www.cpcs.ca

Zimbabwe National Transport Master Plan

Main Volume

Client Ref: P-ZW-800-005

Prepared for:

The Ministry of Transport & Infrastructural Development, Zimbabwe

Prepared by:

CPCS

In association with:

Aurecon; ProStruct Consulting Engineers; Civil & Planning Partnership (Zim) (Pvt) Ltd;

The Government of Zimbabwe

Solutions for growing economies

CPCS Ref: 14043
13 April, 2017

Quality Assurance

Project: Consultancy Services for the Development of a National Transport Master Plan
CPCS ID: 14043

Version	Date	Responsible	Approval
1.0	April 13, 2017	Amos Ditima, Team Leader; Paul Kambalame, Project Co-ordinator	Miho Ihara, Vice President, Eastern and Southern Africa

SharePoint\Projects - 14043 Consultancy Services for the Development of a National Transport Master Plan for Zimbabwe

Acknowledgements

CPCS would like to acknowledge the kind assistance granted to them by the staff of the Ministry of Transport and Infrastructural Development, Zimbabwe. In addition, we wish to thank all the stakeholders who gave so generously of their time and shared with us their insights in the preparation of this report. Any errors of fact or interpretation are ours.

CPCS Transcom International Limited
Suite 201
First Floor Warrens Court
48 Warrens Industrial Park
Warrens
St. Michael, Barbados
bridgetown@cpcs.ca

www.cpcs.ca

Table of Contents

List of Tables

List of Figures

Acronyms / Abbreviations

ARDC	Association of Rural District Councils
BBR	Bulawayo Beitbridge Railway
BRT	Bus Rapid Transit
CBD	Central Business District
COMESA	Common Market for Eastern and Southern Africa
CPCS	CPCS Transcom International Limited
EAC	East African Community
EIA	Environmental Impact Assessment
Eng.	Engineer
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIS	Geographic Information System
GoZ	Government of Zimbabwe
IDBZ	Infrastructure Development Bank of Zimbabwe
IDC	Industrial Development Bank
IMO	International Maritime Organisation
KPI	Key Performance Indicator
LED	Local Econpomic Development
MIC	Ministry of Industry and Commerce
MTP	Medium Term Plan
NMT	Non-Motorised Transport (including walking and cycling)
NOCZIM	National Oil Company of Zimbabwe
NOIC	National Oil Infrastructure Company
NTMPZ	National Tourism Master Plan of Zimbabwe
NTP	National Transport Policy
PPP	Public Private Partnership
RAF	Road Accident Fund
REC	Regiponal Economic Communities (i.e. COMESA, EAC and SADC)
RTMD	Rail Transport Management Department
SADC	Southern African Development Community
SAPP	Southern African Power Pool
SDI	Spatial Development Initiative
SSATP	Africa Transport Policy Program
TDZ	Tourism Development Zone
TOAZ	Transport Operators Association of Zimbabwe
UCAZ	Urban Councils Association of Zimbabwe
WB	World Bank
ZAIP	Zimbabwe Agricultural Investment Plan
ZAMCOM	Zambezi Watercourse Commission
ZIA	Zimbabwe Investment Authority
ZIMRA	Zimbabwe Revenue Authority
ZINARA	Zimbabwe National Road Admistration
ZINWA	Zimbabwe National Water Authority
ZIMASSET	Zimbabwe Agenda for Sustainable Socio-Economic Transformation (2013 – 2018)
ZNA	Zimbabwe National Army

ZNPWMA	Zimbabwe National Parks and Wildlife Management Authority
ZNTMP	Zimbabwe National Transport Master Plan
ZRP	Zimbabwe Republic Police
ZTA	Zimbabwe Tourism Authority

1 Introduction

Key Message

This chapter presents:

- → The authority for the assignment and the assignment background;
- → The purpose of this report;
- → A brief description of this Assignment; and

1.1 Authority for the Assignment

This report is prepared under the authority of the contract signed between the Ministry of Transport and Infrastructural Development (MoTID) of Zimbabwe and CPCS Transcom International Limited (CPCS) on May 12th, 2015, to carry out "Consultancy Services for the Development of a National Transport Master Plan for Zimbabwe" ("The Assignment").

The need to prepare a National Transport Master Plan was identified by the African Development Bank (AfDB) and the Government of Zimbabwe (GoZ) as key in solving some of the challenges facing the nation of Zimbabwe and her transport sector in particular.

A matter of major concern to the development process of the transport sector is the uncoordinated, ad hoc, transport infrastructure development, which is currently happening in Zimbabwe in response to impromptu demands from the various economic sectors including: mining; agriculture; health care; education; and clean water points. In rural areas, the country experiences the challenge of connectivity and accessibility to public facilities like markets, and health care and education services, inclusive of clean water. Some parts of the country are not accessible by surface transport. To this end, the AfDB further conducted an appraisal and prepared the National Transport Sector Master Plan Study – Appraisal Report in 2013, which underpinned the need for this assignment to be carried out.

1.2 The Assignment

1.2.1 The Assignment Objectives

The main objective of the assignment is to provide the GoZ with a comprehensive strategic National Transport Master Plan (NTMP), with a 20-year timeframe, with short-, medium- and long-term investment plans for sustainable development of the transport infrastructure and services to support growth and wealth creation. It takes into account the integration of transport and land use planning, as well as inclusive and green growth.

The specific objectives of this assignment include:

- → **Development of a comprehensive transport plan** that takes into account current economic realities and the country's national development plans;
- → Development of an **inter-modal transport infrastructure plan** for all the provinces of the country;
- → Development of a transport infrastructure master plan made up of a prioritized list of short-term, medium-term and long-term transport sector investments; and
- → Development of a national master plan that is in line with the Southern African Development Community (SADC) Infrastructure Master Plan, the Common Market for Eastern And Southern Africa (COMESA) transport policy, and the Programme for Infrastructure Development in Africa (PIDA).

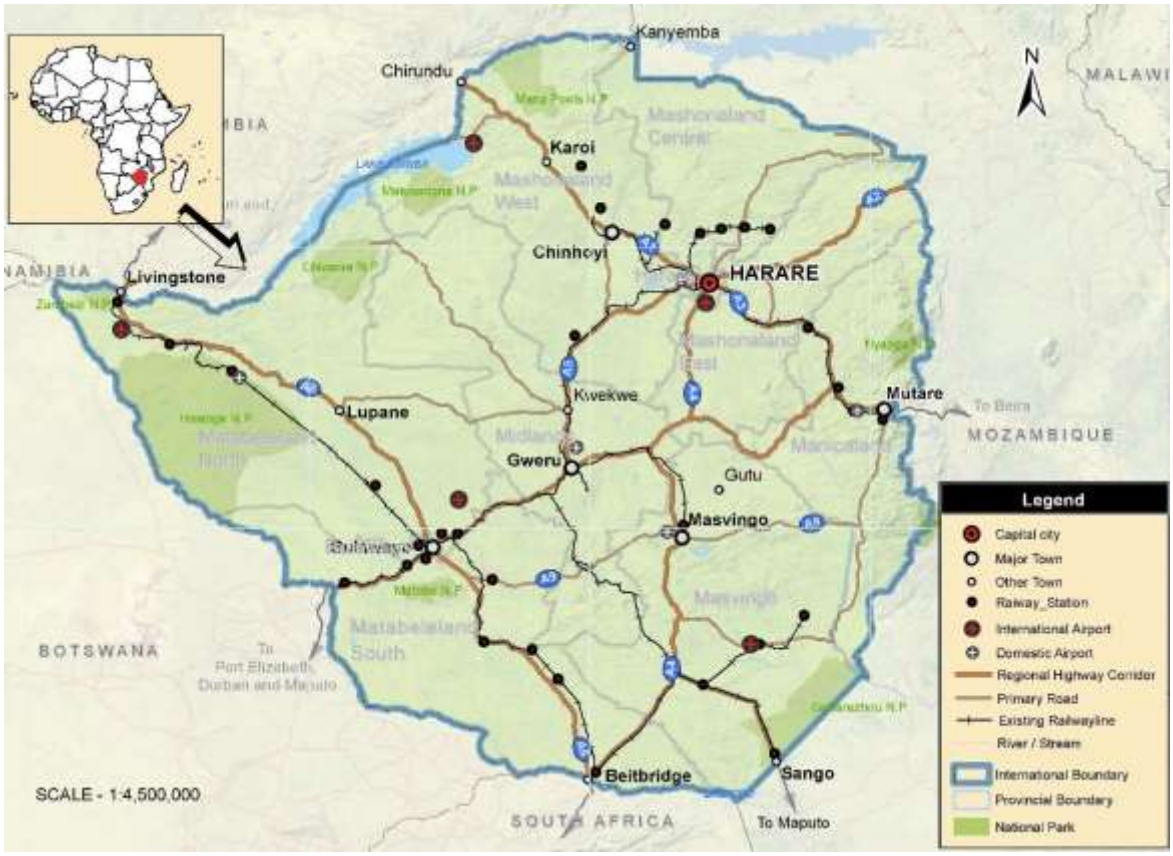
The preparation of the NTMP has included an analysis of the present situation in the transport sector as related to all modes of transport, forecast future expansions and integrated the

subsectors into a comprehensive and integral tool governing the country's transport needs as well as looking at cross border issues in terms of regional integration. It also provided for institutional alternatives related to annual updating and enforcement of the recommendations of the master plan.

1.2.2 Background of the Assignment

Zimbabwe is a landlocked country with a population of approximately 13.1 million according to the 2012 national census. Being landlocked, national and regional connectivity is vital for the economic growth of the county. A well-functioning transport infrastructure network is critical in sustaining the country's economic growth. The country is linked regionally by various corridors forming an important regional axis. Figure 1-1 below shows the land transport links within Zimbabwe and the outlets to the neighbouring countries. Zimbabwe also has good air links to the rest of the SADC region through its international airports. The main economic industries are mining, agriculture, and manufacturing. The discovery of diamonds in Zimbabwe contributes further to the economic growth of the country. It is important to note the central role that the transport sector plays – both hard and soft components when developing a growth scenario that links Zimbabwe's economy to regional and international markets.

Figure 1-1: Main Transport Networks of Zimbabwe (Road, Rail and Aviation)



Source: CPCS

The main objective of the Zimbabwe National Transport Master Plan Study outlined in Section 1.2.1 above is in line with the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) (2013-2018) and Zimbabwe Medium Term Plan (MTP) (2010-2015), whose objectives are to achieve the restoration and transformation of capacities for sustainable economic growth and development in Zimbabwe. Both ZIMASSET and the MTP identify the infrastructure whose key priority is the restoration and sustenance of basic services, road, rail, and air, as well as Information Communication Technologies (ICT) to enhance communication, knowledge sharing and efficiencies within the public and private sectors.

The performance of the transport sector has declined over the past decade due to many factors including poor redundant equipment, low investment, and inadequate working capital.

AfDB conducted an appraisal of flagship projects for infrastructure in Zimbabwe and produced the Infrastructure and Growth Flagship Report in 2011, which highlighted the following challenges and constraints that faced the transport and infrastructure sectors:

- → Lack of maintenance due to financial constraints;
- → Accelerated deterioration through misuse;
- → Capacity constraints due to migration of skilled personnel;
- → Inadequate funding for infrastructure greenfield projects;
- → High rates of accidents; and
- → Lack of an integrated approach in infrastructure investment planning.

To address some of the challenges, the MTP and the ZIMASSET contain proposals that include, among others:

- → Rehabilitation and maintenance of the infrastructure;
- → Mobilizing resources through user pay principles; and
- → Use of public-private partnership (PPP) ventures to finance and operate infrastructure and services.

The need to prepare an NTMP was identified as key in solving some of the challenges identified by the AfDB and many others.

1.3 Structure of This Report

The remainder of this report is structured as follows:

Chapter 2: presents the context for the ZNTMP.

Chapter 3: presents “Shaping Transport to Meet the Challenges of the Economy”.

Chapter 4: presents Master Plan Proposals and Their Sustainability.

Chapter 5: presents "Implementing the Plan".

Chapter 6: presents "Monitoring and Evaluation" of the Master Plan.

An Executive Summary has been prepared as a separate document and supporting material is presented in a Technical Annexure.

2 Context for the ZNTMP

Key Message

This chapter describes the context for the National Transport Master Plan. It provides a brief country profile, Zimbabwe's development objectives, strategy and main guiding documents for the planning process, as well as the country's transport policy.

2.1 Overview

The Zimbabwe National Transport Master Plan has been prepared taking into account the existing challenges within and outside the transport sector, the future national development outlook, regional development aspirations as well as projected traffic flows.

2.2 Existing Conditions and Challenges in the Transport Sector

2.2.1 Institutional and Regulatory Arrangements

2.2.1.1 Transport Policy

Trade, the key driver of economic development depends on the size of the market and that, in turn, relies on the reliability and sophistication of the transport network. In Zimbabwe, the Government has emphasised the development of a transport network that promotes social, political and economic development. The transport system is geared to serve key socio-economic sectors that include agriculture, tourism, manufacturing, mining, construction, education and public health.

The challenges that the transport sector faces are many and varied; they include: -

- Lack of sustainable investment in transport infrastructure and services, which, coupled with deferred maintenance, leads to a decline in the contribution of the transport sector to employment creation and poverty alleviation;
- High transport operating costs, making transport inaccessible to vulnerable groups of society such as people living with disabilities, the elderly, women and children;
- Loss of critical relevant human skills to other countries;
- Shortage of money to procure spare parts and to maintain a regular supply of fuel; and
- Slow adaptation to new transport technologies which enhance the operations of the transport sector.

The National Transport Policy (NTP) framework seeks to address these challenges, including the promotion of increased private sector participation in sector development.

2.2.1.2 Existing Institutional Arrangements

The responsibility for the management, regulation and provision of transport infrastructure and services falls under six different Ministries:

i. Ministry of Transport and Infrastructural Development (MoTID) (responsible for all modes of transport except pipelines);

ii. Ministry of Local Government, Public Construction and National Housing (responsible for roads within Urban Council (UC) areas);

iii. Ministry of Rural Development, Preservation of National Culture and Heritage, (responsible for roads in Rural District Council (RDC) areas);

iv. Office of the President and Cabinet (responsible for District Development Fund (DDF) roads);

v. Ministry of Home Affairs (responsible for the enforcement of traffic rules and regulations); and

vi. Ministry of Energy (responsible for pipelines).

Ministry of Transport and Infrastructural Development

The Government of Zimbabwe (GoZ) promulgated the Roads Act of 2001, which established a Road Fund, and the Zimbabwe National Roads Administration (ZINARA) to manage and administer the Road Fund, in order to improve the financing and management of the road network. The Act also provided for three Road Authorities, namely, UCs, RDCs and the Department of Roads (DoR, under MoTID). A fourth Road Authority; the DDF (under the Office of the President and Cabinet), was added in 2003 through the General Laws Amendment Act of 2002.

The MoTID has overall authority for all gazetted public roads in Zimbabwe, with core responsibilities of formulating national transport policies for road, rail, air and inland waterways. Two divisions, namely Transport Infrastructural Development and Transport Management and Policy Research, oversee functions of several departments.

The two divisions within the Ministry have the following functions:

→ **Transport Infrastructural Development:** made up of the Department of Roads (DoR) which is sub-divided into a number of branches responsible for planning, design, construction and maintenance of roads and bridges. The DoR is responsible for State Roads and major road corridors.

→ **Transport Management and Policy Research:** made up of four departments: –

i. the Vehicle Inspectorate Department (VID) – responsible for vehicle driver testing and licensing, axle load regulation, issuing motor vehicle road worthiness certification and operation of weighbridges at certain border posts;

ii. Central Vehicle Registry (CVR) – responsible for the registration of vehicles;

iii. Road Motor Transport (RMT) – the main regulatory entity for public transport; and

iv. The Traffic Safety Council of Zimbabwe (TSCZ) – established by the Traffic Safety Council Act (Chapter 13:17) and became operational in August 2000. The Zimbabwe Traffic Safety Board is the predecessor of the TSCZ.

The TSCZ is responsible for public safety awareness campaigns. It specifically targets school children, pedestrians, cyclists and motorists, and in addition conducts defensive driving courses targeted, especially at public passenger transport and heavy goods vehicle drivers. TSCZ has proposed the introduction of a Road Accident Fund (RAF) similar to the Road Accidents Funds in Botswana and South Africa. The objective is to compensate victims of road accidents,

especially passengers, who may not be adequately covered by current motor vehicle accident insurance cover, including the public passenger transporters.

Additionally, the MoTID administers a number of parastatals and companies, wholly owned by GoZ: ZINARA, National Railways of Zimbabwe (NRZ), Civil Aviation Authority of Zimbabwe (CAAZ), Air Zimbabwe, Road Motor Services (Pvt) Limited, and CMED (Pvt) Ltd. Details of the main parastatals are presented below.

ZINARA AND THE ROAD FUND

ZINARA administers a Road Fund. Revenues for the Road Fund come from road user charges, toll fees, fuel levies, heavy vehicle surcharges, vehicle registration and licensing fees, international transit fees, funds appropriated for the Road Fund by an Act of Parliament, and grants and donations approved by the government. ZINARA disburses the funds to the four road authorities for road maintenance. In 2009, Government introduced tolling on major highways to collect revenue also for the maintenance and rehabilitation of the highways.

Originally road funding was provided through the Public Sector Investment Programme (PSIP). However, the challenge has been that the allocation of funds for road construction and maintenance from the central budget has been steadily declining in real terms over the years. The creation of ZINARA and the Road Fund was therefore to ensure the preservation of the road network.

ZINARA has however, in recent years been perceived by the road authorities as having extended its operation to involve road development, a function which they consider to be outside its original mandate of administering the Road Fund.

RAIL TRANSPORT MANAGEMENT

The Rail Transport Management Department (RTMD) within MoTID is responsible for formulating rail transport strategies and policies and has overall responsibility for the overall railway transport sector in Zimbabwe. NRZ, a statutory corporation fully owned by the state, operates in accordance with the public sector rules and regulations. It effectively has monopoly over all rail operations. Its mandate is to provide rail infrastructure and services delivery, as well as rail transport regulation.

The Beitbridge Bulawayo Railway (BBR), a privately owned railway company, operates under a 30-year Build Operate Transfer (BOT) concession agreement with NRZ up to 2029. Government owns 15 per cent of the shareholding of BBR, with the rest owned by the private sector.

CIVIL AVIATION AUTHORITY OF ZIMBABWE

The Civil Aviation Authority of Zimbabwe (CAAZ) within MoTID, is responsible for formulation of strategies and policies for air transport. CAAZ is a statutory body that was established in 1999 to replace the former Department of Civil Aviation and to operate on commercial principles. Its mandate is to develop civil aviation and promote safe, regular and efficient air transport inside and outside Zimbabwe. CAAZ has jurisdiction over: eight airports and several airdromes.

CAAZ is currently being restructured to unbundle its regulatory and air navigation services and to confine it to being an independent aviation industry regulator. The airport business is to be incorporated as a limited liability company and regulated by CAAZ.

AIR ZIMBABWE

Air Zimbabwe is a state-owned entity and only resumed services in early 2013 after a period of suspension due to ongoing financial difficulties. It operates domestic services from Harare to Bulawayo and Victoria Falls and regional services to Johannesburg since resumption. Air Zimbabwe Passenger Company is one of three subsidiary companies of Air Zimbabwe Holdings Ltd, the others being Air Zimbabwe Cargo and Air Zimbabwe Technical.

There are two additional state owned companies in the aviation sector: National Handling Services, a provider of ground handling services and Galileo Zimbabwe. Galileo Zimbabwe is a joint venture between Air Zimbabwe and Galileo International.

An Air Services Board advises the Minister on any question relating to civil aviation.

THE ZIMBABWE URBAN PASSENGER COMPANY (ZUPCO)

ZUPCO took over operation from the former Harare United Omnibus Company. ZUPCO's role in providing transport services has significantly been reduced over the years, especially since the liberalisation of the public passenger transport market in the 1990s and now limits its market to the inter-city and long distance road passenger routes. However, the company was in negotiation in 2016 to acquire 300 new busses with the intention of returning to the urban public transport market.

The Department of Inland Waterways within MoTID, has the responsibility of ensuring safe, clean and efficient water transport services. It sees to the registration, survey and safety of vessels used on the inland waters of Zimbabwe, and makes provision for the safety of passengers and cargo, the competency of masters and crews and regulate services performed on inland waters by means of vessels. MoTID does not provide infrastructure for inland water transport. The Office of the Registrar of Vessels, assists the Minister with the proper administration of inland water transport matters. Inland public waterways transport in Zimbabwe plays a relatively minor role, mainly surrounding boat cruises, ferries and other tourism related and recreational activities.

A Shipping Services Board advises the Minister on any question relating to inland water transport services. The Board holds inquiries into applications for permits by persons wishing to provide a service on any inland waters and the permits are issued for a period of no more than five years at a time (subject to renewal).

Ministry of Local Government, Public Construction and National Housing (MLGPCNH).

MLGPCNH overseas Urban Councils. Urban roads fall under the respective municipal, city or town councils and are mainly distributer roads and streets in cities and towns. There are 30 urban councils grouped under the Urban Councils Association of Zimbabwe (UCAZ). UCAZ provides the institutional framework for the coordination of urban roads, although the larger

urban councils: Harare, Bulawayo and Chitungwiza have direct inputs into the urban roads programme. The Urban Councils like Harare and Bulawayo are responsible for traffic management within their borders.

Ministry of Rural Development, Preservation of National Culture and Heritage (MRDPNCH)

This Ministry oversees RDCs. The RDCs are responsible for certain rural roads, comprising mostly tertiary roads linking villages in rural areas, as well as streets at some business centres and growth points and townships. There are 60 rural district councils and their roads programmes are coordinated by the Association of Rural District Councils (ARDC).

Office of the President and Cabinet (OPC)

The OPC provides leadership to all government ministries, departments and agencies in developing and implementing policies, programmes and projects. In addition, the Cabinet Office carries responsibility for the rest of the road network, mostly unpaved roads through the District Development Fund (DDF) which manages a core road network, estimated at 25,000 km.

Zimbabwe Republic Police (ZRP)

Traffic regulation is enforced by the Zimbabwe Republic Police Traffic Section (Ministry of National Security). ZRP also maintains records of all reported traffic accidents and the records include details such as the location, type of accident, causes, injuries and fatalities.

Ministry of Energy and Power Development

The oil pipeline in Zimbabwe is owned by PetroZim, a private limited company, jointly owned by National Oil Infrastructure Company (NOIC) and LonMean Ltd. NOIC is a wholly government owned parastatal (under Ministry of Energy), formed after the government carried out the unbundling of National Oil Company of Zimbabwe (NOCZIM). The petroleum sector was deregulated in August 2003, with government carrying out the regulatory function covering licensing of new companies to enter the market. This provided for a more competitive market, previously dominated by the international oil majors.

The Ministry of Finance

The Ministry plays a major role in the development of the medium term transport investment plans.

2.2.2 Legislation

2.2.2.1 Road Transport Legislation

Any proposed changes to national transport policies and systems must take into account the legal framework so as to align the legal and regulatory framework with any such proposed changes. A high level review of existing and proposed legislation in the transport sector was carried out to guide the development of the ZNTMP, and particularly to create a regulatory environment that would encourage domestic and foreign private sector participation in Zimbabwe's transport sector. The provision of road infrastructure and services in Zimbabwe

is governed by a set of Acts of Parliament, presented below. Where a particular legislation is found to be inadequate or requires amendment, the issue is presented in bold type.

Road Motor Transport (RMT) Act [Chapter 13:15]

The RMT Act provides for the control of certain forms of road transportation and regulates the issuance of operators' licenses for passengers, goods and organized tour vehicles, metred and unmetered taxi cabs. RMT administers this Act. Route Authorities allow operators to operate on a particular route. Foreign licenses are also issued to allow passenger and goods vehicles registered in foreign countries to be operated within Zimbabwe.

Roads Act [Chapter 13:18]

The Roads Act provides for, amongst others, the establishment of a Road Fund, the management, control, allocation and disbursement of moneys from the Road Fund, the imposition and payment of a fuel levy, the collection of road user charges, and the planning, development, construction, rehabilitation and management of the roads network of Zimbabwe. MoTID administers the Act. The Act also establishes ZINARA and Roads Authorities (DoR, RDCs, and UCs) who assist the MoTID in implementing the objectives of the Act, particularly, the planning, development, construction, rehabilitation and management of the roads network through moneys collected under the Road Fund, the Department of Roads Fund, road user charges, toll fees and fuel levies.

According to Act, the MoTID's general functions in relations to roads are to:

i. plan, design, construct, maintain, rehabilitate and manage any road in Zimbabwe at an acceptable level of safety to road users;

ii. regulate persons contracted by road authorities to plan, design, construct, maintain or rehabilitate any road;

iii. develop policies to guide the orderly and integrated planning of the country's roads at minimum cost;

iv. encourage participation by road users and other interested persons in the development of policies and regulations with regard to responsibility for roads, standards of roads and funding of roads;

v. ensure the equitable distribution of the resources of the Road Fund and of other resources available for investment into the road infrastructure; and

vi. oversee the proper discharge of the functions of the DoR.

The functions of ZINARA include:

i. to fix and collect road user charges (fuel levies, registration fees, licensing fees, toll fees, heavy vehicle surcharges and international transit fees) for the benefit of the Road Fund; in consultation with the Minister of Finance;

ii. to allocate and disburse to Road Authorities, funds from the Road Fund for routine and periodic maintenance of roads; and

iii. to monitor the implementation of road maintenance works by the road authorities.

Thus the mandate of ZINARA is limited mainly to the administration of the Road Fund which is to be applied towards routine and periodic maintenance or emergency road works by Road Authorities. The objects of the Road Fund do not extend to planning, designing, construction, upgrading, rehabilitation or management of roads, which functions are carried out by DoR and other road authorities.

The functions of each Road Authority include:

i. to plan, design, construct, maintain, rehabilitate and manage the roads under the jurisdiction of such road authority;

ii. to award contracts for the management, planning, designing, construction, upgrading, rehabilitation and maintenance of its roads subject to the laws relating to the procurement of goods and services by the State or local authorities; and

iii. subject to the laws relating to the procurement of goods and services by the State or local authorities, *enter into any contract* for the management, planning, design, construction, maintenance, upgrading or rehabilitation of any road under its authority.

The DoR administers regional trunk roads (which link countries within the Southern African Region), primary roads (which link regional roads to urban centres or urban centres to each other) and secondary roads (which connect regional, primary, tertiary and urban roads, industrial and mining centres, tourist attractions and minor border posts to each other). DDF is responsible for feeder roads, mostly in rural areas and linking rural centres such as district service centres and growth points to the primary road network. RDCs are responsible for tertiary roads (which provide access to schools, health centres, dip tanks and other service facilities within a rural district council or which connect and provide access to secondary, regional and primary roads. UCs are responsible urban roads.

Toll Roads Act [Chapter 13:13]

The Toll Roads Act provides for the charging, levying and collecting of tolls for the use of vehicles on certain roads. The MoTID administers the Act. This Act largely encourages increased PPP in the construction and maintenance of roads and bridges. The New Limpopo Bridge across the Limpopo River between the Zimbabwean and South African Border Posts is a good example of private sector involvement in tolling, whereby New Limpopo Bridge (Private) Limited levies and collects tolls on vehicles using the bridge.

In 2009, Toll Roads (Regional Trunk Road Network) Regulations were promulgated under SI 39/2009 to provide for the declaration of Regional Trunk Roads and city to city trunk roads as toll roads. Initially, the Zimbabwe Revenue Authority (ZIMRA) collected the tolls for the benefit of the Road Fund. SI 147/2013 then amended the regulations to allow ZINARA to levy and collect toll fees for the benefit of the Road Fund.

Road Traffic Act [Chapter 13:11]

The Road Traffic Act provides for, amongst others, the licensing of drivers of motor vehicles, the recognition of international and foreign driver's licenses, and compulsory insurance against third party risks. MoTID administers the Act. The Act establishes the Registrar of Road Traffic Licenses, who maintains a register of all persons to whom licenses have been issued. The Registrar may also issue a Zimbabwean drivers' license to qualifying holders of foreign drivers' licenses who may wish to settle in Zimbabwe whether temporarily or permanently.

The Act also provides for the issue and recognition of Yellow Card Third Party Insurance, pursuant to the 1981 PTA Treaty and the 1986 Protocol on Third Party Insurance. The Yellow Card Third Party Insurance facilitates the easier obtaining of mandatory third party insurance cover for foreign motor vehicles whilst operating in Zimbabwe as well as for Zimbabwean motor vehicles while operating in other member states. This allows for smoother operation of cross-border transport services by the private sector players.

Vehicle Registration and Licensing Act [Chapter 13:14]

The Vehicle Registration and Licensing Act provides for the registration and licensing of vehicles; and the levying of fees in respect of such registration and licensing for the benefit of the *"Consolidated Revenue Fund and certain local authorities."* However, in terms of the most recent amendments to the Act which were effected in 2001 by Act 6 of 2001, **while the Act still states that registration and licensing fees are to be for the benefit of the Consolidated Revenue Fund and certain local authorities, the amended provisions within the body of the Act make it clear that all licensing and registration fees are now collected for the benefit of the Road Fund established under the Roads Act [Chapter 13:18]. The provisions in this Act that still make reference to the Consolidated Revenue Fund should therefore be amended.**

Traffic Safety Council Act [Chapter 13:17]

The Traffic Safety Council Act provides for the establishment of a Traffic Safety Council of Zimbabwe (TSCZ) and its functions; the imposition of levies on driving schools and on persons who insure motor vehicles for the purposes of the Road Traffic Act [*Chapter 13:11*]. MoTID administers the Act. Operations of TSCZ are controlled and managed by a Traffic Safety Board.

The Council's functions include the promotion of safety on roads; dissemination of information on road safety; and the regulation and control of driving schools. It also receives levy payments from vehicle owners who have to procure the compulsory insurance policies under the Road Traffic Act.

Urban Areas (Omnibus Services) Act [Chapter 29:14]

The Act provides for the establishment and operation of omnibus services within or between urban areas. The MLGPCNH administers the Act. This Act appears to have been drafted specifically with the objective of increasing PPP in omnibus service provision in urban areas. It provides for MoTID to enter into agreements with private players for the establishment and operation of omnibus services within a particular urban area or between any two or more urban areas where there are inadequate or no omnibus services with the prior approval of the relevant local authority.

The implementation of this Act is evident in the dominance of intercity and intra-city omnibus services by private players. **However, this Act should be harmonized with the new Road Motor Transport Act [Chapter 13:15] for purposes of clarity and certainty.**

Urban Councils Act [Chapter 29:15]

The Act provides for the establishment and administration of municipalities and towns and to confers functions and powers of town councils, municipal councils and local boards. The MLGPCNH administers the Act. This Act, particularly Part XVI, provides for the possibility of PPP or joint venture arrangements between councils and the private sector in the discharge of some of the functions of the councils, including the planning, design, construction, maintenance, rehabilitation, upgrade and management of roads as well as provision of commuter transport services. **However, as far as roads are concerned, urban councils only have the power to construct urban roads. There remains a need for similar PPP/joint venture/cooperation provisions in the Roads Act as it is the DoR that has jurisdiction over the major regional, primary and secondary roads.**

Rural District Councils (RDC) Act [Chapter 29:13]

The RDC Act provides for the establishment and administration of rural district councils and confer functions and powers of rural district councils. The Ministry of Rural Development, Preservation of National Culture and Heritage (MRDPNCH) administers the Act. The relevant provisions are nearly identical to those contained in the Urban Councils Act discussed above.

This Act, particularly section 82, provides for the possibility of PPP or joint venture arrangements between councils and the private sector in the discharge of some of the functions of the councils, including the planning, design, construction, maintenance, rehabilitation, upgrade and management of roads as well as provision of commuter transport services. **However, RDCs only have the power to construct tertiary roads and there therefore remains a need for similar PPP/joint venture/cooperation provisions in the Roads Act as it is the DoR that has jurisdiction over major regional, primary and secondary roads.**

Regional, Town and Country Planning Act [Chapter 29:12]

The Act provides for the planning of regions, districts and local areas with the object of conserving and improving the physical environment and to authorize the making of regional plans, master plans and local plans. The MLGPCNH administers the Act.

Perhaps the most glaring implication of Part IX of this Act is the absence of provisions that allow for ownership of public roads to vest in private persons. The provisions for termination of the ownership of a road by the President or a road authority make it clear that such ownership is to be terminated where the vested road is no longer required as a road and shall no longer be regarded as set aside as a road. **There is therefore no provision allowing for the possibility of transfer of ownership of a public road from a road authority or the President to a private person.**

One–Stop Border Posts Control Act [Chapter 3:04]

The Act provides for the conclusion of agreements with adjoining states on the establishment and implementation of one–stop border posts. This is specially designed to expedite and

improve border controls; reduce the number of stops in cross border trading and transactions; extend application of national laws relating to border controls; maximise the use of information and communication technology; and harmonise border control regulations and procedures. The Minister of Industry and Commerce (MIC) administers the Act.

Central Mechanical Equipment Department (Commercialization) Act Number 14 of 2000

The Act provides for the formation of a company to take over the functions, assets, liabilities and staff of the Central Mechanical Equipment Department (CMED) in the MoTID and to provide for related matters. MoTID administers the Act. Objects of the Company are to provide and operate transport services and to provide plant and equipment for the construction of roads, bridges, dams and other infrastructure as well as to perform any other function set out in its Memorandum of Association.

It is not clear whether the commercialization of the Department was completed, i.e. whether the Company has since been set up.

2.2.2.2 Rail Transport Legislation

Railways Act [Chapter 13.09]

This Act was first promulgated in 1973 and later amended to provide for the continuation of Rhodesia Railways as the National Railways of Zimbabwe (NRZ); to establish the NRZ Board; and to provide for the functions of the NRZ, which include provision and operation of rail services as well as maintenance of "*rail, road and inland water transport and pipelines for the conveyance of goods and other related services within and for Zimbabwe and Botswana.*"

In 1997, the Act was further amended to define the NRZ's area of operation as Zimbabwe and any country in which NRZ could be permitted under any enactment, treaty or agreement to perform any function. **The preamble of the Act still provides that NRZ is to maintain rail, *(road and inland water transport and pipelines*) for the conveyance of goods within and for Zimbabwe *and Botswana*, although NRZ's operations are now generally restricted to Zimbabwe. There is therefore need to amend the preamble of the Act by the removal of 'Botswana' and to remove the responsibility given to NRZ to maintain roads, inland water transport and pipelines as these are now responsibilities of other public authorities.**

MoTID administers the Act. The Act establishes a Board whose purpose is to control the operations of the NRZ. According to the Act, the main function of NRZ is to provide, operate and maintain an efficient system of public transportation of goods and passengers by rail and, where the Board deems it necessary, **by road**. **There may be need to either restrict NRZ to rail services only or to at least provide that where the NRZ wishes to get involved in road transport activities (presumably, for the purpose of improving efficiency and accessibility of rail services), it may only do so with the prior approval of, or in partnership with, the relevant road authorities.**

There may also be need to allow private players to participate in the railways sector as owners and operators of passenger or goods train on their own accord without having to partner or seek concessions from or obtain shares in NRZ which currently has a monopoly on the provision of rail services in Zimbabwe. Further, there is a need to split the regulatory

functions and the service provision functions of NRZ so that one entity is not both service provider and regulator.

2.2.2.3 Air Transport Legislation

Air Services Act (Chapter 13:01)

The Air Services Act which came into force in 1968, regulates all services performed by aircraft. MoTID administers the Act. The Act establishes the Air Services Board. One of the Board's main functions is to advise MoTID on any question relating to Air Services to, from and within Zimbabwe or to group charters. **Section 11 that provides for the advisory function of the Board needs to be amended as it is presently not properly worded**.

Air Zimbabwe Corporation Act [Chapter 13:02]

The Act provides for the functions, powers and duties of the Air Zimbabwe Corporation and provides for the constitution and functions of the Air Zimbabwe Board. MoTID administers the Act. Functions or powers of the Board are to supply the needs of Zimbabwe for air transport services within, into, from and through Zimbabwe as well as to carry out any aerial work or other operations as approved by the Board. It must be noted that the Act does not create a monopoly for the Corporation for provision of air transport services in Zimbabwe and therefore does not hinder the private sector from participating in the air transport industry.

Uncertainty as to current status and effect of this Act

In 1998, the Air Zimbabwe Corporation (Repeal) Act ('the Repeal Act') was promulgated to provide for the dissolution of the Air Zimbabwe Corporation and the transfer of its functions, assets, liabilities and staff to a new company and to provide for the repeal of the Air Zimbabwe Corporation Act [Chapter 13:02]. On 20 November 1997, Air Zimbabwe (Private) Limited was incorporated and was declared to be the successor company to the Corporation. Under the Repeal Act, the successor company took over the functions of the Corporation. General Notice 120A of 2000 then fixed 23rd March 2000 as the date for the transfer of the Corporation's assets to the successor company, Air Zimbabwe (Private) Limited. **The President is yet to repeal the Air Zimbabwe Corporation Act [Chapter 13:02] to the effect that its functions, assets, liabilities and staff to a new company have been transferred to Air Zimbabwe (Private) Limited**.

Carriage by Air Act [Chapter 13:04]

The Act gives effect to two International Conventions signed by Zimbabwe into law, namely the Warsaw Convention of 1929, as amended by the Hague Protocol of 1955, and the Convention supplementary to the Warsaw Convention, signed at Guadalajara, Mexico, in 1961. The Act states that the Conventions shall, *so far as they relate to the rights and liabilities of carriers, passengers and other persons,* and subject to the provisions of the Act, have the force of law in Zimbabwe and apply to any carriage by air irrespective of the nationality of the aircraft performing that carriage. The Act binds the State.

Civil Aviation Act [Chapter 13:16]

The Act establishes the Civil Aviation Authority of Zimbabwe (CAAZ) and provides for the Authority's functions. The Act also provides for the observance of the Chicago Convention on

International Civil Aviation of 1944 and for the application of such Convention and the Act on all Zimbabwean registered aircraft and personnel wherever they may be and on all aircraft while in or over Zimbabwe. The objects of the Authority are to promote the safe, regular and efficient use and development of aviation inside and outside Zimbabwe and to advise Government on all matters relating to domestic and international civil aviation.

There is potential for conflict of interest within the Authority in that the Authority performs both regulatory functions and commercial service provision. There is need to restructure the Authority by separating regulatory functions from commercial operations to remove the apparent conflict of interest.

2.2.2.4 Water Transport Legislation

Inland Waters Shipping Act [Chapter 13:06]

The Act provides for the registration, survey and safety of vessels used on the inland waters of Zimbabwe as well as to make provision for the safety of passengers and cargo, the competency of masters and crews and the regulation of services performed on inland waters by means of vessels. MoTID administers the Act. The Act further establishes the Inland Waters Shipping Services Board.

Since Zimbabwe is a land locked country, most of the inland water services provided are for recreational activities and not necessarily for transport of passengers and their parcels, even though rural councils are empowered to operate and maintain ferry services where necessary.

2.2.2.5 Pipeline Transport Legislation

Pipelines Act [Chapter 13:08]

The Act authorizes MoTID to grant authority to any person for the construction and operation of pipelines for the conveyance of goods within Zimbabwe and to confer and impose certain rights, powers and obligations upon such authorized person. This Act is favourable to PPPs. PPP in the pipeline transport sector has been tried and tested under the Mozambique-Feruka Pipeline Act [Chapter 13:07], which resulted in the construction of the Mozambique-Feruka pipeline, presently the only one in the country. The 287km long pipeline is presently co-owned by Zimbabwe's National Oil Infrastructure Company and Companhiado Pipeline Mozambique-Zimbabwe Company.

2.2.2.6 Other Legislation Affecting PPP in the Transport Sector

Indigenization and Economic Empowerment Act [Chapter 14:33]

The Act provides for measures to further indigenize the economy. The Ministry of Youth, Indigenization and Economic Empowerment administers the Act. Part of the road transport sector, particularly provision of passenger buses, taxis and car hire services in Zimbabwe, happens to be a reserved sector (for indigenous persons) as per the Third Schedule to the Indigenization and Economic Empowerment (General) Regulations, SI 21/2010.

There has been a marked slow-down in foreign direct investment in Zimbabwe since the promulgation of the indigenization laws as the local and foreign non-indigenous persons

have refrained from investing in the country under the present indigenization regime which is widely viewed as unprotective of security of ownership. As such Zimbabwe is not viewed as an attractive investment destination by the foreign sector for a number of reasons including the indigenization laws.

Zimbabwe Investments Authority Act [Chapter 14:30]

The Act was promulgated to establish the Zimbabwe Investment Authority (ZIA) and its functions and to provide for the promotion and coordination of investment into Zimbabwe. The administration of the Act was assigned to the Minister of Economic Planning and Investment Promotion. In terms of this Act, all new foreign investment into Zimbabwe requires an investment license issued by the ZIA.

While this Act was intended to promote and encourage domestic and foreign private sector investment in Zimbabwe, the challenge has been that the Act operates in the same environment as the indigenization laws and regulations such that, upon granting an investment license, ZIA states that such license is subject to indigenization approvals and other industry specific authorizations being obtained.

Competition Act [Chapter 14:28]

The Competition Act was enacted to promote and maintain competition in the economy of Zimbabwe, to regulate mergers and to prevent and control monopoly situations. The Act applies to all economic activities within and having effect in Zimbabwe including the transport services sector. The Act also established the Competition and Tariff Commission which is tasked with, among other things: encouraging and promoting competition in all sectors of the economy; reducing barriers to entry into any sector of the economy; and to investigate, discourage and prevent monopolies and other restrictive trade practices.

Labour Laws

In general, collective bargaining agreements (CBAs) are negotiated between an employer or a designated employer's organization, and a trade union representing worker's interests in a particular employment sector for the purpose of regulating the rights and duties of the parties thereto as well as the terms and conditions of employment of workers.

CBAs presently in force in the transport sector are:

i. the *Collective Bargaining Agreement: Transport Operating Industry,* Statutory Instrument 67 of 2012; and

ii. the *Collective Bargaining Agreement: Air Transport Industry: Members of National Airways Worker's Union,* Statutory Instrument 240 of 1992, which was entered into by the Air Zimbabwe Corporation (now Air Zimbabwe (Private) Limited) and the National Airways Workers' Union.

There is also the *Labour Relations (Air Transport Industry) Employment Regulations,* Statutory Instrument 55 of 1992, which sets the minimum terms and conditions of employment of workers in the rest of the air transport industry, exclusive of the workers of Air Zimbabwe (Private) Limited.

2.2.3 Road Sub-Sector

The provision of road transport infrastructure in Zimbabwe over the past decade or two has faced a significant number of challenges which include:-

- Inadequate funding;
- Poor maintenance and rehabilitation due to inadequate funding;
- A greater part of the road infrastructure having outlived its design life against a huge upsurge of traffic volumes especially on the regional trunk road network;
- Shortage of equipment for road construction and maintenance;
- Exodus of road engineers and technicians to greener pastures; and
- Traffic congestion in the major cities and at border posts.

The sub-sections below present the main activities that form road transport in Zimbabwe.

2.2.3.1 The Road Network

The road network in Zimbabwe is 88,133 kms long, of which about 14,000km are surfaced, 56,000km are all-weather roads, and the rest are earth roads. The national road network is shown in Figure 2-1 below.

There are four types of roads classified roughly according to the function they perform:

→ **Regional Trunk Roads:** approximately 3,391Km long, of which 3,182.9Km (93.9%) is paved and 207.5km (6.1%) is gravel, linking Zimbabwe to neighbouring countries.

→ **Primary Roads:** inter-city roads that are not part of the regional trunk road network.

→ **Secondary Roads:** these connect regional, primary, tertiary and urban roads, industrial and mining centres, tourist attractions and minor border posts.

→ **Tertiary Roads:** providing access to schools, health centres, dip tanks and other service facilities in rural district council areas or connect and provide access to secondary, primary and regional roads.

As mentioned in sub-section 2.2.2.1 above, four Road Authorities are responsible for the road network. Table 2-1 below presents the classification of roads by responsible authority.

Figure 2-1: National Road Network

The DoR in the MoTID is responsible for the State road network which is made up of regional trunk roads, primary roads, secondary roads and some tertiary roads. The DoR network carries 80% of all the cargo that is carried on the roads. Due to the prevailing economic situation in Zimbabwe, the urban road networks are largely in a state of disrepair, and most of them require reconstruction. The State roads passing through the cities and towns are the responsibility of the DoR.

Recent uncontrolled urban settlements around Harare and elsewhere have no properly planned and designed road infrastructure. The road networks in these spatial developments will need to be incorporated into the national inventory.

Roads in rural areas are the responsibility of two Road Authorities: The DDF and RDCs, as explained in sub-section 2.2.2.1 above. Both DDF and RDC road networks comprise mostly gravel roads, with a couple (Lydiate-Kutama-Murombedzi Road and Mubayira-Kadhani-Mamina Road) of bituminous-surfaced roads.

There are also are a number of private roads, especially to mines and quarries, which are the responsibility of the private owners. The Zimbabwe National Parks and Wildlife Management Authority (ZNPWMA), as well as the Save Conservancy, also administer private road networks on the various safari estates and game reserves under their jurisdiction.

Apart from DoR whose road network classification and surface type is well established, the other road authorities are waiting for results of the recently completed national road condition survey to establish the lengths of their networks. Although DDF was contacted for a list of roads, the department did not respond.

Table 2-2 below shows the types of roads under each Road Authority.

Table 2-1: Classification of Roads and Responsible Authorities

Responsible Authority	Secondary Classification	Description
Ministry of Transport and Infrastructural Development: responsible for State Roads	**Regional Trunk Roads**	These are Primary Roads 3,391km long (94% is paved and 6% is gravel), linking Zimbabwe to neighbouring countries.
	Primary Roads	These are intercity roads that are not part of the Regional Trunk Road network.
	Secondary Roads	These are roads that connect regional, primary, tertiary and urban roads, industrial and mining centres, tourist attractions and minor border posts.
	Tertiary Roads	These are some of the roads which connect and provide access to secondary, primary and regional roads.
Ministry of Local Government, Public Construction and National Housing: responsible for Urban Roads	**Distributor Roads**	They link main settlement areas/districts within cities and towns.
	Streets	These are minor roads that provide access within a locality in cities and towns
Office of the President and Cabinet: District Development Fund responsible for some Rural Roads	**Rural Feeder Roads**	These roads link district service centres, growth points, and social amenities like schools, hospitals and clinics.
Ministry of Rural Development, Preservation of National Culture and Heritage: responsible for Tertiary Roads	**Tertiary Roads**	These are gazetted public roads linking villages, at business centres, growth points, townships and in commercial farming areas.

Source: CPCS 2016

Table 2-2: Types of Road under each Road Authority

Road Authority	Length by Road Type (km)			Total Length (km)
	Surfaced	Gravel	Earth	
DoR	9,256	7,577	1,985	18,818
Urban Councils	8,164	26	4	8,194
RDCs	0	33,988	2,133	36,121
DDF	0	22,000	3,000	25,000
TOTALS	**17,420**	**63,591**	**7,122**	**88,133**

Notes:

1. The exact lengths of RDC and DDF roads will be established when the results of the recently completed Road Condition Survey are published.
2. The Replacement Value of the National Road Network will be established when the exact lengths of road by type under each Road Authority are known from the Road Condition Survey.

2.2.3.2 Bridges

Bridges are a major component of the country's infrastructure system and facilitate the road and rail crossing of waterways and other obstructions through viaducts, interchanges, road over road, and road over rail structures, where a level crossing ceases to be convenient. Where traffic volumes justify, bridges improve traffic movement thus enhancing road user safety.

There are 1,051 bridges in Zimbabwe, of which 784 (74.6%) are managed by the DoR and 267 by RDC's, UCs and other authorities. In terms of asset value, 97% of the total value of bridges is held by DoR. Table 2-3 below presents the distribution of bridges among road authorities.

Table 2-3: Distribution of Bridges among Road Authorities

Road Authority	No. of Bridges	%
DDF	13	1.2%
DoR	784	74.6%
Municipalities	12	1.1%
Parks	8	0.8%
RDCs	231	22.0%
Town Councils	3	0.3%
Total	**1051**	100%

In general, bridge maintenance was well coordinated over the years until the late 1990's when road authorities started facing crippling budgetary constraints as well as flight of skills. For many years thereafter there has been no coordinated inspections of bridges across the road authorities and hence the current status of many bridges is not accurately known.

The DoR is responsible for maintenance of all bridge structures in the country except for bridges falling under Cities or Town Councils. There are cases where the DoR accepts responsibility for bridges in municipal areas such as bridges located on national trunk roads passing through a town and designed and constructed to standards acceptable to the DoR.

Bridge maintenance is classified into three categories as follows:

- **Scheduled General Maintenance or Preventive Maintenance:** normally carried out by road maintenance units at predetermined intervals, involving mainly removal of debris and other matter, painting of parapets and kerbs, cleaning bearings, greasing steel bearings, etc.;
- **Routine Maintenance:** which involves painting of structural steel, repairs to deck joints and sealed pre-moulded filler joints. Routine maintenance normally addresses defects identified during inspections and are therefore reactive works meant to restore original component condition or arrest further deterioration of structural elements; and
- **Major Repairs or Rehabilitation:** which require engineering drawings to be prepared. The works are undertaken by bridge construction units or by contract, to restore or enhance the structural or functional integrity of bridges.

2.2.3.3 Vehicle Population

The registration of vehicles is done by the Central Vehicle Registry (CVR), although this authority is also delegated to the Zimbabwe Revenue Authority especially for imported vehicles; and to ZINARA for the convenience of motorists also doing vehicle licencing.

The national vehicle population has more than doubled from just over half a million vehicles in 1995 to almost one and a half million vehicles in 2014, as shown in Table 2-4 below. There

are nine vehicle classes (by mass), which include light vehicles (cars and pick-ups), medium size vehicles (mainly lorries and midi buses), heavy vehicles (trucks and large size buses), very heavy vehicles (multi-axle trucks mostly for carrying goods), motor cycles of varying engine and carrying capacities, and tractors (including farm equipment).

The bus fleet has slowly transformed from large conventional buses that carry sixty or more passengers, to mostly small size buses, mostly kombis that carry fifteen to eighteen passengers and midi buses that carry an average of twenty five passengers. Kombis have taken over most of the urban routes and services, as well as routes and services within a distance of forty to 100 kilometres around towns and cities. Rural services are based on a mixture of kombis and light goods vehicles mostly pick-ups.

Table 2-4: National Vehicle Population by Tax Class

YEAR	1	2/1	2/2	2/3	3/1	3/2	4/1	4/2	5	TOTAL
1995	384044	11815	23860	2258	6582	28516	35623	20622	9362	**522682**
1996	422448	12997	26246	2884	7240	31368	39185	22684	10290	**575342**
1997	464693	14297	28871	3172	7964	34505	43104	24952	11328	**632886**
1998	520989	19374	32589	4789	9819	41002	48014	30141	14510	**721227**
1999	534577	19975	33523	4966	9846	41731	48649	30967	15309	**739543**
2000	544490	28418	34197	5079	9912	42306	48970	31313	15506	**760191**
2001	556280	29072	45797	5247	10069	42912	49389	31915	15641	**786322**
2002	570866	31301	47429	5726	10204	43675	49882	32538	15881	**807502**
2003	584714	32390	61330	5960	10383	44404	50216	33721	15926	**839044**
2004	599380	34280	62773	6232	10502	44954	50431	33753	16572	**858877**
2005	613780	36012	63499	6560	10773	45331	50662	33822	16904	**877343**
2006	626296	37513	64503	6946	10831	45585	51019	33967	17867	**894527**
2007	644113	38930	65350	7460	11005	46594	51392	34054	18405	**917303**
2008	663602	40754	66130	7840	11155	47141	51753	34306	18509	**941190**
2009	687813	42532	67389	8294	11375	48122	52134	34930	18597	**971186**
2010	727292	44321	68629	8910	11754	49155	52614	35379	18759	**1016813**
2011	785680	46639	70580	9919	12363	50643	53156	36327	18800	**1084107**
2012	843233	48890	71874	10903	12909	52432	53852	37113	18809	**1150015**
2013	911758	51849	73164	12123	13455	53770	54712	37899	18822	**1227552**
2014	981534	53890	74423	13088	13949	55364	55389	38635	18839	**1305111**

KEY TO TAX CLASS

1 1- 2300 kg net mass
2/1 2301 - 4600 kg net mass
2/2 4601 - 9000 kg net mass
2/3 Over 9001 kg net mass
3/1 1- 70cm engine capacity
3/2 Over 70cm engine capacity
4/1 550 kg factory rated capacity
4/2 Over 550 kg factory rated capacity
5 Tractors and farm implements e.g. combine harvesters

Source: Central Vehicle Registry (CVR)

2.2.3.4 Current Traffic Patterns

Manual classified traffic counts that were carried out in 2015 show that the heaviest flows are on radials that lead into and out of Harare, particularly along Chitungwiza Road, Mutare Road and Bulawayo Road (see Table 2-5 below). The dualisation of these roads to Goromonzi Turn-off on the A3, Norton on the A5, and Chitungwiza has helped substantially the flow of traffic on these corridors. On the other hand, traffic flows around Bulawayo are quite low.

Traffic flows on Regional Trunk Roads outside the major cities range from around 1,500 to about 3,000. Elsewhere the observed traffic flows are very low.

Table 2-5: Observed 12.5 hour Traffic Counts October-November 2015

Site No.	Location	Total
HARARE CORDON		
1	A11 north of Harare Drive	3610
2	A13 north of junction with A2	797
3	A2 east of junction with A13	1536
4	A3 east of Ruwa	6986
5	A4 at Southview Park	3585
6	Chitungwiza Road near southern end of Derbyshire Road	5129
7	Seke Rd. south of road to Manyame Air Force base	12847
8	A5, west of Somerby	6930
9	A1 east of Nyabira	3750
BULAWAYO CORDON		
10	Robert Mugabe Way, north of Woodville Rd	438
11	A5 east of cement works	1219
12	A6 south of Esigodini Rd	1673
13	Matopos Rd south of Eloana	446
14	A7 south of Nketa Extension	726
15	A8 north of Country Rest Camp	596
CENTRAL CORDONS		
16	A9 south of Mutare	1442
17	East of Dorowa	141
18	A4 south of Beatrice	2326
19	A5 south of Chegutu	3367
20	SE of Matusadona National Park	16
21	East of Manjolo	30
22	Between Lupane and Mbuma	28
23	A5 west of Shangani	989
24	A9 west of Zvishavane	1638
25	A4 north of Rutenga	942
26	A5 north of Gweru	2200
27	East of Kwekwe	550
BORDERS		
28	A6 at Beitbridge	2987
29	A8 at Victoria Falls	523
30	A7 west of Plumtree	523
31	A1 at Chirundu	455
32	A2 at Nyamapanda	264
33	Mutare Border Crossing	321
34	Kazungula land border	149

2.2.3.5 Road Traffic Safety

As a reflection of the increased numbers of vehicles registered in Zimbabwe, traffic flows on the road network has increased substantially. This has resulted in increased road accidents, traffic congestion, and environmental issues such as noise, gaseous emissions and other forms of pollution. Table 2-6, Table 2-7 and Table 2-8 below present the numbers and

proportions of accidents as well as casualties that were recorded in each of the ten provinces (including Harare and Bulawayo) in 2015. Harare alone accounts for a quarter of all fatal accidents, and half of all recorded accidents.

A total of **45,701** Road Traffic Accidents were recorded across the country during the year 2015, seven percent **(7%)** up from the as **42,713** accidents that were recorded during the year 2014[1]. Harare and Bulawayo Metropolitan Provinces contributed **65%** of the accidents, while the remaining **35%** occurred in the other eight provinces. Conversely, the predominantly rural provinces accounted for **67%** of the fatalities while Harare and Bulawayo Metropolitan Provinces accounted for the remaining **33%**. The high death rate in the predominantly rural provinces was attributed to high speeds.

Twenty six percent **(26%)** of the total fatalities were recorded on nine major highways namely, Harare-Mutare, Harare-Chirundu, Harare-Beitbridge, Harare-Bulawayo, Harare-Mukumbura, Harare-Nyamapanda, Bulawayo-Victoria Falls, Bulawayo-Plumtree and Bulawayo-Beitbridge, where **10%** of all accidents occurred. Speeding was the major cause of accidents along these roads. Of concern is the stretch between the 10km and 28km pegs along Harare-Mutare Road in Harare Province, which contributed significantly to the national death toll. Fatal and serious accidents mainly occurred along highways due to speeding while minor accidents were more concentrated in major towns and cities, due to traffic congestion.

Ninety six percent **(96%)** of the accidents were caused by inconsiderate manoeuvring of vehicles on the roads. These included misjudgement or inattention, failing to give way, speeding, following too close, turning/overtaking errors, parking and reversing errors. The remaining four percent **(4%)** were caused by animals, vehicle defects, pedestrians and fatigue/illness. Forty nine percent **(49%)** of the collisions resulting in nose to tail and side swipes occurred in circumstances associated with impatience on the part of drivers, especially during the rush hours.

Seventy two percent **(72%)** of the people who caused accidents were aged between 26 and 45 years, the age group considered to be the economically productive age group in Zimbabwe. Light motor vehicles accounted for seventy six percent **(76%)** of all accidents. These included registered taxis, pirate taxis and private motor vehicles.

Zimbabwe has rates of about 350 accidents and 18.1 deaths per 100,000 inhabitants. This is high when compared to Zambia whose respective rates are 205 accidents and 11.8 deaths per 100,000 inhabitants. South Africa with 24.1 deaths per 100,000 inhabitants has the highest per capita rate of road deaths in the world[2].

[1] Road Traffic Accidents Annual Analysis 2015, Produced by the Statistics Section, Crime Department, PGHQ

[2] Tackling the Road Safety Crisis in Africa, World Bank, June 6, 2014

Table 2-6: Type of Accident by Province, 2015

	FATAL ACCIDENTS			INJURY ACCIDENTS			NO INJURY ACCIDENTS			ALL ACCIDENTS		
PROVINCE	Hit and Run	Other	TOTALS	Hit and Run	Other	TOTALS	Hit and Run	Other	TOTALS	Hit and Run	Other	TOTAL ALL
Harare	38	361	**399**	589	2669	**3,258**	2,973	18,266	**21,239**	3,600	21,296	**24,896**
Bulawayo	4	167	**171**	24	564	**588**	84	1,765	**1,849**	112	2,496	**2,608**
Manicaland	6	100	**106**	12	332	**344**	43	726	**769**	61	1,158	**1,219**
Mashonaland Central	3	148	**151**	22	380	**402**	58	1,334	**1,392**	83	1,862	**1,945**
Mashonaland East	12	186	**198**	19	502	**521**	91	1,709	**1,800**	122	2,397	**2,519**
Mashonaland West	8	96	**104**	20	334	**354**	119	1,550	**1,669**	147	1,980	**2,127**
Masvingo	3	52	**55**	4	167	**171**	48	831	**879**	55	1,050	**1,105**
Matabeleland North	8	77	**85**	9	140	**149**	30	963	**993**	47	1,180	**1,227**
Matabeleland South	9	145	**154**	52	508	**560**	227	2,224	**2,451**	288	2,877	**3,165**
Midlands	11	89	**100**	123	953	**1,076**	572	3,142	**3,714**	706	4,184	**4,890**
TOTALS	**102**	**1,421**	**1,523**	**874**	**6,549**	**7,423**	**4,245**	**32,510**	**36,755**	**5,221**	**40,480**	**45,701**

Table 2-7: Proportion of Accidents by Province, 2015

PROVINCE	FATAL	INJURY	NO INJURY	ALL ACCIDENTS
Harare	26%	44%	58%	54%
Bulawayo	11%	8%	5%	6%
Manicaland	7%	5%	2%	3%
Mashonaland Central	10%	5%	4%	4%
Mashonaland East	13%	7%	5%	5%
Mashonaland West	7%	5%	5%	5%
Masvingo	4%	2%	2%	2%
Matabeleland North	6%	2%	3%	3%
Matabeleland South	10%	8%	7%	7%
Midlands	7%	14%	10%	11%
TOTALS	**100%**	**100%**	**100%**	**100%**

Table 2-8: Road Accident Casualties by Province,2015

PROVINCE	Killed	Injured
Harare	671	4086
Bulawayo	253	1131
Manicaland	142	785
Mashonaland Central	257	989
Mashonaland East	292	1355
Mashonaland West	155	605
Masvingo	94	400
Matabeleland North	117	436
Matabeleland South	261	1131
Midlands	126	1481

2.2.4 Public Transport

The two reform programmes that were introduced between 1990 and 2000, the Economic Structural Adjustment Programme (ESAP) and the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST), emphasized deregulation of road transport and increased private sector participation. Government realised that it could not continue to own and finance investment in road infrastructure, as well as in the delivery of services. Competition rather than control was seen as a better alternative in solving transport problems. Deregulation of the transport sector was therefore introduced in the late 1990s'. The most notable reform was the termination of the publicly owned Zimbabwe United Passenger Company's (ZUPCO's) urban public passenger transportation monopoly in 1993. Liberalization provided for entry into the transport market by mainly indigenous small entrepreneurs.

2.2.4.1 Urban Public Passenger Transport

Urban areas by their nature, are associated with high density pockets of settlements, usually sprawled across a wide area. This in itself has its own challenges in terms of provision of transport infrastructure and services. In Zimbabwe, the 11-15 seater minibus or Kombi now constitutes the main form of public passenger transport, mostly in urban areas. Operations are very fragmented, and generally operators do not adhere to a fixed route structure or a frequency schedule.

The large number of minibuses, competing with a large number of pickups and private cars, causes peak time congestion in the urban centres as well as along radial corridors. Congestion is gradually becoming worse as more private vehicles are imported into the country. There is increased evidence that larger urban conurbations like Harare and Bulawayo require a system of mass transit in the form of larger buses preferably operating on bus priority lanes, relegating the smaller buses to feeder services.

Accessibility in residential areas during the morning peak period, is often very good, with many travellers catching a minibus 'outside their doors'. The evening peak period is different; minibuses drop off passengers at a central point in the residential areas, often far from their actual destinations, as the minibuses compete for evening passenger loads. Pedestrian/cyclist

routes from these central drop-off points are often dark, with no lighting, presenting a safety and security challenge to the users.

Road is the most dominant mode of transport in urban areas. Typical challenges for roads in urban areas are:

- insufficient road capacity;
- major trunk roads converge in city centres causing traffic congestion, due to lack of proper planning;
- inadequate parking spaces further exacerbate traffic congestion;
- lack of maintenance and room for future expansion;
- vandalized or lack of proper shelters and lighting at bus stops and bus terminals;
- inadequate facilities for non-motorized transport;
- road capacity particularly in Harare and Bulawayo has been reduced by on road parking and street vending causing pedestrians to walk on the street;
- poor mobility and accessibility due to inadequacy of physical planning and poor implementation of master plans coupled with lack of enforcement of urban by-laws;
- inadequate and poorly maintained road infrastructure leading residents to walk long distances to bus stops.

Urban sprawl, particularly in Harare and Bulawayo has resulted in the residential zones being located further away from the industrial and commercial areas necessitating regular commuting. The average commuting distance in Harare is 15km.

2.2.4.2 Rural and Long Distance Passenger Transport

More than half of Zimbabweans live in rural areas. There is therefore a large rural, intercity and regional public passenger bus market. This market is served by a mixture of larger buses and kombis. Lack of information to the commuter on schedules is a major problem. ZUPCO, the publicly owned bus operator that provides rural services, has not been able to expand and meet the increasing demand because of lack of capital.

Trips in rural areas are short, hence rural transport needs cannot be addressed solely by conventional approaches to planning. In most cases, the mobility needs of rural people is affected by limited access to Intermediate Means of Transport (IMTs) such as wheelbarrows, scotch carts and bicycles. Although some rural households may own these intermediate means of transport, they are often in poor working condition. It is necessary to ensure that local rural transport, and accessibility needs are addressed through deliberate policy interventions which address bottlenecks that hinder access to facilities such as commercial centres, clinics, water sources, grinding mills and schools.

Operators for intercity services are required to provide a fare table, and the fares have to be approved by MoTID and gazetted. Because of the decline of the economy, most of these operators have not been able to replace or upgrade their fleet. With the decline in service

capacity, long queues of passengers and excessively long waiting times are often experienced at peak periods[3].

2.2.4.3 Inter-City and Cross-Border Coach and Bus Services

The coach and bus industry which is mainly involved in inter-city and cross-border operations experiences significant challenges, the main areas of concern being:

- unsupportive legislation and regulations;
- illegal transport operations;
- poor ranking facilities;
- border congestion and delays;
- poor enforcement; and
- safety challenges.

A very large portion of freight transporters' capacity is now deployed in the regional market, especially that relating to cargo which transits Zimbabwe. This means that Zimbabwean operators compete with non-Zimbabwean mostly better funded operators for business. Apart from the costs of staff and local utilities, the Zimbabwean transport industry is reliant on inputs which are almost entirely imported, such as vehicles, fuel, lubricants, tyres, spare parts and other industrial materials. A large majority of vehicles in use at present are beyond their reasonable economic lives. The re-establishment of reliable supplies of inputs at competitive prices is therefore a key pre-condition for the rehabilitation of the national fleet.

An equally pressing problem is the delay in getting vehicles through the border posts which is causing a severe loss of productivity. The productivity and cost of road transport is badly affected by the existence of many non-tariff barriers to trade most notably the border delays and high Government Agency charges. Regional economic integration efforts should aim to remove the non-tariff barriers and to minimise delays at border crossings.

2.2.5 Rail Sub-Sector

2.2.5.1 National Railways of Zimbabwe (NRZ)

NRZ operates a rail network stretching 2,760 km across Zimbabwe, reaching out to almost all the areas with key economic activities, and linking to the neighbouring countries of South Africa, Mozambique, Zambia and Botswana. It thus provides a vital link between the landlocked countries like Zambia and Democratic Republic of Congo and seaports in South Africa and Mozambique. Whilst NRZ's passenger service currently contributes about 4% of the revenue, renewal of coaches and efficiencies will see the passenger service business grow as passengers are expected to shift from road to rail given rail's cost effectiveness.

NRZ has a fleet of 168 locomotives of which only 60 are in service and out of 7,153 wagons owned, 3,512 are in service. The deteriorating state of NRZ's resources and infrastructure has seen its operational capacity, designed at 18 million metric tons, fall from 12.4 million in 1998 to 2.7 million forecast for 2016. At its peak, the NRZ carried 12 million metric tonnes in 1998. Current operations fall below the designed capacity due to a number factors that include a decline in economic activity. Traffic in 2014 reached 3.8 million tonnes and NRZ was targeting

[3] AFDB, 'Road Transport Services and Infrastructure: Overview of the Road Transport Industry', 2011

to move 4.2 million tonnes of traffic in 2016. With obsolescence and lack of investment, the fixed infrastructure and rolling stock assets have become too unreliable to attract enough business volumes from industry, due to lack of spares has been the main factor causing low availability. More than 50% of passenger coaches are out of service and require major rehabilitation.

An estimated 10% of NRZ's track infrastructure is under cautions (temporary speed restrictions). The automated Centralised Train Control (CTC) system which covered the network's mainline of about 1 580 km is now dysfunctional, whilst the 313 km electrified section between Dabuka in Gweru and Msasa in Harare was vandalised resulting in the total suspension of electric locomotives.

Macro-economic challenges that have faced rail operations include:

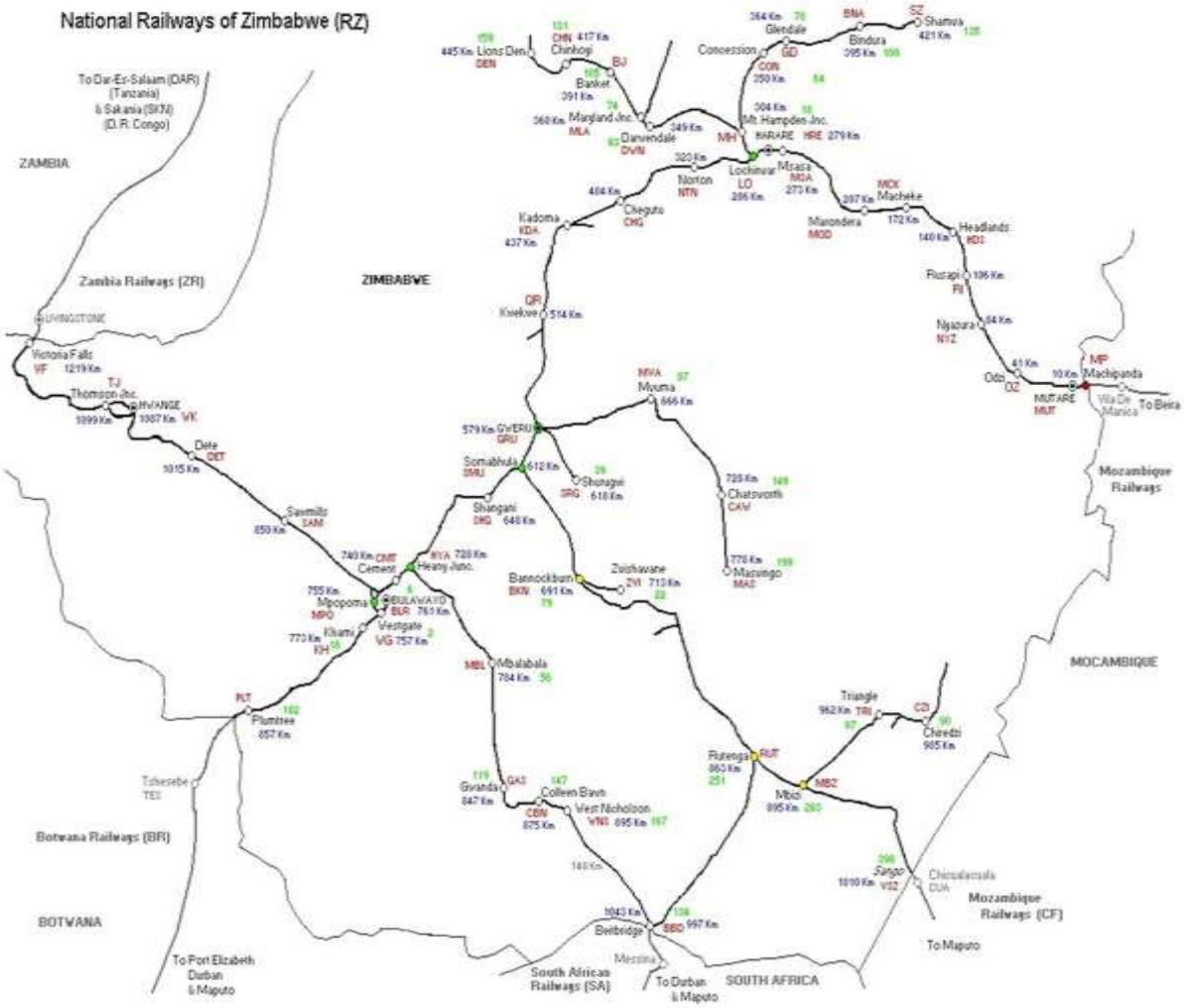
- Euro zone crisis and the drop in international commodity prices;
- Closure of companies including Zisco, Maranatha, Blue Ribbon Foods, Victoria Milling, Zim Alloys, Zimglass, A.A. Mines, etc.;
- Decline in outputs from major customers such as HCCL, Zimphos, Dorowa Minerals, GMB, Zim Sugar Sales, Sable Chemicals, ZFC & Windmill;
- Frequent Zesa power outages; and
- Aged plant/equipment and infrastructure.

Whilst the various challenges led to the loss of market competiveness and key customers as industry lost faith in rail, the NRZ will embark on a phased recapitalisation project, one that will grow rolling stock assets in line with national cargo traffic demand. This approach will allow for the progressive restoration of operational capacity and efficiency.

2.2.5.2 Beitbridge Bulawayo Railway

As mentioned in sub-section 2.2.1.2, a direct line between Bulawayo and Beitbridge was opened in 1999 by the Beitbridge Bulawayo Railway (BBR) concession. The track is 385 km long. BBR is a privately owned railway company, which is operating under a Build Operate Transfer (BOT) concession where the government owns 15% shareholding and the rest is owned by private sector partners. BBR was established on 15 July 1999 to build a new line between Beitbridge and West Nicholson and significantly upgrade the line between West Nicholson and Bulawayo (Heany junction). The GoZ granted the company a concession to operate and charge commercial rates over this line for 30 years then hand over the line to GoZ in 2029.

Figure 2-2: NRZ Network



2.2.5.3 Regional Context

The NRZ network plays a pivotal role in the SADC region and the revitalisation of the NRZ network and operations would make significant contributions to the regional economic uplift of the region. The North-South Corridor is the busiest corridor in Southern Africa and links the main trade hinterland of South Africa, Gauteng Province to Zimbabwe, Zambia, Malawi and the DRC. The corridor suffers from many bottlenecks of which the lack of a comprehensive and operational railway network is one. The required strategy is to improve connectivity through enhancing the existing transport infrastructure as well as providing new infrastructure to provide a direct, reliable and cost effective corridor link from central Africa to South Africa.

Among the key corridors is the Limpopo Development Corridor, an initiative between Zimbabwe, Mozambique and South Africa which would eventually include Zambia and Botswana. **The anchor strategies for this corridor include the rehabilitation of the strategic railway and road networks as well as capturing private sector investment to implement development projects.**

Another key corridor is the Zambezi Development Corridor which is an economic initiative linking Zimbabwe, Malawi and Zambia to the port of Beira in Mozambique. The strategy sees

the Zambezi River Basin as a critically important resource-rich hinterland that could provide a platform for the economic growth and development of the countries concerned.

According to Zimbabwe National Statistics Agency (Zimstat), major export destinations for Zimbabwe are South Africa (52%), DRC, Japan and Botswana. Major import origins are South Africa (38.8%), Zambia (28.2%), China (5%) and USA (7%). This reflects the need for a reliable, efficient and cost effective transport network to the region's consumer markets and providers as well as the ports within the region. **Essentially Zimbabwe should have a railway network that can face the challenges of carrying national and regional mining exports into the international market as well as that of food security for the country and the region.**

Figure 2-3: Major Regional Transport Corridors

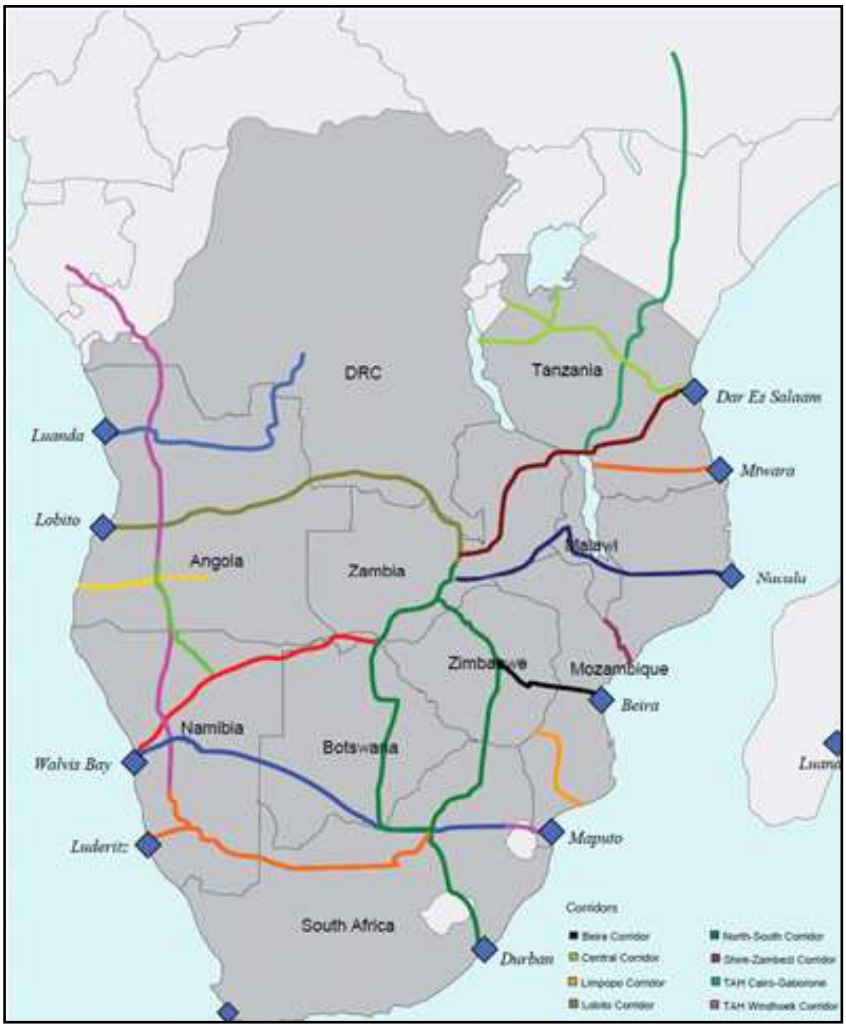


Figure 2-4: SADC Transport Corridors

2.2.5.4 Key Features of the NRZ Network

There are five main lines as follows:

- → Mozambique Border to Harare through Mutare – 278.6 km;
- → Harare to Bulawayo through Dabuka – 482.3 km;
- → Mpopoma to Victoria Falls Bridge – 468.4 km;
- → Somabhula to Chicualacuala and Beitbridge – 398.9 km; and
- → Bulawayo to Botswana Border – 112.7 km.

These main lines are supported by a number of branch lines, namely:

- → Lochinvar – Banket Junction;
- → Banket Junction – Zave;
- → Kildonan Branch;
- → Shamva Branch;
- → Burnside Branch;
- → Redcliff Branch;

- → Gweru – Mvuma;
- → Mvuma – Masvingo;
- → Shurugwi Branch;
- → Zvishavane Branch; and
- → Chiredzi Branch.

The main lines, require immediate attention on many stretches. Branch lines generally need attention as they are in a fair to bad state but are still usable. Only 20% of yards are in a fair state with the rest of the yard lines having rotten hardwood sleepers which frequently cause derailments due to spread gauges. Also about 20% of the yards have been decommissioned for safety reasons. The current condition of infrastructure on both mainlines and branch lines is not considered to be safe for passenger operations.

2.2.6 Aviation Sub-Sector

2.2.6.1 Regulatory Environment

The Civil Aviation Authority of Zimbabwe (CAAZ) was established on 1 January 1999 as a statutory body to replace the former Department of Civil Aviation and operate on commercial principles. CAAZ has jurisdiction over:

- → All Zimbabwe registered aircraft within, or outside Zimbabwe;
- → All foreign aircraft in Zimbabwe;
- → All Air Navigation in Zimbabwe;
- → All aerodromes in Zimbabwe;
- → All aspects of air transport services and aerial work in Zimbabwe;
- → All aspects of aviation security in Zimbabwe; and
- → Air routes, airways, air carriers, airway facilities and air navigation services in Zimbabwe.

The main functions of the authority (CAAZ) are:

- → To provide air navigation services.
- → To provide airport facilities and services.
- → To regulate the aviation industry.
- → To facilitate the provision of air services.
- → To advise the Government on all civil aviation matters

To achieve the functions listed above CAAZ is divided into eight divisions:

1. Air Navigation and Technical Services.

2. Airport Development and Operations.
3. Flight Safety and Standards.
4. Air Transport Development.
5. Finance.
6. Human Resources and Administration.
7. Corporate Services.
8. Customer Services and Public Relations.

In addition to the Civil Aviation legislation mentioned in sub-section 2.2.2.3, there is the Aircraft Offences Act (Chapter 9:01) and associated regulations listed in Table 2-9.

Table 2-9: Relevant Regulation and Statutory Instruments

Applicable Regulations	Statutory Instrument Number
Aviation (Aerodromes) Regulations, 2010	119/2010
Aviation (Aeronautical Telecommunications And Information Services) Regulations 2010	120/2010
Aviation (Air Navigation) Regulations, 2004	151/2004
Aviation (Air Navigation) Amendment) Regulations, 2010 (No.1)	140/2010
Aviation (Accidents And Occurrences) Regulations, 2010	/2010
Aviation (Air Traffic Services) Regulations 2010	139/2010
Aviation (Airport Departure Fee) Regulations,1987	292/1987
Aviation (Airport Departure Fee) (Amendment Regulations,1993(No.1)	157/1993
Aviation (Airport Departure Fee) Regulations,1996(No.2)	59/1996
Aviation (En-Route Navigation Facilities) (Fees) Regulations,1997	67/1997
Aviation (Exemption Of Gliders) Notice, 1965	731/1965
Aviation (Restriction On Operation Of Aircraft) (Chikurubi) Notice 1990	89/1990
Aviation (Restrictions On Operation Of Private Aircraft) Notice, 1982	466/1982
Aviation (Restrictions On Operation Of Aircraft) (Amendment) Notice, 1984 (No.1)	248/1984
Aviation (Restrictions On Operation Of Private Aircraft) (Amendment) Notice, 1986 (No.2)	68/1986
Aviation (Security) Regulations, 1995	22/1995
Non Application Of Act To Military Aircraft And Aerodromes	250/1954
Air Services (Fees) (Amendment) Regulations, 1995 (No. 2)	76/1995

Source: World Bank Data

The following chart illustrates the regulatory framework of the sector.

Figure 2-5: Regulation of Civil Aviation of Zimbabwe

There are about 650 employees at CAAZ, providing airport operation, air navigation services and CAA regulatory and supervisory services. CAAZ currently operates eight airports; two ex-military aerodromes will soon be added. All of the 8 airports are certified according the rules and regulations set up by CAAZ (as required by ICAO standards). Some airports operate under "Interim" certificate, because they are not compliant with international standards (e.g. no perimeter fence available).

Search and rescue services for aircraft accidents in Zimbabwe are provided by the "Civil Protection Unit".

There is an on-going project of restructuring of CAAZ which involves the separation of the operation and management of airports from CAAZ and transferring these into an Airports Company. The Air navigation services and the typical regulatory and supervisory services shall remain in CAAZ.

2.2.6.2 Airports Network and Throughput

CAAZ owns and operates ten airports (as listed in Table 2-10 below), including the three main airports namely Harare International Airport, Victoria Falls International Airport in Victoria Falls and JM Nkomo International Airport in Bulawayo. The second airport in Harare, Charles Prince Airport, is dedicated to general aviation activities.

Table 2-10: Airports Operated by CAAZ

Location	Usage	Runway
Harare	International	Paved
Joshua M Nkomo	International	Paved
Victoria Falls	International	Paved
Buffalo Range	International	Paved
Kariba	International	Paved
Charles Prince	International	Paved
Masvingo	Domestic	Paved
Hwange	Domestic	Not Paved
Thornhill	Domestic	Paved
Grand Reef	Domestic	Paved

The location of airports managed by CAAZ across the country is shown on the map in Figure 2-6 below.

Figure 2-6: Airports Distribution

Source: CPCS

In addition to the ten airports operated by CAAZ there are over 200 private aerodromes spread across the country, which provide vital services to tourism and mining.

The design capacity of passenger terminals of the three main airports for commercial traffic is 5.4 million. However the actual number of passengers handled in 2015 was 1.4 million. Thus there is ample passenger terminal capacity in all three main airports. A capacity extension is not required for any of the three airports within the next five years. Therefore, the planned extension for the passenger terminal in Harare should be critically reviewed. Focus should not be on capacity extension, but on increasing efficiency and service levels/passenger convenience. The table below shows the design capacity of the three main airports as well as the passenger throughput in 2015.

Table 2-11: Passenger Terminal Design Capacity Versus Traffic

Airport	Design Capacity (in million passengers)	Actual Passengers 2015 (in million passengers)
Harare	2.500	1.000
Victoria Falls	1.700 (after refurbishing of dom. terminal)	0.270
Bulawayo	1.200	0.152
Total	**5.400**	**1.422**

Source: Interviews with airport management in February 2016

2.2.6.3 Aviation Sub-Sector Challenges

Some common operational problems are experienced at most of the airports operated by CAAZ:

- **Runway and approach lighting systems:** Safety concerns and complaints have been raised by airlines operating in Harare and Bulawayo. The lighting systems are outdated, partially or temporarily unserviceable and require full rehabilitation
- **Fire fighting vehicles:** In all three main airports there are shortcomings with fire tenders - new equipment has to be procured
- **Wildlife management:** In several airports animals (baboons, dogs or even elephants) are coming into the airport perimeter. CAAZ is cooperating with rangers from the wildlife parks in order to mitigate the risks
- **Illegal settlements on or close to the airport perimeters.** In Harare this is true for both airports: Harare international Airport as well as Charles Prince. Recently some of these illegal houses at Harare International Airport have been demolished by the police, but generally CAAZ is trying to find other ways to settle such conflicts.

Harare International Airport

Harare International Airport is located 15 kilometres south of Harare City. It is the main gateway by air into Zimbabwe. It houses a 12-year old international terminal building and an older domestic terminal. Both terminals together can handle up to 2.5 million passengers annually. The runway is 4725 meters long and 46 meters wide. Taxiway rehabilitation has been recently completed whilst works on the central part of the runway are in progress. Nevertheless, **rehabilitation of both aprons is also required due to cracks and settlements, but so far no funding is available**. Also, **operating conditions at both terminals including air conditioning, lighting, flight information and baggage handling need to be improved**.

Generally, the separation of international and domestic traffic in separate terminals is no longer international practice. In order to use space more efficiently, traffic should be combined in one terminal building. Check-in and security check can be combined, using centralized facilities, after which domestic and international passengers can be separated. This also applies to arriving passengers. However, the existing design of the international terminal poses a challenge to this arrangement. An experienced airport planner should be consulted in order to develop a conceptual layout for the passenger terminals in order to optimize passenger flows – preferably in one of the terminal buildings. A major reconfiguration and rehabilitation is required.

Figure 2-7: Harare International Airport

Source: CAAZ

Joshua Mqabuko Nkomo International Airport

Joshua Mqabuko Nkomo International Airport was established in 1959 then known as Bulawayo Airport. It is located 25 km to the north of Bulawayo. The airport is the gateway to world heritage sites of Khami Ruins and Matobo Hills. Bulawayo is a cultural city and plays host to a number of cultural festivals such as the Intwasa. It is the 3rd biggest airport in Zimbabwe after Harare and Victoria Falls, and has 2 runways. The main runway can handle wide bodied aircraft up to Boeing 767. The new passenger terminal building can handle 1.2 million passengers per annum, accommodating both domestic and international traffic. CAAZ is operating the airport with 70 employees.

The new passenger terminal was inaugurated in 2013 after it was upgraded. However, the central check-in area is too small (only 6 counters) and already creates congestion. Also, passenger flows could be optimized by combining domestic and international flows.

The longer of the two runways has serious cracks combined with spalling, especially along the centreline. The surface of the shorter runway is disintegrating and produces lots of grit, which requires more frequent sweeping (or better resurfacing); and most markings have disappeared and need to be renewed. The apron consists of concrete slabs. The filling material for the expansion joints of the concrete slabs is mostly gone. The capacity of the apron becomes a bottleneck when more than 4 aircraft need to be parked simultaneously.

The fire station is accommodated in an old run down aircraft hangar, which is substandard. One of the two fire trucks is operational but the other has a defective engine.

Figure 2-8: Joshua Mqabuko Nkomo International Airport

Source: radiodialogue.com

Source: CPCS

Victoria Falls International Airport

Victoria Falls is a small city of 45,000 inhabitants. Located in the western horn of Zimbabwe on the border with Zambia, very close to the Seventh Natural Wonder of the World and Heritage Site Mosi-oa-Tunya (Victoria Falls) on the River Zambezi, the city's main focus is tourism.

The design capacity of Victoria Falls Airport is 1.5 million for the new international terminal, plus 200,000 passengers for the refurbished old terminal to give a total of 1.7 million passengers. The airport has been completely rebuilt. Since December 2015 the new runway is in operation. Work is going on to widen the old runway to 44m and to increase its bearing strength, as well as extending its length to 4,000m to serve as a parallel taxiway on the full length of the new runway. Victoria Falls Airport competes with two airports which are close by, one in Livingstone, Zambia, and the other in Kasane in Botswana, for tourists visiting Victoria Falls.

The City of Livingstone in Zambia is only 10km away, also with an international airport and focusing mainly on tourism. With a 3,000m runway this airport can also accommodate wide

body aircraft. The new terminal inaugurated in 2011 can accommodate up to 700,000 passengers per year. The approach to Livingstone airport is controlled from the tower at Victoria Falls. Kasane Airport, only 80km away also has a new passenger terminal under construction.

GoZ's main objective for the upgrade of Victoria Falls Airport and in particular the new runway of 4,000m was to create the capability to receive and handle wide body aircraft such as B747 or A330 (CAT D aircraft) coming nonstop from Middle East or Europe. This is the advantage of Victoria Falls airport compared to its competitors in Livingstone and Kasane.

Source: CAAZ

The extended apron provides ample aircraft parking positions for three wide body positions at air bridges or 6 CAT C (A320 type-aircraft) positions plus 4 domestic positions plus 18 light aircraft positions adding up to 28 parking positions.

Source:discoversimbabwe.org

NHS is using quite old ground service equipment at Victoria Falls Airport. The lengthy immigration process for tourists to get their visas needs to be streamlined and baggage handling needs to improve.

Charles Prince Airport

Charles Prince Airport is located in Mt Hampden 12 km from West Gate (23 km from the Main Post Office in Harare). It caters for aircraft below 5,700 kg MTOW. The condition of the two

runways is poor. In 2013 there were plans to extend the main runway by 300m, and to widen the runways to 30m, taxiway extensions, airfield drainage and erosion protection. However, directly in the extension of the centreline of runway 06 (about 200m from threshold) there is a modern new school building: Cornway College, a private, selective boarding school. Apart from the aircraft noise affecting the school, the location could pose a safety concern.

The Airport has the potential to become a national or even regional centre for general aviation. However, in its current condition it needs a lot of investment and commercially attractive business development supported by an appropriate regulatory framework.

There are plans to build a new Zimbabwean parliament at Mount Hampden and the airport would provide the necessary business air links to Harare International Airport.

Air Traffic Statistical Analysis

As a result of the economic problems of the past decade and sharp decline in tourism activity in Zimbabwe, numbers of international and domestic passengers declined sharply between 1999 and 2002. Since then air traffic is more or less stagnating. Nevertheless, in recent years there has been some growth compared to the lowest level in 2009. Table 2-12 shows passenger and aircraft volumes recorded in 2014.

Table 2-12: Passenger and Aircraft Volumes (2014)

Airport	2014	
	Passengers	Aircraft
Harare	949,865	18,700
Victoria Falls	237,056	7,100
JM Nkomo	122,238	4,289
Kariba	5,750	1,849
Hwange	717	352
Charles Prince	5,505	4,455
Buffalo Range	2,269	833
Masvingo	426	186
Total	**1,323,826**	**37,764**

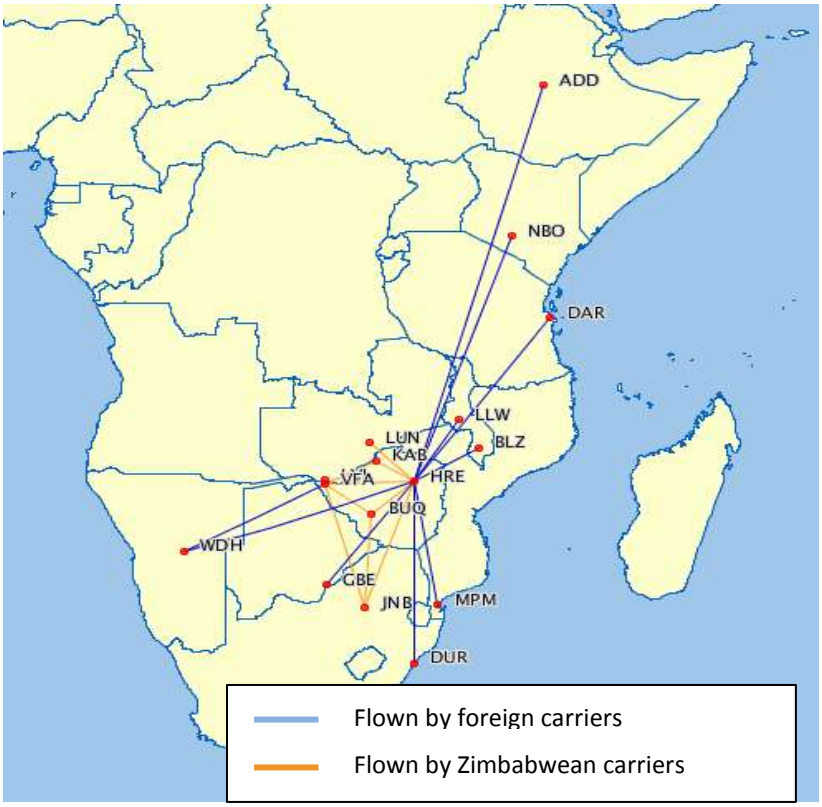
The large contraction in demand for air services to and from Zimbabwe has contributed to a sharp reduction in the number of international airlines that service the Zimbabwean market. During the period 1997-2007 more than twenty scheduled airlines discontinued services to Zimbabwe, including major carriers such as Air France (1997), KLM (1998), Lufthansa (2000), Swiss Air (2000), and British Airways (2007). At present, 12 airlines operate services to and from Zimbabwe. These include Air Zimbabwe, Kenya Airways, Air Malawi, Botswana Airline, South African Airways, South African Airlink, Comair (a franchise partner with British Airways), Air Namibia, Fly Kumba, Zambezi Airline, Ethiopian Airlines, and Angola Airlines. Also registered as Zimbabwean carriers are two low cost carriers: FastJet Zimbabwe and Zimbabwe FlyAfrica.

As of February 2016 most of the international flights to and from Zimbabwe are operated by foreign carriers. Air Zimbabwe only enjoys market dominance on domestic routes. On the Johannesburg route, foreign competitors captured 56% of the market and neither Air Zimbabwe nor Fastjet Zimbabwe capture more than 24%.

Figure 2-9 below is a map showing scheduled air services to and from Zimbabwe, whilst Figure 2-10 shows top destinations and numbers of passengers.

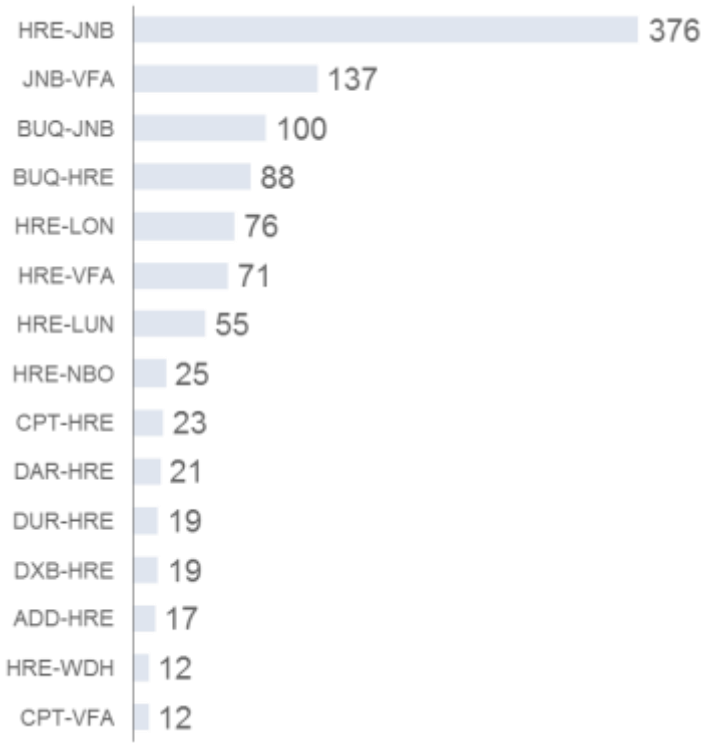
London is the fifth strongest market with 76,000 origin and destination passengers. The London route is currently unserved. This market size is certainly too small for a daily service with a wide body aircraft. With three weekly nonstop frequencies and with an assumed market stimulation effect the route might break even. Nevertheless, the competition on the route (Emirates, Ethiopian and Kenya Airways) will be strong – even without considering a nonstop service by an airline registered in UK.

Figure 2-9: Scheduled air services to and from Zimbabwe (February 2016)



Source: IATA Airport IS; Lufthansa Consulting

Figure 2-10: Top destinations to/from Zimbabwe (in thousand passengers 2015)



Source: Innovata, Lufthansa Consulting (note: bi-directional origin & destination passengers)

2.2.6.4 Air Navigation Infrastructure

CAAZ is mandated to provide air navigation services for Zimbabwe. Radar is not available within the Zimbabwe Flight Information Region (ZFIR) and therefore much of the country is not controlled. Apart from safety and security considerations this also implies that separations between arriving or departing aircraft have to be much longer and this causes delays – especially in peak hours or once traffic grows. Other challenges include:

- air navigation equipment is old and in need of replacement (except at Victoria Falls airport);
- airspace surveillance equipment is not well maintained, and while repairs have been carried out at Harare, work on the system at JN International Airport is incomplete;
- aircraft communication to and from the air traffic control units is under-developed;
- search and rescue services for aircraft accidents in Zimbabwe are provided by the Civil Protection Unit; and
- weather installations are inadequate, whilst broadband infrastructure is not available at most airports, except at Victoria Falls.

2.2.6.5 Air Zimbabwe

Air Zimbabwe, the national airline, operates under the jurisdiction of the MoTID. The airline has managed to maintain a near-perfect safety record save for two Viscounts that were shot down during the liberation war, since it was founded on June 1, 1946. Its main line of business is passenger and cargo transportation. However, the airline has vastly improved its scope over the years to include third party aircraft maintenance, repair and overhaul as well as offering technical and commercial aviation courses. Currently the airline operates a fleet size of 10 aircraft comprising of 2 x Boeing 767-200ER (205 seats), 3 x Boeing 737-200ADV (105 seats), 2 x Airbus A320 (150/160 seats) and 3 x MA60 (52 seats), with an average age of 24 years. Figure 2-11 below shows two of Air Zimbabwe's planes.

Figure 2-11: Air Zimbabwe planes

Source: CPCS

Air Zimbabwe has four divisions: Passenger and Cargo, Technical Operations, Flight Operations and Finance and Support Services.

The airline, with a staff compliment of 424 employees, currently services four regional routes: Harare/Johannesburg, Harare/Dar es Salaam (Tanzania), Victoria Falls/Johannesburg; and Bulawayo/Johannesburg. Domestic routes are: Harare/Bulawayo, Harare/Victoria Falls, and Bulawayo/Victoria Falls.

From a record 700,000 passengers in 1996, the number of Air Zimbabwe passengers declined to about 300,000 in 2009 and the same in 2014. In 2014 there were 763 employees (537 as at March 31, 2016) at Air Zimbabwe. In addition there are 300-400 ex-employees and some of them are suing Air Zimbabwe to continue paying their salary.

At its peak in 1998 the airline operated to 16 destinations in Europe, Middle East, Asia and Africa. However due to the harsh operating environment coupled with hyperinflation, critical foreign currency shortages and economic sanctions, the airline scaled down its operations to only serve the destinations listed above.

Air Zimbabwe, with a debt of USD 328 million (at March 2017 of which USD 301 million is local debt and USD 27 million is foreign debt), is experiencing financial hardships, as well as human resource and equipment problems. Some common operational problems are experienced at most of the airports operated by CAAZ including:

- → safety concerns and complaints about the outdated **runway and approach lighting systems** at Harare and Bulawayo;

- → shortcomings with **fire fighting vehicles** at all the three main airports;
- → **wildlife management** problems at several airports; and
- → **illegal settlements close to the airport perimeters** at both airports: Harare International Airport and Charles Prince in Harare.

Strategies to Turn Around Air Zimbabwe

There have been efforts to achieve a positive turnaround for Air Zimbabwe, as the airline was experiencing a negative trend in its financial performance since 2004 when a Tripartite Turnaround Committee (TTC), was set up to come up with recommendations to turn around the national airline. In October 2011 a Cabinet Resolution was made for Government to assume and ring fence the airline's debt; to hive off the NHS; to right-size the airline through retrenchment and to secure a strategic partner as a matter of urgency. However, despite these resolutions at Cabinet level, no recapitalization exercise was undertaken.

In 2012 efforts were made to separate and privatise NHS from Air Zimbabwe as a way of raising money to recapitalize the airline. Though NHS is now a parastatal under the MoTID operating independently from the airline, the separation did not yield any capital for the mother company. Again in 2012 the GoZ engaged Ernest and Young to probe Air Zimbabwe's collapse and to advise on how to revive the national airline. A comprehensive report was submitted to the shareholder recommending debt management, recapitalising the airline and modernising the fleet. However, none of these recommendations, has materialized owing to a number of issues affecting the ability of the shareholder to secure financial resources given the hostility by some sections of the international community against Zimbabwe.

Air Zimbabwe's Relationship with CAAZ

Air Zimbabwe currently does not enjoy cordial relations or privileges such as privileged access to parking bays, fuel tanks, paying concessionary rates etc. with CAAZ, privileges which most legacy airlines enjoy with their civil aviation authorities. It competes at equal levels with big foreign airlines that are enjoying direct and indirect support from their countries and civil aviation organizations. CAAZ has been increasing their fees arbitrarily without consulting the national carrier, for example, dispensation fees are now USD 3000 for a ten-day period up from USD 700. In addition to that, CAAZ is collecting all its airport taxes separately from the point of sale of Air Zimbabwe tickets, which is becoming a huge inconvenience and time-consuming practice to the travelling public. All other airlines flying into Zimbabwe are collecting both fares and airport taxes in one go.

CAAZ is currently classified as a Category 2 Regulator according to the International Civil Aviation Organization (ICAO), thereby making all airlines under its jurisdiction unable to effect commercial operations into the United States. Therefore, presently Air Zimbabwe cannot expand its route network into the Americas.

The Need for Subsidies

Global trends show that governments continue to bail out their legacy airlines (national airlines); which are taken as strategic assets of national importance. Examples of this include:

- → Qatar Airways, Etihad Airways an Emirates Airlines in the Middle East;
- → Arik Air (Nigeria), Air Namibia, Precision Air, RwandAir, Royal Air Maroc and South African Airways, Kenya Airways, Ethiopian Airlines , Royal Swazi National Airways, and Zambia Airways in Africa; and
- → US Airways in 2002, Delta Airlines in 2007 and American Airlines in United States of America.

Similar arrangements would benefit Air Zimbabwe.

2.2.6.6 Low-Cost Airlines

Fastjet Zimbabwe, a subsidiary of the African low-cost airline group, initially operating domestic services from its Harare main base, is seeking traffic rights to serve destinations in Botswana, the Democratic Republic of Congo, Kenya, Malawi and South Africa. The company is owned by Fastjet PLC, a British-based holding company. The first Fastjet subsidiary to launch services was Fastjet Tanzania, in November 2012. Sister carrier Fastjet Zambia hopes to launch services in 2016. Fastjet PLC (London) owns the aircraft, five of which are registered in Tanzania and one in Zimbabwe. In Zimbabwe Fastjet only has about 50 staff of which 17 are crew.

As of February 2016, Fastjet Zimbabwe operates from Harare to Victoria Falls and to Johannesburg, and from Victoria Falls to Johannesburg. Strategically, Fastjet want to become a feeder for airlines operating long-haul routes from Harare or Victoria Falls.

Zimbabwe FlyAfrica, a privately-owned airline which operated low-cost scheduled services, initially between Victoria Falls and Johannesburg and between Johannesburg and Bulawayo in March 2015, had its air operator certificate (AOC) suspended in October 2015. It was re-certified CAAZ in December 2015, but is yet to resume services.

2.2.6.7 National Handling Services and Catering Services

National Handling Services (Private) Limited (NHS) is the only provider of airline ground handling services in Zimbabwe. It offers complete aviation ground handling services including

Ground handling was a unit within Air Zimbabwe, until 1999. Then it was separated and became a subsidiary of Air Zimbabwe. In 2012 it became a parastatal company by cabinet decision reporting directly to the MOTID in 2012. NHS is present in four of the eight CAAZ airports (Harare, Victoria Falls, Bulawayo and Kariba). In the other four airports NHS has based equipment only. Typically Air Zimbabwe does not pay for services provided by NHS. In February 2016 outstanding payments amounted to US$13m. NHS pays a 10% concession fee on its revenue to CAAZ as well as rental fees for offices and for utilities consumed.

There are numerous complaints about the services provided by NHS, such as exaggerated level of charges – compared to other ground handlers in Zambia or South Africa, and unacceptable service levels. Also, airport managers from CAAZ were not satisfied with NHS.

2.2.6.8 Catercraft

Established in 1980, Catercraft (Pvt) Ltd is the sole airline catering company in Zimbabwe, situated at Harare International Airport and with branches in Bulawayo and Victoria Falls. At

Harare International Airport, it has a staff compliment of over 270 and provides flight catering and ancillary services to domestic, regional and international airlines in Zimbabwe. Current clients are Ethiopian Airlines, South Africa Airways, Comair and Air Zimbabwe.

The services of Catercraft are heavily criticized: SAA avoids them as much as they can. SAA brings catering from Johannesburg for their return flights even though this implies higher fuel cost. But the quality provided by Catercraft is not acceptable. Emirates also does not cater in Harare – they pick up their return catering in Lusaka. Other carriers complain about excessive charges. They claim that Catercraft – being a private company – still holds a monopoly for airline catering and that it is abusing its position.

2.2.7 Pipeline Sub-Sector

2.2.7.1 Background

Originally constructed to transport crude oil in the 1960's, the pipeline from Beira port in Mozambique to a refinery at Feruka near Mutare, is now used specifically to transport imported refined product as the refinery is no longer operational. Zimbabwe has no proven oil reserves. All refined oil products are imported and the bulk of liquid fuels are used in the transport sector. The oil products are further transported over 260km to the main consumption centre in Harare.

The petroleum sector was deregulated in August 2003. Prior to this the downstream petroleum sector was dominated by six players: NOCZIM (the state-owned oil company), TOTAL, SHELL, BP, MOBIL and CALTEX. NOCZIM later issued licences to six indigenous or indigenously controlled companies: Royal Oil, Country Petroleum, Wedzera Petroleum, Comoil, Exor Petroleum and Engen.

Pipelines are deceptively simple to design, construct and operate for the simple reason that the technology involved has not really changed in many decades and is mostly the result of 100 years of knowledge based evolution fully documented and widely accessible. Their overall feasibility, however proves to have become the most demanding and arduous endeavour imposed on any infrastructure project.

Following deregulation, the GoZ took over the regulatory function and licensed many more companies, thereby creating a very competitive market. After removing its regulatory functions, the Government decided to unbundle the state oil company, NOCZIM, into a trading company, Petrotrade, and an infrastructure company, National Oil Infrastructure Company (NOIC). The deregulation of the petroleum industry has created a competitive market, which has so far managed to ensure the provision of petroleum products at regionally competitive prices.

The Beira-Feruka Pipeline (280km long) is owned by a Mozambican company called CPMZ (marked F9 on the map below)[4]. 21km of this pipeline (within Zimbabwe) is owned by the GoZ but is leased back to CPMZ. The GoZ pays a minimum of $2million per month regardless of the pipeline's level of utilisation.

An extension pipeline (260km long) in Zimbabwe between Mutare and Harare, is owned by PetroZim Private Limited which is jointly owned by NOIC (50 per cent) and LonMin Ltd, a privately owned company (50 per cent). Figure 2-12 below shows the pipeline network in the southern African region, lines F19 and part of F9 being the network that connects Zimbabwe to Beira Port in Mozambique.

Pipelines constitute no more than a means to an end. They are different from other more flexible and versatile modes of transportation that have the capacity to generate growth and development. Pipelines can only be justified economically in terms of guaranteed demand for products at point "B" and availability of supply at point "A". They are dedicated product infrastructures with a very narrow throughput range of efficiency and hardly any flexibility at all. Given proper operating parameters, however, their cost effectiveness is unbeatable, their reliability and safety is beyond comparison with other means of transport. Their vulnerability to terrorism, vandalism and even pilferage growing in regions of social and political unrest but measures of risk control can be applied to reduce risk at levels comparable to other infrastructures.

Government is committed to increasing the pumping capacity of the pipeline in phases to 320 million litres per month from 120 million litres in 2012, by constructing a second pipeline from Beira port to Harare and additional storage facilities to cater for increased demand for petroleum products, using the BOT or BOOT route. The current pumping capacity of the pipeline is 180 million litres per month for all petroleum products.

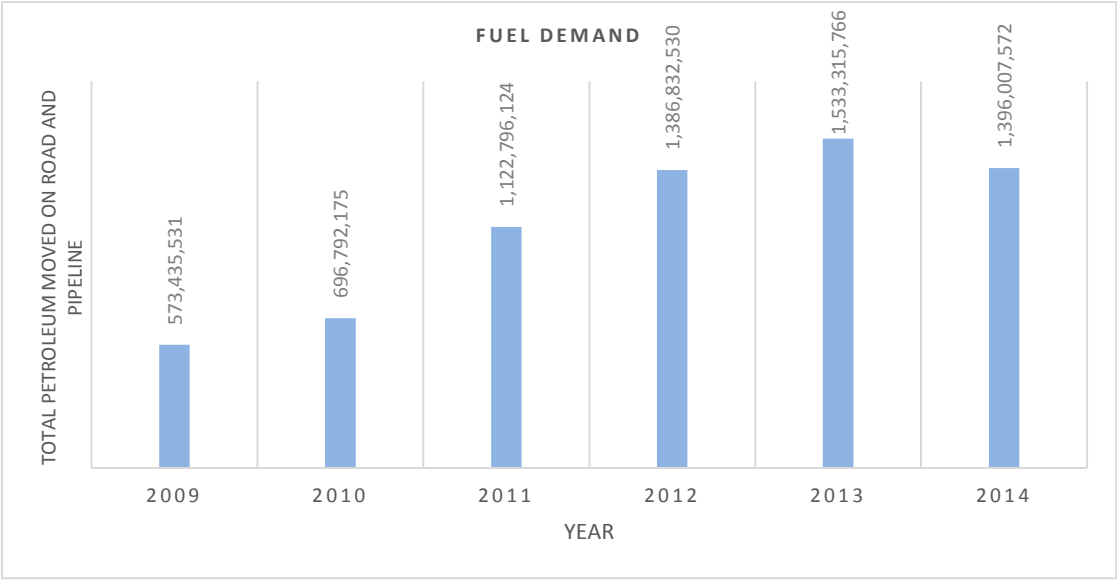
The pipeline moves approximately 95% of all petroleum products in the country and the current demand for petroleum products is 4.5 million litres[5] per day against the pumping capacity of 6 million litres per day. Figure 2-13 below shows the trend of petroleum products since the economy adopted the multicurrency regime.

The GoZ has embarked on a policy of substituting petroleum products with locally produced products e.g. mixing diesel with bio-diesel which is processed at Mount Hampden in Harare, and mixing petrol with ethanol available at Triangle, to meet the increase in demand. Green Fuels have vehicles that run on 95% ethanol and have the conversion kits.

[4] Infrastructure and Growth in Zimbabwe by AfDB
[5] Meeting with Ministry of Energy and Power Development

Figure 2-12: Pipelines in the Region

Figure 2-13: Fuel Demand



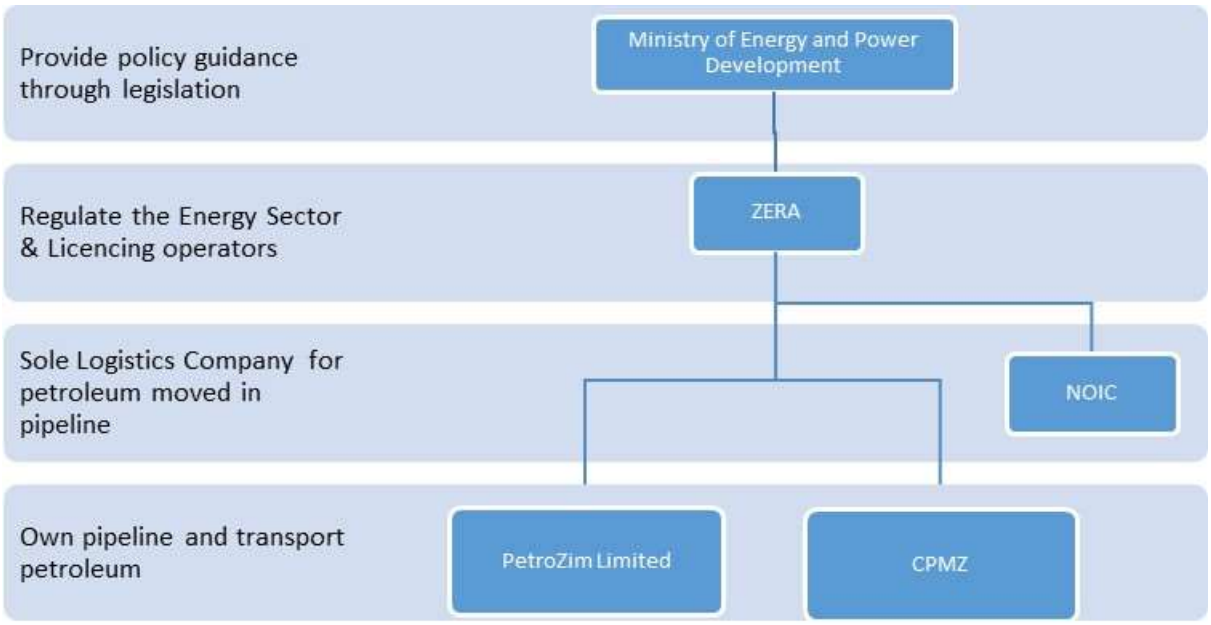
Source: Ministry of Energy

2.2.7.2 Institutional Arrangements

The Ministry of Energy and Power Development provides the policy direction for management of all energy imported or produced locally. The Ministry's strategic objectives for petroleum are to develop a legal framework to facilitate orderly operations of the oil industry, ensure adequate supplies of petroleum products to facilitate economic turnaround

and sustainable economic development, and develop and implement policies to promote indigenisation in the petroleum sector. Figure 2-14 below shows the institutional setup for pipeline.

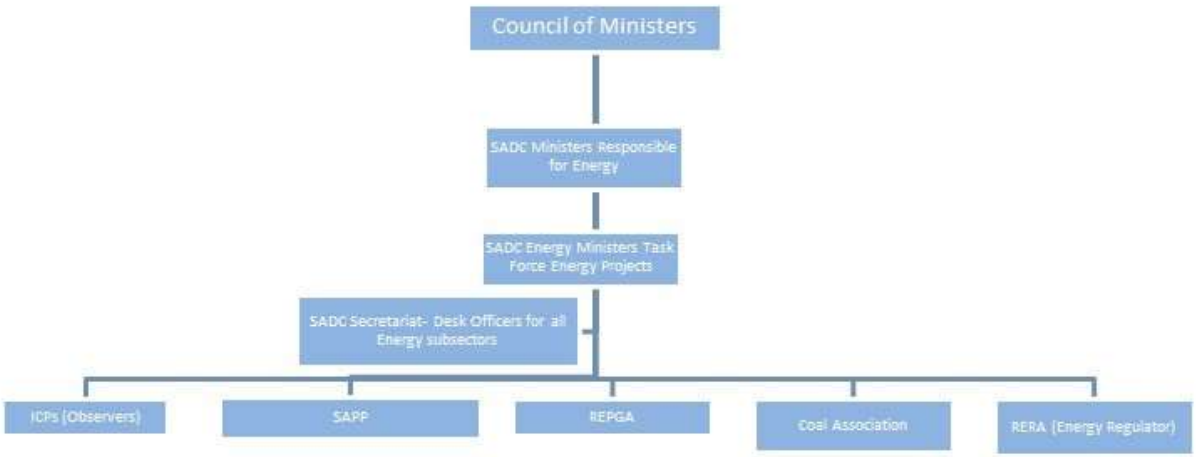
Figure 2-14: Pipeline Institutional Framework



2.2.7.3 Regional Context

Institutions that support the energy sub-sector in the SADC region i.e. SAPP, RERA and the SADC Secretariat require strengthening in terms of their staffing, as well as the mandate and authority, to support the implementation of regional energy infrastructure projects. The SADC Regional Infrastructure Master Plan proposed institutional arrangements for a comprehensive SADC energy sector as presented in Figure 2-15 with the aim to strengthen the implementation of energy projects in the region.

Figure 2-15: SADC Energy Sector Organogram



Source: www.sadc.int

2.2.8 Inland Waterways

2.2.8.1 Water Systems

Zimbabwe is a landlocked country with no significant natural lakes. Water bodies constitute almost 1% of the total area. Figure 2-16 below shows the water systems in Zimbabwe. The country is divided into six hydrological zones for the rationalised use of its surface water resources and for their apportionment between competing users as shown in Figure 2-17 . There are a number of sizeable rivers draining north and south from the spinal watershed or the eastern highlands.

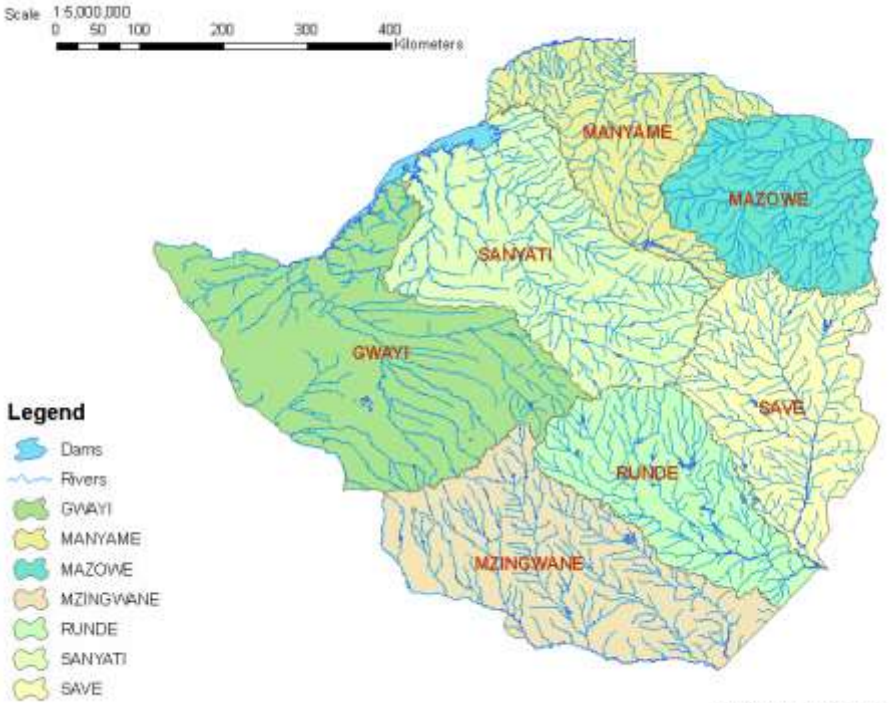
The main water bodies in Zimbabwe include rivers and lakes, with the Zambezi River, Limpopo River and Runde River being the most important. Lake Kariba is the largest in Zimbabwe among other inland water bodies like the recently completed Tokwe Mukosi Dam, Osborne Dam, Lake Chivero and Lake Mutirikwi.

The Zambezi River runs from Zambia through six countries to the Indian Ocean, a distance of 2 700 km (see Figure 2-18 below). The Zambezi as well as some of its tributaries can also play a pivotal role in local, national or regional water transport. Scheduled passenger services are only available between Kariba and Mlibizi, on a tourist service operated by Kariba Ferries. On the Zambezi River lies the mighty Victoria Falls (shown in Figure 2-19), a significant tourist attraction by world standards.

Figure 2-16: Zimbabwe Water Systems

Source: ZINWA

Figure 2-17: Zimbabwe's hydrological catchment boundaries



Source: Improved Management of Agricultural Water in Eastern and Southern Africa (2007)

Table 2-13 below shows some of the declared inland waterways in Zimbabwe.

Table 2-13: Inland Waterways of Zimbabwe

Name	Province	Capacity (million m^3)
1. Lake Kariba	Mash. West & Mat. North	64 800.000
2. Tokwe Mukosi	Masvingo	
3. Lake Mutirikwi	Masvingo	1 378 082
4.Lake Manyame	Mash. West	480 236
5. Osborne Dam	Manicaland	401.620
6. Mazvikadei Dam	Mash West	343.779
7. Manyuchi Dam	Masvingo	303.473
8. Manjirenji Dam	Masvingo	274.179
9. Sebakwe (stage 11) Dam	Midlands	265.733
10. Lake Chivero	Mash West	247.181
11. Insiza Dam	Mat. South	173.491
12. Bangala Dam	Masvingo	126.588
13. Ruti Dam	Manicaland	125.928
14. Siya Dam	Masvingo	105.455
15.Rusape Dam	Manicaland	66.964
16.Claw (stage 11) Dam	Mash. West	65.455
17. Mzingwane Dam	Mat. South	42.179
18. Amapongokwe Dam	Midlands	37.587
19. Mushandike Dam	Masvingo	37.252
20. Mwenje (Noaks-Stage 11 Dam)	Mash. Central	36.117
21. Gwenoro Dam	Midlands	31.357
22. Ngesi Dam	Mash. West	22.686
23. Odzani, Smallbridge Dam	Manicaland	21.199
24. Lower Mujeni Dam	Mat. South	10.450
25. Lower Zivangwe	Midlands	6.993
26. Mpopoma Dam	Mat. South	2.159
27. Zambezi River Upper ,Middle & Lower Sections	(Mat. North, Mash. Central & West)	

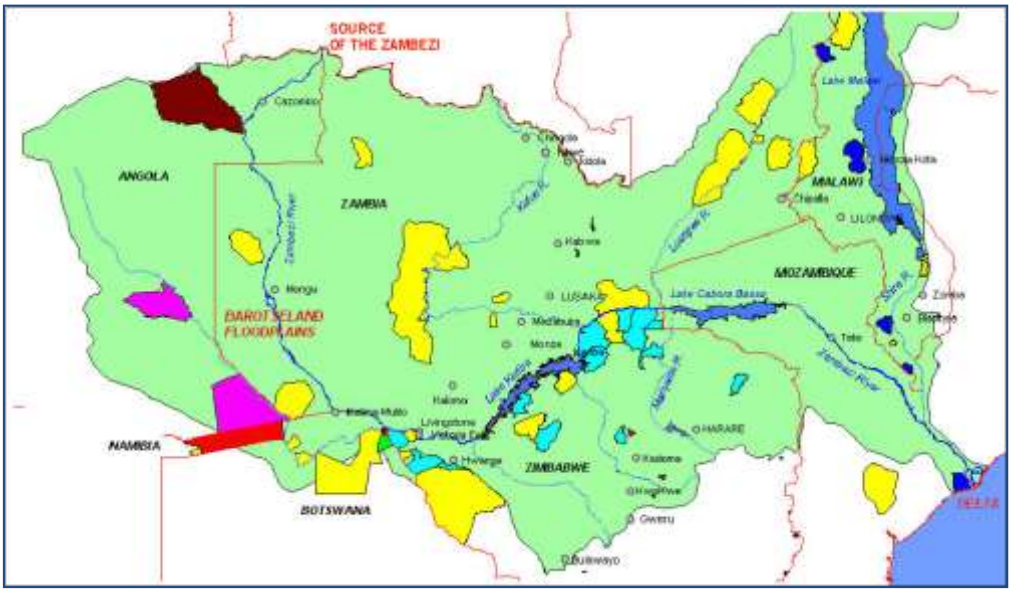
Lake Kariba is 226 km long and in places up to 40 km wide and supports a thriving commercial fishing industry and is a fantastic tourist attraction. Figure 2-20 below is a photo of Lake Kariba. Waterborne tourism, commercial fishing and sports are the dominant economic activities on Lake Kariba. About 30 000 tonnes of tilapia kapenta can be harvested on a yearly basis. Other species that are harvested include tiger and bream fish.

One of the few major developments in Zimbabwe in the last decade or so has been the construction of the Tokwe Mukosi Dam in Masvingo Province. The project started in June 1998 and was completed in December 2016. The giant water reservoir covers a vast area from which over five thousand inhabitants were moved to make way for the dam. Immense benefits are envisaged to be derived from the dam, in the form of revenue from fisheries, boat cruises, adjacent parks and hydro power generation. Surrounding districts of Masvingo, Chiredzi, Ngundu and Triangle which all boast a thriving agricultural industry based on sugar plantations are set to benefit from the dam. The area is also likely to become a major tourist resort after Kariba, with a national park planned to add further value.

The completed dam is the country's biggest inland dam. Southern parts of Mwenezi, Chiredzi and Matibi 2 communal lands are expected to become green belts through irrigation. There are plans to set up a second ethanol plant, as a result of the completion of the dam.

Osborne Dam is the largest lake in the Manicaland province and is one of the major inland lakes in Zimbabwe. The large lake covers in excess of 2 600 hectares of land with a carrying capacity of over 400 million cubic metres of water. It stretches for 16 kilometres up to the Odzi River and 15 kilometres along its Nyatande tributary. The lake is over 6 kilometres wide and 66 metres deep.

Figure 2-18: Zambezi River



Source: zamsoc.org

Figure 2-19: Victoria Falls

Source: africanbudgetsafaris.com

Figure 2-20: Lake Kariba

Source: Wikipedia

Economic Significance of Zimbabwe's Waterways

The economic significance of the water bodies include electricity production at Kariba; fishing (one of the most popular activities); tourism (Victoria Falls receives over 1.5 million visitors annually, while Mana Pools and Lake Kariba also draw substantial tourist numbers) and employment creation. Victoria Falls creates a significant number of jobs for locals and surrounding communities through boating activities, fishing, hotels and various other tourism activities. The recently completed Tokwe Mukosi is set to offer tourism, fishing and massive employment opportunities, among many potential activities.

Waterborne transport is energy efficient, relatively safe, and environmentally friendly since it emits fewer greenhouse gases. The Department of Inland Waters Control plays a pivotal role in the marine environment protection by ensuring that big vessels do not dispose of their waste in water bodies but are drained into sewer systems at the harbour. The department works together with the Zimbabwe Tourism Authority, ZRP, army and the parks and wild life departments in monitoring the environment.

2.2.8.2 Regulation

Zimbabwe is a member of a number of regional and international water organizations, including the International Maritime Organisation (IMO), an organisation which ensures safe, secure and efficient shipping on clean oceans. Zimbabwe become a member of this organisation in 2005.

Ministers responsible for maritime transport in Africa adopted the African Maritime Transport Charter whose objectives are, among others, to:

- → implement harmonised maritime transport policies;
- → promote the effective implementation of international maritime instruments;
- → promote bilateral and multilateral cooperation; and
- → encourage the establishment and support of maritime and ports administrations.

Zimbabwe shares some water courses with other countries. Two of the important water courses for Zimbabwe, the Limpopo River and the Zambezi River, are usually affected by inter-governmental organisations as they stretch along the borders, with South Africa and Zambia

respectively. The Pungwe Basin is shared between Zimbabwe and Mozambique. The Zambezi Watercourse Commission (ZAMCOM) was set up by Zimbabwe, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia and Angola to share the Zambezi River Basin, as stipulated in the 2004 ZAMCOM Agreement.

2.2.8.3 Institutional Framework

Several government departments and parastatals oversee various activities related to water bodies, these include: Department of Inland Waters Control (MoTID), ZINWA and Parks and Wild life (both of which fall under the Ministry of Water and Environment), Zimbabwe Republic Police (ZRP) and Zimbabwe National Army (ZNA). In addition to these, Local Authorities are also important institutions since they own all the land and harbours.

MoTID through the Department of Inland Water Control has the sole responsibility of providing safe, clean and efficient water transport services. The Department has 26 Declared Inland Water bodies under its control. Its main role is to administer the Inland Waters Shipping Act 13:06, and its functions are to:

- → formulate marine transport and infrastructural policies;
- → plan, monitor and maintain the marine sector in line with national or international maritime standards on all declared inland water bodies;
- → provide and manage services and ensure safety of inland water traffic; and
- → supervise, administer and control relevant national and international regulations, treaties and protocol of all aspects of the maritime sector.

The department registers all boats and vessels, which currently number 23,409 in Zimbabwe, and inspects them for safety annually and also carries out frequent spot checks. The department has power to condemn vessels and boats, thus stopping them from operating and withdrawing their licences.

2.2.8.4 Waterborne Public Transport

Inland waterways public transport in Zimbabwe plays a relatively minor role because of the landlocked nature of the country. However, other activities like boat cruises, ferries and other tourism related activities have been on a positive growth path. DDF registered vessels also provide passenger transport from Kariba to Binga.

It is believed that along the Zambezi River, from Kariba to places around Binga or even all the way to Victoria Falls public transport has a potential provided measures are taken. This would cut travel distances by more than 300km for the route from Kariba to Victoria Falls compared to travel by road. A border post also needs to be put in place to enable the international traffic and tourists to legally travel between Zimbabwe and Zambia at Binga.

Figure 2-21 below is a photo of a Kariba Ferry, Figure 2-22 shows the route of the Ferry and Figure 2-23 is a photo of a tourist ferry.

Figure 2-21: Kariba Ferry

Source: victoriafalls-guide.net

Figure 2-22: Route for Kariba Ferry

Source: victoriafalls-guide.net

Figure 2-23: Kariba Tourists Ferry

Source: victoriafalls-guide.net

2.2.9 Public Transport

Over the past decade or two, the public transport sector in Zimbabwe has been faced with a number of challenges. The state of the rail lines and trains is presently such that rail is not seen as a competitive option for public transport, as most of the rail infrastructure is in dire need of rehabilitation.

Although road infrastructure is generally in a poor state, road based public transport is not as sensitive to poor roadway conditions as rail is to rail conditions. Whilst there is a strong view amongst operators, that poor road conditions are adding to operating costs, the road network remains in a state to be able to support public transport operations, albeit that certain classes of vehicle such as low-floor and low-entry urban commuter buses may not be able to operate in many areas. The reality is that road-based public transport of some form or another is and will continue to operate. The biggest problems faced by this sector are the kerb-side facilities. Many of the interchange and vehicle holding facilities are in a poor to extremely poor state, as shown in Figure 2-24. Road improvements are however desirable for many reasons as are other facilities.

Figure 2-24: A Fallen Bus Shed at a Taxi Rank in Harare

Other challenges faced by the sector include a lack of signage, poor if any ablution facilities, a lack of decent cleansing and in general, the appearance of abuse and neglect. Varying degrees of the same problems were to be found throughout the country. In Harare many facilities had been well designed, but lack of care and poor utilisation practices have rendered the facilities unacceptable in the context of modern public transport. With appropriate interventions, much of the existing infrastructure could be restored. The two difficulties hindering maintenance at present are: a lack of adequate funding and inappropriate use of the facilities for market activities as opposed to transport activities along with overcrowding and a degree of lawlessness.

Figure 2-25 below shows the use of public transport facilities for other completely different purposes.

Figure 2-25: Taxi Rank facilities used as market place facilities.

2.2.9.1 Operations

Urban road based public transport is mainly in the form of unregulated private operations. For inter-city operations, there is a mix of limited scheduled services and regulated services. Formal services are operated by private bus and coach operators, including the parastatal, ZUPCO.

Of particular concern in Zimbabwe is the informal road based public transport sector. The issue of operator/driver behaviour is of grave concern to the travelling public. To all appearances, operators no longer obey many of the rules of the road (see photo below), and do not attempt to offer a quality service. For instance, vehicles stop in the middle of intersections to load or off-load passengers.

Figure 2-26: A Taxi tout riding on the back bumper.

From the operator perspective, it was reported that licensing is unnecessarily complicated to the point that operators find it preferable to pay fines, when forced to, rather than to bother

with formal registration. Compliance may not be all that complicated, but there is not much incentive to comply at all.

Much of the fleet, minibuses and buses, is old, and in poor condition. Some vehicles operate with sliding doors not working and are thus left open and are generally unsafe for use by passengers. This state of affairs is common in unregulated environments, aggravated in Zimbabwe by the current economic situation, which makes accessing parts and/or new vehicles more difficult than desirable. ZUPCO and others also indicated that the life-span of their vehicles was significantly shortened by the operating conditions, with buses often being at the end of their useful life at as little as five years.

On the positive side though, there is an entrepreneurial spirit in the industry, even though the system is fragmented. With appropriate interventions, this base can be used to grow a respectable public transport system suited to the needs of the country.

2.2.10 Freight Transport

Currently road freight transport industry is made up largely of private operators with minimal regulation. A number of distributors also operate their own fleets. The majority of long-distance freight haulage is for cross-border traffic. This grew significantly for all imports in the 1990s. Because of the slowdown in the internal economy, cross-border business has grown to be the most important segment of the business to the commercial truckers. Rail competes with road haulers for some of the long-distance and bulk traffic. Long-distance and contract services are dominated by the larger operators, which have emerged since liberalization.

The North-South Corridor serves as the main intra-regional trade route between the Democratic Republic of Congo, western Malawi, Botswana, Zambia, Zimbabwe and South Africa, and as a link to the ports of Durban for overseas traffic.[6] Beitbridge is the main crossing point, going from south to north and is the busiest border post in the region. Movement of freight between countries is governed by SADC rules providing for sharing of information on traffic development and for defining the types of permits that can be issued by each country. The Cabotage protocol restricts the carriage of bilateral trade to licensed truckers between bordering countries and prohibits provision of road freight haulage within a country. There are, however, no quotas, and this facilitates direct contracting between foreign truckers and shippers.

2.2.10.1 Regulation of Freight Transport

Regulation of freight in Zimbabwe is more or less limited to weight restrictions. This is intended to prevent heavy vehicles from causing excessive damage to the road system. Under the Vehicle Registration and Licensing Act and the Road Traffic Act, commercial vehicles carrying passengers must be inspected every six months, and other commercial vehicles once a year, by the VID for road worthiness. All motor vehicles are required to have third party insurance. Foreign-registered trucks are restricted from carrying domestic freight, unless they are granted special permit by MoTID. There is no tariff regulation, and truckers are able to negotiate with shippers based on offering the most competitive service in terms of convenience and price. The enactment of the Road Motor Transportation Act of 1997 also

[6] AFDB , Road Transport Services and Infrastructure, 2011

liberalised the freight haulage market and this has led to a phenomenal expansion of the road haulage sector.

Despite the gains that have been made from liberalisation of the road freight transport sector, the sector still faces challenges related mostly to the macroeconomic situation. High interest rates and market liquidity challenges have made it increasingly difficult for most companies to secure capital for fleet replacement and expansion, threatening the long-term viability and sustainability of the sector. The cross-border business also faces strong competition from South Africa.

Since independence there has been a significant shift in trade, favouring road transport over rail, as well as favouring South African truckers over domestic truckers. In the earlier years, most goods were imported from overseas, and importers had to rely on containers for their shipments, favouring rail services from the ports of Durban and Beira. The cross-border business has also developed to accommodate return freight, providing lower tariffs to shippers, and hence significantly affecting the competitiveness of rail for imported traffic.

2.2.10.2 Delays at Border Posts

The most pressing problems alluded to by the Transport Operator Association of Zimbabwe (TOAZ) for road freight industry, are the delays that occur in movement of vehicles at the tollgates and at the borders. The delays have considerably increased the cost of operation, weakening the ability of the Zimbabwean truckers to compete with non-Zimbabwean truckers, especially those from South Africa. Added to these are the problems of poor road conditions on the national roads and the high cost of fleet replacement.

2.2.10.3 Purchase Prices of Haulage Trucks

Over the years, the purchase prices of haulage trucks skyrocketed to levels beyond the reach of many operators, resulting in passenger and freight transport operators procuring second-hand vehicles from overseas suppliers, often operating beyond their economic life. This has resulted in low vehicle utilisation and very high vehicle operating costs, which eventually are borne by the consumers. Overall, non-tariff barriers, mostly delays at the borders are having a serious impact on the competiveness of Zimbabwean manufacturers, as well as on the Zimbabwean shippers.

2.3 Conditions and Challenges outside the Transport Sector

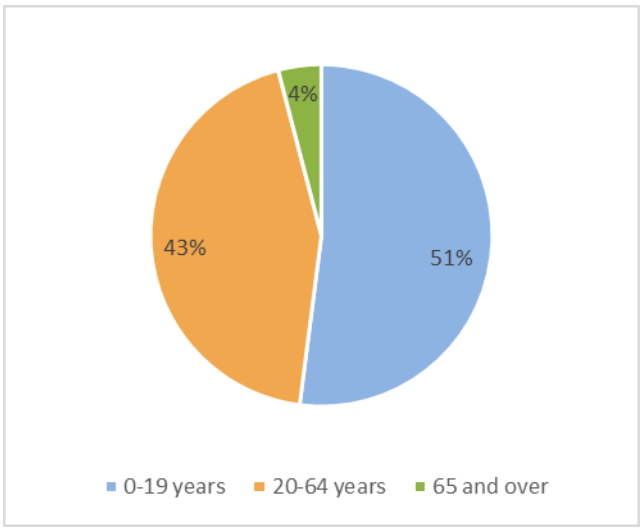
2.3.1 Social Status and Implications on Transport

2.3.1.1 Population and Demography

The average size of household in Zimbabwe is four persons and population density averages 33 persons per square kilometer. Life expectancy at birth is short, estimated to be 58 years, due to such factors as the HIV and AIDS pandemic and medical conditions such as cancer, diabetes and hypertension in adults, as well as a high infant mortality rate. As a result of the low life expectancy, Zimbabwe does not have a large aging population.

Zimbabwe's population is young, with 51% falling within the category 0-19 years of age (see Figure 2-27), whilst the economically active group of 20 to 64 years constitutes 43%, and only 4% are 65 years and above.

Figure 2-27: Zimbabwe's Population by Age & Gender, 2012



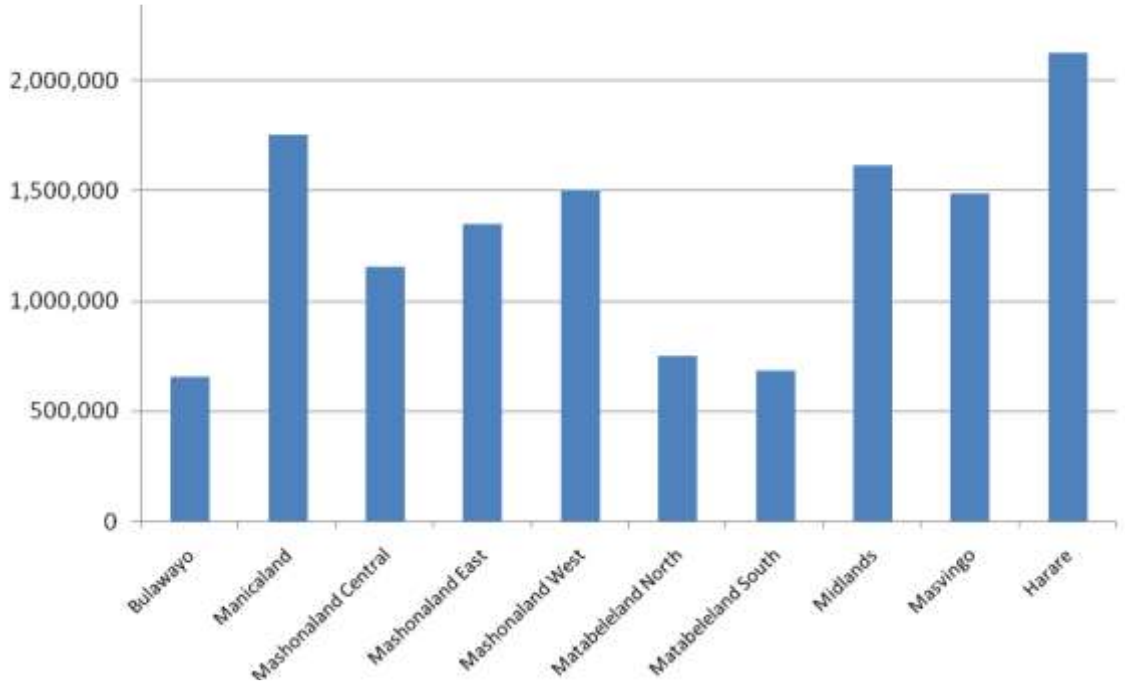
Source: Zimstat, 2012

The travel needs of the country's young active population to reach employment and educational centers as well as centers of economic activities and essential health and social facilities, puts immense pressure on the national transportation system. The national transportation network has to prepare for increased demands from an expanding population.

2.3.1.2 Spatial Population Distribution

Two-thirds (67%) of Zimbabwe's population lives in rural areas. The greatest population concentrations are, however, found in major centers of Harare, Chitungwiza, and Bulawayo. Figure 2-28 below shows population figures by province. The national capital, Harare, accounts for 16% of the country's population.

Figure 2-28: Zimbabwe 2012 Census: Population Distribution by Province



Source: Zimstat, 2012

Zimbabwe's ten most populated urban centers are listed in Table 2-14. Harare has the highest number of inhabitants, followed by Bulawayo. Within a 40-kilometer radius of the national capital are the important centers of Chitungwiza, Norton and Epworth.

Table 2-14: Ranking of Zimbabwe's Most Populated Centers (2012)

Ranking	Centres	Provinces	Inhabitants
1	Harare	Harare	2,123,132
2	Bulawayo	Bulawayo	653,337
3	Chitungwiza	Mashonaland East	356,840
4	Mutare	Manicaland	187,621
5	Gweru	Midlands	157,865
6	Epworth	Mashonaland East	123,250
7	Kwekwe	Midlands	100,900
8	Kadoma	Mashonaland West	79,174
9	Masvingo	Masvingo	76,290
10	Chinhoyi	Mashonaland West	61,739

Source: Zimstat, 2012 &World Bank

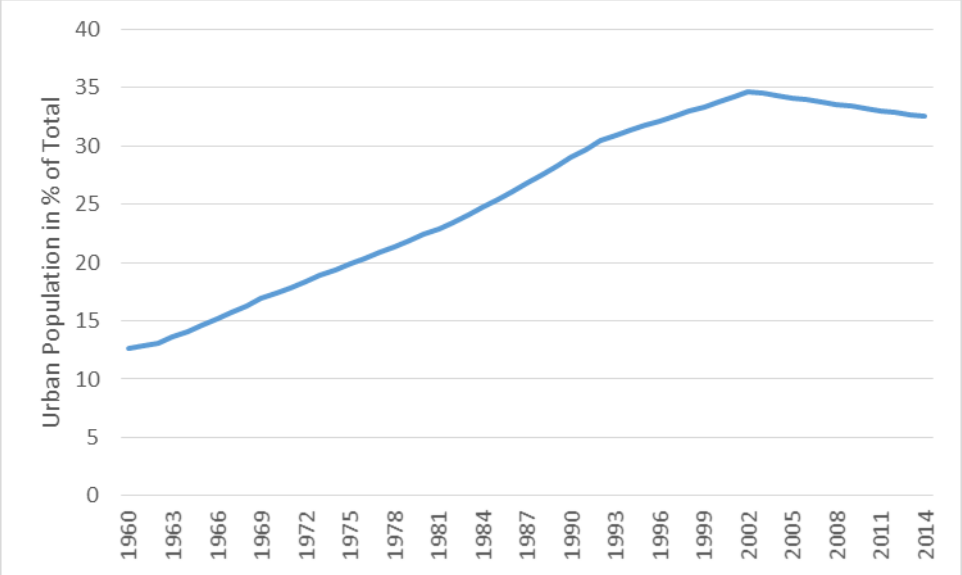
The poor state and conditions of rural roads results in long travel times and often requires the use of 4-wheel drive vehicles. As an example, it takes about two hours to travel a distance of 77 kilometres between Mt Darwin and Mukumbura (a border town along the northeast border with Mozambique), compared to 45 minutes to an hour on a good road. Poor transportation networks have contributed to the stagnation of most rural centers such as Dowa and Rugoyi in Makoni District that were set up over 50 years ago but have not grown into towns.

The advent of majority rule in 1980 in Zimbabwe saw a change in the rate of urbanization. World Bank data shows that the country's urban population rose rapidly from about 20% in

the late 1970s to early 1980s to over 30% by early 1990s, peaked around 2002 at about 35%, and is showing a slight downward trend for the last several years, as shown below.

Harare alone accounts for 41% of the urbanized population. The country's annual rate of urbanization has been estimated at 3.4% for the period of 2010 to 2015[7]. The rate of rural-urban migration has exceeded the absorptive capacity of most urban areas, resulting in increasing unemployment in the urban areas.

Figure 2-29: Zimbabwe's Percentage Urbanisation Levels



Source: Word Bank

Transportation requirements for rural areas with dispersed population, is different from that of areas with high densities such as Harare and high concentration provinces of Manicaland, Midlands, and Mashonaland West. Poor rural transport networks discourage rural people from travelling unless it is absolutely necessary. This has led to many rural centers and growth points stagnating, and the economically active people leave in search of employment opportunities in urban areas. The provision of good all-weather roads in rural areas would improve accessibility to key destinations such as markets, schools, and health and social facilities and would attract investors.

High population concentrations in the urban centers and others pose a real challenge to the transportation network particularly during peak periods.

2.3.1.3 Human Development

Zimbabwe has invested immensely in human capital development, yet the results are somewhat mixed. On one hand, primary school completion rates increased slightly to 79% in 2011, compared to 76.8% in 2000, and in 2014, Zimbabwe had the highest literacy rates (98%) on the continent. Infant mortality rates fell drastically from about 126/1,000 in 1990 to 90/1,000 in 2011, having direct impact on life expectancy. On the other hand, however, the number of people who live at $1.25 per day has increased from 49% of the population in 1990

[7] Source: World Factbook, June 2015

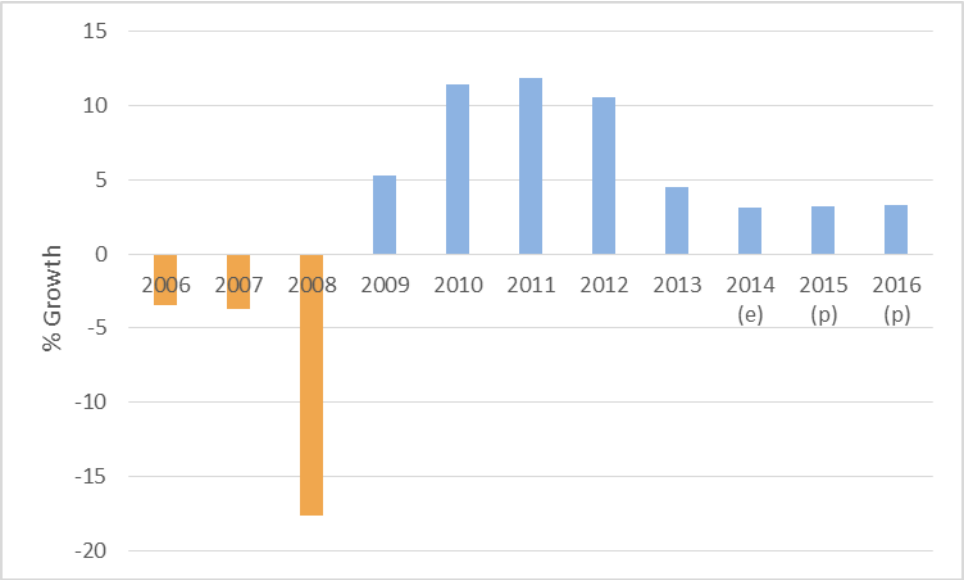
to about 63% in 2011, signifying a decline in the standard of living. A good transportation system will enable easier access to schools and to health facilities, and will also enable travellers to travel further.

2.3.2 Economic Development

2.3.2.1 Overview

The Gross Domestic Product (GDP) growth rate for Zimbabwe for 2014 and 2015 was estimated to be 3.1% so as to give a GDP of US$1.42 billion while the rate of inflation was 0.1% during the same year. Figure 2-30 presents the country's GDP from 2006 to 2016.

Figure 2-30: Zimbabwe's GDP Growth, 2006 to 2016



Source: African Economic Outlook (Downloaded: April 2016)

The introduction of the multiple currency system saw the rebound of Zimbabwe's economy during the period of 2009-2012. Underpinning this recovery was the mining and agricultural sectors' positive performance. These sectors jointly accounted for 93.5% of the export revenues in 2009-2013. Mining accounted for 65.2% of the export earnings during the same period.

The 2015 National Budget Statement alluded to the de-industrialization of Zimbabwe's economy as 55,443 jobs were lost when about 4,610 companies closed down in the period of 2011-2014. The shrinking industrial base, growing informal sector, and great reliance on primary production sectors of agriculture and mining are pointers to Zimbabwe's economy not being sound. The 2012 population census showed that, of the 5,120,540 economically active persons in the country, as many as 566,787 (11.3%) were unemployed, most likely due to the rapid rate of de-industrialization in the country.

At the end of 2014, the country had an estimated external debt of US$8.4 billion, with loan arrears to major creditors (the World Bank (WB); African Development Bank (AfDB); European Investment Bank (EIB); and the International Monetary Fund (IMF)), amounting to US$941,86 million. Due to these arrears, the lending programs of the WB and AfDB to Zimbabwe are

inactive. However, the AfDB has continued to engage Zimbabwe 'through policy dialogue, technical assistance and capacity building, knowledge and advisory services through the Fragile States Facility'. In an effort to redress the situation, Zimbabwe has been working closely with the AfDB, IMF and the WB to regularize its debt arrears and re-engage with the international community by adopting a debt resolution strategy.

Zimbabwe's external trade flow between 2009 and 2013 is summarised in the table below.

Table 2-15: Zimbabwe's External Trade Flow from 2009 to 2013 (inclusive)

Years	Total Exports (In USD)	Total Imports (In USD)	Trade Balance (In USD)
2009	2,249,744,640	6,207,349,167	-3,957,604,528
2010	3,245,441,506	5,864,646,634	-2,619,205,129
2011	3,557,374,988	8,596,194,755	-5,038,819,766
2012	3,882,290,718	7,462,985,008	-3,580,694,290
2013	3,507,296,016	7,704,185,950	-4,196,889,934

Source: World Bank, 2014

2.3.2.2 Diversification Programs

The Zimbabwe government has adopted ZIMASSET, a five-year socio-economic blueprint with four principal clusters of: 1) nutrition and food security; 2) social services and poverty eradication; 3) infrastructure and utilities; and 4) value addition and beneficiation. This blueprint is underpinned by fiscal reform and coordination of foreign resources.

Government is set to adopt the Sustainable Development Goals (SDGs), a successor to the just ended Millennium Development Goals (MDGs), to encourage diversification as a way of reviving the ailing industrial sector.

While its direct contribution to the GDP might not be significant, transportation is one of the critical enablers of economic activities, development, and diversification. For the long-term sustainable growth with more diversified economic activities, provision of an efficient transport system will play a critical role. Further, better integration of the transport network with those of neighbouring countries, together with reduction/removal of non-tariff barriers (such as improvement of border-crossing procedures) would help the country benefit more from trade itself, as well as from being a transit country for its neighbouring countries.

However, the country's poor credit rating negatively affects the country's ability to obtain financing, which impacts the country's ability to finance transport infrastructure.

2.3.2.3 Agriculture

Agriculture is the backbone of the Zimbabwean economy. It provides livelihoods to 80% of the population and accounts for 23% of formal employment. The sector contributes 14-18.5% to the country's GDP. Zimbabwe's agricultural sector has long been key to its economic stability and growth. The growth and development of agriculture are expected to support the improvement and growth of the other sectors of the economy, namely industry and services.

Some challenges exist in the agriculture sector. Productivity is low, as a result of a low level of capital investment. The rural market economy collapsed because of the economic crisis. Moreover, about 80% of the rural population live in Natural Regions III, IV and V, where rainfall is erratic and unreliable, making dryland cultivation a risky venture.

At Independence, Zimbabwe had about 150,000 hectares under 'formal' irrigation schemes, which is about 3% of the country's arable area. Of the areas under irrigation schemes, 68% was in the large-scale commercial farming areas, 20% linked to commercial estates, 7% part of the Agricultural and Rural Development Authority (ARDA) estates and outgrower schemes, and only 3.4% smallholder irrigation schemes.

The main individual irrigation schemes are presented in Table 2-16 below.

Table 2-16: Individual Irrigation Schemes

Irrigation Scheme	Classification, District and Province	NR	Crops	Connectivity to main centres
Triangle	Commercial, Chiredzi, Masvingo	1V	sugar	all-weather roads
Banket Mutorashanga	Commercial, Lomagundi, Mashonaland West	II	maize	all-weather roads
Chisumbanje	Communal, Chipinge, Manicaland	II	Sugar, ethanol petrol plant	all-weather roads
Jerera	Communal, Zaka, Masvingo	II	maize	all-weather roads
Jotsholo	Communal, Lupane, Matabeleland North	IV	Maize and rice	all-weather roads
Chilongo	Communal, Chiredzi, Masvingo	V	Sugar and maize	a poorly maintained gravel road
Fair acre Estate	Communal, Kwekwe, Midlands	IV	maize	a poorly maintained gravel road
Nandi Estate	Communal, Chiredzi, Masvingo	V	maize	all-weather roads
Ingwizi	Communal, Mangwe, Matabeleland South	V	Beans and wheat	a poorly maintained gravel road
Antelope	Communal, Matobo, Matabeleland South	IV	maize	a poorly maintained gravel road
Sedgwick	Communal, Tsholotsho, Matabeleland North	IV	maize	a poorly maintained gravel road
Chitora	Resettlement, Mutoko, Mashonaland East	III	maize	a poorly maintained gravel road
Longdale	Resettlement, Masvingo, Masvingo	III	maize	all-weather roads
Mambanjeni	Communal, Gweru, Midlands	IV	maize	a poorly maintained gravel road
Murara	Communal, Mutoko, Mashonaland East	IV	maize	a poorly maintained gravel road
Mzinyathini	Communal, Umzingwane, Matabeleland South	IV	maize	a poorly maintained gravel road
Ngezi Mamina	Communal, Kadoma, Mashonaland West	III	maize	all-weather roads
Oatlands	Resettlement, Masvingo, Masvingo	III	maize	all-weather roads
Principe	Resettlement, Shamva, Mashonaland Central	II	maize	all-weather roads
Rozva	Communal, Bikita, Masvingo	III	maize	all-weather roads
Wenimbi	Resettlement, Marondera, Mashonaland East	III	maize	a poorly maintained gravel road

Table 2-17 below shows production patterns in the natural regional, and Table 2-18 presents categories of irrigation schemes.

Table 2-17: Production Patterns in Natural Regions

Natural Region	Area Sq. Km	% Total	Description	Production	Connectivity
I	7 000	2	More than 1 050 mm rainfall per year with some rain in all months.	This is a specialized and diversified farming region, suitable for forestry, fruit and intensive livestock production. Smallholders occupy less than 20% of the area of this region.	Generally roads in Region 1 are well developed. These roads link the productive tea and coffee estates in the Eastern Highlands
II	58 600	15	700 - 1 050 mm rainfall per year confined to summer.	The region is best suited for flue-cured tobacco, maize, cotton, sugar beans and coffee. Sorghum, groundnuts, seed maize, barley and various horticultural crops are also grown. Supplementary irrigation is done for winter wheat. Animal husbandry is also practiced in. Smallholder farmers occupy only 21% of this productive region.	Generally roads in this region are well developed. This is the main maize belt with a number of grain depots located at strategic points.
III	72 900	18	500 - 700 mm rainfall per year. Infrequent heavy rainfall. Subject to seasonal droughts.	A semi-intensive farming region. Smallholders occupy 39% of this region. Large-scale crop production covers only 15% of the arable land; mostly for extensive beef ranching. Maize dominates commercial production. Region subject to periodic droughts, prolonged mid-season dry spells. Irrigation plays an important role.	Market towns (small towns and growth points) in this region are well connected by all-weather roads. Mixed farming is practiced in this region
IV	147 800	38	450 - 600 mm rainfall per year. Subject to frequent seasonal droughts.	Too dry for successful crop production without irrigation. Communal farmers have no other choice but to grow crops even without access to irrigation. Millet and sorghum are the common crops but maize is also grown. Communal farmers occupy 50% of the area.	Population density in this region is low and as a result there is low traffic. The region tends to be served by poorly maintained gravel roads.
V	104 400	27	Normally less than 500 mm rainfall per year, very erratic and unreliable.	Too dry for successful crop production without irrigation. Communal farmers grow crops even without irrigation. Millet and sorghum are the common crops but maize is also grown. Communal farmers occupy 46% of the area.	Low population density and low traffic volumes. The region tends to be served by poorly maintained gravel roads.

Table 2-18: Categories of Irrigation Schemes

Category	Total area under irrigation (ha)	% of total area under irrigation	Characteristic	Connectivity
Large-scale	98 400	82	Large-scale irrigation schemes are associated with large towns e.g. Chiredzi, Triangle, Banket, etc.	Connectivity is very good as these towns are linked to the main road network by wide tarred roads. The quality of roads requires attention but this applies to all sectors.
State Farms	8 400	7	State Farms irrigation has focused on schemes linked to a growth point development strategy led by ARDA e.g. Chisumbanje, Sanyati, Jotsholo, Jerera, Ingwizi, etc.	Connectivity has been average to good. At least 50% of the growth points are connected to the main road network by tarred roads. The other 50% are connected by all-weather roads that need improvement.
Out-grower Schemes	2 200	2	Out-grower Schemes have been associated with both large and state farm irrigation.	The level of connectivity follows the connectivity available for the principal irrigation scheme. Most of them are very accessible.
Smallholder	11 000	9	Smallholder irrigation schemes tend to be isolated following no specific pattern. They are associated with medium sized and small dams.	Connectivity like all connections to the communal lands are poor. Most of the road network is fishborned providing very poor inter- and intra- connectivity.
Total	**120 000**	**100**	-	-

2.3.2.4 Wildlife and Tourism

Zimbabwe has a great diversity of wildlife that includes 250 mammalian species, 122 species of fish, 153 species of reptiles, 640 bird species and an enormous number of insect species. The country has the greatest concentrations of eagles than anywhere else in the world, and a wide variety of carnivores found in the wild including lions, leopards, cheetahs, caracals, servals and wild cats. Mammals commonly seen outside the national parks are zebra, chacma baboons, and other primates, two species of monkeys and the pangolin. Numbers of black rhinoceros have diminished due to poaching. There are limited numbers of white rhinoceros.

Zimbabwe has extensive national parks along the Zambezi, along its western border with Botswana, and the trans-frontier park with South Africa and Mozambique where much of the wildlife is found. Wildlife (fauna), together with flora is the backbone of the tourist industry. The tourists come from as far afield as the USA, Europe and the Far East to view game or for hunting purposes. Table 2-19 shows tourist arrivals by national park in 2014.

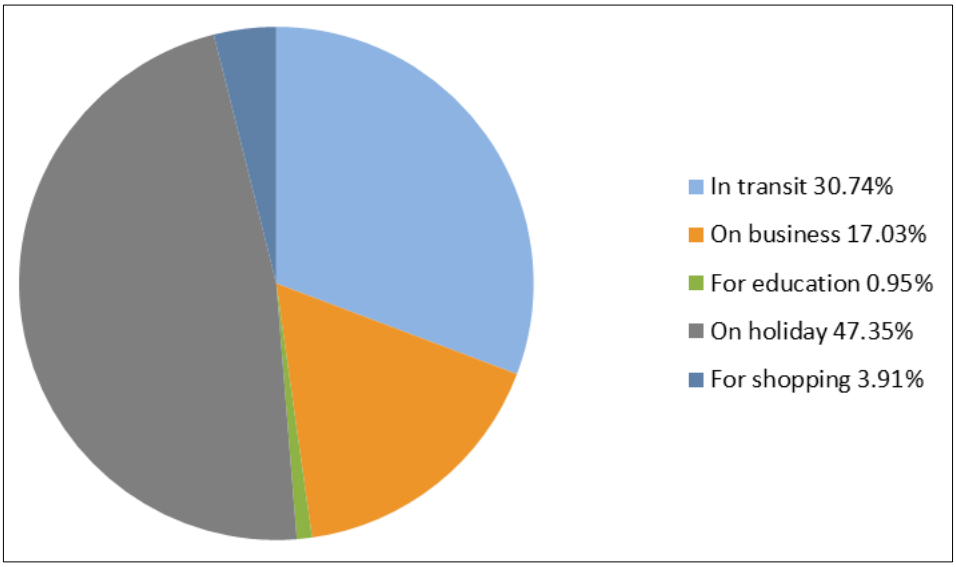
Table 2-19: Tourist Arrivals by National Park, 2014

Station	Locals	Foreigners	Total
Chimanimani	3383	666	**4,049**
Chinhoyi	49,524	1,340	**50,864**
Chipinda Pools	4,391	1,492	**5,883**
Chivero (S/B)	18,424	387	**18,811**
Chizarira	140	312	**452**
Darwendale	4,267	30	**4,297**
Ewanrigg	3,675	28	**3,703**
Kyle	12,269	467	**12,736**
Mabalauta	898	418	**1,316**
Maincamp	21,673	21,586	**43,259**
Mana Pools	4,757	3,996	**8,753**
Marongora	4,157	596	**4,753**
Matobo	53,844	13,507	**67,351**
Matusadonha	3,006	1,655	**4,661**
Ngezi	1,271	16	**1,287**
Nyanga	23,882	598	**24,480**
Nyanyana	2,906	143	**3,049**
Osborne	2,796	161	**2,957**
Rainforest	67,510	173,841	**241,351**
Robins	367	2,070	**2,437**
Sebakwe	4,108	15	**4,123**
Sinamatella	2,543	5,505	**8,048**
Vumba	3,074	399	**3,473**
Zambezi	35,670	88,819	**124,489**
Total	**328,535**	**318,047**	**646,582**

Source: Tourism Trends & Statistics Report 2014, Zimbabwe Tourism Authority

The majority of visitors (47%) to the country come on holiday, as shown in Figure 2-31 below.

Figure 2-31: Zimbabwe's Visitors from Abroad in 2009 to 2012



Source: Zimstat 2014

With the exception of Victoria Falls (which had foreign clientele of 73%, and 23% domestic), the domestic clientele drove the accommodation sector in all other regions, culminating in a national average of 78% local and 22% foreign.

Road transport remained the most popular mode of transport by tourists, with a market share of 89% in 2014. Air transport on the other hand fell by one percentage point from 12% in 2013 to 11% in 2014, due mainly to a decline in arrivals from the long-haul market of Asia. The discontinuation of direct flights to Harare by the Royal Dutch Airlines (KLM) in October 2014 and Egypt Air in September 2014 also contributed to the decline in air travel into Zimbabwe. Table 2-20 below shows numbers of visitors by mode of transport.

Table 2-20: Visitors by Mode of Transport

Mode of Transport	2014	2013
Air	197,963	222,518
Road	1,682,065	1,610,052
Total	**1,880,028**	**1,832,570**

Source: Tourism Trends & Statistics Report 2014, Zimbabwe Tourism Authority

2.3.2.5 Mining

A wide variety of metal and non-metal minerals are mined throughout Zimbabwe. Major mineral deposits are found along the Great Dyke. The geographical distribution of mines is shown in the table below.

Table 2-21: Minerals and Location of Mines

Mineral	Location of Mine
Cement deposits	Matabeleland South and Harare
Nickel	Bindura
Lithium	Gutu
Copper	Mashonaland West and Midlands
Coal	21 known deposits in Zimbabwe (Wikipedia, 2016), major deposits being found in Hwange, Gokwe and Mwenezi
Chrome	along the Great Dyke (stretching from Zvishavane to Snake Head), and also at Mtorashanga, Banket, Mvuma and Shurugwi
Diamond	Beitbridge (River Ranch Farm), Murowa Mazvihwa (Zvishavane), Chiyadzwa (Marange) and Chimanimani
Granite	Mt Darwin, Mutoko, Murewa, and around Mutawatawa (in Uzumba Maramba Pfungwe)
Graphite	Karoi
Petalite and pollucite	Bikita, Kamativi and Mberengwa
Iron ore	Buchwa, Redcliff and Manhize near Chivhu
Platinum	Mhondoro Ngezi, Unki and Mimosa (Midlands)
Gold	Arcturus near Harare, Mazowe, Mutare, as well as alluvial gold along many rivers such as Mazowe and Runde

2.3.2.6 Industry and Commerce

Capacity utilisation of the manufacturing sector was over 80% from 1980 to around 1990, and this performance drastically dropped to about 70% in 1991 due to the Economic Structural Adjustment Programme (ESAP). In mid-1990s, the performance of the sector started improving again. However, from 2000 to 2008, the performance of the manufacturing sector dropped to about 10% due to the economic downturn. In 2010, the sector capacity utilisation rebounded to 43.7%, but the promising result did not last long, and the sector capacity utilisation went down to 36.6% in 2012. Since then, the sector has been improving at a much slower rate.

Most industries used to rely on National Railways of Zimbabwe (NRZ) for the movement of bulk goods up until early 2000, whilst road transport also served for the transportation of light goods. As from mid-2000, road transport became more prominent for transportation of both bulk and light goods as the NRZ was experiencing operational challenges.

2.3.3 Land Use

2.3.3.1 Settlement Patterns and Transport Routes

The present rail and road networks were shaped by considerations of settler needs from the colonial era. There have been no significant changes in the road and rail network patterns observed after independence in 1980. There were attempts to strengthen links with Mozambique through the Beira Corridor and the road to Maputo but these efforts ended up being secondary to strengthening linkages with South Africa, the main trading partner. The South African port of Durban has also remained more efficient in relation to Beira and Maputo. Richards Bay, with its deeper berthing capability, is the harbour currently used more frequently for heavy and bulky cargo destined for the Copperbelt of Zambia and the DRC,

making Durban less important as a port for the region. Similarly, goods to and from Zimbabwe prefer to use Maputo and Beira ports.

There have however been isolated projects to improve accessibility to the region and communal areas. The Beitbridge and West Nicholson rail link was built to improve movement of goods between Zimbabwe and South Africa. The roads to Gutu, Zaka, Buhera, Muromebdzi, UMP, Gokwe and Tsholotsho improved access to the communal lands. The roads were built on the then existing alignments and thus did not bring any revolutionary changes to the network.

2.3.3.2 Hierarchy of Settlements and Urbanity

In 1980 Zimbabwe developed a comprehensive national physical and regional development strategy to guide the distribution of population and location of industry and commerce. This ranged from nascent settlements in the hitherto neglected communal lands through well-defined regional growth centres based on raw material availability and accessibility of those areas e.g. Gokwe, Chisumbanje and Sanyati to well-established agricultural, mining and industrial belts and nodes served by strategic routes of rail and road. The provision of infrastructure (e.g. roads) and social services (e.g. health facilities) to support investment followed a certain logic and process provided by the hierarchy of settlements. The strategy introduced a seven tier settlement hierarchy as follows:

- → Villages – basic nodes for human settlement;
- → Business centres – the lowest level in the hierarchy of organised/planned settlements comprising basically of some very few shops, five on average;
- → Rural Service Centres (RSC) – designed to integrate the functions of the lower order settlements (villages and business centres), thrives on support of 10 000 people;
- → District Service Centres (DSC) – offering similar but higher level services compared to those provided for by RSC, they function as district administrative capitals;
- → Growth points – specially identified locations for attracting and steering both public and private sector investment and facilitating the provision of basic and higher order services to rural communities;
- → Towns – small urban centres developed during colonial era, mostly centred around mines e.g. Mvuma, Bindura, Shurugwi, Shamva, Kamativi, Mhangura and Kwekwe;
- → Cities – evolved from the early precolonial and colonial settlements.

2.3.3.3 Urban Growth and Distribution

In Zimbabwe, urban areas have over time developed along the line of rail for marketing, industrial, administrative, communication and security purposes, e.g. Harare, Bulawayo, Gweru, Kwekwe, Kadoma, Chinhoyi, Marondera, Mutare, Masvingo, and at mining extraction points at the head of the railways, e.g. Hwange, Bindura and Zvishavane. The two main axes of urban development were thus established between Harare and Bulawayo, and between Harare and Mutare.

There have also been changes in rural areas. On the eve of independence Zimbabwe had a racially skewed agricultural land ownership pattern where white large-scale commercial farmers, consisting of less than 1% of the population occupied 45% of agricultural land. Seventy-five (75) percent of this was in the high rainfall areas, where the potential for agricultural production is high. Equally significant, 60% of this large-scale commercial land was wholly unutilised. The white large-scale commercial farms were also well serviced in terms of all-weather roads, with the standard of roads improving during the war (Munzwa and Wellington 2012).

The Land Reform Programme thus started in 1980 with the objective of addressing the imbalances in land access, ownership and use. Between 1980 and 1990, the government acquired 40 percent of the targeted 8 million hectares (19.77 million acres) of land, and 71,000 families out of a target of 162,000 were resettled. By 1999, eleven million hectares of the richest land were still in the hands of about 4,500 mostly white commercial farmers.

In 2000, the predominantly white farm owners were forced off their lands along with their workers through the 'Fast Track Land Reform' programme. Several thousand farm workers were excluded from the land redistribution, leaving them without employment and these farm workers moved to the periphery of the urban areas and created the first significant informal urban settlements. The Fast Track Land Reform represents the most dramatic reorganisation of the farming sector since the 1950s. A tri-modal farm structure has emerged consisting of some large scale commercial farms, 22,072 small to medium scale commercial farms and 1,313,656 smallholder sector farms (Vudzijena V and Mhishi L - 2014).

2.3.3.4 The Spatial Form and Structure of Cities and Towns

Zimbabwean towns and cities are characterised by urban sprawl. Because of the very generous plot sizes, particularly in low and medium density areas and the high levels of urbanization in the country, towns and cities are generally 'bursting at the seams'. For example, Harare is developing towards and is now merging with Ruwa in the east, Epworth in the south-east, Chitungwiza in the south and Norton in the west. In consequence the city boundaries are being adjusted all the time. However as a result of the dwindling resource base to service the ever expanding spatial area, the major urban centres have been forced to rethink these densities, to adopt a policy of densification.

Some former commercial agricultural land adjacent to cities, especially Harare, has been converted by subdivision into urban settlements outside the provisions and requirements of the law. These developments impose serious challenges in terms of the provision of transportation facilities, i.e. roads.

Low densities and urban sprawl have also had another challenge. It has not been viable to provide mass transportation systems in the towns and cities. Demand for travel is only at peak periods and in one direction, towards the city centre and industrial areas and vice versa. Off peak demand on most transport corridors falls to less than 20% of that at peak periods. The numbers of commuters seeking to use public transport is also small given the low densities. Attempts to introduce a rail project in Chitungwiza have failed to materialise over the years because the resultant train fares required to run a viable train service would be too high for the level of incomes of commuters.

Finally, related to city structure has been an outcry from many practitioners, especially transport planners, demanding the creation of unitary cities. The concept of a 'unitary town or city' where residential areas are not segregated are likely to remain a pipe dream. City integration is a challenge that is deeper than what physical planning can provide

2.4 Future National Outlook and Implications for Transport

2.4.1 Population Projections

Population projections have been presented for three scenarios: high, medium and low with national population estimates for 2032 as 19,851,051; 19,284,605; and 18,855,181 respectively. For purposes of this report, the medium scenario has been assumed. Under this scenario, national and urban population is expected to grow at an average annual rate of 2.0%, whilst rural population is expected to grow at a rate of 2.2%. National population projections in the short, medium and long term are presented in Table 2-22 below, and provincial population projections are presented in Table 2-23 below.

Table 2-22: Population Projections: *Medium Scenario*

Year	National	Urban	Rural
2012 (Base Year}	13,061,239	4,284,145	8,777,095
2017 (Short Term)	14,542,235	4,878,395	9,748,347
2022 (Medium Term)	16,109,591	5,444,513	10,901,451
2027 (Long Term)	17,715,013	5,972,930	12,229,268
2032 (Long Term)	19,284,605	6,474,094	13,656,527

Source: Zimbabwe Population Projections Thematic Report, August 2015

Table 2-23: Provincial Population Projections: *Medium Scenario*

Year / Province	2012 (base year)	2017 (Short Term)	2022 (Medium Term)	2027 (Long Term)	2032 Long Term)
Bulawayo	653,339	740,083	801,308	868,106	919,874
Harare	2,123,130	2,424,419	2,691,650	2,941,863	3,173,129
Manicaland	1,752,698	1,987,990	2,231,095	2,511,444	2,808,440
Mashonaland Central	1,163,638	1,316,893	1,463,650	1,635,203	1,810,841
Mashonaland East	1,344,955	1,517,611	1,685,237	1,879,489	2,080,432
Mashonaland West	1,501,655	1,708,684	1,907,902	2,129,149	2,356,879
Matabeleland North	749,017	843,823	926,798	1,031,537	1,130,724
Matabeleland South	683,892	759,665	823,896	908,515	985,692
Midlands	1,614,941	1,820,619	2,022,149	2,245,696	2,467,895
Masvingo	1,485,092	1,660,352	1,834,790	2,037,947	2,241,615

The population projections presented in the above tables show that population would increase about one and half times over the next 20 years from 2012. The implication of this is that where transport pressures are being experienced e.g. in the large cities, the situation will get worse, unless necessary interventions are put in place.

2.4.2 National Development Plans/Objectives

Development in Zimbabwe over the last decade has been guided by several frameworks and development plans, including:

- → the United Nations Millennium Development Goals (MDGs), which have been replaced by the Sustainable Development Goals (SDGs), see sub-section 2.5.2;
- → the Zimbabwe Medium Term Plan (MTP) (2010-2015) and most recently;
- → Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET).

During the period 2000 to 2009, development plans focused on addressing a declining economy, through several short, medium, and long term policies and programmes. After macro stability was achieved through the Short Term Emergency Recovery Programme (STERP) in 2009, the country adopted the five-year (2010 -2015) Medium Term Plan (MTP) aimed at maintaining macroeconomic stability and restoring the economy's capacity to produce goods and services competitively. After the July 2013 harmonised elections, the government adopted ZIMASSET to guide national development up to 2018.

The 2017 National Budget policy measures and interventions seek to ensure realisation of the overall objectives of the ZIMASSET 2013-2018. The formulation of this Budget benefitted from the Interim Poverty Reduction Strategy Paper (IPRSP) 2016-2018 consultations, held country-wide at Provincial and District levels earlier in the year. The Budget seeks to strengthen social safety nets in support of vulnerable groups, in line with the objectives of the IPRSP which was developed with support from development partners, including the World Bank and the European Union.

The 2017 National Budget Statement constitutes the fourth Budget for implementing ZIMASSET. The fundamental challenge remains that of under-production, across all sectors of the economy, notwithstanding vast strengths and opportunities in agriculture, manufacturing, mining and tourism, arising out of the country's diverse natural resource endowment, conducive climatic conditions, and trained human resources. The 2017 Budget, therefore, proposes interventions targeted at increasing domestic production.

During 2016, the economy displayed resilience under a difficult economic environment, characterised by severe drought and liquidity challenges, among others. Hence, economic growth for 2016 was projected at 1.2%, down from the original projection of 2.7%. Preliminary growth projections for 2017 are at 4.8%. Table 2-24 below presents real GDP for five years to 2017.

Table 2-24: Real GDP Growth (%) 2013-2017

	2013	2014	2015	2016	2017
Real GDP Growth (%)	4.5	3.8	1.1	1.2	4.8

Slower growth, on the background of liquidity and investment constraints, continues to undermine public finances, with revenues performing well below targets. This has meant shelving and postponing implementation of a number of projects and programmes. As such, Government remains ready to consider funding for programmes with high impact, especially those projects requiring relatively little resources.

Government remains ready to consider funding for programmes with high impact, especially those projects requiring relatively little resources.

2.4.2.1 Spatial Development

The quest for structural transformation in Zimbabwe, requires raising the country's productive capacity. This is to be achieved by increasing investment in infrastructure, promoting technology transfer and innovation for value addition, and boosting agricultural productivity, among others. However, achieving this developmental state in Zimbabwe has, among others, been significantly constrained by poor industrial growth, suboptimal corridor development as well as inefficient border procedures. Furthermore, with economic decline and increased unemployment being some of the most critical challenges facing the Zimbabwean economy for more than a decade and a half, the development of lasting and profitable relationships between the public and private sectors are essential. Such mutual partnerships would ensure that employment is stimulated through increased endogenous investment in a number of places within Zimbabwe.

The GoZ (in various recent documents and/or policies) has identified that in order for this investment to occur, the inefficiencies and constraints hampering this investment must be removed through the development of a Spatial Development Initiatives (SDIs) approach, to enable Local Authorities to achieve Local Economic Development (LED) objectives, thereby contributing to the improved growth of the country as a whole[8].

SDI programmes have the potential to act as catalysts for achieving higher economic growth rates and for facilitating new investment and job creation in a localized area or region. In this respect, bottlenecks to investment such as inadequate infrastructure can be removed and strategic opportunities for private sector investment identified.

The main aim of SDIs is to focus policy attention in certain areas or regions of the country with potential for economic growth, to concentrate investment in those areas and then to re-focus efforts later on the more marginal and problematic areas. The primary objectives of the SDI programmes in Zimbabwe are to:

1. achieve sustainable job creation for local inhabitants of the SDI areas and for the country as a whole;
2. promote sustainable and internationally competitive economic growth and development ;
3. maximize the extent to which private sector investment and lending can be mobilized into the SDI area;
4. broaden the ownership base of the economy and maximize the impact of new investments;

[8] Spatial Development Initiatives (SDIs) Paper on Zimbabwe, Draft Report Submitted to Ministry of Industry and Commerce by Dr Albert Makochekanwa, 30th June 2016

5. exploit the under-utilized local resources in SDI areas as a basis for modern industries and for export-oriented growth; and
6. promote development of regional co-operation and economic integration.

The SDIs approach will optimally combine public and private finance to leverage capital improvements to transport infrastructure projects (road, rail, port and border post infrastructure). This would create an integrated transport network allowing for competitive transportation (in terms of cost, time and security) of imports and exports to domestic and international markets.

The SDI approach promotes the development of transportation corridors as a means of exploiting any development opportunities along transportation routes, linking resource rich areas with gateways or ports to export markets. The development of transport corridors will also answer some of the infrastructure challenges which face most parts of the country. This will include upgrading or building of new infrastructure at busy borders (such as Beitbridge and Chirundu) to minimize the time taken by both outbound and inbound merchandise trade movements.

Typically, the underlying infrastructure for any trade route is a **transport corridor** (most commonly railway and/or road). Various transport corridor support initiatives have been implemented within SADC, focused on improving infrastructure and efficiency or eliminating non-tariff barriers. **Development corridors** utilise the improved infrastructure and logistics of the transport corridors to pursue economic development along the corridor routes, and they provide a mechanism for investment, job creation, increased economic activity, and regional collaboration and integration. SDI interventions are focused on the promotion of development corridors.

2.4.2.2 Tourism Development

Transport infrastructure plays an important role in the development of tourism in Zimbabwe. The National Tourism Master Plan of Zimbabwe (NTMPZ) is promoting a spatial concept which includes three categories of elements, namely:

- **Gateways** – which are essential points of access to the country, forming part of major transport networks, and their creation and operation requires major investment.
- **Tourism corridors** – which are portions of the national transport system strategically earmarked for in-country circulation of tourists. They are part of existing networks and their primary purpose is to ensure effective circulation of people and goods across the country.
- **Tourism development zones** (TDZ) - which are focal areas for concentration of tourism activities and investment.

The NTMPZ has identified twelve Tourism Development Zones around:

- Beitbridge/Shashe/Limpopo and surroundings;
- Kariba – Zambezi Valley;

- Mavhuradonha;
- Victoria Falls;
- Midlands;
- Harare (Lake Chivero and Surroundings);
- Eastern Highlands;
- Bulawayo (Matopo area and Surroundings);,
- Great Zimbabwe National Monument/Lake Mtirikwi and surroundings;
- Chimanimani;
- Gonarezhou/Chiredzi and surroundings;
- Mutoko/Mudzi and surroundings.

Three of these development zones (i.e. Harare, Bulawayo and Victoria Falls) include an airport with a capacity of more than 1 million passengers per year. The current cumulative capacity of passenger terminals is 5.4 million passengers per year, while the volume in 2015 was only 1.4 million, only approximately 25% of the maximum capacity. The current capacity is deemed sufficient to support the planned tourism development. These three zones have also been identified by Government as Special Economic Zones.

The NTMPZ has noted that **Harare passenger terminal is tired** and would benefit from improvements to make the experience of international visitors and tourists more pleasant. It recommends that tourism be developed along corridors, that is, priority routes for in-country tourism circulation based on transport infrastructure (mainly road), connecting TDZs.

Airports have the potential to support short-haul domestic or charter flights and to support the quick transfers within the country. The NTMPZ recommends the improvement and operationalization of **secondary airports for short-haul, low volume movements**, including:

- Thornhill Airport in Gweru (Midlands TDZ);
- Masvingo Airport (Great Zimbabwe TDZ);
- Buffalo Range Airport (Gonarezhou TDZ); and
- Grand Reef (Eastern Highlands TDZ).

The NTMPZ also recommends improvement to land border posts and certain roads in order to promote tourism. There are eight main land access gateways to Zimbabwe, the busiest one being Beitbridge with a throughput of close to 1 million persons per year. However, Beitbridge is infamous for the long time it takes to cross. Thus the current situation at the Beitbridge border post is negatively affecting tourism. A proposal has been made to establish a new "**Limpopo access facility**"' (a new bridge on the Limpopo River, between Beitbridge and Gonarezhou National Park) planned to ease the current overload of traffic at the Beitbridge access point. However, this proposal has reportedly been set aside because South Africa is not favourable to this new border crossing. If the proposal were to be pursued, it would improve access to Limpopo TDZ, Gonarezhou TDZ and, would open up the whole of the eastern side of the country to the South African market.

Pandamatenga, a small border post between Botswana and Zimbabwe, south of Victoria Falls, is connected to the main Victoria Falls – Bulawayo road by a 40 km long track, accessible only by 4x4 vehicles. According to the industry, there would be scope for improving the access road and making it accessible to standard vehicles to improve access from Botswana to Victoria Falls.

The NTMPZ wants to maximise the use of regional trunk roads as tourism corridors to ensure the best level of service. The following tourism corridors have been recommended:

- the **Chiredzi-Mutare corridor** sections of which do not allow speeds above 40 km/h. This route is the backbone of an experiential corridor connecting a whole system of three key TDZs (Gonarezhou, Chimanimani and Eastern Highlands);
- **linkages from Kwekwe to Karoi and Binga** (a total of 761 km) play a role in connecting Midlands, Victoria Falls and Kariba TDZ;
- linkages from **Centenary to Makuti** need to be further investigated; to open up the Mavhuradonha area; however it does not require a regional highway.

Figure 2-32 shows the location of the TDZs.

According to the United Nations Tourism Organization (UNWTO), Africa is expected to grow at an average rate of 5.5% per annum for the next decade in tourist arrivals. Zimbabwe is expected to ride on this positive trend. The performance of the tourism industry in Zimbabwe is expected to hinge on the factors below, among others:

→ improved destination image – after more than a decade of negative publicity, Zimbabwe is slowly recovering from the negative image;

→ continued marketing efforts and destination awareness;

→ improvement in service delivery;

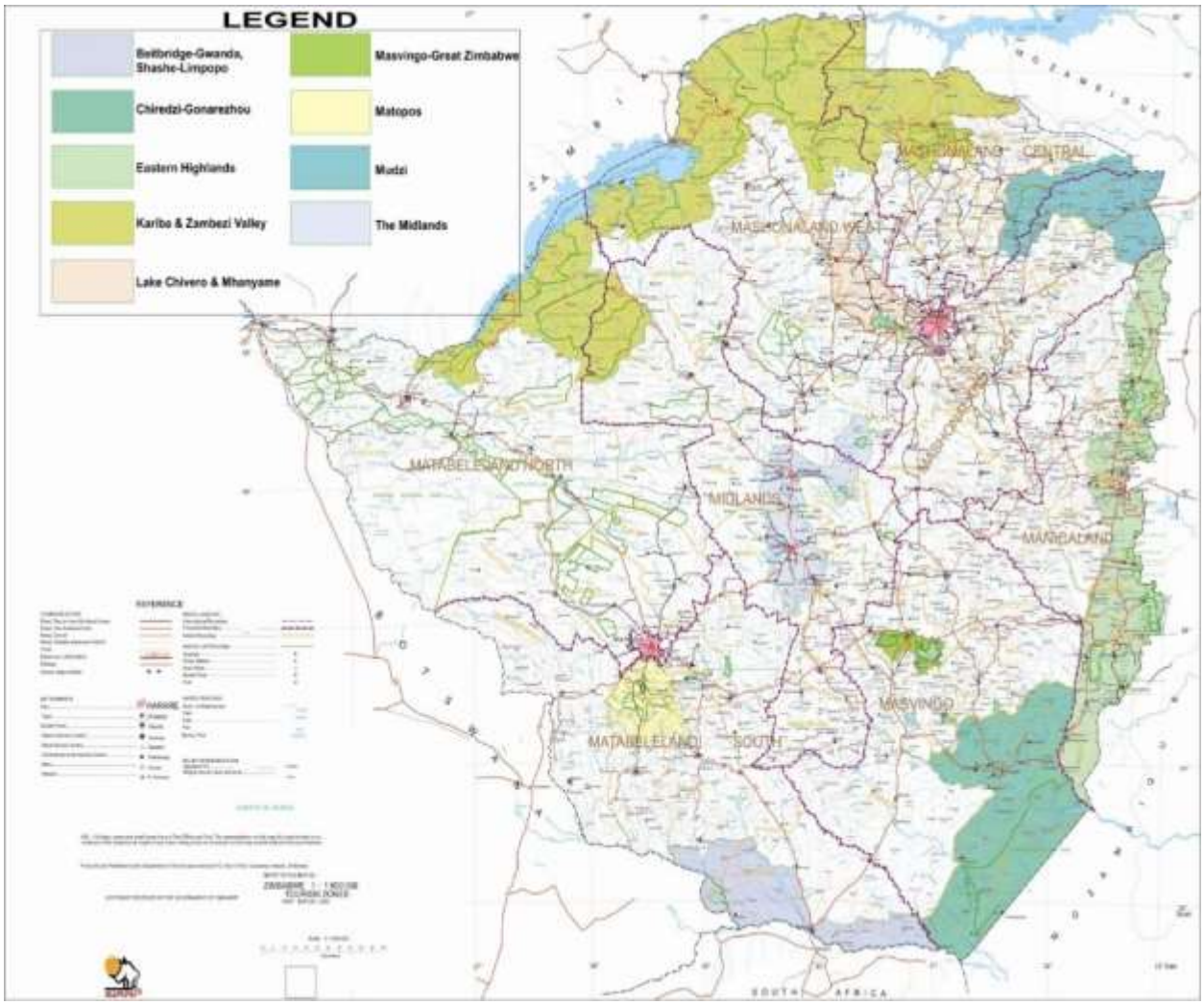
→ completion of the Victoria Falls Airport (completed end of 2016);

→ Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA) - shared by five countries namely, Zimbabwe, Zambia, Botswana, Namibia and Angola.

The transportation sector is expected to provide appropriate efficient networks and infrastructure in support of the sector in order to contribute to the creation of a pleasant memorable experience of the traveller.

The transportation system has to ensure that national parks and other areas endowed with wildlife, (the major tourist attraction of Zimbabwe), are well serviced with all-weather roads and are accessible all year round. Also, well-functioning and reliable air connections, both domestic and international, would be important to serve foreign tourists. The Pre-Budget Strategy Paper of 2017 stipulated that priority is on rehabilitating tourism infrastructure, such as small aerodromes throughout the country in order to facilitate accessibility of tourist destinations.

Figure 2-32: Tourism Development Zones



Source: ZTA

2.4.2.3 Agriculture Development

In agriculture the objective is to strengthen the sector's role in guaranteeing food security, strategic sectoral inter-linkages with other sectors of the economy, as well as sustaining the livelihoods of the majority of our rural communities. In this regard, the 2017 Budget prioritises improving agriculture production and productivity as the backbone of the economy.

The agricultural sector is an important source of income for many and an important contributor to Zimbabwe's economy, and it is important that an efficient transport system is in place to transport agricultural produce to markets at a competitive price.

As a way of facilitating the realization of the objectives of the Zimbabwe comprehensive agricultural policy framework (2012 to 2032) and (2013 to 2018), the Zimbabwe Agricultural Investment Plan (ZAIP) (2013 to 2017) was launched as a shared national tool for coordinating

public, private and development partners' investment into the agricultural sector[9]. However, the ZAIP business model is silent on how its basic assumptions are dependent on the transport sector to move in-puts and produce to and from farms. The catalytic role of transport is down played even though the agricultural producers are spatially spread on what the Ministry calls 'regional comparative advantage' whereby livestock rearing is undertaken in Matabeleland while horticulture and timber are produced in Manicaland.

Increased agricultural production could create more strain on existing rural roads as farmers move agricultural inputs and produce to and from the farm unit. Change of land use under the Land Reform Program which has seen the subdivision of large land holdings could create demand for new road networks in areas previously reserved for other land uses. Resettled farmers need new transport arteries.

Robust agriculture needs to be supported by good access to inputs and reliable markets. Command agriculture which has been adopted by the Government for the 2016/17 agricultural season, coupled with very good rains, is likely to result in bumper harvests throughout the country. This situation will exert pressure on the country's transport networks, particularly roads. Transport networks therefore need to be improved to brace for this expected increase in agricultural outputs, both in rural and commercial farming areas.

2.4.2.4 Mining Development

Zimbabwe is endowed with a wide variety of minerals spread throughout most parts of the country (see sub-section 2.3.2.5 above). There are estimated 30 billion tonnes of coal in 21 known deposits throughout the country, including major deposits in Hwange, Gokwe and Mwenezi.

The country has development plans[10] to resuscitate some closed mines such as Kamativi, as well as to beneficiate and value add minerals before export. For instance, in light of the lifting of the ban on chrome, there would be need for weighbridges and efficient railway lines across the Great Dyke. With regard to diamonds, the Government has put in place a Statutory Instrument (SI) to channel a certain percentage of diamonds mined for local beneficiation and value addition. Another SI was enacted that allows 10% of granite production to be channelled for local cutting and polishing of the mineral into slabs. Also, plans are underway to establish a base metal refining factory in Selous.

The development of mining in Zimbabwe has however experienced a number of significant challenges which include:

- → dilapidated railway infrastructure to move minerals to regional ports;
- → shortage of wagons and locomotives to move minerals to regional ports;

[9]Zimbabwe Agricultural Investment Plan (ZAIP) 2013 – 2017: A Comprehensive Framework For The Development Of Zimbabwe's Agricultural Sector

[10] Minutes of the Meeting between MMCZ and Ministry of Transport and Infrastructure Development (MTID) held in the MMCZ Boardroom on Monday 21 September 2015 at 10:00 Hrs

- → price decrease in minerals markets;
- → lack of foreign direct investment (FDI) in the mining sector;
- → narrow roads and bridges to and from the mines;
- → decrease in production due to challenges such as limited capital, energy, lack of investment in the mining sector, lack of advanced processing equipment, high logistical costs, and poor transport infrastructure among others.

Rail transport provides a cost effective way of moving bulk coal from mining areas. However, some mining areas such as Gokwe are not served by rail, and road haulage trucks are used instead. Where existing railway lines are available, long sections need to be revamped/ rehabilitated. Granite should ideally be moved by rail from quarries in Mt Darwin and some parts of Mashonaland East Province to ports. However, currently granite is being moved by road to the Harare railway siding in transit to Beira port. There is therefore a need for the construction of a railway line from the granite quarry areas to Harare and onward to Beira port, and for the rehabilitation of the Harare to Beira railway line, and this would require a bilateral agreement between Mozambique and Zimbabwe.

Despite significant transportation challenges facing granite production, some established mining sites have access to good road and/or rail networks. These include cement deposits in Matabeleland South and Harare, nickel outside Bindura, lithium in Gutu, and copper in Mashonaland West and Midlands. Major mineral deposits are found along the Great Dyke with a North-East South West slant across the country.

2.4.2.5 Education Development

Poor road maintenance in rural areas affects the education system to varying degrees. In some rural districts, schools are far from an all-weather road networks and are either only reachable with 4-wheel drive vehicles, or are only reachable during the dry season. Improved access to education increases literacy levels, and leads to better attendance at school.

Whereas the issues in rural areas are distance to educational institutions and the seasonal nature of accessibility, in urban areas the main issue is availability of transport services as there often is competition for services between commuters and students.

2.4.2.6 Special Economic Zones

The Special Economic Zones Act No. 7/2016 Cap.14:34 was gazetted and came into force on 1st November 2016. The Act established the Zimbabwe Special Economic Zones Authority to establish special economic zones wherein export-oriented industrial activities would take place. Another important law is the Zimbabwe Investment Authority Act, which set up the Zimbabwe Investment Authority (ZIA), an investment promotion body empowered by the Act to facilitate both foreign direct investment and local investment. It was formed through the merger of the Export Processing Zones Authority and the Zimbabwe Investment Centre.

Plans have been put in place to establish five special economic zones in the country, Sunway City Integrated Industrial Park in Harare, a tourism and financial hub in Victoria Falls, an industrial hub in Bulawayo, diamond cutting and polishing in Mutare and petrochemical industries in Lupane.

The development of Sunway City, an integrated high-tech park in Harare, was anticipated to be the Government's conduit to develop more special economic zones in the country. Situated along the main Harare/Mutare highway, the park has all the critical features of a good production centre for exports to international markets and as a central distribution hub for imports and exports to regional markets.

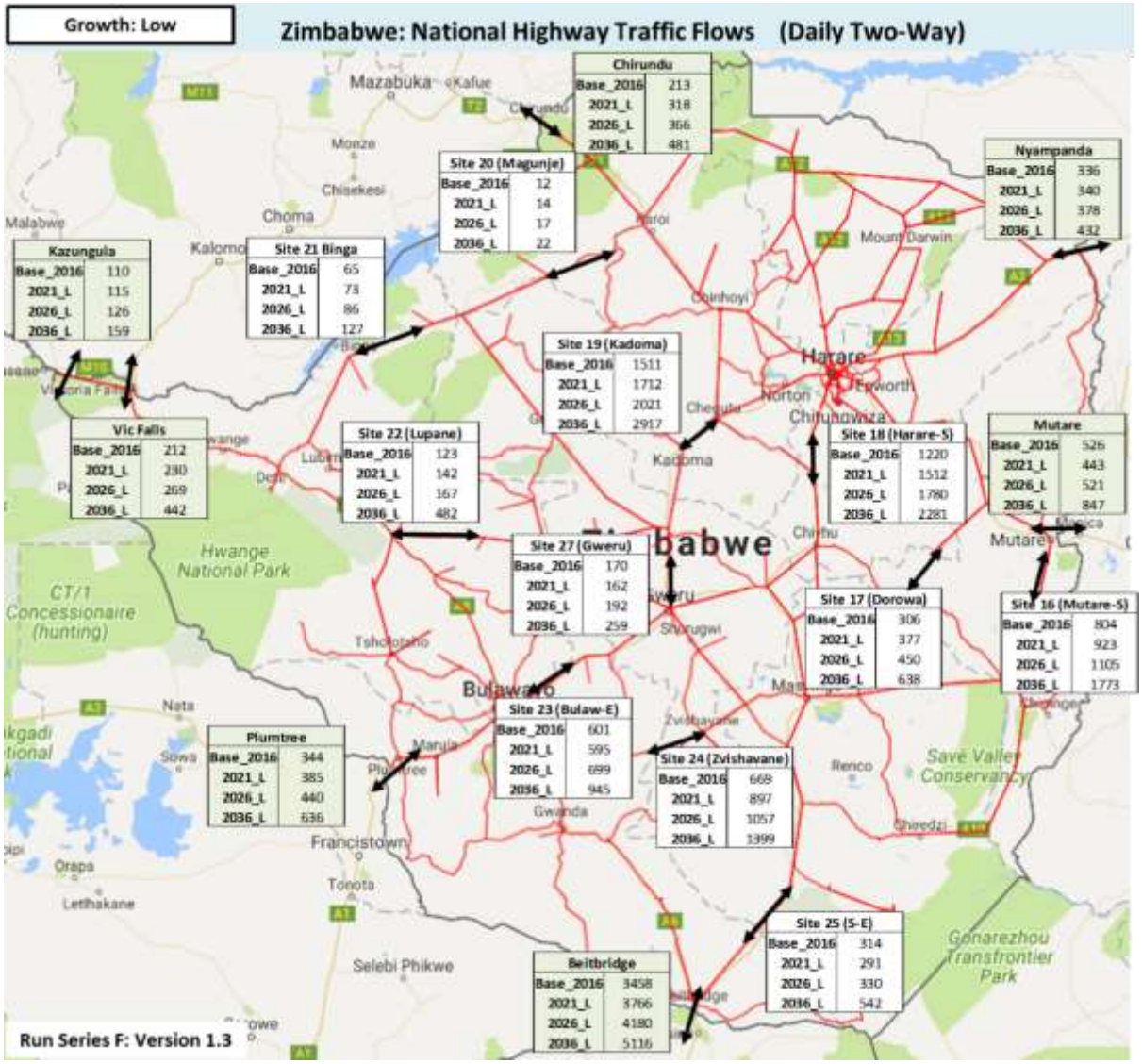
Victoria Falls has been selected as a tourism and financial hub. However, eventually the whole swathe of land from Hwange to Victoria Falls will be declared an SEZ. The SEZ earmarked for Bulawayo involves the resuscitation of the whole of the industry and to acquire new technology. The three SEZs – Harare, Victoria Falls and Bulawayo – are currently being pushed forward for development. These will be followed by the diamond cutting and polishing SEZ in Mutare and the petrochemical industries in Lupane. A feasibility study is underway in Lupane to identify the exact location of the methane gas fields/deposits. The five SEZs are the pilot projects that have been identified by Government and would be implemented within the next five years. The concept of the SEZs in Zimbabwe is in line with SDG No. 9 Industry, Innovation and Infrastructure Development, whose implementation will be guided by ZIMASSET.

2.4.2.7 Forecast Traffic Flows and Major Concerns

Countrywide traffic counts were carried out in 2015 and were put into a model. The model was run to produce demand forecasts. These are presented in the diagrams below. The three diagrams represent three scenarios which were modelled: low growth, medium growth and high growth.

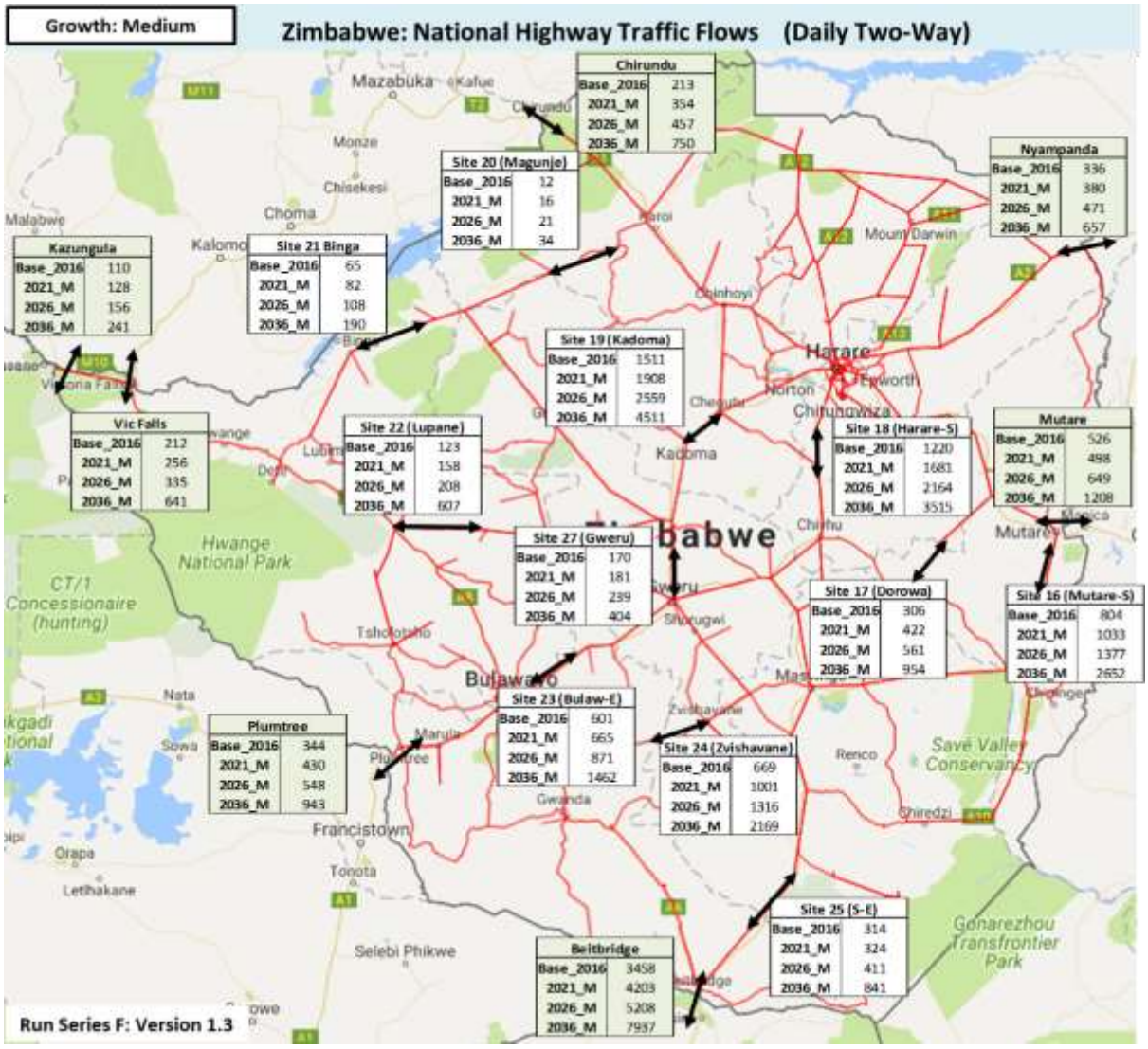
Low growth would result in traffic flows almost doubling during the life of the Master Plan. Medium growth would result in traffic flows increasing by a factor of 3 whilst high growth would result in traffic increasing five times. In all three cases there would be significant pressure on the roads due to traffic increases, unless appropriate interventions are made to redress the situation. It is likely that road crashes and casualties would also increase by the same factors.

Figure 2-33: Traffic Demand Forecasts: LOW GROWTH



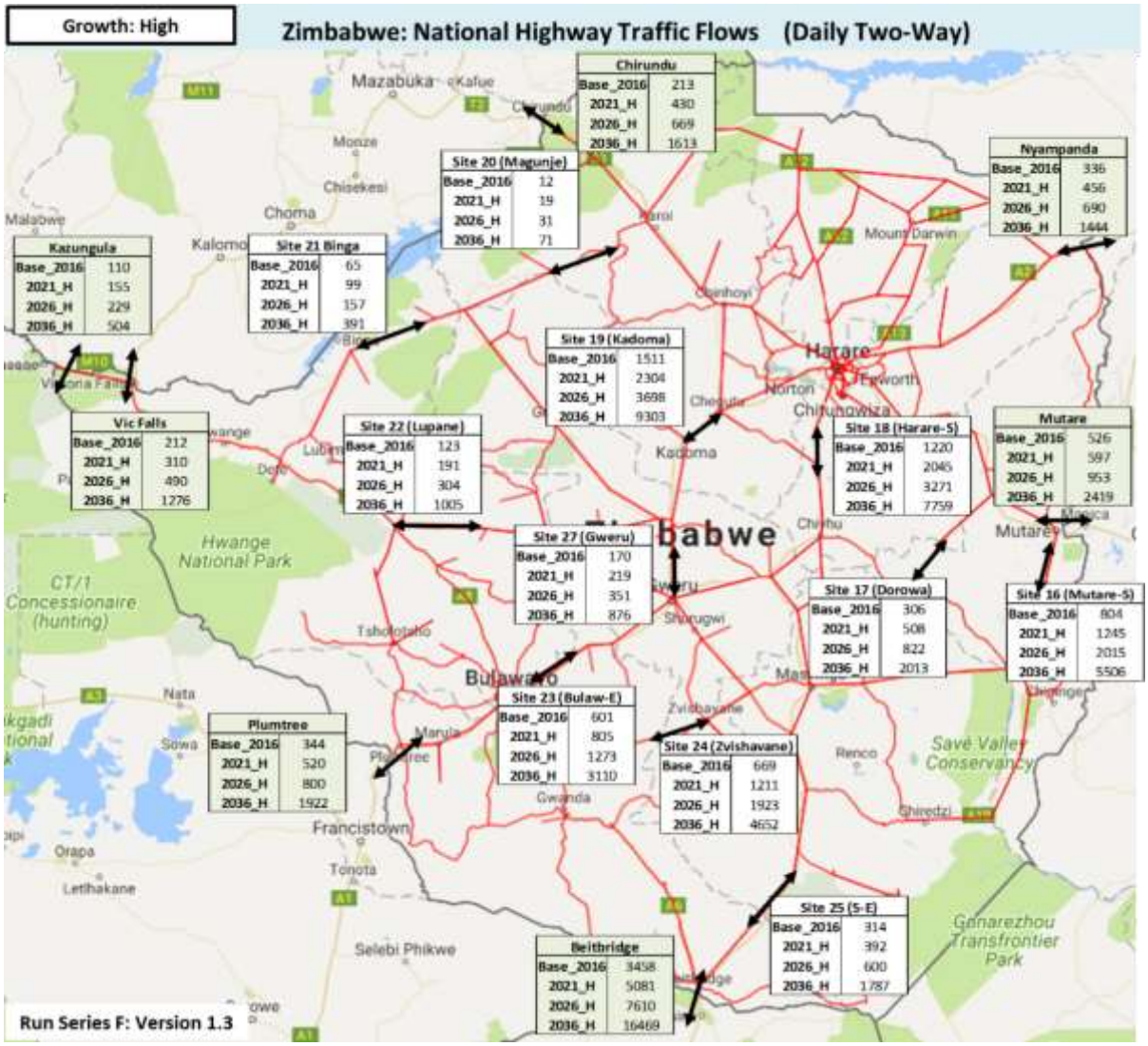
Source: CPCS 2017

Figure 2-34: Traffic Demand Forecasts: MEDIUM GROWTH



Source: CPCS 2017

Figure 2-35: Traffic Demand Forecasts: HIGH GROWTH



Source: CPCS 2017

2.4.3 The Role of Transport in Economic Development

Transport plays a vital role in economic development. The interface between transportation investment and economic development has far reaching implications that go beyond transportation's basic purpose of moving goods and people from one place to another. Transport systems can determine and facilitate where people live and where businesses locate. It can also influence land use patterns, congestion of urban transportation systems, use of natural resources, air and water quality, and the overall quality of life. The ZNTMP, as informed by the National Transport Policy, seeks to achieve the following:

- → Integration of transport and land use planning;
- → Strengthening the transport planning capacity of the country through facilitation of sector management;

- → Integration of transport subsectors with other productive sectors such as mining, agriculture, trade and industry, and tourism, and integration of them with those of the region to expand the transport market for Zimbabweans;
- → Fostering economic diversification and integration between infrastructure and operations of different transport modes as well as productive sectors;
- → Improving accessibility and connectivity of all transport modes;
- → Ensuring the process of regional integration, supported by a robust analysis of issues and impacts, leading to reduced cost of trade;
- → Ensuring sustainable mobility, improving safety and security of society;
- → Providing socially inclusive transport to all to improve the quality of life;
- → Providing an environmentally sustainable transport system;
- → Stimulating competition through utilizing alternative transport modes;
- → Providing an enabling environment to encourage private sector investment;
- → Promoting cross-border economic transactions;
- → Working towards trade security; and
- → Maximizing utilization of infrastructure.

The link between infrastructure development, growth and poverty reduction is unambiguous. Infrastructure development can promote inclusive growth by:

(i) generating jobs;
(ii) reducing production and transport costs;
(iii) expanding production capacity; and by
(iv) connecting markets within and between countries.

Infrastructure facilitates inclusive growth through economic exchange and trade and is critical for accelerating growth, reducing inequality and alleviating poverty. In addition, for growth to be sustainable, it must be grounded on well-developed infrastructure that makes existing investments more efficient while at the same time attracting new investments.

The omission of a goal on infrastructure was a key shortcoming of the MDGs. Thus, a key development focus of the 2015 Sustainable Development Goals (SDGs) is building resilient infrastructure that will stimulate and uphold inclusive and sustainable industrialisation.

2.5 Regional Development

2.5.1 Regional Transport Challenges

Regional integration has been a longstanding goal of the African Development Bank (AfDB)

since 1964. African countries realize the relevance of regional integration to economic growth and Africa's role in the global economy. However, persistent constraints on effective integration in the form of the poorly developed network of regional infrastructure, especially in transport, energy and communications, and the unsuitable legal, institutional and regulatory frameworks hamper progress in regional integration.

It is accepted that inadequate regional infrastructure is a major challenge, which partially explains the region's dismal trade performance. This includes poor transportation network and infrastructure as well as inefficient institutions. Typical examples of this are the lengthy delays caused by burdensome regulation and inadequate infrastructure at borders as well as the major inconveniences and increased transit costs resulting from multiple roadblocks and cumbersome border procedures.

Regional Integration Strategy Papers (RISPs) by the AfDB identified the following challenges for the transport sector:

- Transport costs are high at 30-40% of the total costs of imports and exports.
- Sub-standard road segments increase cost and delay connectivity.
- Ports have insufficient capacity to cope with increasing traffic.
- Poor policy and regulatory frameworks, and management constraints are additional constraints on the corridors' performance.

The AfDB Regional Integration Policy and Strategy for 2014–2023 is anchored on the Bank's Ten Year Strategy for 2013–22, which reflects current thinking on the economics of integration by the Bank and other regional institutions.[11] The Bank understands however that, cross-border infrastructure should link to national level infrastructure assets, and trickle to district levels and provide access to productive centers and markets in rural areas.The period covered by the Bank's strategy also covers the period during which short term projects identified in this Master Plan would be implemented. As such, in terms of regional integration, the Bank's strategy is quite relevant to this Master Plan.

Zimbabwe's regional trunk roads, apart from the Plumtree-Bulawayo-Harare-Mutare, are generally in poor condition, ranging from fair to very poor. Also, most trunk roads in Zimbabwe are two-lane single carriageways. Other countries such as Botswana have very good roads and are dualising their regional trunk roads e.g. from Francistown to Gaborone. It is clear therefore that Zimbabwe should fully commit to the spirit of regional integration, by upgrading its infrastructure. The proposal for a one-stop-border-post at Beitbridge and other border posts would complement efforts towards regional integration.

2.5.2 Regional Development Plans/Objectives

In order to address transport challenges on the African continent, the AfDB embarked on the process of preparing five Regional Integration Strategy Papers (RISPs), covering the Northern, Western, Central, Eastern and Southern regions of Africa. RISPs help Regional Economic

[11] African Development Bank Group, Policy And Strategy (Ripos) 2014-2023, Integrating Africa: Creating The Next Global Market

Communities (RECs) to identify and implement measures to close the regional infrastructure gaps and accelerate integration of their economies.

The goal of the Southern African regional integration agenda is to create a fully integrated and internationally competitive region with the overarching objective of poverty reduction, to be achieved progressively through the creation of a Free Trade Area (FTA).

A Tripartite Arrangement that was launched in October 2008 by COMESA, EAC and SADC countries (CES), made one notable achievement, that is, the launching of the Tripartite North South Corridor (NSC) Investment Programme in April 2009, with donors pledging US$ 1.2 billion for the programme, of which the AfDB pledged US$ 600 million.

The United Nations' development agenda: "**Transforming Our World: 2030 Agenda for Sustainable Development, (2015 – 2030)"** has seventeen goals, whose main focus is sustainability and ending poverty and hunger. Of direct relevance to this Master Plan is Goal 9: "Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation".Other goals to be considered are Goal 8 on sustainable economic growth; Goal 11 Making cities and settlements inclusive, safe, resilient and sustainable; and Goal 13 on combating climate change.

SDG goals have been encapsulated in the four clusters of ZimASSET. Cluster 3: Infrastructure and Utilities, like SDG Goal 9, is directly relevant to transport and to the Transport Master Plan. Point 3 "Focussing on Infrastructure Development", of the Ten Point Plan, also echoes the aspirations of SDG Goal 9, whilst the National Transport Policy goes further; it is quite specific by focussing on the modes of transport.

2.6 Development Scenarios

2.6.1 Potential Growth Scenarios

The following four potential growth scenarios with regard to GDP are envisaged:

1. **High (Optimistic) Growth 5% to 10%. This will be based on active re-engagement with the international community** and Direct Foreign Investment arising from increased investor confidence, and therefore access to funding for projects. The current re-engagement efforts with both bilateral and multilateral partners, including the African Development Bank and the World Bank under various initiatives would see improvement of relations and the opening up of new financing avenues for long overdue reforms and development cooperation. **This will be in the long term.**
2. **Medium Growth 2% to 5%. This is the most likely growth scenario in the medium term. This will involve re-engagement with the international community together with cautious Foreign Direct Investment.**
3. **Low Growth 0.5% to 2% in the immediate/short term i.e. continuation of the same up to 5 years.** This would be combined with the current depressed international commodity prices, particularly for minerals.

4. **Decline in the economy -1% if the existing cash crisis, drought and low commodity prices persist over the next 2 to 3 years** and therefore very few of the projects would be undertaken.

2.6.2 Potential Changes in the Economy

Zimbabwe's national budget for 2017 envisages that the economy is set to turn around from the slowdown mode to modest growth led by key sectors of mining and agriculture, benefitting from the anticipated normal to above normal rainfall. Overall GDP growth is, therefore, projected at a moderate 1.7% in 2017. Despite the manufacturing sector facing a number of challenges, it is projected to grow by 1.6%, up from the initial projection of 1.2% in 2015. Table 2-25 below presents real GDP growth to 2019.

Table 2-25: GDP Projections to 2019

Year	2016	2017	2018	2019
Real GDP at Market Prices (million US$)	12,398	12,605	13,252	14,049
Real GDP Growth (%)	0.6	1.7	5	6

Source: 2017 Budget Highlights, Ministry of Finance and Economic Development

The 'Ten Point' plan that President Robert Mugabe proposed on August 26, 2015 was to be used to maintain economic growth, in particular the creation of jobs, with Government's priority being to return the economy to sustained growth. The plan would be anchored on the agriculture sector and value addition and beneficiation. Of particular importance would be re-engagement with the international community particularly bilateral and multilateral lenders including the African development bank, Afro-Asian Bank and the World Bank.

The Ten Points, in summary, consists of:

1. revitalising agriculture and the agro-processing;
2. advancing beneficiation and/or value addition to agriculture and minin;
3. focusing on infrastructure development;
4. unlocking the potential of Small to Medium Enterprises;
5. encouraging private sector investment;
6. restoring and building confidence and stability in the financial services sector;
7. promoting joint ventures and PPPs;
8. modernising labour laws;
9. pursuing an Anti-Corruption Thrust; and
10. implementing Special Economic Zones.

Using its 2015 Strategic Plan, the Ministry of Industry and Commerce (MIC) is currently implementing a number of strategies to unlock investments. Key strategies include:

- mobilizing funding from AfDB, Afrexim Bank, and Local Financial Institutions towards the revival of industry;

- supporting private sector growth through the Distressed Marginalized Areas Fund (DiMAF);
- affording companies concessionary rates through the Zimbabwe Economic and Trade Revival Facility (ZETREF) Phase Two;
- establishing and operationalizing a Development Finance Institution (DFI); and
- establishing Special Economic Zones (SEZ) as a strategy for enhancing investment and attracting FDI in the country.

Both the Ten Point Plan and MIC's Strategic Plan provide a healthy environment in which the envisaged economic growth will take place. Major changes in the economy are therefore likely to involve:

- increased agricultural production in various parts of the country;
- enhanced mining activities including more exploration of coal deposits in the west of the country near Hwange and Gokwe;
- increase in tourism development as per tourism development master plan;
- the development of five SEZs in Harare, Bulawayo, Victoria Falls, Mutare and Lupane in the short term; and
- the building of a new city at Mount Hampden just outside of Harare.

2.6.3 Likely Growth Scenarios during the Life of the Master Plan

On the basis of the envisaged GDP growth scenarios, together with influence of potential changes in the economy, the likely growth scenarios over the short, medium and long term will be as follows:

- Low growth in the immediate/**short term** (2017 to 2021) in which case only the "must-do" projects will be undertaken;
- Medium growth in the **medium term** (2022 to 2026) when "should-do" projects will be undertaken; and
- high growth in the **long term** (2027 to 2036) when "can-do" projects will be undertaken.

Growth in the medium term is likely to benefit from re-egagement with international community but with a degree of caution from the potential lenders. The long term is however, likely to benefit a lot more from active re-engagement with the international community, hinging on restored confidence by potential lenders resulting from the improvement of the country's image.

These growth scenarios assume medium population growth rates in which case national and urban population is expected to grow at an average annual rate of 2.0%, whilst rural population is expected to grow at a rate of 2.2%.

3 Shaping Transport to Meet the Challenges of the Economy

Key Message

This chapter presents:

- → A Vision for Transport;
- → Sub-Sector Strategies; and
- → An overview of the Multi-Criteria analysis that has been used to assess the contribution of projects to the Transport Vision.

3.1 Creating a Vision for Transport

In order to give focus to development efforts in the transport sector, it was necessary to consider development aspirations of other social and economic sectors, since transport is generally not an end in itself, but rather, a means to an end. Transport transcends borders, as such national development scenarios as well as regional development aspirations have been considered, in order to create a vision for transport.

3.1.1 The National Development Agenda

3.1.1.1 Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET)

ZIMASSET, the country's current blueprint for economic development, was crafted to achieve sustainable development and social equity anchored on indigenization, empowerment, and employment creation, to be largely propelled by the judicious exploitation of the country's abundant human and natural resources.

ZIMASSET was built around four strategic clusters:

- → Food Security and Nutrition;
- → Social Services and Poverty Eradication;
- → Infrastructure and Utilities; and
- → Value Addition and Beneficiation.

The development of the national transport master plan has been aligned with this background. The successful implementation of this socio-economic development blueprint is expected to lead to revamping of the economy. However, this would result in more pressure being exerted on transport networks by all sectors to move people and goods and to provide services.

As ZIMASSET was to be implemented between 2013 and 2018, it is short term, whereas the ZNTMP is a long-term plan with a 20-year horizon. It is therefore necessary for future national economic development plan(s) to be long term beyond 2018. It would be beneficial if the new plans would be in line with the recommendations of the ZNTMP with regards to transport.

3.1.1.2 Ten-Point Economic Growth Plan

In August 2015, President Robert Mugabe proposed a 'Ten Point' plan which would be used to maintain economic growth and would guide the nation in implementing ZIMASSET objectives. The President also emphasized the importance of strengthening re-engagement with the international community particularly the multilateral lenders, as a way of opening up new financing avenues, for long overdue reforms and development cooperation. The Plan involved ten points (summarised in sub-section 2.6.2) of which the following three were of particular relevance to the Master Plan:

> Point 3: Focusing on infrastructural development, particularly in the key energy, water, transport and ICT subsectors.

Point 7: Promoting joint ventures and public private partnerships (PPPs) to boost the role and performance of state-owned companies (and for financing infrastructure).

Point 10: Implementation of Special Economic Zones to provide impetus for foreign direct investment. This would result in the generation of a significant amount of trips which would call for improvement in transport infrastructure and services.

Both ZIMASSET and the Ten-Point Plan recognise the importance of infrastructure as a critical enabler to economic growth and development.

During 2016 there was a fiscal policy review by the Minister of Finance in Zimbabwe. Some of the urgent priorities under review[12], related to the following:

- Poverty reduction;
- Stepping up efforts on stimulating productive sectors;
- Improving the investment/ease of doing business environment;
- Restoring fiscal discipline in the public sectors;
- Rebuilding confidence in the financial sector; and
- Advancing the re-engagement process in order to fully normalise relations with the international financial community, to eventually open access to new financing.

3.1.1.3 National Transport Policy (2012-2016)

The National Transport Policy (NTP) 2012-2016 was developed as a means of intervention in the 'management of transport in order to ensure the viability of key sectors of the economy…'[13] The NTP's Vision was:

To provide 'world class transport, communications, meteorological and seismological infrastructure networks and services which are accessible, efficient and affordable by 2020'.

The NTP's 16 policy goals focused on the following areas:

→ Road transport infrastructure and services;

→ Railway transport infrastructure and services;

→ Aviation transport infrastructure and services; and

→ Specific intervention strategies to bring about efficient operations of Air Zimbabwe and National Railways of Zimbabwe (NRZ).

[12] The 2016 Mid-Year Fiscal Policy Review Statement, Zimbabwe - *"Improving Investor Confidence to Enhance Productivity",* presented to The Parliament of Zimbabwe, by Hon. P. A. Chinamasa, (M.P) Minister Of Finance And Economic Development on 8 September, 2016

[13] National Transport policy 2012-2016-Ministry of Transport, Communications and Infrastructural Development

In addition the NTP discussed Inland Waterways as well as Urban Transport strategies to promote the use of Non-Motorised Transport (NMT) such as bicycles and walking.

The outline objectives of the NTP, as well as challenges and strategies outlined for each transport sub-sector, have been used to inform the creation of a Vision for Transport, together with sub-sector strategies proposed in this ZNTMP. Details of the broad outline objectives are presented in policy statements, such as:

1. Provision and maintenance of high quality road infrastructure to enhance accessibility to centres of economic, social and recreational importance in rural and urban areas.
2. Promoting interstate trade and smooth flow of transit traffic from neighbouring states and seaports.
3. Promoting safety on new and existing road networks.
4. Minimizing detrimental impacts of road construction on the environment.
5. Enhancing employment creation opportunities and poverty alleviation by promoting spatial development initiatives along all major corridors.
6. Improving the effectiveness of the Road Fund.

3.1.2 Regional and Global Perspective

The free movement of people is considered to be a critical component of regional integration. Member states of Regional Economic Communities (RECs) in Africa, that is, the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Southern African Development Community (SADC), have adopted protocols bilaterally and regionally on the free movement of people. Infrastructure is considered to be key to advancing Africa's integration agenda, supporting economic growth, reducing poverty and achieving the Millennium Development Goals (now the Sustainable Development Goals).

The SADC Region has ring fenced "infrastructure development" as one of its key priority interventions in recognition of the pivotal role of infrastructure in deepening regional integration, facilitating poverty reduction and catalysing economic development[14].

The proposed SDGs mainly focus on improving the quality of life of member countries' citizens. With regard to Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation, Governments need to ensure that their transport master plans take into account issues of fragility.

Other development plans that were used to further refine the derivation of the transport themes include:

[14] SADC Infrastructure Investment Conference – Summary and Way Forward, Maputo, 27 June 2013

- SSATP's Africa Transport Policies Performance Review - The Need for More Robust Transport Policies[15];
- African Development Bank's Ten-Year Strategy[16]; and African Union's Agenda 2063.

3.1.3 Understanding the Role of Transport

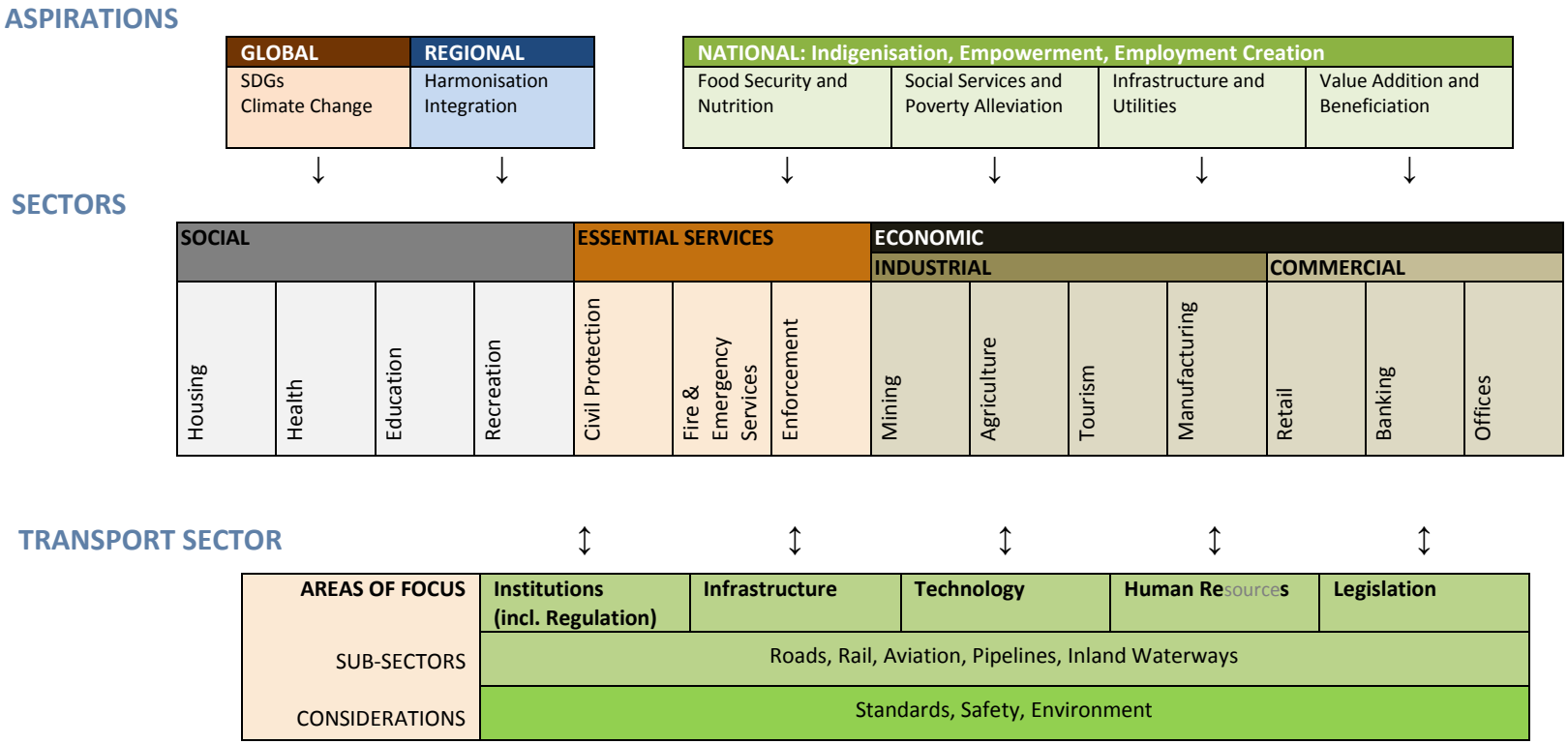
Transport is not an end in itself, but rather a means to an end. It therefore needs to be re-organised to address the inherent shortfalls in the system as well as to align it with socio-economic imperatives of the national development agenda, as well as regional and global aspirations.

The AfDB's Transport Forum held in Abidjan, Côte d'Ivoire, on November 26 and 27, 2015, underscored the need to align transport plans and programs with other strategies in order to achieve sustainable growth. It is with this in mind that the ZNTMP was developed to support the national development agenda.

Transport plays a vital role in economic development. The diagram below shows the inter-relationship between global, regional and national aspirations and the social and economic sectors as well as essential services. Transport as a sector is an essential service, an enabler to all the other sectors. Improvements in the Transport Sector focus on institutional structures, technology, human resources, legislation and infrastructure.

[15] SSATP Africa Transport Policy Program, Working Paper Number 103, by Justin Runji, January 2015
[16] At the Centre of Africa's Transformation – Strategy for 2013-2022, African Development Bank Group

Figure 3-1: Transport As An Enabler Of Other Sectors



Source: CPCS, 2016

3.1.4 Vision for Transport

A Vision for Transport has been developed on the basis of the national development aspirations, regional development goals as well as global issues, as presented above. This vision is to present:

> ***A green, inclusive, safe, efficient and reliable transport system that contributes to a high quality of life of all citizens, supports the functions of all sectors of the economy and promotes ease of movement of people and goods both within the country and between Zimbabwe and its neighbours.***

This is the overall goal for transport.

Stemming from the Vision for Transport, are themes or broad objectives for transport, with expected outcomes that support the overall national development goals as well as other sectors of the economy. The Vision for Transport has the following five themes:

1. Quality of life and Personal Freedom;
2. Environmental Sustainability;
3. Economic Efficiency;
4. Safety and Security; and
5. Regional Integration.

The themes guided the development of strategies and programmes that together work to achieve maximum benefit to the country's development objectives. The five themes that support the Vision of Transport were derived from an assessment of national development aspirations as presented in ZIMASSET and the National Transport Policy, as well as regional and global development goals of RECs and the UN. Derivation of the themes is presented in the sections that follow.

3.1.4.1 Theme 1: Quality of life and Personal Freedom

ZIMASSET's Food Security and Nutrition Cluster is to create a self- sufficient and food surplus economy. One of the key strategies is to invest in sustainable and robust solutions to address the **challenges of food insecurity and undernourishment**, e.g. by providing food relief to vulnerable social groups from GMB stocks. Transport plays an important role in achieving these strategies. Two of the program areas under this cluster are infrastructure provision and employment creation.

The thrust of the Social Services and Poverty Eradication Cluster is to enable Government **to improve the living standards of the citizenry** for an empowered society and a growing economy. Strategies towards empowerment of the vulnerable will be implemented in the short to medium term. The Cluster also includes infrastructure provision and employment creation in the programs.

One of the goals of the NTP is to: **Ensure service provision to vulnerable groups**/members of the society (children, women, elderly, people living with disabilities and the urban and rural poor). Transport plays an important role in achieving this goal. Policy Statement 5 of the NTP

is about enhancing employment creation opportunities and poverty alleviation by promoting spatial development initiatives along all major transport corridors.

The United Nations, in its documents "Transforming our world: 2030 Agenda for Sustainable Development" states that it is determined to **end poverty and hunger**, and to ensure that all human beings can **fulfil their potential in dignity and equality** and in a healthy environment.

The **first four SDGs are about promoting quality of life by ending poverty, ending hunger and achieving food security, healthy lives and well-being**, and inclusive and equitable quality education. SDG Goal 8 is about promoting sustained, inclusive and sustainable economic growth, full and **productive employment and decent work for all**. Goal 11 is about making cities and human settlements inclusive, safe, resilient and sustainable by 2030, notably by expanding public transport, with special attention to the needs of those in vulnerable situations. Transport infrastructure is considered to be an 'enabler' to achieving the SDGs. Transport is mainstreamed in the whole 2030 agenda as a cross-cutting issue because of its impact on such areas as food security, health, education, economic growth, etc.

The AfDB's Strategy for 2013–2022 reflects the aspirations of the entire African continent. The Strategy is built around two objectives (**inclusive growth**, and the transition to green growth), supported by five operational priorities (**infrastructure development**, regional economic integration, private sector development, governance and accountability, and skills and technology). The Bank envisages that this would lead to **deep reductions in poverty** and a correspondingly large **increase in jobs**. The Bank would therefore invest in infrastructure that would unlock the potential of the private sector participation.

Zimbabwe is already benefiting from the AfDB which is co-financing the preparation of this Master Plan. A significant number of the proposals that have been put forward in this Master Plan are likely to generate a substantial amount of employment opportunities and would be implemented through private finance, especially through PPPs. Implementation of the Master Plan proposals would bring results which would be very much in line with the Bank's objectives and aspirations.

To this end, transport's contribution to the quality of life and personal freedom is about: accessibility, availability and affordability.

3.1.4.2 Theme 2: Environmental Sustainability

Zimbabwe is experiencing more hot and fewer cold days than before as a result of climate change and variability[17]. The Government of Zimbabwe regards climate change as one of the threats to the country and its people and is also of the view that climate change has the potential to undermine many of the positive developments made in meeting the country's development goals.

Observations by the Zimbabwe's National Climate Change Response Strategy (ZNCCRS) are that:

[17] Zimbabwe's National Climate Change Response Strategy, Government of Zimbabwe Ministry of Environment, Water and Climate, facilitated by the Institute of Environmental Studies, University of Zimbabwe, supported by UNICEF, COMESA, UNDP and Global Water Partnership

- → Zimbabwe occupies a strategic position within COMESA and SADC and therefore needs an efficient regional trunk road network.
- → Major challenges for road transport in Zimbabwe are the high rate of motorization, with the vehicle fleet doubling every 10 years. The majority of newly registered vehicles are reconditioned cars imported from industrialized countries.
- → The current and projected growth in the transport sector will increase GHG emissions. The transport sector contributes about 12 per cent of Zimbabwe's GHG emissions.
- → Nearly 97 per cent of transportation GHG emissions come through direct combustion of fossil fuels, with the remainder being carbon dioxide (CO2) from hydro-fluorocarbons emitted from vehicle air conditioners and refrigerated transport.
- → Climate change will affect transport infrastructure through floods, storms, and extreme high temperatures.
- → The air, rail and ferry transport sector is relatively small but also contributes to GHG emissions. Coal is the main fuel used in rail traction. Of concern is that the carbon footprint related to air travel is much higher than any other mode of transport.
- → The carbon footprint of visitors and tourists to Zimbabwe is increased as a result of current international travel arrangements where the majority of visitors have to fly to South Africa before they can fly to Zimbabwe, thus increasing their travel distance.
- → Estimates of emissions in grams of carbon dioxide/per kilometre/per person for a completely full aeroplane is about 322.8g, for a car 204.2g, a 70% full train 60.2g and a public bus 81.8g.

The ZNCCRS's goal for transport is: **to develop climate proofed and environmentally sustainable transport systems that are less carbon intense**.

One of the goals of Zimbabwe's National Transport Policy is to **promote environmental protection**.

The UN envisages upgrading infrastructure and retrofitting industries to make them **sustainable**, with **increased resource-use efficiency** and greater adoption of **clean and environmentally sound** technologies and industrial processes, by 2030.

One of the AfDB's objectives is to ensure that inclusive growth is sustainable, by helping Africa gradually transition to "green growth". Priorities in reaching **green growth** include building resilience to climate shocks, **providing sustainable infrastructure**, creating ecosystem services and making efficient and sustainable use of natural resources (particularly water). With regard to sustainable infrastructure, transport systems should be developed to be compatible with environmental concerns, for example by reducing pollution in urban areas.

For Zimbabwe, this Master Plan is contributing towards environmental sustainability, through proposals that lead to a reduction in GHGs such as the introduction of mass transit systems to reduce the number of private cars in city centres, promoting direct international flights and using rail as much as possible for bulk movement of freight and passengers.

3.1.4.3 Theme 3: Economic Efficiency

The NTP has a number of goals to promote economic efficiency. There is need to:

- → Ensure the availability of **efficient transport** and transportation systems to service all parts of the country as well as important regional and international destinations at the lowest cost to the economy using all modes of transport;
- → **Reduce transport costs**;
- → Promote investment **growth** in the transport sector;
- → Improve **reliability and efficiency** of the transport and transportation systems;
- → Promote, harmonize and integrate/interface different transport modes;
- → Promote **fair competition** between different modes of transport;
- → Promote **use of information technology** to improve the delivery of transport services;
- → Promote the development of **transport expertise**;
- → Improve **operational efficiency** and financial performance of transport parastatals;
- → Facilitate **growth and development** of key sectors of the economy, such as agriculture, tourism, mining and commerce.

ZIMASSET has a number of objectives aimed at improving economic efficiency, e.g. by implementing **programs that enhance service delivery** by all public institutions. In this regard, Government aims to execute robust capacity development initiatives to recapitalise, engage and retain skilled manpower.

The Infrastructure and Utilities Cluster calls for work to be undertaken in critical areas such as the **development of a robust, elaborate and resilient infrastructure**. Some of the quick wins to be achieved under this cluster include undertaking a national blitz to rehabilitate water supplies, sewerage systems, **roads**, health facilities and schools in all urban centres; as well as **construction and maintenance of trunk and feeder roads through funding from Central Government and PPPs.**

The Fiscal Reform Sub-Cluster requires putting in place **robust fiscal reform measures** that enable Treasury to mobilize resources to finance different priorities, e.g. through Sovereign Wealth Fund; PPPs; Special Economic Zones and Issuance of Bonds.

The success of the Value Addition and Beneficiation Cluster, is dependent on the availability of key enablers that include energy, water, **transport** and ICTs.

Goal 9 of the UN 2030 Agenda for Sustainable Development is about building quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure. Investment in transport infrastructure is widely recognized as being crucial to the promotion of economic growth and industrialization.

In order to achieve economic efficiency, this Master Plan is proposing the improvement of roads through enhanced maintenance and rehabilitation of national networks, and to expand the rail network to cater for higher production levels in the economy.

3.1.4.4 Theme 4: Safety and Security

One of the goals of Zimbabwe's NTP is **to reduce and prevent road accidents** as well as **to protect life and property through improved traffic/transport safety and security.**

Goal 8 of the UN Sustable Development Goals is about promoting inclusive and sustainable economic growth, full and productive employment and decent work for all. Goal 11 is about **making cities and human settlements inclusive, safe, resilient and sustainable**. By 2030 it envisages provision of **access to safe, affordable, accessible and sustainable transport** systems for all, **improving road safety**, notably **by expanding public transport**, with special attention to the needs **of those in vulnerable situations**. By 2030, the number of **deaths and the number of people affected** should have **significantly reduced**.

This Master Plan supports safety and security by proposing wider use of public transport and providing for NMT. A Road Accident Fund is also proposed to benefit victims of accidents.

3.1.4.5 Theme 5: Regional Integration

Zimbabwe's NTP proposes:

- → the maintenance of regional and international perspective through the recognition of relevant transport protocols and conventions and development of strategies aimed at providing a seamless transport service across borders;
- → promoting, harmonizing and integrating/interfacing different transport modes to optimise on investment and use of the transport infrastructure; and
- → ensuring the availability of efficient transport and transportation systems of adequate standards to service all parts of the country as well as important regional and international destinations at the lowest cost to the economy using all modes of transport.

The UN SDG Goal 9 is about developing quality, reliable, sustainable and resilient infrastructure, **including regional and transborder infrastructure**, to support economic development and human well-being, with a focus on affordable and equitable access for all.

With infrastructure a key impediment to trade, the AfDB will take a **regionally integrated approach to infrastructure development. Roads**, ports, transmission lines and ICTs will be essential to facilitate this process. National infrastructure investments will be critical building blocks for **regional infrastructure development** that will help Africa form large, connected and competitive markets. The Bank will help lead the continent-wide Program for Infrastructure Development in Africa (PIDA) which was adopted by African Heads of States in January 2012, to frame the continent's efforts to **develop key regional infrastructure**.

This Master Plan contributes to regional integration by proposing the integration of the national rail network with rail networks of neighbouring countries, harmonisation of road design standards in line with the SADC Protocol, and by supporting other proposals such as one-stop border posts and removal of non-tariff barriers.

3.1.5 Strategies and Expected Outcomes

3.1.5.1 Promoting Quality of Life and Personal Freedom

Our vision
In these Goals and targets, we are setting out a supremely ambitious and transformational vision. We envisage a world free of poverty, hunger, disease and want, where all life can thrive. We envisage a world free of fear and violence…..

United Nations General Assembly, Resolution adopted by the General Assembly on 25 September 2015; 70/1. Transforming our world: the 2030 Agenda for Sustainable Development

As mentioned in sub-section 3.1.4.1, transport's contribution to quality of life and personal freedom is about providing accessibility, availability and affordability. The ultimate goal of most transportation systems is "access," that is, people's ability to reach desired goods, services and activities. Accessibility reflects both mobility (people's ability to travel) and land use patterns (the location of activities). This perspective gives greater consideration to non-motorized modes and accessible land use patterns.

At the neighborhood level, accessibility is affected by the quality of sidewalks and cycling facilities, street connectivity, geographic density and mix. At a wider area level, accessibility is affected by street connectivity, transit service, geographic density and mix. Inter-regional accessibility refers to the quality of highways, air service, bus and train service, and shipping services to other regions.

Physical isolation is a strong contributor to poverty[18]. Populations without reliable access to social and economic services are poorer than those with reliable access. Problems of access are particularly severe in those rural areas which are distant from roads that carry motorized transport on a regular basis. The lack of reliable transport systems, mainly in rural areas, compells household members to spend significant time traveling in order to meet basic needs.

Transport is therefore a key aspect of life, affecting people not only when they travel, but throughout their lives, in terms of noise, air pollution from vehicular emissions, and limited space for walking, cycling and playing due to neighborhoods being given over to moving and parked cars. In addition to these quality of life and environment issues is that of economics. Inefficient systems require a good deal of money to move a small number of people, such as building dual carriageways for private cars. Efficient systems require a small amount of money to move a large number of people, such as building bus lanes.

Although generally rural transport access is road based, planning for improved rural transport facilities and infrastructure needs to look beyond roads to other means of mobility, vehicles used (donkey/ox carts, tractors, bicycles, motorbikes etc), and the extent to which walking is the primary means of mobility.

The expected outcomes from the promotion of quality of life and personal freedom include:

- **Employment Creation** – creating employment opportunities;
- **Poverty Reduction** – targeted subsidy; offering affordable fares; minimising travel distances (including containment of jobs); availability of affordable alternative means of travel; universal social obligation;

[18] Rural Access Index: A Key Development Indicator, Transport Sector Board, World Bank, 2006

- **Inclusive Mobility** – promoting personal freedom; offering appropriate means of transport; offering affordable user charges; assisting mobility impaired; and universal social obligation;
- **Reduced City Centre Congestion** – demand management; capacity restraint; park and ride; efficient public transport;
- **Better Informed Transport Users** – providing a Customer Charter; information provision; awareness campaigns; advertising; operational communication of routes, schedules, and fares;
- **Improved Accessibility** – providing for Non-Motorised Transport (NMT); universal accessibility; improved public transport accessibility levels; providing for Emergency and Delivery Services;
- **Better Health** – promoting use of NMT; use of appropriate technology to reduce gaseous fumes.

In order to achieve these quality of life outcomes, this master plan proposes programmes that:

→ recognise the different needs of all travellers and transport users;

→ are responsive to the needs of all users including those with moility challenges;

→ promote active travel through the provision of the necessary infrastructure and facilities;

→ promote easier transfers both intra-modal and inter-modal;

→ promote the use of more efficient modes of travel such as better and higher quality public transport and park and ride, in combination with integrated ticketing and timetabling;

→ promote provision of real time travel information and use of proactive accessibility mapping; and

→ promote compliance with rules and regulations.

3.1.5.2 Ensuring Environmental Sustainability

The ZNCCRS has made the following recommendations, on the basis of observations and concerns about climate change:

→ Enforcement of emission standards for vehicles and using them to assess the emissions of imported vehicles before they are allowed into the country;

→ Introduction of an integrated transport system in Zimbabwe to reduce the carbon footprint caused by the road transport sector;

→ Development of an efficient public and mass transport system by introducing larger buses and trains on urban commuter routes to reduce the use of private cars;

→ Promotion of the use of non-motorized transport such as bicycles and walking to reduce carbon emissions, whilst improving health;

→ Incorporating climate change in road designs and transport related infrastructure;

→ Introducing direct international flights to Zimbabwe to reduce distances travelled by international air travelers;

→ Moving towards the use of blended fuels for vehicles to reduce GHG emissions; and

→ Promoting the use of alternative modes of transport for visitors coming to Zimbabwe particularly regional tourists.

Specific strategies for transport in the Physical and Social Infrastructure pillar of the ZNCCRS are:

a. to introduce a transport policy framework that encourages use of transport with low carbon emissions e.g. electric vehicles; and

b. to integrate climate resilience into transport planning and infrastructural development.

The AfDB's Draft Action Agenda to support sustainable energy use[19], has made wide-ranging recommendations to ensure environmental sustainability. The recommendations range from strategies for transport in urban areas, specifically to reduce the number of motorised vehicles (particularly cars), supporting non-motorised transport, improving land use planning policies, and improving fuel efficiency of vehicles by 2030 and beyond.

The main expected outcomes of ensuring environmental sustainability are as follows:

- **Better environmental standards** – promoting fuel efficiency; reducing GHGs;
- **Improved vehicle technology** – use of electricity as the main source of motive energy;
- **Better use of appropriate modes** – rail, air or pipelines to move large masses/ volumes of freight over long distances; using mass transit to reduce cars in urban areas;
- **Containing transport demand** – limiting travel distances and promoting the use of sustainable means of transport, in particular non motorised transport; and
- **Integrating land use and transport planning** – densification (e.g. compact city) to ensure large commuter volumes along travel corridors; integrating land use planning with transport and environmental planning.

One of the tasks of the Transportation Coordination Committee will be to harmonize management of roads to avoid overlaps and gaps among the responsible authorities, and to

[19] Support to SE4All Country Actions processes in Zimbabwe, Draft Action Agenda, AfDB, *March 2016*

harmonise the design and maintenance of roads to reduce congestion and to improve the management of funds (e.g. those collected through tolls and fines).

3.1.5.3 Achieving Economic Efficiency

There is increasing recognition of the importance of nonphysical barriers such as border crossings, weighing stations, and police checkpoints in delaying traffic and inflating costs.

Without a competitive trucking industry and smooth trade facilitation, road freight services will continue to be costly and inefficient, however good the quality of the roads. Expected outcomes for economic efficiency will therefore be:

- **Modal Integration** – trunk and feeder services complementing each other;
- **More efficient institutions** – Reforms; Promoting Value Addition;
- **More efficient industry** – supporting Packaged Tourism; Linking Mines and Agriculture to Processing plants and Markets;
- **Regional integration and harmonisation** – standards; non-tariff barriers.

3.1.5.4 Promoting Safety and Security

Promoting safety and security is about providing for **safer and more secure operating environments and practices**. This may involve demand restraint; infrastructural improvements; better traffic management; record keeping and analysis; correction measures; route management strategies; use of CCTV at congregation points and along routes; better parking policies; and behavioural change.

Zimbabwe has experienced an increasing number of weather-related hazards that include floods, storms and droughts, among others. Climate change is predicted to further increase and intensify these extreme events. These climate induced disasters indiscriminately affect people's livelihoods and health, and undermine the country's economic development.

The most affected people in Zimbabwe are rural communities who are likely to have low adaptive capacity to deal or cope with such disasters. That is why it is important to mainstream climate change into disaster risk management in order to reduce the impacts and losses from climate change. In this regard, it is estimated that Action Plans for the ZNCCRS would cost US$9.887 billion, of which transport would contribute US$1.071 billion, which is 10% of the total estimated costs.

3.1.5.5 Promoting Regional Integration

"The Vision of the African Union is to become an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the global arena."
African Union Agenda 2063

" The vision of the Bank Group is for a stable, integrated and prospering continent of competitive, diversified and sustainably growing economies participating fully in global trade and investment."
Bank Group Regional Integration Policy and Strategy (RIPoS) 2014-2023
African Development Bank Group

"Africans must seek growth that is primarily anchored on their priorities and that is capable of delivering structural transformation. Regional integration is a key strategy for development."
United Nations Economic Commission for Africa, www.uneca.org

The expected outcome of promoting regional integration is: **easier movements of people and goods between countries in the region**.

Integration is necessary at all geographic levels. Local integration increases earning opportunities for farmers and small firms in lagging parts of a country, regional integration scales up supply capacity among countries with individually insufficient physical and human capital, and global integration creates access to demand in wealthier world regions. Removing non-physical trade barriers will be important to promoting integration. However, as the African Infrastructure Country Diagnostic (Foster and Briceño-Garmendia 2010) has shown, integration cannot occur without far better physical infrastructure, especially roads.

Regional integration is a development priority for Africa. It is about getting goods and people moving freely across the whole of Africa[20]. When regional infrastructure works better, business costs fall as transport corridors speed goods across boundaries. A flagship project in Agenda 2063 is to connect Africa's capitals and commercial centres through high-speed rail. Regional hubs, as well as small or landlocked countries, have a lot to gain from promoting infrastructure to boost economic growth.

The goal of the Southern African regional integration agenda is to create a fully integrated and internationally competitive region with the overarching objective of poverty reduction. Transport is an important sector recognized in all the treaties establishing Regional Economic Communities (RECs) such as SADC, EAC and COMESA.

Table 3-1 below summarises the expected outcomes of the Transport Themes and Strategies.

[20] Africa Regional Integration Index, Report 2016, African Union, African Development Bank Group, United Nations Economic Commission for Africa

Table 3-1: Summary of Strategies and Associated Expected Outcomes

	STRATEGIES				
	PROMOTING QUALITY OF LIFE	ENSURING ENVIRONMENTAL SUSTAINABILITY	ACHIEVING ECONOMIC EFFICIENCY	PROMOTING SAFETY AND SECURITY	PROMOTING REGIONAL INTEGRATION
EXPECTED OUTCOMES	→ **Poverty Reduction** – employment creation affordable services; minimising distances; universal social obligation. → **Inclusive Mobility** – affordable user charges; assisting mobility impaired. → **Reduced City Centre Congestion** – demand management; capacity restraint; park and ride; efficient public transport. → **Better Informed Transport Users** – information provision; awareness campaigns; → **Improved Accessibility** – providing NMT; universal accessibility; improved PTALS; Emergency Services. → **Better Health** – promoting use of NMT; reduce gaseous fumes.	→ **Better environmental standards** –efficient fuel policy; reduce Green House Gases; emissions testing → **Improved vehicle technology** – electric vehicles → **Better utilisation of appropriate modes** – rail, air or pipelines for large masses/volumes of freight over long distances; mass transit. → **Containing transport demand** – limiting travel distances; NMT. → **Integrated land use and transport planning** – densification; integrating land use planning with transport and environmental planning	→ **Modal Integration** — inter- and intra-modal integration → **More efficient institutions** – Institutional and Regulatory Reforms; Legal and Policy Reform; Information; Value Addition. → **More efficient industry** – Packaged Tourism; Linking Mines and Agriculture to Processing plants and Markets → **Regional integration and harmonisation** – infrastructure provision; infrastructure maintenance; removal of non-tariff barriers; standards	→ **Safer and more secure operating environments and practices**.	→ **Easier movements of people and goods** – removal of non-tariff barriers; one-stop border posts; harminisation of standards

3.2 Realising Our Vision Through Sub-Sector Strategies

3.2.1 Overview

Transport being an enabler of activities in other sectors, this Master Plan focuses mainly on the integration of the transport subsectors with other productive sectors such as mining, agriculture, trade and industry, tourism etc. An additional dimension of transport is its role in regional integration, that is, connecting Zimbabwe to the rest of the countries in the region and globally. An efficient and cost-effective transport sector that is fully integrated with the national and regional economies and other key transport infrastructure in the region is essential to support national development aspirations. This Master Plan therefore, presents proposals that are aimed at achieving the national Transport Vision, through the five Transport Themes.

The Transport Planning process and goal to achieve the national Transport Vision, is not a simple task; it is a complex balancing act. It involves the assessment of each mode's strengths and limitations and pitching them against those of competing modes, then coming up, ideally, with an optimal mix of infrastructure and service programmes and projects that avoid wasteful and/or unnecessary competition between modes, taking cognisance of funding and financing limitations and challenges. The task is made complex, first, by the fact that transport itself is split into five sub-sectors – road, rail, aviation, inland waterways and pipelines – second, the need to optimise the contribution of each mode and avoiding overlaps both intra-mode and inter-mode, and third, when it is ideal to implement a project. The approach here therefore is to consider each sub-sector separately, assessing its strengths and limitations then putting forward proposals for implementation in the short, medium and long term.

Regionally, PIDA contains a framework for meeting infrastructure demand up to 2040. It has components addressing projected infrastructure gaps and bottlenecks based on supply and demand forecasts, institutional deficiencies and options for identifying, preparing and funding projects. PIDA is organized on the basis of short- and medium-term targets running up to 2020 and 2030, as well as long-term projections to meet demand up to 2040. Short-term projects and programmes are in a Priority Action Plan, for which the capital cost over 2012–2020 is estimated at US$68 billion. Mobilizing these funds is a huge challenge.

PIDA's expected benefits are:

- → Growth in Africa's global competitiveness, including in agriculture and manufacturing.
- → Growth in Africa's share of world trade, to at least twice today's 2 per cent.
- → Creation of up to 15 million new jobs through construction, operation and maintenance of PIDA projects. Millions more will be created indirectly through these projects' economic activity.

The process adopted in developing strategies, programmes and projects first considered transport policy objectives, the institutional framework, regulatory reforms necessary, the legal framework and spatial context, then the five transport subsectors as presented below.

3.2.2 Transport Policy

3.2.2.1 Policy Overview

As mentioned earlier, transport plays a vital role in economic development. To that end, an updated policy that provides the overarching framework, within which the Zimbabwe's transport sector seeks to promote social, political and economic development, especially to serve agriculture, manufacturing, tourism, mining, construction, education and public health, is required.

There is an inherent conflict of interest in having a single body as owner, policy maker, planner, regulator and operator of public transport. Going forward government's role from the Ministry is to be directed towards policy formation, strategic planning, developing legislative and regulatory framework and carrying out performance monitoring. Where for strategic reasons government determines that it will be the owner and responsible for infrastructure development, the institutional arrangement will be that of autonomous public entity outside the hierarchal structure of the portfolio ministry.

The private sector, whether associations, companies or individuals, should preferably be responsible for ownership and operation of transport services. The benefit of private operations is incentive for efficiency and access to private capital. Public entities bound by bureaucratic procedures are constrained in promoting efficiency enhancing measures in timely fashion. Public companies or corporations often have to meet macroeconomic and social services objectives as against commercial objectives.

3.2.2.2 Policy Proposals to achieve the Expected Outcomes

The starting point for the Policy Proposals is the National Transport Policy whose goal[21] is:

> ***To ensure availability of reliable, efficient, safe and sustainable road, air, railway and inland waterways transport systems.***

The NTP objectives go a long way towards achieving the expected outcomes, as such they form the basis of the policy proposals which are to:

- → integrate transport with land use planning;
- → strengthen the transport planning capacity of the country;
- → integrate transport subsectors with other productive sectors;
- → focus on fostering economic diversification and integration;
- → improve accessibility and connectivity of all transport modes;
- → ensure regional integration is supported by a robust analysis of issues and impacts;

[21] Transport Infrastructure Rehabilitation And Development In Zimbabwe, Eng. M E Gumbie, Ministry of Transport and Infrastructural Development, Zimbabwe, April 2015

- → ensure sustainable mobility, and improve safety and security of society;
- → provide socially inclusive transport for all to improve the quality of life for all;
- → provide an environmentally sustainable transport system;
- → stimulate competition through utilizing alternative transport modes;
- → provide an enabling environment to encourage private sector investment;
- → promote cross-border economic transactions; and
- → maximize utilization of infrastructure.

It is recognized that an efficient and cost-effective transport sector that is fully integrated with the national and regional economies and other key transport infrastructure in the region is essential to achieve sustainable economic development. In putting together the policy proposals there are key principles that should be considered; these are:

- **Investment in transport infrastructure and services across borders:** Zimbabwe being landlocked, its location in southern Africa makes it an important transit point in the regional transport system, thereby making it even more important for the country to maintain a reliable transport network and to integrate its transport network with neighbouring countries.
- **The need to increase participation of the private sector:** This is to be achieved especially through PPPs. The private sector will be incentivised to finance, operate and manage transport operations, with the public entities focussing on major infrastructure, and operating as a landlord/public granting authority, responsible for concessioning commercial transport business opportunities to the private sector.
- **Increased market liberalization:** Where government considers infrastructure to be strategic to macro economic development, it will continue to be a major investor, as in the case of roads, airports, rail infrastructure or inland waterways infrastructure.
- **Government to change its role:** from ownership and control to that of influencing the transport market, providing the incentive and legal framework for private sector commercial operation, and promoting competition, where feasible;
- **Government to promote 'cost reflective charging':** Transport users will be required to shoulder an increasing portion of transport costs.
- **Restructuring the transport industry:** into a more coherent supporting structure, separating the various roles of policy making, development of legislation, operational planning, regulation, financing, service delivery and infrastructure development, clearly specifying the entity responsible for each function.
- **Restructuring the Ministry of Transport and Infrastructural Development**: into a streamlined organization, directly responsible for the formulation of transport policies and strategies, transport legislative frameworks, with responsibility also for regional integration, international transport matters and ensuring performance monitoring of entities falling under its portfolio responsibility. Where the state is involved in service delivery and in the provision of transport infrastructure, executive

responsibility will be discharged through a public statutory corporation, or government owned public limited liability company.

With regard to regional and international transport, government will:

- promote the development of special transport corridors linking Zimbabwe's transport networks with the networks of neighbouring countries; and
- promote regional and international cooperation on transport.

3.2.3 Institutional, Regulatory and Legal Reforms

As mentioned in Chapter 2, Section 2.2.1, Government promulgated the Roads Act of 2001 to establish a dedicated Road Fund, ZINARA and three Road Authorities. Over the years inefficiencies in the service delivery function has meant that there was a need for a clear separation for instance, of administration of road sector funding from use of the same. Institutional reforms would see the restructuring of existing institutions into **efficient agencies** charged with the administration of road user funds and provision and maintenance of roads. Collection and distribution of maintenance funding would become a stand-alone function and execution of physical works would be undertaken in a commercial fashion. Proposals for institutional reform are presented below.

3.2.3.1 Institutional Review

The MoTID is the ultimate authority with overall responsibility over all gazetted public roads in the country. The responsibility to provide, manage and maintain the various road networks is delegated to the DoR for State roads, city and town councils for urban roads, and the DDF and RDC's for rural roads. Maintenance of the road networks is funded from allocations from the Road Fund that is administered and managed by ZINARA.

ZINARA and the Road Fund

There is need to enhance accountability and transparency to ensure that accruals to the Road Fund are being utilised efficiently and strictly for the intended purpose of maintenance of the national roads networks through the respective designated road authorities.

ZINARA plays a centralised coordinating and superintending role in consolidating the rolling 5-year development plans for the State, urban and rural road networks that are submitted annually with requests for funding from the Road Fund. Of late concerns have been raised by road authorities that ZINARA may be going beyond its mandate by getting involved in contracts (as if it were a road authority). Also of concern have been the low levels of disbursements to road authorities. The table below shows the operating accounts of ZINARA for 2016.

Table 3-2: Operating accounts of ZINARA, Estimated to Year End 2016

ITEM	AMOUNT
REVENUE	
Total Revenue (includes vehicle licence fees, fuel levy, tolls, transit fees, commission, abnormal and overload fees)	**173,916,859**
Revenue Collection – Agency Fees	19,594,757
Revenue Collection – Direct Costs	17,886,623
Net Revenue from Operations	136,435,478
DISBURSEMENTS AND EXPENSES	
Disbursement to Road Authorities	38,247,094
Special Projects	5,999,700
Emergency Projects	5,247,000
Outstanding Obligations	10,417,606
Infralink DBSA Loan Repayment and others	54,383,778
Capital Expenditure	2,955,198
Weighbridge Maintenance	825,000
Grader Maintenance	1,993,693
Employment Costs – Secretariat	3,151,034
Administration Costs	5,125,229
Total Disbursements and Expenses	**128,345,332**
Surplus for the period	8,090,146

Source: ZINARA

ZINARA needs to revert to its originally intended role of scrutinising and consolidating the 5 year development plans from the road authorities, and conducting technical and financial audits of the projects funded by disbursements from the Road Fund, and not to act as a road authority or executive agent. The Road Fund should be limited to the collection of bona fide road user charges that accrue to the Fund.

The Road Fund should also fund the appropriate and approved administrative costs of ZINARA. The Road Fund remains the main viable source of revenue for the road sector, with support from Central Government through the Public Sector Investment Programme (PSIP) and international donor aid, especially for capital works.

In the short term the Road Fund Board should be reconstituted and regularised by filling all vacancies. The role of the ZINARA should be clearly redefined as being separate from the Road Fund, and also not as a road authority.

Road authorities need to be strengthened to perform their roles as defined in the Roads Act, which, amongst other things, is to receive funds from the Road Fund and apply the same in a transparent and accountable manner.

Road Funds have been implemented in a number of countries in Africa, and the results have been varied. Some important lessons can be learnt though, from experiences of countries such as South Africa and Zambia. Below is an extract from a review that was conducted by the World Bank on Road Funds in a number of African countries – what works and what does not.

A review by the World Bank[22] noted that road funds are generally criticize on the grounds that they constitute earmarking and hence introduce fiscal inflexibility and undermine the principle of unified

[22] African Road Funds: What Works and Why? by Anne Balcerac de Richecour and Ian G. Heggie, March 1995, The World Bank - Africa Region

budget management. The main operational objection to road funds is that they simply do not work. However, the usual criticisms rarely go beyond superficial symptoms and make little effort to find out why road funds have problems and what might be done to overcome them. The results of the review suggest that road funds can work successfully if some institutional arrangements are made. The review covered road funds in Benin, Central African Republic, Chad, Ghana, Mozambique, Rwanda, Sierra Leone, South Africa, Tanzania, and Zambia.

The earliest road fund was established in South Africa in 1935, Benin established one in 1984 and Ghana in 1985, and the remainder were established during the late 1980s and early 1990s. Some of these road funds like those in Benin, Ghana, and South Africa have been operating for some time and have a wealth of experience to share.

The usual problems cited include: (i) road user charges are simply not paid into the road fund; (ii) the charges are paid into the road fund, but disbursements continue to be erratic; (iii) road fund revenues do not meet required road maintenance expenditures; (iv) government borrows money from the road fund to finance other government expenditure programs; and (v) instead of being used to finance maintenance, the funds are used to provide counterpart funding for donor-financed rehabilitation programs and to finance road agency overheads, equipment purchases, and staff salaries.

The review suggests that road funds can work successfully if they have: (i) clear objectives; (ii) an independent source of revenues mobilized through a road tariff; (iii) arrangements for effectively managing the road fund; and (iv) commercial accounting systems and independent audit arrangements.

The road fund should not have to rely on transfers from the government's general tax revenues to cover operation and maintenance of the road network. Even though it may take several years to reach the required level, the basic expenditures to be financed through the road fund should be fully funded by road users. The road fund should be managed by an independent board which includes representatives of road users nominated by the organizations they represent.

The board should recommend the level of the road tariff (fuel levy, license fees, and bridge and ferry tolls) to ensure it is regularly adjusted to deal with inflation, devaluation of the currency, and changing road expenditure requirements. The fuel levy should be collected by fuel companies and deposited directly into the road fund. Where feasible, license fees, bridge and ferry tolls, and international transit fees, should also be collected under contract and deposited directly into the road fund.

The road fund should be managed according to sound commercial principles with clear disbursement procedures (ideally only disbursing funds for tendered contracts following certification that the work has been completed according to specification), and funds disbursed should be subject to an independent financial audit and a selective technical audit.

The objectives of the road fund should generally attach highest priority to maintenance, which should be fully funded by the road fund. The long-term objective should be to also cover road rehabilitation and new construction to ensure the road sector becomes financially self sufficient.

The only charges constituting a road tariff and which should be paid into the road fund include:

- *charges for use of the road network: fuel levy, tolls, and international transit fees; and*
- *charges for access to the road network such as vehicle license fees.*

Most of the other taxes and charges such as value-added tax (VAT), registration fees, vehicle inspection fees, and driving license fees, are not really charges for road use and should not be paid into the road fund.

The road tariff should be set to ensure that each class of vehicle covers its marginal costs and that all vehicles collectively cover the total costs of operating and maintaining the road network. Exemptions should only apply to non-road users to ensure they do not have to pay the fuel levy.

Fuel levy is the most important part of the road tariff; it does not suffer from much evasion, avoidance, or leakage, but does tend to get diverted to support other spending programs. The option that is working reasonably well in several countries involves collection by the oil companies which directly deposit the revenues into the road fund (as in Central African Republic, Ghana, Rwanda, and Zambia).

South Africa probably has the best developed system for allocating funds. Economic criteria are used for all schemes involving rehabilitation, improvement, and new investment, while maintenance funds are allocated using maintenance unit rates. It uses standard unit rates for each routine and periodic maintenance activity, classified by type of road surface and volume of traffic. These rates are then multiplied by the length of maintainable road under the jurisdiction of each road agency to arrive at the total maintenance budget required by each agency. The allocations are then adjusted to reflect differences in rainfall (and hence maintenance requirements).

Commercialisation of DoR

The proposed commercialisation of the Department of Roads (DoR) as the State Highways Authority (SHA), a new parastatal or state-owned company to manage the national State road network, was proposed as part of the recommendations from the Road Sector Reform and Development Programme of 1996-2000. This step remains to be implemented, and is constrained by the absence and lack of a self-sufficient source of funding for the entity.

Steps need to be made to revive and strengthen the DoR's system of network-based maintenance units and camps, albeit in a commercialised fashion. The private sector would be involved through the letting out of term contracts or output and performance-based road maintenance contracts.

The UC and RDC road maintenance structures need to be reviewed with the aim of improving the same and encouraging commercialisation by outsourcing services as and when required, compared to maintaining expensive, huge and inefficient in-house units.

Along the same lines, the DDF system of district network-based maintenance units and camps needs to be revived, along with its tractor-based technology, and the involvement of local residents.

National Road Accident Fund

A proposal has been made to establish a national Road Accident Fund. This is in response to the realisation that much as the motorist pays for the "third party" insurance when licencing the vehicles, not much is seen in terms of compensation or benefit to the motorists and other third party casualties and victims of motor vehicle accidents.

Institutional Structure Changes for Rail

There are four potential options for restructuring NRZ:

1. Government operates; maintains and owns the track;
2. Private sector operates; Government maintains and owns the track;

3. Private sector operates; Private sector maintains and owns the track; or
4. Government operates; Private sector maintains and owns the track.

→ The **recommendation is to maintain Option 1 (the current structure)**, then as the economy grows, Government would start to consider Option 2.

→ A Rail Regulatory Authority would need to be established because track infrastructure would remain a natural monopoly. The regulator would grant entry to new operators, approve or set access charges and arbitrate any disputes between the infrastructure manager and operators, and between the operators. The idea to form an independent regulatory body to investigate accidents and set standards for NRZ, BBR and any other new players is in line with international best practice.

3.2.3.2 Regulatory Reforms

Regulation is to be unbundled from service delivery and carried out through independent regulatory authorities, outside the hierarchal structure of MoTID. Government needs to no longer be a self-regulatory provider. Independent public regulation of safety and service quality would be introduced to ensure that public interest is protected.

As the transport sector faces modal competition, economic regulation would be centred largely on areas of monopoly market, or where there is no regulated competition.

3.2.3.3 Legal Review

The Urban Areas (Omnibus Services) Act [Chapter 29:14] needs to be amended by removing reference to the Controller of Road Motor Transportation, so as to be in line with the revised Road Motor Transportation Act [Chapter 13:15] which no longer contains provisions relating to a Controller of Road Motor Transportation but now establishes a Commissioner of Road Transport. References to some definitions (e.g. “public service vehicle”) in the repealed Road Motor Transportation Act Chapter 13:10 need to be amended or deleted, as there is no corresponding definition in Chapter 13:15 Act which succeeded the Chapter 13:10 Act.

3.2.3.4 Summary of Institutional, Regulatory and Legal Reforms

→ **ZINARA needs to revert to its original role** of scrutinising and consolidating development plans from Road Authorities, and of conducting technical and financial audits; and to **maintain existing arrangements** between ZINARA and the Road Fund.

However, a study to establish the optimal staff complement is required; recommendations of which should be enacted in the Roads Act.

There would be need to enhance accountability and transparency; to ensure efficient utilisation of accruals to the Road Fund; and to use the funds strictly for maintenance and for approved projects only.

→ **Commercialise DoR** as the State Highways Authority (SHA).

This proposal has been constrained by the absence and lack of a self-sufficient source of funding.

→ Establish a national **Road Accident Fund**.

- → **Equip all road authorities** with basic road asset management tools to meet minimum statutory obligations and organisational requirements for planning and reporting.
- → DDF and DoR's systems of **network-based maintenance units and camps need to be revived and strengthened**; and the private sector to be involved through term contracts or output and performance-based road maintenance contracts.
- → Urban and rural district council **road maintenance structures need to be reviewed to encourage commercialisation** by outsourcing services as and when required.
- → **Unbundle regulation from service delivery**; regulation needs to be carried out through independent regulatory authorities, outside the hierarchal structure of MoTID and Government no longer has to be a self-regulatory provider.
- → Introduce **independent public regulation of safety and service quality** to ensure that public interest is protected.
- → **Economic regulation** needs to be centred largely **on areas of monopoly**, or where there is no regulated competition.
- → **Replace reference to the Controller of Road Motor Transportation** in the Urban Areas (Omnibus Services) Act [Chapter 29:14] by Commissioner of Road Transport, in accordance with Road Motor Transportation Act [Chapter 13:15].

3.2.4 Spatial Context

Proposals in the spatial context include those for Land Use Planning, in terms of mixed **land use development**, provision of the necessary transport infrastructure and dedicating areas meant for transport for that purpose. With regard to Spatial Development, there is need to complete missing links, to open up new regional opportunities and to make local transport situations work. In urban areas, there is need to provide the necessary road infrastructure and facilities for both motorised and non-motorised transport, and to provide appropriate passenger services, ideally making use of mass transit systems. Similar arrangements need to be made for rural areas also, however, at the appropriate scale to reflect travel demand. As a way of promoting tourism gateways and transport corridors need to be developed, supported by appropriate signage (based on the new SADC signs).

3.2.4.1 Summary of Spatial Proposals

With regard to **land use planning**:

- → Mechanisms need to be put in place so as to ensure integration between land use and transport planning. Developments in many parts of the world now promote **mixed land uses in order to reduce the number of motorised trips** in urban areas and to promote the use of non-motorised transport.
- → Urban local authorities need to provide the necessary **transport infrastructure as part of their municipal and town master plans**.
- → Local authorities are encouraged to **use areas planned for development of transport infrastructure for the purpose intended** and not otherwise, and to improve internal

circulation infrastructure in otder to reduce congestion, through road widening, addition of new roads and by passes.

Additional proposals for **urban areas** include:

- → the development of mass transportation systems (including the use of dedicated bus lanes) to improve transport and traffic management;
- → improving driving standards and pedestrian behaviour;
- → improving infrastructure designs covering road markings, junction management, positioning bus stops properly, and synchronising traffic lights, to improve traffic flow;
- → providing dedicated pedestrian and cyclist facilities to ensure safety and security;
- → providing bypasses, ring roads and truck inns to cater for through traffic;
- → strengthening the capacity of urban councils to effectively maintain their roads;
- → ensuring timely maintenance of traffic lights and road signs.

Proposals for **passenger services** include:

- → promoting the use of high capacity transport modes, and gradually phasing out kombis and minibuses, replacing them with higher capacity higher quality buses;
- → putting in place financing mechanisms and guarantees to enable kombi operators to replace their fleets with larger size vehicles;
- → improving access especially within residential areas;
- → preventing heavy goods vehicles from traversing the Central Business District (CBD);
- → insisting on improved customer care for passengers;
- → providing design guidelines in respect of public transport infrastructure such as providing bus priority systems to improve speed and traffic flow;
- → planning for pedestrians and vendors in order to minimize conflict with vehicular traffic;
- → promoting car sharing;
- → providing NMT facilities to and from bus routes; and
- → implementing proper timetabling and integrated ticketing systems.

With regard to **rural transport,** proposals are to:

- → create or improve access to/from villages for both motorized and non-motorised transport;
- → improve access by NMT to services, in areas without proper road access;
- → provide all-weather access; and
- → provide road infrastructure within 2 to 5 kilometres from human settlements.

Tourism is an important spatial development initiative in the national development agenda, and proposals to support it are as follows:

- → ensuring national parks, wildlife and other major tourist attractions are well serviced with all-weather roads and are accessible all year round;
- → providing well-functioning and reliable domestic and international air connections;
- → improving land gateways e.g. establish one-stop border posts to ensure faster entry at all border posts;
- → establishing a new "**Limpopo access facility**"' to ease pressure at Beitbridge;
- → improving the level of service of roads (e.g. minimum average speed of 70 km/h)
- → providing sufficient roadside amenities (service stations with parking, resting areas, fuel, food and beverage) least every 150 to 200 km;
- → installing a well-conceived and coherent signage system of international standards along the highways leading to tourist areas, and for site presentation and interpretation, at natural or cultural sites, city-cores, botanical gardens and parks;
- → improving air gateways (major airports and secondary airports) to ensure better handling of tourists; and
- → improving tourism corridors to allow access, connectivity and faster speeds.

Infrastructure interventions to support spatial development involve the provision of missing links country-wide, and the provision of new links to open up some regions within Zimbabwe that have remained closed up for a long time.

3.2.5 The Road Sub-Sector

For poor people in both urban and rural settings, poverty is more closely related to direct issues of resources than social services. Issues of 'access', that is, physical accessibility to key services and distance to roads, directly influence strategies to eradicate poverty in poor communities, and for them to be fully integrated in the national economy. Strategies to achieve this include maintenance of existing transport facilities and investment in new (or upgrading existing) transport infrastructure. Roads can therefore contribute significantly to the quality of life and personal freedom of the country's citizens.

3.2.5.1 Policy Proposals for Roads

Policy, legislative and institutional clarity plays a significant role in streamlining the functioning of the roads sub-sector and defining and allocating responsibilities in a transparent manner. This Master Plan proposes a revision of the roads sub-sector policy, regulation and legislation, as well as a restructuring of the institutions responsible for transport nationally. Policy proposals are to:

- → provide high quality road infrastructure to enhance accessibility to centres of economic, social and recreational importance in rural and urban areas;
- → promote PPPs and toll roads in the provision and upgrading of new roads;

- promote interstate trade and smooth flow of transit traffic from neighbouring countries and seaports;
- promote safety on new and existing roads;
- minimise detrimental impacts of road construction on the environment;
- enhance employment creation opportunities and poverty alleviation by promoting spatial development initiatives along major transport corridors;
- provide for transport business to be driven by commercial consideration;
- improve the effectiveness of the road fund, ensuring equitable allocation to the road and other transport agencies;
- ensure road freight transport bears its fair share of cost covering maintenance and congestion cost;
- ensure availability of road freight transport for enhanced national and regional economic growth and the reduction of transport cost;
- ensure the development of safe and secure road freight transport services;
- ensure road freight transport operates largely in a liberalised market with regulation limited to addressing congestion and minimising the environmental impact; and
- provide reliable transport systems and logistics and freight forwarding services.

3.2.5.2 National Aspirations for Transport

Lack of adequate funding for road maintenance and rehabilitation over the years is considered to have led to the deteriorating state of the country's road network. Only the Plumtree-Bulawayo-Harare-Mutare project has undergone rehabilitation, widening and improvement (820km out of 88,133km). DDF, RDC, UC roads are similarly in poor condition. The effects of poor network condition include high road user costs; difficult operating environment; increase in road accidents and reduced national economic efficiency. In answer to the poor state of the national roads, the GoZ made recommendations for the transport sector to achieve the following between 2013 and 2018:

- 200km of roads to be dualised (this is an investment potential);
- 500km of roads to be rehabilitated;
- 4000km of roads to be resealed, 500km per province;
- 200km of new roads to be constructed;
- 200 km of narrow mat roads to be widened;
- flood damaged bridges (such as Runde and Tuli) to be rebuilt;
- 4000km of rural roads to be regraded and regravelled – 500km per province;
- 1000km of tarred road carriageways to be marked, signed and fenced; and
- automation of vehicle registration, driver licensing, vehicle and operator inspection.

3.2.5.3 Proposed Programmes for Road Infrastructure

As mentioned above, roads constitute a vital link in the national economy, promoting the smooth running of the economy locally, nationally and regionally, provided they are in good condition and in the optimal locations. For about two decades from independence, the national road network was generally in very good condition and as such provided an essential backbone to the economy. However, over the past decade or so, due to erratic maintenance interventions resulting from inadequate funding, the condition of most of the roads nationally deteriorated to the extent that vehicle operating costshave become significantly high. The proposals presented here therefore take cognizance of the comprehensive coverage of the existing road networks, albeit in poor condition, and the missing links that would complete the networks. In addition there are proposals for new programmes and projects arising from and reflecting national development aspirations. The proposals are presented below.

→ Existing and On-going Road Projects

All the existing road networks – rural, urban, intercity, regional trunk roads – have been the backbone of Zimbabwe's economy for a very long time. However, most of the roads in these networks have deteriorated so much that immediate intervention is required. Certain sections of roads have deteriorated to the extent that they would appear as missing links in the networks. Examples include most access roads in rural areas, and Karoi-Binga Road from Musampakaruma to Siakobvu which are impassable during the wet season every year. Lack of periodic maintenance has meant that most roads (especially those in rural areas) require re-surfacing (including re-gravelling), pothole patching where pavement damage has been confined to the surface only, and rehabilitation where pavement layers have been significantly damaged.

Preservation extends to upgrades involving re-construction and/or widening. This type of intervention is aimed at improving safety as well as pavement strength to enable the pavements to withstand more/heavier loads. Some capital projects would be amenable to PPPs and concession agreements with private investors.

Preservation of the existing networks would satisfy all the five themes identified under the Vision for Transport in terms of job creation, improved access and mobility, safety improvement, more efficient travel hence less environmental impacts and better links with neighbouring countries.

The MoTID has over the years been preparing its own infrastructure development programmes in order to meet demands of the other various sectors. Hence projects have been identified and construction may have started but not completed. This tranche of projects needs to be given priority. This type of intervention would most likely have been for the improvement of economic efficiency, safety and regional integration.

→ Provision of Missing Links

The existing networks may have gaps which impact negatively on traffic movements. Examples include the missing links on the Harare Drive, the need for a Harare Outer Ring Road to cater for regional traffic, and lack of facilities for non-motorised transport between road/street networks and homes or work places. The missing links need to be provided in order to enhance economic efficiency of the highway networks, as well as safety and security for non-motorsied transport. All road and street networks in

Zimbabwe are conspicuous for lack of universal access to cater for the needs of such groups as people living with disabilities, the elderly, women pushing prams, etc. Thus all new or improvement works should incorporate universal access in their designs.

A few areas in Zimbabwe have remained closed up for a long time due to poor connectivity – either there is no necessary infrastructure, or the condition of whatever infrastructure is available does not allow for easy access. Examples of such areas are the Chikombedzi area between Chiredzi and Sango, from Rutenga to Zvishavane and to Chicualacuala, between Tsholotsho and Hwange and between Kwekwe and Lupane.

→ **Links to Economic Hubs**

The GoZ has ambitious plans (as presented in ZIMASSET and associated development plans) to improve the national economy by enhancing outputs from economic sectors such as agriculture, mining, tourism and manufacturing. In most cases some rudimentary means of access to the economic activities would be available. However, the accesses would not be adequate to allow meaningful and efficient movement of outputs. Coal reserves in the Gokwe and Sengwa areas need to be fully exploited, the new iron mine in Manhize needs to be accessed, and the methane gasfields in Lupane require a new link in order for full exploitation of the product to be made.

The National Tourism Master Plan identified a number of links country-wide that would require improvement in order for the full potential of the Tourism Development Zones to be realised.

The GoZ has identified five Special Economic Zones where a lot of activities that would substantially boost the country's economy would take place. These SEZs require up to standard infrastructure in order for them to achieve their goals, that is, producing outputs mainly for export. Sunway City in Harare is a case in point, which would require a link between Mutare Road (from Mabvuku Turn-off) to Harare International Airport.

→ **Other Road-related Proposals**

GoZ needs to commission a study to estimate road user charges needed for capital and maintenance programmes based on current road conditions.

→ MoTID needs to set up a Highway Management System to use for prioritization of work programs and investments in the road sector and carry out regular traffic counts to provide information that can guide decisions on requirements for maintenance.

→ MoTID needs to conduct periodic surveys of passenger and freight services and information about the costs of these services to allow comparisons to be made with competing services in neighbouring countries and with alternative transport modes.

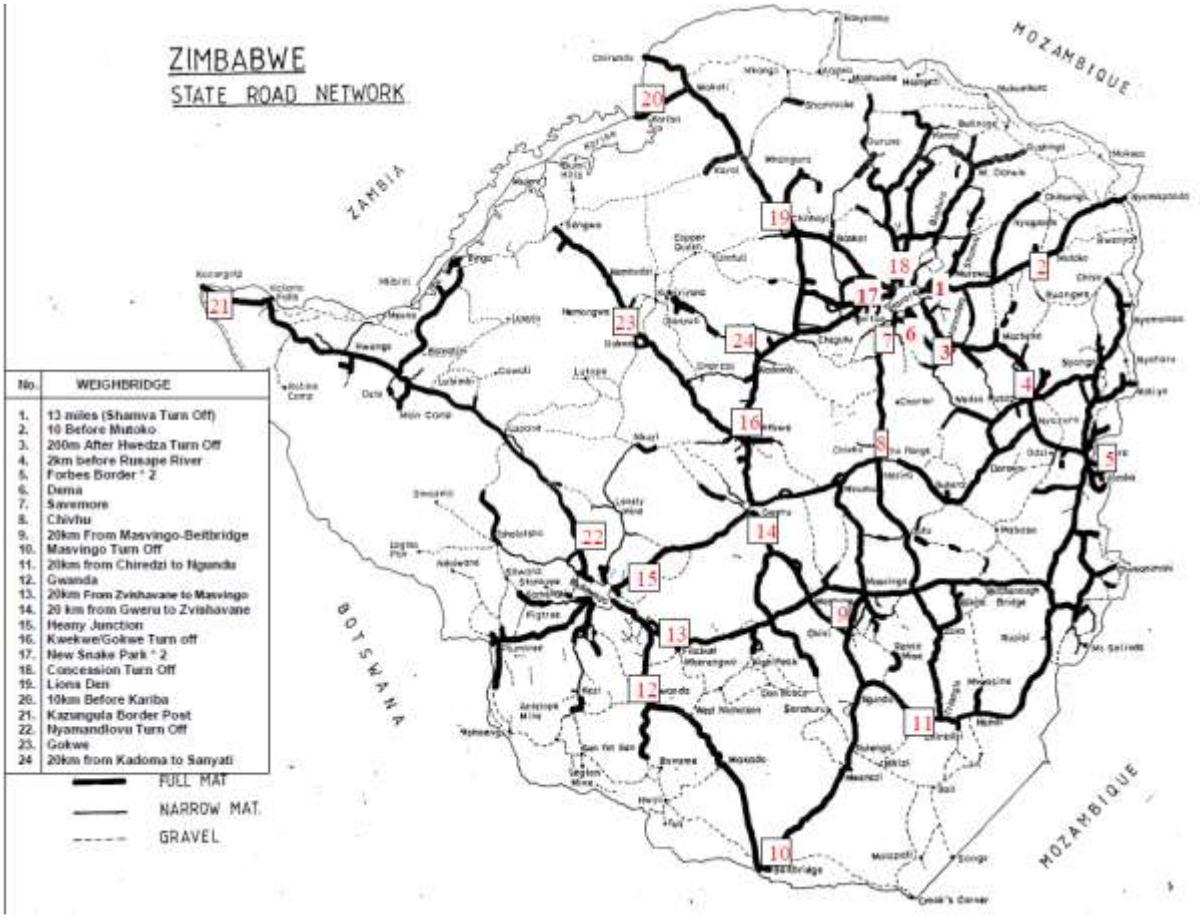
→ The GoZ needs to fully embrace the SADC protocol on Transport and Communication for harmonisation of standards in order to promote regional integration.

→ MoTID through VID needs to observe overload control in order to preserve the national road network, by establishing and maintaining a network of weighbridges at

all border posts, toll gates and other strategic locations. Work has already commenced on this aspect and twenty sites have been identified for weighbridges to be installed.

→ In order for some of the proposals presented above to be effective, it is necessary to capacitate the MoTID and in particular DoR, through the provision of scholarships and cadetships, restoration of training facilities, and re-starting the small contractor development programme, among others.

Figure 3-2: Locations of Weighbridges



3.2.5.4 Proposed Programmes for Bridges

There has been a severe loss of personnel with skills in bridge design, construction and maintenance over the years due to depressed activity in the road sector and ageing of personnel, among other factors. The DoR has lost all experienced bridge designers and currently there are no training or mentorship programs in place. Other road authorities have always faced challenges and they have tended to rely on the DoR for design, construction and maintenance planning for major structures.

There is therefore a need to re-build capacity in the sector in a staged approach to entice properly qualified and experienced Zimbabwean professionals to train DoR staff; to have sufficient activity in the road sector to be able to attract back into the country bridge designers currently practicing outside Zimbabwe; and to build bridge design capacity within the DoR, as a long term goal.

Proposed programmes for bridges include:

- → establishing a GIS-based Bridge Management System as part of the proposed Highway Management System;
- → Reviewing and updating the DoR Bridge Design Manual to bring it into line with modern practices and requirements of the SADC Protocol on Transport.
- → Proposals for bridge infrastructure include: general maintenance, repairs, widening (to improve capacity and safety), replacement (where the condition of the bridge or the age so dictated), and retirement (where the bridge was constructed earlier than 1930), and building of new bridges on new roads or in cases where dualisation was envisaged.

3.2.5.5 Proposed Programmes for Road Transport Operations

Public Transport

The public transport systems in most towns and cities in Zimbabwe are characterised by the prevalence of kombis (most of which are old and in poor condition). Kombis are easily affordable by most people because of their relatively low cost. However, in some instances, economies of scale would benefit the travelling public, e.g. if larger conventional buses would be used, to replace the kombis where necessary. Harare used to have a very effective bus system at independence in Harare United Omnibus Company (HUOC), which later became Zimbabwe United Passenger Company (ZUPCO). The population of most cities have gone up substantially and the introduction of conventional buses would be effective in moving commuters between home and work, at the same time contributing to a reduction in city centre congestion.

There have been suggestions to introduce bus rapid transit (BRT) in Harare. However, current passenger volumes on most corridors, coupled with the huge costs of construction, cannot justify the introduction of BRT. In the short to medium term, intermediate measures such as dedicated bus lanes together with bus priority at traffic signals, can be employed instead, until volumes are large enough to justify BRT systems, and unitl the economy picks up enough for projects of such magnitude to be affordable.

There have also been suggestions to re-introduce the **“freedom” trains**, which once catered for commuters between Harare and the dormitory towns of Norton and Ruwa, using existing infrastructure and rolling stock. This suggestion has however, not materialised, as NRZ considers rail passenger services to be loss making, due primarily to the low fares charged.

The proposal for public transport therefore is to:

- → gradually phase out kombis and minibuses on trunk routes (by replacing them with conventional buses) whilst maintaining them as feeder services where appropriate. Details of the phasing out of kombis are presented in sub-section 3.2.103.2.10 below.

Informal Transport Operations

Proposals for informal transport operations include:

→ introducing passenger trains to operate from Bulawayo and Gweru to cater for the steady passenger traffic to and from the Beitbridge, as an alternative to road transport by buses and kombis, as is the case between Bulawayo and Plumtree;

→ formalising "amalaitsha" informal road transporters who offer a service to ferry and deliver unaccompanied goods by road from South Africa and Botswana to informal cross-border traders or Zimbabweans living and working outside the country.

Vehicle Technology and Energy Use

The GoZ is encouraged to consider:

→ introducing electric vehicles in order to reduce GHG emissions.

The Global Fuel Economy Initiative (GFEI), one of the SE4All flagship programs whose main objective is to reduce emissions, aims to at least double the efficiency of the global vehicle fleet from an average of 8l/100 km in 2005 to 4l/100 km by 2050[23].

Given that the average energy efficiency of the fleet in Zimbabwe is currently 10.45 l/100 km, well above the world average, the implementation of the GFEI target may be unrealistic. The 2030 target is set at 8l/ 100 km for all vehicles that corresponds to an improvement by approximately 20%, compared to today's situation. An intermediate target is set at 9l/ 100 km by 2025.

→ introducing biogas in transportation to help moderate increasing fuel imports.

→ promoting appropriate car maintenance by enforcing vehicle inspection rules in order to reduce pollution and fuel consumption.

Improving Traffic Flows and Reducing Congestion

The GoZ should encourage local authorities to:

→ promote the traffic lights synchronization in networks and main traffic corridors.

→ encourage companies to introduce staggered and flexible working hours.

→ reduce the need for travel, for instance by teleworking.

→ create awareness of, and help to organize and incentivize Travel Planning.

→ limit parking supply in the CBD through parking charges.

→ discourage private vehicles in the CBD through city tolling and congestion charging.

→ provide lorry routes and discourage use of heavy vehicles in densely populated areas.

→ embark on awareness campaigns on the benefits of public transportation, non-motorised transport and other aspects of sustainable transportation.

Freight Movements

[23] Global Energy Efficiency Accelerator Platform, Transport and Vehicle Fuel Efficiency, available at: http://www.se4all.org/sites/default/files/l/2014/09/Accelerator_Transport-0615.pdf

The Transport Operators Association of Zimbabwe (TOAZ) proposes that government should carry out a policy review to revive the private sector.

Proposals for freight operations include:

- → introducing a tax regime which encourages investment in modern fleets.
- → Reducing delays in getting vehicles through border posts.
- → encourage regular and constructive engagement between the TOAZ and the MoTID.

3.2.6 The Rail Sub-Sector

The Infrastructure Development Bank of Zimbabwe (IDBZ) considers the resuscitation of the National Railways of Zimbabwe (NRZ) as paramount to addressing the high cost of doing business and spurring economic development, as well as for promotion of regional integration. To this end, the IDBZ, in liaison with both the MoTID and NRZ, is working on the best strategies to recapitalise and revive the country's rail sector.

It is important that NRZ should invest in traction as well as rolling stock and to rehabilitate its entire network and extend the existing rail network so as to respond adequately to the transportation needs of its customers as well as provide reliable links to regional and/or international transport routes. However, finding the funding to make the necessary investments has been a huge challenge for NRZ. To this end, the IDBZ is currently working with the NRZ towards the mobilisation of the initial capital to kickstart the investment programme as planned by the NRZ. The initial programme consists of rehabilitation of the existing railway line network, replacement and/or modernisation of signalling and communications equipment, acquisition of new rolling stock (locomotives, coaches and wagons) and refurbishment of old ones, as well as repairs of bridges, workshop equipment, buildings and other collateral and supporting infrastructure.

The Bank will also continue facilitating the financing of quick turnaround projects such as the construction of weigh-bridges, acquisition of tarpaulins to cover commodities in transit and repair of wagon wheels to capacitate the NRZ. Proposals for rail are presented below.

3.2.6.1 Policy Arrangements for Railways

Policy arrangements for National Railways of Zimbabwe are to:

a) ensure the provision of smooth and efficient railway services;

b) phase out NRZ's monopoly and provide for negotiated or mandated access;

c) provide for the separation of railway regulation from railway operation and in the process provide for independent regulation of rail transport;

d) provide for a safe and secure rail transport environment;

e) ensure that rail is not faced with unfair competition from road transport;

f) minimise the environmental impact of rail transport; and

g) where universal or social services obligation is placed on rail transport government to compensate the services provider through a targeted subsidy mechanism.

The objectives on the other hand are to:

- improve rail transport infrastructure by 5% annually;
- improve the policy framework for rail transport and communications services;
- reduce corrupt practices in transport business operations and transactions;
- finalize and adopt the draft Rail Transport Regulatory/Policy (RTRP) to facilitate the development of an integrated rail transport system;
- reduce the number of rail transport accidents (per 1000 vehicle kilometres) and fatalities (per 10 accidents) by 5 % annually

Goals for NRZ are to:

- ensure that NRZ implements the Corporate Governance Framework;
- collaborate with Cabinet to come up with a remuneration and compensation policy for top management in NRZ;
- monitor and evaluate the Performance Contract for NRZ management;
- establish a Railway Regulatory Authority;
- finalize Automated Transport Management Information System framework;
- put in place a legislative framework for PPPs for rail infrastructural development;
- recapitalize and engage a strategic partner for NRZ; and
- enter into strategic partnerships to avail funding for infrastructure development of rail transport.

The aim for the railway sector for the Master Plan should be to:

→ return NRZ capacity and operations to pre-2001 levels;

→ poise NRZ to meet future traffic demands;

→ permit NRZ to cover costs of operations and make profit; and

→ improve operational and safety performance to acceptable levels.

NRZ has an important transit function in the southern part of Africa and is well linked with neighbouring countries hence a successfully operational railways in Zimbabwe would be key towards achieving SADC's Infrastructure Development Plan.

3.2.6.2 Proposed Programmes for Railways

Classification of Railway Routes

→ NRZ routes are to be classifed into three groups: Class A, Class B and Class C. For each class the design criteria in terms of sectional speed and interlocking (Signal and Telecommunication) will be different. The higher the Class, the higher the priority for capital investment.

The broad specifications of the railway network classes are presented in Table 3-3 and Table 3-4 below.

Table 3-3: Classification of Railways by speed and curvature

Corridor	Section	Section speed	Curve Radius	Rail section
Class A	Victoria Falls-Bulawayo-Harare-Mutare	60km/m (Freight)	Min 600m	Upgrade to 54kg/m on concrete sleepers
Class B	Somabhula-Rutenga - Chicualacuala/ Beitbridge, Bulawayo – Plumtree.	60km/m (Freight)	Min 600m	Upgrade to 54kg/m on concrete sleepers
Class C	Mbizi-Chiredzi, Maryland-Kildonan, Gweru-Shurugwi, Gweru- Masvingo, Lochinvar-Chinhoyi, Lochinvar-Shamva.	60km/m (Freight)	Min 400m	Upgrade to 45kg/m (incl Bridges, concrete decked

Table 3-4: Classification of Railways by Signalling and Communication systems

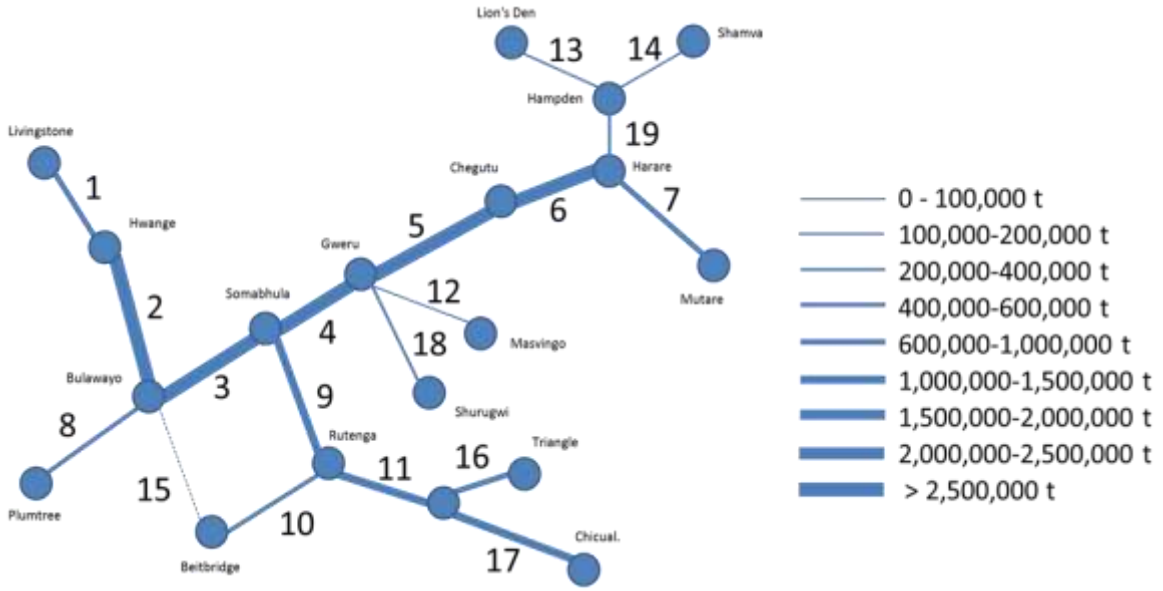
CLASS	Signalling system	Communication system	Impact
A	Centralised Traffic Control	Radio system based on a reliable optic fibre backbone	Highest level of safety and efficiency
B	Hybrid (eg DTC)	Radio system based on a reliable backbone like optic fibre or microwave	Improved level of safety and efficiency
C	Track warrant	Radio system based on a reliable backbone like optic fibre or microwave	Certain level of safety and efficiency

Table 3-5: Classification of Sections of Railway

Corridor	Section
Class A	Victoria Falls-Bulawayo-Harare-Mutare
Class B	Somabhula-Rutenga-Chicuaacuala/Beitbridge Bulawayo-Plumtree
Class C	Mbizi-Chiredzi; Maryland-Kildonan; Gweru-Shurugwi; Gweru-Masvingo; Lochinvar-Shamva

Classification of the different sections of the railway network is presented in Figure 3-3 below.

Figure 3-3: Proposed Classification of Railway Lines



Note: Classification is to be based on traffic moved on the network

Source: NRZ

The infrastructure department's budgetary requirements under Phase 2 can be substantially reduced if sorting and reuse of released rails from other routes is resorted to, thus bringing down the requirement of expensive new rails and 'tapering' the investments from higher class to lower class routes. This approach would ensure that the NRZ railway network is upgraded and made fully functional in the least amount of capital investment. This approach would also allow phasing of the investments in a logical manner.

→ NRZ will need to appoint an engineering designer/consultant to do track designs, prepare Bills of Quantities and develop suitable specifications for each of the classes.

Class A routes

As described above, Class A routes are the routes for which line capacity is equal or more than 3 million tons per annum (MTPA) and projected traffic density in the year 2032 is to equal or more than 2 MTPA.

Class B routes

As described above, Class B routes are the routes for which line capacity is less than 3 million tons per annum (MTPA) and projected traffic density in the year 2032 is to equal or more than 1 MTPA.

Class C routes

As described above, all the routes which do not fall either in Class A category or in Class B category, are classified as Class C routes. These are the routes for which line capacity is less than 3 million tons per annum (MTPA) and projected traffic density in the year 2032 is less than 1. These are all branch lines.

Leasing/Purchasing of Rolling Stock

A few private South African companies as well as Transnet Freight Rail have been providing rolling stock particularly locomotives and wagons, on lease to various railway organizations in Southern Africa.

There are two alternative approaches to acquiring rolling stock, either:

→ entering into **long term lease agreements** or renew leases after the end of every term;

OR

→ arranging **'Capital' to purchase new/second hand** rolling stock, and to upgrade maintenance capabilities to cater for the enhanced maintenance requirement.

The capital investments in rolling stock can be substantially reduced by entering into 'Short Term' lease agreements with suppliers. The lease agreements can be so structured that the leases become effective on the basis of actual demand.

→ Doing **direct business dealings with manufacturers** to procure the supply of technology, equipment and spares directly, instead of the current practise of doing so through intermediaries reduces the capital investment on railways.

The possibility of raising funds for NRZ short term requirements for track rehabilitation, signaling and rolling stock was discussed with DBSA and identification of potential partners and financiers was in progress.

Public Private Participation (PPP)

PPPs have attracted much attention in recent years as possible means to handle large and costly projects, such as the construction of new transport infrastructure. Zimbabwe has a PPP – the Beitbridge Bulawayo Railway (BBR), a BOT project; that would be handed over to the NRZ after 30 years of service at no cost. The overall goal of a PPP project is to find solutions to problems in which the advantages of the private sector (such as financial assets, efficient management, propensity for innovation and entrepreneurship) are combined with the advantages of the public sector (such as social and environmental concern).

Outright privatization of the railway and concessioning of railway operations may not be suitable in the prevailing climate. However, extension of the successful BBR type of concessions can be done on identified sections such as Bulawayo-Victoria Falls, Bulawayo-Harare, and Harare-Mutare sections. On other routes NRZ may own and maintain the infrastructure and offer open access to private operators.

Another option for NRZ would be to restructure it[24] into two new companies:

- a Railway Infrastructure Company of Zimbabwe (RICZ), a state owned company that would own the track and related infrastructure and operate and maintain; and
- the Zimbabwe Railway Services Company (ZRSC) which would be a private company that would operate as a freight and passenger service concessionaire on the entire public rail network. Concessionaires would pay maintenance and concession fees to RICZ for the maintenance and operation of the network.

Arrangements to improve Railway Infrastructure

- Rehabilitation of the existing railways network; and
- Construction of new railway lines (see Figure 3-4).

  Government can develop the new lines via PPP similar to BBR, giving out 20 to 30 year concessions. First, feasibility studies need to be carried out. The Government would offer land and tax incetives, and the private sector would construct/build and operate then transfer back to GoZ (NRZ).

Recommendations of short term investments by NRZ are shown in Table 3-6 below, whilst medium and long term investments are presented in Table 3-7.

[24] Infrastructure and Growth in Zimbabwe (An Action Plan for Sustained Strong economic growth, 2011 African Development Bank)

Table 3-6: Short Term Investments

Category	Amount ($M)
Rehab of Class A Tracks	170.5
Rehab of Class B Tracks	63.5
Rehab of Class C Tracks	63.5
Track Maintenance Equipment	36.1
Signal and Telecom Systems	165.0
Rolling Stock Refurbishment	63.8
Workshop and Equipment	33.9
Total	**596.3**

Source: CPCS 2017

Table 3-7: Medium and Long Term Investments

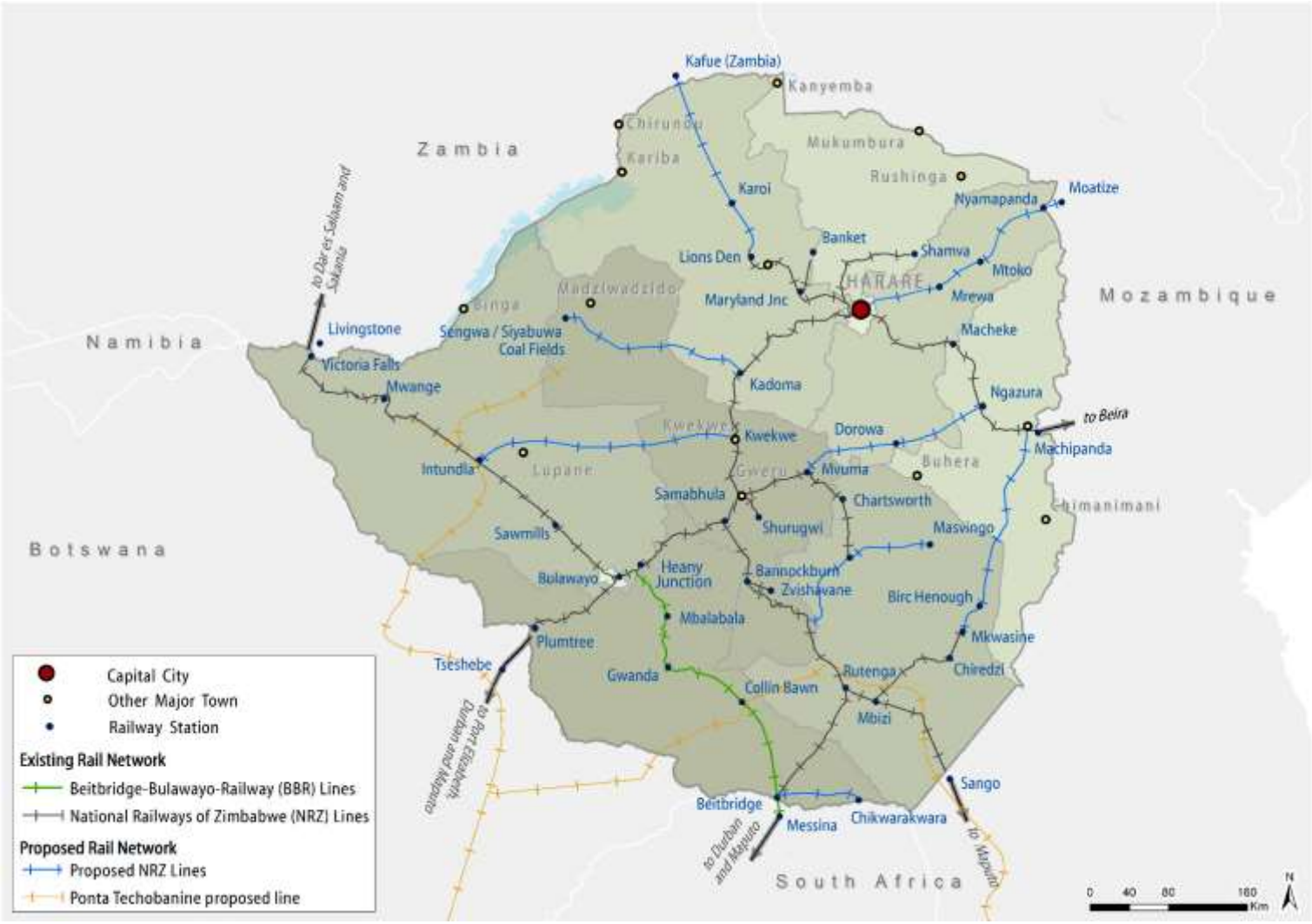
Category	Amount ($ M)
Lion's Den - Kafue	225.0
Kadoma - Sengwa	240.0
Harare - Nyamapanda	345.0
Mkwasine - Mutare	300.0
Mvuma - Pounsley/Mutare	270.0
Intundla - Zisco	450.0
Buchwa - Bikita	150.0
Beitbridge - Bubye Coalfields	75.0
Harare - Chitungwiza (LRT)	45.0
Total	**2,100**

Source: CPCS 2017

A Dry Port at Walvis Bay is expected to be functional in the first half of 2017[25]. The project was spearheaded by Road Motor Services, a unit of NRZ, in partnership with the Namibian Port Authority. Development of this facility (as part of the SADC Regional Infrastructure Master Plan 2013-2027) would offer Zimbabwe an alternative route for exports and imports to Europe and the Americas, saving exporters and importers more than 10 days in transit time. Zimbabwe currently depends on Beira and Durban ports for transit and access to the sea. The 10 day reduction in transit time would contribute immensely towards improved economic efficiency. Walvis Bay's deep water harbour is one of the most efficient ports on the west coast of Africa, with significant capacity to store and move cargo.

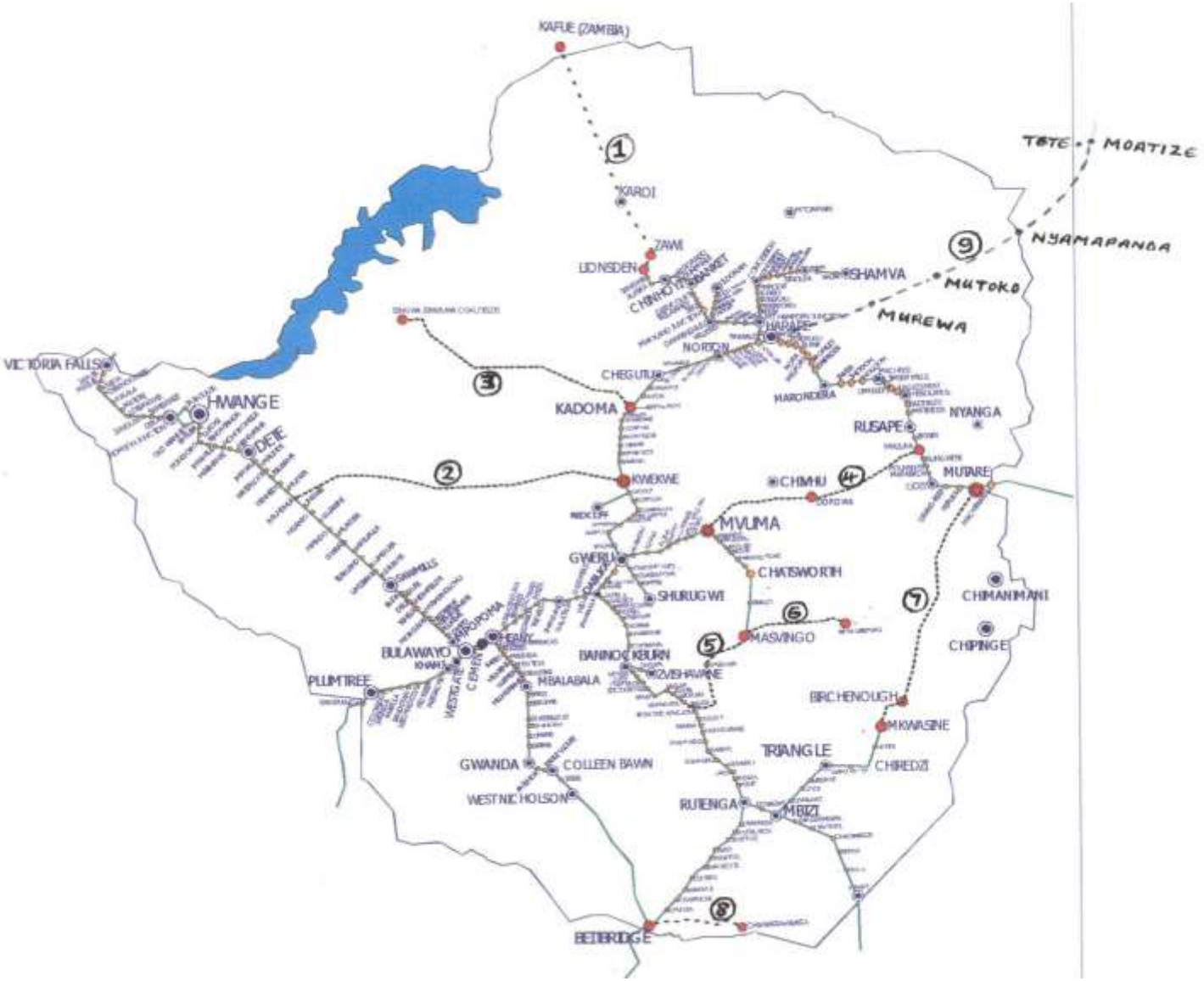
[25] "Zim port at Walvis nears completion", The Sunday Mail News, page 5, 13 November 2016

Figure 3-4: Existing and Proposed New Railway Lines in Zimbabwe



Source: CPCS, 2016

Figure 3-5: Proposed New Railway Lines



Passenger Rail Services in Zimbabwe

In the short to medium term i.e. up to 10 years the role would be limited as development is affected by resource constraints as NRZ is failing to attract lines of credit to recapitalise. In the long term the role and development would be directly linked to economic developments in the country and whether the rail system and infrastructure would have been customised to suit passenger rail needs.

Presently the costs of operating intra city trains are very high as compared to the fares charged. The current rail network was not designed with intra-city trains in mind as they do not pass through the suburbs but rather drop off commuters far off leaving them to complete their journeys on foot. Stiff competition from commuter omnibuses and the low fares charged are a hindrance to achieving viability. The current resources i.e. coaches and locomotives are not suitable for providing commuter services as they result in very high traction costs.

Running of passenger trains as mixed trains with urgent and sensitive traffic would assist in making these operations break even. Concentrating passenger trains around tourist routes and family fun days such as Valentine's Day safari trains would assist the organisation to charge premium rates which would be viable. Currently the steam tourist trains are performing very well as they are breaking even and posting profits.

3.2.7 Aviation Sector

Today, the growth potential for aviation in Zimbabwe is not fully unlocked. It is constrained in a number of ways. This leads to limited volumes of air traffic and still low propensity to use air travel in the population. This in turn is due to excessive level of taxes, airfares and many aviation-related fees and charges. There are excessive costs and there are efficiency gaps – at Air Zimbabwe, at the airports and at other stakeholders.

Another constraint for the growth potential in aviation is the lack of skilled human resources. Aviation-related education and training both operational and management are rarely available. In addition, GoZ is taking a too active role in airline and airport management and operation. In both airline management and airport management, the private sector should play a much more important role in the future. GoZ should reduce its role to be a regulator and supervisor for a safe, secure and efficient aviation sector. As a shareholder of Air Zimbabwe and as owner of the airports it should reduce its role to overall financial aspects and strictly avoid interfering in operational management decisions.

In addition, GoZ should create a framework for internationally competitive airlines and airports, and promote growth through competition among airlines, ground-handling companies, catering companies and all other stakeholders. Except for air navigation services, GoZ should not be the operator any more. Due to the poor condition of the existing aviation infrastructure GoZ must continue to be an investor in aviation infrastructure such as runways as well as air navigation and surveillance equipment.

3.2.7.1 Proposed Programmes for Aviation

The following are some of the main proposals for the aviation sector, details of which are presented below.

- → GoZ to promote traffic growth in civil aviation in order to support economic growth (encourage competition among airlines, lower fees & charges for aviation infrastructure, liberalize aviation sector - ground handling, catering etc.).
- → GoZ to encourage private sector participation in airports, ground handling, catering and may be also air navigation services (financing and operation).
- → CAAZ to increase safety and security standards at airports and in air navigation.
- → CAAZ to increase level of service for passengers and airlines.
- → CAAZ to offer lower fees and charges (own charges, but also charges levied by other stakeholders).

The 2017 Budget Strategy Paper (BSP) envisaged that public expenditures in the aviation sector would target promotion of improved domestic, regional and international connectivity, also would be supportive of tourism, among others. In this regard, focus would be on completion of airport rehabilitation and upgrading projects, including provision of such airport services as flight information display systems, cargo and baggage handling facilities.

Airline Liberalization

Although the aviation industry is increasingly becoming important for Africa's economic development and integration, there are still many challenges that are currently limiting growth. These challenges include:

- continued state protectionism particularly of national flag carriers;
- disproportionately high aviation fees and charges;
- lack of an enabling environment for new investment in aircraft and airport infrastructure;
- inadequate regulatory oversight; and
- lack of true airline market competition.

This Master Plan proposes to continue with the **liberalization of the aviation sector and implementation of the Yamoussoukro Decision** on a step-by step basis. The Yamoussoukro Decision was signed by the Government of Zimbabwe, implying it to be a policy of the government. With the implementation of the Yamoussoukro decision, a liberalized air transport would deliver improved safety, lower fares, and increased traffic in Africa and Zimbabwe. If taken with the other recommendations including partnering with another airline, Air Zimbabwe could be in a position to take advantage of a liberalised market. Wherever implemented air transport liberalization has led to economic growth, strong growth in traffic volumes and lower airfares.

Addressing Air Zimbabwe's Challenges

Experience worldwide shows that privatisation of airlines made air travel more competitive and liberalisation brought competition from low-cost carriers. Most airlines in state control have failed to adapt. However, the political cost of laying off hundreds of state employees makes liquidation unpalatable. So do fears that vital connections to the world will be lost

forever. These, in fact, are largely unfounded. Opening up to competition is likely to result in more flights and lower fares.

In order to rescue and reposition Air Zimbabwe, strict conditions should be imposed. It should be a private company and should be treated as such (paying its taxes as well as its service providers).

- → Air Zimbabwe should become more efficient (through cost reduction and review of excessive salary levels).
- → Employees should not be civil servants any longer – their status should change.
- → There should be zero tolerance for unpaid invoices for air navigation fees, airport charges or ground handling charges or other service providers.
- → Liberalization should be implemented step by step.

What is required therefore is:

- → to find a strategic partner;
- → Government to takeover debt;
- → Government to acquire new aircraft,
- → Air Zimbabwe to join the IATA Clearing House and to open two new routes;
- → the airline to increase aircraft and crew utilization; and
- → the airline to acquire the EASA certification and retain the IOSA certification.

GoZ has decided to give one last chance to Air Zimbabwe. Therefore, GoZ is ready to absorb all the current debt of Air Zimbabwe and search for a strategic partner. This strategic partner would be offered a share in the ownership of Air Zimbabwe. It would then be up to the strategic partner to integrate Air Zimbabwe into its route network, contribute with a fleet renewal and fully restructure Air Zimbabwe. Partnerships have led to improvements for various airlines that have gone on to become leading operators in Africa including Ethiopian Airlines and Kenya Airways.

Several restructuring and turn around strategies have previously failed because Air Zimbabwe cannot improve without major investment. GoZ has limited fiscal space to make this investment. Partnering would allow Air Zimbabwe to access funding, a new fleet, new routes and lead to an overall improvement of the airline. The proposal therefore is for the airline to find a strategic partner. This process is actually on-going with Air Zimbabwe having identified two potential partners whom they are negotiating with.

If a strategic partnership agreement has not been achieved for a period of two years, then a step by step liberalization is recommended. In the first step market access for air routes up to 1,000 nautical miles distance from Harare International Airport should be liberalized. This leaves longer routes under the control of bilateral air service agreements and provides a limited protection for Air Zimbabwe, which could focus on longer routes.

Liberalization of air routes below 1,000 nautical miles focuses on the southern African region and excludes two major hub airports in Africa: Nairobi and Addis Ababa. With this approach competition from Kenya Airways and Ethiopian Airlines as well as from European or Gulf airlines can be controlled – for a period of five years. Further liberalization (e.g. Steps 2 or 3) should then be implemented. Table 3-8 below presents potential liberalisation steps by route.

After five years Air Zimbabwe should be in a much better shape. It should then probably be fit for the next step of liberalization.

Summary proposals for Air Zimbabwe are:

- → After more than 20 years of losses and several initiatives to restructure and rescue Air Zimbabwe a last attempt should be undertaken.
- → MoTID needs to hire a transaction advisor with the mandate to search for a strategic investor for Air Zimbabwe and to develop and negotiate between GoZ and the strategic investor a shareholder agreement.
- → The mandate for the transaction advisor could be limited to 24 months.
- → The cost for the transaction advisor needs to be covered by GoZ (estimated costs are no less than 600.000 USD per year – excluding costs for law firms).
- → The transaction advisor should have strong airline experience including at least two airline restructuring projects and significant aviation experience in Africa.
- → If a shareholder agreement is signed within the 24 month period the transaction advisor should be eligible for a success fee payable by the strategic investor.
- → If no shareholder agreement is signed within the 24 month period the cooperation with the transaction advisor shall be terminated.
- → In this case it shall be tried to separate the maintenance division from Air Zimbabwe and find a strategic partner for the maintenance division (such as an aircraft manufacturer or an aircraft maintenance organization).
- → If this is also not successful after a reasonable period of time (e.g. 12 months), either the Government makes a decision to continue supporting a loss making organisation, or allows Air Zimbabwe has to go through a step by step liberalization process. Liberalisation would however, not involve privatisation but partnership where GoZ would still play a leading role and maintain ownership of its assets.

Table 3-8: Potential Liberalisation by Route

City	Airport IATA Code	Great Circle distance			Liberalization up to (Nautical Miles)		
		Kilometers	American Mile	Nautical Mile	1000	1500	2500
		1	1,609	1,852	Step 1	Step 2	Step 3
Bulawayo	BUQ	349	217	188	Liberalize	Liberalize	Liberalize
Victoria Falls	VFA	556	346	300	Liberalize	Liberalize	Liberalize
Lubumbashi	FBM	802	498	433	Liberalize	Liberalize	Liberalize
Maputo	MPM	901	560	487	Liberalize	Liberalize	Liberalize
Gabarone	GBE	911	566	492	Liberalize	Liberalize	Liberalize
Johannesburg	JNB	958	595	517	Liberalize	Liberalize	Liberalize
Durban	DUR	1299	807	701	Liberalize	Liberalize	Liberalize
Bloemfontein	BFN	1333	828	720	Liberalize	Liberalize	Liberalize
Windhoek	WDH	1508	937	814	Liberalize	Liberalize	Liberalize
Daressalam	DAR	1511	939	816	Liberalize	Liberalize	Liberalize
Antanarivo	TNR	1731	1076	935	Liberalize	Liberalize	Liberalize
Kigali	KGL	1778	1105	960	Liberalize	Liberalize	Liberalize
Port Elisabeth	PLZ	1866	1160	1.008		Liberalize	Liberalize
Nairobi	NBO	1954	1214	1.055		Liberalize	Liberalize
Cape Town	CPT	2172	1350	1.173		Liberalize	Liberalize
Luanda	LAD	2177	1353	1.175		Liberalize	Liberalize
Kinshasa	FIH	2273	1413	1.227		Liberalize	Liberalize
Mauritius	MRU	2803	1742	1.513			Liberalize
Addis Abeba	ADD	3109	1932	1.679			Liberalize
Douala	DLA	3383	2103	1.827			Liberalize
Lagos	LOS	4089	2541	2.208			Liberalize
Accra	ACC	4314	2681	2.329			Liberalize
Cairo	CAI	5343	3321	2.885			
Dubai	DXB	5473	3401	2.955			
Dakar	DKR	6446	4006	3.481			
Istanbul	IST	6554	4073	3.539			
Casablanca	CMN	7027	4367	3.794			
Frankfurt	FRA	7874	4894	4.252			
London	LHR	8304	5161	4.484			

Source: Distances in kilometers from www.world-airport-codes.com

Ground Handling Services

In terms of ground handling, Air Zimbabwe could do its own airport ground handling, whilst National Handling Services would be transformed under a concession into a PPP with an international ground handling company. There would be need though to oblige the private concessionaire to take over all current NHS staff for a minimum of 24 months. There would also be need to introduce a regulation which makes competition in airport ground handling mandatory once the level of annual passenger traffic exceeds two million passengers. After the introduction of private concessionaires, ground handling charges in Zimbabwe whouls be more competitive than in Zambia and Botswana. **Ground handling at the smaller airports** would always be mandatorily provided if requested by airlines.

Catering Services

The removal of legal and/or administrational obstacles and allow competition in airline and airport catering would be required. Any company duly registered in Zimbabwe would be allowed to provide catering services as long as it complies with international food hygiene and safety requirements. **A second licence for the provision of airline catering services** should be awarded on an airport by airport basis.

CAAZ restructuring

The GoZ has approved the splitting of the Civil Aviation Authority of Zimbabwe (CAAZ) into a Regulatory Authority and an Airports Company under private law (not as a parastatal). The process is being spearheaded by the Ministry of Transport and Infrastructural Development through an Inter-Ministerial Committee. The rationale for splitting is that it is in line with international trends and best practice. It follows the recommendations of the International Civil Aviation Organization (ICAO). It helps to remove the inherent conflict of interest in the current set up where CAAZ is responsible for both civil aviation regulation and the operation of airports. It facilitates that a proper system of checks and balances is maintained. The split would create two entities (as listed in Table 3-9).

Table 3-9: Split in CAAZ

Company	Function
Airports Company	To provide both airport infrastructure and airport management and operation
Civil Aviation Authority	To promote and regulate aviation safety and security, which among other things will include safety and security oversight of airlines, aircraft, personnel, airports, air space and air navigation services.

Source: CPCS analysis

The operation of air navigation and surveillance services needs to be included in the future civil aviation authority. Even though this could still be interpreted as a conflict of interest – as operation and supervision of air navigation would still be in the same organization – this is a solution that has been adopted by many other countries. A board of directors for the new civil aviation authority, in which airlines and airports are be represented, needs to be set up.

The level of air navigation and overflight charges should not become excessive. An independent benchmarking with neighbouring countries (flight information regions) should be undertaken regularly (at least every second year). Also, the charges levied for regulatory services such as licencing, certifications and examinations should not be “an obstacle” for their users. The current level of the charges needs to be critically reviewed because there are complaints.

Airport Development in Zimbabwe

There are three important destinations in Zimbabwe – **not one hub.** Considering the dominance of OR Tambo airport there is limited potential for another hub in Zimbabwe. Current spill-over effects from Johannesburg would disappear once Johannesburg airport implements a capacity extension. Also, Zimbabwe has three important destinations: Harare, Victoria Falls and Bulawayo – not only one. All three airports need to be served appropriately.

A PPP arrangement – probably a long-term concession with an experienced international airport operator – to plan, finance, manage and operate the three main airports of the country: Harare, Victoria Falls and Bulawayo is required. The investment focus should be defined in the concession agreement – upgrading of Harare airport (not really capacity expansion) and rehabilitation of the airfield at Bulawayo must have priority. Once the concession is implemented GoZ should not interfere in day-to-day operation.

A second PPP or more specifically a long-term concession needs to be awarded for Charles Prince airport. At this airport private and general aviation should be promoted and developed in all its potential forms (flying schools, small aircraft maintenance and all commercial activities ranging from air charter for tourism). The airport should be limited to smaller aircraft – not exceeding 10-15 seater aircraft. However, before awarding a concession it is required that GoZ invests into the airfield. At least the main runway and some taxiways must be fully rehabilitated including an upgrade of the navigational aids. Once it is clear that GoZ would do that, the concession could be awarded to a private operator, who should be obliged to arrange funding and invest himself into Charles Prince airport.

The **remaining six airports** (Buffalo Range, Grand Reef, Hwange, Kariba, Masvingo, Thornhill) would continue to be operated by the publicly owned airports company. The interest of local municipalities in these airports should be considered. In addition, a cooperation with interested private partners should also be facilitated.

Air Traffic Control and Air Navigation Services

A study to evaluate type and quality of radar requirement, condition of complete ANS equipment (on airports and nationwide), ANS organization and procedures and also to develop an ATC and ANS investment plan, is required. A **service contract to a private service provider** with the responsibility to design and implement optimized procedures, undertake final selection and purchase of ATC and ANS equipment, and train staff, would then be required.

Airports

A feasibility study for a long-term (e.g. 25 years) concession to operate, develop and finance the three main airports (Harare, Bulawayo and Victoria Falls) is required. This would form the basis for Master Plan Studies for Harare, Victoria Falls and Bulawayo airports. A concession would then be implemented through international tender process to set up a Zimbabwean special purpose vehicle (SPV).

There would be need to separate airport operation responsibility from CAAZ and transfer the three main airports with all current staff and assets to a private concessionaire and transfer remaining smaller airports into a new parastatal. The concession agreement should include an obligation to submit detailed Wildlife Management Plan for each airport within first two years of concession period.

A strategic study for Charles Prince Airport would be required to verifies its viability for major development under a PPP project. If feasible, a Master Plan should be prepared, followed by investment into full airside rehabilitation and preparation and launch of a tender for a long-term concession.

Secondary Airports

Masvingo Airport is mainly used by residents of Masvingo, tourists, mining companies such as Murowa Diamonds, Bikita Minerals, Renco Mine and the farming community, and for mercy flights such as medical air rescue and by the Air Force of Zimbabwe. There is need to

lengthen and widen the primary runway to 2.5 km length and 30 metres width from the present 1.726km by 18metres.

There is also need to invest in Real Estate (hangars, staff housing etc.) on land near the airport and to construct a better terminal building, control tower and administration offices. The road from the Airport to Mutare road junction (1km) should be widened.

Buffallo Range Airport is situated in the South Eastern Lowveld between Triangle and Chiredzi. It serves as the main gateway to the three conservancies: Save Valley, Malilangwe and Bubiana and the Great Limpopo Trans Frontier Parks on the Zimbabwean side. As a high profile tourist niche market area, Buffalo Range airport is frequented by high flying and long range aircraft like Falcons, Lear jets, Citations, Challengers, Global Expresses, Gulf Streams, Beech jets and Pilatuses.

Buffallo Range is one of two airports that CAAZ has considered to concession to a private sector partner. Kariba Airport in Kariba is the other. A feasibility study and design for Buffalo Range airport was carried out and approved by the Government.

Figure 3-6: Buffalo Range Airport Passenger Terminal Building

.

The Chiredzi non-directional beacon (Ident: CZ) is located 3.75 nautical miles (6.95 km) off the threshold of runway 14. The Chiredzi/Buffalo Range non-directional beacon (Ident: BI) is located on the field

The Apron is starting to develop some cracks which need urgent attention before they become dangerous to aircrafts

Grand Reef Airport is situated in the eastern highlands, 35km from Mutare city. A feasibility study to assess the potential of the airport is required, together with the development of a suitable terminal building, and rehabilitation of the runway, apron and taxiway. There is need for a control tower as well as landing and communications systems.

Kariba is one of the hottest towns in Zimbabwe with temperatures exceeding 40 degrees Celsius. Kariba Airport is located close to the Kariba Dam, the largest man-made lake in the world. A hydro power station on the dam provides a significant proportion of the country's electricity requirements. The Terminal building with a design capacity to accommodate 100,000 people per annum, requires some improvements particularly on the interior.

Hwange National Park Airport is located literally at the entrance to the renowned Hwange National Park Game Reserve, 7.5km from the Bulawayo-Victoria Falls main road, 75 km away from Hwange Town and 190km from Victoria Falls. The airport has the second longest runway in Zimbabwe, 4,600m long and 30m wide. It plays a critical role in communicating with overflies from Victoria Falls to Bulawayo.

The runway by virtue of its location faces challenges of animals which regularly destroy the perimeter fence and encroach into the runway. An investment is required to protect the runway and digging trenches which prohibits animals from crossing over onto the runway.

3.2.8 Inland Waterways Sub-Sector

3.2.8.1 Policy for Inland Waterways

The policy of Inland Waterways is to:

a. provide safe and secure inland water transport;

b. minimise the adverse effects of inland water transport on the environment;

c. provide for the regulation of inland water transportation to be carried out thorough an independent regulatory structure; and

b. strengthen government's capacity to manage marine and maritime transport, especially in the development of inland water transport infrastructure.

3.2.8.2 Proposals for Inland Waterways

Proposals for the Department of Inland Waterways include:

→ Improvements to the Kariba-Binga-Victoria Falls route. This route has high potential for development. A border post is required at Binga to reduce travel distance and time for communities which wish to cross to the Zambian side.

→ GoZ is to consider introducing a pilot scheme to operate this route under a management contract to the private sector (to be tendered on a least-subsidy basis).

The Asian Development Bank has successfully used this model in the Asia/Pacific region to attract private sector expertise and thereby encourage provision of better services as well as cost efficiencies.

Figure 3-7 below shows the main road that is used when one wants to travel from Kariba to Victoria Falls by road. The route involves connecting from Kariba to Harare-Bulawayo and then Victoria Falls, covering a driving distance of 1,244Km. If the water route was further developed, travellers could save time and money. Improvements to the route should be complemented by a communications directed to both tour operators and private transport operators.

→ The department needs to be empowered to fine offenders in order to enhance their authority and power in water bodies.

In order to meet the requirements of the Results Based Management (RBM) system, Inland Waters control uses the following Key Performance Indicators (KPI) to help improve its operations: number of boats registered; number of licences issued; boat

drivers trained and refresher courses conducted; annual inspections; equipped Control Towers and Search and Rescue Plan.

Figure 3-7: Route from Kariba to Victoria Falls

Source: victoriafalls24.com

In 2017 Inland Waterways propose to improve facilities for staff at Binga and Victoria Falls, to review the Inland Waters Legal Framework and to procure 4 patrol vessels.

The recent completion of the Tokwe Mukosi Dam in Masvingo Province will result in immense benefits being derived from the dam, in the form of revenue from fisheries, boat cruises, adjacent parks and hydro power generation. Surrounding districts of Masvingo, Chiredzi, Ngundu and Triangle which all boast a thriving agricultural industry based on sugar plantations are set to benefit from the dam. The area is also likely to become a major tourist resort after Kariba, with a national park planned to add further value.

It is clear from a transport perspective that, with the magnitude of development that is bound to follow the completion of the Tokwe Mukosi Dam, infrastructure links with the neighbouring centres such as Masvingo, Chiredzi, Ngundu and Triangle are vital. This would be in addition to water-based tourism and other transport on the dam itself.

3.2.9 Proposals for Pipelines

As mentioned in section 2.2.1, pipelines are the responsibility of the Ministry of Energy. As such proposals for pipelines are handled by that Ministry. This Master Plan makes passing remarks on the main issues pertaining to pipelines.

The construction of a new pipeline or upgrading of the existing one geared towards catering for regional fuel demand has been planned. However, the long term strategy would be to upgrade the existing infrastructure to cater for the regional demand and utilise Zimbabwe's advantage as a regional hub. Also, the government would need to consider the impact of the ethanol blending when considering the construction of a second pipeline. The petrol is blended up to 20% which might result in import substitution for petrol. The facilities in Beira are no longer sufficient to handle petroleum products, as such the government should monitor the port development plans in Mozambique.

3.2.10 Public Transport

3.2.10.1 Public Transport Vision

Whilst there is a line of thought that suggests that the Vision Statement should point towards the iconic, it is argued here, that pragmatism is vital and only by setting achievable goals will any real progress be made. The Vision Statement thus needs to be one that sets out an achievable outcome given the current social, political and economic environment.

The following is proposed:

The Zimbabwean vision for public transport is that all citizens of and visitors to the country should be able to access affordable and safe public transport in a system that is able to provide comprehensive connectivity in all urban areas and across the country.

3.2.10.2 Objectives of an Improved Public Transport System

Key objectives that have been considered for the Public Transport Plan are:

- spatial coverage;
- temporal coverage;
- universal access; and
- affordability.

The four key objectives are presented in more detail below.

- **Spatial coverage**

  Urban public transport should seek to provide access for the majority of users with a walk of 400m or less at each end with a maximum walk distance of 800m being targeted. In rural areas, consideration must be given to the population density and demand, but walking distances of 2km should be targeted with a maximum of 5km.

- **Temporal coverage**

  A quality public transport system recognises the need for some level of service throughout the day and evening. Public transport system design should seek to meet the needs of as many users as possible across the day. Service levels are demand driven during peak periods. However, throughout the day a minimum service level of 1 trip per hour should be maintained on all routes in urban areas throughout the operating day, which should typically be between 16 and 18 hours.

  In rural areas, service frequency should also be demand driven, but given the very low level of demand in some areas, at least two trips a day should be targeted, one morning and one evening to allow users the opportunity to conduct business in larger urban centres and return home the same day.

→ **Universal access**

Zimbabwe has acceded[26] to the United Nations "Convention On The Rights Of Persons With Disabilities". Zimbabwe has thus undertaken to seek to achieve universal accessibility in all its developmental activities, including public transport provision.

Universal Access is relatively expensive to implement in Public Transport and it is recommended that whilst all services be structured to make provision for as many special needs as possible, provision for level boarding of buses be prioritised only in high density areas, dedicated special service vehicles being deployed elsewhere based on the registration of special needs users for such services.

→ **Affordability**

An aspect of accessibility is affordability, if one cannot afford to use the service, it is fundamentally inaccessible. However, a balance needs to be made between financial viability of the services and affordability to the users.

Public transport should therefore be planned around the optimal modes for current needs and that excessive infrastructure expenditure is avoided so as to keep the system costs to a minimum within the desired level of service. As most of the operational elements of the system will be privately operated, it will be necessary to find a balance between profitability for operators, affordability for users, and the minimum standards for operation.

3.2.10.3 Public Transport Policy and Legislative Framework

Integrated Land Use and Transport Planning

Transport and land use are closely related and as such planning in both areas should be integrated. Commuters travel a maximum of 70 to 80 kilometres to and from work, good examples being Marondera and Bindura (75 km and 85 from Harare, respectively).

Further, as a general guideline, settlements should be located as close as possible to places of work and other urban activities so as to facilitate trips by bicycle or on foot. Where this is not possible, settlements should be located close enough to work destinations to enable public transport vehicles to make two or more trips from the settlement to the work place or school in peak-hour periods.

Urban land use development plans should aim to promote and plan for the use of non-motorised transport. Thus urban settlements should be planned as mixed developments. Land-development proposals should be integrated with transport. There is therefore a need for consultation between urban land use planners with transport planners/authorities.

Policy Considerations

[26] Accede/Accession: 'Accession' is an act by which a State signifies its agreement to be legally bound by the terms of a particular treaty. It has the same legal effect as ratification, but is not preceded by an act of signature.

A fundamental policy is required in respect of public transport for Zimbabwe, and the following basic policy principles are recommended:

1. Public transport is to be considered as a basic service available to all residents and visitors to Zimbabwe.
2. Public transport should be provided by the private sector, with appropriate support from Government.
3. Government may, in certain circumstances, subsidise services where necessary.
4. Government should provide infrastructure on public property necessary for the delivery of appropriate public transport services.
5. Operators should form and/or be part of an association properly constituted and registered with government.
6. Operator may only acquire operating licences with the written support of recognised operator Associations.
7. Associations must have written constitutions, stating a standard code of conduct.
8. Associations will be registered as legal entities and should to keep records, undergo annual audits, submit annual reports, and pay taxes.
9. The associations shall register with a national federation of associations who shall negotiate on their behalf with government on matters of general policy.
10. Associations will be held accountable and fined for non-compliance of their members with the standard code of conduct.
11. Every municipality shall designate an office to evaluate applications for operating licences in or through its area of jurisdiction.
12. Public transport vehicle drivers must be in possession of a valid Professional Driving permit for the carriage of passengers.

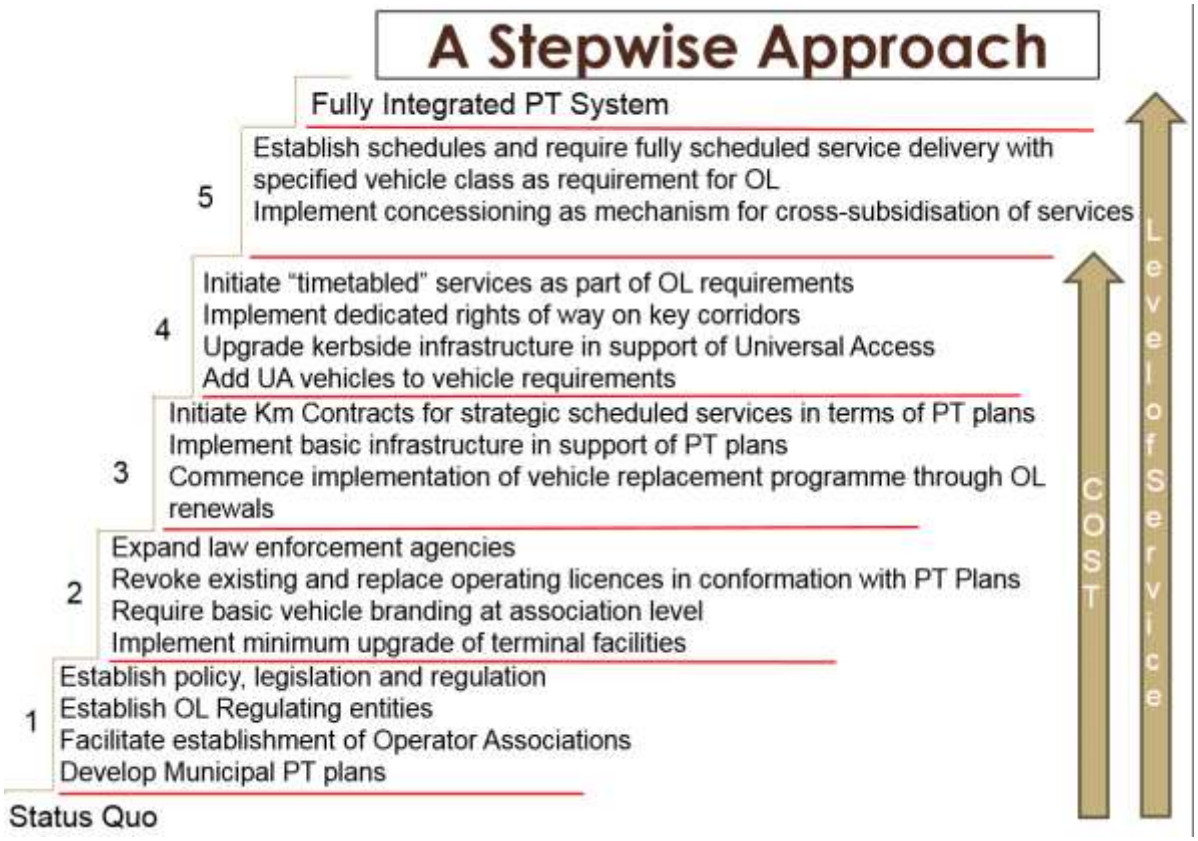
The establishment of a suitable environment for the promotion of quality public transport requires that appropriate legislation be in place. This legislation and the associated regulations should be supportive of the policy above. The implementation of policy and legislation has no benefit without the provision of a suitable enforcement environment. This is a critical area of intervention and one which, requires financial intervention, with the training, employment and deployment of a suitably qualified law enforcement force.

3.2.10.4 Transforming from an Unregulated Market to Regulated Competition

Once a legislative structure and local municipal public transport plans are in place, it will become possible for government to direct operational form by managing the operating licence conditions. It is important that expensive and/or high-tech systems such as Bus Rapid Transit, Light Rail Transit, Personal Rapid Transit, or even heavy rail are not to be permitted or even considered until control has been gained over the existing situation, and even then, only when it can be shown, which requires that some services already be in place to show demand levels and fare revenue, that there is a truly viable economic case.

It is proposed that a phased approach to implementing the Public Transport Plan be adopted in order to ensure maximum uptake by the existing players. Figure 3-8 below shows the phased approach to transforming from the existing situation to an improved public transport system.

Figure 3-8: Phased Approach to Transforming Public Transport Provision



Source: CPCS, 2016

Details of the steps in the phased approach given in the above diagram are presented below. Timeframes given are the longest and the indicated periods could mostly be reduced to not more than 3 years each.

→ **Step 1: Present — 2020**

This step involves the legislated formalisation of the minibus industry, concurrent with improved law enforcement. However, to achieve this, policy, legislation and regulation as well as the institutional arrangements for Operating Licence management must be in place, Associations must be created and Municipal public transport plans must be developed to guide the issuance of operating licences.

→ **Step 2: 2021 — 2023**

It will be necessary to ensure that the appropriate law enforcement agencies are adequately resourced to police public transport operations, especially in respect of compliance with vehicle and driver licencing and operating licences. It is important that illegal public transport operations – i.e. those where drivers are not properly

qualified and or where there is no valid operating licence – be severely restricted once adequate opportunity for legalisation has been provided.

Municipalities should prioritise public transport infrastructure upgrades.

→ **Step 3: 2024 — 2027**

By this stage, all operators should be members of Associations, properly licenced; and terminal facilities should have been tidied up. Public transport plans should have already gone through at least one and possibly two revisions as municipalities improve on their original plans as control of existing operations improves.

More investment is required in public transport infrastructure. The correct vehicles should start to be deployed, which means that facilities must be able to accommodate whatever class of vehicle will be used, be it mini, midi or standard bus.

→ **Step 4: 2028 — 2031**

This step will involve the introduction of scheduled services. A mechanism will have to be put in place to implement some level of service scheduling.

→ **Step 5: 2031 — 2036**

As a last step within the reasonable framework of this plan, full conventional timetables should be introduced on all routes. The mechanism described above will remain applicable although it is suggested that time and technology will have moved on to such an extent that the precise form of the implementation will be somewhat different from that envisaged at the time of formulation of this plan.

In the Zimbabwean environment, where not everyone has access to private transport and a number of activities require quite extensive travel, it is critical that the combination of quality of service, incorporating comfort, service frequency, travel time, and so on, be balanced against the availability and affordability of the service.

The re-establishment of formal public transport in Zimbabwe requires an approach that ensures that the current informal operators, both legal and illegal, as well as the existing formal operators are all included in the process in a manner that results in quality public transport without the loss of the economic opportunity represented by the current system.

There are two underlying motivations for this approach:

1) Avoiding the very heavy financial burden of attempting to rapidly implement a new public transport system in the place of the existing one. Rapid replacement of the existing system would, in all likelihood, result in the need to offer financial compensation to the existing operators.
2) Avoiding the resistance to change on the part of the existing industry, and other stakeholders. Resistance can lead to long delays in implementation and even the complete failure of the system in spite of infrastructure and rolling stock being in place.

Important considerations in the provision of public transport services include the following:

- → Network Design of: national network; local networks; design guidelines and principles; fleet optimisation; urban systems and rural systems
- → Public Transport System Components: routes; urban; main services; feeder services; community services; inter-city; information systems; monitoring systems; fare systems, etc.

Figure 3-9 below shows the various elements of a public transport system and how the system can be implemented.

Figure 3-10 presents system characteristics of some public transport systems found worldwide, in terms of peak-hour capacity, system life, unit carrying capacity and cost of construction per kilometre.

Figure 3-11 is a conceptual national route network, based on population density and the spread of the primary road network.

Figure 3-12 shows a conceptual institutional framework for the delivery of public transport.

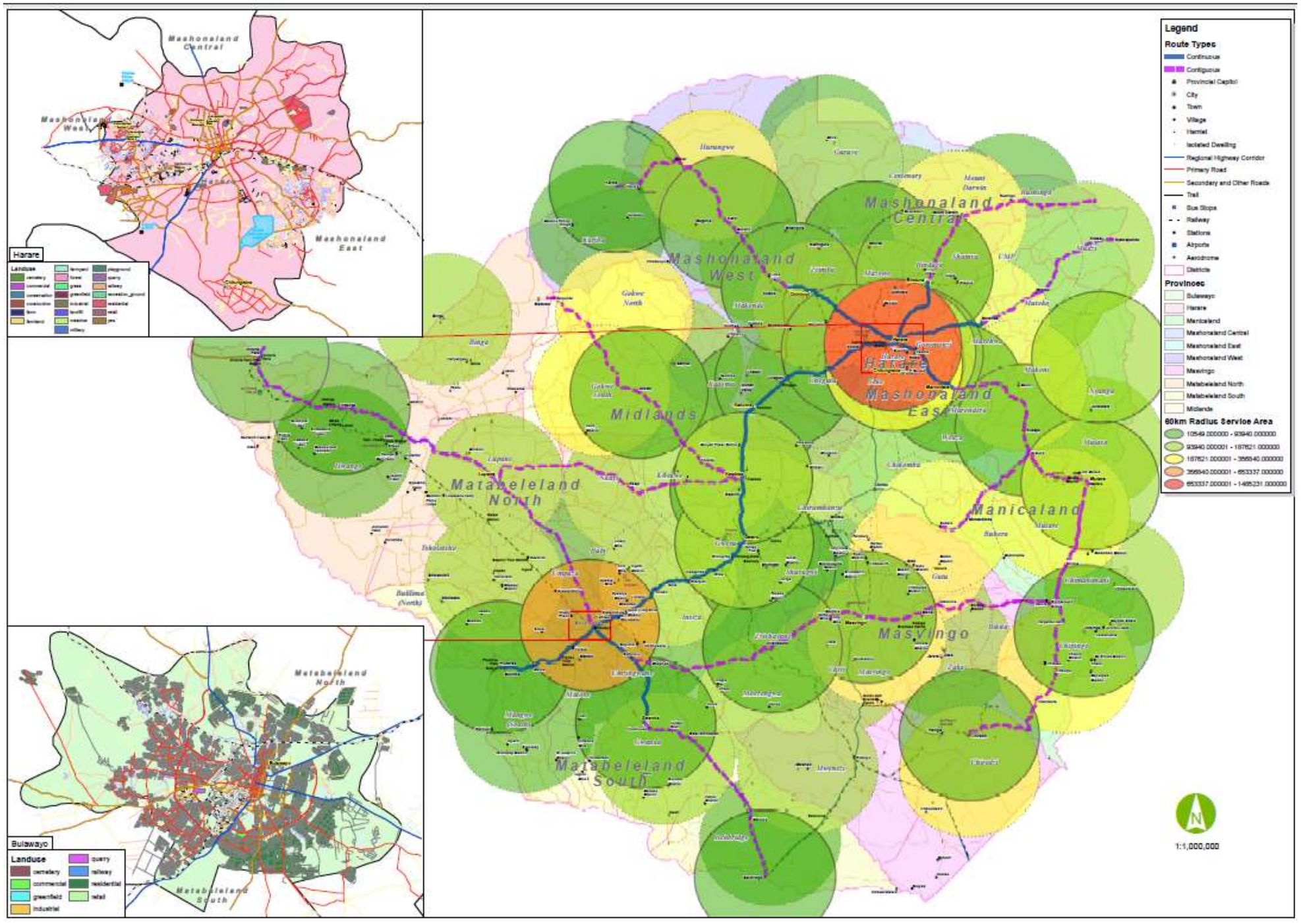
Figure 3-9: The elements of a public transport system and its implementation.

Source: CPCS, 2016

Figure 3-10: Modes, their capacities, life and other parameters.

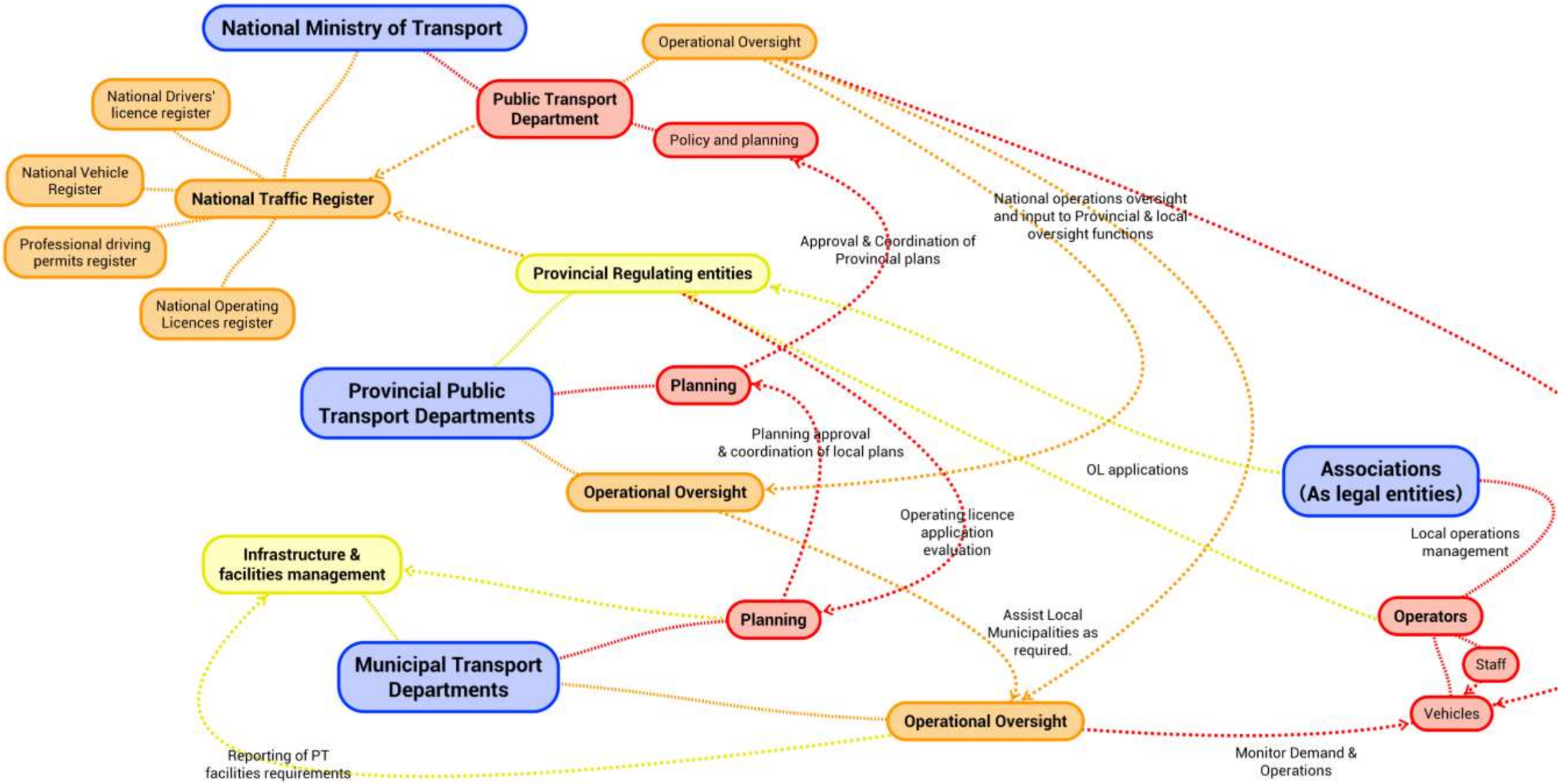
	COMMUTER / INTER-URBAN TRAVEL	IMPLEMENTATION TIMEFRAME	PEAK CAPACITY / HOUR	MAXIMUM GRADIENT	SYSTEM LIFE (YEARS)	UNIT CARRYING CAPACITY	INFRASTRUCTURE COST PER KM USD MILLION	PER PASSENGER OPERATING COST USD/KM
	Personal Rapid Transit	Short / Medium	2000 - 4800	20%	12 - 20	2 - 6	4.15 - 6.67	0.06
	Group Rapid Transit	Short / Medium	2500 - 8000	20%	12 - 20	6 - 30	4.15 - 6.67	0.08
	Minibus Taxi (Para Transit)	Short	1300 - 2500	13%	7	10 -18	.06 - .3	0.08
	Regular Buses	Short	2500 – 6000	13%	8-14	40-120	.06 - .3	0.08
	Bus Rapid Transit (BRT)	Short / Medium	4000 – 10000	13%	8-14	40-120	2.59 - 4.44	0.08
	Guided Bus	Short / Medium	4000 – 10000	13%	8-14	300 – 450	2.59 - 14.81	0.08
	Street Tram	Medium / Long	12000 – 20000	10%	25 – 50	400 – 600	4.96 - 24.44	0.14
	Light Rapid Transit (LRT)	Medium / Long	12000 – 20000	10%	25 – 50	400 – 600	4.96 - 24.44	0.14
	Tram Train	Medium / Long	6000 – 12000	3% - 10%	25 – 50	400 – 600	4.96 - 24.44	0.14
	Heavy Rail	Long	20000 – 60000	3%	25 – 50	2000 – 3500	3.7 - 37.04	0.04 – 0.22

Figure 3-11: National route structure – based on population density and primary road network



Source: CPCS, 2016

Figure 3-12: A conceptual institutional framework for the delivery of public transport.



Source: CPCS, 2016

3.3 Multi-Criteria Analysis

3.3.1 Overview of the Process

The multi-criteria approach has been used here to examine how all the relevant aspects of transport are assessed and traded off. The vision for transport has been developed, as well as other wider policy objectives and strategies. Relevant programmes have been identified. In the absence of data and information it is often difficult to quantify changes in the expected outcomes, as such qualitative measures have been used in the multi-criteria analysis. On this basis therefore, the extent to which a project contributes to an outcome is classified as follows:

1. PROJECTS WITH NO OR NEGATIVE IMPACT = NONE
2. LOW IMPACT PROJECTS = LOW (1 to 5% improvement)
3. MEDIUM IMPACT PROJECTS = MEDIUM (6 to 10% improvement)
4. HIGH IMPACT PROJECTS = HIGH (11 to 15% improvement)
5. VERY HIGH IMPACT PROJECTS = VERY HIGH (≥ 16% improvement)

Although a project may perform poorly against one or more expected outcomes, it may perform favourably against other outcomes, and may therefore be the preferred option.

The criteria that is used in the analysis of a project's contribution to a Transport Theme are as follows:

- **Quality of Life:** Employment Creation; Poverty Reduction; Inclusive Mobility; City Centre Congestion; Informed Users; Improved Accessibility; Better Health
- **Environmental Sustainability:** Environment Standards; Vehicle Technology; Appropriate Modes; Containing Demand; Integrated LUTP
- **Economic Efficiency:** Modal Integration; Efficient Institutions; Efficient Industry
- **Safety and Security:** Safer Environments
- **Regional Integration:** Easier Movements; Harmonisation

3.3.2 Impacts of Proposed Programmes

The eight tables below, from Table 3-10 to Table 3-17 present the impacts of proposed programmes for the sub-sectors.

Table 3-10: Impacts of Policy Proposals

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Investment in transport infrastructure and services across borders	LOW	LOW	MEDIUM	LOW	HIGH • Easier Movements
Increase private sector participation	LOW	LOW	HIGH • Efficient Industry	LOW	LOW
Government to change its role	LOW	LOW	HIGH • Efficient Institutions	MEDIUM	LOW
Cost reflective charging	NONE • May be negative for some groups	LOW	HIGH • Efficient Industry	LOW	LOW
Restructuring the transport industry	LOW	LOW	HIGH • Efficient Industry	MEDIUM	LOW
Restructuring the MoTID	MEDIUM	MEDIUM	HIGH • Efficient Institutions	MEDIUM	MEDIUM
Developing special transport corridors	LOW	LOW	MEDIUM	LOW	HIGH • Easier Movements
Regional and international cooperation on transport	LOW	LOW	MEDIUM	LOW	HIGH • Harmonisation

Table 3-11: Impacts of Institutional, Regulatory and Legal Reforms

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
ZINARA to revert to its original role	NONE	NONE	MEDIUM • Efficient Institutions	NONE	NONE
Commercialising DoR	NONE	NONE	MEDIUM • Efficient Institutions	NONE	NONE
Establishing a national Road Accident Fund.	LOW	NONE	MEDIUM	HIGH	MEDIUM
Equip road authorities with basic asset management tools	NONE	NONE	HIGH • Efficient Institutions	NONE	NONE
Reviving and strengthening DDF and DoR's network-based maintenance units	VERY HIGH • Employment Creation	LOW	HIGH • Efficient Institutions	NONE	NONE
Commercialising Urban and RDC road maintenance structures	MEDIUM • Employment Creation	NONE	MEDIUM • Efficient Institutions	NONE	NONE
Unbundle MoTID regulation from service delivery	NONE	NONE	HIGH • Efficient Institutions	NONE	NONE
Independent public regulation of safety and service quality	NONE	NONE	MEDIUM	HIGH Safer Operations	NONE

Table 3-12: Impacts of Spatial Proposals

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Mixed land uses in order to reduce the number of motorised trips	VERY HIGH • Inclusive Mobility • Improved Accessibility • Congestion Reduction	MEDIUM • Containment	MEDIUM	MEDIUM • Safer Environments	NONE
Integrated Land Use and transport planning	VERY HIGH • Inclusive Mobility • Improved Accessibility • Congestion Reduction • Appropriaste Modes	MEDIUM • Containment • Appropriate Modes	MEDIUM • Modal Integration	HIGH • Safer Environments	NONE
Mass transportation and bus priority systems and phasing out kombis	VERY HIGH • Congestion Reduction	VERY HIGH • Appropriate Modes • Reduction in GHGs	HIGH • Efficient Operations	HIGH • Safer Environments	LOW
Improving driving standards and pedestrian behaviour	HIGH • Better Public Amenity	LOW	HIGH • Low operating costs	VERY HIGH • Safer Environments	LOW
Improving infrastructure designs	MEDIUM	MEDIUM	HIGH • Low Operating Costs	MEDIUM	LOW
Providing facilities for NMT	VERY HIGH • Inclusive Mobility • Better Health	MEDIUM • No GHGs	LOW	VERY HIGH • Less crashes • Less casualties	NONE
Bypasses, ring roads and truck inns	HIGH • Congestion reduction	MEDIUM • Less GHGs in CBDs	LOW	HIGH • Low accident potential	NONE
Timely maintenance of traffic lights and road signs	LOW	LOW	LOW	HIGH • Safer Envirnments	NONE
Improving access especially within residential areas;	VERY HIGH • Improved Accessibility	LOW	LOW	MEDIUM	NONE
Timetabling and integrated ticketing systems.	MEDIUM	NONE	HIGH • Efficient Industry	LOW	NONE
Provide all-weather access to villages within 2-5km	VERY HIGH • Inclusive Mobility	NONE	LOW	MEDIUM	NONE

Table 3-13: Impacts of Proposed Road Sub-Sector Programmes

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Existing and On-going Road Projects	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM
Missing Links – NMT	VERY HIGH • Inclusive Mobility • Poverty Reduction	NONE	LOW	MEDIUM	NONE
Missing Links – Urban Areas	MEDIUM • Employment Creation	NONE/NEGATIVE • At construction	HIGH • Less Operating Costs	MEDIUM	NONE
Missing Links – Rural Areas	MEDIUM • Employment Creation	NONE/NEGATIVE • At construction	HIGH • Less Operating Costs • Easier Market Access	LOW	NONE
Links to Economic Hubs	HIGH • Employment Creation	NONE/NEGATIVE • At construction	VERY HIGH • Efficient Operations	NONE	LOW
Overload Control	NONE	LOW	MEDIUM	MEDIUM	MEDIUM
Capacity Building – MoTID	MEDIUM	NONE	VERY HIGH • Efficient Institutions	LOW	LOW
Bridge Repairs, Widening, Replacement	MEDIUM • Employment Creation	NONE	HIGH • Less Operating Costs	MEDIUM	MEDIUM
Introducing Electric Vehicles	LOW	VERY HIGH • Less GHGs and Noise	VERY HIGH • Reduced fuel imports	NONE	NONE
Use of Biogas Fuel	LOW	HIGH • Better than fossil	VERY HIGH • Import substitution	NONE	NONE
Travel Planning, Flexi Hours and Teleworking	VERY HIGH • Reduced congestion • Less travel	MEDIUM • Reduced GHGs	VERY HIGH • More productive time	HIGH • Less exposure to potential crashes	NONE
Capacity/Demand Restraint	HIGH • Reduced congestion • Better use of public transport and NMT	MEDIUM • Reduced GHGs	LOW	MEDIUM	NONE
One-stop Borders	NONE	NONE	MEDIUM	NONE	VETY HIGH • Easier Movements

Table 3-14: Impacts of Proposed Rail Sub-Sector Programmes

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Classification and rehabilitation of Rail Lines	NONE	MEDIUM	VERY HIGH • Efficient Industry	HIGH • Rail has better safety compared to roads	MEDIUM
New Rail Lines	VERY HIGH • Employment Creation MEDIUM • Inclusive Mobility and poverty reduction • (Affordable fares)	NEGATIVE • During construction HIGH • Low emissions during operation	VERY HIGH • Efficient Industry	HIGH • Rail has better safety compared to roads	HIGH • Integration with lines of neighbouring countries
Leasing of Rolling Stock	NONE	NONE	HIGH • Efficient Industry • (NRZ can operate in the short term)	NONE	MEDIUM
Purchase of Rolling Stock	NONE	NONE	VERY HIGH • Efficient Industry	NONE	MEDIUM
Use of PPPs	MEDIUM	NONE	VERY HIGH • Efficient Industry (Railways able to raise finance very quickly with little risk to Govt.)	NONE	MEDIUM
Restructuring NRZ	NONE	NONE	VERY HIGH • Efficient Institution • Efficient Industry	NONE	LOW
Introduction of Passenger Rail Services	HIGH • Inclusive Mobility (if rail offers competitive fares as was the case before)	HIGH • Less GHGs (if high numbers of people use rail instead of cars)	MEDIUM • Efficient Industry	HIGH • Rail is considered safer than road.	HIGH • Easier Movements (For cross-border travel)

Table 3-15: Impacts of Proposed Aviation Sub-Sector Programmes

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Airline Liberalization	NONE	NONE • Negative, more airlines mean more GHGs	HIGH • Efficient Industry	LOW	HIGH • Easier Movements
Finding a Strategic Partner for Air Zimbabwe	NONE	NONE	VERY HIGH • Efficient Institutions	LOW	NONE
Government debt take over	NONE	NONE	HIGH • Efficient Industry	NONE	LOW
Government to purchase new aircraft	NONE	LOW	HIGH • Efficient Industry	NONE	LOW
AZ to join IATA Clearing House; open 2 new routes	NONE	NONE	MEDIUM • Efficient Industry	NONE	LOW
Increase aircraft and crew utilisation	NONE	NONE	HIGH • Efficient Industry	NONE	LOW
Acquire EASA and IOSA certification	NONE	NONE	MEDIUM	NONE	LOW
Air Zimbabwe to self handle	NONE	NONE	MEDIUM	NONE	NONE
PPP for NHS	LOW	NONE	HIGH • Efficient Industry	NONE	NONE
Competition in Ground Handling	NONE	NONE	MEDIUM	NONE	NONE
CAAZ Restructuring	NONE	NONE	HIGH • Efficient Institutions	NONE NONE	
Promoting 3 important destinations not one hub	NONE	NONE	HIGH Efficient Industry	NONE	HIGH Attracting Tourism
PPPs for Harare, Victoria Falls and Bulawayo Airports	NONE	NONE	HIGH Efficient Industry	NONE	LOW
Air Traffic Control and Air Navigation Services Study	NONE	NONE	MEDIUM	NONE	LOW
ATC and ANS Service Contract to a Private Player	NONE	NONE	MEDIUM	NONE	MEDIUM

Table 3-16: Impacts of Proposed Inland Waterways Programmes

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Improving the Kariba-Binga-Victoria Falls route, plus a border post at Binga	HIGH • Improved Accessibility	LOW	VERY HIGH • Efficient Industry • Significantly shorter Travel Distance	LOW	HIGH • Easier movements to from Zambia
Empowering Dept. to fine offenders	LOW	MEDIUM	Medium	HIGH • Safer Environments	MEDIUM
Improving facilities for staff at Binga and Victoria Falls	HIGH • Better conditions of service	NONE	HIGH • Efficient Institutions	NONE	MEDIUM
Review of the Inland Waters Legal Framework	NONE	NONE	MEDIUM	LOW	NONE
Procuring 4 patrol vessels.	NONE	LOW	HIGH • Efficient Institutions	HIGH • Safer Environments	MEDIUM

Table 3-17: Impacts of Proposed Public Transport Programmes

	Transport Themes >>				
Sub-sector Programmes	**Quality of Life and Personal Freedom**	**Environmental Sustainability**	**Economic Efficiency**	**Safety and Security**	**Regional Integration**
Spatial Coverage	VERY HIGH • Improved Accessibility • Inclusive Mobility • Less congestion	HIGH • Appropriate mode	VERY HIGH • Efficient Industry	MEDIUM	NONE
Temporal Coverage	VERY HIGH • Improved Accessibility • Inclusive Mobility • Less congestion	HIGH • Appropriate mode	VERY HIGH • Efficient Industry	MEDIUM	NONE
Universal Access	VERY HIGH • Inclusive Mobility • Improved Accessibility	NONE	MEDIUM	HIGH • Safer Environments	NONE
Affordability	VERY HIGH • Inclusive Mobility • Improved Accessibility • Poverty Reduction	MEDIUM	MEDIUM	MEDIUM	NONE
Integrated Land Use and Transport Planning	HIGH • Improved Accessibility • Inclusive Mobility • Containment	MEDIUM	MEDIUM	MEDIUM	NONE
Transforming from an Unregulated Market to Regulated Competition	HIGH • Improved standards	LOW	VERY HIGH • Efficient Industry	HIGH • Safer Environments	NONE
Gradual phasing out of kombis	HIGH • Less city centre congestion	MEDIUM	VERY HIGH • Efficient Industry	MEDIUM	NONE
Timetabling	HIGH • Certainty of bus times	NONE	HIGH • Efficient Industry	MEDIUM	NONE
Integrated Ticketing	VERY HIGH • Uptake by travellers	NONE	HIGH • Efficient Industry	MEDIUM	NONE

4 Master Plan Proposals and their Sustainability

Key Message

This chapter presents the Master Plan proposals and presents an assessment of the environmental sustainability of proposed projects.

4.1 Sub-Sector Infrastructure Proposals

4.1.1 Roads and Bridge Projects

The following programmes were presented in Chapter 3 (sub-section 3.2.5.3):

→ **Existing and On-going Road Projects**

→ **Provision of Missing Links**

→ **Links to Economic Hubs**

This chapter presents the projects that have been identified under each programme.

4.1.1.1 Existing and On-going Road Projects

The DoR's national road development programme is made up of

a. priority national road development projects; and
b. other national road development projects

Cost estimates for the various project types range as follows:

- $250 000 to $400 000 for rehabilitation works, the lower end being for roads that are not surfaced and the higher end for surfaced roads; and
- $800 000 to $1 200 0002 for new construction, the lower end being for roads that require upgrading where an alignment already exists, and the higher end being for totally new construction where not even an alignment exists.

Table 4-1: Priority National Road Development Projects

Road Section	Length (km)	Proposed Improvement	Costs (US$mn)
Harare-Masvingo-Beitbridge	574	Rehabilitation and widening; Dualisation Including bypasses at Chivhu and Masvingo	960
Harare-Chirundu	352.1	Rehabilitation and widening; Dualisation	880
Plumtree-Harare-Mutare	800	Rehabilitation completed. Road to be continually improved in response to demand. Completion of dualisation between Harare-Marondera, and Harare-Kadoma, expected within the next 5 years.	206
Harare-Nyamapanda	237.5	Rehabilitation and widening; Dualisation	320
Harare Ring Road	28	Dualisation	90
Bulawayo-Victoria Falls	439.0	Rehabilitation and widening; Dualisation for 30-40km	250
Bulawayo-Beitbridge	321.7	Rehabilitation and widening; Dualisation for 30-40km	320
Other Roads		Provide surfaced shoulders as well as overtaking lanes and climbing lanes on steep slopes to enhance safety.	
TOTAL INVESTMENT			**3,026**

Table 4-2: Other National Road Development Projects

Road Section	Length (km)	Proposed Improvement	Costs (US$mn)
Harare Airport Road Phase 2	11	Completion of link to Enterprise/Mutare Road	90
Bulwayo-Nkayi	158	Upgrading to 7m surfaced road	49.4
Bulawayo Airport Road	20	Dualisation	20
Kwekwe-Nkayi-Lupane	118	Upgrading to 7m surfaced road	100
Buchwa-Rutenga	93	Upgrading to 7m surfaced road	80
Rutenga-Boli-Sango	150	Upgrading to 7m surfaced road	90
Mberengwa-West Nicholson	88	Upgrading to 10m surfaced road	90
Karoi-Binga	369.1	Upgrading to 7m surfaced road	85.2
Bulawayo-Tsholotsho	106.7	Upgrading to 7m surfaced road	93
Golden Valley-Sanyati	158	Upgrading to surfaced road	33.8
Harare – Bindura	89	Rehabilitation, widening and dualisation	35.1
Murambinda – Birchenough	119	Upgrading to 7m surfaced road	30
Gwanda-Tuli	55	Upgrading to 7m surfaced road	14
Birchenough Bridge		Strengthening & widening	30
Flood Damaged Structures		Reconstruction of damaged spans	47
Rural Access Improvement	500		365
TOTAL INVESTMENT			**1,252.5**

4.1.1.2 Missing Links

Most of the missing links are existing roads which have deteriorated substantially and would require restoration and upgrading. The missing links are presented in Table 4-3.

Table 4-3: Missing Links

Link	Length (km)	Cost (USDmn)
Plumtree – Gwanda via St Joseph	186	148.8
Bulawayo – St Joseph	147	73
Zvishavane – Chikombedzi via Buchwa Mine and Rutenga	157	125.7
Chiredzi – Beitbridge via Chikombedzi	150	120
Chikombedzi – Sango through Gona re Zhou National Park	150	50
Murambinda – Birchenough Bridge	120	72
Mutoko – Nyanga	145	116
Raffingora – Mhangura		25
Harare Drive:		28
Harare Outer Ring Road	110.7	110.7
Mutare Bypass		50
Links to Maitengwe, Mukumbura, Sango/Chicualacuala and Kanyemba border posts: to link up with surfaced roads on the side on the borders.		
TOTAL INVESTMENT		**919.2**

4.1.1.3 Links to Economic Hubs

Table 4-4: Links to Economic Hubs

Link	Length (km)	Cost (USDmn)
Gokwe-Siabuwa-Kamativi Mine Road	353	141
Gokwe-Sengwa		50
The Manhize iron ore fields near Chivhu need a link to the steel hub of Kwekwe		25
Lupane methane gasfields require a new link to Lupane.		50
TOTAL INVESTMENT		**266**

4.1.1.4 Links to Support Tourism

Table 4-5: Links to Support New Tourism Development Plans

Link	Length (km)	Cost (USDmn)
Tsholotsho – Hwange Road	262	250
Chiredzi –Sango via Chikombedzi and linking up with Beitbridge	330	292
Rutenga – Zvishavane	157	125.7
Chiredzi-Mutare corridor	315	126
Limpopo access facility		50
Access road linking Pandamatenga Border Post to Victoria Falls	30	9
TOTAL INVESTMENT		**852.7**

4.1.1.5 Bridge Projects

Proposals for bridge projects involve:

- → General maintenance and repairs;
- → Widening where the improvement to capacity and safety was necessary;
- → Replacement where the condition of the bridge or the age so dictated;
- → Retirement where the bridge was constructed earlier than 1930.
- → New bridges for new roads or in cases where existing roads would be dualised.

Table 4-6 and Table 4-7 present bridges by responsible authority and route, respectively.

Table 4-6: National Road Bridges by Authority

Road Class	Current Bridge Asset Value (mUS$)	Widening Cost (mUS$)	Replacement Cost (mUS$)	New Bridge Cost (mUS$)
M-MUNICIPAL	-			15.53
P-PRIMARY	202.41	4.03	6.60	39.23
R-REGIONAL	223.09	213.97	13.11	493.45
Total	**425.50**	**218.00**	**19.72**	**548.21**

Source: CPCS 2016

Table 4-7: National Road Network Bridges by Route

Route Name	Widening Cost (mUS$)	Replacement Cost (mUS$)	New Bridge Cost (mUS$)
BEITBRIDGE-TANGANDA	-	-	-
BULAWAYO - BEITBRIDGE	37.76		68.72
BULAWAYO - BOTSWANA BORDER	3.66		6.66
BULAWAYO - VICTORIA FALLS	36.80		95.68
CHINHOYI - CHEGUTU			
CHIVHU-NYAZURA			
GOKWE - SIYABUWA			
GWERU - BULAWAYO	5.99		10.90
GWERU - ZVISHAVANE			
HARARE - CHIRUNDU	16.61		105.53
HARARE - GWERU	28.83	0.86	52.48
HARARE-CHITUNGWIZA			
HARARE-MUKUMBURA			
HARARE-MUTARE	13.80	1.92	25.12
HARARE-NYAMAPANDA	20.05		36.49
HARARE-SEKE			
KWEKWE - GOKWE		2.58	
KWEKWE - MVUMA			
KWEKWE - NKAYI		1.44	
MACHEKE-MREWA			
MANDAMABWE - CHIVI - TOKWE			
MASVINGO - MBALABALA			
MURAMBINDA-B/NOUGH			
MUTARE-MASVINGO		2.01	32.02
MVUMA - GWERU		0.57	
NGUNDU-TANGANDA		10.34	
RUTENGA - BUCHWA - ZVISHAVANE	4.03		7.21
SHURUGWI - MANDAMABWE			
WEST NICHOLSON - MBERENGWA			
HARARE DRIVE			15.53
HARARE - BEITBRIDGE	50.47		91.86
Total	**218.00**	**19.72**	**548.21**

Source: CPCS 2016

4.1.1.6 Projects Proposed for Road Transport Operations

Public Transport

→ Mass transit measures (see sub-section 3.2.5.5): **Harare-Chitungwiza commuter railway link** and **a bus rapid transit (BRT) system** for Harare-Chitungwiza route may be feasible in the long term. In the short to medium term, bus priority measures such as dedicated bus lanes and priority at traffic signals are proposed for corridors with large passenger volumes in major cities.

→ Gradual replacing kombis with conventional buses on trunk routes in all cities and most towns, kombis providing feeder services.

Informal Transport Operations

→ introducing passenger trains to operate from Bulawayo and Gweru to cater for the steady passenger traffic to and from the Beitbridge.

→ formalising “amalaitsha” informal road transporters who offer a service to ferry and deliver unaccompanied goods by road from South Africa and Botswana.

4.1.2 Rail Projects

4.1.2.1 Railway Rehabilitation Projects

→ The classification of railway routes would involve upgrading of railway sleepers to 60kg/m on Classes A and B routes, and to 54kg/m on Class C routes, coupled with upgrade of signaling and communication systems.

Details of the rehabilitation works are presented in Table 4-8 below.

4.1.2.2 New Railway Projects

Lion’s Den-Chirundu to Kafue railway line linking Zimbabwe and Zambia;

Harare-Nyamapanda-Moatize railway line linking Zimbabwe and Mozambique;

Kadoma-Sengwa railway line linking the north coalfields to Kadoma and beyond;

Intundla-Zisco railway line cutting the distance from the north to Zisco;

Mkwasine-Mutare rail line from Lowveld to the eastern border;

Mvuma-Pounsley/Mutare line Mutare;

Buchwa-Bikita Minerals;

Beitbridge-Bubye Coalfields; and

Harare-Chitungwiza.

Table 4-8: Railway Rehabilitation Projects

PROGRAMME	PROJECTS	COST ($)
Track Rehabilitation	Class A Tracks	170,541,000
	Class B Tracks	63,500,000
		63,500,000
	Equipment for Track Maintenance	36,146,500
Sub-total		**333,687,500**
Signalling and Telecommunication	Class A and Class B Signalling	120,000,000
	Level Crossing and Hot Box Detectors	5,000,000
	Telecommunications	40,000,000
Sub-total		**165,000,000**
Rolling Stock Rehabilitation	Refurbishment of 20 mainline locomotives	20,000,000
	Refurbishment of 1500 wagons	37,500,000
	Refurbishment of 158 stabled coaches	6,300,000
Sub-total		**63,800,000**
Rehabilitation of Workshop and Equipment	Maintenance Plant and Hand Tools (Track Infrastructure)	3,745,000
	Mobile Plant and Equipment (Traction and Rolling Stock)	30,196,000
Sub-total		**33,941,000**
TOTAL INVESTMENTS FOR RAILWAY REHABILITATION		**596,428,500**

Source: CPCS

Table 4-9: Investment In New Railway Lines

Railway Line	Construction Cost (USDmn)
Lion's Den – Kafue	225.0
Kadoma – Sengwa	240.0
Harare – Nyamapanda	345.0
Mkwasine – Mutare	300.0
Mvuma - Pounsley/Mutare	270.0
Intundla – Zisco	450.0
Buchwa – Bikita	150.0
Beitbridge – Bubye Coalfields	75.0
Harare – Chitungwiza LRT)	45.0
TOTAL INVESTMENTS FOR NEW LINES	**2,100**

4.1.3 Aviation Projects

4.1.3.1 Infrastructure Investment

Table 4-10 below presents infrastructure investments and airports and Table 4-11 presents costs of aviation stidues.

Table 4-10: Investment at Airports

PROGRAMME	PROJECTS	COST ($Million)
Harare International Airport	Runway Rehabilitation and Equipment	89.4
J M Nkomo International Airport	Runway Rehabilitation and Equipment	34.4
Buffalo Range Airport	Runway Rehabilitation and Equipment	7.5
Kariba Airport	Runway Rehabilitation and Equipment	10.2
Charles Prince Airport	Runway Rehabilitation and Equipment	16.0
Masvingo Airport	Runway Rehabilitation and Equipment	10.1
Hwange Airport	Runway Rehabilitation and Equipment	9.0
Thornhill Airport	Runway Rehabilitation and Equipment	8.9
Grand Reef Airport	Runway Rehabilitation and Equipment	7.7
Radar Surveillance		25.0
Navigation Aids		17.5
Sub-total		**235.9**
Contingency (20%)		47.2
TOTAL FOR AIRPORT INVESTMENTS		**283.1**

Source: CPCS

Table 4-11: Costs of Aviation Studies

PROGRAMME	PROJECTS	COST ($000)
CAAZ/Air Navigation Infrastructure: Increase safety and improve efficiency	Evaluation of radar requirement, ANS equipment and ANS organization & procedures; Development of investment plan and verification of private service involvement	500
Airports: Attract private funding for airport infrastructure investment and improve level of service; Increase safety through optimzed wildlife management	Analyze feasibility of awarding long-term concession for 3 main airports; Develop and implement tender process for airport concession. Optimize Wildlife Management at all 10 airports operated by CAAZ	750
Harare and Bulawayo Airports: Increase safety and security, increase service level for passengers and airlines	Develop Master Plans	250
Victoria Falls Airport: Increase safety and security, increase service level for passengers and airlines	Master Plan	
Charles Prince Airport: Create conditions for growth of general & private aviation	First Study: Verify vialbility for major development Second Study: Prepare Master Plan	50 100
NHS: Increase level of service and competition	Develop concession concept and implement it	250
Catercraft: Remove obstacles and allow competition in airline and airport catering	No study required	0
Air Zimbabwe: Encourage private sector participation	MoTID to contract transaction advisor to search for a strategic investor	1,200
TOTAL FOR AVIATION STUDIES		**3,100**

4.1.4 Inland Waterways Projects

→ Victoria Falls – Construction of Control Tower and Staff accommodation including temporary structures and fencing

→ Binga – Construction of Control Tower and Staff accommodation including temporary structures and fencing

→ Purchase of Vessel Registration Software

→ Lake Chivero – Construction of Control Tower and Staff accommodation

→ Osborne and Tokwe Mukosi Office – Construction of the Office Stations

→ Marine Training Institute – Construction of Marine Training Institute

4.2 Summary of Investment Proposals

4.2.1 Summary of Investments

The table below presents a summary of investments for the sub-sectors.

Table 4-12: Summary of Investments

Sub-Sector	Item	Investment Sum (USDmn)
ROAD	Existing and On-going Projects	
	Priority Projects	3,026
	Other Development Projects	1,252.5
	Missing Links	919.2
	Links to Economic Hubs	266
	Links to Support Tourism	852.7
	Bridge Projects	0
	Bridge Widening	218
	Bridge Replacement	19.72
	New Bridges	548.21
Sub-total		**7,102.33**
RAIL	Rehabilitation Projects	
	Track	333.69
	Signalling & Telecommunication	165.00
	Rolling Stock	63.80
	Workshop and Equipment	33.94
	New Railway Lines	2,100.00
Sub-total		**2,696.43**
AVIATION	Airports	283.1
	Aviation Studies	3.10
Sub-total		**286.2**
TOTAL		**10,084.96**

4.3 Sustainability of Proposals

4.3.1 Background to Sustainability

Before implementing the proposals presented in this Master Plan, due consideration should be taken of the extent to which each project will impact on the environment, as well as the necessary mitigatory measures that will help minimise the impact. These proposals, particularly for infrastructure, will impact on the environment to varying degrees. Other considerations include the importance of the intervention in supporting the development aspirations of the nation, and the technical suitability of the intervention in addressing the identified problem or challenge. The extent to which a project will impact on the environment will therefore determine whether or not it should go ahead.

The likely impacts of infrastructure projects as well as potential impacts of individual proposed projects are presented below.

4.3.2 Environmental Analysis of Proposals

4.3.2.1 Likely Impacts of Infrastructure Interventions

New projects are likely to create more severe impacts compared to impacts caused by improving existing roads. New transportation infrastructure projects have environmental impacts which should be considered at every stage of a project, that is, during **Planning, Construction, Implementation and Operation,** so as to minimise the impacts. Improvement projects on the other hand have impacts during the implementation and operational stages of the projects. The magnitude and severity of impacts of improvement projects are generally lower than for new projects.

In general transportation activities have positive impacts which support increasing mobility demands for passengers and freight, notably in urban areas, but they often result in growing levels of motorization and congestion. As a result, the transportation sector is becoming increasingly linked to environmental problems. The most important impacts include:

- **Climate change**. Transport activities result in the release of several million tons of green house gases (GHGs) each year into the atmosphere during construction and operational stages of a project. GHGs are a significant factor in climate change, which is of huge concern globally.
- **Air quality**. Highway vehicles, marine engines, locomotives and aircraft are the sources of pollution in the form of gas and particulate matter that affects air quality, and are associated with cancer, cardiovascular, respiratory and neurological diseases in humans. The gaseous emissions are the cause of acid rain.
- **Noise**. Noise represents the general effect of irregular and chaotic sounds on people as well as animal life. Basically, noise is an undesirable sound. Long term exposure to noise levels above 75 decibels (dB) seriously hampers hearing and affects human physical and psychological wellbeing. Vehicular activity in urban areas, ports, airports and rail yards result in noise that affects human health. Ambient noise especially in urban areas, impairs the quality of life and thus property values. Falling land values nearby acute noise sources such as airports are often noted.
- **Water quality**. Transport activities have an impact on hydrological conditions and water quality. Fuel, chemical and other hazardous particulates discarded from aircraft, cars, trucks and trains or from port and airport terminal operations can contaminate hydrographic systems. Inland waterways transport emissions represent the most important water quality impact of the transportation sector e.g. oil spills from faulty boats.
- **Soil quality**. The environmental impact of transportation on soil quality, particularly soil erosion and soil contamination is felt more during the construction stage of transportation projects. Existing projects improvement may result in low significant impacts on soil erosion. Highway construction or lessening surface grades for port and airport developments have led to important loss of fertile land. Chemicals used for the preservation of wooden railway ties may enter into the soil. Hazardous materials and heavy metals have been found in areas contiguous to railroads, ports and airports.

- **Biodiversity**. Transportation also influences biodiversity. This impact is more severe with construction of new projects. Excavation for construction materials and the development of land-based transportation leads to deforestation, and loss of wetland areas as well as some water plant species. The need to maintain road and rail rights-of-way or to stabilize slopes along transport facilities results in restricting growth of certain plants or has produced changes in plants with the introduction of new species different from those which originally grew in the areas. Many animal species are becoming endangered as a result of changes in their natural habitats.

- **Land take**. This impact is more severe with new than with improvement projects. Social and economic cohesion can be severed when new transport facilities such as elevated train and highway structures cut across an existing urban community. Arteries or transport terminals can define urban borders and produce segregation through severance. Thus major transport facilities can affect the quality of life by creating physical barriers, increasing noise levels, reducing rural and urban aesthetics and affecting the built environment.

Table 4-13 below is a summary of the likely impacts of transport projects, Table 4-14, Table 4-15, Table 4-16, and Table 4-17 present the impacts of individual road, rail, aviation and inland waterways projects, as well as potential mitigation measures.

Table 4-13: Summary of Environmental Impacts of Transport Projects

Project	GreenHouse GasEmmissions Emmisions	Noise and Vibrations	Waste disposal	Water Pollution	Resource use (Fuel, Land etc)
Roads and Bridges	High	High	High	Very High	Very High
Aviation Projects	Very High	Low	low	None or Negative	high
Inland Waterways Projects	Low	None or Negative	low	High	high
Rail Projects	Very Low	Very High	Low	Very Low	high

Source: CPCS

Table 4-14: Environmental Analysis of Road Projects

Project	Environmental Impact	Mitigation Measures
Rehabilitation and Dualisation of the Harare-Masvingo-Beitbridge Road Maintenance and widening and new construction on some sections	→ Destruction of Flora and Fauna resulting in loss if biodiversity → Loss of homesteads and businesses along the route alignment → Air and dust emissions from construction vehicles → Increase of H.I.V and other communicable diseases around the construction camps. → Resource depletion from borrow pits. → Accidents likely to increase due to high speeding on good roads.	→ A full EIA study to avoid the identified negative impacts. → All homesteads and commercial centres affected by the route alignment should be identified for relocation and compensation. → HIV and STIs awareness campaigns to be done at the construction camps. → Motorists to observe roads signs and adhere to speed limits
Rehabilitation of Harare – Chirundu Road → Rehabilitation and widening → This may also include dualisation → new construction on some sections	*Impacts as above*	→ *Mitigation Measures as above*
Rehabilitation of the Harare – Nyamapanda Road → Rehabilitation and widening → The road is 36 to 50 years old and in poor condition → This may also include dualisation	→ *Impacts as above*	→ *Mitigation Measures as above*
Rehabilitation of Bulawayo – Victoria Falls road → Rehabilitation and Widening → 27 years old and in poor condition → May include dualisation for 30 – 40 Kms	→ *Impacts as above*	→ *Mitigation Measures as above*
Rehabilitation of Bulawayo – Beitbridge road → Rehabilitation and Widening → May include dualisation for 30 – 40 Kms	→ *Impacts as above*	→ *Mitigation Measures as above*

Project	Environmental Impact	Mitigation Measures
Maintenance of the Plumtree – Harare – Mutare: → Rehabilitation of the 800 km road recently completed. → Needs continuous maintenance and improvement in response to traffic demand. → Dualisation of Harare to Marondera, and Harare to Kadoma, to be completed in the next five years.	→ Road maintenance depending on its magnitude may not need a full Environmental Impact Assessment	→ Maintenance of Roads is not a Prescribed Activity according to the Environmental Management Act of 2003. A Prospectus should therefore be prepared and submitted to the Environmental Management Agency for their determination, An Environmental Management plan may be required to help during the maintenance Project.
Gokwe - Siakobvu - Kamativi Mine Road → Upgrading of the road → This is currently a gravel/dust road → The proposal is for a new tarmacked road	→ Destruction of Flora and Fauna resulting in loss if biodiversity → Loss of homesteads and businesses along the route alignment → Air and dust emissions from construction vehicles → Increase of H.I.V and other communicable diseases around the construction camps. → Resource depletion from borrow pits. → Accidents likely to increase due to high speeding on good roads.	→ Full EIA study requires to avoid the identified negative impacts. → All affected homesteads and commercial centres affected to be identified for relocation and compensation. → HIV and STIs awareness campaigns at the construction camps. → MOTID to utilise existing Borrow pits, → Motorists to observe the roads signs and adhere to speed limits
Construction of the Kwekwe – Nkayi - Lupane Road → This is currently a gravel/dust road → The proposal is for a new tarmacked road	→ *Impacts as above*	→ *Mitigation Measures as above*
Karoi/Magunje – Binga/Manjolo → This is currently a gravel/dust road → The proposal is for a new tarmacked road	→ *Impacts as above*	→ *Mitigation Measures as above*
Bulawayo – Nkayi → Rehabilitation and widening	→ *Impacts as above*	→ *Mitigation Measures as above*

Project	Environmental Impact	Mitigation Measures
Plumtree - Gwanda via Ingwizi, Brunapeg and St Joseph	→ Destruction of Flora and Fauna resulting in loss if biodiversity → Loss of homesteads and businesses along the route alignment → Air and dust emissions from construction vehicles → Increase of H.I.V and other communicable diseases around the construction camps. → Resource depletion from borrow pits. → Accidents likely to increase due to high speeding on good roads.	→ Full EIA study requires to avoid the identified negative impacts. → All affected homesteads and commercial centres affected to be identified for relocation and compensation. → HIV and STIs awareness campaigns at the construction camps. → MOTID to utilise existing Borrow pits, → Motorists to observe the roads signs and adhere to speed limits
Manhize – Kwekwe Road → A new road	→ *Impacts as above*	→ *Mitigation Measures as above*
Lupane Methane Road → A new road	→ *Impacts as above*	→ *Mitigation Measures as above*
Rutenga – Boli - Sango/Chiqualaqala Road → road requires upgrading to surfaced standard	→ *Impacts as above*	→ *Mitigation Measures as above*
Chiredzi – Chikombedzi → Current link is a poorly maintained gravel road	→ *Impacts as above*	→ *Mitigation Measures as above*
Chikombedzi - Beitbridge → Current link is a poorly maintained gravel road	→ *Impacts as above*	→ *Mitigation Measures as above*
Murambinda – Birchenough Bridge	→ *Impacts as above*	→ *Mitigation Measures as above*
Rutenga – Zvishavane → Is currently a dust road → Proposal to upgrade to tarmac	→ Destruction of Flora and Fauna resulting in loss if biodiversity → Loss of homesteads and businesses along the route alignment → Air and dust emissions from construction vehicles → Increase of H.I.V and other communicable diseases around the construction camps. → Resource depletion from borrow pits. → Accidents likely to increase due to high speeding on good roads.	→ Full EIA study requires to avoid the identified negative impacts. → All affected homesteads and commercial centres affected to be identified for relocation and compensation. → HIV and STIs awareness campaigns at the construction camps. → MOTID to utilise existing Borrow pits, → Motorists to observe the roads signs and adhere to speed limits
Tsholotsho – Hwange via Hwange National Park → Upgrading of some section of the road and new construction	→ *Impacts as above*	→ *Mitigation Measures as above*

Project	Environmental Impact	Mitigation Measures
Rehabilitation of Chiredzi - Mutare Road → Road needs rehabilitation and widening	→ *Impacts as above*	→ *Mitigation Measures as above*
Kwekwe – Gokwe - Siabuwa → road requires upgrading to surfaced standard	→ *Impacts as above*	→ *Mitigation Measures as above*
Uzumba Maramba Pfungwe – Mt Darwin Access Road	→ *Impacts as above*	→ *Mitigation Measures as above*
Mutoko - Nyanga Access Road → A narrow gravel road exists → Road requires upgrading to surfaced standard	→ *Impacts as above*	→ *Mitigation Measures as above*
Kwekwe - Mvuma Road → A narrow gravel road exists → Road requires upgrading to surfaced standard	→ *Impacts as above*	→ *Mitigation Measures as above*
Mutare – Forbes Border Post → Rehabilitation and Widening → 27 years old and in poor condition	→ Destruction of Flora and Fauna resulting in loss if biodiversity → Loss of homesteads and businesses along the route alignment → Air and dust emissions from construction vehicles → Increase of H.I.V and other diseases around construction camps. → Resource depletion from borrow pits. → Accidents likely to increase due to high speeding on good roads.	→ Full EIA study requires to avoid the identified negative impacts. → All affected homesteads and commercial centres affected to be identified for relocation and compensation. → HIV and STIs awareness campaigns at the construction camps. → MOTID to utilise existing Borrow pits, → Motorists to observe the roads signs and adhere to speed limits
Pandamatenga – Victoria Falls Road	→ *Impacts as above*	→ *Mitigation Measures as above*
Sinamatella Drive	→ *Impacts as above*	→ *Mitigation Measures as above*
Kanyamba to Manapools	→ *Impacts as above*	→ *Mitigation Measures as above*
Harare Drive (Harare Inner Ring Road) → Road has deteriorated in many areas → Need to complete missing → Dualisation should be considered	→ *Impacts as above*	→ *Mitigation Measures as above*

Project	Environmental Impact	Mitigation Measures
Harare Outer Ring Road → Affects properties in road alignment: Ruwa to Manyame Bridge, to Skyline, to Mount Hampden, Christonbank, Chishawasha and back to Ruwa	→ *Impacts as above*	→ *Mitigation Measures as above*
Bulawayo – St Joseph via Maphisa	*Impacts as above*	→ *Mitigation Measures as above*
Christmas Pass Bypass - Mutare → A new road	→ *Impacts as above*	→ *Mitigation Measures as above*
Harare Airport Road → Rehabilitation, widening and possible dualisation	→ *Impacts as above*	→ *Mitigation Measures as above*
Manyame River Bridge	→ *Impacts as above*	→ *Mitigation Measures as above*
National Parks Roads Program → Maintenance of roads that lead to National Parks → List of roads that require maintenance is available	→ Destruction of Flora and Fauna resulting in loss if biodiversity → Loss of homesteads and businesses along the route alignment → Air and dust emissions from construction vehicles → Increase of H.I.V and other diseases around construction camps. → Resource depletion from borrow pits. → Accidents likely to increase due to high speeding on good roads.	→ Full EIA study requires to avoid the identified negative impacts. → All affected homesteads and commercial centres affected to be identified for relocation and compensation. → HIV and STIs awareness campaigns at the construction camps. → MOTID to utilise existing Borrow pits, → Motorists to observe the roads signs and adhere to speed limits

Table 4-15: Environmental Analysis of Rail Projects

Project	Environmental Impact	Mitigation Measures
Rehabilitation of Class A Main Line Track	***Rail Rehabilitation and Support*** → Releases during terminal operations: cleaning, maintenance, repair, and refuelling → Emissions from utilities powering rail → Rail parts disposal	→ May not require a full EIA, but there may be need to inform the Environmental Management Agency (EMA) through an Environmental Prospectus. → Vehicles offering support services to be well maintained and not to be a source of noxious air emissions themselves. → Disposal of oil and other used parts could be included here, but no relevant data were identified. → Disposal of all parts must be done at a recommended scrap yard.
Locomotives Purchasing Program	No negative impacts	No need of EIA
Wagons Purchasing Program	No negative impacts	No need of EIA
Wagons Leasing Program	No negative impacts	No need of EIA
Rehabilitation of Class B Track	***Rail Rehabilitation and Support*** → Releases during terminal operations: cleaning, maintenance, repair, and refuelling → Emissions from utilities powering rail → Rail parts disposal	→ May not require a full EIA, but there may be need to inform the Environmental Management Agency (EMA) through an Environmental Prospectus. → Vehicles offering support services to be well maintained and not to be a source of noxious air emissions themselves. → Disposal of oil and other used parts could be included here, but no relevant data were identified. → Disposal of all parts must be done at a recommended scrap yard.
Rehabilitation of Class C Track	***Rail Rehabilitation and Support*** → Releases during terminal operations: cleaning, maintenance, repair, and refuelling → Emissions from utilities powering rail → Rail parts disposal	→ May not require a full EIA, but there may be need to inform the Environmental Management Agency (EMA) through an Environmental Prospectus. → Vehicles offering support services to be well maintained and not to be a source of noxious air emissions themselves. → Disposal of oil and other used parts could be included here, but no relevant data were identified. → Disposal of all parts must be done at a recommended scrap yard.

Project	Environmental Impact	Mitigation Measures
Lion's Den – Kafue New Railway Line	→ ***Construction Impacts:*** Habitat disruption; land take; emissions during construction and maintenance → ***Rail Travel:*** Exhaust emissions; Noise; Hazardous materials incidents during transportation	→ Full EIA required for Construction, Maintenance, and Abandonment → Compensation of affected homesteads and commercial Properties → Rail travel is the most sustainable in terms of emissions reduction; should be recommended as a way of mitigating against air emissions. → Environmental Management Plans (EMPs) needed for transportation of hazardous materials to take care of accidental spillages
Kadoma-Sengwa New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Harare – Nyamapanda New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Mkwasine–Mutare New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Mvuma – Pounsley/Mutare New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Intundla – ZISCO New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Buchwa – Bikita New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Beitbridge – Bubye Coalfields New Railway Line	*Impacts as above*	*Mitigation Measures same as above*
Harare – Chitungwiza New (Light Rail) Linking Chitungwiza and Harare	*Impacts as above*	*Mitigation Measures same as above*

Table 4-16: Environmental Analysis of Aviation Projects

Aviation operators	Environmental Impact	Mitigation Measures
Harare International Airport (Harare) Fire fighting vehicles and other equipment; No increase in passenger terminal capacity - focus on passenger comfort and service level; Rehabilitation of runway and approach lighting systems;	→ Rehabilitation may involve reconstruction of certain sections of the runway → Noise from construction vehicles → Air and dust emissions from construction vehicles → Resource depletion from borrow pits. → Operational phase: noise and air emissions from both ground operation and aerospace	→ Requires full EIA study to avoid the identified negative impacts. → CAAZ to utilise existing Borrow pits from MoTID → Noise abatement measures should be implemented by CAAZ
JN Nkomo (Bulawayo) Rehabilitation of main runway, apron and lighting systems; New ATC tower, New fire station including equipment, Extension of access road from 2 to 4 lanes over 4km;	→ Rehabilitation may involve reconstruction of certain sections of the runway → Noise from construction vehicles → Air and dust emissions from construction vehicles → Resource depletion from borrow pits. → Operational phase: noise and air emissions from both ground operation and aerospace	→ Requires full EIA study to avoid the identified negative impacts. → CAAZ to utilise existing Borrow pits from MoTID → Noise abatement measures should be implemented by CAAZ
Buffalo Range (Chiredzi) Rehabilitation of Apron	→ Rehabilitation may involve reconstruction of certain sections of the runway → Noise from construction vehicles → Air and dust emissions from construction vehicles → Resource depletion from borrow pits. → Operational phase: noise and air emissions from both ground operation and aerospace	→ Requires full EIA study to avoid the identified negative impacts. → CAAZ to utilise existing Borrow pits from MoTID → Noise abatement measures should be implemented by CAAZ
Masvingo Airport (Masvingo) New Terminal Access Road (1 Km) & Parking Space Fuel Facility (Jet A1, Avagas)	→ Major construction Impacts: destruction of Flora and Fauna; loss of biodiversity → Air and dust emissions from construction vehicles → Land take for the new terminal → Operational phase: accidents on road from high speeding due to good roads	→ Requires full EIA study to avoid the identified negative impacts. → CAAZ to utilise existing land within its jurisdiction and may not need to apply for new land from Government or private owners.

Aviation operators	Environmental Impact	Mitigation Measures
Kariba Airport (Kariba) Rehabilitation of terminal Rehabilitation of the runway	→ Rehabilitation involves reconstruction of the runway and may also include → Noise from construction vehicles → Air and dust emissions from construction vehicles → Resource depletion from borrow pits. → Operational phase: noise and air emissions from both ground operation and aerospace	→ Requires full EIA study to avoid the identified negative impacts. → CAAZ to utilise existing Borrow pits from MoTID → Noise abatement measures should be implemented by CAAZ
Grand Reef (Mutare) New Terminal Major Rehabilitation of Runway	→ Major construction Impacts: destruction of Flora and Fauna; loss of biodiversity → Air and dust emissions from construction vehicles → Land take for the new terminal → Operational phase: accidents on road from high speeding due to good roads	→ Requires full EIA study to avoid the identified negative impacts. → HIV and STIs awareness campaigns at construction camps → CAAZ to utilise existing land within its jurisdiction and may not need to apply for new land from Government or private owners.
Hwange (Hwange) Perimeter Fence Terminal building refurbishment	May not need a full EIA	→ Refurbishment of buildings and Perimeter Fences are not Prescribed Activities according to the Environmental Management Act of 2003. → A Prospectus to be prepared and submitted to EMA. → An Environmental Management plan may be required to help during the maintenance project.

Table 4-17: Environmental Analysis of Inland Waterways Projects

Project	Environmental Impact	Mitigation Measures
Victoria Falls - Construction of (Robertson) temporary structures at waterfront and fencing of the premises	→ May result in tree cutting to give way for the structures → There may be need to remove top soil → There will be need for ablution facilities → There will be need for provision of clean drinking water → The fencing material can result in natural resources depletion if they are locally sourced	→ Avoid unnecessary felling down of trees unless where it's absolutely impossible to avoid, → All top soil should be properly stockpiled and reused for landscaping at the site → Fencing material will be sourced from approved providers
Binga - Construction of (Robertson) temporary structures at waterfront and fencing of the premises	→ May result in tree cutting to give way for the temporary structures → There may be need to remove top soil → There will be need for ablution facilities → There will be need for provision of clean drinking water → The fencing material can result in natural resources depletion if they are locally sourced	→ Avoid unnecessary felling down of trees unless where it's absolutely impossible to avoid, → All top soil should be properly stockpiled and reused for landscaping at the site → Fencing material will be sourced from approved providers
Vessel Registration Software **IMO standard**	→ No Environmental impacts associated with vehicle registration	→ Not a Prescribed Activity according to the Environmental Management Act 2003
Chivero - Control Tower and Staff accommodation houses	→ Construction of Control Tower: destruction of Flora and Fauna resulting in loss if biodiversity; contamination of water with cement resulting in poor water quality in the lake → Air and dust emissions from construction vehicles → Increase of H.I.V and other diseases around construction camps	→ Full EIA required to avoid the identified negative impacts. → Construction should not be done during the fish breeding season as this may disturb the breeding process → Contractor to sprinkle water on site during dry weather → Water barriers to be utilised during construction and caution be exercised to avoid wastage of cement mortar → HIV and AIDs awareness campaigns to be promoted to avoid contractors from engaging in such activities
Vessel Management System	→ No Environmental impacts associated with vehicle registration	→ Not a Prescribed Activity according to the Environmental Management Act 2003

Project	Environmental Impact	Mitigation Measures
Binga - Control Tower and Staff accommodation houses	→ Major construction Impacts of the Control Tower are destruction of Flora and Fauna resulting in loss if biodiversity → Air and dust emissions from construction vehicles → Increase of H.I.V and other communicable diseases around the construction camps → Construction of Control Tower: contamination of water with cement resulting in poor water quality in the lake.	→ Full EIA required to avoid the identified negative impacts. → Construction should not be done during the fish breeding season as this may disturb the breeding process → Contractor to sprinkle water on site during dry weather → Water barriers to be utilised during construction and caution be exercised to avoid wastage of cement mortar → HIV and AIDs awareness campaigns to be promoted to avoid contractors from engaging in such activities
Victoria Falls – Control Tower and Staff accommodation houses	→ Major construction Impacts of the Control Tower are destruction of Flora and Fauna resulting in loss if biodiversity → Air and dust emissions from construction vehicles → Increase of H.I.V and other diseases around construction camps → Construction of Control Tower: contamination of water with cement resulting in poor water quality in the lake.	→ Full EIA required to avoid the identified negative impacts. → Construction should not be done during the fish breeding season as this may disturb the breeding process → Contractor to sprinkle water on site during dry weather → Water barriers to be utilised during construction and caution be exercised to avoid wastage of cement mortar → HIV and AIDs awareness campaigns to be promoted to avoid contractors from engaging in such activities
Osborne and Tokwe Mukosi Office Stations	→ Construction of the Office Station: Land take for the Project Foot print → Air and dust emissions from construction vehicles → Increase of H.I.V and other diseases around construction camp → Operation of the Office Station results in a positive impact which should be enhanced	→ Full EIA required to avoid the identified negative impacts. → Construction should not be done during the fish breeding season as this may disturb the breeding process → Contractor to sprinkle water on site during dry weather → Water barriers to be utilised during construction and caution be exercised to avoid wastage of cement mortar → HIV and AIDs awareness campaigns to be promoted to avoid contractors from engaging in such activities
Marine Training Institute	→ Construction of Marine Training Institute: Land take for the Project Foot print → Air and dust emissions from construction vehicles → Increase of H.I.V and other communicable diseases around the construction camp. → Operation of the Training Institute results in a positive impact which should be enhanc	→ Full EIA required to avoid the identified negative impacts. → Construction should not be done during the fish breeding season as this may disturb the breeding process → Contractor to sprinkle water on site during dry weather → Water barriers to be utilised during construction and caution be exercised to avoid wastage of cement mortar → HIV and AIDs awareness campaigns to be promoted to avoid contractors from engaging in such activities

5 Implementing The Plan

Key Message

This chapter presents a prioritised action plan that will be adopted in implementing the Master Plan, as well as potential sources of funding for the implementation of the proposed projects. It also presents a consultation and stakeholder engagement plan.

5.1 Prioritised Action Plan and Implementation Strategy

The approach suggested in the 2017 National Budget is to focus on on-going projects in order to enable the country's citizens to benefit from investments already made thus far. The 2017 National Budget prioritises the implementation of transport infrastructure projects, embracing the road network, rail and air, focusing on the completion of on-going projects. The same approach has been adopted for the programmes and projects that make up this Master Plan.

As the National Budget has limitations in addressing the infrastructure gaps, ZIMASSET and the IPRSP propose leveraging private funding towards development of critical enablers including transport, among others.

Projects that have been proposed for the Master Plan have been allocated to three time periods, that is, short term (including immediate) from 2017 to 2021, medium term 2022 to 2026, then long term from 2027 to 2036. The current economic situation in Zimbabwe makes it difficult to source large amounts of money to fund Master Plan proposals. As such quick-win projects, that is, those projects that are either easy to implement and/or those projects that require minimal capital injection have been allocated to the short term. In addition, the importance of the projects, has also been considered, so that, even some high profile projects that may require high capital injection such as the Harare-Beitbridge Road have been allocated to the short term list of projects. Other projects will be carried out either in the medium term or in the long term.

Interventions that have been proposed in this Draft Master Plan are meant to meet specific objectives such as:

- → projects to preserve the existing networks as well as on-going projects;
- → projects to plug gaps or missing links in the existing networks; and
- → projects to economic hubs such as mines and large agricultural hubs.

The existing transport networks form the core of the country's economy. The networks, in particular roads and rail, have deteriorated significantly over the years to the extent that operating costs are very high. These core networks require urgent attention to restore them serviceable standards and to reduce operating costs. Most of the projects that have been identified in this category need to be implemented in the short term, although some are so large that they will be implemented in the short to medium term.

There are gaps or missing links that have been identified in the existing networks. The plugging of these gaps has been considered to be of importance to the optimal operation of the networks. Most of these projects, as well as projects to support spatial development initiatives or to support new economic hubs, are to be implemented mostly in the medium term, although some will be implemented in the short term owing to their importance to the national economy. Some of the projects, will however be implemented in the medium to long term due to their large magnitude as well as the large investment required.

Table 5-1: Implementation Plan for Road Projects

SHORT TERM PROJECTS	MEDIUM TERM PROJECTS	LONG TERM PROJECTS
Preservation Projects: • Harare-Masvingo-Beitbridge • Harare-Chirundu • Harare-Nyamapanda • Plumtree-Harare-Mutare: Dualisation of Harare to Marondera, and Harare to Kadoma • Harare Airport Road Phase 2 • Bridge widening on regional trunk roads • New Bridges on municipal roads (Harare Drive) • Rural Access Improvement **Missing Links** • Harare Outer Ring Road • Harare Drive • Karoi/Magunje-Binga • Kwekwe-Nkayi-Lupane • Bulawayo-Nkayi • Plumtree- Gwanda • Mutare bypass **Roads to Economic Hubs** • Gokwe-Siabuwa-Kamativi Mine • Link from Manhize iron ore fields to Kwekwe • New roads to serve the Lupane methane gasfields **Public Transport** • Harare-Chitungwiza Mass Transit: Dedicated Bus Lanes	• Bulawayo Airport Road • Bulawayo-Tsholotsho • Golden Valley-Sanyati • Harare-Bindura • Murambinda-Birchenough • Tsholotsho-Hwange • Chiredzi-Sango • Rutenga-Zvishavane • Chiredzi-Mutare corridor • Pandamatenga-Victoria Falls • Limpopo access facility • Bridge replacement on Harare-Gweru, Harare-Mutare, Ngundu-Tanganda, Kwekwe-Gokwe, Kwekwe-Nkayi, Mutare-Masvingo, Mvuma-Gweru • New bridges on primary and regional trunk roads • Flood Damaged Structures	• Rutenga-Boli-Sango • Mberengwa-West Nicholson • Gwanda-Tuli • Birchenough Bridge • Bulawayo-St Joseph

Table 5-2: Implementation Plan for Rail Projects

SHORT TERM PROJECTS	MEDIUM TERM PROJECTS	LONG TERM PROJECTS
Rehabilitation of Existing Infrastructure: • Track Rehabilitation • Signalling and Telecommunication • Rolling Stock Rehabilitation • Rehabilitation of Workshop and Equipment	• Lion's Den-Kafue • Kadoma-Sengwa • Harare-Nyamapanda • Mkwasine-Mutare • Mvuma-Pounsley/Mutare • Intundla-Zisco • Buchwa-Bikita • Beitbridge-Bubye Coalfields • Harare-Chitungwiza (LRT)	*Most of the Medium Term Projects will spill over to Long Term.*

Table 5-3: Implementation Plan for Aviation Projects

SHORT TERM PROJECTS	MEDIUM TERM PROJECTS	LONG TERM PROJECTS
• Harare International Airport Master Plan • Bulawayo Airport Master Plan • Victoria Falls Airport Master Plan • Harare International Airport Terminal Improvement • Improvement and operationalization of secondary airports: Thornill Airport in Gweru; Masvingo Airport; Buffalo Range Airport; Grand Reef • Charles Prince Airport Master Plan • Air Zimbabwe to find a strategic partner; to reintroduce direct flights to London; to introduce direct flights to China.		

With regard to National Development Plans (see sub-section 2.4.2 above), Government remains ready to consider funding for programmes with high impact, especially those projects requiring relatively little resources. This Master Plan has policy proposals as well as proposals for institutional, regulatory and legal reform. Policies give direction to how infrastructure and other investments can be implemented, although implementation of the policy proposals may involve very little investment cost. As such these proposals, since they require little resources are to be implemented in the immediate and short term. These represent quick wins. The table below lists policy as well as institutional/regulatory/legal proposals.

Table 5-4: Short Term General Proposals

Area/Sub-sector	Proposal
INSTITUTIONAL Review	1. Restructuring of ZINARA and the Road Fund 2. Commercialisation of DoR 3. Establishment of a National Road Accident Fund
REGULATORY Review	4. Unbundling regulation from service delivery
LEGAL Review	5. The Urban Areas (Omnibus Services) Act [Chapter 29:14] wrong – reference to Controller of Road Motor Transportation 6. Road Motor Transportation Act [Chapter 13:15] – "public service vehicle"
LAND USE	7. Advising local authorities to promote mixed land uses. 8. Integrating urban planning with transport planning.
LOCAL TRANSPORT IMPROVEMENTS	9. Improve: driving standards, pedestrian behaviour, road markings, junction management, dedicated bus lanes, bus stops positioning, properly marked junctions, turning lanes, synchronise traffic lights. 10. Integrate urban planning with transport planning. 11. Safety and security for pedestrians and cyclists. 12. Strengthen the road maintenance capacity of urban councils. 13. Timely maintenance of traffic lights and road signs.

Table 5-5: Short Term Soft Proposals for the Road Sub-Sector

Area/	Proposal
POLICY	14. Promoting PPPs and tolling when upgrading roads. 15. Promoting safety on new and existing road network. 16. Minimising environmental impacts of road construction. 17. Enhancing employment creation and poverty alleviation. 18. Transport business to be driven by commercial consideration. 19. Ensuring equitable allocation of road fund to road authorities. 20. Road freight transport to bear its fair share of costs. 21. Ensuring availability of road freight transport. 22. Ensuring safe and secure road freight transport services. 23. Providing reliable logistics and freight forwarding services.
OVERLOAD CONTROL	24. This to be written into the country's laws and enforced diligently. 25. Charge offenders deterrent fines. 26. Promptly impound and detained offending vehicles. 27. Repair weighbridges. 28. New Weighbridges at all strategic points 29. VID re-equipped and capacity built; training programmes. 30. Awareness campaigns.
OTHER ROAD –related Proposals	31. Estimation of road user charges based on current road conditions. 32. Set up of a Highway Management System (using GIS and HDM4). 33. Update of road condition data, based on instrumental surveys. 34. Regular traffic counts on the primary and secondary roads. 35. Periodic surveys of passenger and freight services and costs. 36. Prioritise routine and periodic maintenance. 37. Improve Sub-Sector Capacity through: scholarships and cadetships;
BRIDGES	38. Collaboration between private sector and Government 39. Ensuring sufficient activity in bridge construction and maintenance. 40. Regular bridge maintenance training courses. 41. DoR cadetship/scholarship programme to be re-started. 42. Specialised training and refresher courses at knowledge centres. 43. DoR Training Center to be re-opened and its training capacity strengthened. 44. Establishing a specialised research unit for bridges. 45. Establishing a GIS-based Bridge Management System. 46. Bridges and major culverts to be inspected by accredited inspectors. 47. Ensuring bridges have sufficient flood capacity. 48. Reviewing and updating the DoR Bridge Design Manual.
IMPROVING VEHICLE TECHNOLOGY	49. Introducing electric vehicles. 50. Introducing biogas in transportation. 51. Promoting appropriate car maintenance and enforcing vehicle inspection to ensure motor vehicles are well-maintained.
IMPROVING TRAFFIC FLOWS and **REDUCING CITY CENTRE CONGESTION**	52. Promoting traffic lights synchronization. 53. Encouraging staggered working hour and flexible working hours. 54. Reducing the need for travel through teleworking. 55. Encouraging carpooling. 56. Parking supply restrictions. 57. City tolling and congestion charging. 58. Establishing lorry routes. 59. Conducting awareness campaigns.
IMPROVING FREIGHT MOVEMENTS	60. Improving the average age of vehicles. 61. Introducing a tax regime for fleet renewal. 62. Re-equipping and re-capitalising the transport sector. 63. Reducing delay in getting vehicles through border posts.

Table 5-6: Short Term Soft Proposals for the Rail Sub-Sector

Area/	Proposal
POLICY AND INSTITUTIONAL	64. Ensuring the provision of smooth and efficient railway services. 65. Phasing out NRZ monopoly. 66. Separating railway regulation from railway operation. 67. Providing a safe and secure rail transport environment. 68. Discouraging unfair competition from road transport. 69. Minimising the environmental impact of rail transport. 70. Formulating effective strategies and policies. 71. Improving rail transport infrastructure by 5% annually. 72. Improving the policy framework for rail transport. 73. Reducing corrupt practices in operations and transactions. 74. Finalizing and adopt the draft Rail Transport Regulatory/Policy. 75. Reducing numbers of accidents and fatalities by 5 % annually. 76. Ensuring NRZ implements the Corporate Governance Framework. 77. Collaborating with Cabinet for a remuneration and compensation policy for top management in NRZ. 78. Monitoring and evaluating the Performance Contract. 79. Establishing a Railway Regulatory Authority. 80. Restructuring NRZ into two new companies: → a Railway Infrastructure Company of Zimbabwe (RICZ); and → a Zimbabwe Railway Services Company (ZRSC). 81. Finalizing Automated Transport Management Information System. 82. Putting in place a legislative framework for PPPs. 83. Recapitalizing and engaging a strategic partner for NRZ. 84. Returning NRZ capacity and operations to pre-2001 levels. 85. Poising NRZ to meet future traffic demands. 86. Permitting NRZ to cover costs of operations and make profit. 87. Improving operational and safety performance. 88. Classifying Rail Routes: Class A, Class B and Class C. 89. Appointing a design consultant to develop specifications. 90. The design Axle load to be uniform across the railway network. 91. Use PPPs to finance the construction of new infrastructure.

Table 5-7: Short Term Soft Proposals for the Aviation Sub-Sector

Area/	Proposal
POLICY	92. The private sector to participate in airline and airport management 93. GOZ to reduce its role to be a regulator and supervisor. 94. GOZ to promote growth through competition among airlines. 95. Except for air navigation services, GOZ not to be the operator. 96. GOZ to continue investing in runways as well as equipment. 97. GOZ to reduce taxes, fees and charges. 98. Government to remove state protectionism of the national airline. 99. Government to continue liberalizing aviation step-by step.
CAAZ	100. Restructuring CAAZ into a Regulatory Authority and an Airports Company. 101. Setting up a board of directors for the new civil aviation authority. 102. Reviewing the level of air navigation and overflight charges. 103. Benchmarking with neighbouring countries regularly.
AIR ZIMBABWE	104. Air Zimbabwe to review excessive staff salary levels. 105. Employees' status to be changed to no longer be civil servants. 106. Zero tolerance for unpaid invoices for fees and charges. 107. Government to takeover Air Zimbabwe's debt. 108. Government to acquire new aircraft.

Area/	Proposal
	109. Air Zimbabwe to join the IATA Clearing House; to retain the IOSA certification and to acquire the EASA certification. 110. GOZ to search for a strategic partner for Air Zimbabwe:
GROUND HANDLING	111. GoZ to terminate its involvement in airport ground handling. 112. GOZ to concession NHS staff to a private concessionaire. 113. Allow airline self-handling after 18 months. 114. GOZ to ensure competitive ground handling charges. 115. Ground handling at smaller airports to always be mandatorily provided if requested by airlines operating at the smaller airports.
CATERING	116. GOZ to allow competition in airline and airport catering. 117. Any company registered in Zimbabwe to be allowed to participate. 118. Award a second licence for airline catering services
MAIN AIRPORTS	119. Launch a study to evaluate the feasibility of a long-term concession then a PPP for Harare, Victoria Falls and Bulawayo Airports. 120. A second PPP to be awarded for Charles Prince airport, Launch a strategic study for the Airport to verify viability. Limit the airport to smaller aircraft – not exceeding 10-15 seater aircraft. 121. The remaining six airports (Buffalo Range, Grand Reef, Hwange, Kariba, Masvingo, Thornhill) to continue to be operated by the publicly owned airports company. 122. Launch Master Plan Studies for Harare, Bulawayo and Victoria Falls airports. 123. Separate airport operation responsibility from CAAZ. 124. A detailed Wildlife Management Plan for each airport.
SECONDARY AIRPORTS	125. Buffalo Range Airport: concessioning to a private sector partner. 126. Grand Reef Airport: Feasibility study to assess the potential; 127. Kariba Airport: Improvements to the terminal building. 128. Hwange National Airport: Protecting the runway and digging trenches to prohibit animals from crossing over onto the runway.

Table 5-8: Short Term Soft Proposals for Inland Waterways

ALL PROJECTS	129. Improvements to the Kariba-Binga-Lake Victoria route 130. Establish a border post at Binga. 131. GoZ to consider introducing a pilot scheme to operate this route under a management contract to the private sector (to be tendered on a least-subsidy basis). 132. Empower the Department of Inland Waters Control to fine offenders. 133. Implementation of the Results Based Management (RBM) system by using KPIs to help improve operations. 134. Construction of office and staff accommodation for Binga. 135. Fencing and Office accommodation at Victoria Falls. 136. Review of Inland Waters Legal Framework. 137. Procurement of 4 Patrol Vessels

Table 5-9: Soft Proposals for Public Transport

POLICY Proposals	138. Advising and encouraging local authorities to locate settlements close enough to work destinations. 139. Advising local authorities to prepare Public Transport Plans. 140. Government and in particular local authorities to ensure supply of public transport services is increased/available in all areas. 141. Replacing the existing unregulated 'free market' in public road passenger transport provision, with regulated competition. 142. Government and service providers to ensure the provision of adequate, safe, reliable and efficient public passenger transport. 143. Government to promote an enabling environment for the use of appropriate and affordable means of transport in rural areas. 144. ZINARA to allocate adequate funding for local transport infrastructure. 145. Government to assist local authorities and local communities to plan, implement and manage local transport services. 146. Raising the profile of public transport as a basic service available to all residents and visitors to Zimbabwe. 147. Public transport should be provided by the private sector, with appropriate support from Government. 148. Government subsidising services, where deemed necessary. 149. Operators to form and or be part of an association. 150. Operators to acquire route and/or area operating licences with the written support of recognised operator Associations. 151. Associations to have written constitutions, including a standard code of conduct as prescribed by government. 152. Associations to be registered as legal entities. 153. Associations required to register with and belong to a national federation of associations. 154. Associations to be held accountable and fined for members' non-compliance with the standard code of conduct. 155. Every municipality to designate an office for the evaluation of applications for operating licences in its area of jurisdiction. 156. Public transport drivers to possess Professional Driving Permits. 157. Law enforcement officials to impound vehicles operating without appropriate operating licence.
UPGRADING THE SYSTEM	158. The existing system high quality system based on larger buses.

5.2 Financing the Plan

There is a significant funding gap to fulfil the Africa's infrastructure needs, which cannot be met by current official sources of funding alone.[27] In particular, the proportion of Official Development Finance (ODF) in total infrastructure spending is modest, with reduced likelihood of further increase in a context of tightening budgets in countries that provide assistance. Private investment, on the contrary, offers some promising way to close the funding gap for Africa's infrastructure.

Historically, the role of private investment in African infrastructure has been limited, particularly due to the weak enabling environment that underpins infrastructure development. The enabling environment encompasses: the policy framework; regulations that include tariff setting and procurement; and sound public institutions for the management of infrastructure systems. As several OECD guidance indicates, development partners can leverage private investment both by strengthening the enabling environment and using financial instruments to mitigate investment risks.

There are two potential sources of finance/funds for projects – external sources which include Development Finance Institutions and Private Finance; and internal sources. The two types of finance are presented below.

5.2.1 External Sources of Finance

External sources of finance for development projects include

i. Bilateral aid agencies – which are the aid arm of countries that provide aid to the developed world. They provide funding through grants directly or through multilateral and regional agencies and trust funds; and

ii. Multilateral Development Banks – These are institutions that provide financial support and professional advice for economic and social development activities in developing countries. The term Multilateral Development Banks (MDBs) typically refers to: the World Bank (WB); African Development Bank (AfDB); Asian Development Bank (ADB); European Bank for Reconstruction and Development (EBRD); and Inter-American Development Bank Group (IADBG).

MDBs provide support to governments in development of projects, through Risk Mitigation Products and by providing funds that the governments can use to provide Government Support in Financing PPPs. Examples of Multilateral Development Banks are presented below.

5.2.1.1 Development Bank of Southern Afriza (DBSA)

DBSA has three possible streams for funding projects, as follows:

1. **DBSA Project Preparation Fund** – The unit provides project preparation funds for developing infrastructure projects. These funds are intended to be used for:

   → Creating an **enabling environment** for infrastructure projects to be implemented;
   → Conducting **pre-feasibility studies**;

[27] Mapping Support for Africa's Infrastructure Investment, OECD 2012

→ Conducting **bankable feasibility studies**; and
→ Assistance with **costs to reach financial close**.

Generally projects prepared with these funds would be funded through DBSA's lending divisions. DBSA would enter into a facility agreement with conditions stipulated. The funds are limited to projects in South Africa, SADC region and select countries in the greater continent of Africa.

2. **Infrastructure Investment Programme for South Africa (IIPSA)** – The Government of South Africa and the European Union jointly developed an infrastructure funding programme funded by the European Union for a total value of €100 million to support South Africa's National Development Plan as well as the Regional Infrastructure Development Master Plan of SADC. DBSA has been selected to be the implementing agent for IIPSA and serve as the fund manager and Secretariat of the programme.

   IIPSA is expected to support the implementation of government infrastructure programmes and to address the constraints to infrastructure development in South Africa and in the SADC region. SADC projects have to be trans-border, involving two or more countries in the SADC region or a national project with a demonstrable regional impact on one or more countries in the SADC Region.

3. **SADC Project Preparation and Development Facility (PPDF)** – The PPDF facility was created to address the shortage in project preparation funding for infrastructure projects in the region. The funds are administered, managed and disbursed by DBSA on behalf of the SADC Secretariat, funded by the European Union and KFW Investment Bank.

   The facility concentrates on those projects that would be considered as enablers of regional integration, and provides technical assistance for infrastructure project identification, preparation and feasibility studies, with a view to making the projects bankable and attractive to investors. A grant facility would be made available for 95% of the required amount. A 5% monetary value of the grant is required from the recipient. The funds are limited to projects within the SADC region and ideally should span over two or more SADC countries, or if located in one country, should facilitate and promote regional integration.

Another potential source of funding involving DBSA is the US Trade and Development Agency (USTDA). The DBSA USTDA have increased cooperation efforts to accelerate large scale infrastructure projects across sub Saharan Africa. The cooperation agreement allows for the acceleration of large scale infrastructure projects across Sub Saharan Africa, in the power, transport and ICT sectors. The projects are prioritized towards bankability through project preparation grant/capital funding and other funding mechanisms such as: feasibility studies, pilot projects and technical assistance to support legal and regulatory reform, the establishment of industry standards and other capacity-building activities.

DBSA also supports capacity building programmes through the Pan African Capacity Building Programme (PACBP), a partnership initiative of DBSA and the Industrial Development Corporation (IDC), the DBSA being the implementing agent of the partnership initiative. The main objective of the PACBP is to build African capacity for infrastructure and general economic development. The programme builds capacity through regional DFIs, government

departments, state-owned enterprises (SOEs) or parastatals, and through any other locally based development stakeholders across sub-Sahara Africa.

The PACBP capacity building programmes, which include a masters in Public Infrastructure Management, short (3-5 day long) courses and institutional strengthening, focus on skills development in the critical infrastructure development areas of water and sanitation, energy, roads and transportation. The programmes are flexible and locally-driven, hence they remain relevant to the needs of African partners, clients and stakeholders.

5.2.1.2 African Development Bank (AfDB) AfDB

AfDB is active in supporting regional infrastructure in Africa. It is the executing agent for the Programme for Infrastructure Development in Africa (PIDA), which serves as the blueprint for the development of the continent's infrastructure, including investment strategies, priority projects, and a framework for engaging with development partners. AfDB also houses several facilities, such as the Infrastructure Project Preparation Facility (IPPF) and the African Water Facility.

The overarching objective of the AfDB Group is to spur sustainable economic development and social progress in its regional member countries (RMCs), thus contributing to poverty reduction.The Bank Group mobilizes and allocates resources for investment in RMCs; and provides policy advice and technical assistance to support development efforts.

The AfDB's Strategy for 2013–2022 has five operational priorities, which are:

- **infrastructure development**;
- **regional economic integration**;
- **private sector development**;
- **governance and accountability**; and
- **skills and technology** – to increase the supply of skilled workers, through support for technical and vocational training linked to specific needs in the labor market.

The Bank connects and coordinates co-financing arrangements with partners on both public and private sector projects and especially with partner development institutions such as the World Bank, the European Union and major bilateral development agencies working on the continent. The Bank's African Financing Partnership coordinates co-financing among private development finance institutions so that one partner can take the lead on a given project while others follow, avoiding any duplication of effort and doing projects more efficiently.

The AfDB provides support in the following areas:

- **bridging hard and soft infrastructure gaps –**
    - closing missing transport links in major regional highways;
    - promoting hub ports and corridors that open landlocked countries to international trade;
    - promoting railways and water transport to provide cheap sources for bulk transport;
    - modernizing current logistics facilities;

- addressing transport-facilitation issues and support reforms in transport regulations;
- freeing up airspace (implementing the Yamoussoukro Agreement);
- offering trade facilitation and private sector services;
- improving transit and border-crossing infrastructure and services;
- promoting policy dialogue on transport;
- addressing sustainable development issues in transport development;
- resolving nontariff barriers; and
- supporting development of market structures in air cargo and regional freight and logistics services.

→ **Developing corridors –**

These improve intra-African connectivity in intra-African trade, spatial inclusiveness and the movement of people. The Bank supports port expansion; promotes multi-modal transport including road transport, railways and water transport to provide affordable means of movement of people and bulk goods.

→ **Improving logistics and infrastructure hubs –**

Some cities, particularly large economic centers and coastal cities, are critical in transit by connecting landlocked capitals to seaports. Yet many cities face traffic congestion and power crises. The Bank therefore supports regional planning and development of these hubs, including power pools, airport hubs and bridges and bypasses.

→ **Financing project preparation –**

The Bank supports and finances detailed cost-benefit analyses or sustainability assessments of regional projects in PIDA.

→ **Maintenance of Infrastructure –**

The Bank finances investments to enhance maintenance of regional infrastructure assets and provides training on infrastructure maintenance. It supports the mobilization of resources for project preparation and implementation and encourages the establishment of Special Purpose Vehicles, where necessary, for the implementation of regional infrastructure programs. It romotes public-private partnerships (PPPs) in infrastructure development—from planning, design, preparation and construction to operations, management and monitoring.

→ **Supporting capacity needs –**

The Bank assesses capacity needs and provides institutional, program and capacity building support to national and regional mechanisms and organizations

5.2.1.3 NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF)

NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF), was established to address one of the weaknesses of infrastructure development in Africa: the lack of investment-ready, viable projects. NEPAD-IPPF is a multi-donor Special Fund hosted by the AfDB. Its core business is to prepare pre-feasibility, feasibility, environmental and social impact assessment

studies, engineering designs, and provide transaction advisory services to make infrastructure projects across Africa bankable to attract the necessary investments.

The opportunities for scaling-up capacity for project preparation are many and they are at three broad levels. The first is to commit more resources to project preparation at all levels; the second is to strengthen the quality of projects submitted for preparation; and the third is to more directly link prepared projects to potential financiers.

5.2.1.4 World Bank Funding

World Bank funding sources originate from a number of different options including the International Bank for Reconstruction and Development (IBRD). Unlike the commercial banks, its members have a voice in setting the Bank's policies and the main objective is to promote development rather than just focus only on profits. IDA, or International Development Association, another part of the World Bank, offers interest-free loans to poor countries.

The World Bank Group provides support to low and middle income countries in order to develop public-private partnerships (PPPs) through a number of different tools and mechanisms. In addition to the PPPIRC, the World Bank Group also supports a number of knowledge management tools in collaboration with other development partners.

5.2.1.5 BRICS Bank

The **New Development Bank** established by the five BRICS nations (Brazil, Russia, India, China and South Africa) will play an important role in stitching together sub-Saharan African countries into one economic community. The World Bank estimates that sub-Saharan Africa requires US$93 billion per annum to meet its infrastructure needs. The region, however, only manages to raise half of this. The **New Development Bank** is set to mobilise infrastructure resources for developmental projects for the African continent.

5.2.1.6 Private Finance

Public Private Partnerships (PPPs) are a huge potential source of funding for infrastructure projects. PPPs have a number of different arrangements, including:

- **Government Funding** – whereby the Government may choose to fund some or all of the capital investment in a project and look to the private sector to bring in expertise and efficiency e.g. in a **Design-Build-Operate** project; or

  the Government may source out the civil works for the project then bring in a private operator to operate and maintain the facilities or provide the service.
- **Corporate or On-Balance Sheet Finance** – where the private operator may accept to finance some of the capital investment for the project and decide to fund the project through corporate financing, typically in lower value projects.
- **Project Finance** – this is one of the most common - and often most efficient - financing arrangements for PPP projects, normally taking the form of limited recourse lending to a specially created project vehicle (special purpose vehicle or "SPV") which has the right to carry out the construction and operation of the project.

- **Funded products** – these involve government providing direct support for the project for example through subsidies/grants, equity investment and/or debt. These mechanisms are particularly useful where the project does not in its own merit achieve bankability, financial viability or is otherwise subject to specific risks that the private investors or lenders are not well placed to manage.
- **Contingent Products** – this is where the government is not providing funding, but is instead taking on certain contingent liabilities, for example providing: guarantees (including guarantees of debt, exchange rates, etc.); indemnities (e.g. against non-payment by state entities, for revenue shortfall, or cost overruns); insurance; hedging of project risk (e.g. adverse weather, currency exchange rates, interest rates or commodity pricing); or contingent debt (such as take-out financing or revenue support to make up for revenue short-falls).
- **Financial Intermediaries** – The government may wish to use its support to mobilize private financing (in particular from local financial markets), where that financing would not otherwise be available for infrastructure projects. The government may want to mobilize local financial capacity for infrastructure investment, to mitigate foreign exchange risk, to replace retreating or expensive foreign investment and/or to provide new opportunities in local financial markets. But local financial markets may not have the experience, or risk management functions, needed to lend to some sub-sovereign entities or to private companies on a limited recourse basis.

  To overcome these constraints, the government may want to consider the intermediation of debt from commercial financial markets, creating an intermediary sufficiently skilled and resourced to mitigate the risks that the financial markets associate with lending to infrastructure projects.
- **Project Development Funds** – The large amount of upfront costs for procuring PPP projects, in particular the cost of specialist transaction advisers often meets with strong resistance from government budgeting and expenditure control. But quality advisory services are key to successful PPP development, and can save millions in the long-run. Therefore, funding, budgeting and expenditure mechanisms for project development are important to a successful PPP program, enabling and encouraging government agencies to spend the amounts needed for high quality project development.

5.2.2 Internal Sources of Funds

5.2.2.1 Road Sector Funding

Road Transport is largely funded through the Road Levy Fund and government appropriation from the central budget for road construction.

Air transport is funded from various air fees: landing, parking, air navigational charges and revenues for the different government owned air transport services company.

Ministry of Finance from time to time obtains loans from international financial institutions or from Overseas Development Agencies (ODAs) and extends some of the proceeds to the transport sector. Due to the economic situation over the years, Zimbabwe has found it difficult to attract both development finance and private direct investment for infrastructure.

Zimbabwe's peers have been able to attract private investment amounting to up to 3.0 per cent of GDP per annum. Zimbabwe's transport infrastructure sector requires major reform before they can attract private sector finance in the form of PPP. With the size of the funding gap, clear principles of private sector participation and sequencing of infrastructure investment is needed.

A major issue in the transport sector has been inadequate revenue generation from the public enterprises like NRZ, Air Zimbabwe and the Government owned Bus Company. In addition, there has been low fuel levy charges. With inadequate provision from the central budget there has been major disinvestment and poor maintenance in the transport sector over the years.

Despite one of the highest rail traffic density in the region, rail has not been able to cover its recurrent operating costs. Air Zimbabwe over the years has not been financially sustainable. Zimbabwe therefore faces a major financing problem in meeting future transport infrastructure investment requirements.

The overall spending needs for the transport sector was estimated by AICD in 2011 at US$208 million annually.[28]Despite improvements in road sector management, levels of expenditure are insufficient to maintain roads in good condition. The income from road user charges is not enough to cover necessary expenditures, to the extent that most of the roads are now in very bad shape, requiring urgent maintenance or even rehabilitation. Government introduced tolling on major roads as a way of plugging the funding gap for maintenance. Twenty six toll gates are in operation, with an additional ten under development.

5.2.2.2 Capital Funding

The capital funding programme for primary roads in Zimbabwe is premised on annual bids submitted to the Public Sector Investment Programme (PSIP), for which funds are allocated to a limited selection of proposed projects as permitted by the proposed national budget. However, in the recent past, no significant funding of any capital works has been made from the PSIP. The few road projects that have been undertaken (Plumtree – Bulawayo – Harare – Mutare – Forbes Border Post Road and the completion of dualisation of the Harare Airport Road) have been funded by ZINARA.

Funding for roads should normally come from the national fiscus, but because of the economic difficulties experienced by Zimbabwe and with limited funding from multilateral financial institutions and bi-lateral foreign donors, funding for capital projects has been very limited in the past decade or more.

5.2.2.3 Recurrent Funding

The funds bid for and allocated under the PSIP also include recurrent expenditure to cater for administrative and operational expenses, which tend to take precedence, thus consequently capital works end up being severely compromised.

The ZINARA-administered Road Fund is supposed to cater for the maintenance of all the public national road networks, approximately 40 % for State Roads, 40 % for rural roads, and

[28] AICD (2011), Diagnostic Country Report Zimbabwe 's Infrastructure: A Continental Perspective ', World Bank.

20 % for urban roads. Economic conditions over the past 15 years have severely affected the accruals to the Road Fund, resulting in meagre and ineffectual disbursements to the various roads authorities. Generally, road maintenance budgets are less than the requirements for maintenance, leading to accumulation of backlog maintenance.

The Road Fund sources its funds from road user charges, a fuel levy, toll gate fees, vehicle licence fees, and abnormal load and superload charges. The collected funds are supposed to be allocated and disbursed to the various road authorities for the maintenance of roads. With regard to fuel levy non-road use fuel, such as diesel used by rail locomotives, aviation fuel, and fuel used on the waterways, is exempted from the road fuel levy.

Tolling on roads was first introduced in Zimbabwe in 1994, with the charging of tolls for motorists to use the New Limpopo Bridge (NLB) at Beitbridge, a PPP project that facilitated the construction of the new bridge over the Limpopo River for a 20-year BOT concession. The NLB was handed to the MoTID in 2014. ZINARA is collecting the tolls on behalf of MoTID into a ring-fenced account.

In 2009, the MoTID installed toll gates along most of the regional and other major roads throughout the country, to collect revenue for the maintenance of the State road network. ZINARA took over the collection of the toll fees from the Zimbabwe Revenue Authority (ZimRA) in 2013. There are 26 toll gates, with a further 10 under development.

In terms of vehicle licences, ZINARA took over the collection of vehicle licence fees from the local authorities in 2009. The revenue collected also accumulates to the consolidated Road Fund for allocation and disbursement to the road authorities throughout the country.

ZINARA also collects fees for permits issued to abnormal load vehicles and ”super loads” that use the State roads to transport heavy goods to destinations within the country and in transit through to neighbouring countries like Zambia and Mozambique.

5.2.2.4 Infrastructure Development Bank of Zimbabwe (IDBZ)

The IDBZ’s mission is:

> *“To champion sustainable infrastructure development through: mobilisation of resources; capacity building; and knowledge generation and sharing in support of national efforts for inclusive socio-economic development.”*[29]

The Bank recognises the role that the transport sector plays for economic growth in the country and the Bank’s focus in this sector is to facilitate construction and/or rehabilitation of roads, airports, rail, inland waterways and pipeline transport systems[30]. The IDBZ remains acutely aware of the fact that the transport sector is one of the key enablers of economic growth and development. Its long term strategy is to become self-financing, and being able to raise lines of credit, quasi-equity capital and medium to long term loans for priority infrastructure projects. In order to achieve this, the Bank will seek assistance in the form of advocacy from the Reserve Bank of Zimbabwe and the Ministry of Finance in engaging with

[29] IDBZ Mid Term Strategy: 2016-2020
[30] IDBZ Project Preparation and Development Fund, June 2016

potential investors such as other development finance institutions (DFIs), especially from the BRICS countries. The Bank's key result areas are:

- → infrastructure financing – for the construction, upgrading or rehabilitation of roads and railways, and for the provision of all-season public transport;
- → infrastructure project development and management – involving the preparation of bankable projects; providing project development support in the preparation of projects for funding; and project planning and implementation; and
- → knowledge generation and sharing – training public sector staff, and providing advisory services.

The Bank considers the resuscitation of the National Railways of Zimbabwe (NRZ) as paramount to addressing the high cost of doing business and spurring economic development, as well as for promotion of regional integration. To this end, the IDBZ, in liaison with both the Ministry of Transport and Infrastructural Development and NRZ, is working on the best strategies to recapitalise and revive the country's rail sector.

IDBZ is currently working with the NRZ towards the mobilisation of at least US$635 million to kickstart the rolling stock and rail network rehabilitation investment programme as planned by the National Railways of Zimbabwe.

The Bank has been involved over the years in the maintenance and rehabilitation of the country's airports. Its major role has been to monitor and implement aviation sector projects funded through the Government Public Sector Investment Programme (PISP). The Bank looks forward to continue with its agency role in future projects and also working with both the CAAZ and the MoTID to identify new investors to support the completion of rehabilitation of the Harare International Airport and construction of the control tower at the J.M. Nkomo International Airport in Bulawayo.

The IDBZ's Mid Term Strategy: 2016-2020 is informed by the Ten-Point Economic Growth Plan and the United Nations' 2030 Agenda for Sustainable Development Goals. With respect to ZIMASSET, the IDBZ is a key player under the Infrastructure and Utilities cluster, focusing on the rehabilitation of infrastructural assets and the recovery of utility services.

Zimbabwe and the whole of the Southern Africa region has a dearth of bankable projects due to funding constraints on early stages of project development. The IDBZ has established a Project Preparation and Development Fund ("PPDF facility") to address the early stage project preparation and development funding gap, which, from empirical evidence, has been the major bottleneck to attracting investment on most infrastructure projects. The Bank ensures that priority infrastructure projects or concepts are developed to bankability in a timely and transparent manner; and that these can then attract the right levels of investment for successful execution. The PPDF facility would be complemented with external resources from international development partners to attain a level of US$ 10 million in the medium term.

The activities eligible for financing under the PPDF facility cover the entire cycle of project preparation, that is:

- → Project Definition and Pre-feasibility studies;

- → Bankable Feasibility studies;
- → Project Structuring – Advisory services to structure projects once feasibilities have been completed; and
- → Mobilising funding for prepared projects.

The dualisation and tolling of the Beitbridge-Harare-Chirundu Road is an on-going mandate to assist Government in project preparation and resource mobilisation. During the past year the Bank has been actively involved in the process of procuring consultancy services for feasibility study of the upgrading, construction and tolling of the Harare-Chirundu stretch of the highway.

5.3 Consultation and Stakeholder Engagement Process

Throughout the life of the Master Plan, there will be consultation with key stakeholders in order to establish changes in key performance indicators as a way of determining progress in each social and economic sector as well as in each of the transport sub-sectors. The Master Plan will be a live document that will be reviewed continuously and changes made to reflect prevailing circumstances.

The MoTID will carry out regular strategic workshops (annually or bi-annually) similar to the one conducted in December 2016 in Mavingo to determine progress made in each sub-sector and to identify issues and challenges that may impinge on the positive implementation of the Master Plan proposals.

Workshops involving a wider audience will be held every five years, for instance at the end of the short-term period, to establish progress that would have been made during that period.

6 Monitoring and Evaluation

Key Message

This chapter sets out how the Master Plan will be monitored and evaluated..

6.1 Monitoring Plan Implementation and Evaluating Results

Since independence in 1980, a number of NDPs or National Policies have been implemented in Zimbabwe. These include:

- Growth with Equity (1981);
- the Transitional Development Plan (1982);
- the five-year National Development Plan (1986);
- the Economic Structural Adjustment Programme (ESAP);
- Zimbabwe Programme for Economic and Social Transformation (Zimprest) in 1996;
- Vision 2020 in 1999 after the devaluation of the Zimbabwe dollar in November 1997; and
- the Millennium Economic Recovery Programme (MERP) in 2000.

All these NDPs faced implementation challenges, mainly due to the absence of a national monitoring and evaluation policy to give guidance and credence to the achievements of results through correct diagnosis. To this end and in order to ensure the successful implementation of ZIMASSET, the GoZ launched the National Monitoring and Evaluation (M&E) Policy on 15 October 2015[31]. The event was organised by the Office of the President and Cabinet (OPC). Among the participants who attended the event were Senior Government Officials, representatives from the World Bank, African Development Bank, the UN family, M&E Experts, Evaluation Societies and representatives from CSO.

The National M&E Policy was crafted by the rapid results inter-ministerial team under the leadership of the OPC with technical assistance from the African Community of Practice (AfCOP) Country Coaches and financial support from the World Bank and African Development Bank and with input from individual M&E experts, organisations and corporates.

The National M&E Policy will guide the monitoring and evaluation of policies, programmes and projects in the country while creating a general culture for evaluation at all levels through awareness and training. The ZNTMP when completed, will contain a list of strategies, programmes and projects aimed at supporting the successful implementation of the country's NDPs over a twenty-year time horizon. It is envisaged that the ZNTMP will be subjected to the same National M&E Policy to ensure its success.

Key performance indicators (KPIs) will mainly be used to evaluate progress made on projects. This will be supported by feedback from key stakeholders and from regular workshops to be held during the life of the Master Plan.

Below are listed KPIs for roads, rail and aviation.

[31] Zimbabwe Launches the National Monitoring and Evaluation Policy; Posted by Ganyani Khosa on October 19, 2015

ROAD

KPI	Unit
Traffic Counts	VCU
Traffic Counts	image
Traffic Volumes - Import	tonnes
Traffic Volumes - Import	tonne-km
Traffic Volumes - Export	tonnes
Traffic Volumes - Export	tonne-km
Traffic Volumes - Domestic	tonnes
Traffic Volumes - Domestic	tonne-km
Passenger Counts	pax
Passenger O/D	pax
Average fare	USDollar

RAIL

KPI	Unit
Tonnes Per Month	tonnes
TEU per month	TEU
Tonnes-km per Month	tonne-km
Traffic Volumes - Import	tonnes
Traffic Volumes - Import	tonne-km
Traffic Volumes - Export	tonnes
Traffic Volumes - Export	tonne-km
Traffic Volumes - Domestic	tonnes
Traffic Volumes - Domestic	tonne-km
Average Haul	km
Derailments	
Planned Capital Projects	
On-going Capital Projects	
Mainline Disruptions	
Passenger Counts	pax
Passenger O/D	pax
Average fare	USDollar

AVIATION

KPI	Unit
Tonnes Per Month	tonnes
Traffic Volumes - Import	tonnes
Traffic Volumes - Import	tonne-km
Traffic Volumes - Export	tonnes
Traffic Volumes - Export	tonne-km
Traffic Volumes - Domestic	tonnes
Traffic Volumes - Domestic	tonne-km
Passenger Counts	pax
Passenger O/D	pax
Average fare	USDollar