely important to involve all role players to ensure that the process is acceptable and reliable. Interested and affected parties were identified with the assistance of the District Municipality. An introduction meeting and subsequent presentations were planned with the stakeholders.

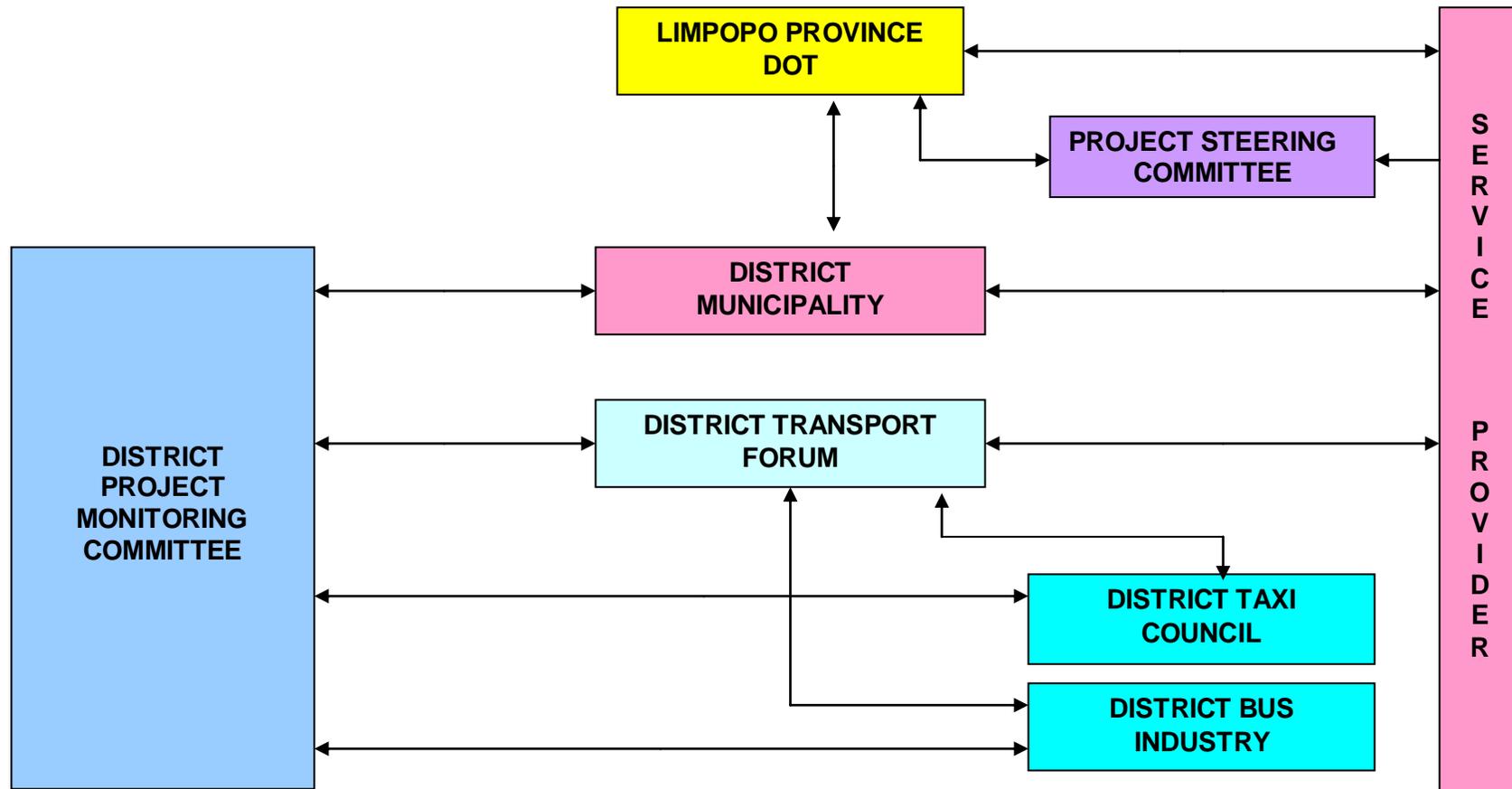
Representatives from the District Municipality, Local Municipalities, Transport Forums, and NGOs, formed the District Transport Forum, and are effectively the technical committee for the project.

The communication, liaison structure and the respective functions were guided by the Limpopo Department of Transport, and are described in **Figure 10.1**.

Consultation and liaison are an integral part of the process to confirm and validate data, and to determine the transportation needs as deduced from the data. The users of the system should have confidence in the process as well as in the results. The following role players were identified to be part of the District Transport Forum:

- (a) Limpopo Province Department of Transport – Public Transport Division
- (b) Limpopo Province Department of Transport – Registrar of Taxis.
- (c) Limpopo Province Department of Transport – Operating License Board.
- (d) Mpumalanga Department of Transport – Transport Planning
- (e) Mpumalanga Department of Transport – Registrar of Taxis
- (f) Sekhukhune District Municipality – Economic Development and Planning Division
- (g) Transport Manager of each Local Municipality
- (h) Bus Operator (Great North Transport)
- (i) Regional Taxi Council
- (j) Law Enforcement
- (k) Commuter Forum

FIGURE 10.1 - COMMUNICATION STRUCTURE FOR THE PREPARATION OF TRANSPORT PLANS



10.2 Functions of the Various Structures

10.2.1 Limpopo Department of Transport

- (a) Politicians
 - Project financiers and responsible for payment of the Service Provider.
 - Provincial Project Coordinator
 - Liase with the Provincial Steering Committee
 - Liase with the District Municipality

10.2.2 Provincial Steering Committee

- (a) Representative of National Department of Transport.
- (b) Representatives from the Provincial Department of Transport.
- (c) Representatives from the District Municipalities
 - Recommend payments of Service Provider
 - Evaluate and recommend approval of the reports
 - Liase with the Provincial Department of Transport
 - The Provincial Steering Committee liase with Service Provider

10.2.3 District Municipality

- (a) Officials
- (b) Politicians
 - Liase with Provincial Department of Transport.
 - Liase with District Transport Forum
 - Liase with the District Project Monitoring Committee
 - Liase with the Service Provider

10.2.4 District Transport Forum

- (a) All public transport role players
 - To ensure involvement on grass root levels.
 - Report to their respective structures.
 - Advising the service provider.
 - Provide their support for the plans.

10.2.5 District Project Monitoring Committee

- (a) Representative of the District Municipality.
- (b) Representative of the Local Municipalities.
- (c) Representative of the Provincial Transport Department on District level.
 - Liase with the District Municipality
 - Liase with the Transport Forum
 - Monitor the progress of the project

- Liase with Bus and Taxi Liaison Structures

10.2.6 District Taxi Council

- (a) Representatives of the District Taxi Council.
- Work together with the Service Provider and the Project Monitoring Committee to ensure that product would be accepted for Taxi Industry.
 - Liase with the Taxi Industry such as Taxi Associations as well as the Provincial Taxi Council.

10.2.7 District Bus Industry

- (a) Representatives of District Bus Operators.
- Work together with the Service Provider and the District Project Monitoring Committee to ensure that the product would be acceptable for the Bus Industry.
 - Liase with the bus operators at the lower level.

10.2.8 Service Provider

- (a) ARCUS GIBB
- Carrying out of the work.
 - Liase with all the structures.
 - Consult with the Provincial Department of Transport, Provincial Steering Committee, District Municipality, District Project Monitoring Committee, District Transport Forum, District Taxi Council and District Bus Industry.

10.3 Progress to Date

10.3.1 Steering committee Meeting

The Limpopo Province Department of Transport is effectively the primary client for the project. There was consistent liaison with the project manager Mr. Walter Raedani at the Department of Transport.

The draft ITP was presented on 23 August 2004 to the steering committee that comprises of officials from the Provincial Department of Transport, District Municipalities, National Department of Transport, Provincial Taxi Council, and Operating Licensing Board. The final ITP presentation was on 3 November 2004.

10.3.2 Technical Committee Meeting

The ITP draft was presented to the Transport Forum on 8 October 2004. Final comments were obtained from the Transport Forum.

10.3.3 Conclusion

The District Municipality before adoption by the Provincial Departments of Transport must endorse the final document for the Integrated Transport Plan. The process is ongoing.

11 PROJECTS AND IMPLEMENTATION PLAN

11.1 Introduction

This chapter of the ITP contains a description and programme of the prioritised projects, together with the five-year budgets for each project / action. The five-year budget is detailed for Year One, and addressed as a consolidated schedule with less detail for Year Two to Year Five.

The transport plans should be updated bi-annually. However, the CPTR should be updated annually to determine the changes in the transportation system. Traffic counts, pavement conditions, and hazardous locations must be updated as well to assist in the prioritisation of projects.

Projects are prioritised separately for public transport (in the Public Transport Plan), and private land transport. There are several initiatives that are not the District Municipalities competencies, such as heavy vehicle overload control, however, the District Municipality must motivate the Department of Transport to intervene with evidence such as traffic counts or pavement conditions.

Also, law enforcement projects, road safety projects by the Department of Transport, and infrastructure projects on National Roads and Provincial Roads should be carried out with the participation of the District Municipality.

As regards to the 2010 World Cup Soccer Tournament, there is need for stronger relations between Transport Planning and Tourism. For example, the formalised metered taxi associations should be represented on tourism committees and the Transport Forums. As a result there will be consistency in the standard of service, and heightened awareness for safety and security, customer relations, etc.

The approach of the first PTP is to concentrate on infrastructure related to public transport for the first five years of operation and on constituting the proposed by-laws. In the review of the PTP, there will be focus on the more detailed operational and institutional matters.

The projects identified in the Public Transport Plan are also included in this document for continuity. All projects are in **Table 11.2**.

11.2 Transportation Planning and Road Related Projects

All projects relating to the road network are addressed separately from the projects identified under the Public Transport Plan.

11.2.1 Road Master Plan

The Road Master Plan is a basic minimum requirement for the SDM. Spatial Development Rationale (SDR) roads support the centres with potential for economic growth and development. Needs for these roads have not been identified yet as a result of financial constraints. The ownership of roads within the District Management

Area must be finalised between the Road Agency Limpopo and the District Municipality.

The Road Master Plan must distinguish between the District Municipality Roads and the Local Municipality Roads. There is a need for the total road system in the SDM to be classified according to administration and functionality.

According to the IDP Review 2004/2005, the Road Agency Limpopo allocated R23m for 2003/2004 and R28m for 2004/2005 financial years to fund infrastructure projects in the SDM. The SDM planned to audit road infrastructure in June 2005.

Further, the Department of Public Works and the Roads Agency Limpopo must also provide machinery to the District Municipality and support staff to ensure adequate capacity at District Municipality level to proceed with the road maintenance program.

Private mode and heavy vehicles travel through towns and contribute to the congestion on local streets. Further, the heavy vehicles impact the local street network pavement. Thus, the following projects should be considered in addition to the Road Master Plan:

- 1) Road Classification
- 2) Maintenance and upgrading of roads
- 3) Road Maps

11.2.2 Road Projects in the SDM

Without a Road Master Plan for the District Municipality, lower order roads are currently not prioritised. However, higher order roads under the jurisdiction of the Roads Agency Limpopo, Mpumalanga Department of Public Works and Roads, and the National Roads Agency are identified.

(a) R37 and R555

The route R37 from the Mpumalanga/Limpopo Border to Polokwane was transferred to the National Roads Agency in September 2004, while the route R555 is the responsibility of the Mpumalanga Department of Transport, Roads and Public Works.

Burgersfort, Steelpoort and Bothashoek are the main areas where passengers are concentrated in the Greater Tubatse LM, and roads R37 and R555 serve as the main collector routes, and are primary routes for freight vehicles. Currently there is no integrated public transport system in place to cater for all the above-mentioned public transport requirements.

The average speed and the traffic safety conditions on this road are affected negatively. Eventually the economic development along the corridor will be affected negatively.

In view of the above is it important that a new freeway alignment of the R37 be identified either along the entire stretch of the R37 or for major sections of the R37.

This project should be part of a comprehensive transport corridor development study that would integrate not only the road infrastructure needs for the corridor but also the needs for public transport and facilities for the corridor.

Two points were identified as possible Truck Inn facilities on road R37 as part of the Limpopo Freight Transport Strategy:

- (a) Leporogong-Mafefe Crossing
- (b) Atok.

The point at Atok was also identified as requiring a traffic control centre in view of the increased number of heavy vehicles on road R37. Another point was identified in the vicinity of Marula Mine on road R37 where a satellite traffic centre should be provided for law enforcement purposes.

The National Roads Agency identified projects for the R37 and is indicated in **Table 11.1**.

Table 11.1 – Proposed NRA Road Projects in SDM

DM	Project Number	Route Description	Project Description	Estimated Budget (2004 – 2009)
SDM & CDM	R.037-010-2003/1	Burgersfort to Polokwane	Routine Maintenance	R24 240 000
SDM & CDM	R.037-010-2005/1	Lebowakgomo North to Lebowa Mine (Atok)	Road Widening – add shoulders	R87 000 000
SDM	R.037-020-2006/1	Lebowa Mine (Atok) to Modikwa Mine	Road Widening – add shoulders	R60 000 000
SDM	R.037-020-2005/1	Modikwa Mine to Burgersfort	Road Widening – add shoulders	R41 000 000
SDM, WDM, CDM	X.002-110-2004/1	Mpumalanga to Groblersbrug (N11)	Routine Maintenance	R61 500 000

The SDM and CDM must provide necessary support and liaison to the National Road Agency Limited and the Department of Transport, and motivate for additional projects such as road safety initiatives, and public transport facilities to be included on these projects.

(b) Burgersfort Town

Burgersfort is one of the focus points for public transport facilities and road network development due to the increasing economic activities in the Greater Tubatse LM. The proposed road network system for the Burgersfort Central Business District is in **Appendix C**. The road network in the CBD of Burgersfort was structured in the following fashion:

- The existing road between Polokwane and Lydenburg through Burgersfort and vice versa in the CBD of Burgersfort should be developed as a public transport route together with the associated facilities
- Traffic circles should be utilised to regulate the intersections on this route in order to allow public transport to make U-turns on a regular basis.
- The pedestrian movements on this route should be controlled by providing dedicated crossing points, and a properly constructed island ought to be constructed in the middle of the road to prevent pedestrians from crossing the road wherever they wish. The island is required for safety as well as to ensure the smooth flow of traffic.

- An alternative one-way system should be developed to accommodate the movements of private vehicles through Burgersfort from Polokwane to Lydenburg. The one-way roads would be on the northern and southern side respectively of the existing through route or the proposed public transport route.

Since most of the job opportunities are located on the west side of Burgersfort and most of the residents are on the east side of the Central Business District of Burgersfort, it is recommended that an internal by-pass route be created to minimise through traffic.

Irrespective of the width of the road, the minimum required road reserve for all roads in the Central Business District of Burgersfort is as follows:

- Four (4) lanes of 3.7m
- Parking lane or loading facilities of at least 2m on each side of the road
- 3m sidewalk

The total width is 24.8m. Therefore a conservative road reserve of at least 25 m is required for all roads in the Central Business Area of Burgersfort.

11.2.3 Road Management System

The RAL must provide initial support and resources to the District Municipalities to manage the Road Network. Specifically, the RAL must provide the Road Management System (RMS), training, and, technical support for an interim period to ensure consistency and continuation of the database at District Municipality level. The RMS is a holistic database and includes the pavement management, bridge management, and traffic management data. The system must incorporate the following components:

- (a) Pavement Management System
- (b) Traffic Management (traffic counting - heavy vehicles, public transport vehicles, traffic volumes, vehicle occupancy, traffic flow, speed, etc)
- (c) Hazardous Location Management
- (d) Bridge Management
- (e) Road Signs & Road Marking Management
- (f) Incident Management System
- (g) Geographic Information System & Mapping

There is need for the upgrading of road signs and an urgent need for the posting of emergency numbers along roads.

The District Municipality together with the Department of Transport must motivate the Department of Environmental Affairs and Tourism to fund the strategic plan for tourism in the SDM or the Limpopo Province as a whole, and to address the branding of routes and the implementation of tourism signs. A Tourism Plan is proposed in the IDP 2004/2005 and the project scope should include these needs.

There is need for stringent monitoring of contracts in terms of quality. For example, road markings are not tested during painting according to the project specification in the contract document. Hence, performance-based contracts for road marking are necessary.

11.2.4 Integrated Land Use and Traffic Models

The towns of Burgersfort, Marble Hall and Groblersdal are in need of an integrated land-use and transportation-planning model to determine traffic patterns and guide

further developments. There is need for consistent monitoring of traffic operations as traffic models are data driven.

11.2.5 Disaster Management Centre

According to the IDP Review 2004/2005, the SDM planned to develop a Disaster Management Framework and to establish a Disaster Management Centre. The Department of Community Services is preparing the plan, which is scheduled for September 2004. The Disaster Management Centre must host the Central Communication Centre and be the custodian of the Incident Management System for the District Municipality.

11.2.6 Transportation System Management

There is need for a policy on Transportation System Management (TSM) for the District Municipality. Concepts in TSM include provision for loading zones in towns, maintenance of traffic lights, optimisation of signals, synchronisation of signals, upgrading of intersections, provision of detours or by-pass for heavy vehicles and hazardous materials through urban areas, traffic calming, etc. the District Municipality must also prepare a policy on Traffic Calming.

11.2.7 Travel Demand Management

There is for a policy on Travel Demand Management to optimise public transport and non-motorised transport, and includes concepts such as bus lanes, reversible lanes, park and ride, etc.

11.2.8 Environmental Management Policy

The environmental Management Framework proposed in the IDP must incorporate the discussion in **Section 8.6**.

There is need for stringent monitoring of contracts in terms of quality and environmental protection. For example, borrow pits and stock piling of bituminous material must be monitored according to the Environmental Management Plan in the contract document.

11.2.9 Road Safety

Currently, the road safety programs are the competency of the Department of Transport. The District Municipality must be more active with the implementation of Road Safety programs through engineering, education, and enforcement interventions.

The establishment of a Disaster Management Centre to function as a Central Communications Centre, and the application of the Incident Management System are critical components of the Road Safety and Public Safety initiative. The District Municipality must prepare an incident management protocol; Law Enforcement must align itself with the incident management system of the Province and the National Roads Agency Limited. A Disaster Management Plan is proposed in the IDP 2004/2005 and the project scope should include these needs. The budget for the Framework is R800 000, and the establishment of the Disaster Management Centre is R5m.

During road construction projects, there is need for adequate information to the public via the media indicating road closures, deviations, expected delays, and alternate routes. Road Safety projects must be developed and implemented with due regard for engineering (assessment by professional engineer, data collection, and application of standards), education to the public, and visible law enforcement.

The aim of Arrive Alive Strategy is to co-ordinate enforcement across all three spheres of government and to interact with road users to improve law compliance in day-to-day road usage. The reforming the institutions and systems that determine the overall safety of the road network, however, need to be dealt with by the "Road to Safety Strategy, 2001 - 2005.

The Road to Safety Strategy aims to reduce crashes, deaths and injuries by 5% every year. From then until 2009 the aim is an annual reduction of 10%. The strategy is driven by the need to find answers to a set of clear interlocking problems across the whole spectrum of road safety and traffic management. It requires that systematic attention be paid to upgrading road infrastructure and signage on the basis of continuous audits of hazardous locations and crash red-spots. It requires that drivers be fit to drive and vehicles fit to use the roads.

The Strategy strengthens regulation of road-based freight and public transport modes and encourages the implementation of vehicle safety technologies that are proven and appropriate to South Africa circumstances. It intensifies road safety communication campaigns and builds public-private partnerships and new forms of community participation that will ensure the long-term sustainability of all government-led road safety initiatives.

The Arrive Alive Campaign focuses on the following projects and the District Municipality must participate in these projects aggressively and proactively. The following projects are identified through the Arrive Alive campaign:

1. Awareness and Communication - production of television, radio, printed and promotional material
2. Road Safety Education - development of educational material for schools, adults and communities and the dissemination thereof
3. National Traffic Call Centre - development and operation of a call centre to provide a facility for all road users (drivers, passengers, commuters and pedestrians, etc) to report poor as well as good driver behaviour, unfit vehicles and road traffic offences over a 24 hour per day, 7 days per week period.
4. Equipment for the SAPS - purchasing of road block equipment
5. Accident Investigation Training - financing of traffic officers of provincial and local authorities to attend courses on the investigation and reconstruction of road traffic accidents
6. Accident Report - to assist SAPS, Provincial and Local traffic authorities with the implementation of the Accident Report Form
7. Accident Data Capturing - to assist provincial and local authorities with the capturing of accident data on the NaTIS system through Stats SA.
8. Monitoring Surveys - to arrange for the undertaking and management of country-wide traffic surveys on traffic offences to determine the relevant rates in order to measure the impact, effect and success of the Arrive Alive campaign

9. Traffic Counts from CTO stations - obtain information from traffic counting stations in order to determine traffic flows on main routes, estimate traffic volumes and measure speeds and following distances
10. Road Signs Promotion - develop, print and distribute educational material on the driving and navigation process, road traffic signs and rules of the road-to-road users.

11.2.10 Management of Facilities

With the introduction of the policy for Public Private Partnerships for the District Municipality, facility management should be investigated for private sector involvement.

Facilities must be maintained to sustain efficient public transport services. However, maintenance and upgrading is costly. The recommended mechanism is similar to that of Modalink, as described in **Chapter 7**.

The District Municipality must prepare a policy for imposing user charges at inter-modal Facilities.

11.2.11 Training and Capacity Building for Transport Management

To ensure that sufficient and well-qualified human resources and expertise are available to effectively take charge of all transport management requirements in the District Municipality, there is need for accelerated training. The following procedure is necessary:

1. Determine the projected numbers that would be required over time and draw up a recruitment plan
2. An evaluation should be made of all current courses and costs at relevant tertiary institutions.
3. Analyze the training needs of current staff and prepare a training schedule.
4. Prepare a budget for recruitment of qualified personnel and training of current staff.

TABLE 11.2: PROGRAM AND FINANCIAL IMPLICATIONS								Responsibility	Project Duration	
PROJECT	ESTIMATED BUDGET					YEAR 1	YEAR 2-5			TOTAL
	1	2	3	4	5					
TAXI MODE (OLS)										
Project 1: Vehicle Verification						R200 000	In-house	R200 000	DoT/Registrar	6 months
Project 2: Routes for LDV & apply NLTTA S31						R200 000		R200 000	DoT	3 months
Project-3: Annual update of OLS						R200 000	R800 000	R1 000 000	LM/DoT	2 months
Project 4: Implementation and maintenance of colour coding system for taxis.							R 400 000	R 400 000	DoT/Registrar	3 months
Project-5: Establish/Upgrade the Satellite Operating Licence Office in Burgersfort, Marble Hall, Jane Furse, & Groblersdal						R 1 000 000	R 1 500 000	R2 500 000	DoT	On-going
Project 6: Formalise metered taxi operations						R 100 000	In-house	R 100 000	DoT/Registrar	6 months
Project 7: Development of Rank Management Skills						R 100 000	R 200 000	R 300 000	DoT	On-going
Project 8: Establishment of Taxi Co-operative for Sekhukhune District							R 200 000	R 200 000	DoT	12 months
Total						R 1 800 000	R 2 700 000	R 4 500 000		

TABLE 11.2 continued: PROGRAM AND FINANCIAL IMPLICATIONS												
PROJECT	ESTIMATED BUDGET							YEAR 1	YEAR 2-5	TOTAL	Action	Duration
	1	2	3	4	5	6	7					
BUS MODE (RATPLAN)												
Project-1: Implement Tender or negotiated subsidy contracts (7-years)								R42 000 000	R 178 000 000	R220 000 000	DoT	7 years
Project-2: Monitoring and Auditing of Project 10 (7-years)								R4 200 000	R 17 800 000	R22 000 000	DoT	7 years
Project-3: Implement Class 1 Improvements									R 300 000	R 300 000	DoT	1 year
Project-4: Review Rationalisation Plan									R 300 000	R300 000	DoT/DM	2 months
Total								R46 200 000	R196 400 000	R242 800 000		

TABLE 11.2 continued: PROGRAM AND FINANCIAL IMPLICATIONS								Responsibility	Project Duration	
PROJECT	1	2	3	4	5	YEAR 1	YEAR 2-5	TOTAL		
	PUBLIC TRANSPORT PROJECTS (PTP)									
Project-1: Review CPTR						R 500 000	R 2 000 000	R2 500 000	DoT/DM	4 months
Project-2: Review Public Transport Plan						R200 000	R 800 000	R1 000 000	DoT/DM	3 months
Project 3: Maintenance of the Transport Forum						R 50 000	R200 000	R250 000	DM	On-going
Project-4: Lay-bys, bicycle, and pedestrian facilities per Local Municipality						R 1 500 000	R 3 500 000	R5 000 000	DM	On-going
Project-5: Facilities (Appendix C)						R10 000 000	R 25 000 000	R35 000 000	DM	On-going
Project-6: Policy for subsidy for learners, Students, and the elderly						In-house			DoT	6 months
Project 7: Law enforcement campaigns						R1 000 000	R4 000 000	R5 000 000	DoT/DM	On-going
Project-8: Address NLTTA Section 31 – use of 'bakkies' as public passenger vehicle						R100 000		R100 000	DoT/DM	18 months
Project-9: SDM Policy for Public Private Partnership						R100 000		R100 000	DM	2 months
Project-10: Non-Motorised Transport Plan per Local Municipality						R200 000	R400 000	R600 000	DoT/DM	3 months
Project-11: Policy on uniform Fare Structures for SDM						R200 000		R200 000	DoT	3 months
Project-12: Engage with SANTACO & Provincial Taxi Councils to develop a unit rate for taxi fares						R100 000	R 100 000	R200 000	DoT	3 months
Project-13: Study Innovative Funding Mechanisms for Transportation (PLTF)						R100 000		R100 000	DoT	3 months
Project-14: Upgrade SUMS database						In-house			DoT	6 months
Project-15: Feasibility Study for Paratransit Service							R200 000	R200 000	DM	3 months
Project-16: SDM On-Street Parking Strategy (private vehicles) (Corresponding with ITP), and implementation in towns							R1 000 000	R1 000 000	DM	3 Years
Project-17: Investigate Feeder and Distribution Service along corridors							R100 000	R100 000	DoT	3 months
Project-18: Align Passenger Charter & Memorandum of Understanding with NDOT							R100 000	R100 000	DoT	2 months
Project-19: Marketing Campaign (operators and DoT)							R500 000	R500 000	DoT/DM	On-going
Project-20: Develop Policy on Traffic Impact Studies (private and public transport)							R 200 000	R200 000	DoT/DM	6 months
Project-21: Engage employers to subsidise fares, and provide tax incentives							In-house		DoT/DM	On-going
Project-22: Implement Non-Motorised Transport Plan (infrastructure)							R1 000 000	R1 000 000	DoT/DM	On-going
Project-23: Prepare Policy on Design and Art for Community Projects							R100 000	R100 000	DoT/DM	3 months
Total						R14 050 000	R 39 200 000	R53 250 000		

TABLE 11.2 continued: PROGRAM AND FINANCIAL IMPLICATIONS								Responsibility	Project Duration	
PROJECT	1	2	3	4	5	YEAR 1	YEAR 2-5	TOTAL		
	INTEGRATED TRANSPORT PLAN PROJECTS (ITP)									
Project-1: Review ITP						R300 000	R 1 200 000	R1 500 000	DoT/DM	3 months
Project-2: HR Audit										
<ul style="list-style-type: none"> • Recruitment Plan • Appoint Professional Engineer as Advisor • Develop KPI for Transportation Service Delivery • Training of Project Managers 						R500 000	R 2 000 000	R2 500 000	DoT/DM	Continuous
Project 3: Prepare Roads Master Plan										
<ul style="list-style-type: none"> • Road Classification • Traffic Counts • Visual Pavement Assessment • Visual Structures/Bridge Assessment • Detour routes for Hazardous Materials • Road Maps • Prioritised List of road sections for upgrading and maintenance • Customise Road Management System from RAL to SDM 						R 1 000 000	R4 000 000	R5 000 000	DM/RAL/DoT	9 months
Project-4: Upgrade Street lay-out in Burgersfort							R45 000 000	R45 000 000	GTLM/DM	12 months
Project-5: Road Signs Contract						R1 000 000	R4 000 000	R5 000 000	DoT/DM	6 months
Project-6: Road Marking Contract						R1 000 000	R4 000 000	R5 000 000	DoT/DM	6 months
Project-7: Prepare Traffic Calming Policy						R200 000		R200 000	DM	3 months
Project-8: Hazardous Location Program										
<ul style="list-style-type: none"> • Road Safety Audits • Design Projects • Implement Projects(Education, Enforcement, Engineering) 						R500 000	R2 000 000	R2 500 000	DoT/DM	3 months and ongoing
Project-9: Prepare an Events Management Plan										
<ul style="list-style-type: none"> • Burgersfort • Marble Hall • Groblersdal 							R300 000	R300 000	DM	6 month
Project-10: Establishment of a Disaster Management Centre										
<ul style="list-style-type: none"> • Feasibility Study • Establish an Incident Management System • Establish Central Communications Centre • Install emergency signs on R555 & R37 						R500 000	R10 000 000	R10 500 000	DM/DoT	24 months
Project 11: Investigate PPP for Infrastructure Management							R300 000	R300 000	DoT/DM	6 months On-going
Project-12: Branding of tourism routes										
<ul style="list-style-type: none"> • Marketing • Signage 							R2 000 000	R2 000 000	DEAT/DoT/DM	24 months

Project-13: Travel Demand Management <ul style="list-style-type: none"> • Policy on TDM • Parking Policy for urban areas • Bus Lanes and Reversible lanes in urban areas 						R 200 000	R200 000	DM	2 months Lane mgmt is on-going
Project-14: Transport System Management <ul style="list-style-type: none"> • Traffic Signal Management and Signal Maintenance • Road Access Management 						R1 000 000	R1 000 000	DM	On-going
Project-15: Develop Integrated Land Use and Transport Planning Model <ul style="list-style-type: none"> • Burgersfort • Marble Hall • Groblersdal 						R900 000	R900 000	DM	6 months
Project-16: Prepare Environmental Policy for Transport						R100 000	R100 000	DM	2 months
Project-17: Procure GIS software and set up database						R500 000	R500 000	DoT/DM	12 months and on- going
Project-18: Overload Control Centres								DOT/NRA/RAL DM must participate	
Project-19: Rail infrastructure for Mining Developments								Dept. Finance & Economic Development/DoT	
Project-20: Routine Road Maintenance on R37 (Burgersfort to Polokwane)						R24 240 000	R24 240 000	NRA	
Project-21: Road Widening and Shoulders on R37 (Lebowakgomo North to Lebowa Mine -Atok)						R87 000 000	R87 000 000	NRA	
Project-22: Road Widening and Shoulders on R37 (Lebowa Mine to Modikwa Mine)						R60 000 000	R60 000 000	NRA	
Project-23: Road Widening and Shoulders on R37 (Modikwa Mine to Burgersfort)						R41 000 000	R41 000 000	NRA	
Project-24: Routine Road Maintenance on N11 (Mpumalanga to Groblersbrug)						R61 500 000	R61 500 000	NRA	
Project-25: Upgrading of R555						R123 000 000	R123 000 000	Mpumalanga DoT/DM	
Total						R6 000 000	R86 500 000	R92 500 000	

12 FINANCIAL IMPLICATIONS AND SOURCES OF FUNDING

12.1 Relevant Administrations in the SDM

The following authorities are significant planning authorities with respect to Transportation in the SDM:

- (a) Department of Transport
- (b) The District Municipality
- (c) The South African National Roads Agency
- (d) Road Agency Limpopo
- (e) Department of Public Works
- (f) Mpumalanga Department of Transport, Roads, and Public Works

Due to the higher level of poverty, the rural nature of the area, and the shortage of resources including capacity and appropriate skills, collection policies and systems undermine the potential revenue of the District Municipality.

Inter-Governmental funds are distributed by the equitable share formula and conditional grants through eight different programs. Municipal infrastructure funding is allocated through the Consolidated Municipal Infrastructure Program.

12.1.1 Summary of Total Costs

The estimated total cost for all transportation projects derived in the Integrated Transport Plan in the SDM is presented in **Table 12.1**.

Summary of the Total Cost	
Transport Plan	Cost of Projects
Operating License Strategy	R 4 500 000
Public Transport Rationalisation Plan	R242 800 000
Public Transport Plan	R53 250 000
Integrated Transport Plan	R 92 500 000
TOTAL	R 393 050 000

Table 12.1 – Total Cost for Transportation Projects

The cost excludes the road infrastructure projects identified by the National Roads Agency and the R555, which is under the jurisdiction of the Mpumalanga Department of Roads and Public Works. Further, the total excludes the real cost of upgrading and maintenance of District Municipality roads. The comprehensive cost will be determined after the Road Master Plan for the District Municipality is developed. The cost for the upgrade of the street network in Burgersfort is R45 000 000.

The cost for the rail infrastructure as proposed in the Limpopo 2020 study is excluded, as rail is not a core competency of the District Municipality. The feasibility study and implementation of Overload Control Centres are also excluded in the total cost for the District Municipality as the project is currently under the authority of the National Roads Agency, the Department of Transport, and the Roads Agency Limpopo.

12.2 Funding and Subsidies

Is public transport a Public service or is it market driven? Are subsidies an investment or a waste of taxes? What are the main social and economical objectives aligned with transport subsidies?

For the Limpopo Province, it is intuitive that public transport is a need, and subsidies are necessary to provide access mobility to ensure an adequate standard of living for most people in the Province. Thus, the current circumstances qualify subsidies as an investment in the Limpopo Province.

Public transportation is a service with reasonable economics, where the bottom line should not be the dictating factor. Transit does not outperform private mode in a free market environment. There are several non-monetary, non-tangible benefits to society. These benefits are not marketable. Reducing capital and operating costs by deregulation must still consider the basic needs of the passenger.

Availability of needed funds as a basic condition for implementing the permanent provision of attractive services that can respond to increasing demands for high quality, high volume public transportation. Similar to highways and other passenger transportation facilities, transit investments come mostly from public funds.

The preferred modes of public transport are the bus and taxi. Currently, the higher capacity buses operate during the peak periods only, while the lower capacity taxi mode operates during the off-peak period on the same primary route. However, on some routes the taxi mode is in direct competition with the bus mode, and is not viable. There is potential for some routes to be converted to taxi routes only due to the low passenger volumes. There is potential also, for taxis operators to be contracted by the bus operator and effectively provide a subsidised service.

The Limpopo Department of Transport must also resolve subsidies for learners, students, and elderly. The current data does not categorise the passengers as learners, students, disabled, or elderly. If these categories of passengers are included in the total number of passengers then they are subsidised at the same rate as commuters. There is need for a concession for these categories of passengers, and should be investigated further. There is also a need for a specific funding allocation for the provision of Class 1 improvements not only for contracted operators, but also for tourist bus operators too.

12.3 Current Funding for Public Transport

Each District Municipality receives a National allocation for its own Municipality and its Local Municipalities. At present this is the main source of funds. The District is also assisted by the Limpopo DoT and the Mpumalanga DoT with the preparation of transport plans, bus subsidies, and some capital projects. Effectively, the Limpopo and Mpumalanga Departments of Transport provide the major portion of public transport funding in the SDM.

There are no funds allocated for transport planning and public transport capital expenditure in the IDP for the SDM, possibly since no transport plans were prepared yet.

The essence of the mission of the Limpopo Department of Transport to develop, co-ordinate, implement, and manage an integrated, multi-modal transport system, and vision of the SDM to be a custodian of integrated sustainable service delivery in partnership with Local Municipalities and communities, are not fulfilled, and indicates the reality of the backlog in the delivery of public transportation. Just as much needs to be delivered, proportionate funding is also needed.

It is not practical to maintain the status quo in terms of funding for public transportation in the SDM, and in general in the Limpopo Province. There is need for increased funding from National and Provincial Government, and possibly Private Sector. However, additional funds will be used to address the existing inefficiencies and backlog in public transportation, and progressively achieve the stated objectives.

Irrespective of the funding source and the quantity of funds available, there is need to prioritise projects and expenditure. The SDM must not only focus on existing facilities, but also address new facilities as prioritised in this study.

12.4 Sources of Funding

1. The Steelport Producers Forum that consists of representatives of the mining houses in the area, are prepared to provide funds for planning purposes, for the following public transport projects in the Greater Tubatse LM.
 - Detailed planning of a multi-modal public transport facility in the Burgersfort CBD.
 - Public transport by-laws (Although the by-laws are designed for the Sekhukhune District Municipality, they would also be relevant to the GTLM.)
 - Provide input into the transport of workers along the Dilokong corridor (subsidised transport).
 - Maintenance of the Greater Tubatse Transport Forum
 - Upgrading of Road R37 (Dilokong Corridor), traffic counts and feasibility study
2. National and Provincial Government is the conventional source for public transportation planning and implementation. However, increased funding is needed and justified by transport plans.
3. The National Roads Agency (NRA) is funding some projects on the R37 and N11. The District Municipality must be actively involved with the NRA and motivate for secondary projects such as public transport facilities along the roads, road safety interventions, etc, and the District Municipality should use these flagship projects to motivate additional funds from the Department of Transport.
4. The Roads Agency Limpopo (RAL) is currently in the process of planning the transfer of roads to the District Municipality. It is imperative that the RAL provide supporting resources such as the Road Management System, training, secondment of personnel, and funding to the District Municipality.
5. Municipal Infrastructure Grant (MIG) – The District and Local Municipalities must motivate for funding from the Department of Provincial and Local Government through the MIG fund, especially for flagship projects such as inter-modal facilities, non-motorised transport projects, and para-transit projects.

6. The District Municipality may engage with the Private Sector to develop facilities, specifically inter-modal facilities, and obtain bridging funds from the Municipal Infrastructure Investment Unit. For Local Government to qualify for funding from the Municipal Infrastructure Investment Unit (MIIU), Local Government should prepare and apply a Policy on Public Private Partnerships.
7. The SDM must motivate to the Department of Transport for funding pilot projects, specifically for non-motorised transport and paratransit initiatives.
8. Law enforcement must aggressively deal with parking and speeding violations by issuing fines.
9. Engage with operators to pursue advertising on buses to generate operating revenue, and contain operating subsidies. Advertising space includes vehicles, terminals, fare cards, maps, schedules, in-vehicle dynamic message signs, etc.
10. Joint Development among Government Departments for Liveable Communities
 - Department of Transport and Department of Local Government and Housing to co-ordinate land use developments
 - Department of Transport and Department of Environmental Affairs and Tourism to obtain funds through the National Environmental Management (Air Quality Management) Act with motivation to reduce emissions by upgrading the rolling stock, and branding of tourism routes.
 - Department of Transport and Department of Education must address the subsidisation of learners and students.
 - Department of Transport and Department of Social Development must address the subsidisation of the elderly.

The way forward is to motivate the prioritised projects in the Integrated Transport Plan (ITP) to the Integrated Development Plan (IDP). The construction and maintenance of public transport facilities and roads are in most cases labour intensive, and are appropriate mechanisms to accentuate **job creation**.

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	Prepared by	Reviewed by	Approved by
ORIGINAL	NAME Kollan Pillay	NAME Philemon Namane	NAME Johan de Bruyn
DATE	SIGNATURE	SIGNATURE	SIGNATURE

REVISION	NAME Kollan Pillay	NAME Philemon Namane	NAME Johan de Bruyn
DATE	SIGNATURE	SIGNATURE	SIGNATURE

REVISION	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

REVISION	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

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ARCUS GIBB (Pty) Ltd
 Lynnwood Corporate Park
 36 Alkantrant Rd, Lynnwood Manor
 P.O. Box 35007
 Menlo Park, 0001
 Tel : +27 12 348 5880
 Fax : +27 12 348 5878
 Email : info@arcusgibb.co.za
 Website : www.arcusgibb.co.za