The Government of Lesotho

Transport Sector Master Plan for The Kingdom of Lesotho

Ministry of Public Works and Transport

2024 - 2044

CONSULTANCY SERVICES TO PREPARE NATIONAL TRANSPORT SECTOR MASTER PLAN FOR THE KINGDOM OF LESOTHO

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TABLE OF CONTENTS

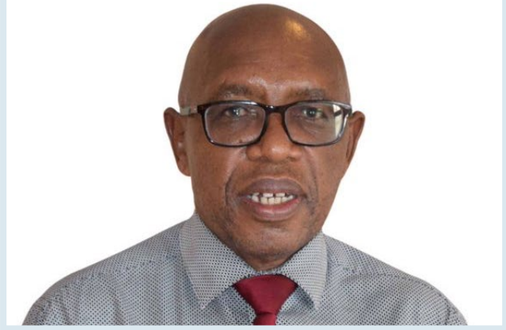
ABBREVIATIONS

AADT	Annual Average Daily Traffic	**MOT**	Ministry of Transport
ADT	Average Daily Traffic	**MT**	Motorised Transport
BoS	Bureau of Statistics	**NMT**	Non-Motorised Transport
CEA	Census Enumeration Areas	**NSDP**	National Spatial Development Plan
DCA	Department of Civil Aviation	**O-D**	Origin-Destination
FCD	Floating Car Data	**ORT**	OR Tambo International Airport
GIS	Geographic Information Systems	**RD**	Roads Directorate
ICAO	International Civil Aviation Organisation	**SADC**	Southern African Development Community
IMT	Intermediate Means of Transport	**TAZ**	Traffic Analysis Zones
LNTSMP	Lesotho National Transport Sector Masterplan	**TFR**	Transnet Freight Rail
LRA	Lesotho Revenue Authority	**TIS**	Traffic Information System
LRMS	Lesotho Road Management System	**ToR**	Terms of Reference
LSL	Lesotho Loti	**TSP**	Transport Sector Policy
LSPP	Land Survey and Physical Planning	**UNEP**	United Nations Environment Programme
MASCON	Maseru Container Terminal	**V/C**	Volume over Capacity Ratio
MIA	Moshoeshoe I International Airport	**4+1**	Sedan Taxi
MOPW	Ministry of Public Works		

LIST OF FIGURES

LIST OF TABLES

FOREWORD



MATJATO NEO MOTEANE
The Honourable Minister of Public Works & Transport

The transport system of a country can be compared to the blood circulation system of a human being. A healthy human is dependent on a healthy blood circulation and similarly an effective transport system serves as a much-needed supporting ingredient for a vibrant economy and the prosperity of its people. Government and the private sector serve as the heart - the driving force to ensure that much needed energy reaches the cells of the economy and all its communities, where-ever they are.

Within this context, it is important to note the findings of a project documented as the *Transport Sector Masterplan for the Kingdom of Lesotho, 2023*. The report shows that Lesotho's transport system is in a poor state, in particular the hectic condition of most roads, the neglected state of the airports, the rail system that is near non-existent, the unsafe and lack of proper river crossings and the dilapidated public transport facilities. The summarized verdict on the quality and condition of the transport system is that it fails its most important mandate namely to support the Lesotho economy and its people in terms of effective mobility. The backlogs to maintain and develop the transport system is huge and will take considerable time and funding to be restored to acceptable levels at extremely high costs to the fiscus.

The *Transport Sector Masterplan 2023*, and its supporting documentation contains proposals regarding the development and maintenance of transport infrastructure, and also a restructuring of the institutional composition and transport management systems, a focused human resource capacity building program and finally also an investment strategy comprising a restructured funding program aiming at more autonomy and less dependence on the national fiscus, based on the user-pay principle. The report also elaborates on an implementation plan, with prioritized projects and a timeframe, supported by the investment plan to ensure a sufficiently funded implementation process.

Whilst the maintenance of transport infrastructure remains the first priority to protect our past investments, it is equally important to introduce game changing new infrastructure projects that will lead to meaningful economic development. In this respect projects are envisaged aiming at improved regional connectivity with our neighbors and international trade. It should be the foundation for Lesotho to become a multi-national regional corridor, changing its current status as a cul de sac country. For this to succeed, we also need innovative and capacitated public sector servants and meaningful private sector involvement. Government cannot succeed with this goal on its own.

My intention with this *Transport Sector Masterplan* is therefore to redirect the future path of the transport sector to support the economy and people of Lesotho more effectively. We need to make a difference, and not merely catch-up with the backlogs. It would require a dedicated and focused management and monitoring of the implementation process.

ACKNOWLEDGEMENTS / PREFACE

T'SEPANG KOELE
Principal Secretary for Public Works & Transport

The Transport Sector Masterplan 2023 represents a summarized version of a series of detailed reports (see INTRODUCTION) compiled as part of a project initiated by the Ministry of Public Works and Transport in August 2019, with 2022 as the planned completion date. The process was unfortunately disrupted by the Covid-19 pandemic, leading to a temporary suspension of activities during the lock-down period. The project restarted systematically since the re-opening of economic activities that allowed the project team to resume investigation and interaction.

Ultimately the project came to conclusion with draft reports early in 2023, followed by several workshops, interactions and presentations to various interest groups, allowing amendments based on the inputs received as part of the consultation processes. A final report was subsequently submitted to the Ministry of Public Works and Transport during the latter half of 2023, with a concluding presentation to a special Cabinet Committee during December 2023.

The project was guided by a Project Management Committee, led by a Project Manager through internal technical project meetings and workshops. External consultation with interest groups was conducted through workshops and one-to-one meetings with individual stakeholders. The consultation process included representation from various government departments and related other government institutions. A total of 34 stakeholders participated in the consultation processes.

The valuable inputs from all these institutions are acknowledged with gratitude. A special word of appreciation to the Honorable Ministers of Public Works and Transport during the years 2019 to 2023 for their guidance and support, as well as the project management staff of the Department and the technical team enduring the complications during project execution.

The report is intended to be an integral component of the forthcoming revision of the National Strategic Development Plan of the Kingdom of Lesotho. As such, it is part of a continuous process whereby the NSDP is reviewed periodically, usually serving a five-year term, containing individual sectorial elements towards a national development plan, of which transport is one.

The challenge now is to implement the plan at a pace that will rather catch-up and not to allow a further increase in back-logs in infrastructure development and the maintenance program. To this end the investment strategy is essential, including the institutional and funding restructuring and a human resource capacity building program. All of these need to be executed parallel to each other to avoid further deterioration of the transport system.

TRANSPORT SECTOR MASTERPLAN | 2024 - 2044

01 INTRODUCTION

This document is a summary of extensive review of the transport sector in Lesotho

The review entailed the detail analysis and presentation of the following tasks:

1. Data analysis and data strategy
2. Sector governance analysis
3. Infrastructure shortfalls for all sub-sectors
4. Financial resource requirements and constraints
5. Demand forecasts for all transport modes

The above review and analysis culminated in three documents, which are additionally presented in this document in summarised format:

1. Lesotho National Transport Sector Policy
2. Strategic Action Plan
3. Strategic Investment Plan

This document presents the concise and summarised contents of the Transport Sector Masterplan tasks and will consider the following elements:

The overall transport perspective in Lesotho
The Lesotho Transport Sector Masterplan summarised components
The Transport Sector Policy highlights
The Strategic Action Plan highlights
The Strategic Investment Plan highlights

02 OVERALL TRANSPORT SECTOR PERSPECTIVE IN LESOTHO

2.1. LESOTHO IN GENERAL

Lesotho is a landlocked country within South Africa. It is officially the Kingdom of Lesotho and is situated in the Maloti Mountains, containing the highest mountains in Southern Africa. Lesotho covers and area of over 30 355 km2, with a population of approximately 2.28 million.

Lesotho is the only independent state in the world that lies entirely above 1000 meters in elevation. It thus has a cooler climate than other regions at the same latitude and receives between 500mm and 1200mm of rain annually, depending on region.

The Lesotho economy is based on agriculture, livestock, manufacturing and mining. The majority of households subsist on farming. The western lowlands form the main agricultural zone. Almost 50% of the population earn income through informal crop cultivation or animal husbandry with nearly two-thirds of the country's income coming from the agricultural sector. Lesotho's ethno-linguistic structure consists mostly of the Basotho, a Bantu-speaking people.

2.2. OVERALL TRANSPORT ENVIRONMENT

Lesotho, being surrounded by South Africa, is currently dependent on its neighbouring country for transportation linkages and support. The road transport sector plays a vital role in meeting the transportation needs of Lesotho, both for passenger and for goods transport. As such, the development of the transportation sector in the country is focused on the lowland regions in the north of Lesotho, centred around the capital city of Maseru as well as to some extent in the Botha-Bothe district. Other regions of the country have significant challenges with maintaining a supportive and well-maintained transportation network due to the significantly mountainous terrain.

Currently, the greater regional connectivity of Lesotho in the SADC region is a challenge. The link between Maseru and Bloemfontein is the only major connectivity corridor and is as such not sufficient for adequate integration into the greater SADC transport environment since this is not considered a major tripartite corridor. Lesotho, being heavily reliant on road-based transport, is thus at a considerable disadvantage.

__Figure 2-1__ indicates where the lowlands are located, this being where the majority of transportation activity takes place. __Figure 2-2__ indicates where the major urban areas are located, thus showing the main areas of trip generation. __Figure 2-3__ (next page) shows the current road network in Lesotho with Class A to D roads shown.

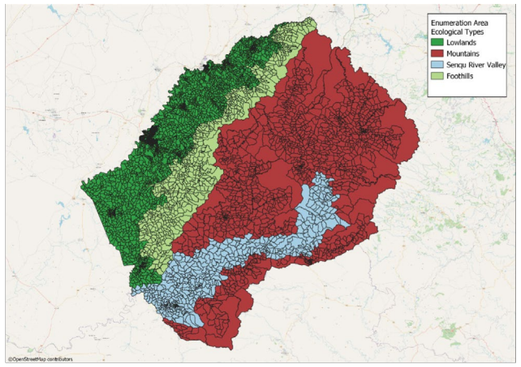


__Figure 2-1:__ Ecological zones per census enumeration areas

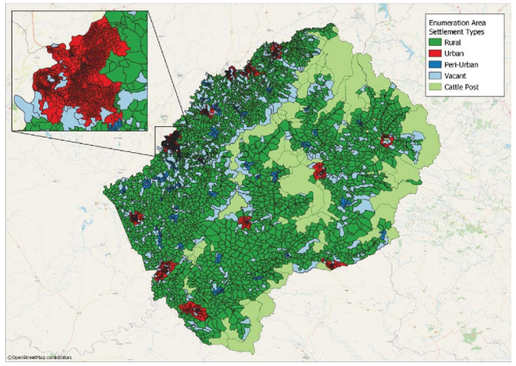


__Figure 2-2:__ Settlement types per census enumeration areas

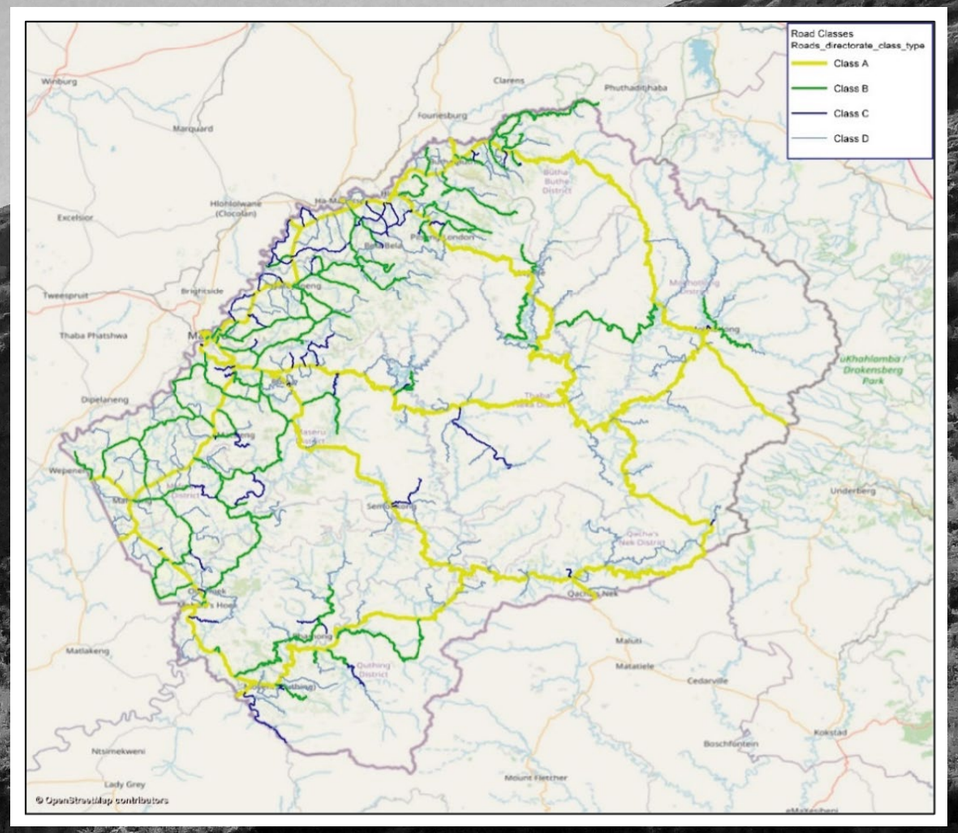


Figure 2-3: Roads Directorate Road Classification

2.3. MODES OF TRANSPORTATION

As is clear, the current transportation landscape in Lesotho is highly driven by the road-based transport modes. However, other modes are also present in Lesotho and the Non-motorised Transport (NMT) or Intermediate Means of Transport (IMT) modes play a significantly important role in the movement of people in Lesotho.

2.3.1. Road-based Transport

The road-based modes are categorised into 9 separate classes of vehicles that include all private vehicles, freight vehicles as well as public transport modes.

***Figure 2-4** shows the yearly increase in the overall vehicle population in Lesotho, per district. When considering the public transport landscape in Lesotho, it is evident that private minibus taxis and the sedan taxis (also known as "4+1s") are dominating this environment, as seen in **Figure 2-5**.*

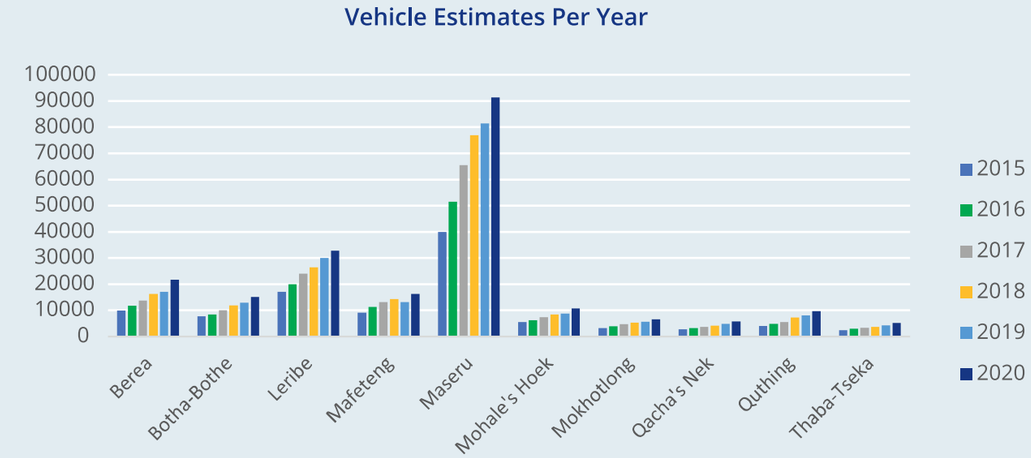


Figure 2-4: Lesotho vehicle population estimates (Ministry of Transport, 2020)

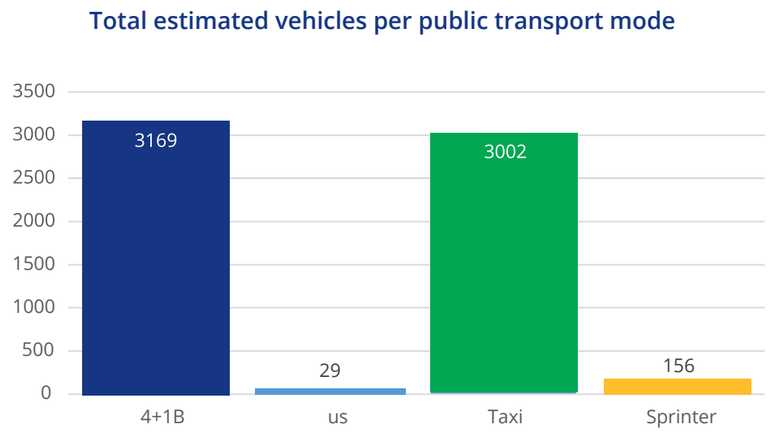


Figure 2-5: Total estimated public transport vehicles for the central region (Ministry of Transport, 2020)

The following figure indicates the analysed base year passenger demand volumes on the road network, making it clear where in Lesotho current travel demand is highest.

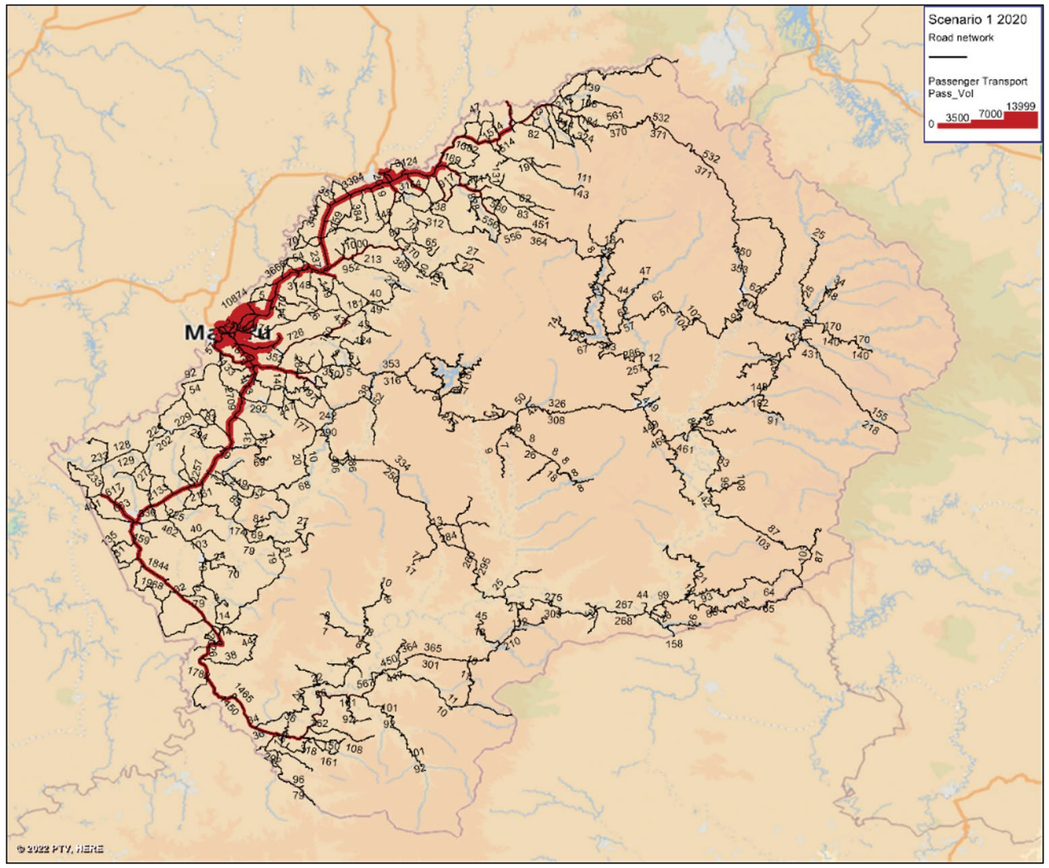


Figure 2-6: *Base year modelled 2020 passenger trip AADT volumes*

2.3.2. Rail Transport

Rail is currently very limited in Lesotho. The Bloemfontein-Maseru link is the only rail access into Lesotho and is in itself underutilised. Currently, the rail link consists of only 2.5 km narrow-gauge railway which runs through Maseru West industrial area between the Maseru Station and the South African border at Maseru Bridge. Passenger and parcel rail services to and from the Maseru Train Station were discontinued in the late 1980s as they turned out to be commercially unviable.

A number of different options have been considered to revive this mode of transportation in Lesotho, yet the challenges include the cooperation from the South African side as well as the highly mountainous terrain in Lesotho itself. This report makes reference to some projects that are aimed at uplifting the rail industry.

2.3.3. Air Transport

Air Transport, similarly to rail transport, is underutilised in Lesotho. This is largely linked to the gradual decline in the associated infrastructure condition. Lesotho has one international airport, the Moshoeshoe I International Airport, which is in need of upgrades. As for rail, this document utilises a number of proposed projects to address the shortfall in this sub-sector of transportation.

Figure 2-7 *indicates the number of international and domestic passengers at the Moshoeshoe I International Airport for 2017, 2018 and 2019. Since the Covid-19 onset these numbers decreased further.*

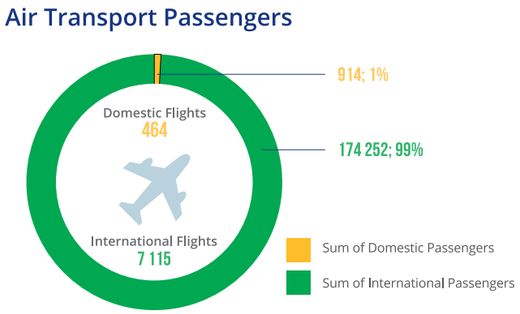


Figure 2-7: *Air transport passengers at Moshoeshoe I International Airport*

Figure 2-8: *a) and b) Women and children walking on the shoulder of a national road*

2.3.4. Non-Motorised Transport (NMT)

NMT is a considerably important mode of transport in Lesotho. The inaccessibility of certain regions of Lesotho, combined with relatively high levels of poverty in those regions, drive people to utilise these modes of transport on a daily basis.

NMT modes that are popular in Lesotho include walking, horse and donkey rides and animal-drawn vehicles. In view of the thin distribution of road transport in rural areas, particularly in the mountainous regions, this mode of transport will remain dominant for some time. These modes of transport often provide the link between rural, inaccessible areas and busier transport routes

Figure 2-8: *A major challenge in Lesotho is the lack of adequate NMT infrastructure. This is especially the case in the rural areas. The lack of provision of NMT infrastructure is evident in the figures above and as a result, people resort to walking along the roadway.*

2.3.5. Inland Water Transport (IWT)

IWT is a necessity in those areas of Lesotho that have prevalent rivers separating communities. The inland water transport consists of 39 inland river crossings served by 44 ferry boats owned by and operated by Ministry of Transport, complemented by private operators working longer hours.

***Figure 2-9** shows a ferry crossing in operation.*

***Figure 2-9:** Ferry operations*

2.4 LESOTHO TRANSPORT SECTOR INSIGHTS

The following are some elements that can be highlighted regarding the transportation environment in Lesotho:

- Transportation is largely road based and mostly focused in the lowland regions
- Accessibility is a challenge in the mountainous areas especially
- NMT is a very prominent form of transport, especially in the rural areas
- Existing public transport is largely driven by minibus taxis and the sedan taxis
- Lesotho faces a challenge with regional connectivity, especially considering the rail connectivity and distribution within the country
- Maintenance and upgrading of existing road infrastructure are of continued importance and need to be focused on since current road conditions are found to be in a deteriorating state
- Air transport within Lesotho needs to be revived and has potential especially within the tourism sector

2.5 LESOTHO NATIONAL TRANSPORT SECTOR MASTERPLAN PROCESS

The Lesotho National Transport Sector Masterplan consist of a number of different task items. Each of these tasks relate to different elements of the transport sector and together they provide the required input into the updated Policy Document, the Strategic Implementation Plan, the Financial Plan and the 3 Terms of Reference for the priority projects.

***Figure 2-10** below indicates the different tasks in relation to one another and the process flow required for project completion. **Figure 2-11** then indicates the technical approach that was defined from these tasks and according to which the work was performed.*

The process as presented in these figures gave rise to the structure of the document as indicated hereafter. This includes the various task summaries and the highlights of the transport policy, strategic action plan and strategic investment plan.

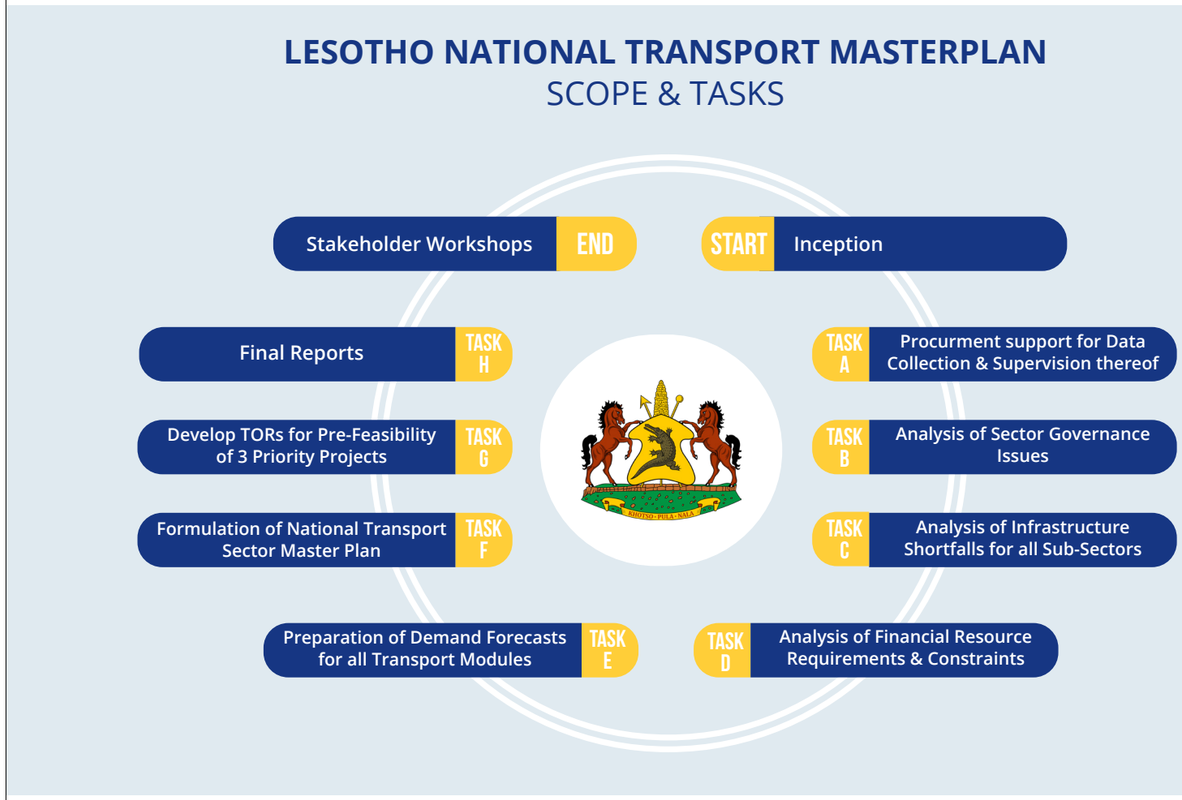


Figure 2-10: Overall Project Scope and task differentiation

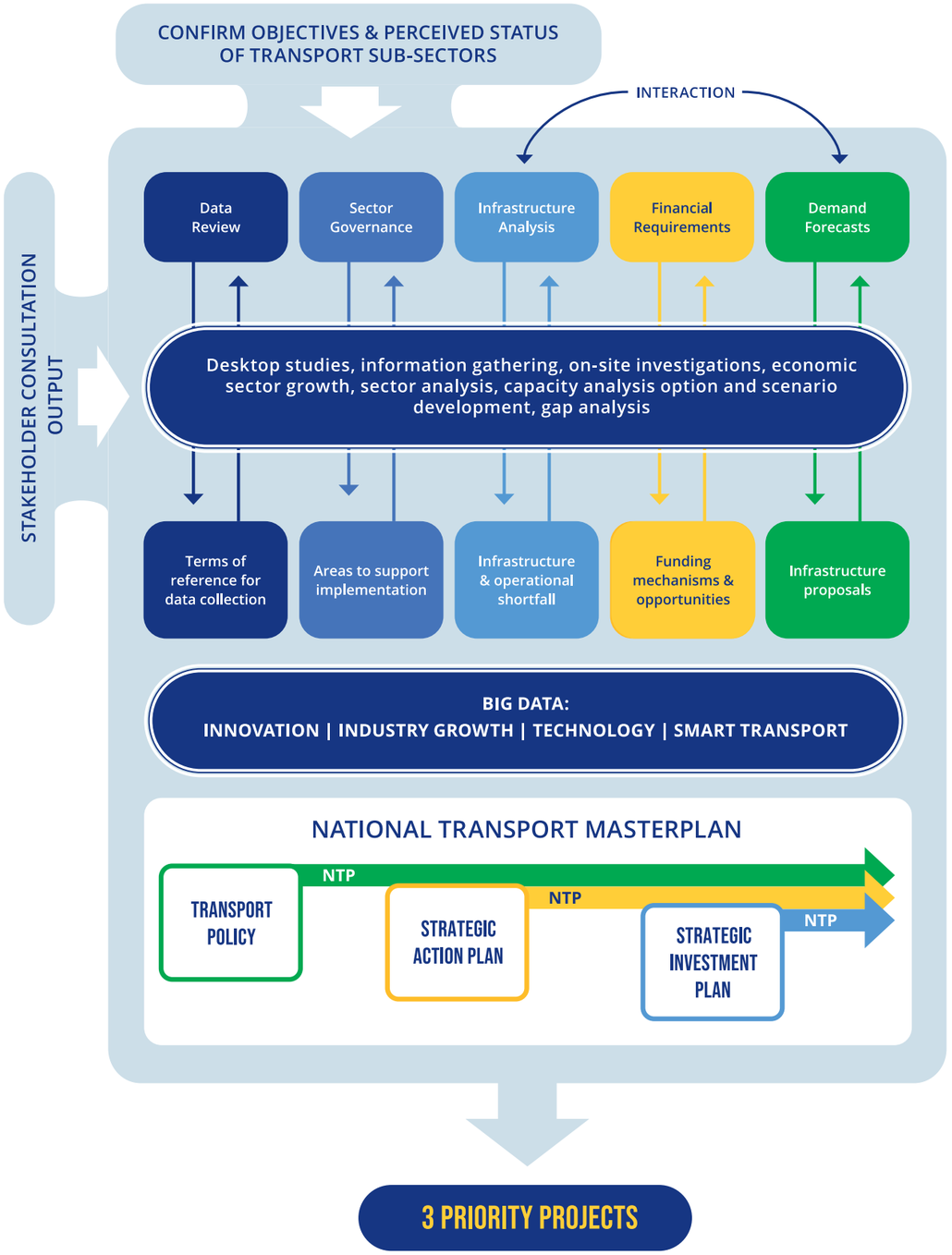


Figure 2-11: *Technical Approach to the Lesotho National Transport Sector Masterplan*

03 DATA ANALYSIS AND DATA STRATEGY

The aim of the data analysis and strategy task was to define the underlying data strategy for the Lesotho national transport sector masterplan, ensuring that the data requirements for this project are adequately researched and defined; that currently available data is obtained timeously; that the Data gaps are identified; that a strategy is formulated to obtain outstanding data, and that consideration is given to data anticipated to be required in monitoring transport performance going forward.

A further outcome was the consideration of current standards of data sharing and Collaboration, aimed at identifying the structures that can be put in place to ensure the increased Awareness of data management with regards to the transportation sector.

The following sections form part of the report:

3.1. TYPICAL TRANSPORT MASTERPLAN APPROACH AND DATA REQUIREMENTS

This section was aimed at identifying the typical data needs that are required for the successful implementation of a National Transport Sector Masterplan. Several examples of such plans were analysed, including South Africa, Swaziland, Egypt and Rwanda.

From their analysis the following figure highlights the typical transport masterplan approach, which aligns with the Terms of Reference (ToR) for the Lesotho National Transport Sector Masterplan.

1	Defined by current policies and visions, aligned with innovative solutions
2	Taking account all sectors of the transportation system
3	Obtain all relevant data using various means
4	Analyse existing conditions and forecast the growth
5	Undertake appropriate demand and capacity modeling
6	Indenty diferent programmes and interventions
7	Perform economic and other feasbilty of the proposed strategies
8	Finalise the proposed interventions and guidance for the transport authority
9	Ensure continued progress by defining new relevant policy documentation

Figure 3-1: Summary of the identified typical transport masterplan steps

3.2 KEY PERFORMANCE INDICATORS TO ENSURE PROJECT SUCCESS

This section was aimed at researching and identifying the internationally utilised parameters that are used to measure and monitor the impacts of certain interventions on the transport system, ensuring that desired change is observed.

A result of this research was the formulation of a data dashboard that can visually represent the transport data. The table below indicates the identified categories for performance evaluation.

***Table 3-1:** Key performance indicator categories*

KEY PERFORMANCE INDICATOR CATEGORIES	
MAIN CATEGORY	
No.	
1	Transport Network/Infrastructure (relating to the physical and overall aspects of the transport network)
2	Cross-border operations (relating to all border traffic to South Africa)
3	Transportation of goods (relating to the transportation of goods, in all forms and modes)
4	Transportation of Passengers/Public Transportation (relating to the movement of people within the transportation system, using various modes)
5	Road Safety (relating to the degree of road safety for various modes and users)
6	Environmental Impact (relating to the environmental impact of the transportation system)
7	Technology adoption (relating to the level of technology adoption/ new, smart, green technologies)
8	Law Enforcement (relating to the enforcement of road regulations, especially also linking to road safety and infrastructure longevity)
9	Financial Sustainability (relating to the fiscal matters of the transportation system and the importance of sustainable interventions and practices)
10	Transportation Policy (relating to the regulatory aspects of the transportation system and the importance of adequately defined transport policy)

3.3 OVERVIEW OF AVAILABLE TRANSPORTATION SECTOR DATA

This chapter showed all the data that was currently available in Lesotho relating to the transportation sector and facilitated a good understanding of the Lesotho environment. This section was a result of extensive consultation, enquiring, and searching to ensure that all possible and available sources were scrutinised.

Data was obtained from various stakeholders including

- The Ministry of Public Works
- The Ministry of Transport
- The Road Fund
- Bureau of Statistics
- Various other Ministries and key stakeholders

During this phase of the project, a site visit was also conducted to gain additional insight into the workings of the Lesotho transportation environment.

A part of this chapter was also the formulation of data gaps, as well as a data collection approach. The main data gaps as identified were as follows:

- Origin-Destination (O-D) data for Task E
- Classified traffic counts in Maseru for overall modal classification
- Vehicle occupancy and mode choice data
- Public transport mapping

3.4 DATA COLLECTION APPROACHES

This chapter discussed the different manual and digitised methods of collecting data within the context of the identified data gaps. Importantly, the need for Origin-Destination survey data was addressed by the formulation of a road-side O-D survey proposal, rather than gathering this data from expensive household travel surveys.

3.5 DATA STRATEGY

The data strategy which resulted from the work performed in Task A pulls the various insights and the data gathering process together into a strategy for increased collaborative data sharing and management.

At its core, the data sharing framework takes into account the following:

1. Data gathering and provision
2. Data storage and analysis
3. Data use and application

There is a clear need for harmonisation of data sources and management across various subsectors in the transportation sector in Lesotho and this framework aimed at assisting policy and project prioritisation in this regard.

3.6 DATA ANALYSIS CONCLUSION

An important conclusion of the work done for this task is the crucial role which data management plays in the successful formulation of a national transport masterplan, especially in a context such as that of Lesotho, where the availability of data looks different to that of developed countries.

As part of this it is recognised that the advances in technology present a country such as Lesotho with options to "leapfrog" development steps with regards to data gathering, storage and utilisation.

It is evident that data is present all over the transport sector and that its availability needs but to be harnessed more fittingly. Currently, data availability is very fragmented, not structured or standardised, often driven by manual collection processes, and thus limited in overall usefulness.

The opportunity lies within an overall digital mobility and data digitalisation effort and strategy that can transform the transport sector in Lesotho.

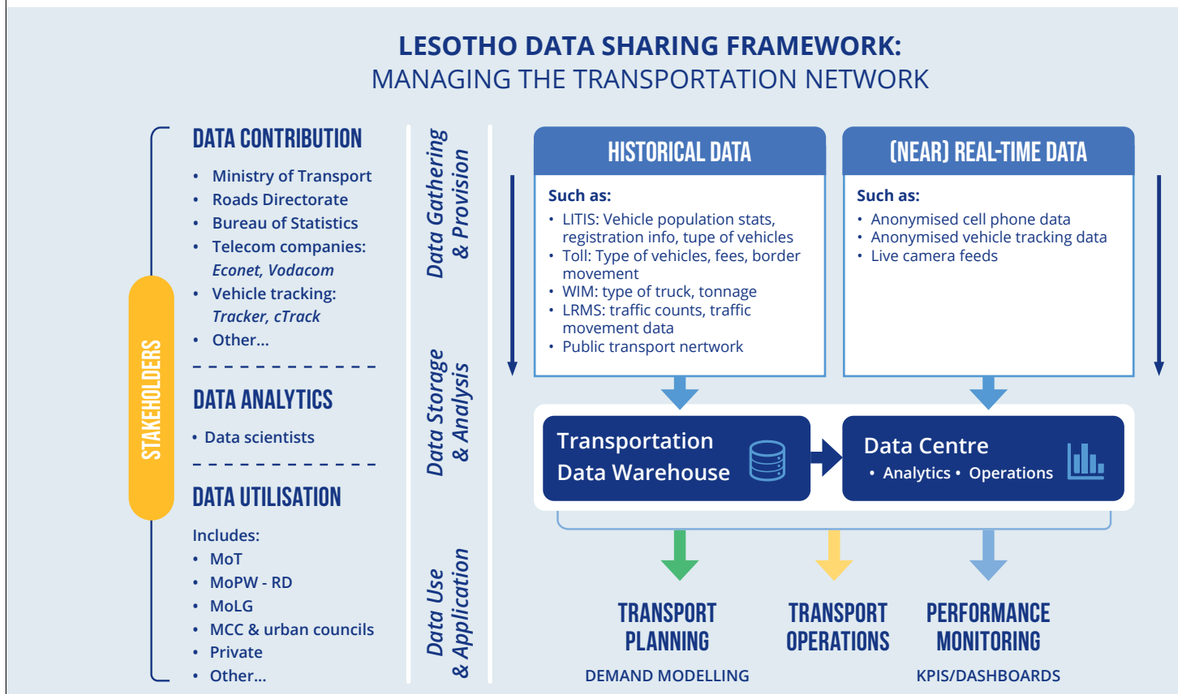


***Figure 3-2**: Lesotho data sharing framework: Managing the Transportation Environment*

04 SECTOR GOVERNANCE ISSUES

The Analysis of the Sector Governance Issues presented an analysis of a large number of transport sector governance documents to understand the current framework within the following areas:

- Current Transport Sector Legal and Regulatory Framework
- Current Road Infrastructure Legal and Regulatory Framework
- Current Road Transport Legal and Regulatory Framework
- Current Road Traffic Legal and Regulatory Framework
- Current Rail Transport Legal and Regulatory Framework
- Current Inland Waterway Transport Legal and Regulatory Framework
- Current Air Transport Legal and Regulatory Framework
- Current Intermediate Means of Transport Legal and Regulatory Framework
- Environmental and Socio-Cultural Arrangements within the Transport Sector
- Comparison of Efficiency and Productivity of Transport Sector Service Providers and Transport Costs to Users
- Institutional Capacity in the Transport Sector
- Effectiveness of User Charges as Funding Mechanism

The documents reviewed during the analysis of the above include:

- The Constitution of Lesotho 1993
- The National Strategic Development Plan II 2019-2023
- The Public Financial Management and Accountability Act 2011
- The Finance (Road Fund) Regulations, 2012
- The Public Procurement Regulations, 2007
- The Local Government Act 1997
- The Local Government Service Act 2008
- The Roads Directorate Act 2010
- The Lesotho Highlands Development Authority Order 1986
- The Lesotho National Development Corporation Order 1990
- The Communications Act 2012
- The Environment Act 2008
- The Roads Act 1969
- The Road Transport Act 1981
- The Road Transport Regulations 1981
- The Road Traffic Act 1981
- The Road Traffic Regulations 1981
- The Aviation Act 2008
- The Air Navigation Regulations 1980
- The National Environmental Policy, 1998
- The Transport Sector Policy, 2006
- The National Decentralisation Policy, 2014
- The National Investment Policy, 2015
- The Public-Private Partnership Policy, 2017
- The Public Procurement Policy, 2018
- The SADC Protocol on Transport, Communications and Meteorology, 1996
- The SACU Agreement
- The COMESA-EAC-SADC Tripartite Multilateral Cross-Border Road Transport Agreement (MCBRTA).

4.1 SECTOR GOVERNANCE STATUS

Comparing the structures of the different organisations in the planning, provision and maintenance of transport infrastructure and service provision, is not particularly useful because apart from the Ministry of Public Works and Transport implementing agencies, all other organisations have different core mandates and their structure is aligned to their basis.

Structures for technical sections for most of the institutions, except the LHDA, seem to be technically lacking in key expertise that is required. They seem not to have acquired the human resources to fulfil their specific mandates. They have in turn had to substitute ideal professionally registered technical professionals and in particular engineers with technicians and technologists. This allows the institutions to function but the level of decision-making is affected by the technical capability of the key resources.

Secondly, it is recommended that the transport sector invest in the requisite qualifications and experience and develop mentorship programs and long-term staff development programs supported by localization plans and mentorship and professional affiliation to develop the capacity required over time.

The Engineering Needs and Numbers Study has shown that there is a need to develop Engineering capacity in Lesotho to serve the sector as the numbers do not correspond to the existing sector needs. Also, the specialization that is required is also unavailable in the local market in the numbers that are required.

Although the lead organisations have legal mandates over the standards, quality and planning of transport infrastructure and services, the organisations do not have the capacity to extend themselves to their roles outside their own organizations. There is no oversight over the plans of other institutions like Trade to anticipate when the projects will be complete and to what standard.

There is a need to an integrated land use transport plan that will be accessible to stakeholders. There needs to be a dashboard so that at any time the stakeholders can see when and where developments will take place.

Even members of the public do not know which institution to approach when there are faults or because of the fragmented assignment of responsibilities of the sector. There is no accountability so after I have reported when my issue will be addressed.

The services in the roads sub-sector are largely provided by the private sector, with the government limiting its services to areas that are unattractive to commercial operations.

The government sets out the legal and regulatory framework for road transport through the MoPWT. This institution also retains control over the utilisation of road infrastructure, even in urban areas, through licensing and permits, with the Road Transport Board (RTB) assisting by allocating public transport routes and setting appropriate fares. The MoPWT also liaises with the Cross-Border Transport Agency of the South African Department of Transport to facilitate cross-border road transport (both freight and passengers) in accordance with regional agreements.

In response to the policy directions in studies under the RRMP, ITP and TICP projects, the Ministry has reorganised the Department, initially to merge the Civil Works Section, the Department of Rural Roads and the Roads Branch to form the Roads Directorate.

The ideal structure is a road authority where all the role players for transport infrastructure and service provision are housed in one Ministry and one Road Agency. The transport policies have been seeking to integrate transport infrastructure with transport service provision.

The rationale for reform in the transport sector documented in the "Policy Paper on the Reform of the Roads Sub-Sector" (MoPWT, 2005) is cited as follows:

a) Inadequate funding for roads maintenance and construction
b) Fragmentation in responsibilities for road construction and maintenance – responsibility shared by four agencies and coordination in planning to produce a comprehensive road management plan had not been achieved. In comparison with other countries, one single entity was able to be custodian of the entire national road network
c) Duplication of roles
d) Lack of accountability for resources
e) Recruitment and Management Constraints
f) Inadequate implementation capacity.

The Roads Directorate has been able to reduce its force account units and now contracts out all maintenance work. The MoLGCA, however, has force account units using equipment-based methods for maintenance. It is interesting to note that the RD's equipment-based road construction unit, the Road Improvement Unit (RIU) was phased out due to lack of accountability.

The Engineering Needs and Numbers study conducted in Lesotho also highlighted the same skills gap in the sector to meet the needs. It raises underdevelopment of certain cadres in the Engineering profession coupled with misplacement of skills. Although the study distinguishes the role and importance of the value derived from having layered levels of Skills in Engineering, i.e., having Engineers supported by Technologists and then Technicians, the

Lesotho Construction Industry does not recognise and differentiate these.

During interviews with the transport organisations, it became evident that there were issues of misplacement. For example, where an Engineer was required, there was a Technologist in their place. Similarly, where a Technologist was required, there were technicians. There was also a lack of awareness of the specific engineering field that was required for some tasks. For example, where there was a need for a Traffic Engineer, there was a Motor Mechanic Technician or Electrician conducting the task. The designation and assignment of roles to the wrong skill set extends to clerical staff as well. This mismatch was created by the transfer of staff from the former Department of Rural Roads and Roads Branch, which resulted in ineffective structures and an inability to perform on the Road Agency Mandate. The reform process was further aimed at improving efficiency.

The reform included the setting up of institutions and developing policies to guide the sector and conducting studies aimed at improving the data and management of the sector. Some of the success factors have been the formation of the Road Fund and the Roads Directorate and the setting up the Road Safety Council. However, there is still fragmentation in the number of agencies responsible for transport. The initial structure for the Roads Authority was meant to combine all the roads agencies in one structure.

Other issues still constraining the industry are the management structures for the DCA, the DTT and the RSD. The recommendation being consistently made for these Departments is that they need to be structured as more autonomous agencies. There is a recommendation for each to form an Authority or parastatal for better management and governance of their mandate. However, if each forms a separate authority there may be issues with the financial sustainability of these new organisations. Rather, the World Bank in 2010 indicated that in larger countries, there was a need to have separate entities for the transport sector, whereas in smaller countries the transport sector could be managed effectively by a single entity with clear responsibilities that is adequately and appropriately skilled. These entities should have effective management information systems, funding for its activities and a customer/road transport user accountability and communication strategy.

In addition, when considering the role of the MoLGCA, the decentralisation was an effort to ensure the participation of the community in the planning and participation of their own projects. For the structures to be effective for road construction and maintenance, there is a need to have a fully-fledged engineering team in each district. It would therefore appear to be more ideal to ensure that the planning for road works is still done at community level, however, the implementation should be coordinated through a road agency envisaged to incorporate planning and implementation of national roads with urban and rural roads.

The transport and traffic functions should not be separated from the infrastructure upon which they rely. They need to be augmented with engineering skills to maximize the use of the information systems under development in better planning the infrastructure.

The analysis of the transport sector using the IDR tool indicated that there were still areas where the main transport sector agencies needed to be developed for institutional efficiency. These are business planning, securing of funds, stakeholder participation, human resource gaps, monitoring and evaluation, communication strategies and the management of information systems. At governance level, there is a need for a supportive government and political environment to sustain the strides made in the sector for effective and efficient service delivery.

There is an opportunity to learn from and document and share best practices for the sector. One example is the LHDA, which seems to be effective in delivering on its mandate and is structured to optimise efficiency. This is because it is structured to maximise project management. It is also well resourced in terms of HR skills. The RSD is a leader in stakeholder participation and communication with stakeholders. The DCA has expertise in working on risk assessment and accreditation issues to ensure quality. The RF has successfully been collecting revenue and has an efficient structure. The RSD reliance on data and statistical information needs to be duplicated. With the combined strength of the sector, an ideal structure may be devised.

Following the recommendations of the World Bank and in line with the policy direction of the transport sector, which has been to integrate land use transport planning with the structures that exist, are not ideal in themselves. Strengthening the existing structures would not result in the integrated planning envisaged and an integrated national transport master plan. Rather, a Lesotho National Transport Development Agency following on from the recommendations of the ITPDS would incorporate the mandates of all the sub-sectors. Since Lesotho is a small country with a relatively small road network and vehicle numbers, a fully autonomous NTDA under the Ministry of Public Works and Transport would be well poised to meet the need for the industry. The structure would be similar to the New Zealand Transport Agency (NZTA), the Singapore Land Transport Authority (LTA) or the Brazilian National Department of Transport Infrastructure (BNIT). These are all examples of institutions with mandates for Transport Infrastructure and Service Provision. They handle the modes road, rail and water transport and work nationally in urban and rural areas.

4.2 ROAD TRANSPORT INSTITUTIONAL REFORM

The following phases of progression are listed to enable institutional reform of the road transport subsector towards the establishment of a National Transport Development Agency:

4.2.1 Phase 1

- *The exclusive mandate for the management and infrastructure provision of the national road network to be given to the Roads Directorate. The Ministry of Public Works and Transport, through its Department of Transport to be responsible exclusively for planning, policy development and regulation of road transport.*
- *All road infrastructure provision functions within the Ministry of Local Government and Chieftainship Affairs to migrate to the Roads Directorate.*
- *The exclusive mandate for the management and infrastructure provision of the local road network to be given to the local authorities. The Roads Directorate to act as sole implementing agent on behalf of local authorities for infrastructure provision where local authorities lack capacity.*
- *Transport services provision to be commercialised.*

4.2.2 Phase 2

- *The Roads Directorate, the Road Safety Department and the Department of Traffic to be integrated and established as one independent road transport agency of the Department of Transport to be housed in a separate office building.*

4.3 RAIL TRANSPORT INSTITUTIONAL REFORM

There is no legal and institutional framework for the rail transport subsector.

Services and infrastructure provision have to be separated from regulation and commercialised. The establishment of a department within the Ministry of Public Works and Transport is required to be responsible for planning, policy development and regulation of rail transport.

4.4 INLAND WATER TRANSPORT INSTITUTIONAL REFORM

There is no legal and institutional framework for NMT within the transport sector.

Services and infrastructure provision have to be separated from regulation and commercialised. The establishment of a department within the Ministry of Public Works and Transport is required to be responsible for planning, policy development and regulation of NMT.

4.5 AIR TRANSPORT INSTITUTIONAL REFORM

The Aviation Act 2008 (Act No 9 of 2008) consolidates and amends the laws relating to aviation and repeals the Aviation Offences Act 1975 and the Aviation Act 1975.

The Department of Civil Aviation acts as administrator and safety regulator in the air transport sub-sector. Services and infrastructure provision have to be separated from regulation and commercialised. The forming of a Civil Aviation Authority would be a first step in facilitating this separation and improving performance of the aviation sector in Lesotho.

05 INFRASTRUCTURE SHORTFALLS FOR ALL SUB-SECTORS

An important part of the development of the National Transport Sector Masterplan for the Kingdom of Lesotho is the Analysis of Infrastructure shortfalls for all sub-sectors. The importance of this lies in the value that is added to the strategic decision-making process in relation to transportation planning, infrastructure provision and overall preparedness for change in the transportation environment.

The focus of the "analysis of Infrastructure shortfalls for all sub-sectors" considered includes:

a. The Interurban Road System.
b. The Rail Network.
c. Air Services and Airports.
d. Water Transport, and
e. Intermediate Modes of Transport (IMT).

Lesotho is a land locked country, surrounded by the Republic of South Africa (RSA), and is highly dependent on RSA for transportation linkages and support. The road transport sector plays a vital role in meeting the transportation needs of Lesotho, both for passengers/commuters and for goods ferrying. Lesotho has a diverse nature of interurban and urban road network. There are difficulties associated with construction of roads in mountainous terrain areas, and very high road maintenance costs on roads traversing numerous river crossings, rock cuttings and steep vertical grades, particularly in the middle centre and eastern parts of Lesotho. Consequently, infrastructure development is primarily concentrated in the lowlands and foothills regions of Lesotho with a flat/rolling terrain i.e., the western parts of the country. The lowlands and foothills regions with flat/rolling terrain constitute approximately only 25 percent of the country's total area.

5.1 DOCUMENT REVIEW

a. ***The National Strategic Development Plan II (NSDP), 2018/19-2022/23*** indicates that rural accessibility remains a major challenge and that the national strategic goal for the transport sector is to develop key infrastructure with the following specific outcomes: -
   i. Improved Access to Main Towns and Key Border posts.
   ii. Improved and Developed Integrated Rural and Urban Transportation Systems.
b. ***The IDA Lesotho Transport Infrastructure and Connectivity Project (TICP)***, October 30, 2017, supports the priorities outlined in the Lesotho National Strategic Development Plan and Vision 2020. The TICP proposed project development objectives are to:
   i. Improve access to social services and markets in targeted rural areas of Lesotho.
   ii. Strengthen Road Safety Management Capacity; and
   iii. Improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency.

c. ***Economic Sector:*** The Economic Sectors were reviewed in TASK D. The four Economic Sectors using the road network corridor and their corridors are illustrated in Figure 5-1 and these sectors are:

- Tourism.
- Agriculture.
- Mining and
- Manufacture.

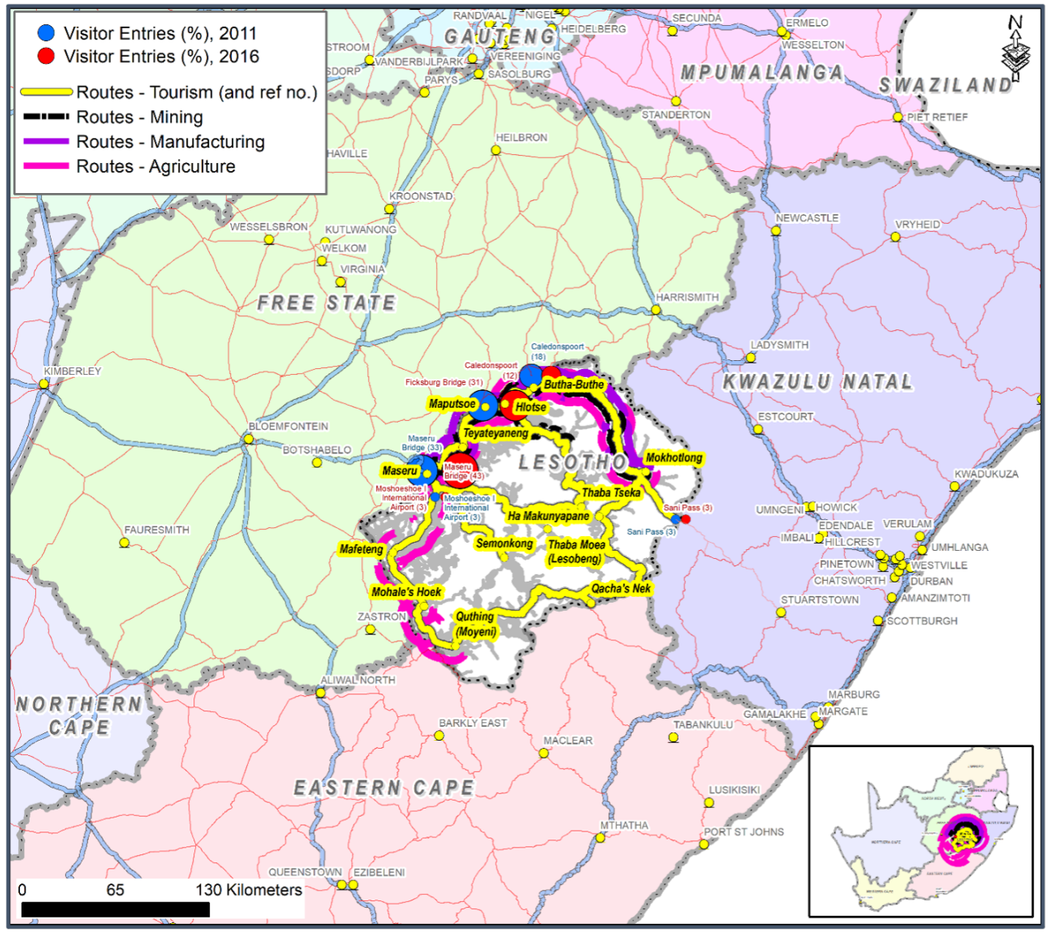


Figure 5-1: Economic Sector Corridors

Most tourists access Lesotho by road, mainly via the Northwest border posts, being Maseru, Maputsoe and Calendonspoort, accounting for approximately 85% of tourists, as of 2016. A small number of tourists access Lesotho by air and by road through Sani Pass, of approximately 3% each, as of 2011.

Furthermore, access via Maseru border post has increased from 33% in 2011 to 43.6% in 2016, whilst access via Calendoonspoort has decreased from 18% in 2011 to 12% in 2016.

The freight movement between Lesotho and RSA, largely occurs between Gauteng and Free State provinces, accounting for approximately 67% of the road trips and a further 12% trips to / from KZN. Therefore, almost 80% of the road trips between Lesotho and the three largest freight trip generators, would find it primarily convenient to use the Maseru border post and to a lesser extent, the Maputsoe and Caledonspoort border posts. Therefore, it is not surprising that most of the freight movements occur along the A1 on the west boundary of Lesotho and then spread to the northern, southern, and central corridors, as illustrated in Figure 5-1.

d. ***Tourism Sector Roads Wishlist:*** The Ministry of Tourism, Environment, and Culture (MTEC) of Lesotho and Lesotho Tourism Development Corporation (LTDC) has indicated that the tourism sector offers the greatest economic potential but is constrained by poor quality road connections. There are 16 tourist sites that have been identified by the MTEC of Lesotho and LTDC, that with better road access and connections, could attract a greater number of visitors.

5.2 ROAD TRANSPORT SUB-SECTOR

Given the information available for Roads Directorate's Road network, it is evident from the ***Road Network Development and Rehabilitation Strategy, 2015-2020*** that Roads Directorate has already undertaken numerous efforts to address the access challenge through the TICP implemented in 2017. The Road Sub-sector strategic objectives were as follows:

- Facilitate access to main towns and key border posts,
- Improve and develop integrated rural and urban transportation systems,
- Increase transport infrastructure/road safety,
- Improve public asset management.

However, the ***Lesotho Roads Management System (LRMS)*** indicates that the ***percentage*** of paved roads in 'poor' and 'very poor' condition category was 45%, exceeding World Bank norm of a maximum of 10% and the percentage paved roads in the 'fair' condition category was 42%, exceeding the norm of maximum of 25%. This classifies the paved network as having a large rehabilitation as well as preventive maintenance need. Furthermore, according to the LRMS, as of 2020:

a. Approximately **M2.4 billion** is required to address the pavement condition backlog of the paved roads, consisting of light and heavy rehabilitation.
b. Approximately **M2.6 billion** is required to upgrade gravel roads into paved, due to the AADT on these roads.
c. Approximately **M2 billion** is required to regravel the balance of the gravel roads that are below minimum standards and
d. Approximately **M400 million** per annum is required to maintain the gravel roads once the above backlog has been removed.

See the visual material on road conditions below.

Figure A - 1: Main routes not maintained

Figure A - 2: Urban roads not maintained

Figure A - 3: Rural routes not paved or maintained

Figure A - 4: Rural routes not usable anymore

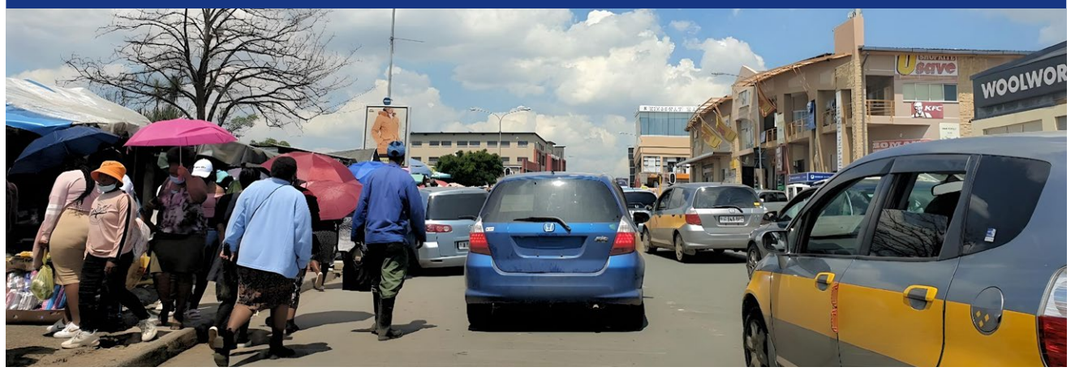


Figure A - 5: Congestion in city centres

5.2.1 Road Network Hierarchy and Classification

In order that the road network can be assessed as either having sufficient, insufficient, or more than sufficient capacity, the capacity criteria need to be determined and this criterion will differ based on the road function and class. Since most of the road capacity assessment is based on various South African COTO (Committee of Transport Officials) guidelines, the Lesotho road hierarchy has been assessed in terms of the TRH 26: South African Road Classification and Access Management Manual. In summary, the A and B roads are equivalent to Class 1 – 3 roads, that are designed for mobility and the C and D roads are equivalent to Class 4 – 6 roads, that are designed for access.

5.2.2 Road Network Capacity Assessment

Whilst the LRMS assessed the existing road network condition from a pavement condition perspective and determined these shortfalls, TASK C assessed the shortfalls of the road networks from all aspects and not just from a pavement condition perspective. Therefore, the road network Level of Service (LOS) was assessed from various aspects including:

a. Lane LOS, which is peak hour traffic volume / capacity (v/c) ratio, as determined by the traffic demand model in Task E. This LOS indicator focusses on lane capacity during the peak hour, which is a measure of the delays caused by congestion.
b. The Geometric LOS is also an indicator of delays experienced by traffic, but also takes into consideration the impact on travel speeds due to topography and heavy vehicle percentage. For this assessment, Table 4.4 from "The Government of the Kingdom of Lesotho - Design Standards for Geometric Design Volume 1" was used to determine the LOS for each road link, in less-than-ideal conditions.
c. The Pavement condition LOS, based on the visual condition index (VCI) per road link, as sourced from the LRMS, where a visual assessment of the road network was undertaken in 2019 and
d. Road surfacing feasibility, where the rule of thumb approach used was that typically it is more economically viable, considering a 20-year horizon, for a road carrying more than 300 vehicles per day (vpd) to be paved than to be unpaved, I.e. When the AADT exceeds 300 vpd, the maintenance costs for regravelling of the 20 years period will exceed the capital cost to surface the road, with routine maintenance. Therefore, all gravel roads that have ADT exceeding 300 vpd were identified as roads that should ideally be surfaced. A second indicator in this road surfacing feasibility considered was the grade of gravel roads – ideally road with grades exceeding 6% should also be surfaced, since stormwater erosion is excessive on gravel roads when grades exceed 6%.

Table 5-1: Lesotho Road Capacity Minimum Standards

MINIMUM STANDARDS	A-Roads	B-Roads	C-Roads	D-Roads
Lane / Geometric Capacity LOS - Rural	B	B	C	C
Lane / Geometric Capacity LOS - Urban	D	D	D	D
Pavement Condition VCI Rating	70%	70%	50%	40%
Max. recommended ADT for unpaved	300 vpd			
Max. recommended vertical grade for unpaved	6%			

Therefore, based on the various aspects of road network capacity assessment, as described above, the minimum standards applicable to each road class or surface type, according to the Lesotho road naming convention, is summarised in **Table 5-1**.

Lane Capacity Assessment: Most of Lesotho road network has sufficient capacity. Only the A1 from Maseru to Maputsoe and the A2 from Maseru to Mafeteng has a minor shortfall. There is one section of the A1, within Maseru, which has a major capacity shortfall, which needs a substantial intervention. This shortfall can only be addressed by additional lanes, adjusting the road geometry to increase the design speed, or reducing traffic volumes by means of modal shift and diverting traffic onto alternative routes.

Geometric Capacity Assessment: There are major capacity shortfalls along the A1 on the west side and in isolated sections in Botha-Bothe, as well as along the A2 just south of Maseru. There are also major capacity shortfalls along the A8, just north of Katse Dam, along parts of the A3 between Maseru and Thaba Tseka and along the A4 from Quthing to Semonkong. The rest of the A1 and A2 have minor capacity shortfalls. The terrain reduces the LOS slightly on the west side and substantially in the central and eastern areas.

There are substantially more capacity shortfalls due to the impact of terrain and heavy vehicles. This capacity shortfall can be addressed by:

a. Construction of climbing / passing lanes at key locations travelling uphill, dependent on space availability, which can be challenging in a mountainous terrain.
b. Identifying specific corridors for freight vehicles and upgrading them accordingly and reducing freight vehicles on other routes, or
c. Localized geometric improvements to increase horizontal curve lengths and / or vertical curve lengths which will require increased cut and fill.

Pavement Condition Assessment: The bulk of the road network is in fair or poor condition. Furthermore, the bulk of the A roads are in fair condition, except for isolated sections in the south that are in good condition. Furthermore, most of the A roads between Maseru, Thaba Tseka and Mokhotlong are in poor condition as well as the A road leading to Semonkong from the south-east.

However, as shown in **Table 5-1**, A and B roads are required to be minimum VCI of 70%, which is described as "good" and therefore "fair" condition for these roads is considered sub-standard whereas "fair" condition roads would be acceptable for C and D roads.

Road Surface Suitability Assessment: The gravel where the AADT is greater than 300 vpd should ideally be surfaced. The A road from Katse Dam to Thaba Tseka to Mokhotlong is a gravel road that is in poor condition and carries sufficient traffic to make it economically viable to be upgraded to a surfaced / paved road. It can also be seen that there are several gravel roads on the western side of Lesotho that also carry sufficient traffic to justify them being surfaced.

5.2.3 Road Network Capacity Insufficiencies

To combine all the different network characteristics, as described above, the various shortfalls, where a road does not meet the minimum standards as per **Table 5-1**, were classified in terms of severity, from 1 (most severe) to 7 (least severe) as follows:

a. **Severity 1** – Major Geometric Capacity Shortfall AND Major Pavement Condition shortfall.
b. **Severity 2** – Major Geometric Capacity Shortfall AND Minor Pavement Condition shortfall.
c. **Severity 3** – Minor Geometric Capacity Shortfall AND Major Pavement Condition shortfall.
d. **Severity 4** – Major Geometric Capacity Shortfall only.
e. **Severity 5** – Major Pavement Condition Shortfall only.
f. **Severity 6** – Minor Geometric Capacity Shortfall only, and
g. **Severity 7** – Minor Pavement Condition Shortfall and / or surface type shortfall due to ADT.

Table 5-2: Road Network Length (km) each year per Severity Category

Shortfall Severity	ROAD NETWORK LENGTH (KM) FOR EACH YEAR			
	2020	**2025**	**2030**	**2040**
1	105	109	447	1395
2	13	13	13	116
3	542	668	401	174
4	67	67	67	67
5	1517	1253	1183	1176
6	0	0	98	0
7	1563	1573	1475	1497
TOTAL (km)	**3807**	**3683**	**3684**	**4425**

Currently approximately 100km of the road network is experiencing a severe lane/ geometric and pavement condition capacity shortfall (Severity 1), but by 2040, almost 1400km will have this shortfall. This indicates a need to prioritize road condition and geometric capacity improvements and well as investigating traffic demand control interventions, by means of alternative routes/ bypasses and modal shifts to higher capacity public transport.

The extent of road network capacity shortfall, per severity both currently and in the future if no backlog interventions or lane/ geometric capacity improvements take place, is summarised in Table 5-2 (previous page).

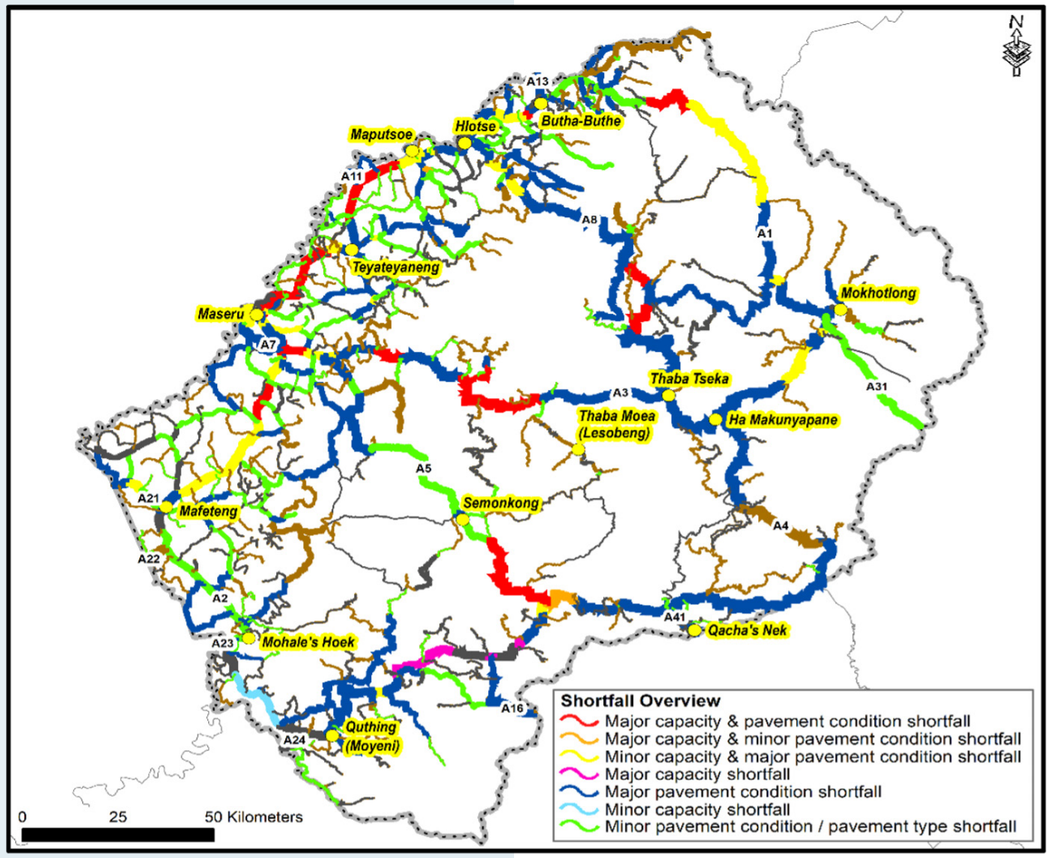


Figure 5-2: Road Network Shortfall Severity as of 2020

5.2.4 Future Capacity of Road Network – 2025, 2030, 2040

Eight Capacity Analysis Scenarios were considered, where the network capacity by 2025, 2030 and 2040, for low, medium, and high investment was analysed, assuming an average traffic growth rate of 3% and also considering the impact of the proposed bypasses by 2040, the following was concluded:

a. An investment of approximately **M500 million** per annum will maintain the road network at its current capacity shortfall.
b. A medium investment of approximately **M800 million** to M1 billion per annum will improve the road network slightly.
c. However, to improve the road network to get it up to the required geometric and pavement condition standard, a sustained high investment of at least **M1.25 billion per annum** will be required.

However, this will not address the increasing number of Class B roads along the west side of Lesotho that will have an ADT exceeding 300 vpd, thereby economically justifying an upgrade of gravel roads to paved.

Note: The above investment values exclude the annual gravel maintenance requirements of approximately **M400 million per annum** as indicated in the LRMS. However, where the higher investment scenarios are considered and implemented, which would include upgrading some gravel roads to paved, the annual gravel road maintenance costs will reduce.

5.2.5 Rural accessibility and IMT

Rural accessibility remains a major challenge and has a unique challenge to the broader road network challenges. This accessibility issue can either be addressed by provision of additional roads and / or provision of an air service from the existing airstrips.

Ideally no community member should be more than 2km from a road, which would equate to approximately 30minutes walking on rolling terrain but could be as much as 60minutes on mountainous terrain.

5.2.6 Proposed Interventions

The proposed projects and interventions to address the above shortfalls are summarised in **Table 5-3** where projects were groups into "LOTS", based on project similarities and where the Lot number gives an indication of the proposed project priorities, where the following factors were considered:

a. Status of project and whether it would be possible to implement the project in the short term if it were considered high priority.
b. Where the road sections identified for upgrade serve one or many economic corridors.
c. Severity of the road capacity shortfalls.
d. The road class and
e. The potential number of beneficiaries of a road, in the Rural Roads context.

Table 5-3: Proposed Road Network Interventions

Lot No.	PROJECT NAME
1	Primary Northern Economic Corridor Mobility Upgrade (65km, A1-05 to A1-13A) Primary Southern Economic Corridor Mobililty Upgrade (136km, A2-18A to A2-35, A4-02 to A4-04) Upgrade Thaba-Tseka to Katse Road (54km, A8-15 to A8-16)
2	Rehabilitate A16-01, Ha Lazaro to Ongeluksnek border (13.8km) Upgrade Ha Rafolatsane-Thaba Tseka (98.5km, A3-13B to A3-15F) Regravel / upgrade gravel roads from Khotlong to Tsatsane (40km, B43-1, C431-01 and D4311-01) Upgrade of the Malealea road (lodge) - Mafeteng (164km) (Upgrade gravel to paved (B25-05B to B25-08), reseal B25-09 to B25-10 and regravel B251 to B253 and C251 to C252) Upgrade earth road from Tlokoeng - Letseng la Terae (D1018-01) to engineered gravel
3	Reseal / light rehab Likhoele- Nr Ha Ramokhele (B26-03A to B26-09) Periodic maintenance of gravel Class B Roads (204km) (B105-01 to B106-01, B51-01B to B106-02, B51-01 to B51-03, B28-01 to B281-05, B44-01 to B44-05) Upgrade D2015-01, making up part of the Mafeteng bypass, from gravel to earth. (4.7km) Upgrade earth to gravel D1062-01 (7km) and regravel D1052-01, D2031-01, D2812-01, D3010-01 and D4016-01.
4	Upgrade of the Remainder of the Key Economic Corridor (A1) (232km).(Rehabilitation and widening of the A1 Trunk road (A1-13B to A1-36) and additional lanes and rehabilitation of the A1 from Maseru (A1-01 to A1-04C) Construction of New Bypasses around Maseru, Hlotse and Botha-Bothe (35km) Rehabilitate the Southern Corridor (A2-01 to A2-17) from Maseru to Mafeteng (76km) Upgrade Tourism and Mining corridor (A8-03B to A8-14) from Hlotse to Katse Dam (109km) Upgrade Tourism corridor A3 from Maseru to Thabe Tseka (159km) - Widen & Rehabilitate 155.4km (A3-01 to A3-13A) and reseal 3.3km (A3-16) Widen and Rehabilitate Tourism corridor (A5-01 to A5-14) from Maseru to Semonkong (128.6km) Upgrade Tourism corridor A4 from Mt. Moorosi to Qacha's Nek & Sehlabathebe to Taung Road (199km) (Rehabilitate 40km, A4-01, A4-11A to A4-13C, additional lanes for 67km, A4-05 to A4-09 & upgrade earth/gravel to paved 92km, A4-10, A4-18 to A4-22) Rehabilitate A13-01 and A13-02 from Botha-Bothe to Borderpost (9km)
5	Periodic maintenance of Access Route C401-01 to Sehlabathebe Tourism Sites (2.8km) Rehabilitation Road B11-02 and regravel Road B11-03 from Teyateya neng to Kome Caves (25km) Periodic maintenance of existing and upgrade to paved Koa Mine roads from A8 - A1 (B805-01 to B805-01B & D8051-01 to D8051-03 to be paved & D8101-01, B805-02-03 & NEW003 to gravel), 111km Upgrade the gravel roads to paved and reseal existing paved roads from Karammele to Ha Ntholi (80km) (B14-02A to B14-02D, B802, B803, B141-01 to B141-03 & D1411-02) Regravelling of various tourism access roads. (47km) (D5006-01 to D5006-03, D2006-01 to D2006-02 & C301-01 to C302-01)
6	Rehabilitation and widening of main arterials in Maseru (16.3km) (A9-01, A9-02, A6-01A to A7-02B) Rehabilitation and widening of A roads to four borderposts and regravelling of a fifth borderpost road. (31km) (A11, A12, A23, A41 and A22)
7	Rehabilitation and Widening of major arterials in Maseru from 2 to 4 lanes. (110km) (B20, B21, B31,B33, B60, B70 and B90 Periodic Maintenance of Paved Secondary Corridor Roads (120km) (B12, B13, B18, B19, B26, B41, B312, B81, C250, C411 & C501) Upgrade from Gravel to Paved Secondary Corridor Roads in poor condition with ADT > 300 vpd. (124km) B111, B122, B141, B221, B261, B27, B321, B42 and C201. Periodic Maintenance of Gravel Secondary Corridor Roads (219km) (B17-02 to B17-04, B102 to B105, B15, B162, B291, B321, B804, B807, C108-01 and C204-01)
8	Upgrade gravel to paved Secondary Road Corridors and Collector roads with high ADT (185km)
9	Periodic maintenance of Secondary Road Corridors and Collector roads. (933km)
Rural Access	Upgrade earth to paved, high volume, peri-urban Access Roads (32km) (D3001, D3011-01. D3201-01 and C107)
Rural Access	Rural Access Roads Upgrade Programme include upgrade of 150km of earth road to gravel, construction of 56km of new gravel roads and construction of 446km of new earth roads

5.3 PUBLIC TRANSPORT & NMT FACILITIES

Some previous studies of Maseru itself in terms of Public Transport has previously been done, with the key issues and characteristics as follows:

a. ***Maseru Urban Planning and Transport Study draft final report, October 2010*** indicates that Maseru has an extremely poor public transport system, the current PT level-of-service is very low and current fares are relatively high. It was also reported that pedestrian fatalities account for almost 45% of all car accident-related fatalities which is among the highest in the world. As such the development of safe pedestrian movement systems is essential in Maseru.

b. ***Improving Paratransit in Maseru and Gaborone, April 2022*** presents that Paratransit users in Maseru are mostly lower-income individuals; 4+1 sedan taxis are a significant competitor to Maseru's minibus taxi industry. There is no clear hierarchy of network routes or determination of fares for minibuses and 4+1's, resulting in excessive service overlaps and differing destructive competitive behaviour.

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5.3.1 Public Transport Service and Volumes

The traffic data provided by count undertaken by Zutari in 2019 along with the adjustments from the Task E Traffic Demand Model were analysed to gain a general idea of the Public Transport (PT) Services status. Furthermore, a site visit was undertaken to gain an overview of the PT Facilities in Maseru and the main Town in Lesotho.

All Class A roads approaches / exits currently have a very high traffic demand with AADT ranging between 10 000 – 24 000 AADT, except for A2 and A7 roads having medium traffic demands ranging between 2000 – 5000 AADT.

Furthermore, with respect to public transport, the north of Maseru Road links i.e., travelling to / from Maseru border post, Botha-Bothe and Thaba Tseka direction, have a high to very high public transport percentage (35% - 65%), with the highest PT demand on the A1 Road.

Maseru

4+1's dominates in terms of PT volumes within the Maseru CBD, making up high to very high volumes of PT, while mini/midibus taxis make up a low to medium volume of PT. The poor levels of service i.e., congestion resulting in long delays and queues in the CBD, are a result of 4+1's extremely high volumes.

Rural Road Network

Buses make up a very low volume of PT in Lesotho. The highest volumes of busses outside Maseru are in the range of 30 – 60 vpd from Maseru to Maputsoe. Thereafter, the number of busses on the A road reduces to 11 – 30 vpd from Maseru to Mafeteng and from Maputsoe to Botha-Bothe. Thereafter the busses reduce to less than 10 vpd from Botha-Bothe to Mokhotlong, from Mafeteng to Qacha's Nek and from Maseru to Thaba Tseka.

There is a high demand for PT along the A1 corridor to Botha-Bothe and along the A2 corridor to Mafeteng, mainly made up of mini/midibus taxis. These are the same corridors with high AADT. As with Maseru, the minibus taxis are high in volumes along corridors that are already under pressure in terms of traffic demands, where these make up a percentage PT ranging from 10% to 40% of the AADT.

It is of concern that some of the bus routes have a utilisation exceeding 100%, meaning the buses are overloaded / loading passengers over their designed capacity, such as the Mohale's Hoek – Quthing – Qacha's Nek trips, indicating that some passengers are having to stand during a long-distance bus trip.

5.3.2 Public Transport Facilities

PT Ranks

Most of the rural ranks are not paved, have no NMT separation and no shelter for passengers. There are also a lot of ranks, both rural and in Maseru, which do not have ablutions. Maseru ranks often serve more than one mode, such as bus and mini-bus taxi or 4+1 and minibus taxi. Furthermore, there are ranks situated very close to each other that are serving the same destinations and two modes in the same rank, serving the same destinations.

It appears there is no order / structure within the rank and with the grouping of ranks.

Public Transport Stops and NMT Facilities

Based on an assessment of the A1, A2, A3 and A8, the following hotspot areas were identified, as shown in **Table 5-4** (on the following page), along with proposed interventions. However, this would need to be investigated in more detail at feasibility / design stage and could potentially be incorporated in the design of road upgrades.

Table 5-4: NMT and PT Infrastructure / Facilities Interventions

Road Section	PT Stop Upgrade Description	No.	Sidewalk Description	Length (km)
A1: Maseru to Botha-Bothe	Signage, Shelter, Benches at stops at Teyateyaneng, Maputsoe, Hlotse and Botha-Bothe	**8**	1.2m wide sidewalks within 1km radius of PT Stops	16 – 20 km
A1: Botha-Bothe to Liphofung Nature Reserve	Formalize PT stops with lay bye, signage, shelters, and benches.	**10**	1.2m wide sidewalks within 1km radius of PT Stops	20 km
A8: Hlotse to Katse Dam	New PT stops, with lay bye, signage, shelter, and benches at safe locations at high activity nodes/ towns.	**10**	1.2m sidewalks within 1km of PT stops + widening at high NMT areas + 1.2m sidewalks along whole section	20 km
A3: Mohale Dam to Thaba Tseka	Provide shelter and bench at existing PT stops.	**10**	1.2m sidewalks within 1km radius of PT stops + 1.2m sidewalks where road passes through villages.	20km
Maseru City	Detailed NMT and PT study to identify and quantify demand, optimize, and add addition NMT facilities where required.			

5.3.3 Public Transport Optimisation

The A1 and A2 corridors on the western boundary of Lesotho has severe traffic capacity constraints and pavement condition shortfalls. Besides undertaking road maintenance and upgrade interventions to relieve these capacity shortfalls, the traffic demand also needs to be managed, by mechanisms of modal shift.

The public transport system in Lesotho is not well regulated and the modal shift from busses to mini-bus taxis and then to 4+1s is adding to the road network congestion and not providing an efficient and affordable public transport to the population, resulting in many people having to walk long distances in Maseru CBD.

5.3.4 Competition and synergy opportunities

The highest volume of traffic and congestion occurs in Maseru CBD and public transport accounts for 35% - 60% of this traffic. Furthermore, 4+1s are dominating public transport services in Maseru, where there is often double the number of 4+1s along a route versus a mini-bus taxi.

Furthermore, there a 10 Bus / Mini-bus taxi / 4+1 ranks in Maseru, most of which are concentrated within a 1km radius of each other. There are numerous different modes serving the same destinations and several ranks closely situated to each other that are also serving the same destination.

Along the A1 and A2 corridors the busses and mini-bus taxis are competing, where the bus service is infrequent and over-loaded, and the mini-busses are numerous and adding to the congestion along the western, economic corridor.

5.3.5 Intermodal Public Transport

The above assessment has identified the need for public transport modal shift, public transport modal regulation and control and public transport intermodal integration, to provide synergy and a more efficient public transport system.

The current uncontrolled, disorganised, and inefficient public transport system is currently having the following negative impacts:

a. Public transport users are having to walk long distances to the public transport service or resorting to paying more for the more convenient 4+1.
b. Long distance busses are overloaded, due to insufficient and infrequent supply.
c. PT users are in general paying more than necessary for public transport, due to them having a more cost-effective service being unavailable or inconvenient and, in many instances, they must resort to walking long distances instead of using public transport.
d. The 4+1's in Maseru and the mini-busses taxis along the Economic corridors are causing traffic volumes on the network to be higher than necessary, resulting in more funds having to be spent on widening / adding lanes to improve road infrastructure capacity, and
e. The inefficient ranks are often terribly busy and congested, with PT vehicles overflowing onto the road network, causing further congestion. This gives the impression that more funds need to be invested in the provision of Ranks, whereas optimization of the PT service as described above as well as changing the Rank layouts to be more efficient, will reduce / remove the need for additional ranks. However, Intermodal Transfer Terminal will be required, as described above.

Note that the above PT interventions is based on spot surveys and observations only.

5.3.6 Proposed PT Interventions

a. Undertake a detailed survey of the major ranks identified, including a 12 -1 6 hour counts of number of vehicles per mode parking, loading, and departing from each rank, per route and passenger queue lengths and vehicle utilization. This Transport Register will make it possible to determine the actual PT demand in Maseru and at all major towns. Furthermore, a detailed assessment of each PT facility in terms of size, layout, ancillary facilities etc.
b. Develop a Public Transport Plan (PTP), for the all the public transport modes, based on the findings of the Transport Register, including developing a multi-modal optimization plan and PT Facilities Upgrade and Optimization Plan.
c. A program to investigate, design and construct ablution blocks at all PT ranks that currently do not have ablutions, as a short-term action, to address immediate health and environmental risks.

5.4 RAIL TRANSPORT SUB-SECTOR

It is evident from the Transport Policy that the rail transport sub-sector has been largely omitted from the planning for the sector. No future development plans are in place at this stage, partly due to the minimal rail infrastructure in Lesotho.

Over the last 15 years, rail has been losing freight patronage to road, where it is transporting 20% the tonnage transported in 2005. Furthermore, most of the freight transported is inbound, resulting in most of the train wagons being empty on outbound trips. Furthermore, due to lack of demand, the train now only makes one trip a week as opposed to two trips a day, 15 years ago. The modal shift from rail to road has largely been due to poor service and unreliability and a service only once a week, makes this an even less attractive, feasible, reliable service.

Substantial intervention and economic investment would be required to encourage a modal shift back to rail. However, due to the rail service being limited to Maseru to Bloemfontein, the road-rail operations and distribution from Maseru to the rest of Lesotho is critical to the feasibility of rail as an alternative mode to road.

It should be noted that construction of rail infrastructure is extremely costly, and maintenance thereof is also costly. Furthermore, based on the experiences in South Africa, the rail network condition has continued to deteriorate over the years and despite TFR's vision of a road to rail modal shift, there is a continuous modal shift from rail to road. Over and above the construction costs and maintenance costs, TFR also has the ongoing challenge of cable theft, which amongst other things, affects the rain signals and safety of operations as well as causing interrupted service.

Another major constraint to rail expansion in Lesotho is the topography, where rail lines are required to be laid at a flat gradient of approximately 1% whereas the topography in Lesotho is rolling, hilly and mountainous with gradients as steep as 15%. The horizontal alignment also requires gentle curves with a minimum radius of 300m, which is also rare to achieve in Lesotho.

Currently road transport is more convenient and favourable for the freight Clients, but rail transport is the more feasible option for the country's economy, for the following reasons:

a. The rail infrastructure is available but extremely underutilized.
b. The road infrastructure is already congested in Maseru and the border post, and freight vehicles add to that congestion, and
c. Freight trucks negatively impact on the longevity of the road pavement lifespan and increase maintenance requirements and cost.

However, a modal shift back to rail would only benefit the Maseru border post access and link road, since freight vehicles will still need to come into Maseru to collect freight from the Container terminal once delivered by rail, to distribute around Lesotho and vice versa.

5.4.1 Proposed Rail Interventions

The following interventions for rail are proposed:

a. Undertake a Freight Logistics study to determine the actual origin and end destination of all commodities, in terms of volume and weight, and associated container, warehousing and distribution needs, to determine requirements and feasibility of modal shift from road to rail.
b. Investigate the feasibility of a providing a rail line and service from Maputsoe to Lesotho, to encourage a freight modal shift from road to rail on this high-volume corridor and reduce the need for trucks to travel to Maseru.

5.5 AIR TRANSPORT SUB-SECTOR

According to the Transport Policy 2006, the aerodromes at Qacha's Nek and Mokhotlong were previously operated as "regional airports", but the lack of domestic passenger demand has now meant that this has not been sustainable. The Ministry of Transport has plans for upgrade and rehabilitation of Qacha's nek, Mokhotlong and Semonkong airports but no feasibility study has been carried out yet.
Furthermore, a need was identified to carry out feasibility studies to determine the areas in which air transport should

play the primary role, and those in which it should play a supporting role, such as for Flying Medical Services, as well as the details of the services required in each case. It is evident that tourism plays a significant role in contributions to the economy of Lesotho and therefore focus needs to be on tourism destinations, as well as to satisfy the general growing regional demand for air transport.

According to the ***ACSA Business Development Market, Research and Analysis, October 29, 2019***, in terms of the developments at the Moshoeshoe 1 International Airport (MIA), the plan is to transform Maseru into a regional transfer point between coastal and inland cities of South Africa.

MIA is operational as required in all aspects, but it needs maintenance and spare parts to ensure safety and operational risk mitigation measures are in place. There is no question that this airport has more than sufficient capacity and potential to increase its flights by at least 200% if not more. The main constraint to this airport having a capacity for more than three return flights per day is the apron size, aircraft turning bays and the terminal size.

Aerodromes: In terms of the two regional airports, Mokhotlong Airport and Qacha's Nek Airport, are currently in a poor state and urgent attention is required to rehabilitate the two airports to be usable and prevent further damage, especially to the runway. Whilst these two airports meet the criteria to provide scheduled domestic flights, they do not, due to insufficient demand and their current poor condition.

Based on the analysis, the tourism site that would benefit the most from a flight to Mokhotlong, would be Maloraneng lodge and Qachas Nek, could provide access in under two hours to three tourism sites, including the very popular Sehlabathebe National Park, versus a seven-hour drive from Maseru.

In 2019, approximately 520,000 tourists entered Lesotho via the Maseru border post, equating to an average of 1400 tourist per day. If only 3% of those tourists were to choose to fly to the same destination, there would be sufficient tourists to fill a 32-seater plane.

Since there are no domestic airlines in Lesotho to do a cost comparison, an assessment of flight costs currently in South Africa was done where it was established that flights from Johannesburg to various destinations of approximately 300km to 500km are generally approximately R1,800 one way. However, the flight between Johannesburg and Durban, which is a high demand route, has several airlines providing flights, and prices are as low as R800.

If per person were to hire a car to drive approximately 300km or drive their own car at the AA rate (which is a rate that considers cost of fuel and wear and tear), of approximately M6 per km, would be approximately M1,800. Therefore, in theory a flight at M 1,800 to M 2,000 would probably be considered viable for a trip of 300 to 500 km, considering the added comfort and convenience. Therefore, there is a possibility that a domestic airport at Qacha's Nek and /or Mokhotlong could be feasible.

5.5.1 Proposed Interventions for Air Transport

Undertake a tourism study to determine the feasibility of a domestic from Maseru to Mokhotlong and / or Qacha's Nek. This study would need to include:

a. A tourism origin-destination survey to determine the demand for a scheduled, domestic flight at these locations.
b. An economic feasibility study to determine the potential flight fee structure to cover flight operational costs and how that compares with a market related cost for a domestic flight.
c. The study would also need to identify additional services required to make this Domestic Airport convenient, efficient, and attractive.
d. This study would also need to investigate the tourism environment in Lesotho and potential, to determine how many tourists go to just one site and how many prefer to travel to several sites during a visit and therefore may prefer to drive.

5.6 WATER TRANSPORT SUB-SECTOR

The demand at each ferry crossing, planned footbridges (Lot 4) and additional footbridges identified linked to additional rural access roads identified in TASK C, was calculated based on the population within a 4km radius that would be served at each site.

Based on population density and ADT that could potentially use a major bridge if a ferry crossing was upgraded to a bridge, the following upgrade requirements were identified:

a. Replacing 26 ferry crossing with major bridge, incrementally, prioritized, based on demand per site.
b. Replacing 7 ferries with new aluminum ferries, at locations that are less than 10km from a proposed major bridge and where the demand is extremely low.

Furthermore, where the rivers are smaller, the provision of 30 new footbridges, where 16 footbridges are the "Lot 4" footbridges already planned by the Roads Directorate and 14 additional footbridges have been identified to provide rural accessibility in conjunction with the new rural access roads identified. These footbridges have also been grouped into Lots 1-4 based on demand per site.

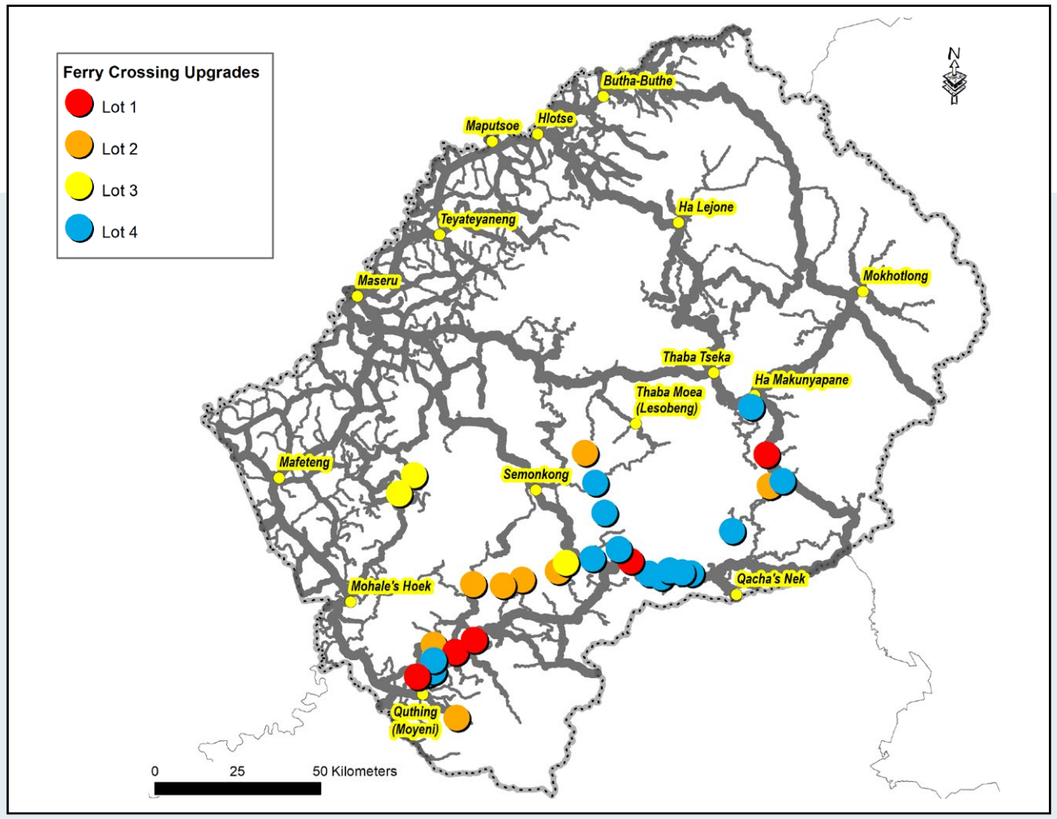


Figure 5-3: Ferry Crossing Upgrades

5.7 DURBAN TO MASERU CORRIDOR

A substantial portion of Lesotho import / exports is via the South African Durban Port, where cargo is transpored between Maseru and Durban, via the N3, N5, Bloemfontein and the N8.

A comprehensive feasibility study needs to be undertaken to investigate the feasibility of a direct Maseru to Durban link, accross Lesotho, which should be a combination of road and tunnelling.

The study will evaluate the cost of road upgrade and tunnelling versus:

1. Reduced travel time
2. Reduced travel distance
3. A central economic corridor for Lesotho
4. Decentralisation of economic activity from Maseru
5. Lesotho becoming a transit country instead of an isolated country dependant on RSA.

The feasibility study will include, but not be limited to:

1. Various route determinations
2. Concept designs for costs estimates
3. Economic study to determine economic growth potential due to direct route
4. Freight logistics study
5. Traffic study to determine current and potential demand
6. HDM-4 economic cost-beneft

06 FINANCIAL RESOURCE REQUIREMENTS AND CONSTRAINTS

6.1 OBJECTIVES AND METHODOLOGY

The main objectives for the financial assessment include a review of **prevailing** transport investment policies and strategies and diagnoses of constraints and bottlenecks; **future** investment requirements and policies considering the growth in traffic, overall macro-economic climate and emerging issues in the sector; **financing mechanisms** and its adequacy (budget allocations and road user charges and road tolling); identification of additional **sources of revenue**; financial and **institutional implications**; mechanisms to monitor and ensure financial sustainability of the transport sector.

Given the above objectives, the assessment methodology includes the identification of **salient issues and problems of the prevailing investment strategy** and the **underlying principles and components** of the funding strategy. The assessment procedure includes the following main actions:

i. Assessment of the macro-economic climate and emerging issues, including the regional economic status, traffic growth, post Covid-19 economic and social environment implications, the emergence of electric vehicles and low carbon mobility.
ii. Review of prevailing investment policies and strategies in the transport sector.
iii. An assessment of the transport financing mechanisms and adequacy of funding sources.

For the purposes of the first two tasks the main sources of information included the Lesotho Constitution, 1993; the NSDP II (2018/19 to 2022/23); the Transport Sector Policy, 2006; the Road Fund Regulations; the 2018/19 and 2019/20 Budget Books, supported by various internal and internet sources that allow a comparison of all transport related charges on transport users (fuel levies/taxes, toll fees and license fees) between Lesotho and all other SACU countries.

6.2 THE MACRO-ECONOMIC ASSESSMENT AND EMERGING ISSUES

An overview assessment is made of the macro-economic profile, with an outline of the various economic sectors and some project specific priorities and expectations from the transport sector. Some of the more salient highlights of the Lesotho economic profile include:

i. Lesotho is a lower middle-income country with a population of about 2.23 million, with 67% residing in rural areas, dependent on subsistence farming. Between 2002 and 2017, the national poverty rate declined from 56.6% to 49.7% and remains one of the most unequal countries in the world, with high unemployment, poor health and a high mortality rate.
ii. Political instability in Lesotho (2014 to 2017) as well as prolonged slow growth in the RSA, led to falling SACU revenues, exacerbating the GDP contractions. SACU receipts account for a large share of Lesotho's revenue, but with a reducing trend during the last decade. The GDP trend is also declining, with average growth of 6% between 2001 and 2006, then declined systematically to 2.3% in 2017 with little prospects for increases since then. Transport infrastructure provision and operations account for about 5% of the Lesotho's GDP.
iii. The country has a narrow economic base such that the moderate economic growth has not resulted in significant job creation and poverty reduction. Furthermore, the small open economy remains vulnerable to negative external impacts and natural disasters. In addition, the lack of opportunities in rural areas led to increasing urbanization.
iv. The quality and extent of the road network is not conducive for tourism and agricultural development, which is a limitation for national economic growth. The road network covers the country well, but is in many areas not well developed in terms of quality and condition.

Traffic growth: both the growth rates for traffic and GDP are sensitive to a slowdown in the economy, but traffic volume is less sensitive, emphasizing that budget allocations should preferably remain relatively more stable during cycle swings. Traffic growth prior to Covid-19 pandemic in Lesotho was between 3,4% and 4,25% p.a. with a decline since April 2020. It is likely that no meaningful growth can be expected for the next five years (2021/25), with a marginal increase for the latter part of 2025/30.

Post Covid-19 economic and social environment impacts: Covid-19 brought about a sharp decline in traffic world-wide with restrictions on the movement of people and behavioural changes, such as a shift to work from home leading to reduced traffic and travel patterns, especially during peak periods. A systematic return to normal was noted since early 2022 but the permanent long-term effect is still not fully clear. A "new normal" profile will emerge systematically and needs to be monitored.

Emergence of electric vehicles and low carbon mobility: The world-wide program for electric vehicles will also find its way to Lesotho at some point. A systematic replacement of the current vehicle population will be inevitable, with less or no imports of cheaper second-hand vehicles. Electrified vehicles (EV) may also have an effect on individual, personal travel with the emergence of EV's with limited capacity. The most important fiscal impact will however be the effect on fuel sales and as a resulting a decrease in fuel levy revenues, which in turn will call for a review of the funding sources for the transport sector and the national fiscus in general.

6.3 PREVAILING TRANSPORT SECTOR INVESTMENT POLICIES AND STRATEGIES

The main report provides detailed extracts and assessments of various sources:

The Lesotho Constitution, 1993, serves as the supreme legislative mechanism directing all policy including transport investment. Important constitutional principles relating to transport include the freedom of movement of people, investment in general, access to public services, environmental protection and participation in economic opportunities. Another important constitutional principle relates to all funding collected from tax and other national sources is obliged to be channelled via the Consolidated Fund, including allocations to the Road Fund.

NSDP II (2018/19 to 2022/23) articulates overarching policy and strategic development planning for all economic sectors, including transport. The main thrust is the transformation of Lesotho from a consumer-based economy to a producer and export-driven economy, with four strategic goals of which KPA III deals with "Building Enabling Infrastructure" including transport infrastructure in support of all other productive sectors. The nature of the supportive role of transport emphasises the necessity of a basic quality infrastructure network (the required "minimum transport network").

The Transport Sector Policy, 2006, deals with a range of general transport issues, inter alia also transport funding including inadequate transport budget allocation; unsustainable reliance on donors; inadequate financial oversight; lack of coordination and monitoring amongst role-players, financial fragmentation; a need for centralized nationwide planning and implementation; and optimizing the management of the Road Fund as a critical mechanism.

The Road Fund Regulations deals with general Road Fund rules and management arrangements aiming at ensuring it operates according to best practice and accountability standards. Proceeds collected from legislated revenue sources are channelled via the Road Fund and disbursed by the Board according to approved annual road programs in consultation with other relevant stakeholders. The Road Fund was established in 1995 but still remains valid and important for the funding of the road network for the 2020- 2030 time period. The areas considered for improvement include stabilizing the erratic fluctuations in transport funding; a review of its mandated potential to be expanded; and to develop and establish sufficient HR capacities and management capabilities.

6.4 ASSESSMENT OF THE PREVAILING NATIONAL AND TRANSPORT SECTOR FISCAL PROFILES

The fiscal analysis is based on the 2018/19 and 2019/20 budget books. It concerns the project objective relating to "...the adequacy of the existing source of finance..." and reflects detailed budget related information including government revenues and expenditures; public debt; Covid-19 impacts; fiscal risks and policy measures; strategic priorities and recurrent revenues.

The prevailing national fiscal profile indicates that government revenues from all sources increased from L 14,3 billion in 2017/18 to L 17,1 in 2019/20 when Covid-19 emerged, with projections of L 18,9 billion in 2021/22. Important for the transport sector is the share of total national capital expenditure allocated to transport. Total national capital allocation shows a reducing and fluctuating trend, with swings between L 4,85 to L 5,45 billion p.a. More so, the percentage capital expenditures of the national GDP is also reducing from 24% in 2013/14 to 15,3% in 2017/18. This trend is a major concern.

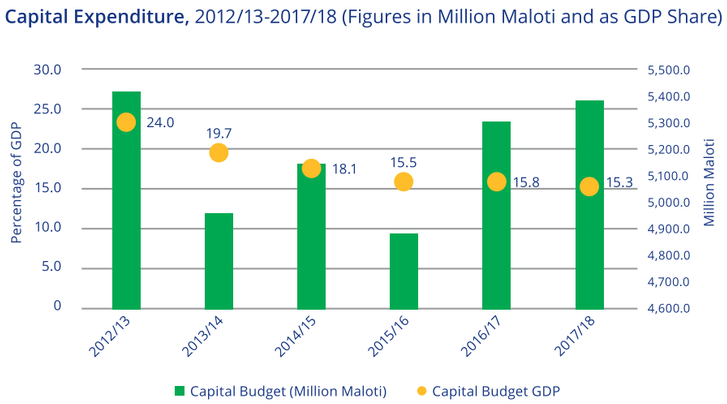


Figure 6-1: National Capital Expenditures 2012/13 to 2017/18 (Million Maloti and GDP share)

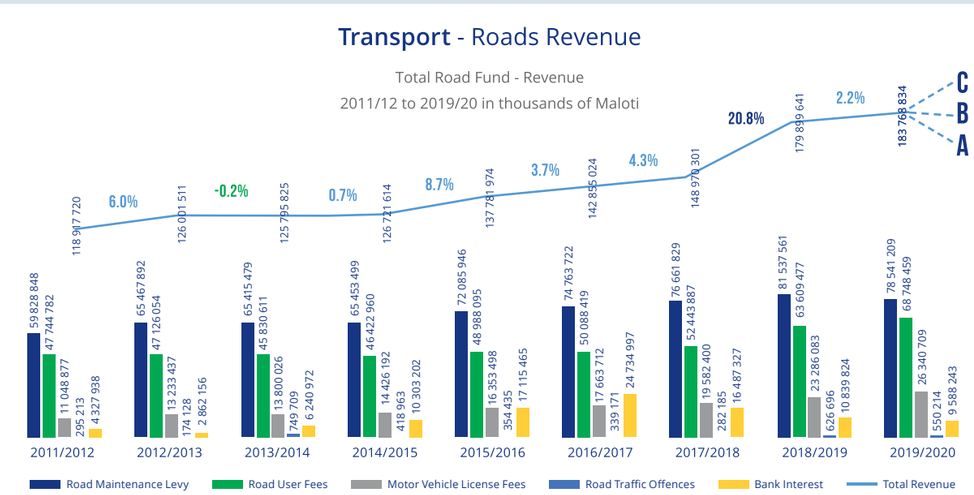


Figure 6-2: Road Fund revenues between 2011/12 – 2019/20

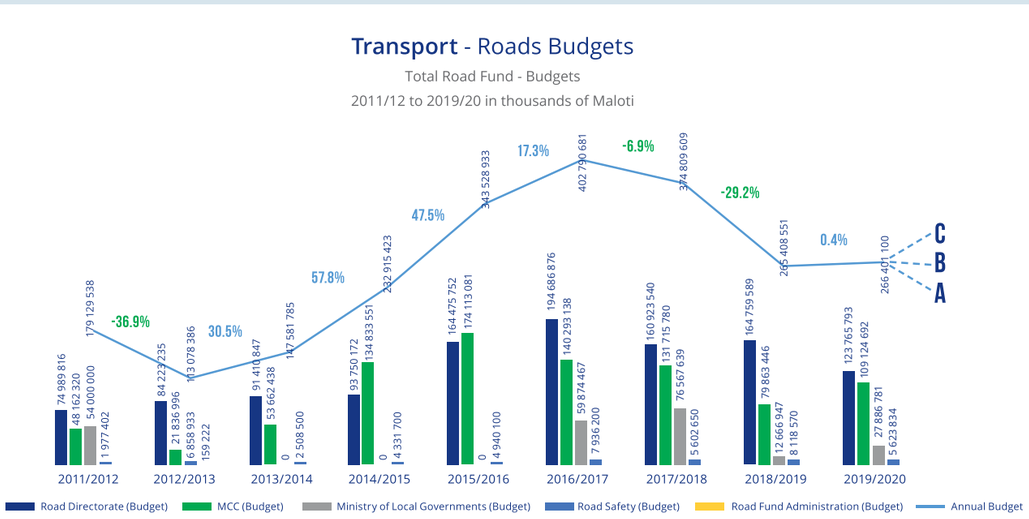


Figure 6-3: Total transport sector budget allocations from 2012/13 to 2019/20

The assessment of the transport sector fiscal profile reflects the Road Fund revenues and capital and recurring budget allocations; and expenditures on road maintenance and capital projects. In terms of financial management issues, concerns include inadequate capacity, skills development gaps and outdated legislation issues within transport sub-sectors.

Concluding highlights of the prevailing transport fiscal analysis indicate:

i. Road Fund revenues increased steadily from L118,9 billion in 2011/12 to L183,8 billion in 2019/20, with accelerating further growth between 2018/19 and 2019/20 set to double.
ii. Total transport budget fluctuates erratically, which is indicative of financial instability, with roads subsector budget swinging between a low of L75 billion in 2011/12 to a high of L195 billion in 2016/17, reducing again to L124 billion in 2019/20.
iii. Infrastructure spending is lumpy and project specific and is in need for stability to ensure long-term financial security for investment in maintenance and new infrastructure developments.
iv. National fiscus constraints with dwindling revenues are not unusual, also the large number of competing priorities, many of which will not be satisfied. However, transport as one competitor received notable inadequate and reducing allocations, which is not justified especially against a notable steady rise in transport related revenues, which is indicative of increased road user activities (traffic). Evidently it shows ignorance of the user-pay-principle not reverting back to the consumed resources, i.e. roads.
v. Ineffective internal financial management is also observed, which is partly a result of structural defects: responsibilities are fragmented and spread across various entities that complicates effective transport functional management. In turn it leads to automatic inefficiencies ("siloed" budgeting, expenditure, and revenue collections).
vi. The observed absence of up-to-date data is critical for effective management.

6.5 ADEQUACY OF ROAD FUND SOURCES

The adequacy of the Road Fund sources was assessed by means of a benchmark comparison with other SACU countries' fee levels (i.e. Lesotho as compared to RSA, Namibia, Botswana and Eswatini) specifically in terms of fuel levies, license fees and toll fees. The assessment is summarised below:

i. The Road Fund remains valid and important for transport funding, with the potential to assume a more expanded role, i.e. to fund a wider spectrum of transport expenditures than road maintenance only. An essential pre-requisite for this is that proceeds from user-pay principle should revert back to the service provider. Effectively, fiscal decisions should be firm and scrupulous in the application of the principle by re-allocating the revenues obtained via transport related charges back to the transport sector.
ii. Fuel levies are considered efficient, cost effective and with the potential to increase fund raising, subject to a revised level of the fuel levy. Lesotho's total fuel price charges are much lower than those of all other SACU countries (excluding RSA) and even more conservative on the charge portion that is dedicated to the transport sector. It justifies a structural review.
iii. License fees are equally also below SACU benchmark values. Fee increases are also irregular and not sufficient to keep pace with inflation. It reflects structural "defects", calling for a review with increased fee levels. It remains administratively effective (raising license fees), with no good reason to be replaced.
iv. Border post toll fees also remain justified, subject to reviews: toll fees are excessively lower level than those applied by other SACU countries. Increases should however not apply to local registered vehicles and only to be applied to foreign traffic. Individual toll road systems are not favoured, and considered an expensive option to raise revenues.
v. It is recommended that once the base fee levels are reviewed to be on par with the SACU benchmark, that automatic fare/charge increases be instituted on an annual basis, especially in terms of toll and license fees; and that the percentage fuel levy dedicated to transport to be negotiated as part of the Funding Formula, so that the percentage of the levy remain constant over time.

6.6 KEY INSIGHTS PERTAINING TO FORMULATING A TRANSPORT INVESTMENT STRATEGY

Some key constraints need to be considered for restructuring of the required framework around an investment strategy for the transport master plan. These are elaborated in detail in the main report, focussing on:

i. Insufficient clarity/alignment regarding investment objectives, including incoherent transport infra-structure objectives to be aligned with NSDP.
ii. Data accuracy and availability remains a major issue.
iii. Fiscal constraints will adversely affect the revenue available for infrastructure projects, while Lesotho is heavily indebted.
iv. Socio-political instability exacerbates the investment climate due to its impact on investor confidence which is a barrier to attracting foreign investors into PPPs.
v. Post Covid-19 investment climate is affected by the economic slow-down, which will impact on large infrastructure investments.
vi. Competing priorities for limited resources compels well informed motivations.

vii. Major issues that inhibit the transport sector in terms of fiscal management include non-commitment by fiscal decision-makers to recognize the role of transport for national economic development, as well as ignorance of the user-pay-principle and transport infrastructure as "consumable" scarce resources, to be paid by the users of the facilities.
viii. These principles are key to the proposed future funding strategy.

6.7 IMPLEMENTATION OF THE FUNDING STRATEGY FOR FUTURE TRANSPORT INVESTMENT

The future funding framework is based on the proposed funding formula aimed at funding all needs comprehensively for all transport sub-sectors on all levels of government, not limited to the roads network on national level only. The main components and objectives of the Funding Formula include:

i. The **existing Road Fund sources** (fuel levy, license fees and border tolls) remain the primary funding sources, in addition to consolidated Fund allocations. The charge/fee level for each is aimed to be balanced optimally within limits on par with SACU benchmark values and considering the capacity of each, but in total sufficient for a major part of the comprehensive needs. Donor funding remains ad hoc and unreliable.
ii. The total fee level (for each component and in total) is determined through a **negotiated consensus approach, amongst all relevant parties represented in the proposed National Transportation Board (NTB)**. The negotiating and decision-making process is synchronised as part of the NSDP cycle, of which the **National Integrated Transport Plan (NITP)** is considered part.
iii. The objectives are to **stabilise budget allocations and eliminate erratic fluctuations in funding** through agreed charge levels synchronized with the NSDP cycle. Accordingly, the total funding value, and the individual sources' fee values are relatively **fixed for a review period but subject to the usual annual inflation fee adjustments.**
iv. Essential pre-conditions for the Funding Formula approach includes:

    a. An effective planning and management structure (restructuring of DoT);
    b. A consultation and decision-making body (National Transportation Board); with
    c. Representation from all relevant government stakeholders (all levels);
    d. Development of- and national deployment of qualified and sufficient HR resource expertise and capacities within the transport sector.
    e. Intergovernmental coordination and consultation via the Transportation Board and amongst executive planning committees are key to the success.

v. From the outset the development of the formula requires a **periodic assessment** of the collective requirements (technical and financial) for all transport infrastructure capital and maintenance requirements. This is determined through the periodic revision of the **NITP** synchronized with the **NSDP cycles**; which is subjected to focussed consultation procedures represented by all relevant stakeholders; which includes decisions on the fee values for each of the three main sources. The NITP with its agreed Formula Values, is approved as part of the 5-year NSDP revision procedures.
vi. A **revision of the institutional framework** (DOT and the Road Fund) is essential to facilitate the new approach. Two alternative mutually exclusive options are proposed:
    - Option 1: A **Road Fund** to provide funding for the Roads Directorate only, to fund road maintenance as the first priority and secondly the capital requirements.
    - Option 2: **A Transport Fund** elevated from the Road Fund, as comprehensive fund for the entire transport sector, all modes, infrastructure, traffic and operations. Option 2 is the recommended preferred option.
vii. Motivating arguments for the proposed investment strategy include:
    a. Elimination of inefficient fragmented and siloed budgeting and management: Resolving the current fragmented transport governance structures responsible for the funding and implementation of transport infrastructure and traffic matters; thereby eliminate funding and implementation functions that are spread over a number of institutions. A hybrid of centralized and decentralized functional management is required.
    b. Reconsideration of the observed undervalued priority of the role of transport in the national economy to secure an effective transport network for the country, upon which all other sectors must rely to operate effectively;
    c. Restoring the current unacceptable condition and quality of transport infrastructure in general so that it can fulfil its obligation to support and build the national economy.

6.8 INSTITUTIONAL REFORM REQUIREMENTS FOR THE TRANSPORT INVESTMENT STRATEGY

The institutional restructuring requirements to accom-modate the proposed Transport Investment Strategy comprises inter alia five key structures, of which some existing structures are proposed to be restructured, with the addition of new structures, which will require some legislative amendments:

i. Firstly, a new - to be established **National Transport-ation Board** (NTB) which may devolve from the existing Road Fund Board. The NTB should have all-inclusive

representation from relevant government agencies on national and sub-national level; to be chaired by the Minister, alternatively DoT; with the following responsibilities: -

a. Strategic **decision-making** on all transport matters nationwide; including the consideration and approval of the **NITP** inclusive of the Funding Formula composition and subsequent expenditure transport budget;
b. **Intergovernmental interaction and consultation** to ensure proper consideration of nationwide transport needs and priorities (all government levels) ; and
c. **Oversight and monitoring** of the NITP implementation progress; and accordingly
d. **Review of transport policy** where necessary.

ii. **The Department of Transport** (DoT) separated from Public Works, acting as a dedicated transport functional government department responsible to the Ministry and the NTB, including the standard cross-cutting administrative directorates and the Planning Directorate (see item iii), whilst the technical directorates (modal) are subject to the establishment of the National Roads Agency or alternatively the National Transport Infrastructure Agency (see item v)

iii. The **Transport Planning Directorate**, functioning administratively within the DOT and as an **intergovernmental secretariat** for the NTB with similar representation through a technical **Strategic Transport Planning Committee (STPC)**. Responsibilities include:

a. Serve as an intergovernmental secretariat to the NTB
b. The primary responsibility is to research, interact, consult, develop, review and implement the 5-year NITP, synchronized as part of the NSDP within the same cycle period, including short term annual reviews where necessary;
c. As part of the NITP process, facilitate on a technical level consultation and interaction with all stakeholders on all levels on comprehensive transport needs and priorities;
d. Prepare and submit to the NTB any other transport related matter to be considered. Thereby, all STPC committee members will act as communication avenue between the STPC and their respective government institution.
e. Establish and maintain the Central Transport Data Base;
f. Coordinate and oversee the implementation of projects (financially and technically) to be executed by all relevant implementation agencies - national, rural and local;
g. Monitoring, evaluation and reporting to NTB of financial and technical implementation progress, including the financial status of all Transport Fund sources.
h. Facilitate the transport sector HR development program through budgeted bursary schemes and mentorships, including decentralized deployment programmes.

iv. The **Financial Directorate and Transport Fund** (restructured Road Fund), with two alternative formats: Firstly, separated and independent in current format under the Road Fund; and alternatively, as a Directorate within the DOT where the Fund is then *de facto* only a **financial mechanism**, acting as a "*Transport Consolidated Fund*, similar- and subject to Treasury's Consolidated Fund. The second option is favoured given the raised fragmentation issues, including the intention that both the **revenue and expenditure** management responsibilities (two sub-directorates) are performed under the same umbrella management structure. This unit will also act as an integral part of the STPC, responsible for all financial related matters. The current personnel of the Road Fund will be incorporated within the restructured Finance Directorate.

v. The fifth potential institutional structure is the establishment of the **National Roads Agency (NRA)** or alternatively a **National Transport Infrastructure Agency (NTIA)**, as the preferred approach. It requires a restructuring of the Roads Directorate to be transformed with additional capacities into an independent, focussed institution, potentially in a PPP-format with private sector institutions, responsible for:

a. Execution of the technical (engineering) components of the Implementation Plan of the NITP; that includes
b. All transport infrastructure development and maintenance projects on a national basis, regardless of mode and level of government, some of which in a supportive capacity assisting sub-national government institutions. Note that in cases where such institutions are not in a position to carry out its mandated responsibilities, the NRA may take over such responsibilities on a temporary basis.
c. Infrastructure and operational design within the framework of the NITP's implementation plan and associated standards;
d. The above responsibilities are to be expanded/ extended to an oversight and assisting role for intergovernmental support (local and rural authorities), also in terms of public transport facilities, aviation facilities, water and NMT.
e. Technical interaction on technical design activities with local government and other sub-national government institutions responsible for some transport projects.
f. Professional project management for all individual implementation projects;
g. Regular progress reports to be submitted to the Planning and Financial Directorates
h. The NTIA/NRA will fulfil an important role in terms of HR development and deployment on a decentralized basis, and to support infrastructure development capacity on local level.

Note: **Context for the Consideration & Approval of Proposals on the Institutional and Financial Restructuring of the Transport Sector**

Some of the above proposals can be reconsidered during the forthcoming implementation process, for which a special project has been identified, where a comprehensive consultation process will take to ensure all options are considered. From a general point of view, a flexible approach should be adopted, and that the recommendations should not be treated as "cast in stone", and that there may be alternative options that could arise during the implementation project to reach the same goal, without forfeiting agreed principles and policy goals.

07 DEMAND FORECASTS FOR ALL TRANSPORT MODES

An important part of the development of the National Transport Sector Masterplan for the Kingdom of Lesotho is the inclusion of a representative forecasting model for all transportation modes. The focus of the Lesotho Model development was on the movement of people and goods between major towns within Lesotho and between Lesotho and South Africa.

The demand model was aimed at being a tool to support all other assessment aspects of the Transport Masterplan as well as to fulfil a continued role in this regard in the transport sector. With this in mind, the custodianship of the model has to be transferred to a key individual within the Ministry of Public Works and Transport upon project completion.

7.1 TRANSPORT MODELLING DATA

The following data was gathered, having relevance to the demand modelling task:

- Transport network: All relevant shapefiles containing the road network in Lesotho.
- Zonal system: Most importantly the constituencies which is what formed the basic Traffic Analysis Zones (TAZ) for the modelling.
- Spatial information: Mostly data received as relating to the Census information, captured on the spatial level of the Census Enumeration Area (CEA).
- Demographic data: Relating to population specifically.
- Land use and commodity data: Information such as industrial, mining, urban areas.
- Traffic data: Traffic counts that formed the basis for the calibration of the base year model.
- Transport service data: Where public transport data or freight services data was available.
- Forecasting data: This relates to the data required for forecasting the traffic demand as well as the supply.
- Survey data: Where data was not readily available (such as Origin-Destination data), surveys were conducted to obtain this info.

7.2 MODEL STRUCTURE AND APPROACH

Several modelling approaches exist. The following defines the structure of the Lesotho National Transport Model:

- Modelling software: The PTV Visum macroscopic modelling software was utilised.
- Modelling procedures: The most prominent macroscopic transport model is the so called classic 4-step transport model which consists of the steps trip generation, trip distribution, mode choice and trip assignment. Passenger and freight transport are modelled separately.

- Modelled time periods: Due to the national scale of the model a standard Average Daily Traffic (ADT) model was developed that provides insight into the transportation movements over the course of a day.
- Base and forecast years: The base year of 2020, intermediate years 2025 and 2030 as well as the future year of 2040 were modelled.
- Forecasting process: The base year demand was forecasted to the respective future years without changes to the road network as well as with the most probable changes and road link additions. This was done for passenger transport and freight transport. Other modes, i.e. NMT, rail, air and inland water transport, were not included in the model and dealt with separately.

7.3 BASE YEAR ROAD MODEL DEVELOPMENT

The base year road model was developed with the data and process established in the previous chapters. The road network had to be cleaned up and for the various road characteristics within Lesotho different link types were developed, attributing capacity and speed constraints to the network.

With the help of the Origin-Destination data gathered during the survey process, the modelling steps trip generation, trip distribution and mode choice were facilitated. Calibration was done with help of the available traffic counts and validation was done using travel time measurements. Passenger traffic volumes as well as the Volume/Capacity ratio were calculated as can be seen below.

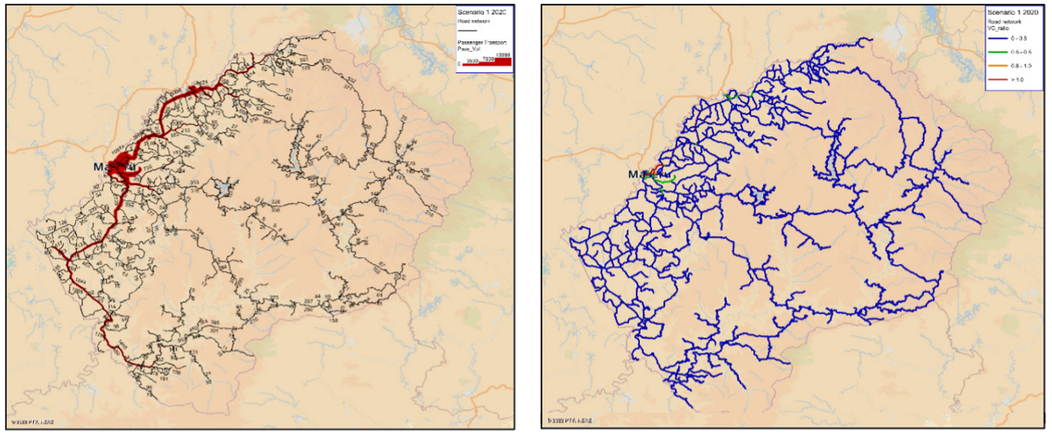


Figure 7-1: Base Year Road Model (2020)

7.4 FORECASTING OF THE ROAD TRANSPORT MODEL

The forecasting was done by defining various scenarios to represent the low growth, probable growth and high growth intermediate year and future year traffic projections and network changes.

Based on the economic analysis of Task D and other historic growth rates, the traffic demand was projected as follows:

- Low growth – 1%
- Probable growth – 3%
- High growth – 5%

The current, planned and probable network changes used in the forecasting mostly emanate from the NSDP II and the Rehabilitation and Development Plan 2015-2020. The following figures show the 2040 probable growth passenger demand as well as the V/C ratios for that year.

Figure A - 6: Congestion at shopping centres

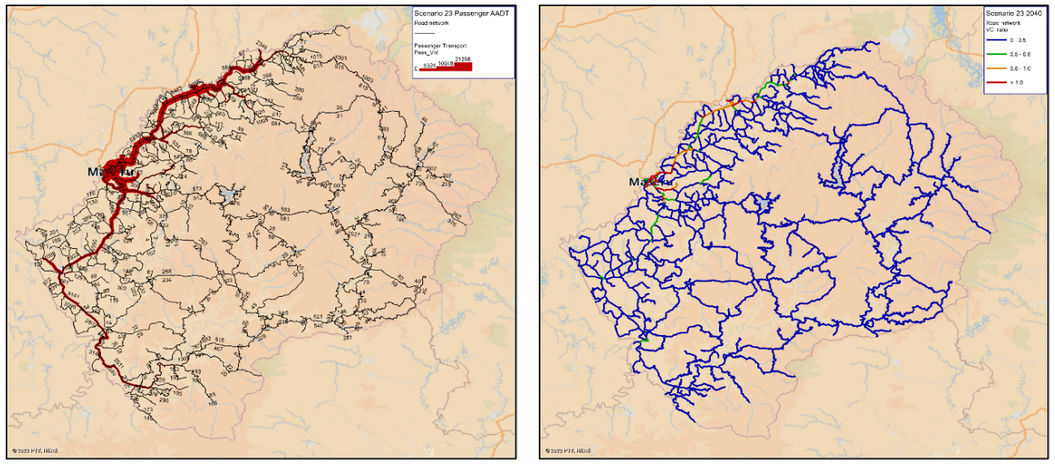


Figure 7-2: Future Year Road Model (2040)

7.5 FORECASTING OF NMT, RAIL, AIR AND IN-LAND WATER TRANSPORT

The NMT, Rail, Air and Inland Water Transport modes were captured separately from the model due to the unfeasibility of including these in the national model, mostly due to the nature of these specific transport modes in Lesotho and the scope of a national strategic model.

NMT: Since NMT plays such a significant role in the transportation environment in Lesotho, it is important to put in place measures to accommodate this mode more holistically. The following can be summarised for strategic action in this regard:

- There is a need for NMT studies to identify areas with high NMT demand and where adequate provision needs to be made for the inclusion of NMT road users.
- The safety of NMT users is critical. This indicates the importance of providing adequate infrastructure to accommodate the pedestrian especially.
- NMT facility guidelines for Lesotho could be developed for local implementation. These guidelines could be based on other African country's guidelines and adapted for local conditions. Reference can be made to the NMT guidelines mentioned in section 6.2.

Rail: Opportunity exists to more greatly utilise the rail mode in Lesotho. The main constraints are funding, the terrain of Lesotho, extent of economic activity to support this mode and support from Transnet Freight Rail (TFR). Specific studies are required for the feasibility of rail developments in Lesotho, especially linking to the movement of freight. This relates to the development of trade facilities (such as at Botha-Bothe) and other economic developments, especially along the Northern Route.

Air: The main conclusion for the movement of passengers and/or goods by means of air transport is that the regional air movement should be prioritised to facilitate the development of tourism locations as well as other economic opportunities. This would in turn mean that the current strategic aerodromes or airstrips need to be identified that will have the biggest impact in this regard and to facilitate the rehabilitation and development of such facilities. Examples of this are the Mokhotlong Airport and Qacha's Nek Airport. Since plans for the rehabilitation of Moshoeshoe I Airport are already underway, these should be supported and driven to ensure that the international air gateway into Lesotho meets all required safety and operational standards.

Inland Water: The need for inland water transport exists as long as adequate provision has not been made with the provision of bridges. Till this goal is met, the following needs to be considered:

- Maintain all ferry boats in a safe condition to allow operation under design conditions
- Provide new boats where the safety standards cannot be maintained
- Ensure training of the operators is up to date and that the operator is knowledgeable in this regard.

7.6 CONCLUSIONS AND RECOMMENDATIONS

For the road-based passenger and freight model, it was seen that the current state of the network in Lesotho does not present capacity constraints. The base year scenario showed that 97.2% of all links have a Volume/ Capacity ratio of less than 0.5 and only 0.6% of all links present a V/C greater than 1. For the most probable forecasting scenario for the years 2025, 2030 and 2040, the proportion of links with V/C less than 0.5 changed to 93.9%, 91.9% and 89.6% respectively.

The following can in addition be concluded:

- The general condition of the road network in Lesotho is not limited by capacity constraints, but rather by the condition of the road itself, which is something that is addressed by Task C, Infrastructure analysis. For the base year specifically, no capacity constraints exist on any regional corridors.
- The Northern Route along the lowlands carries significant potential to act as a development corridor, facilitated by increased economic stimulus in this region of the country. For the demand projections over the forecasting years, this was the region in the model with most increase in V/C ratios, as can be seen in section 5.5.1.
- The addition of new roads especially in the rural areas is driven by the need for connectivity and access.
- Currently there is a high degree of reliance on the 4+1 informal sedan taxis. This brings with it concerns regarding the import of cheap second-hand vehicles and was addressed in Task B: Sector Governance Analysis.
- Overall foresight and planning will prevent the deterioration of the travel conditions in future years.

A number of recommendations were made based on these conclusions, including NMT studies, northern route bypasses, Maseru-specific modelling, public transport studies, Integrated Land Use planning inter alia. Also, the importance of model maintenance and improvement was presented with specific action items.

These observed shortfalls and corresponding recommendations flowing from the transport demand model were linked to the reviewed transport sector policy and provided input into the policy directions and future perspectives. This led to clear policy statements formulated to address these areas, including land use and transport planning integration, the public transport plan and NMT specific plans.

08 TRANSPORT SECTOR POLICY

The revised Transport Sector Policy (TSP) 2022 is a key outcome of the overall transport masterplan process. The development of this new transport policy was aimed at incorporating and presenting a more fitting and sustainable response to the current needs and challenges within the transport sector.

The TSP 2022 aims to address the Vision and Mission of the Transport Sector as presented below:

The **Vision** of the transport sector of Lesotho is for the people of every area of Lesotho to be provided with:

- Safe, reliable, effective, efficient, adequate, affordable and fully integrated transport by the most appropriate mode to fully meet the needs of sustainable economic development and to improve their quality of life
- Access to transport operations and infrastructure for freight and passenger transport, provided at a satisfactory level of service and cost, which is aligned with economic and social development strategies, whilst being environmentally sustainable.

The **Mission** of the transport sector is to place within reasonable reach of every resident of Lesotho, the most appropriate transport services and infrastructure that budgetary and practical constraints allow.

The following policy priority areas are addressed in the new TSP 2022:

POLICY PRIORITY AREAS

SUBSECTORS AND CRITICAL AREAS	CROSS-CUTTING AREAS
• Air Transport	• Environmental Considerations
• Rail Transport	• Land use and integrated transport planning
• Inland Water Transport	• Enabling industry skills and human development
• Non-motorised Transport	• Transport data management
• Road Infrastructure	• Transport sector resilience
• Road Transport	• International transport
• Road Traffic	• Private sector participation
• Land-based Public Transport	• Road Safety
• Transport sector funding and investment	

Figure 8-1: *Policy priority areas, TSP 2022*

For each of the policy priority areas, the TSP 2022 provided:

1. Current Status
2. Issues and challenges
3. Resulting policy directions
4. Policy statements

Additionally, the policy document provides guidance on matters of institutional reform and the monitoring and evaluation of the proposed changes. This in turn lead to the formulation of the Strategic Action Plan. For further detail, the TSP 2022 itself should be consulted.

A Key Issue Addressed in the Policy is Electrical vehicles (or NEVs), as follows:

To address the growing interest in green transportation technologies, the global shift toward New Energy Vehicles (NEVs), including electric and alternative fuel vehicles is acknowledged. While the Southern African region, including Lesotho, has limited influence over these global trends, it is clear that the transition to NEVs will eventually reach this part of the world. As such, it is vital for Lesotho to stay ahead of the curve by closely monitoring and keeping abreast of international trends in NEV development and adoption.

As highlighted in the National Transport Sector Policy, it is imperative to be prepared for this shift. Lesotho must actively track technological advancements, regulatory frameworks, and market shifts within the global transportation industry. By doing so, the country can timeously position itself to adopt these innovations, ensuring it is not left behind. This includes developing the necessary infrastructure, such as charging stations, establishing regulatory support for NEVs, and providing incentives to encourage the transition.

This will allow the country to seamlessly integrate NEVs when the technology becomes widely available, ensuring a smooth transition that reduces carbon emissions, modernizes the transport system, and aligns with global sustainability efforts. By remaining agile and forward-looking, Lesotho can ready itself for the widespread adoption of NEVs and enhance the resilience and efficiency of its transport sector in the long term.

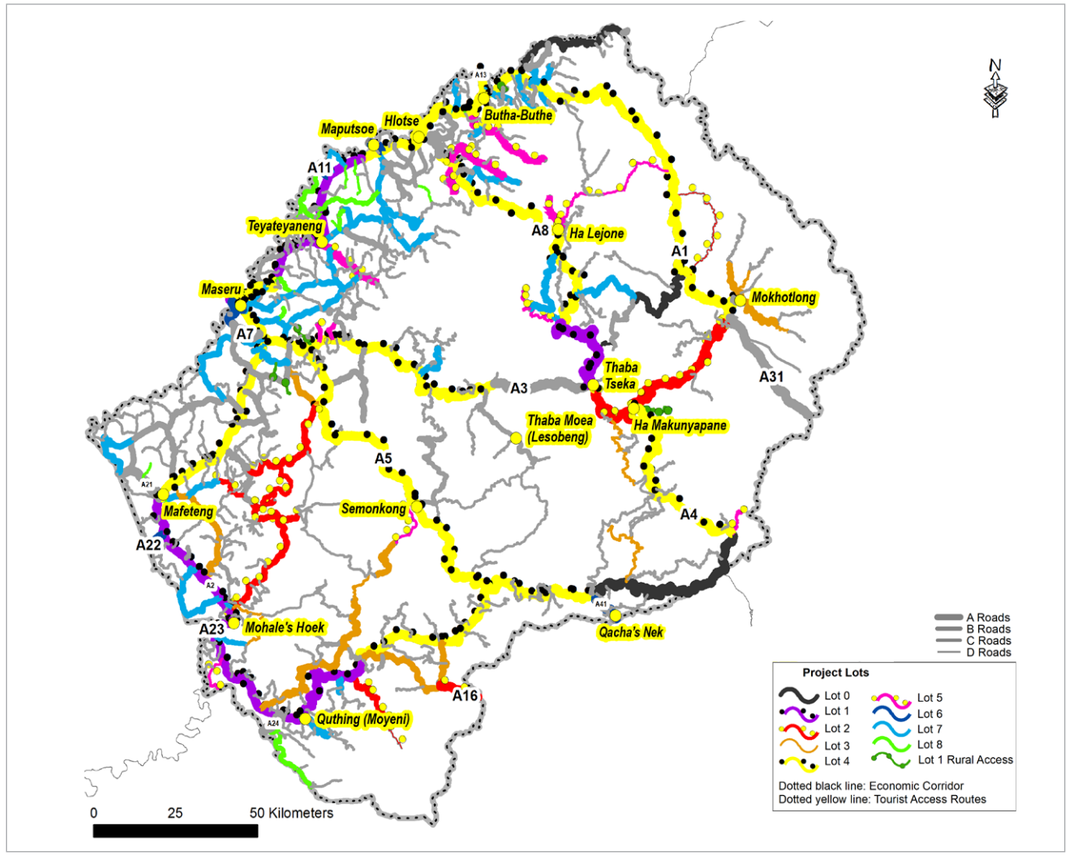


Figure 8-2: Project Road Lots

09 STRATEGIC ACTION PLAN

In order to ensure the successful implementation of the updated Transport Sector Policy, the formulation of a Strategic Action Plan was required. The Action Plan, as a separate detailed document, consists of the following:

- Transport sector transformation in Lesotho
- Project identification and comprehensive project list
- Project prioritisation process
- Phased implementation plan

The detailed description and information for each of the above points are available in the separate Strategic Action Plan.

9.1 TRANSPORT SECTOR TRANSFORMATION

The following aspects are discussed and presented as part of an overall motivator to realise the transport sector vision and mission statements as presented in the National Transport Sector Policy update. These areas are seen as some of the key focus areas for impactful change and transformation in the transport sector and should receive more direct attention.

1. Institutional reform and capacity building
2. Funding reform
3. Key development areas
   - Public Transport
   - Digital Mobility
   - Road Network maintenance

9.1.1 Institutional reform and capacity building

A sound institutional environment where entities are adequately staffed with appropriately skilled personnel, is a prerequisite for ensuring the successful implementation of the LNTSMP. A review of the institutional framework confirmed a current fragmented state of transport functions. Furthermore, many vacant positions exist, and it was also evident that various critical skills are lacking to ensure seamless implementation of the LNTSMP. Without this foundation in place, the transport sector in Lesotho will continue to struggle towards creating a sustainable environment.

A key institutional reform proposal is the establishment of a Transport Development Agency (TDA), whereby one agency is responsible for all aspects and modes of transport. A further critical aspect to consider, concerns the provision of adequate staffing with appropriate skill levels i.e. ensuring capacity building within the transport subsector.

9.1.2 Funding reform

It is argued that the transport sector cannot fulfil its responsibilities effectively within a limited funding framework. Reform within the funding regime is necessary to ensure sustainable funding for Transport. It is proposed that the Road fund is elevated to a comprehensive Transport fund to fund the entire transport sector. It is aimed at reducing the dependence on the Consolidated fund by increasing levels of fees and consider various sources of income. A further solution is the introduction of a funding formula with the aim of satisfying the needs of all role-player within the transport sector.

9.1.3 Key development areas

Public Transport

Land-based public transport is a significant component of the daily travel habits and patterns of the people of Lesotho. Quality land-based public transport is critical for the sustainable development of the overall transport sector. The following are identified as some focus areas for public transport in Lesotho where opportunities for most impactful intervention are available.

- National public transport plan
- The role and presence of sedan taxis
- Short term public transport facilities and infrastructure

Digital Mobility

The emergence of progressively evolving transport systems is driven by the increasing availability of transport related data. It is recognised that the effective sharing and use of this data is an imperative in facilitating this progressive change within the transport sector. The following are identified as some focus areas for Digital Mobility in Lesotho where opportunities for most impactful intervention are available.

- Data digitalisation strategy
- Data centre and other supporting infrastructure

Road Network

The road network infrastructure remains a key element where intervention can elevate the status of transport in Lesotho and allow other strategies and key transformation

interventions to flourish. It is evident in Lesotho that the current state of road infrastructure is a limiting factor in enabling the transport sector to adequately support the other economic sectors.

The following are identified as some focus areas for the road network in Lesotho where opportunities for most impactful intervention are available.

- Maintenance of core network
- Ensure that the complete Class A network is up to standard
- Provide key linkages

9.2 PROJECT IDENTIFICATION AND PRIORITISATION

Flowing from the Lesotho National Transport Sector Masterplan tasks, a list of potential projects was identified over a 20-year horizon period. These projects were identified based on the needs within the transport subsectors as well as the overall needs within the sector.

Project prioritisation was done separately for the road infrastructure projects and all others. The road infrastructure prioritisation was done based on a "lot" system as follows, with increasing level of priority as the number of the lot increases:

Road Network:
Lot 0: Completed or Current Projects
Lot 1: Advanced Design & Economic Corridors
Lot 2: Partially Designed, supporting Tourism Access
Lot 3: Partially Designed, with Pavement Condition Shortfalls
Lot 4: Newly Identified National Roads for Upgrades serving Economic Corridors
Lot 5: Newly Identified Secondary and Tertiary Roads to be Upgraded, providing connectivity / access for Economic Sectors
Lot 6: Newly Identified National Routes with Severe Shortfalls
Lot 7: Secondary and Tertiary Roads that have severe geometric and / or pavement condition shortfall.
Lot 8: Collectors and Access roads with minor pavement condition shortfalls, ADT > 300 vpd
Lot 9: Remaining Secondary, Tertiary and Access roads with Minor Pavement Condition shortfalls

Rural Accessibility and NMT:
Lot 1: Where ADT is greater than 400 vpd
Lot 2: Where ADT is greater than 100 and / or the population served by a road is greater than 300 people per km
Lot 3: Where 100 to 300 people per km will be served by a potential road

Major Bridges:
Lots 1 & 2: Serves population AND provides access to motorised
Lots 3 & 4: Serves population only

Footbridges:
Lot 1 will serve more than 3 000 people per bridge
Lot 2 will serve 1000 – 3000 people
Lot 3 will serve 500 – 1000 people and
Lot 4 will serve 300 – 500 people.

Public Transport Ranks:
Lot 1: Ablution programme to ensure all PT Rank have ablutions that meet the minimum standards;
Lot 2: Paving ranks that are currently gravel or rehabilitating paved ranks in very poor condition.
Lot 3: Shelters and benches

Public Transport Stops and NMT Facilities:
The provision of Public Transport Stops and associated NMT facilities should be prioritised on the premise of "safety first", comfort second. Therefore, the provision of laybys and sidewalks leading to/from a stop and location of stop in safe locations, should be given first priority. The routes with the highest AADT should be given highest priority.

Once the above priority is addressed, a programme to ensure provision of suitable signage at ranks and shelters and benches, again giving higher priority to those roads with higher AADT.

Other subsector project prioritisation:
The following options may be followed to determine priorities:

a) Within each project category, individual projects are assessed in terms of priorities based on the list of criteria. It means that individual projects in a category are competing with each other in the same group to qualify for earlier or later funding.
b) Each group (category) may also be assessed in terms of the same criteria to assess the priorities of a particular group relative to the others. For example, road infrastructure may be prioritised relative to rail projects, etc. Whether this approach (group prioritisation) makes any sense to contribute to the process is debateable, in which case the next option may apply.
c) Each group is allocated a specific percentage of the total budget allocation and the time slot for each project within each group is then scheduled accordingly individually per project.

As a departure point, the prioritisation process is limited to a) above and allocated accordingly within the total implementation period. The budget scheduling process however will require some manual scheduling intervention to ensure that the total budget requirement per time slot

does not exceed the total available budget for that particular year or series of years (first 5-years, 2nd 5-years, last 10 years). This manual intervention may require that options b) or c) may have to be applied.

The above implies that for each listed project a value ranging from 1 – 5 is allocated in terms of each defined criteria, and accordingly a total value per project is calculated adding the allocated values together. When all projects for all categories are determined, the priorities are summarised per group separately. When these priorities are then to be scheduled within the implementation time program, each group is assessed individually for when completion is essential. The following table is proposed to assist in the above process.

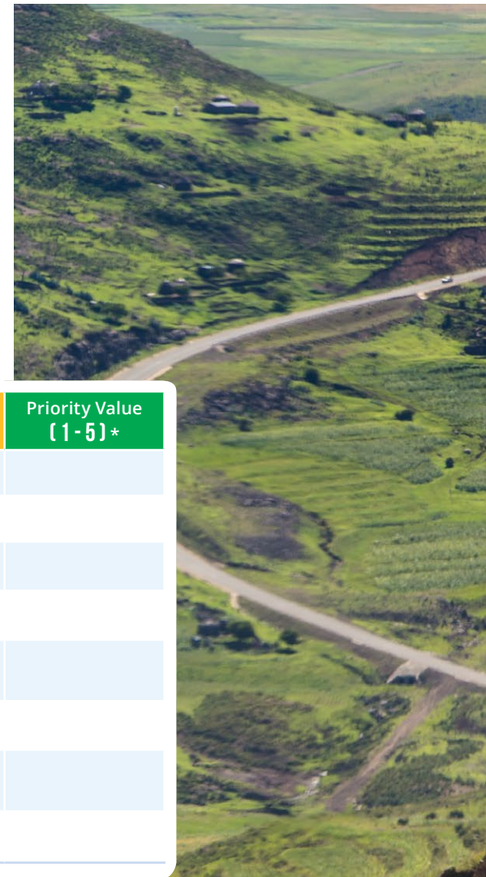


Table 9-1: Priority prioritisation criteria

	PRIORITY CRITERIA	Priority Value (1 - 5) *
i.	Compliance to **NSDP II** goals, objectives and KPI's	
ii.	Compliance to **transport sector policy** statements	
iii.	Contribution to **economic development and growth**	
iv.	Fulfilling the mandate to **support all other economic and social sectors**	
v.	Contribution to **connectivity, accessibility and mobility** to the population and business sector	
vi.	Preserving and securing of **historic investments**	
vii.	Contributing to **national capital investment and capacity expansion** (adding to infrastructure network)	
viii.	Contributing to **human development motives and poverty relief**	

Value of 1: Lowest score – no contribution or compliance
Value of 2: Second to lowest score – marginal contribution or compliance
Value of 3: Average score – fair contribution or compliance
Value of 4: Second to highest score – better than average contribution or compliance
Value of 5: Highest score – meaningful contribution or compliance

9.3 IMPLEMENTATION PLAN

After project prioritisation was performed, based on the criteria and process laid out in the previous chapter, the implementation phasing of the proposed projects is presented in this chapter.

Firstly, the prioritised projects are listed as follows:

- Road infrastructure projects
- Other infrastructure projects
- Management/other projects

The road infrastructure projects were prioritised according to the lot system presented previously; the other projects were prioritised according to the **Table 9-1** prioritisation criteria.

Table 9-2: Prioritised road infrastructure projects

PRIORITISED #	PROJECT LIST #	PROJECT NAME
1	20	Primary Northern Economic Corridor Mobility Upgrade (65km) - DETAILED DESIGN COMPLETE
2	21	Primary Southern Economic Corridor Mobility Upgrade (136km) - DETAILED DESIGN COMPLETE
3	22	Upgrade Thaba-Tseka to Katse Road (54km) - DETAILED DESIGN COMPLETE
4	23	Rehabilitate A16-01, Ha Lazaro to Ongeluksnek border (13.8km) - DESIGN IN PROGRESS
5	24	Upgrade of A3 from Mokhotlong to Thaba-Tseka (Ha Rafolatsane-Thaba Tseka) (98.5km) - DESIGN IN PROGRESS
6	25	Regravel / upgrade gravel roads from Khotlong to Tsatsane (40km) - DESIGN IN PROGRESS
7	26	Upgrade of the Malealea road (lodge) - Mafeteng (164km) - DESIGN IN PROGRESS
8	27	Upgrade Tlokoeng - Letseng la Terae (7km) from earth to gravel DESIGN IN PROGRESS
9	28	Periodic maintenance of gravel Class D Roads (181km) - DESIGN IN PROGRESS
10	29	Periodic maintenance of gravel Class B Roads (204km) - DESIGN IN PROGRESS
11	30	Upgrade Part of Mafeteng Bypass D2015-01 (4.7km) - DESIGN IN PROGRESS
12	31	Periodic maintenance of gravel Class D Roads (181km) - DESIGN IN PROGRESS
13	32	Upgrade of the Remainder of the Key Economic Corridor (A1) (232km)
14	33	Construction of New Bypasses in Maseru
15	34	Construction of New Bypasses in Hlotse
16	35	Construction of New Bypasses in Botha-Bothe
17	36	Rehabilitate the Southern Corridor (A2) from Maseru to Mafeteng (76km)
18	37	Upgrade Tourism and Mining corridor A8 from Hlotse to Katse Dam (109km)
19	38	Upgrade Tourism corridor A3 from Maseru to Thabe Tseka (159km)
20	39	Upgrade Tourism corridor A5 from Maseru to Semonkong (128.6km)
21	40	Upgrade Tourism corridor A4 from Mt. Moorosi to Qacha's Nek & Sehlabathebe to Taung Road (199km)
22	41	Rehabilitate A13 from Bothe-Bothe to Border post (9km)
23	42	Periodic maintenance of Access Route to Sehlabathebe Tourism Sites (2.8km) - CURRENT PLANNED
24	43	Rehabilitation and regravel Road B11 from Teyateya neng to Kome Caves (25km)
25	44	Period maintenance of existing and upgrade to paved Koa Mine roads from A8 - A1
26	45	Upgrade the gravel roads to paved and reseal existing paved roads from Karammele to Ha Ntholi (80km)
27	46	Regravelling of various tourism access roads. (47km)
28	47	Rehabilitation and widening of main arterials in Maseru (16.3km)
29	48	Rehabilitation and widening of A roads to four border posts and regravelling of a fifth border post road. (31km)
30	49	Rehabilitation and widening of major arterials in Maseru from 2 to 4 lanes. (110km)
31	50	Periodic Maintenance of Paved Secondary Corridor Roads (120km)
32	51	Upgrade from Gravel to Paved Secondary Corridor Roads (134km)
33	52	Periodic Maintenance of Gravel Secondary Corridor Roads (219km)
34	54	Upgrade gravel to paved Secondary Road Corridors and Collector roads with high ADT (185km)
35	55	Periodic maintenance of Secondary Road Corridors and Collector roads (933km)
36	56	Upgrade earth to paved, high volume, peri-urban Access Roads (32km)
37	57	Rural Access Roads Upgrade Programme

Table 9-3: Prioritised management projects

PRIORITISED #	PROJECT LIST #	PROJECT NAME
1	68	Develop a national Public Transport Plan (PTP), including Public Transport Inventory and Public Transport industry transformation and restructuring
2	75	Institutional and Financial Reform as well as capacity building in the sector
3	71	Data digitalisation strategy for Lesotho, including Data Centre/Warehouse and other technology applications in transportation
4	8	Tourism Air Transport Demand Study
5	14	NMT plan for urban and rural context
6	53	Maputsoe Border post Multi-modal study
7	59	Lesotho Freight Logistics study
8	73	Lesotho Spatial Development Framework
9	74	Maseru Integrated Land Use Transportation Plan
10	19	Feasibility study and concept design for low-cost toll roads (Maseru - Botha-Bothe corridor)
11	10	Feasibility of rail as a transport mode in Lesotho - PPP Feasibility study
12	66	Update and implement Lesotho Roads Classification System, including Road Design Specifications and Signage Strategy in line with SADC guidelines
13	70	Establishment of a transport economic data base linked to macro-economic data that impacts on the transport sector.
14	2	Regional Airports Development Strategy
15	77	Update of existing PPP Policy
16	78	Drafting of PPP legislation
17	1	Feasibility of additional international air routes connecting Lesotho to other regional cities
18	60	Update of the Overload Control Strategy
19	64	Average Speed Over Distance on Main South and Main North
20	67	Development of public road transport regulatory framework
21	76	4th Industrial Revolution Readiness study within the Transport Sector
22	12	Develop IWT policy and legislation
23	17	Study into the current retained applicability of Lesotho's road design guidelines.
24	61	Updating and Harmonisation of Lesotho Road Transport Legislation
25	72	Updating of Environmental Policies and Legislation including transport emissions control policy
26	62	Updating of legislation relating to traffic offence system and enforcement practices
27	63	Procurement of equipment such as speed cameras and breathalysers to assist in road traffic enforcement
28	65	Improvement of road crash data management collection (RADMS)

Table 9-4: Prioritised other infrastructure projects

PRIORITISED #	PROJECT LIST #	PROJECT NAME
1	3	Rehabilitation and upgrade of MIA
2	69	Improvement of public transport facilities - nationwide
3	9	Rehabilitation and expansion of the Multi-Modal Freight Facility at Mascon
4	4	Rehabilitation and upgrade of Mokhotlong
5	5	Rehabilitation and upgrade of Qacha's Nek
6	6	Rehabilitation and upgrade of Semonkong
7	15	Establishment of NMT facilities in main urban centres in Lesotho
8	18	Precinct and Access to border post (4 border posts)
9	7	Rehabilitation and upgrade of 2 other strategic aerodromes
10	13	Ferry Crossing Upgrade Programme
11	16	Footbridge programme for Rural Accessibility
12	11	Enabling transport environment and/or facilities a) for the development of the Katse and Mohale Dam Inland Waterway Transport System to support tourism services b) river crossings along the main rivers

Table 9-5: Project implementation phasing

PROJECT LIST #	PROJECT NAME	0-5 YEARS	5-10 YEARS	10-20 YEARS
1	Feasibility of additional international air routes connecting Lesotho to other regional cities	✓		
2	Regional Airports Development Strategy	✓		
3	Rehabilitation and upgrade of MIA	✓		
4	Rehabilitation and upgrade of Mokhotlong		✓	
5	Rehabilitation and upgrade of Qacha's Nek		✓	
6	Rehabilitation and upgrade of Semonkong		✓	
7	Rehabilitation and upgrade of 2 other strategic aerodromes		✓	
8	Tourism Air Transport Demand Study	✓		
9	Rehabilitation and expansion of the Multi-Modal Freight Facility at Mascon		✓	
10	Feasibility of rail as a transport mode in Lesotho - PPP Feasibility study	✓		
11	Enabling transport environment and facilities a) for the development of the Katse and Mohale Dam Inland Waterway Transport System to support tourism services b) river crossings along the main rivers	✓		
12	Develop IWT policy and legislation	✓		
13	Ferry Crossing Upgrade Programme		✓	
14	NMT plan for urban and rural context	✓		
15	Establishment of NMT facilities in main urban centres in Lesotho		✓	
16	Footbridge programme for Rural Accessibility		✓	
17	Study into the current retained applicability of Lesotho's road design guidelines.	✓		
18	Precinct and Access to border post (4 border posts)		✓	

Table 9-5: Project implementation phasing (continued)

PROJECT LIST #	PROJECT NAME	0-5 YEARS	5-10 YEARS	10-20 YEARS
19	Feasibility study and concept design for low-cost toll roads (Maseru - Botha-Bothe corridor)	✓		
20	Primary Northern Economic Corridor Mobility Upgrade (65km) - DETAILED DESIGN COMPLETE	✓		
21	Primary Southern Economic Corridor Mobility Upgrade (136km) - DETAILED DESIGN COMPLETE	✓		
22	Upgrade Thaba-Tseka to Katse Road (54km) - DETAILED DESIGN COMPLETE	✓		
23	Rehabilitate A16-01, Ha Lazaro to Ongeluksnek border (13.8km) - DESIGN IN PROGRESS	✓		
24	Upgrade of A3 from Mokhotlong to Thaba-Tseka (Liphookoaneng to Ha Mojakisane) (98.5km) DESIGN IN PROGRESS	✓		
25	Regravel / upgrade gravel roads from Khotlong to Tsatsane (40km) - DESIGN IN PROGRESS	✓		
26	Upgrade of the Malealea road (lodge) - Mafeteng (164km) - DESIGN IN PROGRESS	✓		
27	Upgrade Tlokoeng - Letseng la Terae (7km) from earth to gravel DESIGN IN PROGRESS	✓		
28	Reseal/light re-hab Likhoele- Nr Ha Ramokhele (38km) - DESIGN IN PROGRESS	✓		
29	Periodic maintenance of gravel Class B Roads (204km) - DESIGN IN PROGRESS	✓		
30	Upgrade Part of Mafeteng Bypass D2015-01 (4.7km) - DESIGN IN PROGRESS	✓		
31	Periodic maintenance of gravel Class D Roads (181km) - DESIGN IN PROGRESS	✓		
32	Upgrade of the Remainder of the Key Economic Corridor (A1) (232km)		✓	
33	Construction of New Bypasses in Maseru		✓	
34	Construction of New Bypasses in Hlotse		✓	
35	Construction of New Bypasses in Botha-Bothe		✓	
36	Rehabilitate the Southern Corridor (A2) from Maseru to Mafeteng (76km)		✓	
37	Upgrade Tourism and Mining corridor A8 from Hlotse to Katse Dam (109km)		✓	
38	Upgrade Tourism corridor A3 from Maseru to Thabe Tseka (159km)		✓	
39	Upgrade Tourism corridor A5 from Maseru to Semonkong (128.6km)		✓	
40	Upgrade Tourism corridor A4 from Quthing to Ha Makunyapane (199km)			✓
41	Rehabilitate A13 from Bothe-Bothe to Border post (9km)			✓
42	Periodic maintenance of Access Route to Sehlabathebe Tourism Sites (2.8km) CURRENT PLANNED			✓
43	Rehabilitation and regravel Road B11 from Teyateya neng to Kome Caves (25km)	✓		
44	Period maintenance of existing and construction of new gravel roads to see Koa Mines	✓		
45	Upgrade the gravel roads to paved and reseal existing paved roads from Mehobong to Menkhoaneng (80km)	✓		
46	Regravelling of various tourism access roads. (47km)	✓		
47	Rehabilitation and widening of main arterials in Maseru (16.3km)			✓
48	Rehabilitation and widening of A roads to four border posts and regravelling of a fifth border post road. (31km)			✓
49	Rehabilitation and widening of major arterials in Maseru from 2 to 4 lanes. (110km)			✓

Table 9-5: Project implementation phasing (continued)

PROJECT LIST #	PROJECT NAME	0-5 YEARS	5-10 YEARS	10-20 YEARS
50	Periodic Maintenance of Paved Secondary Corridor Roads (120km)			✓
51	Upgrade from Gravel to Paved Secondary Corridor Roads (134km)			✓
52	Periodic Maintenance of Gravel Secondary Corridor Roads (219km)	✓		
53	Maputsoe Border post Multi-modal study	✓		
54	Upgrade gravel to paved Secondary Road Corridors and Collector roads with high ADT (185km)			✓
55	Periodic maintenance of Secondary Road Corridors and Collector roads (933km)	✓		
56	Upgrade earth to paved, high volume, peri-urban Access Roads (32km)	✓		
57	Rural Access Roads Upgrade Programme	✓		
58	Road Upgrades in Progress	✓		
59	Lesotho Freight Logistics study	✓		
60	Update of the Overload Control Strategy	✓		
61	Updating and Harmonisation of Lesotho Road Transport Legislation	✓		
62	Updating of legislation relating to traffic offence system and enforcement practices	✓		
63	Procurement of equipment such as speed cameras and breathalysers to assist in road traffic enforcement	✓		
64	Average Speed Over Distance on Main South and Main North		✓	
65	Improvement of road crash data management collection (RADMS)	✓		
66	Update and implement Lesotho Roads Classification System, including Road Design Specifications and Signage Strategy in line with SADC guidelines	✓		
67	Development of public road transport regulatory framework	✓		
68	Develop a national Public Transport Plan (PTP), including Public Transport Inventory and Public Transport industry transformation and restructuring	✓		
69	Improvement of public transport facilities - nationwide	✓		
70	Establishment of a transport economic data base linked to macro-economic data that impacts on the transport sector.	✓		
71	Data digitalisation strategy for Lesotho, including Data Centre/Warehouse and other technology applications in transportation.	✓		
72	Updating of Environmental Policies and Legislation including transport emissions control policy	✓		
73	Lesotho Spatial Development Framework	✓		
74	Maseru Integrated Land Use Transportation Plan	✓		
75	Institutional and Financial Reform as well as capacity building in the sector	✓		
76	4th Industrial Revolution Readiness study within the Transport Sector	✓		
77	Update of existing PPP Policy	✓		
78	Drafting of PPP legislation	✓		

10 STRATEGIC INVESTMENT PLAN

10.1 OBJECTIVE AND BACKGROUND

The Transport Sector Investment Strategy (TSIS) comprises three main components: firstly, an analysis of the funding sources, its capacity and a strategy to exploit each source. Secondly the budget needs assessment, i.e. the funding requirements; and finally the implementation requirements and actions to set the proposed investment strategy in motion.

The TSIS is formulated against the background of a general negative profile of the transport system particularly in terms of being underfunded, typifying a low priority relative to other government sectors and too low fee levels of internal funding sources; consequently, erratic and fluctuating budget allocations leading to instability in the sector generally speaking.

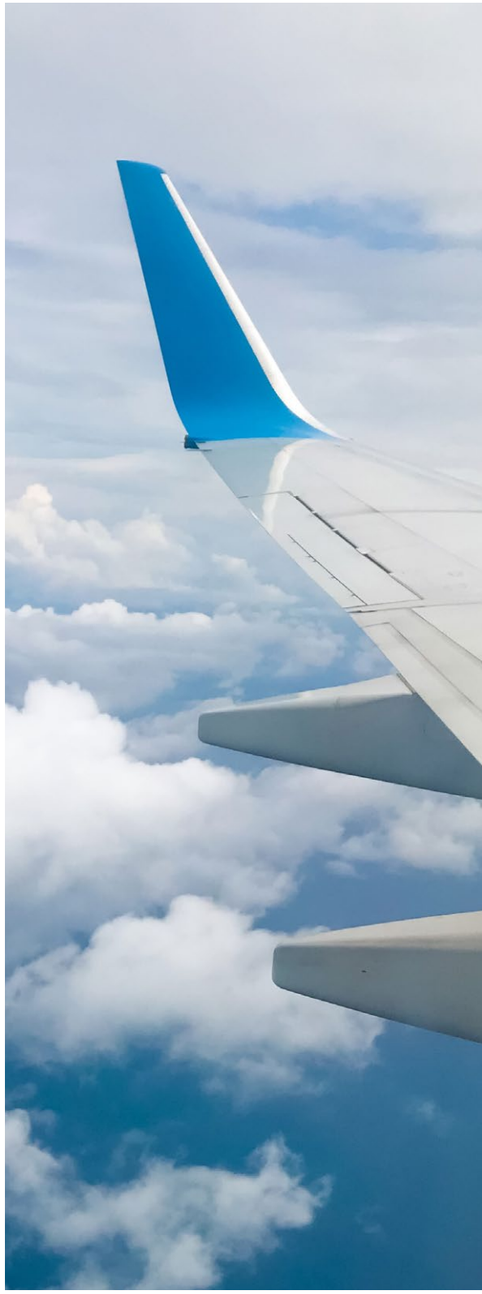
It is also characterized by a fragmented institutional framework, reflecting non-integrated transport management functions and responsibilities spread over a number of government departments and agencies, complicating effective functional management. Furthermore, misaligned perceptions about transport not recognized as an extremely specialized function similar to water and electricity, that requires a more focussed institutional structure. Apart from the fragmented management structures, the available capacity of human resources is insufficient to manage the sector properly in terms of numbers, qualifications and experience.

The implications of the above spill over to a general picture of neglected conditions and capacities of transport infrastructure and services for all modes nation-wide. The economy is also delivered to a risky one-mode dominance - road transport - with ineffective network development and maintenance.

In general, the status of the transport system in Lesotho is such that it is failing its main mandate to support the Lesotho economy the way it should. The result is costly and inefficient mobility to people and goods in Lesotho, which spills over to high inflationary conditions and contributing to below par GDP and economic growth.

10.2 THE PROPOSED SOLUTION

In essence, the solution is proposed in the form of a **comprehensive restructuring process in the transport sector in terms of both the funding environment and the institutional framework**. This much needed restructuring process is supported by important pillars, including the optimal application of the user-pay principle; self-sufficiency of internal funding, preferably less dependent on the Consolidated Fund.



In addition, a more focussed and specialized Department of Transport is required, transformed to be fully integrated in terms of transport related functions, incorporating infrastructure and operational services on a nation-wide basis. It also requires a well-capacitated HR component with qualified and experienced staff deployed on a decentralized basis, but supported by centralized planning and funding and development programs with proper oversight attention.

The investment strategy is summarized as follows:

i. The strategy is based on a **Funding Formula** to fund all transport needs comprehensively on all levels of government for all modes of transport, comprising of: -
   a) The **fuel levy, license fees and border tolls** as primary user-pay funding sources, developed to be the dominant funding mechanism, supported by other user-pay mechanisms such as project-based toll systems in exceptional cases, such as tunnels.
   b) **Consolidated Fund allocations** would remain the fall-back source, but should reduce systematically over time as the internal sources are developed systematically.
   c) **Donor funding and PPP-funding support** are important to be pursued actively, but remain ad hoc and unreliable, and not to depend on entirely.
   d) **Loan funding via private sector transport industry** should be introduced to assist funding requirements, allowing private industry loan schemes negotiated during years of insufficient budget allocations, ultimately also stabilising the private sector.
   e) The **fee levels** for internal sources are to be increased annually, automatically and linked to the CPI, and originally determined through a negotiated consensus approach amongst all relevant parties represented in a restructured institutional framework.

ii. The **total funding requirement** is determined and periodically reviewed for all transport infrastructure requirements through a **National Integrated Transport Plan (NITP) process**, formulated through a well-represented negotiated decision-making process, synchronised as part of the NSDP cycle of which the NITP is considered part.

iii. The objectives are to **stabilise budget allocations and eliminate erratic fluctuations in funding** through agreed charge levels, synchronized with the NSDP cycle. Accordingly, the total funding value, and the individual sources' fee levels are relatively **fixed for a review period but subject to the usual annual inflation fee adjustments.**

iv. To accommodate the above, a **revision of the existing institutional framework** is essential to comprise of the following main structures:
   a) The **Department of Transport (DOT)**, separated from Public Works.
   b) A **Transport Development Board (TDB)**, serving as a consultation and decision-making body with wide representation, advising the Minister; overseeing a newly established **Transport Development Agency (TDA)**, responsible for all transport infrastructure not only roads, both being elevated from the current Road Fund and its Board.
   c) **The National Transport Fund (NTF)** - elevated from the existing Road Fund, serves as a **comprehensive fund for the entire transport sector**, all modes, infrastructure, traffic and operations, and for all levels of government.
   d) Within the DOT, a well-resourced **Transport Planning Directorate** is established, acting as an **intergovernmental secretariat** for the NTB with similar representation through a technical **Strategic Transport Planning Committee (STPC)**. This directorate will support transport planning also on local government level and fulfil important coordination and decentralized transport planning nationwide.

v. Responsibilities of the **Transport Planning Directorate**, supported by a **National Strategic Transport Planning Committee (STPC)**, include:
   a) Serve as an intergovernmental secretariat to the NTB with a primary responsibility to **research, interact, consult, develop, review and implement the 5-year NITP**;
   b) Facilitate on a technical level consultation and interaction with all stakeholders on all levels (national, local, rural) on comprehensive transport needs and priorities;
   c) Submit to the Board any transport related matter to be considered for approval;
   d) Develop and maintain the Central Transport Data Base;
   e) Coordinate and oversight of projects being implemented;
   f) Monitoring and assessment of financial and technical implementation progress.
   g) Facilitate the transport sector HR development program.

The strategy is to execute transport related functions on both a national and a decentralized basis supported by well-capacitated national sources (financial and HR), in a way to ensure decentralized local and rural participation. **The objective is to develop capacities systematically with sustainable decentralization when and where required when capacities are properly developed.**

10.3 CAPACITY OF EXISTING INTERNAL FUNDING SOURCES

The historic trend of transport internal funding sources, comprising the Road Maintenance Fuel Levy (RMFL), motor vehicle license fees and the cross-border toll fees, are summarised in Table 10-1 below, indicating total revenue (2019/20) of LSL 184m, growing with about 5,1% p.a. since 2011/12; projected to be SLS 241m in 2024/25; with the fuel levy comprising 43%, license fees 14% and toll fees 37%.

Table 10-1: Forecast of Lesotho transport internal revenue sources

Internal Funding Sources (LSL) *	Actual 2011/12	Actual 2019/20	2019/20 % of Total	Average Annual Increase	Forecast 2024/25	2024/25 % of Total
Road Maintenance Fuel Levy	59 828 848	78 541 209	42,7%	3,46%	93 102 202	38,6%
Motor Vehicle License Fees	11 048 877	26 340 709	14,3%	11,47%	45 333 314	18,8%
Cross-border Toll Fees	47 744 782	68 748 459	37,4%	4,65%	86 289 734	35,7%
Other	4 623 151	10 138 457	5,5%	10,46%	16 672 359	6,9%
TOTAL	**123 245 658**	**183 768 834**	**100,0%**	**5,12%**	**241 397 609**	**100,0%**

** Kingdom of Lesotho: Draft Budget Estimates for the Financial Year 2022/23*

10.4 POTENTIAL CAPACITY OF INTERNAL FUNDING SOURCES FOR INCREASED REVENUES

The potential capacity of the internal sources for increased revenues is assessed by means of the historic growth trends as well as the benchmark comparisons of the Lesotho profile as against those of the other SACU countries for the same sources, based on February 20-21 market prices.

The benchmark comparison therefore serves as a criterium to adjudicate whether individual component's values need to be reviewed to assist in determining expanding revenue potential, as shown in the tables below.

Revenue potential of the fuel levy (February 2021) is reflected in the tables below.

Table 10-2: Breakdown of Lesotho fuel price February 2021

Fuel Price Elements	Petrol	Diesel	Average %
Retail pump price	**1 215,00**	**1 230,00**	**100,0%**
Total of Oil/Fuel Industry & Logistic Costs	**876,50**	**879,60**	**71,8%**
Total of Government Charges	**338,5**	**350,4**	**28,2%**
MVA/RAF levy	10	10	2,9%
Customs/Excise	4	4	1,2%
Petroleum Fund levy	11	11	3,2%
VAT	158,5	160,4	46,3%
Road Maintenance levy	30	40	10,1%
Oil levy	125	125	36,3%

Table 10-3: Fuel price breakdown of SACU countries - February 2021

ANALYSIS	Lesotho		Swaziland		Botswana		South Africa		Namibia	
Lisente/Liter	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
Retail Price ex Tax/Vat	1056,5	1069,6	930	975	1057,4	1051,4	1486	1300,4	1045	1048
Fuel Sales Vat/Tax	158,5	160,4	385	385	198,6	197,6	0	0	90	90
Road Network Levy	30	40	50	50	107,6	107,6	377	363	239	243
All Other Charges	306,5	298,4	452	452	252,5	251,6	249,3	239,4	172,3	172,3
Total All Charges	336,5	338,4	502	502	360,1	359,1	626,3	602,4	411,3	415,3

Table 10-4: Lesotho total fuel levy relative to other SACU countries – Feb. 2021

	Basis of Comparison (Lisente/Litre)	Petrol	Diesel
a)	**Lesotho total fuel charge on fuel sales**	336	338
b)	**Lowest** total charge on fuel sales of all other SACU countries	360	359
c)	**Average** total charges on fuel sales - all other SACU countries	475	470
d)	**Average** total charges on fuel sales - all SACU countries excl. RSA	424	425
	Lesotho margin on (b)	24	21
	Lesotho margin on (c)	138	131
	Lesotho margin on (d)	88	87

Table 10-5: Comparison of Lesotho fuel pump price relative to other SACU countries

Basis of Comparison (Lisente/Litre)	Petrol	Diesel
Lesotho fuel pump price	1215	1230
Average fuel pump price of all other SACU countries excluding RSA	1235	1249
Lesotho price lower than SACU average excluding RSA	20 (1,6%)	19 (1,5%)

As a concluding recommendation, the potential for increased revenues to be obtained via the road maintenance levy is summarized as follows:

Table 10-6: Potential Increase in Road Maintenance Levy

Increased allocation to the Road Maintenance Levy (lisente/litre fuel sales) based on:	Minimum	Maximum	Moderate In- between
1. A restructuring of the current fuel price internally (no increase in retail prices)	72	125	98,5
2. An increase in retail prices, to allow Lesotho to be on par with SACU countries excluding the RSA	20	80	50
TOTAL	**92**	**205**	**148,5**

REVENUE POTENTIAL FROM CROSS-BORDER TOLL FEES (2019/20 WITH INTERIM REVIEWS)

The SACU benchmark comparison of cross-border is shown below:

Table 10-7: Comparison of cross-border toll fees between SACU Countries

VEHICLE CLASS	Lesotho Fee	Namibia Fee	Lesotho %	Botswana Fee *	Lesotho %	Eswatini Fee	Lesotho %
CLASS 1: Light Vehicles	M50 (l) M70 (f)	N$204-N$320 (f)	14%-22%	P65 M86 (f)	52%		140%
CLASS 2: Medium Vehicles	M90 (l) M120 (f)	N$669 (f)	N$669 (f)	P91-P143 (f) M120-M190	45%-70%	E100 (f)	120%
CLASS 3: 2 - 3 axle trucks & buses	M130 (l) M180 (f)	N$756-N$960 (f)	13%-16%	P169-P1 014 M223 - M1 340 (f)	10%-56%	E300 (f)	60%
CLASS 3: 4 & 4 + axle buses & goods vehicles	**M310 (l)** **M430 (f)**	**N$1 833 (f)**	**16%**	**P1053-P1872** **M1390-M2470 (f)**	**12%-21%**	**E300 (f)**	**143%**

** PULA – ZAR = PULA 1,00 = ZAR1,32 ; ** (f) refer to foreign vehicles; (l) refer to local vehicles*

The potential increase in toll fee revenues is estimated to be in the order of:

- 20% (minimum)
- 30% (maximum) and
- 25% (moderate, in-between)

REVENUE POTENTIAL FROM MOTOR VEHICLE LICENSE FEES

The SACU benchmark comparison indicates, with few exceptions, the level of license fees in Lesotho is with a large margin lower than those of all the other SACU countries. Furthermore, no increase in license fees has been Gazetted for the last four years since 2017. On the lower end of vehicle size categories, the fee level is not as excessively low as on the higher end of vehicle categories. Essentially, the scale of fee increase relative to vehicle mass is not to the same degree as other SACU countries.

Table 10-8: Comparison of Lesotho License Fees with other SACU Countries

Lesotho License Fee as % of -	Botswana	RSA	Namibia
Motorcycle, Trailers and Caravans	73% - 90% - 110%	33% - 49% - 88%	31%
Sedan cars 250 - 500kg	110%	48% - 51%	31%
Sedan cars 500 - 1000kg	84% - 112%	47% - 57%	30% - 31%
Sedan cars 1 000 - 3000kg	54% - 114%	30% - 59%	20% - 34%
Trucks 3 000 – 5 000kg	37% - 49%	11% - 18%	9% - 10%
Trucks 5 000 – 10 000kg	24% - 38%	24% - 38%	4% - 5%
Trucks 10 000 and above	34% - 41%	11% - 18%	

Percentages in RED indicate Lesotho fees are HIGHER than other countries.
Percentages in BLACK indicate Lesotho fees are LOWER than other countries.

POTENTIAL CAPACITY TO INCREASE LESOTHO LICENCE FEES

Table 10-9: Potential Increases in Lesotho License Fee Structure

Vehicle Category	Minimum increase*	Moderate Increase*	Maximum Increase*
Motorcycle, Trailers and Caravans	10%	85%	160%
Sedan cars 250 - 500kg	-10%	75%	160%
Sedan cars 500 - 1000kg	0%	80%	160%
Sedan cars 1 000 - 3000kg	10%	170%	330%
Trucks 3 000 – 5 000kg	230%	230%	230%
Trucks 5 000 – 10 000kg	300%	300%	300%
Trucks 10 000 and above	270%	270%	270%
Average sedan and small vehicles	**5%**	**100%**	**200%**
Average Trucks	**275%**	**275%**	**275%**
All vehicles average increase	**70%**	**145%**	**220%**

* *Using SACU countries as benchmark*

PROPOSED STRATEGY TO BRING LESOTHO ON PAR WITH OTHER SACU COUNTRIES

Table 10-10: Proposed Increase in Motor Vehicle License Fees

1.	High Scenario: Achieve the total 70% backlog in 4 years	14,30%
2.	Moderate Scenario: Achieve the total 70% backlog in 5 years	11,30%
3.	Low Scenario: Achieve the total 70% backlog in 6 years	20 (1,6%)

10.5 PROPOSED BUDGET FOR INTERNAL FUNDING SOURCES FOR 2024/25

Based on the motivations in the preceding sections, indicating potential – and proposed restructured fee levels for internal funding sources, the estimated budget amounts for each source individually are shown for three scenarios, as reflected in the tables below:

- Minimum budget scenario
- Maximum budget scenario
- Moderate – or in between budget scenario

Table 10-11: Proposed Increased Charges for Transport Internal Funding Sources

Proposed Increased Fuel Levy	Minimum	Maximum	Moderate
Petrol	120	240	180
Diesel	130	250	190
% Increase - Fuel Levy			
Petrol	400,0%	800,0%	600,0%
Diesel	325,0%	625,0%	475,0%
Increased Fuel Levy - Average % Increase	**362,5%**	**712,5%**	**537,5%**
Increased -Vehicle License Fees - % Increase	**9,3%**	**14,3%**	**11,3%**
Increased - Toll Fees - % Increase	**20,0%**	**30,0%**	**25,0%**

Note that the proposed budget values are motivated primarily using the benchmark comparison with other SACU countries, where the **minimum values generally are on par with the lowest value of all SACU countries**, the maximum value is equal to the **average of all SACU countries excluding the RSA**, and the moderate value is the in-between value.

In terms of the fuel levy, the same benchmark arguments are applicable, but in addition, the extent of government charges on fuel sales are used as basis, as well as an argument to allocate an equitable share in Lesotho total charges.

Based on the above proposed percentage increases to the respective internal funding sources, the estimated proposed budget values for 2024/25 financial year are shown in **Table 10-12**.

Table 10-12: Revenue Potential of Transport Internal Funding Sources -2024/25

Internal Transport Revenue Sources (LSL)	Current 2024/25 Budget	Proposed Minimum	Proposed Maximum	Proposed Moderate
Road Maintenance Fuel Levy	93 102 202	430 597 684	756 455 391	593 526 537
Motor Vehicle License Fees	45 333 314	49 549 312	51 815 978	50 455 978
Cross-border Toll Fees	86 289 734	103 547 681	112 176 654	107 862 168
Other	16 672 359	18 222 889	19 056 507	18 556 336
TOTAL	**241 397 609**	**601 917 566**	**939 504 529**	**770 401 019**

10.6 DEPARTMENT OF FINANCE CURRENT BUDGET ESTIMATES – 2022/23

Transport related capital budget allocations are contained in three Ministries, including the Ministries of Public Works, Transport and Local Government and Chieftainship, as reflected in the table below.

Table 10-13: Summarised Transport Related Capital Budgets 2021/22 - 2024/25

TOTAL ALL MINISTRIES - TRANSPORT RELATED BUDGET	Approved Budget 2021/22	Actual Expenditure 2021/22	Proposed Budget 2022/23	Projections 2023/24	Projections 2024/25
Ministry of Public Works	780 233 620	238 332 233	1 041 841 153	1 093 933 211	1 148 629 871
Ministry of Local Government and Chieftainship	96 266 650	76 266 650	220 000 000	231 000 000	242 550 000
Ministry of Transport	15 635 680	5 884 318	15 635 680	16 417 464	17 238 337
TOTAL ALL MINISTRIES TRANSPORT RELATED BUDGET	**892 135 950**	**320 483 201**	**1 277 476 833**	**1 341 350 675**	**1 408 418 208**
TOTAL ALL GOL MINISTRIES	**5 752 104 974**	**1 416 520 577**	**7 095 224 126**	**7 449 023 550**	**7 820 475 902**
013 - Ministry of Public Works	13,6%	16,8%	14,7%	14,7%	14,7%
042 - Ministry of Local Government and Chieftainship	1,7%	5,4%	3,1%	3,1%	3,1%
052 - Ministry of Transport	0,3%	0,4%	0,2%	0,2%	0,2%
TOTAL ALL MINISTRIES	**15,5%**	**22,6%**	**18,0%**	**18,0%**	**18,0%**

Note however that the current transport related budget requirements for local roads and suburban streets are not contained in the GOL Budget Books, with the exception of some provisions for main routes traversing urban areas and cities. These budget requirements are provided separately in each local government agency's internal budgets.

Furthermore, regardless the contents of local government budgets, it appears that very little if any detailed nation-wide studies have been conducted to determine the exact budget requirements for local and rural feeder and suburban roads based on an approved set of standards for local roads. It is also observed that the conditions of these roads are generally in an even worse state that national routes. This is a gap in the current road network assessment program and needs to be addressed.

10.7 BUDGET REQUIREMENTS DERIVED FROM STRATEGIC ACTION PLAN

The Strategic Action Plan identifies the total transport budget requirements for three alternative budget scenarios i.e.; a maximum, moderate (in between) and minimum budget scenarios, as summarized in the table below:

Table 10-14: Alternative budget scenarios for the transport investment program

MAXIMUM SCENARIO - Unconstrained Budget (LSL million)						
Stage	New Capital Cost	Backlog / Enhancem. Cost	Routine Maint. Cost	Project Mngment Cost	**TOTAL**	Annual Average Budget
0-5 Years: 24/25-28/29	178,500	11 727,962	1 140,830	96,625	**13 143,917**	**2 628,783**
6-10 Years: 29/30-33/34	5 085,100	8 845,600	2 812,526	0,000	**16 743,226**	**3 348,645**
11-20 Years: 34/35-43/44	498,158	15 805,766	4 325,797	0,000	**20 629,720**	**2 062,972**
20 Year TOTAL	**5 761,758**	**36 379,327**	**8 279,153**	**96,625**	**50 516,863**	**2 525,843**
Annual Average Budget	**288,088**	**1 818,966**	**413,958**	**4,831**	**2 525,843**	
MODERATE SCENARIO - In Between Budget (LSL million)						
0-5 Years: 24/25-28/29	178,500	7 269,209	1 389,550	96,625	**8 933,884**	**1 786,777**
6-10 Years: 29/30-33/34	5 085,100	6 201,736	2 736,959	0,000	**14 023,795**	**2 804,759**
11-20 Years: 34/35-43/44	498,158	13 619,776	4 917,336	0,000	**19 035,269**	**1 903,527**
20 Year TOTAL	**5 761,758**	**27 090,720**	**9 043,845**	**96,625**	**41 992,948**	**2 099,647**
Annual Average Budget	**288,088**	**1 818,966**	**413,958**	**4,831**	**2 525,843**	
MINIMUM SCENARIO - Current Budget Book Estimate for 2024/25 (LSL million)						
0-5 Years: 24/25-28/29	178,500	4 977,189	1 524,814	96,625	**6 777,128**	**1 355,426**
6-10 Years: 29/30-33/34	4 213,500	3 720,895	3 078,621	0,000	**11 013,016**	**2 202,603**
11-20 Years: 34/3-43/44	436,174	7 759,469	5 517,184	0,000	**13 712,827**	**1 371,283**
20 Year TOTAL	**4 828,174**	**16 457,553**	**10 120,620**	**96,625**	**31 502,971**	**1 575,149**
Annual Average Budget	**241,409**	**822,878**	**506,031**	**4,831**	**1 575,149**	

10.8 DETERMINATION OF BUDGET SHORTFALLS

The budget shortfall framework is based on a comparison of:

a) The **capacity of the available internal funding sources,** including the projected revenues, given the assumption that the proposals are approved and implemented.
b) The **current budget allocations** as contained in the Department of Finance's budget books.
c) The **budget requirements of the proposed 20-year transport development program** outlined in the Transport Sector Action Plan

Details of the above are summarized in the tables below.

Table 10-15: Capacity of the available internal funding sources

Internal Transport Revenue Sources (LSL)	Current 2024/25 Budget	Proposed Minimum	Proposed Maximum	Proposed Moderate
SLS Million	241,398	601,918	939,505	770,401

Table 10-16: Current Department of Finance budget allocations

TOTAL ALL MINISTRIES - TRANSPORT RELATED BUDGET	Approved Budget 2021/22	Actual Expenditure 2021/22	Proposed Budget 2022/23	Projections 2023/24	Projections 2024/25
SLS Million	892,136	320,483	1 277,477	1 341,351	1 408,418

Table 10-17: Budget Requirements - Transport Action Plan

SCENARIOS: SLS Million	New Capital Cost	Backlog / Enhancement Cost	Routine Maintenance Cost	Project Management Cost	Annual Average Budget
MAXIMUM SCENARIO Unconstrained Budget	288,088	1 818,966	413,958	4,831	2 525,843
MODERATE SCENARIO In Between Budget	288,088	1 354,536	452,192	4,831	2 099,647
MINIMUM SCENARIO Current Budget 2024/25	241,409	822,878	506,031	4,831	1 575,149

Table 10-18: Estimated Budget Shortfall

SCENARIOS: ANNUAL BUDGET SLS MILLION	Annual Average Budget Requirement	FUNDING SOURCE: Internal Transport Fund (Maximum Scenario)	BUDGET SHORTFALL ON INTERNAL FUNDING SOURCES	CURRENT BUDGET ALLOCATION (2024/25)	BUDGET SHORTFALL - ADDITIONAL FUNDING - ALTERNATIVE SOURCES
MAXIMUM SCENARIO Unconstrained Budget	2 525,843	939,505	(1 586,338)	1 408,418	(177,920)
MODERATE SCENARIO In Between Budget	2 099,647	939,505	(1 160,142)	1 408,418	248,276
MINIMUM SCENARIO Current Budget 2024/25	1 575,149	939,505	(635,644)	1 408,418	772,774

CLARIFICATION:

i. The annual budget requirement shown in column A is presented in three alternative budget scenarios:
   a) The **maximum scenario** is defined by the needs to develop the transport system to a level of quality and extent that is necessary to support the national economy and the social needs of all people, based on specific technical standards that are universally applicable to developing countries.
   b) The **minimum scenario** is defined by the projected budget value for 2024/25 reflected by the Department of Finance's budget books as reflected in column D. The difference between the maximum and minimum budget scenarios is extensive, close to SLS 1 billion, which is a reflection of the backlogs that developed over time and the resulting decline in the transport system over many years.
   c) The **moderate budget scenario** is a mid-way average between the maximum and minimum, and may be considered as a compromise position. This is the budget scenario that is recommended as practical and sustainable to implement, but not disregarding the first choice remains the maximum scenario as it is based on sound economic and technical motivation.

ii. The amount reflected for the proposed internal funding sources in column B, is based on the stated policy objectives to apply the user-pay principle as far as possible, and to allow the transport sector to become as independent as possible financially by using its internal funding sources optimally.

iii. The level of the **proposed internal funding** was accordingly established by means of applying affordability criteria to each of the three main sources individually, and in particular that level that is sensible relative to other SACU benchmark values which are considered acceptable on a regional basis.

Should the moderate budget scenario be accepted as the preferred implementation model, the following interpretations of the table above are relevant:

i. An average total annual transport budget of about **LSL 2,1 billion** is required.

ii. Should the proposed transport financial restructuring process be implemented, the current level of the internal sources will contribute only to the extent of **LSL 0,94 billion**, with a further amount of **LSL 1,16 billion** shortfall (column C) still to be funded.

iii. The budget shortfall is recommended to be funded from a combination of the following:
   a) **Annual Consolidated Fund** allocations, which is always the fallback solution, but should preferably be avoided as it defeats the objective of longer-term independency and stability. Yet it still remains essential at least for the short to medium term.
   b) The **current projected budget allocation of LSL 1,4 billion**, is suggested to be restructured to become an addition to the internal funding sources, i.e. scrapping of VAT on fuel sales in exchange for an **additional charge on the existing fuel levy** as a more substantial funding source for the Transport Fund, and secondly a possible new fuel tax not linked to the VAT rate.
   c) Accordingly, it is suggested that **DOF to consider legislating a separate Fuel Tax to fund other government expenses other than transport expenses**. In essence, replace the current VAT on fuel with two charges:
      - a **Fuel Levy** dedicated to the Transport Fund; and
      - a **Fuel Tax** for other government expenses. It clearly separates – and allows the revenues for transport as an important user-pay mechanism, from the needs for general taxation using the fuel sales.
   d) The above sources can be supported by other funding sources identified further on in this chapter, which need to be pursued actively.

Figure A - 7: Urban roads not maintained

10.9 IMPLICATIONS OF INSUFFICIENT ROAD INFRASTRUCTURE INVESTMENT

The impact of the low and moderate investment scenarios are as follows:

a) The general unacceptable condition of the transport infrastructure in Lesotho, as demonstrated in the attached annexure, will continue to deteriorate and lead to a state where the transport sector cannot sustain the economy.
b) The upgrade of the key economic corridor A1 will be delayed for 5 years versus the high investment scenario, resulting in further congestion and road condition deterioration. This will increase vehicle operating costs, increase market prices and constrain economic activity and growth opportunities;
c) The A3 from Monkhotlong to Thaba Tseka, which is currently undrivable, will have a delayed upgrade for the moderate investment scenario and will not be upgraded for the low investment scenario, completely eliminating connectivity and economic growth, including tourism and agriculture in rural areas;
d) The proposed bypasses around Maseru, Hlotse and Botha-Bothe which are intended to assist in alleviating congestion, will either be delayed (moderate investment) or abandoned (low investment);
e) Rural accessibility and road safety will continue to be an issue, not addressed, and ultimately the rural areas will continue to be deprived of economic growth and prosperity;
f) Substantial budget will continue to be spent on routine maintenance of gravel roads that are overdue to be upgraded to paved, where it is generally economically proven that over 20 years, if will be most economically viable to upgrade the gravel road to paved than maintain the gravel road, when traffic volumes exceed 300 vehicle per day.

10.10 OTHER ALTERNATIVE FUNDING SOURCES

Given the traditional funding sources and its capacities as deliberated in previous sections, other potential funding sources are identified, including:

i. Funding via typical transport related user-pay principles
ii. Loan funding via private sector construction companies
iii. Funding via PPP arrangements
iv. Funding via local institutional funds

10.11 IMPLEMENTATION OF THE FINANCIAL AND INSTITUTIONAL STRATEGIES

A detailed plan to implement the proposed investment strategy is presented reflecting the following:

- Task categories and objectives
- Actions to be taken
- Deliverables
- Responsibility and Interactions
- Timing and program.

Figure A - 8: *Congestion towards industrial areas*