5 FORMULATION OF THE CITY OF TSHWANE (COT) COMPREHENSIVE INTEGRATED TRANSPORT PLAN (CITP) – 2015 TO 2020

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ABSTRACT

The Compilation of the Comprehensive Integrated Transport Plan (CITP) for the City of Tshwane (CoT) is intended as a strategic plan to assist the City with the determination of transportation-related needs, resulting in the identification of potential future action plans and projects. The CITP further prioritizes the identified projects and programmes and allocate funding requirements which in turn, will be taken up in the Integrated Development Plan (IDP) and Medium Term Expenditure Framework (MTEF) for the City.

The Formulation of the CITP, amongst others, entailed a process of Data Collection and Processing, Stakeholder Consultation in order to Concretize the Vision, Mission and set Objectives, the formulation of Public Transport-, Transport Infrastructure- and Traffic Engineering-, Freight-, and Financial/ Institutional Strategies and ending with the identification and prioritization of action plans and projects and finally the allocation of budgets to make the projects a reality. Right from the onset, the CoT CITP have been developed with an over-arching Sustainable Transport theme in mind and in doing so, all chapters of the CITP have been developed with this integrated focus, thereby doing justice to the City's Transport Vision of *"A transport system developed to support a sustainable city"*.

The transport goals and objectives, aligned with the City's mission and thus the targets which the City aims to achieve were to:

- Plan and develop a transport system that improves accessibility and mobility whilst enhancing social inclusion;
- Provide a fully integrated public transport system;
- Develop a transport system that drives economic development;
- Improve the safety and security of the transport system;
- Develop a transport system that reflects the image of the city;
- Develop an efficient, effective, development orientated public transport system and integrates land use and public transport plans;
- Develop a transport system that is environmentally sustainable.

Never before in the history of Tshwane have so much detailed information been collected for a single planning process. Amongst others, Household Travel Surveys, On-Board Travel Surveys, Roadside Interviews, Vehicle- and Pedestrian Traffic Counts, etc. has been collected. Similarly, extremely detailed Transport Demand Modelling has been done as part of the execution of the project. The Metropolitan-wide Macro-model (*EMME/4*), as well as 13 Micro-models (*Aimsun*), done for each of the Core-Areas developed for future development and/or current growth points, have been done. During the process of developing the CITP, thorough integration took place between this project and the Integrated Rapid Public Transport Network (IRPTN) or *A Re Yeng* Bus Rapid Transport (BRT) project which is in the process of being rolled-out throughout the City.

CORE ABBREVIATIONS

AARTO	Administrative Adjudication of Road Traffic Offences Act
BRT	Bus Rapid Transport
CBRTA	Cross-Border Road Transport Agency
CIF	Capital Investment Framework
COTO	Committee for Transport Officials
DBSA	Development Bank of Southern Africa
DORA	Division of Revenue Act
DOT	National Department of Transport
EMME/4	Equilibre Multimodal, Multimodal Equilibrium Fourth development phase
eNaTIS	Electronic National Administration Traffic Information System
GDS	Growth and Development Strategy
GITMP	Gauteng 25 Year Integrated Transport Master Plan
GMA	Gautrain Management Agency
HOV Lanes	High Occupancy Vehicle Lanes
IPC	Intermodal planning committee
IPTN	Integrated Public Transport Network
IRPTN	Integrated Rapid Public Transport Network
LTAB	Land Transport Advisory Board
MSDF	Metropolitan Spatial Development Framework
NDP	National Development Plan
NDPG	Neighbourhood Development Partnership Grant
NLTA	National Land Transport Act 5 of 2009
NLTSF	National Land Transport Strategic Framework
NMT	Non-Motorised Transport
OL	Operating licence
OLS	Operating licence strategy
PLTF	Provincial Land Transport Framework
PRASA	Passenger Rail Agency of South Africa
PRE	Provincial Regulatory Entity
PTIC	Public Transport Integration Committee
PTIS	Public Transport Infrastructure and Systems Grant
PTNOG	Public Transport Network Operations Grant
PTOG	Public Transport Operations Grant
PTOS	Public Transport Operational Strategy
Ratplan	Rationalisation plan
RSDF	Regional Spatial Development Framework
RTMC	Road Traffic Management Corporation Act 20 of 1999
SANRAL	South African National Roads Agency
Santaco	South African National Taxi Council
SIP	Strategic Infrastructure Projects
SPUMLA	Spatial Planning and Land Use Management Act 16 of 2013
TBS	Tshwane Bus Service
TDM	Travel (Transport) Demand Management
TMPD	Tshwane Metropolitan Police Department
TOD	Transit Oriented Development
TRT	Tshwane Rapid [Bus] Transit System
USDG	Urban Settlements Development Grant

INTRODUCTION

The CoT's Transport Vision, Mission and Goals are aligned with other spheres of governments' policies, strategies and priorities, as well as to meet the objectives of the Tshwane Vision 2055 as an articulation of the future and sets out a bold vision that will propel the City of Tshwane to be liveable, resilient, and inclusive. It also reflects the aspirations not only of

the region's residents but of all South Africans as outlined in the National Development Plan 2030 vision.

The following Vision, Mission, and Goals have been formulated for the CITP: Transport Vision: "A transport system developed to support a sustainable city". Transport Mission: "To develop a transport system that positions the Capital City to meet the economic and social needs of its citizens". The Goals and Objectives for Tshwane include the following:

- Plan and develop a transport system that improves accessibility and mobility whilst enhancing social inclusion.
- Provide a fully integrated public transport system.
- Develop a transport system that drives economic development.
- Improve the safety and security of the transport system.
- Develop a transport system that reflects the image of the city.
- Develop an efficient, effective, development orientated public transport system and integrates land use and public transport plans.
- Develop a transport system that is environmentally sustainable.

Although the City of Tshwane has a well-developed transport system, the Comprehensive Integrated Transport Plan (CITP) quantified a number of challenges that informed the development of the transport plan. The transport system consists of both infrastructure and services for public and private transport, including non-motorised transport, as well as for freight transport. The fast growing City in terms of its diverse economy, population and expanding borders, demands a range of transport services. In addition, the international and national opportunities of modern transport and ICT technologies, initiatives to address global warming and negative impacts of the use of fossil fuels, national and provincial legal requirements, programs and plans, subject to scarce financial and human resources, are at the basis of these challenges.

The public transport system in the CoT is typically been characterised by inefficient and unreliable services, lack of integration between services in terms of transfers and fares, as well as old and unreliable infrastructure and rolling stock. The operations of Gautrain, Metrorail, TBS and subsidised bus services are poorly integrated. This results in inefficient services that are typified by long travel times, distances and waiting times. The historical land development patterns are also largely inefficient and distorted and have resulted in long commuter travel distances and times as well as a need for large subsidies for public transport services in the City.

The Household Travel Survey (HTS) conducted in 2013 amongst almost 8,891 households provides a wealth of information about residents travel patterns and perceived problems. Typical information collected included demographic, income and employment profiles of households, people with disabilities, car ownership, origins and destination of trips, trip purpose, mode choice, travel times and costs. Respondents' attitudes on transport problems and needs were also obtained.

OVERVIEW OF CITP AND APPROACH

The CITP for 2015-2020 is a very comprehensive plan developed from first principles and addressing all aspects related to transport going beyond the DoT CITP Minimum Requirements. The CITP project included comprehensive surveys, a Household Travel Survey, land-use and transport demand modelling as well as micro-simulation of traffic.

The Integrated Transport Plan (ITP) is a statutory plan required by the National Land Transport Act No. 5 of 2009 and the Gauteng Transport Framework Revision Act, Act No. 8 of 2002 to guide transport development and operations in the city. It forms an integral component of the Integrated Development Plan (IDP). The CoT is a Type 1 Planning Authority designated by the Department of Transport to upgrade their public transport systems to a level that is car competitive in line with the approved Public Transport Action Plan of March 2007. The CITP should be prepared/reviewed every 5 years and updated annually and integrated with the IDP process.

Transport plays a critical role in meeting the City's Strategic intent. An efficient transport system is one of the key enablers for enhancing productivity and delivering more sustainable economic growth. Enhancing the City's transport infrastructure and service provision can help open up new markets, increase access to employment and help build a critical mass of business that can drive up competitiveness and deliver growth.

In terms of the Aligned City Scorecard (Five Year Programme), the project will contribute to the achievement of the following Strategic Objectives (SO's):

SO1: To provide quality basic services and infrastructure throughout the City;

SO2: To ensure an accelerated, shared and higher local economic growth;

SO3: Integrated Social Services and sustainable communities

The CITP report addresses the following components of transport:

- Land Transport Vision, Mission, Goals and Objectives
- Sustainable Transport
- Transport Information Register (Land Transport Status Quo)
- Spatial Development Framework and Demographics
- Transport Needs Assessment
- Public Transport Operational Strategy (OLS, Rat Plan or PTP)
- Transport Infrastructure Strategy
- Travel (Transport) Demand Management Strategy
- Freight and Logistics Strategy
- Non-Motorized Transport (NMT) Strategy
- Parking Strategy
- Intelligent Transportation Systems (ITS) Strategy
- Road Safety
- Public Transport Safety and Security Strategy
- Aviation Development Strategy
- Institutional Framework
- Legal and Policy Aspects
- Funding Strategy and Summary of Proposals and Budget Programmes
- Stakeholder Consultation
- Implementation, Monitoring and Evaluation

Survey data collected by both the Tshwane Rapid Transit (TRT) office and the CITP team was combined into one integrated database for quick and easy analysis of data.

A comprehensive land-use model was developed. The key inputs and main drivers that informed this model were:

- Demographic and Economic Forecasts defined as part of Gauteng Spatial Development Framework, Gauteng 25-Year Integrated Transport Master Plan (GITMP25).
- Land-use Development Guidelines derived from the GITMP25, Tshwane Vision 2055, Tshwane Metropolitan Spatial Development Framework (MSDF) and seven Regional Spatial Development Frameworks (RSDF's).
- Spatial Development Land-use trends of the past decade.

A very detailed metropolitan transport EMME/4 demand model was developed including various enhancements to the previous model. The model covers the City of Tshwane, as well as areas which have high interaction with the City of Tshwane such as parts of Midrand, Ekurhuleni, and Hartebeespoortdam. Six trip purposes were modelled which are work, education, shopping, other, education to work and business purposes. The population was split into low, middle and high income groups. Current trips are divided between six modes consisting of walk, private vehicle, minibus taxi, bus, rail and Gautrain. The future year model includes TRT and LRT

services. A heavy vehicle sub-model was also developed. The number of zones increased from 735 zones to 2,082 zones. The road network was revised and refined according to the refined zones and includes classes 1 to 5 streets and rural roads, as well as certain gravel roads. The model allows for a wide range of policies and plans to be tested. Some of these include changes to the demographic, economic and land-use characteristics; the impact of changes of public transport services in terms of the travel time, walk time, wait time, number of transfers and cost can be determined; the impact of improvements to road and public transport networks (upgrading or new links), as well as modal transfer stations. The model outputs can be used for economic evaluation of proposed improvements.

Micro-simulation models were prepared for 13 Core Metropolitan Areas, creating the possibility to analyse these areas in much more detail in future when needed. The micro-models provides the advantage that individual vehicle behaviour are taken into account, the effect of various traffic control measures in congested conditions, road geometry and lane configuration at intersections.

The CITP is built on the following five key pillars. A few policies and/or strategies are provided for each pillar as a means of illustration:

i. Sustainable transport:

- Provide a transport system with low negative environmental costs yet high positive social value, which supports resource efficient economic development

ii. Public-transport orientated:

- Prioritising public transport and Non-Motorised Transport (walking and cycling) over private transport
- Provide public transport access to all residents, including tourists and visitors
- Making substantial investments in high-quality, safe, reliable and affordable public transport
- Land use to support and promote public transport e.g linking economic nodes with public transport, increase land-use densities along routes and around modal transfer facilities.

iii. Integrated transport:

- Integration of land-use with transport, e.g. densification along public transport corridors;
- Integration between networks, modes, fares and services.
- Integrated planning and implementation between City of Tshwane departments, as well as between the City and other national and provincial authorities

iv. Transport in support of a Smart City:

- Affordability and accessibility of technology e.g. use of electronic communication connections for transport, safety and security (urban traffic control, passenger information, CCTV cameras, etc.)
- Being "smart" by using scarce resources more effectively and through the application of suitable technology e.g. automatic fare collection using smart cards;
- Provide modern public transport modes e.g. BRT, LRT, Gautrain

v. People-friendly:

- Social inclusion, with an emphasis on access, through the availability of public transport, to opportunities and services;
- Provide affordable, easy to use, safe and secure public transport, including universal access and facilities for walking and cycling

KEY PROJECTS IN THE 5-YEAR PROGRAM

To enhance and fast-track the expansion of the City's IPTN development program which is currently focussed on Line 1 and 2 of the TRT implementation, the City will focus its own funding for CITP projects, amongst others, on the CBD in support of the Inner City Revitalisation Program, as well as the third and fourth priority IPTN routes following on Line 1 and 2. This will support the City's drive towards integrated planning on spatial target areas as part of its CIF and BEPP.

The following projects will be focussed on the CBD, the Atteridgeville – CBD route and the Menlyn - Centurion CBD route:

- Implement Central Control Centre
- Implement central parking management system
- Inner City shuttle service with a high frequency that goes around the inner city, connecting the parking garages with major destinations.
- Inner City law enforcement actions, including zero tolerance, targeted where most needed, monitoring and evaluation;
- Facilitate land use densification within walking distance from key public transport stops and modal transfer facilities
- Implement first stage TRT as HOV lanes along congested sections
- Upgrade modal transfer facilities / ranks to high-quality status
- Develop NMT facilities
- Implement ITS measures along the routes, such as priority signalling for public transport, CCTV camera surveillance of traffic and incidents, etc.

Other key projects that are relative low cost, but with a huge potential impact are:

- Implement the actions from current CSIR feasibility study to obtain assignment of the operating licensing and contracting functions to the City in order to get access to bus subsidies;
- Feasibility study to establish Public Transport Network Authority;
- Implement CNG strategy of IRPTN (30% of fleet), as well as expanding fleet of CNG and battery- powered vehicles for the CoT's internal vehicle fleet;
- Implement Employer Trip Reduction Program at the CoT and a few major private and government employers;
- Implementation of Wonderboom Airport Development Plan: procure private operator, provide transport access to airport, and directional signage on main routes around the city;
- Implement priority freight transport projects i.e. Freight Transport and Hazardous goods working groups, Freight Transport Master Plan, Abnormal Routes, establish Pyramid South as a development zone;
- Implement priority road safety projects: Workgroup, awareness program, central database system, monitoring and evaluation, engineering solutions for hazardous locations, road safety education, Road Incident Management System (RIMS);
- Appoint dedicated team to implement the CITP and do annual KPI monitoring and update of the CITP;
- CITP workgroups to drive implementation on quarterly basis for different Regions; and
- Marketing and communication of CITP (slogan / branding).

In terms of the overall CITP 2015 to 2037 budget program, PRASA is responsible for the highest budget of R39 billion, followed by SANRAL with R8.6 billion, and the City is responsible for R6.7 billion. In total, just below R61 billion would be required by 2040.

The 2015/16-2017/18 Transport MTREF indicates that the *A Re Yeng* project funded by the PTIS Grant of National Treasury receives by far the largest proportion of the total budget, 51%, followed by Storm water, 30%, and Internal Roads, 14%. Apart from *A Re Yeng*, most of the City's Transport budget is allocated to backlog eradication and township development of informal settlements relating to storm water and internal residential streets. Therefore Council will have to decide on their priorities against the requirements of the CITP. This must be reviewed on an annual basis by the City as part of its budgeting process.

The City will focus on a limited number of key projects and ensure their successful implementation, rather than having too many projects that would not have a good chance of getting implemented. From the current MTREF, the budget allocated for typical CITP capital project amounted to a maximum of R108 million per annum, which is very limited to make any significant impact. A budget constraint of R200 million per annum for 2016/17 for capital projects and of R20 million for planning projects were therefore applied, with a growth of 4% per annum. The 2015-2020 total City budget for 36 capital projects over 5 years amounts to R1,244,490 million, and for 27 planning projects to R166.130 million. This excludes the *A Re Yeng* project.

CONCLUSIONS AND RECOMMENDATIONS

The CITP for 2015-2020 is a very comprehensive plan developed from first principles and addressing all aspects related to transport going beyond the DoT CITP Minimum Requirements. The CITP project included comprehensive surveys, a Household Travel Survey, land-use and transport demand modelling as well as micro-simulation of traffic. The key Conclusions and Recommendations are provided below for each of the CITP components that were addressed:

Sustainable Transport

- Increased environmental awareness and the acknowledgement of the impacts of climate change is starting to materialize, and has resulted in the transport industry landscape starting to change as environmental concerns are becoming entrenched within planning and operations.
- As part of its commitment to providing a safe and efficient transport service, the City of Tshwane acknowledges its role in transforming the existing system into a more sustainable form of transport.
- A "Sustainable Transport Assessment Framework" has been compiled to assist with measuring the CoT CITP strategies for effectiveness in achieving these objectives.

Transport Information Register (TIR)

- A comprehensive data collection exercise was completed for the purposes of developing a Transport Information Register (TIR). These included various types of surveys, such as Road Based Public Transport surveys, Cordon Surveys, On-Board surveys, Pedestrian counts and a Household Travel Survey, comprising a random, representative sample of approximately 9 000 households. This extensive database of information is expected to provide valuable information to inform both current and future planning processes in the City of Tshwane.

Spatial Development Framework and Demographics

- The City – through the CITP – advocates for and supports intensification of land-uses along public transport corridors. Residential densification along public transport corridors will likely lead to increased demand and ridership on public transport services, while a simultaneous increase in non-residential activities along the corridors will increase the number of job opportunities in the City as a whole, which all being accessible via public transport. Such densification thus increasingly makes public transport more viable. In line with national and provincial policy directives, the goal is to increasingly prioritize public transport over private transport through increased nodal and corridor development, and serving the latter with high quality public transport services.
- Furthermore, the targeted intensification of development within the existing urban footprint leads to more effective use of existing resources including land and engineering infrastructure (thereby increasing efficiency) and mitigates the environmental impact of urban development by limiting sprawl (contributing to sustainability).
- In order to realize the envisioned redevelopment along public transport corridors – in other words redevelopment and infill development at greater densities and including mixed use development the City should implement a comprehensive Growth Management Strategy aimed at facilitating growth along the priority public transport network identified.

Transport Needs Assessment

- The City has embarked on a comprehensive public participation process during which communities and public transport operators were consulted and their needs were noted and captured. These needs have been used to assist in the development of CITP strategies.

Public Transport Operational Strategy (PTOS)

- The Public Transport Operational Strategy (PTOS) strives towards ensuring efficient public transport services in an incremental manner. While the public transport demand model considers a 2037 horizon, the building blocks to an effective and efficient system would be phased in over the long term. The PTOS highlights the key aspects of the IPTN, looks at the 2020, 2025 and 2037 scenarios based on the demand model, the TRT lines to be phased in over this period, the expansion of rail services, as well as the extension of rail lines that would be introduced over the long term.
- The strategy also looks at the key service offerings outside of the mainstream and traditional public transport services (for example: rail, bus and mini-bus taxi services) such as metered taxi services, learner transport services, universal access, etc. This sets the foundation for ensuring that these services operate in an environment that promotes safety and quality.
- The Public Transport Operational Plan was developed taking into consideration the TRT, PRASA rail modernization process, Gauteng Rapid Rail feasibility process, the Moloto Rail feasibility study and most importantly the Tshwane Vision 2055 that addresses the social economic development plans for the City. This ensures alignment with the City's strategic objectives.
- The Operating License Plan and the Rationalization Plan were developed with the key initiatives in mind but also focused on servicing the Tshwane Vision 2055 development corridors, giving effect to the alignment of all the City's key growth and development plans.
- The implementation of the Operating License and Rationalization Plans will require that the City takes bold and sometimes unpopular decisions in transforming the mini-bus taxi industry, as well the subsidized bus services that would benefit the users of public transport and current public transport operators.

Transport Infrastructure Strategy

- The Transport Infrastructure Strategy's focused on the development of an implementation plan, providing priority projects for roads and public transport infrastructure, and generally giving priority to public transportation, i.e., moving more people than vehicles.
- The transport demand model was used to test various combinations of the planned infrastructure projects to ensure the most efficient transport network. The practical and economically justified proposals for new facilities and for the improvement of existing public transport facilities and major roads, aimed at giving priority to public transport, were identified. When ranking infrastructure projects, the following criteria have been applied:

– The extent to which the project supports the Spatial Priority Areas of the City;
– The extent to which the project serve the needs of the City's community; number of people who will
– benefit from the project;
– The extent to which the project minimizes transport user costs; extent to which transport time and operating costs will be reduced;
– The extent to which the project minimizes environmental impact; and
– The extent to which the project meets the City's needs in the most affordable way: Capital cost.

Travel Demand Management (TDM) Strategy

- In Tshwane, several of the strategies for Travel Demand Management (TDM), namely public transport, including the BRT, mini-bus taxis, the Gautrain and NMT, are already being implemented. The result is that the modal split of approximately 50% of all passenger trips are carried out by not using private vehicles. A large portion of the public transport is however a captive market – people with no alternative, and as soon as their living conditions and income improve, many of them are expected to move to private transport. This is the opposite of what needs to be achieved with TDM.
- There are several major transport changes being implemented in Tshwane and the Gauteng environment. These include the Gautrain which is now operational for 5 years, the BRT, of which a short section is operational, changes to the road network in the CBD, Urban Traffic Control and the e-Toll system, which has an impact on all travellers in Tshwane. Several NMT strategies are already underway.
- To implement onerous and expensive TDM measures, such as congestion pricing, HOV lanes or similar measures is not foreseen to gain any public acceptability soon within Tshwane.
- The single strategy which can have an impact, with limited cost to the City, is the implementation of a Large Employer Trip Reduction Plan (TRP), or shorter version Trip Reduction Plan (TRP). This entails a policy change, whereby the City passes a by-law requiring all large employers, typically above 300 or 500 employees, to submit a plan to reduce the private travel to and from their places of work.
- The TRP can be an innovative way to reduce private travel by 10 to 20 %, but one will only know what the realistic targets are once surveys have been done. Making the programme voluntary has shown in other cities that the large employers are not really committed, so it will be necessary to pass a by-law to enforce the plan.

Freight and Logistics Strategy

- Intermodal freight is one of the fastest growing commodities in South Africa which would require mega terminals on the periphery of Gauteng in the future. The Pyramid terminal is one of such identified mega terminals planned for Gauteng and is also part of the SIP projects. Such terminals have the potential to generate between two to three million heavy vehicle trips per annum. The functionality of mega terminals includes the following:
  – To consolidate freight;
  – To Establish an intermodal facility for road and rail transport;
  – To Establish truck stop facilities;
  – To Establish warehousing to stuff and de-stuff containers;
  – To provide value added services such as weigh bridges, fatigue managements facilities, maintenance facilities, medical facilities, etc.;
  – To establish connectivity to the terminal; and
  – To establish appropriate public transport.
  – A number of strategic projects have been identified in the short, medium and long term to unpack and improve the management of freight in Tshwane.

Non-Motorized Transport (NMT) Strategy

- A number of Non-Motorized Transport (NMT) Strategy initiatives have been identified in the plan, of which the following are the most prominent:
- Integrate NMT sidewalk / bicycle lane projects as part of roads programme in Tshwane;
- Integrate NMT sidewalk / bicycle lane planning as part of road planning in the City of Tshwane on all Class 1 to 4 Roads;
- Integrate NMT planning into IRPTN so that it becomes a mode of choice;
- Ensure that NMT infrastructure is aesthetically pleasing and include greening and street furniture where appropriate;
- Ensure adequate management and maintenance of NMT facilities; etc.

Parking Strategy

- The development of an operational plan for the parking intervention strategy is of major importance as it will ensure the implementation of the strategy. The operational plan describes how the City will manage the parking intervention strategy in the CBD, as well as how to implement the parking solutions. The operational plan includes the following aspects:
  – Projects and project responsibilities;
  – Financial requirements;
  – Intergovernmental and stakeholder requirements;
  – Implementation priorities;
  – Risk assessment; and Proposed Programme.

Intelligent Transportation System (ITS) Strategy

- As part of the Tshwane Rapid Transit (TRT) system, several Intelligent Transportation Systems (ITS) elements have been implemented which are of world class standard. These are:
- An Interim Control Centre has been built, with a Central Control centre that has been planned in detail for the long term. The Interim Control centre has capacity to accommodate most critical functions for the next ten years;
- The Urban Traffic Control system with its central control software is of a high standard, with the capability to provide traffic signal priority for TRT buses – which is a first in SA. Once completed, it will allow integration between traffic signal controllers of different manufacturers;
- The buses on the TRT are equipped with state of the art Advanced Public Transport Management Systems (APTMS) that allow vehicle tracking, passenger monitoring with CCTV, schedule adherence and fare collection monitoring; and
- Tshwane is implementing Variable Message Signs (VMS) and Parking Guidance Signs, which is also a first in SA. The challenge will be to maintain and effectively operate these signs, as they are in the public face and if they do not function, it will be immediately visible.
- The systems that require improvement include the development of a Road Incident Management System (RIMS), a traffic counting programme which is annually updated, scientific crash database, as well as integration of the different fibre optic communication networks in the City of Tshwane. It is therefore recommended, that the upgrading and operation of these systems, as summarised in the project table with indicative costing, should be placed on the budget and implemented.

Road Safety Strategy

- In response to Tshwane's alarming Road Safety per capita death rate of 10 per 100 000 per annum (2012 data), the City's road safety strategy identifies priority areas of intervention based on the principles of: co-ordination, use of technology, and proactive response. In the context of limited resources and funding, the City is presented with an extended basket of road safety interventions which include:
- Establish an active workgroup that ensures communication and collaboration between role players.
- Implement an internal and external road safety awareness programme.
- Develop a low cost, effective, central crash database system with access to all involved.
- Ensure monitoring and evaluation;
- Develop engineering solutions for hazardous locations;
- Review engineering design standards and practices used in Tshwane;
- Implement road safety audits on engineering projects;
- Use of technology and Intelligent Transport Systems (ITS) to improve road safety;
- Improve law enforcement actions;
- Provide coordinated, sustainable and frequent road safety education to all learners in Tshwane;
- ntroduce road safety education and training for target groups; and
- Implement RIMS.
- The City's road safety strategy summarizes the proposed road safety measures and explores their value add to the general series of road safety interventions. Moreover, this document highlights solution in order to overcome the existing institutional and technological challenges in the City.
- Overall, the City's road safety strategy supports the UN Decade of Action. However it should be recognized that it per se will not result in any action; implying that any strategy needs to be converted to projects with budgets, clear timelines and accountable individuals.

Public Transport Safety and Security Strategy

- A strategy for Public Transport Safety and Security is recommended in this document, providing an overarching policy approach. Current issues to be dealt with in meeting the objectives were identified. A number of role players and stakeholders were involved and information was shared in a number of workshops. The strategy is supported by pillars for Engineering, Enforcement, Education and Governance. For each pillar various aspects were identified to be considered in developing strategies and programmes.
- It is recommended that this strategy be considered in formulating strategies for the identified pillars. The strategies should be co-ordinated on the relevant levels of operation, dealing with the relevant level of detail. Programmes, projects and interventions for implementation must be forthcoming from these strategies as soon as possible.

Aviation Development Strategy

- The provision and utilization of Aviation facilities in the CoT are based on the following 7 strategies, which form part of aviation strategy of the CoT CITP. These strategies are:

STRATEGY 1: Position Wonderboom Airport as an important development node and develop the airport to its maximum potential providing all infrastructure required for scheduled domestic and regional international traffic (passenger and cargo);
STRATEGY 2: Establish an Airport City Planning Committee with a clear mandate to plan and implement key projects;
STRATEGY 3: Monitor and implement control measures for the management of environmental, in particular the noise impact, of air transport in the metropolitan area
STRATEGY 4: Regulate smaller aerodromes/airstrips to improve airspace management and safety;
STRATEGY 5: Keep abreast of the Gauteng Government's intentions regarding the second large airport in the province and in particular the potential location of the second site;
STRATEGY 6: Develop the Waterkloof Air Force Base within the Military context; and
STRATEGY 7: Maintain Zwartkops Air Force Base as a national Museum.

Institutional Framework

- The Institutional Framework concluded that various reforms and restructuring would be appropriate for the CoT to manage public transport functions efficiently and effectively. Various initiatives and programmes led by the Department of Transport (DoT) and the Gauteng Department of Roads and Transport (GDRT), such as the planning and development of BRTs and IRPTNs, and the establishment of the Gauteng Transport Commission (GTC), require institutional re-organization. The current CoT Transport Department also faces challenges to co- ordinate and integrate various functions, such as between planning and operations, between IRPTN planning and transport planning and between transport planning and land-use planning. Freight transport requires increased attention from the CoT, requiring increased and dedicated capacity. It is recommended that:
- The proposed short-term refinements are made to the existing structure in order to improve integration of planning functions across all modes, and likewise for all operational functions;
- The CoT initiates a feasibility study and due diligence exercise in order to guide the restructuring of the public transport functions and recommendations regarding the establishment of a Public Transport Network Authority;
- The above feasibility study should also address the structures and delineation of functions between Transport Operations and Transportation Planning divisions;
- A feasibility study be conducted to guide the establishment of a Transport Implementation structure, as part of a "Section 78" assessment in terms of the MSA to establish whether to use an internal or external mechanism and to decide on the details of the structure;
- A feasibility study is conducted to guide the establishment of a dedicated division under the Transport Department to deal with all freight related matters;
- An investigation be conducted together with Province how best to integrate the budgeting process between Province and the City so that implementation can be co-ordinated; and
- The establishment of co-ordination forums or committees be discussed and agreed in the BEPP Committee, using the CITP Working Groups and their proposed committees as points of departure.

Legal and Policy Aspects

- The Legal chapter of the CITP provides a list of relevant policy documents and legislation and an analysis of the salient aspects to guide the CITP.
- The CITP is prepared to comply with Section 36 of the National Land Transport Act 5 of 2009 (NLTA) and the Minimum Requirements for Integrated Transport Plans published by the Minister on 30 November 2007. These Requirements are currently in the process of being revised, but the

2007 Requirements are still applicable on date of writing.

- The City's current ITP covers the period 2006 to 2011, and is being "overhauled" as required by the Minimum Requirements. The Requirements require the City to prepare a Comprehensive Integrated Transport Plan (CITP) which must provide for and include an Integrated Public Transport Network (IPTN).
- Various policies at national, provincial and City level have been analysed to guide the plan. These policies focus on transport aspects: there are a number of policies on other issues such as development and land-use planning, environmental aspects, and other aspects that have not been included in this legal assessment, but which have been taken into account.
- Relevant legislation (national and provincial Acts, Ordinances, regulations and City by-laws) have also been considered. The focus is on transport legislation, but relevant constitutional legislation, environmental legislation and legislation on other relevant aspects has been included. The legislation considered is not intended to be all inclusive, but deals with the most important aspects that are relevant to the CITP.
- It should be noted that the policy and legislation constitute "moving targets" and are subject to regular change. For example, the National Land Transport Act, 2009 (NLTA) is in the process of being amended and the relevant Amendment Bill is expected to be introduced to Parliament in the second half of 2015. Changes in policy and legislation will have to be included in the annual updates of the Plan.

Funding Strategy

- The City focus all their resources on a few major new projects, amounting to at least R200 million per annum, apart from the normal business as usual backlog eradication and maintenance projects;
- A task team be dedicated to procure additional funding that is appropriate to the type of projects that are pursued, in order to fund these projects;
- The City reviews it's *A Re Yeng* development plan to ensure its full completion by 2020, as well as the financial sustainability of the maintenance and operations. Various scenarios must be evaluated, including formulation of mitigation plans, as well as investigation of additional funding sources.
- The City approaches external authorities, such as Gauteng Province, SANRAL, Transnet, PRASA, to set up an integrated funding and implementation program so that all the authorities join forces to fund infrastructure development in Tshwane. The newly established Inter-Modal Planning Committee (IPC) is the best forum to raise this issue;
- The transport budgeting committee investigates a mechanism to ring-fence developers' contributions for transport; and
- That a feasibility study be conducted to investigate the establishment of the Metropolitan Land Transport Fund, as well as the related Public Transport Network Authority. This will provide a dedicated transport fund and give the City access to all the government bus subsidies relating to the Tshwane metropolitan area.

Stakeholder Consultation

- The City has embarked on a comprehensive public participation process with the objective of involving all the stakeholders from the beginning to end of the project. This objective was achieved and stakeholders were firstly informed of the project and secondly, also informed and invited to participate through the adverts in 3 different newspapers. After the communities were informed and invited to participate, the status quo report was distributed throughout the City. Stakeholders were also engaged once the draft report was produced. The report was distributed to the community centres and to all stakeholders involved in the transport sector.

Implementation, Monitoring and Evaluation

- History has taught that there are many constraints and stumbling blocks that may hamper the implementation of the CITP. The City requires a system that will enable the monitoring and evaluation of the degree of success to which the CITP has been implemented and to what extent it has a positive impact on the transport system of the City. It is also important that the CITP polices, strategies, plans and projects are implemented and that they form an integral part of the City's budget. A key factor is environmental processes, authorizations and permits/licenses that are required prior to project implementation, which are also addressed.
- Ten KPI's have been formulated in order to establish a practical and achievable basis for regular evaluation and monitoring of the overall transport system of Tshwane. The Household Travel Survey is a key source to monitor the KPI's, to provide planning information and to calibrate the CoT's demand model.
- KPI targets that are not met, currently relate to travel time for education trips, an integrated ticketing system, road accident fatalities, safety and security on public transport, and dwelling unit density along IRPTN routes.
- The most important factors impacting on the successful implementation of the CITP are, amongst others:
  - Adequate funding and optimal use of investment by national and provincial authorities, and co-ordination of budget programs between different transport authorities;
  - The establishment of co-ordinating forums between CoT departments; and
  - Incorporating environmental statutory requirements and processes in project funding, planning, design and implementation.

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