

2015 -2036

MMM – Integrated Public Transport Plan



VOLUME 1

Introduction and Background



INTEGRATED
PUBLIC
TRANSPORT
NETWORK

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ABBREVIATIONS

Abbreviation	Full Description
ACSA	Airports Company South Africa
ADN	Airport Development Node
ADP	Airport Development Plan
AFC	Automated Fare Collection
AFCA	Automated Fare Collection Agent
APTMS	Advanced Public Transport Management System
ATC	Adaptive Traffic Control
BATHA	Botshabelo Amalgamated Taxi Association
BEPP	Built Environment Performance Plan
BOC	Bus Operating Company
BRT	Bus Rapid Transit
CBD	Central Business District
CBO	Community-based Organization
CCC	Centralized Control Centre
CCTV	Closed-circuit Television
CITP	Comprehensive Integrated Transport Plan
CM	Carbon Monoxide
CNG	Compressed Natural Gas
COGTA	Cooperative Governance and Traditional Affairs
CPI	Consumer Price Index
CPTR	Current Public Transport Record
CRM	Customer Relationship Management
DETEA	Department of Environmental Tourism Economic Affairs
ECE	Economic Commission of Europe
EM	Executive Mayor
EMF	Environmental Management Framework
EMV	Euro-Mastercard-VISA
FINMOD	Financial Model
GBTA	Greater Bloemfontein Taxi Association
GIS	Geographic Information System
GPRS	General Packet Radio Service
GPS	Global Positioning System
ha	Hectare
HC	Hydrocarbons
HHS	Household Survey
HOD	Head of Department
HR	Human Resources
ICE	Internal Combustion Engine
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IMC	Integrated Marketing and Communication
IPTN	Integrated Public Transport Network
IRPTN	Integrated Rapid Public Transport Network
ITP	Integrated Transport Plan
ITS	Intelligent Transport System
IVT	In-Vehicle Time (IVT) (in Minutes)
JOC	Joint Organizing Committee
JSC	Joint Steering Committee
km	Kilometre
LAN	Local Area Network
LED	Light Emitting Diode
LIM	Linear Induction Motor

ABBREVIATIONS

Abbreviation	Full Description
MFMA	Municipal Financial Management Act
MITP	Mangaung Integrated Transport Plans
MMC	Member of Mayoral Committee
MMM	Mangaung Metropolitan Municipality
MOU	Memorandum of Understanding
MRE	Municipal Regulatory Entity
MSA	Municipal Systems Act
NATMAP	National Transport Master Plan
NDOT	National Department of Transport
NDP	National Development Plan
NEMA	National Environmental Management Act
NGO	Non-governmental Organization
NLTA	National Land Transport Act
NLTTA	National Land Transport Transition Act
NMT	Non-Motorised Transport
NOX	Nitrogen Oxide
NT	Number of Transfers (NT)
OCR	Optical Character Recognition
OD	Origin-Destination
OLS	Operating Licenses Strategy
OOP	Office of the Premier
PDM	Patronage Demand Model
PDOT	Provincial Department of Transport
PDP	Professional Driver Permit
PLTF	Provincial Land Transport Framework
PM	Particulate Matter
PMU	Project Management Unit
POS	Point of Sale
PRASA	Passenger Rail Agency of South Africa
PT	Public Transport
PTIG	Public Transport Infrastructure Grant
PTIP	Public Transport Improvement Program
PTIS	Public Transport Infrastructure and Systems Grant
PTNG	Public Transport Network Grant
PTOG	Public Transport Operational Grant
PTZ	Pan-Tilt-Zoom
PvT	Private Transport
RoW	Right of Way
RTPI	Real-time Passenger Information
SABS	South African Bureau of Standards
SAC	Schedule Adherence and Controlling
SANRAL	South African National Road Agency Limited
SANS	South African National Standards
SANTACO	South Africa National Taxi Council
SDA	Service Delivery Agreement
SDF	Spatial Development Framework
SIP	Strategic Integrated Projects
SMME	Small Medium and Micro Enterprise
SP	Stated Preference
SVMS	Strategic Variable Message Signs
SWOT	Strength Weakness Opportunity Threat
THALSDTA	Thaba Nchu Long and Short Distance Taxi Association

ABBREVIATIONS

Abbreviation	Full Description
TIMS	Traffic Management and Information System
TIS	Traveller Information System
TOM	Ticket Operating Machines
TSP	Traffic Signal Priority
ULSD	Ultra-Low Sulphur Diesel
UTC	Urban Traffic Control
VDM	Vehicle Docking Manager
VMS	Variable Message Sign
VOC	Vehicle Operating Company
VOIP	Voice Over Internet Protocol
VTTS	Value of Travel Time Savings (VTTS) (in Rand/hour)
VWTS	Value of Waiting Time Savings (VWTS) (Rand/hour)
WAN	Wide Area Network
WP	Work Package
WT	Waiting Time (WT) (in Minutes)
WULA	Water Use License Application

1 Introduction

The development of Integrated Transport Networks (ITN) in metropolitan areas is a process-driven at a national level by the NDoT. The ITN is planned and implemented by Metropolitan authorities under the direction and guidelines set by the NDoT and funded by National Treasury (NT).

The endeavour is in line with the overarching national objective of improving the quality of public transport services for communities countrywide, to reduce the cost of service delivery, to minimize the subsidy burden on all spheres of government, and to provide affordable fares to public transport passengers. Another objective is to reduce private car traffic volumes, therefore, minimising congestion and travel time, accidents, harmful gas emissions, and improves traffic safety.

The Mangaung Metropolitan Municipality(MMM) Integrated Public Transport Network(IPTN), hereafter referred to as the Mangaung IPTN, is intended to transform the public transport system in the City through the provision of a high-quality, safe and affordable public transport system. The IPTN system is aimed at improving the provision and level of service of road-based public transport.

2 Background

The development of IPTN's are guided primarily by the Guidelines for the Development of Integrated Transport Plans to ensure integration between all modes in a city. The guideline "Minimum Requirements for the preparation of Integrated Transport Plans, 2016" provided the minimum requirements for the development of this City-Wide IPTN for MMM in association with the minimum requirements and technical guidance provided in "Integrated Public Transport Network (IPTN) Plan Development Technical Guidance Version 4, January 2018".

Given the above guidelines, MMM prepared an ITP during 2008, followed by the development of an operational plan for the MMM Integrated Transport Network during 2014. This Draft First Order Operational Plan for the IPTN indicate several areas that need to be addressed or updated in order for the operational plan to reflect the current state of public transport in the city. The areas identified for the update were:

- Public transport information citywide that include onboard passenger surveys,
- the land-use model, providing a base for estimation of future year transport demand,
- household travel survey to attain mode split, current public transport level of service citywide,
- The transport demand model; and
- To develop a business plan that will provide the business context and financial impact of the implementation of the IPTN citywide.

The city set out to collect the data to address the shortcomings identified in the Operational Plan 2014.

The data collected and the development of the IPTN followed the minimum requirements stipulated for Chapter 6 of a CIP, with the agreement that the rest of the CIP will be updated by another department of the City in due course.

3 Legal Requirements

3.1 National Land Transport Transition Act (NLTTA), Act 22 of 2000

The National Land Transport Transition Act (NLTTA), Act 22 of 2000, requires that Transport Authorities, core cities and other municipalities compile a package of plans to give effect to the provisions of the NLTTA. As a Core City, Mangaung decided to compile an ITP in accordance with the ToR as presented in Appendix A, to give effect to the provisions of the NLTTA.

The principles for preparing the ITP are quoted from the NLTTA: Section 27.

- (1) Transport authorities, core cities and other municipalities required by the MEC to do so, must prepare and submit to the MEC annually by the date determined by the MEC, integrated transport plans which comply with subsection (2) for their respective areas for the five-year period commencing on the first day of that financial year.
- (2) The integrated transport plan must formulate the planning authority's official vision, policy and objectives, consistent with national and provincial policies, due regard being had to any relevant integrated development planning or land development objectives, and must at least specify the changes to the planning authority's land transport policies and strategies since the previous year's five-year plan;
 - (a) include a list that must —the show, in order of precedence, the projects and project segments to be carried out in that five-year period, and the cost of each project; and
 - (i) be prepared with due regard to relevant integrated development plans, and land development objectives set in terms of section 27 of the Development Facilitation Act, 1995 (Act No. 67 of 1995), or, where applicable, in terms of a law of the province;
 - (b) include all modes and infrastructure, including new or amended roads and commercial developments having an impact on the land transport system, and transport aspects of airports and harbours;
 - (c) include the planning authority's detailed budget, including funding sources, with regard to land transport for the relevant financial year in the format prescribed by the MEC;
 - (d) include the planning authority's public transport plan;
 - (e) set out a general strategy for travel demand management; and
 - (f) set out a road and transport infrastructure provision, improvement and maintenance strategy;
 - (g) set out a general strategy or plan for the movement of hazardous substances contemplated in section 2(1) of the Hazardous Substances Act, 1973 (Act No. 15 of 1973), by road along designated routes, in accordance with the strategy or plan in the provincial transport framework contemplated in section 22(3)(l);
- (3) An integrated transport plan must be in accordance with requirements and in the manner and form as the Minister may prescribe in consultation with the MECs, but the MEC may prescribe the content of integrated transport plans in addition to such requirements.
- (4) The plan must by the date so determined be submitted to the MEC for approval, which approval must relate only to the matters mentioned in section 24(4)(b).
- (5) A person may not transport hazardous substances contemplated in section 2(1) of the Hazardous Substances Act, 1973 (Act No. 15 of 1973), in the area of a planning authority, except on a route determined under paragraph (h) of subsection (2), where such a route has been determined and published under section 29(1), and any person who does so is guilty of an offence.

(6) Approval of commuter rail components of transport plans.

3.2 Urban Transport Act

Bloemfontein, within the Mangaung Local Municipality, is the Core City. According to the Urban Transport Act, the functions of the core cities in terms of urban transport are:

- Manage the preparation of transport plans;
- Implement the transport plans according to provincial guidelines;
- Provide guidance to other local authorities in the Metropolitan Transport Area;
- Prepare a map of the Metropolitan Transport Area;
- Conduct investigations as required;
- Revise and update the approved transport plans;
- Keep up to date on transport needs and technology in the MTA; and
- Involve the public in the transport planning process.

The Urban Transport Act, 1977 (Act no.78 of 1977) is one of the legislative documents that guide the Department of Public Works, Roads and Transport in the Free State.

3.3 Free State Public Transport Act

The Free State Public Transport Act provides the statutory rights, guidelines and requirements for public transport planning and operations in the Free State Province. The Act is based on the same goals and objectives as identified in the National White Paper on Transport. It focuses on the following issues relating to the preparation of Integrated Transport Plans:

- Part 2: Public Transport Services: Principles for specifying public transport services in transport plans. (Paragraphs 4-21.)
- Part 3: Functions and Powers of the MEC: Regulations by the MEC and integrated land transport information system. (Paragraphs 22- 24.)
- Part 4: Public Transport Planning: Principles for public transport planning of which integrated, comprehensive planning must occur, transport plans must identify modal options and transport plans must indicate what special measures have or will be taken to provide for passengers with special needs, such as persons with disabilities. (Paragraph 25.) Public Transport Plans. (Paragraph 26.) Duties of planning authorities relating to planning. (Paragraph 27.), etc.
- Part 5: Transport Authorities: Agreements for formation of transport areas and transport authorities (Paragraph 29), the declaration of transport areas and concomitant establishment of transport authorities (Paragraph 30), contents and essentials of founding agreements (Paragraph 31), functions and competencies of transport authorities (Paragraph 32) and the ancillary powers, governance, dissolution and finance of transport authorities (Paragraphs 33 – 36) are some of the regulations that are described in this section.

3.4 Universal Access

Government is the custodian of legislation and the enforcement thereof. The legal framework providing the justification for Universal Accessible Design of the built environment, information and services are mentioned.

National laws, standards, strategies and policies that impact the Public Transport industry include:

- The South African Constitution
- Promotion of Equality and Prevention of Unfair Discrimination Act
- Consumer Protection Act
- Occupational Health and Safety Act

- Basic Conditions of Employment Act
- White Paper on the Rights of Persons with Disabilities
- Standards and legislation relating to infrastructure and product design, information and communication.

The South African government was one of the first signatories (as well as ratifying) of the UN Rights for Persons with Disabilities. This treaty places a responsibility on the South African government to make significant changes in order to promote the inclusion of people with disabilities into wider society. The South African government realized that accessible public transport has to underwrite any functional changes in society in this respect. Indeed, it became the focal point and a key requirement in terms of funding from the National Government.

- Transport specific strategies and Guidelines:
 - NTR1 Part 1 and 2,
 - Public Transportation Strategy,
 - Public Transport Facility Design Guideline (Intermodal facilities, taxi ranks and bus facilities);
 - RCAM and subsequently complete streets guidelines developed by metros in South Africa;
 - Provision of Pedestrian and other non-motorised facilities.
- Provincial and local legislation and plans are also to be considered:
 - City or Municipality specific legislation and plans: By-Laws and Local Development Plans.

To comply and implement legislation, regulation, standards, policy and plans to address inclusive public transport systems the principles of Universal Design should be applied throughout all the project phases. This approach also adheres to fundamental Human Rights values of equity, dignity and independence.

3.5 Environmental Policy, Legislative and Institutional Framework

There are a number of legislative and policy frameworks as well as guidelines that are important to the development of a Sustainability Action Plan. The Sustainability Action Plan is a cross-cutting plan that guides and influence all aspects from the development to monitoring and evaluation of the IPTN. This action plan is detailed in later chapters of this citywide IPTN document.

The most pertinent of these are highlighted below so that the reader may have an overview and be able to find a specific Act, policy, guideline or system if s/he needs more information:

- ISO 20121 - is a practical tool for managing events so that they contribute to the three dimensions of sustainability – economic, environmental and social. It allows commitment to sustainability to be demonstrated in a globally recognized manner. Events based in different geographical locations around the world will experience different sustainability issues, but they will all be able to implement the ISO 20121 framework.
- ISO 26000 - is designed to assist organizations in contributing to sustainable development, encouraging them to go beyond basic legal compliance, and to promote common understanding in the field of social responsibility, complementing other instruments and initiatives for social responsibility.
- ISO 37101 - is designed to help communities define their sustainable development objectives and put in place a strategy to achieve them. It helps to create a more sustainable future for communities. This means an improved local environment, a happier and healthier place for citizens, and a community that can better anticipate and adapt to natural disasters, economic shocks and climate change.

- The Global Reporting Initiative (GRI) - is a voluntary reporting framework. The GRI reporting guidelines are being replaced by the GRI reporting standards (that will come into effect on 01 July 2018). There are sector supplements that explain sustainability indicators and measurement techniques that can be applied or adapted across most sectors.
- The National Pollutant Inventory (NPI) - has a series of Emission Estimation Technique (EET) manuals for each reporting industry outlining the industry processes and approaches for estimating emissions. The techniques can be used even if an enterprise is not required to report to the NPI under the National Greenhouse and Energy Reporting Scheme (NGERS).
- Carbon Tax (SA 2016) - The proposed carbon tax will consider Scope 1 emissions – i.e., emissions that result directly from fuel combustion and gasification as well as non-energy industrial processes. The carbon tax incorporates a number of relief measures to protect the vulnerable in society and the competitive position of local industry. The acceptable threshold of the industry is measured, anything beyond is then taxable.
- National Environmental Management Act, 1998 (Act No.107 of 1998, NEMA) - refers to constitutional rights and states that many inhabitants of South Africa live in an environment that is harmful to their health and well-being. The Act states that everyone has the right to an environment that is not harmful to his or her health or well-being. Therefore, the State must respect, protect, promote and fulfil the social, economic and environmental rights of everyone and strive to meet the basic needs of previously disadvantaged communities, inequality in the distribution of wealth and resources, the resultant poverty, as well as the results of environmentally harmful practices are covered in the Act. The Act stresses sustainable development and states that sustainable development requires the integration of social, economic and environmental factors in the planning.
- Regulations in terms of Section 12L of the Income Tax Act, 1962 (Act No. 58 of 1962) on Allowance for Energy Efficiency Savings - the promulgation of the regulations on the allowance for energy efficiency savings in terms of section 12L of the Income Tax Act as amended came into effect on November 1, 2013. Tax incentives are being introduced for businesses that can show measurable energy savings. The 12L regulation sets out the process for determining the quantum of energy efficiency savings, and the requirements for claiming the proposed tax deduction. Section 12L incentives include all energy efficiency projects that reduce energy use and is claimable until 2020. These tax incentives are available for savings in all energy forms and not only electricity. The expected tax relief would be a 45 cents deduction on taxable income per kilowatt-hour of energy saved – subject to all the conditions in the 12L regulations being met (South African National Energy Development Institute, 2013).
- National Greening Framework - the National Green Framework supports realistic strategies for climate change action and improved environmental sustainability. The national greening framework was developed to manage potential significant environmental impacts, both positive and negative. It has six environmental focus areas: Waste reduction and processing; energy efficiency; maximum use of efficient public and non-motorised transport, with the emphasis on reducing carbon emissions; water use efficiency and minimisation of water contamination; protecting and enhancing biodiversity, and promoting responsible tourism.
- National Energy Efficiency Strategy of South Africa (NEES), 2005 - the White Paper on Energy Policy (1998) gives a mandate to the Department of Energy (DoE) to pursue Energy Efficiency programmes, which is one of the lowest cost options for reducing energy consumption. The original NEES was drafted to ensure that the necessary resources are made available to establish systems and legislation to facilitate the specification, collection, storage, maintenance and supply of energy-

related data, according to the requirements of integrated energy planning and international standards.

- National Strategy for Sustainable Development and Action Plan 2011-2014 - is derived from the South African National Framework for Sustainable Development (NFSD) to address issues of sustainability in South Africa. This strategy illustrates South Africa's commitment to a long-term sustainable development path that is economically, socially and environmentally sustainable. It then presents an understanding of sustainable development and elaborates the route South Africa is taking toward sustainability. It covers the key areas of human development (people), ecological protection (the planet) and economic growth (prosperity) (National Strategy for Sustainable Development and Action Plan (NSSD1) 2011-2014).
- National Framework on Sustainable Development, 2008 - the purpose of this framework is to enunciate South Africa's national vision for sustainable development and indicate strategic interventions to re-orientate South Africa's development path in a more sustainable direction. This framework provides the basis for a long-term process of integrating sustainability as a key component of the development discourse and shows South Africa's commitment to the principles developed at international summits and conferences in the economic, social and environmental fields, including the 2002 World Summit on Sustainable Development.
- MMM Climate Change Policy – according to the Climate Change Synthesis Report (2014), Mangaung has not yet formally adopted a Climate Change Adaptation Strategy and there is hardly a link between climate change and planning within MMM at the time of compiling this report. Given the climate change challenges faced by the municipality such as water shortages and flooding, there is a need for more focused strategies and policies on how the municipality can adapt to these challenges.

3.6 Public Transport Network Grant (PTNG)

The funding mechanism for the planning and implementation of the IPTN is primarily the PTNG and the PTOG (subsidised bus services). To utilise these funding mechanisms several conditions, need to be complied with. These conditions guide the development and detail within the city-wide IPTN Plan for MMM.

The strategic goal of the PTNG is to support the National Land Transport Act (Act No. 5 of 2009), Public Transport Strategy (PTS) and Action Plan in promoting the provision of accessible, reliable and affordable integrated municipal public transport network services.

The grant's purpose is to provide funding for accelerated construction and improvement of public and non-motorised transport infrastructure that forms part of a municipal integrated public transport network and to support the planning, regulation, control, management and operations of fiscally and financially sustainable municipal public transport network services.

The outcome statements of the PTNG are:

- To improve the public transport network infrastructure and services that function optimally and are safe, convenient, affordable, well managed and maintained
- To provide a public transport system that is accessible to an increasing percentage of the population of urban municipalities and contribute to more spatially efficient urban areas

The utilisation of grant funding is measured according to the following measures per component of an IPTN:

- Network Operations Component:

- Number of average weekday passenger trips carried on Public Transport Network Grant (PTNG) funded networks
- Number and percentage of municipal households within a 500m walk to an Integrated Public Transport Network (IPTN) station or stop that has a minimum peak period frequency of 15 minutes or better
- Percentage uptime for network operating systems as a proportion of the network's public operating hours
- Passengers per network vehicle per average weekday
- Network Infrastructure Component
 - Public transport network infrastructure including dedicated lanes, routes and stops/shelters, stations, depots, signage and information displays, control centres and related information technology, fare systems and vehicles (if the Department of Transport (DoT) approves use of grant funds to purchase vehicles), Non-Motorised Transport (NMT) infrastructure that supports network integration (e.g. sidewalks, cycleways, cycle storage at stations, etc.)
 - Plans and detailed design related to IPTN infrastructure and operations

3.6.1 Minimum Grant Conditions

- General Conditions:
 - Projects must be based on and form part of a strategic, municipal wide, long-term IPTN plan and strategy approved by the municipal council
 - Projects funded by this grant must be based on an Operational and Business Plan, which must include a multi-year financial operational plan approved by the municipal council. This multi-year financial operational plan must cover the full duration of any contracts for each phase funded by the PTNG and include operating and maintenance costs and universal design access plans
 - Projects must support an integrated multi-modal network approach as defined in the National Land Transport Act (NLTA) and the Public Transport Strategy and municipalities must manage operations to progressively achieve the standard of service defined in the Public Transport Strategy within available resources;
 - Projects in metropolitan municipalities must demonstrate alignment to Build Environment Performance Plans;
 - Payments will be conditional on the attainment of milestones specified in the grant allocation letter to each municipality from the DoT. Milestones are based on the approved IPTN operational plans of cities and are defined after consultation with municipalities;
 - All public transport infrastructure and services funded through this grant must ensure that there is provision for the needs of special categories of passengers (including disabled, elderly and pregnant passengers) in line with the requirements of section 11(c)(xiv) of the NLTA;
 - Allocations for this grant are made for two components, with separate conditions applicable to each component as set out below. Allocations for the Network Operations Component will be determined by DoT and National Treasury once municipalities submit an annual operations plan including financial forecasts for the given financial. Funds for one component can be shifted to the other if approved by National Treasury and DoT;
 - The first tranche is subject to cities submitting, by June of a given year, a multi-year financial operational plan (approved by the municipal council) for the duration of the vehicle operating contract/s pertaining to any phase on which 2017/18 grant funds will be spent;

- The second tranche is subject to this financial operational plan being submitted to DoT and accepted jointly by National Treasury and the DoT as a basis for future grant payments;
- All-new Intelligent Transport Solutions (ITS) related contracts that will incur grant expenditure must be jointly approved by DoT and National Treasury before grant funds may be spent on them
- Network Operations Component
 - Operating subsidies from this component can fund security, station management, fare collection services, control centre operations, information and marketing, network management, insurance, compensation for the economic rights of existing operators and maintenance of infrastructure and systems
 - From the start of operations, IPTN systems must recover all the direct operating costs of contracted vehicle operators from fare revenue, other local funding sources and, if applicable, from any Public Transport Operations Grant contributions. These direct operating costs consist of fuel, labour, operator administration and vehicle maintenance
 - From the start of operations on a route, the grant can fund a portion of the per-kilometre rate to subsidise up to 100 per cent of the capital cost (including interest and related fees) of vehicles purchased by the vehicle operating company
 - IPTN operational plans and on-going operations management must target improved farebox cost coverage, through minimising costs and maximising fare revenues. Municipalities operating network services are required to supply detailed operating performance and operating cost and revenue reports quarterly in the formats prescribed by the DoT
 - Operating subsidies for any new or existing service, line, route or phase, will only be transferred after a municipality meets the requirements of DoT's Operational Readiness Framework
 - Municipalities must enforce rules and by-laws regarding usage of dedicated lanes, fare payment, and operator/supplier compliance with contractual provisions
 - Municipalities are required to establish the specialist capacity to manage and monitor public transport system contracts and operations
 - Verified data on operator revenue and profitability and draft agreements for the compensation of existing economic rights of affected operators must be provided to DoT prior to concluding agreements on compensation for economic rights
 - Municipalities must enforce agreements that only legal operators operate on routes subject to compensation agreements
- Network Infrastructure Component
 - The grant can fund all IPTN-related infrastructure, including for non-motorised transport, upgrades of existing public transport infrastructure and for new infrastructure
 - Municipalities must demonstrate in their IPTN operational plans that they have attempted to give maximum priority to public and non-motorised transport while minimising costs through using existing infrastructure, road space and public land
 - For each phase, final network routing, service design and related financial modelling must be submitted to DoT for review and approval before municipalities proceed with detailed infrastructure design
 - IPTN projects must meet the minimum requirements of the South African Bureau of Standards (including Part S of the Building Regulations)
 - Contracted operators should finance and own vehicles unless a case for the exceptional use of limited infrastructure funding for vehicle procurement is approved by DoT, in consultation with

National Treasury. If approval is granted, any vehicles purchased with grant funds must remain the property of the municipality.

4 Comprehensive Integrated Transport Plan

A Comprehensive Integrated Transport Plan(CITP) comprises of thirteen chapters that represent the status quo and envisaged policies and strategies for the implementation of the integrated transport system and provide a detailed list of projects and financial implications thereof. A CITP structure and related chapters are presented in Figure 4-1.

The Integrated Transport Plan for MMM was updated during 2008, and subsequently the public transport chapter was partially updated during 2014.

The IPTN citywide document will comply with the minimum requirements set for the development of Chapter 6 of a CITP. A 20-year design horizon is set for the development of the MMM citywide IPTN with base year at 2015.

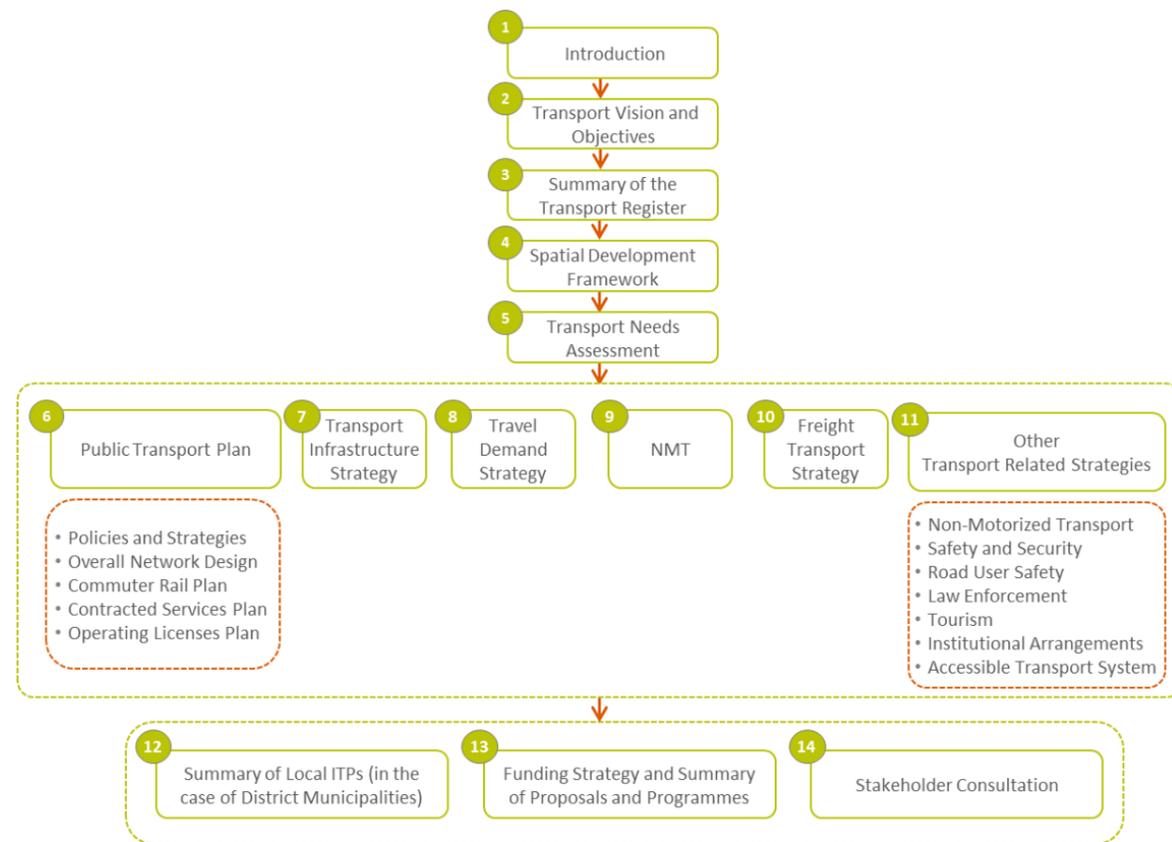


Figure 4-1: CITP Structure

The alignment between the development of the IPTN and the CITP and other documents required as part of the conditions of the PTNG and PTOG is presented in Figure 4-2.

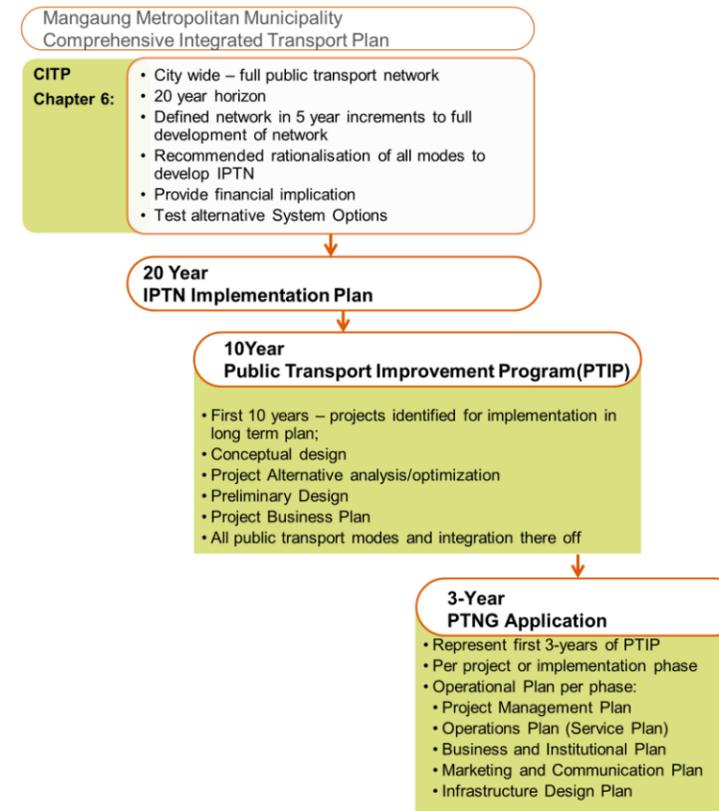


Figure 4-2: Alignment between Long term Planning documents and IPTN Operational and Planning Documents

The chapters of the CITP that will be updated as part of the IPTN citywide plan is presented in Figure 4-3. These chapters are updated as far as public transport and other modes will be addressed in the update of the city-wide CITP.

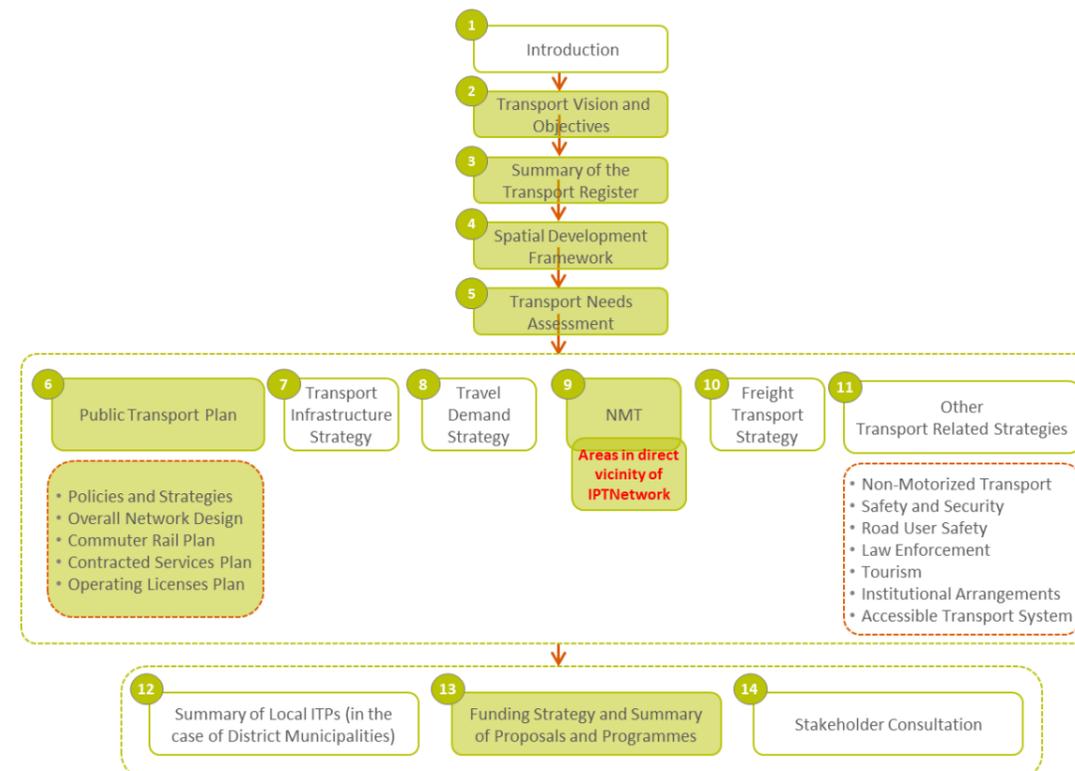


Figure 4-3: CITP Chapters to be updated by MMM IPTN Plan

5 MMM Citywide IPTN Methodology

The development of the citywide IPTN is divided into the following main components:

- Determine the status quo - Data collection representing the transport register. Reflect data collected and the extent thereof. No analysis is presented in this section of the report.
- Define Goals and Objectives for the IPTN stemming from the ITP Goals and Objectives
- Analysis of the status quo – Needs assessment.
 - This section set-out to indicate the current level of public transport in terms of land use, customer profile, public transport service supply and public transport demand for the base year and the selected horizon years.
 - Estimation of future public transport demand based on spatial development framework and other development initiatives of the city.
- Design, sizing and selection of the optimum IPTN network and associated systems through an alternatives or options analysis process;
- Development of implementation strategies to implement the selected system,
- Develop the 20-year citywide IPTN Plan with implementation schedule and the 10-year Public Transport Improvement Program (PTIP) with a 10-year implementation plan per corridor or phase.

6 Structure of the IPTN Plan

The development process data collected, and high-level methodology is summarised below per the Citywide Plan Structure. The citywide IPTN Plan comprises of three volumes:

- **Volume 1** – Introduction and Background:
 - Introduction and background providing the legal requirements and guidelines used for the development of the IPTN and the structure of the report.
 - These requirements include transport related requirements, infrastructure, universal accesses and environmentally sustainable legislation and guidelines.
- **Volume 2** – Status Quo (Public Transport Register | CITP):

This volume represents the existing situation relating to the spatial structure of the city, demographic profile, public transport user profile (customer), public transport demand and supply and institutional structures relating to public transport and the regulation thereof.

Data was collected from 2014 to 2018 to develop a citywide plan to restructure the existing public transport services in MMM. The mentioned restructuring of the existing system aims to provide an integrated public transport system where the needs of, all categories of public transport users, public transport services providers; and other stakeholders within the public transport sphere, are balanced. This restructuring cannot realise at once and the restructuring will be implemented through an incremental approach.

The volume is structured according to the design methodology adopted for the MMM IPTN. The approach and data incorporated in the development of the citywide integrated public transport network are:

- Contextualise the spatial orientation of the city including the City’s demographic profile (population density, income levels, car ownership etc.);
- Demographic- and economic forecasts (2025, 2036);
- Land Use Model (2015, 2025, 2036), that stem from the SDF, BEPP and IDP;

- Obtain regional and local travel patterns and modes use within Mangaung Metropolitan Municipality (MMM) through the Household Travel survey 2018 analysis,
- Obtain public transport service providers operational areas and extent of operations through surveys and engagement with operators and regulating authority.
- Obtain status quo relating to air transport in MMM.
- Present existing public transportation demand from classified public transport link counts, public transport facility surveys and bus and taxi on-board surveys.
- Determine urban traffic control-, intelligent transport-, road-, rail infrastructure and public transport facility status.
- Institutional arrangement relating to public transport and transport planning.

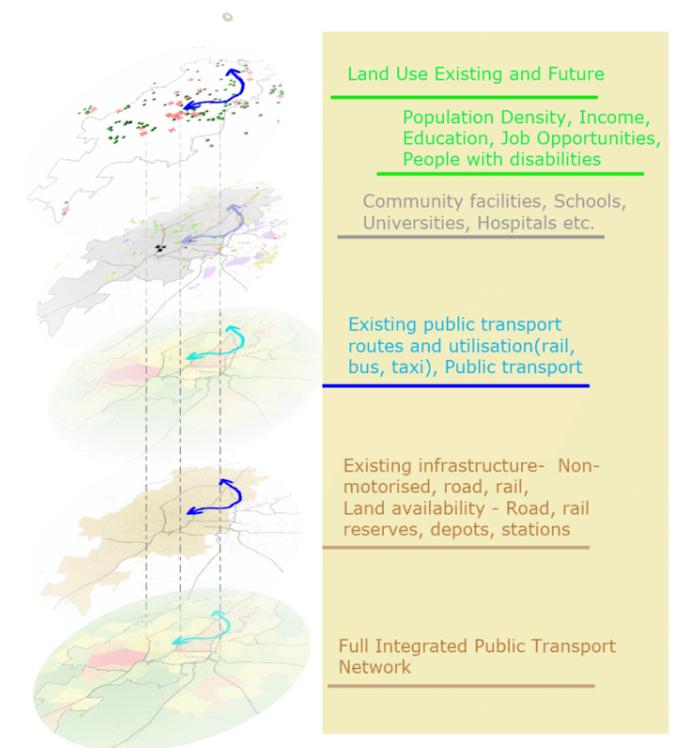
- **Volume 3A** – Status Quo Analysis and Needs Assessment:

The above-listed information is summarised and utilised to:

- Review and develop the goals and objectives of the IPTN stemming from the status quo analysis above.
- define the geographic extent of the IPTN,
- divide the movement of passengers in primary-, secondary- and minor corridors; and
- define public transport operational areas for planning and analysis purposes.

The high-level methodology applied to derive the above is:

- Summarise the data collected to provide the status quo in terms of:
 - *Passenger profile;*
 - *The existing level of service of public transport;*
 - *Problems and needs of users;*
 - *Supply of public transport.*
- Development of base year and future year public transport matrices, utilising the land-use model, Household Travel Surveys, economic growth projects and demand surveys representing the observed demand
- Derive from the public transport demand estimation process the primary-, secondary-, minor corridors based on design principles.
- Identify road network or rail network to facilitate primary and secondary demand corridors based on existing public transport operations,



- Evaluate network based on selected design criteria to ensure that the city is covered by public transport services at acceptable levels and complying with minimum criteria and design guidelines for IPTN's;
- Evaluate network in terms of environmental impact and fatal flaw analysis;
 - *Obtain infrastructure availability (roadmaster plan, public transport facility surveys) and determine where infrastructure is not suitable for implementation of IPTN. Improvement and upgrade of infrastructure will form part of cost of system implementation.*

- **Volume 3B – System Alternative Analysis and Implementation Plan:**

The above network ensures that public transport users are serviced within the PTNG guideline requirements of a quality public transport service. However, the network needs to be refined into routes and services to determine the demand per route, size of infrastructure and sophistication of associated systems. The sophistication of the system can vary given the demand that needs to be accommodated in the IPTN when operationalised versus demand in later years. Sophistication of the system can become more complex over number of years when demand realises and not implementing a state-of-the-art system from the onset of implementation. Sophisticated systems are associated with high demand and higher revenue returns.

A process of options analysis was followed to determine the optimum system scenario to be implemented. The options analysis process in summary comprises:

- *Development of two patronage scenarios for the base, 2025 and 2035 horizon year to determine the sensitivity of the planned system to change (accuracy) of passenger demand. The demand scenarios represent where all existing services are incorporated into the new system and a deviation where only a percentage of existing services are incorporated into the new system;*
- *Derive alternative route and service combination on a strategic level for the base year;*
- *Select the optimum system scenario stemming from the above through defining and comparing of system alternatives in terms of passenger experience, rationalisation of existing service provider service areas, capital and operational cost and validate that the selected system option can be implemented incremental and allowing for the system to develop and grow over time from the base into future years.*
- *The criteria utilised to evaluate these options are in line with the Goals and Objectives of the city IDP, BEPP, Environmental Sustainability Strategy, Universal Accessible Action Plan and ITP.*

The selected system option was sized and cost to determine the financial impact and requirements to implement the system and to the phasing of the system to align with the available budget.

The phasing of the optimum system was determined through the development of implementation strategies and policies. The strategies were selected through comparing the impact of alternative strategies on the quality of the system, passenger experience of the system, cost and citywide roll-out timeline. Several strategies to roll-out the selected option in terms of public transport rationalisation of existing services, institutional structures, infrastructure and other strategies are provided to facilitate implementation.

The results of the above processes are:

- ***20-year IPTN citywide implementation plan** was developed on a strategic level for the optimum system selected through the options analysis process and reflect the selected system*

performance in terms of the high-level key performance indicators provided in the PTNG guidelines.

- ***10-year Public Transport Improvement Program** is developed to guide the implementation of the system,*
- *10-year implementation plan per project (corridor) identified in PTIP.*

7 Overview of Mangaung Metropolitan Municipality (MMM)

The Mangaung Metropolitan Municipality (MMM), hereafter Mangaung, as illustrated in **Figure 7-1** covers approximately 6863 km² and comprises of three prominent urban centres surrounded by an extensive rural area. The urban areas include Bloemfontein, Botshabelo and Thaba Nchu. Bloemfontein is the judicial capital and one of the largest cities in South Africa. Furthermore, it is the administrative capital of the Free State Province and represents the economic hub of the provincial economy.

The Municipality is centrally located within the Free State Province and is accessible via several national and provincial routes. Due to the central location and function of Bloemfontein in the context of Free State Province, most of the provincial and national road networks converge at the City, resulting in the radial network evident in **Figure 7-2**. The most prominent routes include the N1 (which is the primary north-south corridor in South Africa), the N6 (which links Bloemfontein to the Eastern Cape via Aliwal North), and the N8 (which links Lesotho in the east with Kimberley in the west via Bloemfontein). Other prominent routes converging in the town include R702 to Dewetsdorp, R706 to Jagersfontein, R64 to Warrenton, R700 to Bultfontein and R30 to Virginia/Welkom.

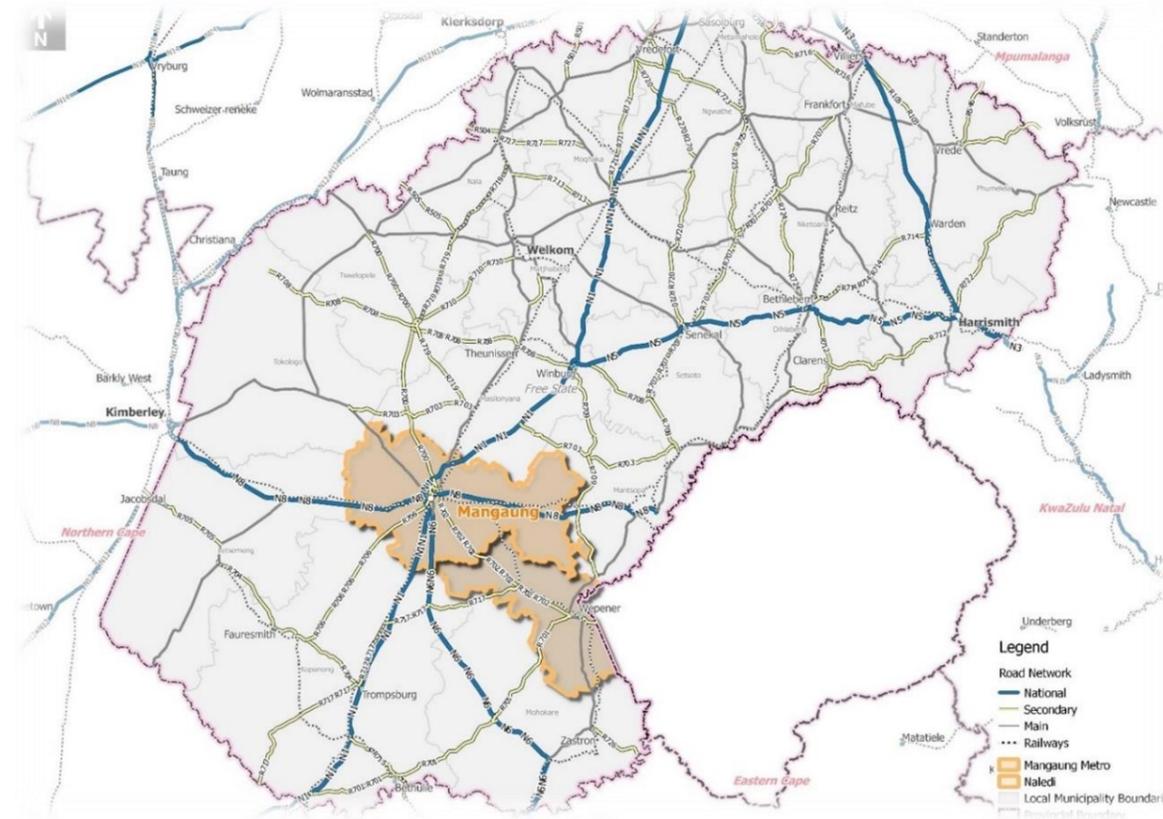


Figure 7-1: Regional Locality

The area is also serviced by an east/west and north/south railway line (serving the same movement desire lines of routes (N1 and N8) and the Bram Fischer National Airport. An airport was historically developed outside Thaba Nchu but is currently no longer in operation.

Botshabelo is located approximately 60km to the east of Bloemfontein along route N8 and represents the largest single township development in the Free State. It was established as a decentralised

residential township in the early 1980s and was intended to provide much-needed labour to Bloemfontein without the inconvenience of having the labour residential areas at employer’s doorstep. Another 12km further to the east of Botshabelo is the third urban node, Thaba Nchu. It used to be part of the Bophuthatswana homeland area and is surrounded by a large expanse of rural settlements on trust (communal) land as clearly visible in the far eastern parts of the Mangaung municipal area.

The surrounding rural areas of Mangaung accommodate extensive commercial farming in the west and communal commercial/subsistence farming in the east around Thaba Nchu.

The population in MMM was in the order of 775 180 people in 2011, of which 60% (464 588) lived in Bloemfontein area, followed by 34% (264 000) who lived in the Botshabelo/ Thaba Nchu area. The remaining 6% (46 591) of the population live in DeWetsdorp, Wepener and the rural areas surrounding Bloemfontein and Botshabelo/ Thaba Nchu.

MMM is the largest contributor to the GDP of the province and boasts a fairly diverse economy. There is, however, a disturbing downturn in the Gross Value Added by the region substantiated by the fact that the majority of economic sectors have declined during the period 1996 – 2011. The exceptions in this regard are mining and quarrying, and general government services where a modest increase of 0.0% to 0.1% and 2.7% to 2.8% was attained during this period.

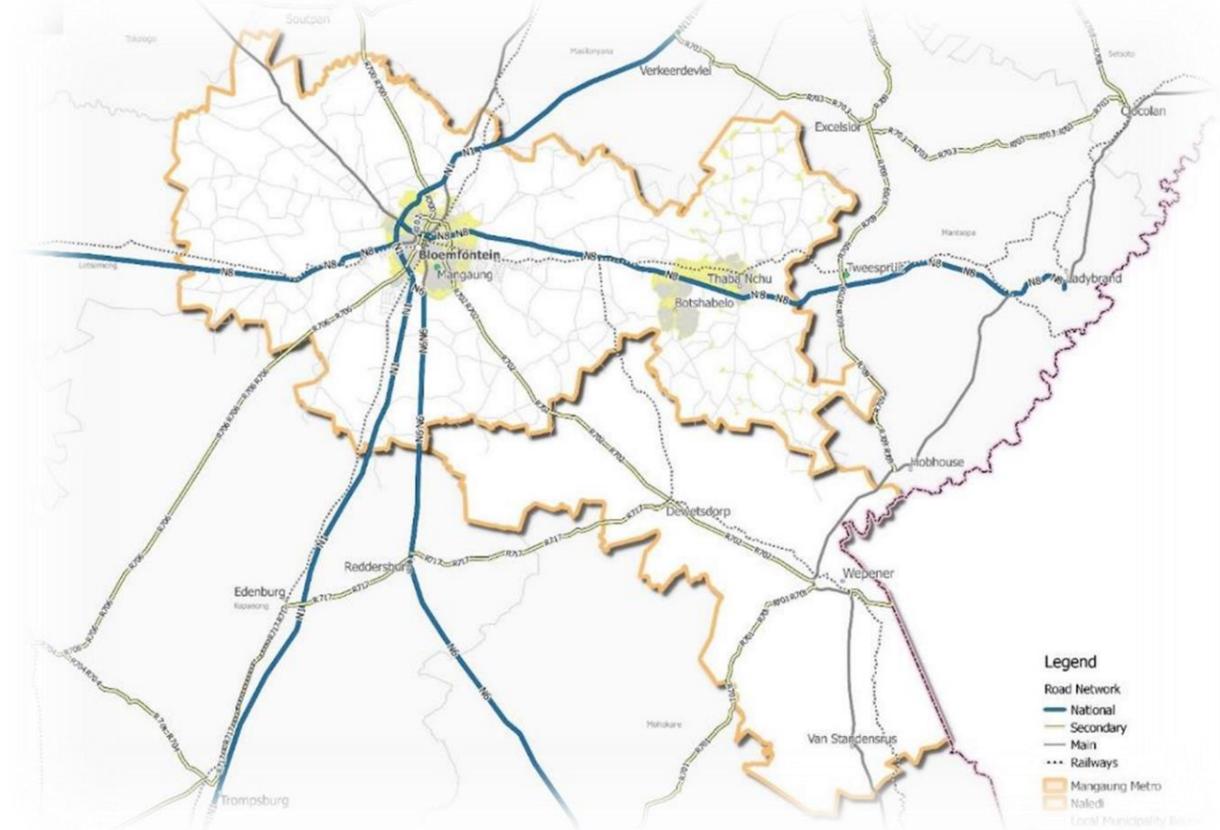


Figure 7-2: Mangaung Local Municipality