Operational Plan-Phase 1 of IPTN

2016-2020

Mangaung Metropolitan Municipality

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14 Signage and Wayfinding

The signage and Wayfinding section of the Operations Plan will be completed in detail once the design of stations and stops commence. This section will include but not be limited to the following components, namely:

- No Variable message signage will be utilised at stations
- Branded route mapping at all stations and critical locations to ensure adequate access can be obtained by passengers
- Provision of time tables on the general website of the MMM
- Branded Fare Collection System
- Branded station naming
- Development of a website
- Potential design of a branded App (via Smartphones) for passengers to access time table and route mapping. Furthermore the App could also allow for commuters to raise complaints or request information via the website. The maintenance and response on the questions and responses should be centralised through the Customer Care Centre.
- Branded time tables at stations and strategic locations.

Important to note is that the signage and wayfinding be developed in conjunction with the Universal Access Management team and according to specifications mentioned in Chapter 10 of the Ops Plan. This is necessary to structure the services to accommodate “special needs” individuals.

15 Intelligent Transport Systems

This section of the OPS Plan provides details on the components of the Intelligent Transport Systems (ITS) that will facilitate the operations of the MMM IPTN. The two key areas are the Control centre operations and the fare system operations. The purpose of each component is explained below. A breakdown of costs is provided and the proposed programme is outlined.

The MMM IPTN network will be implemented in specific phases as per Chapters 2 and 3 of the Operations Plan. To ensure continuity, it is critical that all hardware and software solutions be modular and scalable similar to the stations and stops. The systems shall be compatible with other similar products so as not to limit future expansion of any part of the ITS system due to proprietary hardware, software or protocols.

Training in the use of all ITS systems will form part of the scope of works. The procurement will also involve extensive training for the operations personnel so that they fully understand the system requirements and boundaries they will be working with.

15.1 APTMS

15.1.1 Control Centre

The Control Centre, as a functional component of the MMM Business Unit, is at the heart of the IPTN real-time service quality monitoring and is one of the main drivers to monitor the successful operations of the IPTN system. The Control Centre provides space for the personnel and equipment that allows the Contracting Authority to monitor the transport operations and communicate with other stakeholders involved in the IPTN operations (VOC, Station Management, Business Unit Operations, Supervisors and customer care functionaries, Security and the AFCA), so that a high level of service provision can be maintained through active real-time service management.

The MMM IPTN Control Centre is scaled to fulfil the critical functions required to ensure real-time service continuity and quality during operations and to take action or escalate incidents in accordance with a communications matrix containing current data and contact detail of all stakeholders, including emergency services, law enforcement agencies, the VOC and Business Unit Management.

The Concept of Operations approved for the MMM IPTN services does not require a large, bespoke Control Centre. The Control Centre will be housed in an office environment with two screens allocated to each workstation. Bus and Station controlling will be shared by two Controllers per shift, equally skilled in the operation of both functions. These Controllers will also monitor the low level of CCTV coverage and handle security issues when applicable. Provision is made for the contracted ITS maintenance contractor to man a workstation during operating hours (05H00 – 19H00) and act as an ITS helpdesk, and be available to respond to emergencies in the server environment to ensure maximum uptime of the system.

The initial Control Centre staffing configuration will be extended as may be dictated by future growth in the service environment. Five workstations will be provided for.

The broad functions that will be carried out by Control Room staff are as follows:

- Real-time management and monitoring of the contracted services provided by the two main service contractors, i.e. the VOC and station management contractors during operations.
- Managing and monitoring system safety and security;
- Recording and managing of incidents, including communication with relevant stakeholders to resolve issues that may impact on service delivery and quality;
- Communicating with MMM IPTN supervisors and other relevant stakeholders to ensure that all buses are on the road and that AFC and other critical APTMS components are functional;

The more detailed requirement in terms of personnel that will occupy the control room area, is outlined in Table 15-1 below:

Table 15-1: Control Room Staffing Requirement

No	Description	Workstations Required	Note
2 Per shift	Bus and Station Controllers	2	Tasks: Bus tracking and communication with the bus drivers, VOC and IPTN Supervisors, plus security monitoring View CCTV footage of stations, handle all stations related queries
Contractor	Maintenance Contractor Help Desk	1	IT, APTMS to provide space for maintenance contractors and any testing that may need to be conducted
	Spare workstation in CC	1	Spare workstation for increased demand
	Scheduling workstation in BU Operations Offices	1	Scheduling function undertaken in BU Operations Office
Total Workstations		**5**	

There will be no video wall provided in the Control Centre. Operators will view operations on their workstation screens to obtain the information they need to carry out their tasks.

15.1.2 CCTV

CCTV provides the operator with a window on critical locations in the IPTN service network and supports control and service delivery without having to resort to costly manpower solutions. It allows the MMM to monitor incidents and facilitates quick action in support of continuous high quality service delivery to the citizens of the MMM.

The pressure of limited funding and the relatively less-congested Mangaung operating environment make it possible to limit initial CCTV coverage to one camera per station, inside of the station building for Access Controlled Stations, and outside of Uncontrolled Access Stations, monitoring both station and station precinct activity.

Bus body design will make provision for on-bus CCTV cabling to facilitate future fitment of CCTV cameras and other equipment without the need to retrofit cabling that is difficult and costly to retrofit. CCTV will not be extended to cover intersections initially.

15.1.3 Communications

An Integrated Intelligent Transport System consists of numerous items of equipment in a multitude of locations. The communications network is the glue that ties all these items together. Recent years have seen great advances in the communication technologies available and significant reductions in the costs of procuring these technologies. The designers and users of ITS can take advantage of these new technologies. There is however a need to understand the difference between the technologies and their suitability for application in a specific situation.

The communication links must be able to provide sufficient bandwidth to pass the required data accurately within the time limits required by the equipment. Modern telecommunications systems are based on IP standards. This allows the network designer to combine different technologies depending on application requirements and the location of equipment.

At this stage of the project development the communications network outline design consists of the following principles:

Back office and control room equipment will be linked to a specific MMM IPTN Gigabit Ethernet Local Area Network. This will allow the rapid exchange of data between the applications and the immediate user interfaces. This LAN will have redundancy built into it so that a single point of failure will not result in failure of the entire system.

The back office system communication paths to the roadside equipment will be via two principle routes:

Optic fibre will be installed when required by future growth along the trunk route and stations in sleeves built into the roadways during construction. During the initial stage the system will employ wireless technologies appropriate to the location and type of equipment. The use of this technology will provide the greatest cost efficiency and flexibility for future growth.

Communication links between the Control Centre and MMM IPTN contracted vehicles will also be included as part of the communications network design. Current thinking is that the vehicles will form part of the wireless network. As the vehicles will only travel on fixed routes that are already equipped with wireless communications the addition of data and voice connections for on-bus systems should be possible.

15.1.4 Scheduling System

This application will allow the Contracting Authority to fully adapt and manage the MMM IPTN operations dynamically. The system will allow for the preparation of standard and non-standard vehicle schedules (for instance, for use on public holidays or days with special events where a different pattern of passenger numbers and journey times are expected).

These schedules will form the basis for the services. The data collected will also include real time passenger numbers so that the services can be fine-tuned to match supply and demand. All the data contained within this scheduling application will be stored and extracted for planning purposes.

The VOC will have access to the driver and bus allocation component of the system to be able to fully integrate the scheduling and timetables contracted by the MMM from the VOC and to ensure maximum efficiency in the use of labour and expensive assets such as buses.

15.1.5 Scheduling Adherence

The SAC system deals with real-time scheduling, schedule adherence and dispatch changes. Bus Controllers in the Control Centre will monitor the movement and time variations to the scheduled timetables to ensure that the network operates at maximum efficiency and that trip arrivals at specific points are predictable to assist passengers with trip planning.

15.1.6 Fleet Management System

The Fleet Management Application allows the Vehicle Operating Company (VOC) to monitor the performance of bus drivers in terms of fuel usage, breakdowns, security incidents, acceleration and deceleration, engine revolutions and idle times. The application will therefore allow the VOC to manage incidents and unplanned events to a high level of efficiency. By monitoring these events over time the VOC can improve the costly impact of bad driver behaviour to improve its own profitability with substantial spin-offs accruing to the MMM in terms of incidents, passenger complaints and service disruptions.

15.2 Fare Collection System

15.2.1 Fare system framework

The MMM IPTN Fare System will be compliant with the Government AFC Regulations to the NLTA of June 2011. The system will be a fully EMV-compliant, card only system. There will be no cash taken on the buses. Every passenger will be required to have procured a bank-issued EMV-compliant card with MMM IPTN branding before boarding the vehicles or entering controlled access stations. Monetary value will have to be loaded onto the card to make payment to the IPTN system at commencement of a journey.

Legislation requires that all new public transport ticketing systems comply with the NLTA AFC Regulations published in June 2011. The regulations provide for an interoperable public transport ticket, which means that a passenger with a MyCiti or A Re Yeng card (in fact any issued South African public transport card or bank issued EMV compatible card) will be able to use it on the MMM IPTN system and vice versa once the system is fully operational and all banks participate.

In accordance with the Regulations, and in order to achieve an integrated AFC System for public transport that is interoperable nationally, it must contain the following elements:

- AFC must be implemented through any Bank Issued Fare Media;
- AFC must be interoperable through all Participating Banks;
- Clearing and settlement of payment transactions must take place through the National Payment System in accordance with the National Payment System Act, 1998 (Act No. 78 of 1998);
- Banked Passengers must be able to use Bank Issued Fare Media obtained as a result of their relationship with any Participating Bank;
- Unbanked Passengers and those Passengers who do not bank with a Participation Bank, must be able to obtain prepaid stored value Bank Issued Fare Media from a Participating Bank or a third party card issuer operating in conjunction with a Participating Bank;
- The payment system must adhere to the banking and payment regulatory framework; and
- The DoT's AFC Data Structure must be loaded onto all Bank Issued Low Value Payment enabled Fare Media.

Passengers will access the fare system by firstly having a compliant card. Passengers with bank accounts will have a chip in their bank debit card that is compliant. Passengers without compliant cards will have to purchase a card through an outlet (at designated vendors, participating retailers, MMM pay points, or at the Customer Care Centre). EMV cards hold an electronic purse that can be 'topped up' with cash. These cards can then be used to access the MMM services by tagging the card readers at stations or readers on complementary or feeder buses. Fares are set for the initial phased rollout tranches at a flat rate that includes travel from points within the service design network in the south-eastern suburbs to the multimodal facility and further to destinations within the CBD and beyond the multimodal facility.

As the service network is extended to points further away from the point of origin, the base for the calculations of the fares will have to be adapted to take distance into consideration. The system design can accommodate multiple flat fares and can be adapted to calculate total fares based on the points of boarding and alighting.

No fare media top-ups or card sales will be made available at stations. Card sales and top-ups will be available form selected Vendors, registered Low Value Vendors, MMM pay points and the Customer Care Centre.

It is anticipated that the first fare card procured by any potential passenger will be made available to the passengers free of charge to promote card acquisition to support and promote the legislated fare collection system.

The EMV fare collection system to be introduced in the MMM IPTN system could be integrated with any other mode of public transport that makes use of a similarly compliant EMV system.

The system provides for a secure cashless process which enhances fare evasion management and cash leakage through staff intervention.

15.2.2 Vendor Policy, Strategy and Functions

As part of the fare media/ card distribution strategy a network of Low Value Payment (LVP) merchants will provide top up facilities and smart card sales along the MMM IPTN routes. The location of fare media sales and loading points will be strategically situated to support the MMM IPTN system. This requirement translates to the sales points being situated in close proximity to the MMM IPTN stations and stops, along with key strategic points of congregation within the service area.

The exact number of sales points as well as the location criteria still needs to be finalised. In order to keep costs low, existing City sales points that are in close proximity to the routes will be preferred. LVP merchants are an important factor in the card distribution strategy. The merchants will ensure that there is sufficient market penetration and that fare media and top-up facilities are easily accessible to commuters. These vendors will receive compensation based on their top-ups and card sales, as the current commissions allowed by the EMV participating banks are inadequate to motivate vendors to participate which places the entire risk and cost of the fare collection process on the cities.

It is also anticipated that selected vendors will be established in the areas made available by land acquisition on trunk routes where stations are placed as there will be sufficient room to construct a small retail facility that would also sell fare media and do card top-ups.

15.2.3 Trunk station access gates and card validators

Once a card has been purchased and value has been loaded onto the card, passengers can undertake journeys on the system. The MMM IPTN system will comprise of Access Controlled and Uncontrolled Access stations. Controlled Access Stations will be established at both ends of a trunk route where passenger demand warrants their construction and operation. To enter the MMM IPTN system from a Access Controlled Station, passengers 'tap-in' at the fare gates giving access to a paid-up area from where they will board the desired bus without having to undergo any further fare control monitoring. Fare collection inspectors may confirm that passengers have indeed made payment for a journey during any journey as a secondary fare verification mechanism.

On a feeder route or at Uncontrolled Access Stations, the fare system will be "open" with no physical access controls (gates or turnstiles) in place. To enter the system from such a station or at feeder and complementary stops, passengers will 'tap-in' on a validator situated just inside the left front bus door where the passenger boards. The bus driver is tasked to ensure that passengers 'tap-in when boarding.

When the system grows from a flat fare system to a distance-based fare system, passengers will be required to 'tap-in' when boarding and tap-out when alighting to ensure that a fare is correctly calculated and subtracted from the card..

The MMM IPTN buses will have two access doors on the left side of the bus. One at the left front with another further to the rear of the bus. Only the left hand front door will provide access to a bus from feeder and complementary route stops and Uncontrolled Access Stations on trunk routes. Both doors on the left hand side of a bus will be used to allow passengers to board through the two automated station doors at Controlled Access Stations where validation occurs when entering the station paid up area.

15.2.4 Fare structures

A compliant fare structure for the MMM IPTN will be focused on:

- The minimization of the operational subsidy requirement;
- Redressing of historical imbalances; and
- Sustainability of quality service and affordability issues.

The final fare structure that will be implemented is still under consideration but it is proposed to be a flat fare for the initial phases due to all routes being too short to enforce passenger transfers from one vehicle to another. The phases to be implemented at a later stage will be based on a distance-based fare calculated according to the distance travelled through various fare zones. The proposed fare zones will be outlined during the detail design stage.

Concessionary or discounted fares are also part of the proposed fare regime, with discounts to be offered to the aged, children, scholars and people buying multi-journey ticket products. Concessionary fares are geared to attain specific strategies in terms of specific identified market segments, such as people with special needs, pensioners and students. Concessionary fares will be considered for their social contribution to making the system accessible to more users, as well as the impact on the revenue required to ensure the sustainability of the system. All Concessions will be submitted for Council approval during the normal budgeting process.

15.2.5 Cash management

A substantial volume of cash will flow through the cash collection system. This flow is reduced substantially with the use of an extensive vendor network and no cash sales being done at stations. The concept of operations endeavours to reduce the risk of collecting cash for the MMM as far as possible. The flow of cash and transactions made by the AFC system and the banking partner still needs to be tracked, audited and managed in accordance with national banking and financial requirements. The fare collection system will therefore require sound management systems and procedures with a need to provide reports that meet the requirements of MMM policies, systems and procedures, as well as compliance with all relevant legislation, i.e. the MFMA.

When the contactless card is tapped on a validator, a record of the transaction is stored on the validator. All transactions stored on the validator will be sent to the back office through a secure network from where they will be sent to the bank for reconciliation and deposit into the MMM's bank account.

Secure cash collection services to recover cash generated by the MMM pay points and the Customer Care Centre need to be put in place if such collections cannot be combined with normal existing MMM cash collection arrangements.

15.2.6 AFCA operational costs

Revenue control is vested in the financial function of the MMM IPTN Business Unit and makes provision for all reconciliations, reporting, budgets and resolution of inconsistencies and monitoring of transactions executed and recorded by the banking partner.

The staff structure of the MMM IPTN Business Unit makes provision for sufficient capacity to execute these functions and to monitor the performance of the vendor network and sales commissions.

The maintenance cost provided for the operation of the fare collection system includes maintenance of the equipment and the rental of server capacity to an outsourced supplier.

15.3 Fare Policy and Regime

15.3.1 Integrating the EMV AFC system and fare structures

An integrated fare approach with other public transport modes that will form part of the IPTN needs to be followed. Such an approach will be outlined in an integrated fare structure design document that will be developed during the detailed design stage. The main elements to be considered for integration include:

- Fare Structure (includes fare type, concessionary fares and fare levels)
- Fare Media (EMV card)
- Fare Rules (transfers, penalties, park and ride and policy guidance)

The proposed EMV-based AFC system has the capability to operate in a multi-operator environment and enable integration of fares across various modes of transport in future. Whilst an integrated fare structure is motivated, such integrated approach presents a number challenges to be overcome. Challenges include the differences in the fare structures of different operators and the accommodation of concession fares. The fare structure, fare policy, and business rules to be developed for the MMM IPTN will address the planned level of:

- The future role of other bus services within the longer term IPTN network
- Policy Principle: Parallel, competition between other bus services are not allowed
- Policy Principle: Commuters should not pay more because transfers take place between operators

16 Safety and Security

16.1 Introduction

The lack of co-ordinated integrated quality public transport services in the Mangaung Metropolitan Municipal environment and the progress made at other cities in this regard undoubtedly have a negative impact on economic competitiveness, environmental well-being and levels of social equity in the City. The need to develop an IPTN, and more specifically an Integrated IPTN operational service network, was identified by the MMM with the development of an initial high-level Operational Plan.

The MMM IPTN system is intended to transform the public transport sector in the MMM through the provision of a high-quality, affordable public transport system in line with national policy. The IPTN system will also be aimed at reducing overall journey times for public transport users. A key benefit of the IPTN system will be an improvement in the ease of accessibility between residential areas and major economic nodes. In order for the system to offer the intended service quality, it needs to also improve the general safety and security of public transport users making use of the IPTN service network. Research worldwide has shown that the capacity of a transit system has to be consistently dependable in terms

of safety and security and has to be able to deal with emergencies, which remains critical for gaining user trust and attracting patronage.

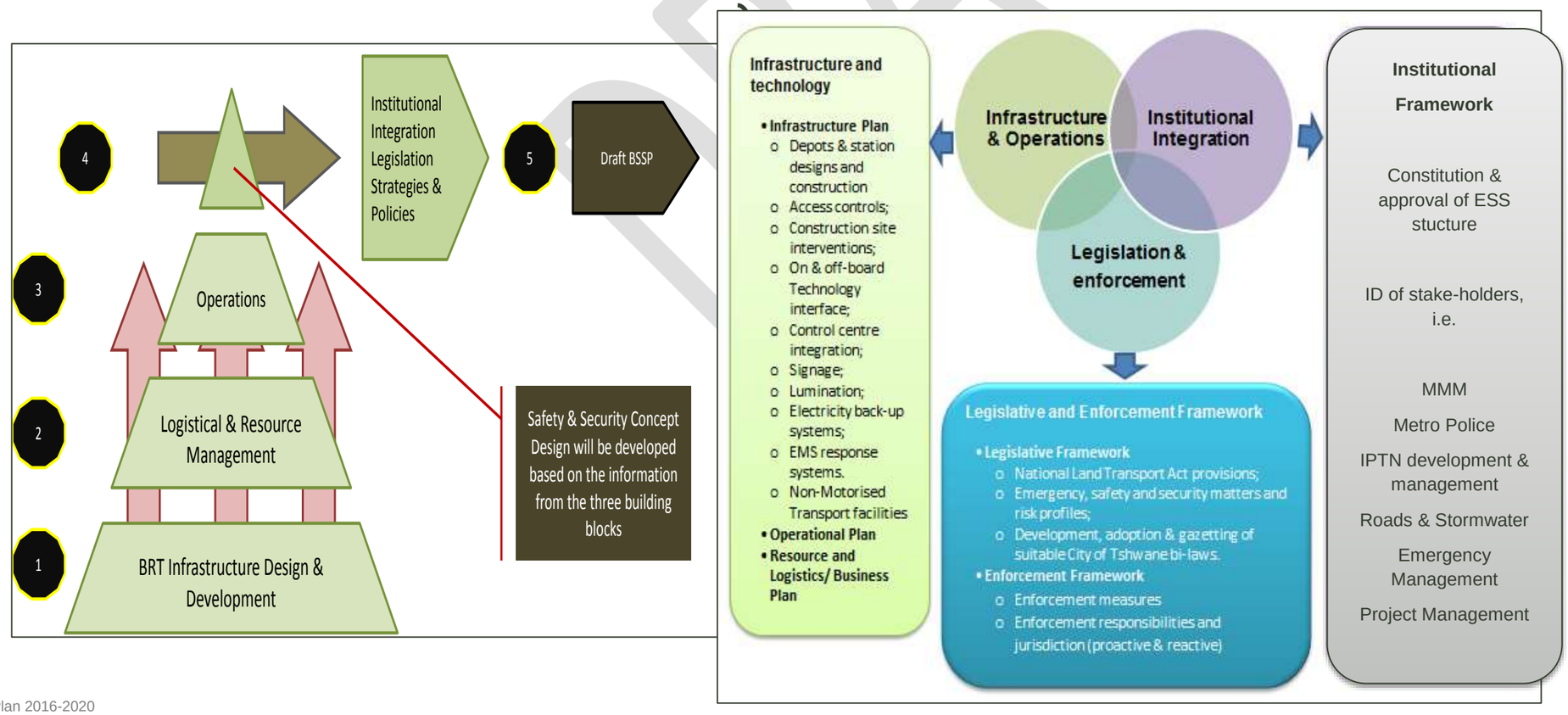
A Terms of Reference (ToR) will be developed to guide the preparation of a Safety and Security Plan for the MMM IPTN service network for both the construction and operational phases.

16.2 Minimum Requirements for a MMM IPTN Emergency, Safety and Security Plan

The scope of the proposed plan is as follows:

- The plan should include a comprehensive evaluation of threats and vulnerabilities using realistic scenarios, and categorise these according to magnitude of risk and suitable response measures.
- It must prioritise threats and plan for the creation of sufficient preparedness in order to ensure that required resources are mobilised and distributed appropriately and timeously. The evaluation must reflect the variation in threat levels and protection requirements at different locations along the network.
- It must also set goals and performance indicators, which will be used in continuous assessment of risk against the state of readiness and the associated funding and training priorities.
- The plan should include a security and emergency preparedness program (SEPP) which will bring together many of the system's existing activities, integrating them into an overall security and preparedness effort, rather than a disparate set of technologies and procedures.
- The plan will recommend an institutional arrangement that promotes integration between different departments to enhance the smooth implementation of preparedness and response programmes, in a way that is commensurate with the MMM IPTN system's resources and capabilities.

Figure 16-1: IPTN Planning Framework



All critical departments involved has to be familiarised with the plan, in order to expedite disaster response by avoiding confusion, delays or redundant response efforts. The programme must therefore be easy to integrate and coordinate with existing city, provincial and national emergency planning efforts and operations plans.

- The plan must set out procedures to gather, package, and disseminate accurate and timely information to the passengers or public throughout a crisis.
- The MMM IPTN Project Management Team, together with the designated members of the MMM Task Team, as well as other relevant Departments and functions such as the Metropolitan Police Department, Emergency Management Services (EMS), Roads, Legal will supply the necessary expertise to compile the Plan.
- Due to the nature of the relevant safety and security issues, the Metro Police will, in all probability take the lead in this activity. The Project Management Team will provide technical, logistical and management support.

The critical components of a safety and security plan are shown in Error! Reference source not found..

17 Business Plan and Institutionalisation

17.1 Introduction

This chapter deals with an outline of the concepts and principles that underpin the business structure for the Mangaung IPTN and in particular the IPTN system, its business structure and the institutionalization of the system. In turn it provides the basis of the Business Model that facilitates a quantification of the system as a whole.

The Business Model's main goal is to make business sense of the project from an overarching point of view. It comprises a series of sub-models that are integrated in such a way that it ensures a unified quantification tool.

The intent of the business model is therefore to quantify various scenarios, each representing a specific set of circumstances, variables and characteristics or time period. Accordingly, through the quantified outcome of a set of alternative strategies that can be followed, it informs decision making towards the most optimum solution and the impact of various alternative options that can be followed.

The chapter is structured in two sections. Firstly, the Business Plan is outlined, providing the principles, concepts and policy measures (to be adopted by Council), followed by the development and application of the Business model.

- Key components of the Business Plan
- The Institutional structure
- Compensation to the Industry
- Financial considerations within the Business Plan
- Technical and Operational considerations within the Business Plan
- The Business Model as a quantification tool of the Business Plan

17.2 Key Components of the Business Plan

As a point of reference, a brief description is provided of key components of the Business Plan, including associated definitions and terminology that relate to the business structure.

i. IPTN as basis for the IPTN System

The IPTN system for Mangaung will be determined by the outcome of the IPTN. The IPTN as approved by the City, and the process followed to develop the IPTN will be the sole mechanism to decide which and what public transport services may be undertaken by what mode, one of which is the IPTN system.

The planning process to establish the IPTN system may inform (influence the IPTN process, but ultimately may not introduce service and route network other than in accordance with the approved IPTN.

ii. Business Model and associated sub-models

The business model reflects a quantified representation or simulation of a particular situation by means of a pre-determined format, may it be in a quantified, visual or written text format, i.e. a scenario indicating a specific combination of variables. For example, a specific volume of passengers with different origins and destinations, transported by means of a specified vehicle fleet combination, on a specific network of routes and stations and/or transfer facilities; at a specific fare value, at a specific date or a specific time period. The outcome of the model will reflect quantified costs, revenues and operational statistics.

The business model is presented through the computation by means of an Excel spreadsheet application or other such applications; a drawing or map showing measurements and other quantities or a diagrammatical representation; or it could be a written text description. Various sub-models are defined as part if the Mangaung Business Model, reflecting the following: -

- Passenger demand (OD matrices)
- Zone system and zonal distances
- Route and stations network
- Scheduled services
- Fleet Plan
- Taxi vehicle removals
- Compensation Model (to the Industry)

- Fare Revenue
- Operational costing
- Infrastructure cost
- Total budget
- Funding Model

iii. The Conceptual Plan

Based on the outcome of repetitive applications of the Business Model, the Business Plan would provide detail of a chosen strategy, supported by a set of detailed actions to achieve a specific result. The conceptual plan is therefore a high order approach, generalising a specific strategy but without the detailed actions that would follow once the concept has been adopted as a policy. It rather focuses on the concept than the detailed actions.

To illustrate, the Operational Plan for Mangaung to be approved by Council and submitted to NDOT, may be based on an operational concept where, for example, most IPTN stations are situated on the sides of the road rather than the middle; with operations based on no major transfer areas along the routes, apart from strategically positioned stations where smaller vehicles would transfer passengers to bigger buses. No taxis are allowed to operate directly parallel to the IPTN routes and all passengers are transferred to the IPTN system at the network of stations. Other competing taxi services may compete with the IPTN system but using adjacent routes outside a specified range from the IPTN routes.

This Operational Concept will be supported with detailed action plans, maps, etc. describing a network of routes and positions where stations and major transfer points are situated. The Compensation model will therefore be based on the quantified loss of business volume (net loss in profits) by the taxi industry; whilst a negotiated fare system is introduced with rationalized taxi fares and a specific set of IPTN fares.

As a potential alternative business and operational concept, the IPTN operational component is excluded entirely and the IPTN infrastructure is made available to the taxi industry for a specific period, say 5 to 7 years. During this period the taxi services are allowed to use the infrastructure only under pre-determined regulatory measures, and only those taxis that comply to these prescriptions would be allowed, but in which case these measures will also benefit the complying taxis such that it would provide a competitive advantage over those that do not comply. At the end of this prescribed period the entire operational concept will be reviewed and it may then include a IPTN operational concept.

This alternative business concept will present a totally different compensation dispensation as no business values are materially affected and as such no compensation is paid, that is until the expiry date of the prescribed period.

iv. Business Plan

The Business Plan builds onto the conceptual plan and represents a set of strategic action plans that would apply to all individual components of the project. It is based on a set of business principles and adopted policy measures, sometimes negotiated principles and sometimes prescribed City policy; all of which have one objective in mind namely to ensure business sense to prevail in the comprehensive overarching project.

The Business Model (as defined in (i), is essentially an integrated quantifying tool attempting to put value to the Business Plan. It comprises all sub-models in one unit, i.e. an Excel spreadsheet with a series of individual sheets, based on the principles and concepts of the Business Plan. It is not a separate model in the format of the above set of models (see i), but rather an integrated that relate to each other.

For example, the demand model and the fare model will use the same zone model continuously. The zone model is created once as a sub-model on the same Excel File, perhaps in one separate sheet; and is used by all other sub-models in the same file by means of the Excel referencing system. Different people in the team can be responsible for different sub-models, but all of which will be compiled within the same set of business “rules”.

v. Scenarios

Scenarios represent alternative combinations of different variables, each defined in accordance with the adopted conceptual outline (as in (ii) above; and as computed in the respective sub-models. Each scenario would reflect a different approach, principles or a set of input values in terms of business concepts, operations, providing infrastructure, fare values etc.

vi. Compensation Model as component of the Business Model

From the above definitions, it indicates that the “Business Plan” is used as a collective terminology for a number of sub-models of which the “Compensation Model” is but one; and which can not exist and operate independently. The inputs used in one model also apply to other models and the outputs of the one may become inputs to another. Furthermore, input variables to these models are subject to accuracy and provision from external sources and industry research, which in turn are influenced by other project circumstances and available budget.

The Mangaung Business Plan emphasizes that a “custom made” business model for the City is developed, representing its own unique circumstances and demands. However, it is important to recognize that a custom made business model for Mangaung, and its compensation model, can only be provided once a comprehensive set of well researched market data is available.

vii. Data Base

A custom made business model for Mangaung emphasized the importance of the data base. To date, the data that has been used for the Operational Plan (as presented in this report) had to rely on low key research from existing data sets supported with ad hoc new research. The process however awaits the outcome of the much more intensive market research – in particular the outcome of on-board surveys, supported by household surveys.

The detailed, extensive data base that is still to be obtained refers predominantly to the results of the taxi surveys that is immanent to start and which results is expected by the middle of 2017. The same applies to the bus surveys which are expected to be reported by the end of 2016.

viii. Operational Plan

To allow the custom made business model to be compiled, a detailed outline of the Operational Plan is required where crucial information is processed in a format acceptable the custom made business model; which in turn is dependent on the above mentioned surveys results).

It is possible to design a preliminary custom-made Business Model using preliminary Operations Plan detail, but then some assumptions have to be made about important principles that need to be negotiated and agreed with the Taxi and Bus Industries.

ix. Scenarios and dominating determinants

The nature of the Business Model, based on alternative Business and operational concepts and its outcome, would be affected by a number of alternative approaches, strategies and policy directives that could be adopted. The IPTN could take a number of directions, all of which is subject to the outcome of the items listed below, namely – inter alia: -

- The future available budget from Treasury/NDOT and the City combined (it would for example determine the choice in the two conceptual examples in (ii) above)
- The outcome of the Demand Model, which in turn is mainly dependent on the existing taxi and bus demand
- The Operational Plan that would be designed accordingly, but for which various options can be designed.
- The principles upon which the above is based, to be negotiated and upon which the Industry Transition process will happen

The above main determinants are elaborated below.

a. Extent of Business Model based on variations of Budget availability

A. **Scenario A:** The budget allocation from NDOT (including the allocation from the City) may be too low to allow for both proper extensive infrastructure development AND a substantial operating cost budget to contract a IPTN Bus Operating Contract and/or a Stations Contractor, apart from other service contracts such as an EMV or another automated fare system. This may apply when the allocation from Treasury is less than R1 000 million over a 5-year period (average R200 m per annum). In this case it would be advisable that the Mangaung IPTN would only provide appropriate infrastructure for an indefinite (permanent) period, during which the Industry (bus and taxi) is allowed under controlled measures to use these facilities and provide the existing services. Essentially they would use the exclusive bus lanes and stations for parts of all the routes they serve currently and the City would merely exercise strict access control over the use of these facilities. A Compensation Budget (and Model), IPTN fare system etc. is then not necessary. The Business Model will then mainly consist of a Financial Model that controls and reports the capital expenditure for completion of the infrastructure plan, and internal budget control, whilst the industry transition process would mainly focus on the regulatory control and normalization of the legal status of the taxi industry, elimination the “non-complying elements” of the industry.

B. **Scenario B:** As an alternative to Scenario A, assuming the same budget allocation but perhaps a little more, the City develops all necessary infrastructure and when it is completed, say after 5 – 7 years, and only then initiate a IPTN Operational Plan that will include operating contracts for IPTN buses, stations and an electronic ticketing system. Also important is that a Compensation budget (and its model), and most other sub-models of the Business Model will only become applicable when these operational contracts are to be initiated, given a lead time of about two years prior to the services becoming operational. This scenario is therefore more an extended version of Scenario A.

C. **Scenario C:** Whenever the available budget is more than what is foreseen under scenarios A and B, then a variety of sub-scenarios can be defined depending on how much more budget is available, but in all cases the business model needs to be established imminently, which scenario is assumed to happen. Essentially it means that the more money is available the more the opportunity is created to allow both proper infrastructure development AND operational contracts for IPTN systems. In all of these cases all the sub-models of the Business Model will become necessary but the extent of the use of each will vary based on the extent of the additional budget.

b. Variations and extent of Operational Plan and Demand Model

The design and cost of the Business Model may change given the extent of the demand and accordingly the nature of the Operational Plan. It could be designed based on a number of options about how future completion along the IPTN corridors are approached, each that would affect the Industry and compensation to them. The business design may vary mainly in terms of either a **full competitive** or a **non-competitive** operating environment, all of which are subject to City policy decisions and the outcome of negotiations with the Industry:

D. **Scenario D:** A Full Competitive market environment would apply when the Industry is allowed to operate parallel to the IPTN system along the corridors where IPTN systems are created. Under this scenario taxi and conventional buses will not be allowed on the exclusive busways and stations (a standard IPTN characteristic), but they may operate on the roads adjacent to the IPTN routes. Alternatively, they may not be allowed to operate within a specific distance from the IPTN routes, say 500 meters from IPTN routes, but they may use parallel routes outside that distance range. The JHB IPTN-system is based on this approach.

E. **Scenario E:** A Non-Competitive market environment would apply, also referred to as “Full Clearance” of the market area, where no competitive services are allowed within a declared market area which is larger than just the 500m buffer area. For example, no alternative services (taxi and bus) are allowed within the demarcated CBD area and/or also the main IPTN corridor areas. It means that transfers are to be provided at strategic points where the taxis and conventional buses cannot go beyond. They may cross the FC area in a diagonal direction and transfer to the IPTN at specific points within the FC area. Alternatively, a combination of a FC-area and in some cases only a 500-meters clearance would apply. The Tshwane model is based on this scenario.

It is clear that differences in compensation to the industry would be applicable subject to the alternative scenarios that could be implemented. The choices between Scenarios D and E are again subject to City policy and negotiations with the Industry.

In the case of Scenario D, compensation will be determined by the loss of revenue taken over by the IPTN system. Two sub-scenarios could be defined: only a few operators are removed and compensated, as against ALL operators are compensated – each for a percentage of the business loss. Johannesburg opted for the first sub-option but it resulted to disagreement (and violence/loss of life) amongst operators (who would benefit and who not).

When Scenario E is applied the compensation is calculated based on other principles – also to be negotiated: Firstly, as seat-for-a seat principle is paramount to the extent of compensation to be paid. Therefore, the demand to be received by IPTN buses will be determined (Scheduling model) and the equivalent number of taxis to be removed will be based on that. Compensation will be calculated for the estimated business value of those taxi and bus vehicles to be removed. The on-board-survey results are essential to determine this value.

A number of other negotiable principles also become applicable such as agreements about the fare structure to ensure the commuters don’t pay more (fare model) and the split on fare revenues amongst the feeder service operators and the IPTN operator. Another major factor is the right to become a shareholder of the Vehicle Operating Company – and whether or not the City has any right to influence this.

The share value of the new company is also important, as is the question about whether “double-dipping” may happen if compensation is paid and at the same time the affected operators becoming shareholders expecting a specific return as shareholders in the new company, but at the same time they received compensation that was calculated as a form of loss of returns when they transfer the business to the IPTN company.

The above are but a few examples that illustrate the complexity of the business model and how each variation of what may happen could affect the structure and eventual outcome of the business model including the compensation values, which should also be aligned with what happens with future shareholding and its returns to its shareholders.

c. Principles underlying the Business Model and Compensation

In the preceding section the focus is on the need for negotiations with the Industry, given the obvious circumstances that the Business Model, and in particular the Compensation element, relates to negotiations with the Industry. This is also emphasized given the unavoidable situation that any act or format of Industry Transition will undoubtedly lead to a drastic turnaround (‘destabilization”) of the public transport industry within the metropolitan area. As such this process becomes a subject for extensive discussion by the Industry and negotiations.

To conclude: for reasons that are outlined in the previous section, it is recognized that the business model is a process, and not an exact formula which can be predicted at one point in time as part of a specific Operational Plan at a specific date.

The following business principles and policy measures are considered the corner stones of the Business Plan for the Mangaung ITPN:

- IPTN as basis for IPTN services
- Institutional framework
- Acquisition of current public transport business
- Principles underlying the Affected Operators and Compensation
- Financial Resources
- Fare Policy
- IPTN service provision and other operational considerations.
- IPTN infrastructure considerations
- The competitive environment and protection of that

17.3 The Institutional Structure

The institutional framework will provisionally comprise of the following functional elements that may become part of the institutional framework, but which structure may be reviewed once the process outlined below is completed:

A Project Management Unit (The following table illustrates the outcome of the Integrated Fare Module.

i. **MMM Business Unit (MMM-BU)** which would serve as a directorate of the City and that would undertake all responsibilities of the City in terms of the IPTN, including contract management of all service providers associated with the IPTN system.

ii. **The Vehicle Operating Company (VOC)** that will be responsible for all bus operations of the IPTN system under contract with the City, and which will be owned by the current taxi and bus operators which will be removed and compensated by the City for such removal and that will have the right to become shareholders of the VOC either within one corporate structure or as subsidiaries of a central corporate structure.

iii. **The Station Operating Company (SOC)** that will be responsible for all station operations of the IPTN system under contract with the City. The SOC may or may not have the same ownership as the VOC but is subject to negotiations with the City in this respect.

iv. **A Fare System Operator (FSO)** that will own and operate the fare system (Electronic Fare Collections system) under contract with the City. The FSO will not set the fares (fares are determined by the City) and will pay overall revenues from fares apart from the service fee that is negotiated.

v. **Other potential or alternative functions (potentially structures)** may include the following, subject to decisions on how and what responsibilities are allocated to the above structures:

vi. **A Fleet Manager** (own and taking care of the maintenance of the fleet). Given the strategic importance of the ownership and continuous access for the use of the prescribed fleet of buses, it may be decided that the buses may not be owned by the VOC, but the VOC may only operate the buses.

vii. **An Infrastructure Maintenance Manager** that will continuously maintain all assets and infrastructure associated with the IPTN system, including the multi-modal transfer stations, the on-route stations, the exclusive right of way, and the signage and other roadside furniture.

The following procedures and principles are applicable to conclude the Institutional Model

- It is based on the universal concept of "Forms-Follows-Functions"
- It is executed through Section 78 process, by means of the following actions
  - Defining the comprehensive functions to be performed as part of the IRPTN
  - Grouping of associated functions that should or could be executed within a particular unit. Alternative groupings may be defined
  - Determine and establish units or structures as basis for the organizational structure ("forms" or units)
  - Determination of whether it can be executed internally or externally (departmental or business unit)
  - Determine the implications of each and perform an assessment of the most preferred approach.
  - Establish the organisational structure and HR planning
  - Ultimately developing the SOP's

17.4 Financial considerations within the Business Plan

17.4.1 Financial Resources

The financial resources of the IPTN system are sourced from: -

- Allocations from Treasury
- Allocations from local City resources and
- Fare revenues from IPTN operations
- Marginal revenues may also be expected from advertising and other such secondary sources but it will always be minimal.
- Technically loan funding may also be considered a funding source, but in practice these loans all have to be serviced through the main sources of revenue listed above.

Conditions that are attached to the funding sources are important and will influence the extent to which these sources can be expected and exploited. For example, the Treasury allocations would be attached to performance levels such as the fare revenues must cover the variable costs of operations, etc. Capital grants will also be attached to the expected passenger volumes that can be served relative to the investment values.

17.4.2 Fare Policy

Given the importance of fare revenues as one source of income, a fare policy need to be formulated for the future IPTN system.

Generally, a target is set where the fares are set at a level that is below those of the taxi services currently, but marginally lower, say about 10%; and secondly higher than the current subsidised bus services, which is a type of service that is considered a lower quality than the IPTN system.

As a first general guide, the fare levels may therefore be set between these two parameters as an upper and lower limits, but also considering the conditions set by NDOT for cost coverage as indicated in the previous section. The final fare level is however a matter for debate and agreement and ultimately a policy decision by MMM, which then need to be channeled via that annual tariff setting procedures of the City.

17.5 Technical and Operational considerations within the Business Plan

17.5.1 Principles associated with IPTN Service Provision and other Operational Considerations

Business principles associated with IPTN service provision and operations include the following:

i. From a service provision point of view, the intent is that the IPTN system will become the backbone of the public transport system.
ii. Using the approved IPTN as the departure point for the IPTN system, current travel patterns will be the main - but not the only guide to format the grid system (route positioning).
iii. Accordingly, using the approved IPTN as main guide, a network grid of IPTN routes will be established as a basis for infrastructure provision, and upon which all current public transport services will either be integrated fully, or restructured to fit in with the IPTN network grid, or where necessary be replaced fully with new IPTN services by means of a negotiations and compensation process.
iv. The choice of whether a current legalized service (bus or taxi) is transformed to become a IPTN service, must be subjected to economic assessment (either by - or both the comprehensive business model and micro route assessments).
v. Previous studies have shown that taxi services, generally, are provided at a cost that is difficult to be outperformed by scheduled bus services, except along high density routes. Quality of service however remains an important consideration which must be considered as additional benefits of a scheduled IPTN service, in particular travel time, service frequency, safety matters and travel comfort, all of which will add cost to a scheduled IPTN service.
vi. With the above in mind, a standard thresh-hold will be established and followed as a guide: IPTN routes will serve as the main arterials (trunk liners) of the public transport system, with the current taxi and other bus services to feed to the main trunk lines. IPTN feeder routes must only be considered where high volumes prevail and/or where smaller vehicles particularly are to be avoided, such as the inner City distribution routes.
vii. Conventional bus services that are provided through the provincial contracts are to be restructured and transformed to IPTN contracts. The restructuring process will also be subjected to the negotiating and compensation process (the latter where necessary) and technical decisions need to be considered to establish how and where conventional bus services can integrate, link and/or transformed with IPTN services. The approach should not be merely to replace one full bus load with another.
viii. Transfers and transfer facilities: Linkages and transfers must make practical and economic sense, considering the design of IPTN buses that will not allow the use of that on some routes accessible by conventional buses.

The above issues are considered the main guiding principles that will underpin the required "business sense" to be entrenched into the business and operational concepts referred to in a previous section, see par. 17.2, item iii; as well as those principles that follow under 17.5.2 and 17.5.3.

17.5.2 Principles associated with IPTN Infrastructure

Business principles associated with IPTN Infrastructure include the following:

i. From a governance point of view, the provision of – and future maintenance and control over all public transport facilities and roadway infrastructure, is the responsibility of government in particular the City, supported by national and provincial programs. Any action that is required in this respect would either be provided internally by the City and/or by means of service contracts.
ii. No transport transfer facility will be governed by any operator and the use of such facilities will be regulated by the City and upon which a usage fee may be charged. Regulated use may be governed by means of permits, and/or operating licenses.
iii. The goal with the development of IPTN infrastructure is maximum potential use of current available road infrastructure and other public transport facilities.
iv. The objective is there for first to maximize the available capacity and customize and upgrade the available facilities (first priority) and then add additional capacity including specialized facilities that are required for IPTN use exclusively.
v. As a basic rule, no new lane acquisition must be considered prior to - or unless it is unavoidable or when the normal traffic growth justifies such lane additions. The main argument for this is that a IPTN system is supposed to develop use of higher capacity vehicles, less car and taxi vehicle travel and therefore less road space usage.
vi. In practice this objective is not necessarily always applicable because a reserved lane disallows the use of the space by other vehicles. The rule should therefore be applied with care and practical sense, especially where high congestion levels prevail.
vii. The approach in infrastructure development is a demand side approach, i.e. the establishment of infrastructure that is derived from the demand requirements. It is not a supply driven approach where it is expected that demand will follow the routes created by facilities that were positioned to suit what is best from an engineering point of view and thereby force the demand in an abnormal and non-natural pattern, unless the current demand driven patterns are impossible to follow or abnormally more expensive. Both market driven requirements and engineering requirements need to be considered, but with the priority on the first.

17.5.3 Protection of the Competitive Business Environment

The competitive environment and its protection is based on two main principles, namely regulated competition and dedicated law enforcement.

17.5.4 Regulated Competition

i. The preferred policy approach is that routes where the IPTN system operates will be protected from competition, i.e. no other competing services will be allowed along these routes by either conventional bus or taxi services. It is referred to as “Clear-the-Corridor”, or “Full-Clearance (FC)”. This is to ensure full utilization of scare public resources, particularly the reserved lanes in congested areas, and the expensive scheduled services to operate on these routes.

ii. Exceptions can be made but only under extreme exceptional circumstances, such as where it makes no sense to transfer a full load from a conventional bus to a IPTN bus and as such create unnecessary discomfort to the passengers or where the IPTN service cannot reach the end destinations. In such exceptional cases the conventional bus will however not be allowed to use the dedicated IPTN lanes, unless such bus is contracted as a IPTN bus, but in which case the practical implications of use of IPTN stations must be considered.

iii. A FC-approach can only be applied where the IPTN network allows for accessing all market areas that are currently served by taxis and conventional buses. If not, these current services must be allowed to continue with such services.

iv. The general guide for competitive protection is 500 meters from any IPTN route, except where an area wide FC-area is declared (through by-laws). Such areas may be any size but would comprise a practical corridor service area or an area of high congestion. The CBD is a typical candidate for an area wide FC-approach, but only if a full CBD network IPTN service is provided to secure full market coverage.

v. The definition of FC-protection means that no competition is allowed in the same general direction of passenger flow, but diagonal cross-cutting services will be allowed which is not in the same direction as the IPTN service. These crossing points may be regulated as well, and would typically be at positions where IPTN stations are provided. As such transfer facilities (lay-byes) and holding areas for taxis must be provided.

vi. The most important requirement for a FC-regulated approach is that transfer areas are provided at strategic points. These transfer areas would comprise either of the stations along the route, major transfer areas where feeder and collection services link with the trunk arterial, as well as lay-byes along the routes at diagonal crossing points.

17.5.5 Law enforcement

i. A regulated environment also requires law enforcement. Accordingly, current law enforcement strategies need to be revised to ensure that:

- Dedicated IPTN lanes and station loading areas are not used by any other road user
- FC-areas are not accessed by competing operators
- All other operators comply to all regulated measures and in particular roadworthiness, Operating Licenses, general road traffic licenses and other traffic regulations.

ii. A dedicated law enforcement component need to be established that will focus on public transport particularly.

iii. Current by-laws will be revised to make provision for the revision of the regulated environment

17.6 The Business Model as quantification tool of the Business Plan

17.6.1 The high level outline of the methodology and procedures for the business model

The high level outline of the methodology and procedures for the business model is discussed under the following headings:

- Components of Business/Finance Planning
- Main Objectives
- Sub-models of Business and Financial Plans
- Institutional Model
- Business Assessment Model
- Funding Model
- Budgeting Model
- Model Illustrations

The business plan and the financial plan overlaps to some extent and are discussed as part of an integral modelling process that interacts with the other work streams of the project.

The main objectives of the business model are to support the City in the establishment of -

- An overarching IPTN business and financial framework
- Mechanisms and structures to ensure the IPTN makes sound business sense from an institutional and financial point of view to support long-term sustainability
- Financial mechanisms unique to IPTN systems as part of the standard City financial mechanisms and systems

The main components of Business Plan are:

- The Institutional Model
- The Business Model

The Financial Model in turn comprises two sub-models

- Funding Model
- Budgeting Model

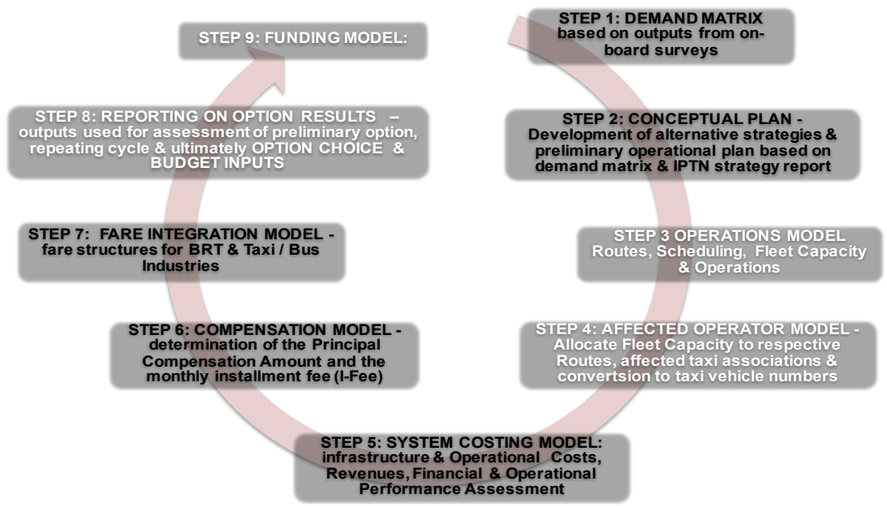
17.6.2 High level outline of Business Model

The aim and departure point of the Business Model is:

- It quantifies the IPTN in terms of financial and operational parameters (operational costs, fare structures and revenues, compensation values and performance indicators)
- It relies on inputs from other work streams such as infrastructure, systems, operations and ITS
- Preliminary estimates are refined as the system is developed, which refinement is through assessment cycles where updated and more accurate information becomes available. This is one reason why the Business Model is considered a process.
- It is used to assess operational strategies and options (corridors, routes, frequencies, fleet composition, fare structures, etc.)
- It forms the basis to inform the budget and recommendations for decision making in terms of fare structures, compensation values, fleet size and quantities and system design in general.
- It relies extensively on continuous interaction with other affected parties and work streams to ensure system optimisation, using outputs from Business Assessment Model, in particular Industry Transition and Systems design

The main components and cycle of the Business Model are illustrated by the following diagram, supported by illustrations of the model outputs in example tables further on.

Figure 17-1: Main Components and Cycle of the Business Model



17.7 Outputs of the Business and Financial Planning Models

17.7.1 Demand Module: O/D Matrix

i. The demand module's final output is in a form of an "Origin-Destination Matrix" (OD-Matrix); i.e. a table that defines names of trip origins and destinations respectively, with a value (passenger demand) for each individual combination of origins and destinations.
ii. The value may represent any time format but usually represents total passengers per day between two points, i.e. average daily total passenger trip volumes. Often the passenger volume is also expressed in peak-hour format for capacity planning purposes. For financial and compensation determination purposes, the daily total or annual passenger volumes are used as standard format. An averaging and upscaling approach is not recommended as is generally used in technical traffic planning.
iii. Data is sourced from existing demand model outputs or, in the absence of that or if it is outdated, the planning and execution of new market research, mainly by means of surveys and in particular household surveys, on-board surveys, the application of mathematical algorithms and eventually the establishment of a current day demand model.
iv. Series of other traffic surveys are usually also required to support other traffic planning as part of the overarching network planning.
v. Other techniques such as the application of an EMME model can be used but is often found too coarse for the purposes of operational bus scheduling and the determination of compensation values applicable to the affected operators. The EMME modelling approach proved to be counterproductive in most of the other City's IPTN projects.
vi. For operational planning, route networks etc. areas are defined in logical commuter zones, preferably the same as the standard planning zones of the City but not necessarily the same depending on the circumstances presented by current public transport characteristics

17.7.2 Fare Revenue Model

Similar to the OD-matrix, a fare revenue table is developed to represent total fare revenues. The values are the product of a fare table (fare values for a single trip between any two given origins and destinations) and the total demand table (OD matrix).

The process to develop the fare system, as is referred to in 17.2, 15.2, 17.4.25.3 and; is a separate process and requires a dedicated program of action prior to the date when new IPTN services are introduced., and at least it should be programmed in time for the annual general tariff setting process of the MMM.

18 Industry Transformation

18.1 Purpose of Industry Transformation

The MMM IPTN Services will be introduced on corridors that are already serviced by buses and mini-bus taxis. These road-based public transport operators operating within the jurisdiction of the MMM who will be affected by the introduction of MMM's IPTN Services are referred to as 'Affected Operators'. MMM is therefore seeking to replace these Affected Operators with the new system. This makes it imperative for MMM to have a clear policy, approach and strategy on how these Affected Operators will be consulted, involved and included in the negotiations for the process of introducing the MMM IPTN System. This is referred to as the 'Industry Transition' process. The focus of Industry Transformation is therefore to facilitate a procedure for the bus and mini-bus taxi services on these corridors to be replaced by the MMM IPTN Services.

The Affected Operators, whose legal rights may be affected by the new MMM IPTN Services, will have the option to surrender their operating licences and operating vehicles in return for compensation and/or participation as shareholders in the vehicle operating company (VOC). The VOC, discussed in further detail in chapters 18 (*Legal and Compliance*) and 19 (*Business Structure and Institutional*), will be entity contracted by the MMM to operate and provide the IPTN Services.

The success of MMM's IPTN Services is largely dependent on sufficient numbers of people using the service. To be effective, including maximising passenger uptake and thereby maximising revenue, the business model requires that as many as possible of the existing bus and mini-bus taxi services on the routes affected by the IPTN services are directly replaced by MMM's IPTN Services. For this to be achieved, some, but preferably all of the existing bus and mini-bus taxi operations on these routes will need to cease operating. The effective

The successful consultations and negotiations with all confirmed stakeholders in the MMM are therefore a critical pillar to the successful achievement of the planning and implementation of MMM's IPTN and its sustainability.

18.2 Legal Basis for Industry Transformation

The rationale for Industry Transformation and the engagement undertaken with the bus and mini-bus taxi industries by the MMM is provided for in national legislation and policy documents, as well as in strategic understandings, specifically:

a) The National Land Transport Act No.5 of 2009 (NLTA), which enables contracting authorities to enter into negotiated contracts with operators in their area with a view to, inter alia, integrating services forming part of integrated public transport networks in terms of their integrated transport plans;
b) The Public Transport Action Plan (PTAP), which provides policy directives on the required rethink of public transport contracts through negotiations with existing operators and labour (especially the mini-bus taxi sector), with the mini-bus taxi industry becoming part of the integrated public transport arrangements;
c) The Integrated Transport Sector Codes in terms of the Broad Based Black Economic Empowerment Act No.53 of 2003, as amended, which promote the transformation of the bus and coach sub-sector through the involvement of SMME operators and role-players (pending the coming into effect of the Amended Transport Sector Codes); and
d) Agreements concluded at national level between the Department of Transport and the taxi industry, which issued certain guarantees to the taxi industry on its involvement in IPTN systems, necessitating negotiations and agreement on a number of issues.

18.3 Approach to and Phases of Industry Transition

The strategy for industry transition comprises various phases and contracts to be negotiated. Figure 18-1 below illustrates the various phases of the Industry Transition process, including key outcomes:

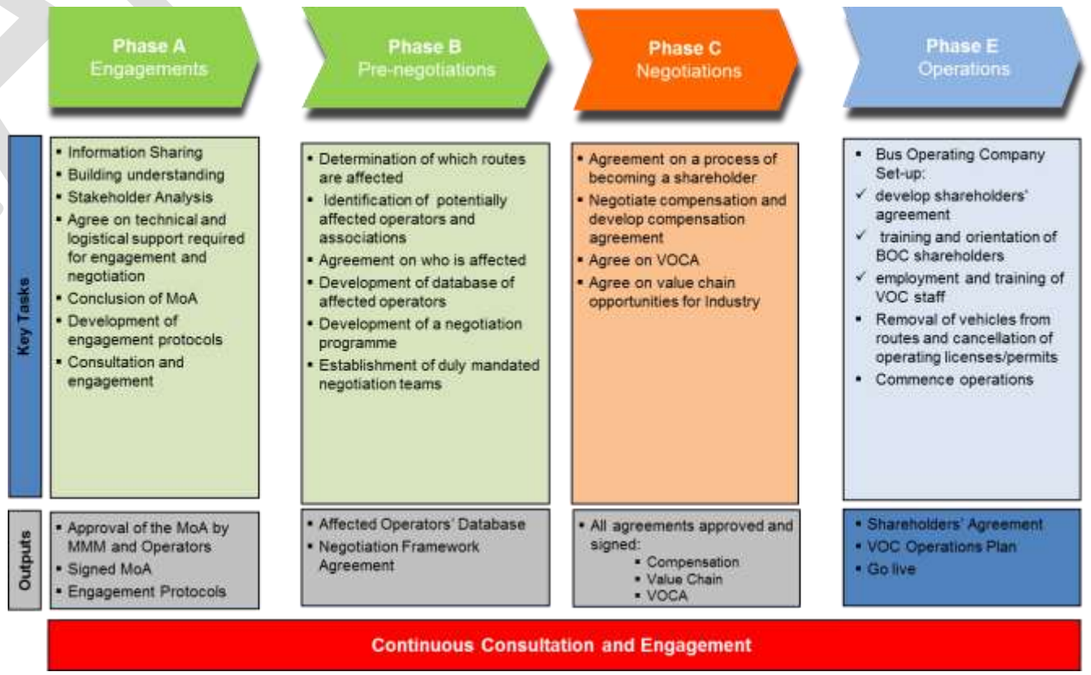


Figure 18-1: Phasing of the Industry Transition Process

The approach to the negotiations for the participation of the current public transport operators potentially affected by the introduction of city-contracted IPTN services is designed to be inclusive, to educate and inform all stakeholders and to

develop, as far as possible, a common support for the goals of the IPTN project. The conclusion of a memorandum of agreement (MOA) paves the way for this participatory approach to the process of planning and implementing the MMM IPTN project. MMM has negotiated and recently concluded an MOA with the Mangaung mini-bus taxi industry (MTI), which is the primary public transport stakeholder within MMM. The MOA has been concluded with the MTI which is primarily represented by the regional structure of the MMM mini-bus taxi industry (the Motheo District Taxi Council (MDTC)) and the three local taxi associations, namely the Bloemfontein Amalgamated Taxi Association (BATA), the Greater Bloemfontein Taxi Association (GBTA) and the Thaba Nchu Long and Short Taxi Association (THALSTA). The MTI is represented by the Mangaung District Taxi Council IPTN Steering Committee (MDTC SC), consisting of representatives of the leadership of the MDTC, the GBTA, the BATA and the THALSTA, which MDTC SC will represent the interests of the potentially affected associations and potentially affected operators in their deliberations and negotiations with the MMM in relation to the IPTN. The conclusion of the MOA marks an important milestone in the transformation of the mini-bus taxi industry and progressing of the planning of MMM's IPTN project, and an achievement of the desired outcomes of this initial phase of the engagement with the MTI.

The process of stakeholder analysis has commenced and the further key outcomes of the further phases of the Industry Transition process are outlined in Table 18-1 below:

Table 18-1: Outcomes of the Industry Transition Process

Pre-negotiation Phase
Key outcomes a) Confirmation of affected routes based on MMM's concept of operations. b) Information sharing and engagements with representative structures of the taxi and bus industries. c) Affected operators' database developed for Phase 1. d) Development of a negotiation programme and establishment of a duly mandated negotiation team e) Development of a compensation framework and underlying principles of MMM's compensation model, including reaching a preliminary agreement with the Industry on the compensation model.
Negotiation Phase
Key outcomes a) Negotiations with Affected Operators through their duly appointed representatives. b) Conclusion of agreements on the qualifying criteria for the compensation of Affected Operators, and the process for the determination of a business value. c) Negotiations and conclusion of compensation model and restraint of trade agreements, including agreement on the number of vehicles to be surrendered by affected operators that are specific to certain routes. d) Negotiations and conclusion of agreements on the process for removal of vehicles. e) Development of an employment framework that will lead to the conclusion of an employment framework agreement. f) Negotiations and conclusion of agreement on the process of eligibility to becoming a shareholder in the VOC. g) Negotiations and conclusion of agreement regarding the process for determination of equity contribution required from shareholders and funding required for shareholder investment.
Operations phase
Key outcomes a) Development of financial and administrative support systems to implement and manage the compensation processes. b) Reskilling and training of the industry employees affected by the MMM IPTN Service and who would want to apply for positions in the various opportunities within the MMM IPTN Service. c) Confirmation of shareholding in the VOC by the Affected Operators and conclusion of a shareholders' agreement. d) Appointment of board of directors and key management team of the VOC. e) Development of a VOC operational and management plan. f) Removal of vehicles from routes and cancellation or amendment of operating licenses or permits in terms of the compensation agreements. g) Commencement of operations. h) Monitoring and assessment of the transition process.

18.4 Negotiations

The industry transition process and the associated negotiations are structured and based on the MMM's proposed concept of operations and the business model. The overriding consideration is to ensure the inclusion of operators who may be directly affected by the introduction of MMM's IPTN services. This gives effect to the legal requirements in terms of the NLTA.

On the basis of this background, the MMM, by means of a contract with the VOC, will undertake the management of MMM's IPTN Services. Negotiations will be conducted with the Affected Operators for the 12-year vehicle operating company agreement (VOCA) once the process of identifying, validating and registration of such Affected Operators has been concluded.

The entities involved will thus be include:

a) The Contracting Authority, i.e. the MMM (through the appropriate mechanism/body as identified through the Section 78 investigation), will perform the service design and monitoring, the management and contracting function for MMM's IPTN service, and will manage contracted functions required for the seamless operation of the MMM IPTN network.
b) The VOC, owned and managed by Affected Operators, including mini-bus taxi and bus operators.

To the extent that the station and bus-stop services are contracted out to third parties (which may include the Affected Operators as part of the value chain opportunities), the Station Services Contractor would another entity with whom the MMM would contract, which contractor would be responsible for the following in respect to the stations and bus-stops: management, maintenance, cleaning and security. The precise business model to be followed is still to be developed.

19 Compensation Strategy

19.1 Compensation to the Industry

Compensation to the industry is discussed under the following headings:

- Acquisition of the current public transport business
- Principles underlying the Affected Operators and Compensation

19.1.1 Acquisition of the current public transport business

The IPTN network is not an additional public transport system providing services for a new market. It is a new alternative mode of transport **to take over current services for existing passenger demand** by means of a new technology (IPTN) under the provisions of the National Land Transport Act (NLTA). However, the NLTA provides for special measures that a once-off contract can be negotiated with the affected operators and also for compensation to these affected operators (see next sub-section).

As such the business plan will be the result of a negotiated process with the current operators to be identified (industry transition activities), and upon which the transfer of the market is based on a negotiated contract for the compensation of the loss of business. The negotiations are mandated and governed by conditions contained in the NLTA.

Important business principles associated with the acquisition process to be structured in a responsible way are the following:

- The identification of the affected operators;
- The associated compensation to be paid to the affected operators;
- The transfer of the business (services to the existing passenger demand) to a new operating entity to be established for this purpose
- The valuation of the new business entity and accordingly the determination of the share value of the new business entity.

Further important issues that relate to the share value of the new operating entity are the following:

- The question whether or not the new operating entity must be linked to the City in terms of ownership. A first automatic reaction could be negative given the national policy principle that public transport operations should be left to the private sector. Other reasons and counter arguments could be identified.
- However, there are two aspects that complicate the matter:
  - Firstly, the cost of acquisition (compensation) is funded from tax payers' money, through the Treasury allocation channeled via the NDOT and the MMM to the affected operators. This can be considered an "investment" by the state on behalf of tax payers into the newly formed operating company. Essentially, the City must therefore "sell" the VOC to the new shareholders at a reasonable and responsible price as it represents the tax paying public at large;
  - Two, associated with the above is the question about who the new shareholders should be and whether or not the affected operators would have the sole right to become shareholders, and then also at what price.
- Finally, the question whether or not there is any relationship between the cost of compensation (i.e. the value of acquisition of the current business), as against the value of the shares to be transferred to the new owners.

The above issues will be the main focus areas of the Industry Transition and Business work stream activities for the MMM IPTN.

19.2 Development of a compensation framework

The negotiated contract (which values are based on the outputs of the Compensation Model) makes provision for three basic options, listed below:

i. Full compensation for the current business value of the current services, and a subsequent restraint of trade condition to the compensated operators, in which case the operator exits the business environment completely; or alternatively
ii. Shareholding in the VOC at least equivalent to the lost business value, with a guaranteed financial return that will at least equal and preferably be better than the calculated return of the current operator of its existing business value immediately prior to the takeover of the business value.
iii. The affected operator would in practice have a third choice namely that he refuses to accept any of the two choices and remains intact with its current operations as legitimately allowed by an existing valid OLS. Should the operator however exercise that choice, then the operator is also subject to the validity period of the OLS, which is maximum 7-years, but renewable subject to the assessment of the City whether or not the need for such service still exists. With the introduction of IPTN services, an automatic renewal is not guaranteed.

The affected operator may then exercise any one of the above two or three choices. Should the full compensation choice be exercised (option i), the operator will forfeit the opportunity to become a shareholder of the VOC other than investing into the VOC at a value at least equivalent to the negotiated value in (i) above or most likely higher. The argument for the above is based on the argument that as a shareholder the expected return on the new dispensation is either the exact same value or more than the return on the current dispensation. If it is not the same or more, why would the current affected operator consider making a change to an environment that is strange, which is a risk factor.

In principle therefore the new business' share value should be more, argued as follows: In short it means that a particular business value is associated firstly with the operations of the current affected operators, and secondly it is associated with the value of the new dispensation, i.e. the business value of the IPTN system. It is generally accepted that the two values will be different and that the latter will be higher for reasons listed underneath.

i. The business value of the current taxi or bus service is relative to the estimated current turnover value for a particular period, say one year, **as well as** the expected business period of the current operating licenses. The latter in turn is partly dependent on current regulations in this regard, which is a period of 7 years for taxis and the contract period for bus services. Therefor the business value of a taxi is for example the estimated profit for one year (as calculated via on-board surveys and profit and loss research, negotiated and agreed) discounted over a 7-year period at a negotiated discount rate, generally accepted at this stage to be 10% per annum.
ii. Furthermore, the value of the new business under the VOC dispensation is valued at a 12-year period, which is derived from the provisions in the NLTA that provides for a once-off negotiated contract for the VOC of 12-years maximum. In practice, **the share value of the VOC becomes a negotiated value when the expected return to be guaranteed to the potential shareholder is agreed upon.**
iii. As a result, the contract value, negotiated and budgeted annually (to be a contract condition) will be governed by this principle and hence it is the main driving force to determine the share value of the VOC, **which shares may become tradable**.
iv. The net asset value of the VOC is also a factor with the IPTN bus fleet as the main asset. However, these buses will usually be acquired under loan conditions and the net asset value will be marginal as compare to the business return value under the operating contract.
v. As a result, the share value will be determined mainly by the potential to make profit in the new company (goodwill), which in turn will become a matter for negotiations as indicated above, i.e. the terms and conditions of the negotiated contract.
vi. In addition, the growth that can be expected under a IPTN system is likely to be higher than the potential growth of an individual taxi that is limited to its seat capacity of the taxi, mostly 15 seats for such vehicle. The growth potential of a 15-seater is relative to the size it can carry in peak conditions, whilst as a VOC shareholder under a stable shareholding dispensation, the business value can grow and buses can be added once the compensation dispensation is concluded.
vii. The shareholding within a VOC can be sold, whilst an OLS is not tradable.
viii. Finally, the business return as shareholder of the VOC is guaranteed, whilst there is no guarantee on the business value (as surveyed) of a current taxi operator.

The affected Operator Model comprises of two sub-models:

- The Fleet Allocation Module
- The Taxi Removal Module

19.2.1 Fleet Allocation Module

The fleet allocation module determines the vehicle fleet requirement per route, which is based on output from Scheduling Module. Through the application of the "Seat-for-a-seat Principle", the number of taxi vehicles to be withdrawn are determined. It means the number of taxis to be removed is based on respective seat capacity of IPTN buses and taxis respectively.

Furthermore, the IPTN route geographic characteristics determine which taxi routes are affected and accordingly from which taxi association the taxis must be withdrawn.

Table 19-1 illustrates the Fleet Allocation Module, which in turn provides the basis for the Taxi Removal Module.

Table 19-1: Fleet Allocation

SYSTEM ROUTE NETWORK	Vehicles in Operation	Vehicle Type	Carrying Capacity / Vehicle	Total Seat Capacity	% Split	Taxis Removed @ 15 cap
TOTALS	**69**		**83**	**5760**	**68,6%**	**384**
ROUTE 1	36	Rigid	80	2880	34%	192
	0	Artics	120	0	0%	0
ROUTE 2	0	Rigid	80	0	0%	0
	0	Artics	120	0	0%	0
ROUTE 3	27	Rigid	80	2160	26%	144
	6	Artics	120	720	9%	48

19.2.2 Taxi Removal Module

Taxi removal module is based on output from Fleet Allocation Module. The allocation of taxis to be removed per Association is indicated in Table 19-2 which is relative to Association volumes on the corridor; which is derived from on-board surveys and Association fleet size.

Table 19-2: Taxi Removal per Association

Association	Ass.1	Ass.2	Ass.3	Ass.4	Ass.5	Ass.6	Ass.7	Ass.8	Total
%OD Volume	3,0%	16,0%	6,8%	3,2%	24,8%	16,1%	8,9%	21,2%	100,0%
Taxis to be Removed @15	1,8%	22,0%	5,5%	2,8%	1,8%	25,7%	12,8%	27,5%	100,0%
384	2,9%	8,7%	7,4%	5,4%	28,3%	14,7%	11,8%	20,9%	100,0%
192	6	17	14	10	54	28	23	40	192
144	4	13	11	8	41	21	17	30	144
48	1	4	4	3	14	7	6	10	48

19.2.3 System Costing Model

19.2.3.1 Current Taxi Profitability Module

Profitability Module is based on taxi association profitability research executed as part of on-board surveys: operating costs (vehicle depreciation, overheads and direct variable costs), revenues (patronage and fare value). A similar costing exercise is performed for a simulated IPTN system. Table 19-3 illustrate an example of the main outputs of the Taxi Profitability Module

Table 19-3: Typical Output of the Taxi Profitability Module

TAXIS CURRENT DISPENSATION	
INPUT PARAMETERS	
Total Taxis Fleet	615
OD Totals	37378
Total km/Taxi/Day	165,2
Operating Live Kms/Taxi/Day	143,8
Total Passengers/Taxi/Day	93,8
Paying Passengers/Taxi/Day	89,7
Paying Passengers/Taxi/month	2306,6
Average Fare	R10,52
Daily Revenue/Turnover	R944
Average Monthly Income	R24 265

TAXIS CURRENT DISPENSATION	
FINANCIAL & PROFITABILITY ANALYSIS	
Average Operating Income/Day	R944
Average Operating Income/Month	R24 265
Cost of Operations/Month	R15 249
Operating Profit/Month exc. Salaries	R9 016
Driver Salaries	R5 000
Monthly Profit	R4 016
Annual Profit	R48 194
Profit % of Turnover	26,3%
Profit per Passenger	R1,74

19.2.3.2 Future Taxi Profitability Module

A similar costing exercise as performed above for the Taxi Industry on existing services is performed for future profitability exercises, but with- new input parameters:

- Revenue potentially reduced - lower fare value for trips still done and not transferred to IPTN, and/or shorter trip distances
- Similarly reduced operating costs
- Result: different profitability profile, most likely reduced profits

City is liable for financial losses as part of Compensation agreement when taxi buses is acquired for new IPTN system, based on the "*Better-off Principle*"

Table 19-4 illustrate an example of the main outputs of the Taxi Future Profitability Module

Table 19-4: Typical Main Outputs of the Taxi Profitability Module

POST BRT IMPLEMENTATION ANALYSIS	TOTAL
Passengers/month/taxi	2370
2nd New Direct Operating Costs	R10 832
2nd New Total Operating Cost	R15 890
2nd New Fare Revenue	R13 860
2nd New Monthly Profit	-R2 030
2nd New Profit per Passenger	-R0,86
Payment: Loss Incurred/Passenger	R2,60

TAXI INDUSTRY IMPLICATIONS	TOTAL
Estimated Passengers/month	1457550
Current Profit/Passenger	R1,74
Current Profit/Month	R2 536 137
City Compensation Instalment	R2,60
2nd New Profit per Passenger	*-R0,86*
Total New Profit/Passenger	R1,74
New Profit/Month	R2 536 137

19.2.4 Financial Model

The financial model comprises two sub-models, namely the funding model and the budgeting model. The output of the financial model is integrated in the Business Model. Note that the Funding and Budgeting Models are elaborated in detail under chapter **Error! Reference source not found.**.

19.2.4.1 Funding Model

The funding model focus is on the following:

- Interaction with NDoT for Annual Grants:
  - PTIS
  - PTNOG
- Motivating and determination of the City funding allocation
- Accordingly establish the comprehensive financial budget and allocations to expenditure items which in turn leads to:
  - Establishment of the Bus Funding Model
  - Fare System Funding Model and other areas
- Establishment of the fare policy and fare structures that will be applied within the IPTN system
- Other outputs of the Funding Model, together with those of the Business Assessment Model include:
  - Fare Revenues
  - Operating Costs
  - Infrastructure Expenditures
- Comprehensive Financial Reporting Model
- Outputs for Financial Cash Flow and Budgeting

19.2.5 Budgeting Model

The main activities of the budgeting model include:

- Structuring of City's Municipal Budget Vote
- Vote Numbers registered on City Accounting System
- Populate Budget Vote from IPTN Financial Plan Outputs
- Coordinate IPTN processes with City financial cycles and dates
- Inputs for City's annual tariff setting procedures
- Workshops with other work streams and City Departments
- Monitoring of budgeted and Actual expenditures and variances
- Financial reporting, affordability and fiscal impact assessment
- Support Acquisition processes
  - Buses
  - Fare System
  - ITS
  - Other

19.3 Integrated Fare Module

The following considerations are part of the Integrated Fare Module, followed by an illustrating table.

- The integrated fare system is based on the principle that when the IPTN system is introduced the commuters would not pay a higher total fare using both the new IPTN system and potentially also the current revised taxi system, resulting to potentially two trips, or only one of the two operations.
- A negotiated dispensation is required as the two fare systems are governed by each party separately (MMM for IPTN and TI for the taxi fares).
- Integrated fares are simulated as part of the Costing Model
- Compensation installment amounts are preferably applied per passenger transferred to IPTN system to ensure the City receives value for money.
- EMV or similar electronic fare collection mechanism is essential.

INTEGRATED FARE MODULE	ASSA	ASSB	ASSC	ASSD	ASSE	ASSF	ASSG	AVERAGE
Compensation Installment/ Pass	**R2,60**	**R2,60**	**R2,60**	**R2,60**	**R2,60**	**R2,60**	**R2,60**	**R2,60**
Taxi New Local Fare	**R6,00**	**R5,00**	**R5,00**	**R5,00**	**R6,50**	**R4,00**	**R7,00**	**R6,00**

19.4 Compensation Module

The following considerations apply to the Compensation Module, also taking note of principles in previous sections, followed by an illustration in Table 19-5:

- Compensation values are calculated per taxi vehicle and an estimate for entire taxi fleet (theoretical budget if all taxis accept and leave the industry)
- The assessment is based on taxi association profitability research executed as part of on-board surveys: operating costs (vehicle depreciation, overheads and direct variable costs), revenues (patronage and fare value)
- The net profit, discounted over a pre-determined period and discount rate determines the current business value and as such it becomes the basis of the compensation values per vehicle to be negotiated
- Therefore, the other main parameters and inputs that are applicable to the determination of the compensation values include the discount percentage, the period of lost business and the total taxi fleet size.

Table 19-5: Typical Output of the Compensation Module

COMPENSATION	ASSA	ASSB	ASSC	ASSD	ASSE	ASSF	ASSG	TotalAll
TaxiFleetSize	23	55	100	34	115	60	48	435
PERIOD	48,5	48,5	48,5	48,5	48,5	48,5	48,5	48,5
DISCOUNTRATE	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%
NPV/VEHICLE								
NPV:1Year	R55 281	R246 676	R28 878	R20 386	R23 912	R45 399	R15 064	R84 737
NPV:2Year	R105 537	R470 927	R55 130	R38 918	R45 649	R86 671	R28 758	R161 770
NPV:3Year	R151 224	R674 791	R78 996	R55 766	R65 411	R124 191	R41 208	R231 800
NPV:4Year	R192 757	R860 123	R100 692	R71 081	R83 376	R158 300	R52 525	R295 463
NPV:5Year	R230 515	R1 028 606	R120 415	R85 005	R99 707	R189 308	R62 814	R353 339
NPV:6Year	R264 840	R1 181 772	R138 346	R97 662	R114 554	R217 497	R72 167	R405 954
NPV:7Year	R296 044	R1 321 014	R154 646	R109 169	R128 052	R243 124	R80 670	R453 785
NPVALLVEH'S								
NPV:1Year	R1 271 463	R13 567 180	R2 887 800	R693 124	R2 749 880	R2 723 940	R723 072	R24 616 459
NPV:2Year	R2 427 351	R25 900 985	R5 513 000	R1 323 212	R5 249 635	R5 200 260	R1 380 384	R46 994 827
NPV:3Year	R3 478 152	R37 113 505	R7 899 600	R1 896 044	R7 522 265	R7 451 460	R1 977 984	R67 339 010
NPV:4Year	R4 433 411	R47 306 765	R10 069 200	R2 416 754	R9 588 240	R9 498 000	R2 521 200	R85 833 570
NPV:5Year	R5 301 845	R56 573 330	R12 041 500	R2 890 170	R11 466 305	R11 358 480	R3 015 072	R102 646 702
NPV:6Year	R6 091 320	R64 997 460	R13 834 600	R3 320 508	R13 173 710	R13 049 820	R3 464 016	R117 931 434
NPV:7Year	R6 809 012	R72 655 770	R15 464 600	R3 711 746	R14 725 980	R14 587 440	R3 872 160	R131 826 708

20 Legal and Compliance

20.1 Mandate

The main mandate of the Legal and Compliance Workstream in respect of the MMM IPTN is to:-

- provide legal advice and guidance to the other IPTN workstreams on legal issues impacting on and relevant to those workstreams;
- oversee and ensure compliance with the various legislative and policy requirements that underpins the implementation of the MMM IPTN depicted under clause 18.2 hereunder; and
- provide guidance and assistance with the development, drafting, finalisation, negotiations and implementation of the various IPTN Project related agreements, frameworks and principles referred to under paragraph 18.2 below.

20.2 Execution of Mandate

The following legislative and policy and other relevant requirements underpin the mandate of the Legal and Compliance workstream:

- National Government
  - Constitution of South Africa;
  - National Land Transport Act (NLTA);
  - National Road Traffic Act and Regulations;
  - Local Government: Municipal Systems Act;
  - Local Government: Municipal Finance Management Act;
  - Municipal Supply Chain Management Regulations
  - Division of Revenue Act (DoRA);
  - Public Transport Strategy & Action Plan; and
  - National Land Transport Strategic Framework.

A. Free State Provincial Government

  - Provincial Land Transport Framework.

B. Mangaung Metropolitan Municipality

  - MMM Policies and By Laws;
  - MMM Integrated Development Plan 2016/2019;
  - MMM Policies relevant to the implementation of its IPTN; and
  - MMM Integrated Transport Plan.

20.2.1 Execution of the Legal and Compliance mandate so far

The Legal and Compliance workstream has so far executed the following actions:

- MMM IPTN Governance Protocols

  Compiled a Governance Protocols Document and Council Submission Report for the approval and adoption thereof.
  The Council Submission Report is currently in the process of being dealt with in terms of MMM's committee system.

- Impartiality Declaration required in terms of section 13(1)(c) of the NLTA and Confidentiality and Non-Disclosure Agreements required for the IPTN Project

  Drafted the Impartiality Declaration required in terms of section 13(1)(c) of the NLTA and Confidentiality and Non-Disclosure Agreements required for the IPTN Project, as well as the Council Submission Report for the approval and adoption thereof.

The Council Submission Report is likewise currently in the process of being dealt with in terms of MMM's committee system.

- Appointment of Technical Advisers to the Taxi Industry

  Assisted with the drafting of the Terms of Reference required for the appointment of the Technical Advisers and compiled the draft agreement relevant to the appointment of the Technical Advisers.
  The agreement is currently in the process of being finalised with the signature thereof anticipated during December 2016.

- MOA with the Taxi Industry

  Assisted with the drafting and negotiations of the MOA with the Taxi Industry. The negotiations were finalised and the MOA signed by the parties on 12 October 2016.

- MOA with the bus industry (Interstate Bus lines)

  Compiled a draft MOA with the bus industry. MMM still needs to distribute the MOA to Interstate Bus lines for its comments.
  Negotiations on the MOA is expected to be finalised and the MOA signed by January 2017.
  Vehicle Operating Company Agreement (VOCA)

- The following actions were taken thus far in relation to the VOCA:
  - Drafting of VOCA.

  A draft VOCA has been developed which is currently in the process of being fine-tuned.
  A workshop was held with internal MMM role players to discuss the principles applicable contained in the draft VOCA and agree on the contents thereof. A further draft is currently being compiled for further internal discussions and finalisation.
  It is anticipated that the VOCA will be finalised internally by February 2017.

  - Compilation of SCM Deviation Report

  A draft SCM report has been compiled in terms of Regulation 36 of the Municipal Supply Chain Management Regulations for approval to deviate from the official tender processes and enter into a negotiated contract with the Affected Operators as provided for in section 41 of the NLT.
  The report is still to be finalised and channelled through MMM's SCM committee system. Final approval is expected in February 2017.

  - Compilation of Tri-Partite Agreement

  A draft Tri-Partite Agreement has been developed to be entered into between MMM, Affected Operators and Financiers to ensure a continued and uninterrupted bus operating service and continued payment mechanism to the Financiers in the case of cancellation of the VOCA. Comments from MMM internal stakeholders are currently awaited.
  The intention is to internally finalise this agreement simultaneous with the VOCA in February 2017.

- Investigation in terms of section 78 of the Local Government: Municipal Systems Act into the appropriate internal or external mechanism to implement the MMM IPTN

  Compiled a Council Submission Report to obtain approval to commence with the required section 78 Investigation. The report has since been approved by Council.
  Compiled the Terms of Reference for the appointment of an appropriate service provider to conduct the required investigation. MMM is in the process of appointing the service provider through its SCM processes.

Various tasks are still to be executed by the Legal and Compliance Workstream during the period leading up to the implementation of the MMM IPTN Project, most of which relate to Industry Transition and which could only commence once the MOA with the taxi industry has been signed. That has been signed on 12 October 2016.

The delay in finalising and signing of the MOA was mainly caused by protracted negotiations with the industry on the contents of the MOA and was further exacerbated by the August 2016 municipal elections.

As stated above though, the MOA has now been signed and the outstanding tasks depicted in paragraph 18.2.3 below can now be attended to.

Challenges were also experienced due to delays in obtaining certain Council and SCM related approvals, for example the approval of the MMM IPTN Governance Protocols, Impartiality Declaration and Confidentiality and Non-Disclosure Agreements and appointment of the section 78 service provider. The internal MMM stakeholders are collectively addressing this aspect in order to obtain the required approvals.

20.2.2 Anticipated Execution of the Legal and Compliance mandate in relation to outstanding IPTN related activities and tasks

During the balance of the 2016/17 financial year, the Legal Workstream will maintain the provision of legal assistance and guidance to the various MMM IPTN workstreams and MMM.

It will also provide further guidance and assistance in respect of the development, drafting, finalisation, negotiations and implementation of the agreements and documents listed below.

The extent of the documents to be finalised during the balance of this financial year will, however, to a greater or lesser extent depend on the progress made in respect of other MMM workstreams and more specifically, the Industry Transition Workstream.

As a result, some of the anticipated activities depicted below may roll over into the 2017/18 and 2018/19 financial years.

It is anticipated that the documents, agreements, frameworks and principles to be addressed will include the following:

- Appointment of an Industry Transition Secretariat;
- Appointment of Independent Facilitators;
- MOA with bus industry (Interstate Buslines);
- MMM/Industry Communications Protocols;
- Eligibility criteria for Affected Operators;
- Negotiations Framework Agreement;
- Value Chain Framework Agreement;
- Compensation Model;
- Financial Model, including proposed fee/km; and
- Vehicle Operating Company Agreement (VOCA).
- Tri-Partite Agreement between MMM, Affected Operators and Financiers to ensure a continued and uninterrupted bus operating service and continued payment mechanism to the Financiers in the case of cancellation of the VOCA:
- Section 78 Investigation into the appropriate mechanism to implement the MMM IPTN
- Mayoral, Council and SCM reports to ensure compliance with amongst others:-
  - section 33 of the MFMA in respect of the long term VOCA; and
  - Regulation 36 of the Municipal Supply Chain Management Regulations to enter into a negotiated contract provided for in section 41 of the NLT;
- Other Mayoral, Council and SCM reports to obtain approval of:-
  - the various documents, agreements, frameworks and principles agreed to between MMM and the taxi industry/Affected Operators; and
  - all other documents to be drafted on request by MMM that requires Mayoral, Council or SCM approvals.

21 Business Structure and Institutionalisation

21.1 Introduction

This chapter deals with an outline of the concepts and principles that underpin the business structure for the Mangaung IPTN and in particular the IPTN system, its business structure and the institutionalization of the system. In turn it provides the basis of the Business Model that facilitates a quantification of the system as a whole.

The Business Model's main goal is to make business sense of the project from an overarching point of view. It comprises a series of sub-models that are integrated in such a way that it ensures a unified quantification tool.

The intent of the business model is therefore to quantify various scenarios, each representing a specific set of circumstances, variables and characteristics or time period. Accordingly, through the quantified outcome of a set of alternative strategies that can be followed, it informs decision making towards the most optimum solution and the impact of various alternative options that can be followed.

The chapter is structured in two sections. Firstly, the Business Plan is outlined, providing the principles, concepts and policy measures (to be adopted by Council), followed by the development and application of the Business model.

- Key components of the Business Plan
- The Institutional structure
- Compensation to the Industry
- Financial considerations within the Business Plan
- Technical and Operational considerations within the Business Plan
- The Business Model as a quantification tool of the Business Plan

21.2 Key Components of the Business Plan

As a point of reference, a brief description is provided of key components of the Business Plan, including associated definitions and terminology that relate to the business structure.

21.2.1 IPTN as basis for the IPTN System

The IPTN system for Mangaung will be determined by the outcome of the IPTN. The IPTN as approved by the City, and the process followed to develop the IPTN will be the sole mechanism to decide which and what public transport services may be undertaken by what mode, one of which is the IPTN system.

The planning process to establish the IPTN system may inform (influence the IPTN process, but ultimately may not introduce service and route network other than in accordance with the approved IPTN.

21.2.2 Business Model and associated sub-models

The business model reflects a quantified representation or simulation of a particular situation by means of a pre-determined format, may it be in a quantified, visual or written text format, i.e. a scenario indicating a specific combination of variables. For example, a specific volume of passengers with different origins and destinations, transported by means of a specified vehicle fleet combination, on a specific network of routes and stations and/or transfer facilities; at a specific fare value, at a specific date or a specific time period. The outcome of the model will reflect quantified costs, revenues and operational statistics.

The business model is presented through the computation by means of an Excel spreadsheet application or other such applications; a drawing or map showing measurements and other quantities or a diagrammatical representation; or it could be a written text description. Various sub-models are defined as part if the Mangaung Business Model, reflecting the following:

- Passenger demand (OD matrices)
- Zone system and zonal distances
- Route and stations network
- Scheduled services
- Fleet Plan
- Taxi vehicle removals
- Compensation Model (to the Industry)
- Fare Revenue
- Operational costing
- Infrastructure cost
- Total budget
- Funding Model

21.2.2.1 The Conceptual Plan

Based on the outcome of repetitive applications of the Business Model, the Business Plan would provide detail of a chosen strategy, supported by a set of detailed actions to achieve a specific result. The conceptual plan is therefore a high order approach, generalising a specific strategy but without the detailed actions that would follow once the concept has been adopted as a policy. It rather focuses on the concept than the detailed actions.

To illustrate, the Operational Plan for Mangaung to be approved by Council and submitted to NDOT, may be based on an operational concept where, for example, most IPTN stations are situated on the sides of the road rather than the middle; with operations based on no major transfer areas along the routes, apart from strategically positioned stations where smaller vehicles would transfer passengers to bigger buses. No taxis are allowed to operate directly parallel to the IPTN routes and all passengers are transferred to the IPTN system at the network of stations. Other competing taxi services may compete with the IPTN system but using adjacent routes outside a specified range from the IPTN routes.

This Operational Concept will be supported with detailed action plans, maps, etc. describing a network of routes and positions where stations and major transfer points are situated. The Compensation model will therefore be based on the quantified loss of business volume (net loss in profits) by the taxi industry; whilst a negotiated fare system is introduced with rationalized taxi fares and a specific set of IPTN fares.

As a potential alternative business and operational concept, the IPTN operational component is excluded entirely and the IPTN infrastructure is made available to the taxi industry for a specific period, say 5 to 7 years. During this period the taxi services are allowed to use the infrastructure only under pre-determined regulatory measures, and only those taxis that comply to these prescriptions would be allowed, but in which case these measures will also benefit the complying taxis such that it would provide a competitive advantage over those that do not comply. At the end of this prescribed period the entire operational concept will be reviewed and it may then include an IPTN operational concept.

This alternative business concept will present a totally different compensation dispensation as no business values are materially affected and as such no compensation is paid, that is until the expiry date of the prescribed period.

21.2.2.2 Business Plan

The Business Plan builds onto the conceptual plan and represents a set of strategic action plans that would apply to all individual components of the project. It is based on a set of business principles and adopted policy measures, sometimes negotiated principles and sometimes prescribed City policy; all of which have one objective in mind namely to ensure business sense to prevail in the comprehensive overarching project.

The Business Model (as defined in (i), is essentially an integrated quantifying tool attempting to put value to the Business Plan. It comprises all sub-models in one unit, i.e. an Excel spreadsheet with a series of individual sheets, based on the principles and concepts of the Business Plan. It is not a separate model in the format of the above set of models (see i), but rather an integration that relate to each other.

For example, the demand model and the fare model will use the same zone model continuously. The zone model is created once as a sub-model on the same Excel File, perhaps in one separate sheet; and is used by all other sub-models in the same file by means of the Excel referencing system. Different people in the team can be responsible for different sub-models, but all of which will be compiled within the same set of business "*rules*".

21.2.2.3 Scenarios

Scenarios represent alternative combinations of different variables, each defined in accordance with the adopted conceptual outline (as in (ii) above; and as computed in the respective sub-models. Each scenario would reflect a different approach, principles or a set of input values in terms of business concepts, operations, providing infrastructure, fare values etc.

21.2.2.4 Compensation Model as component of the Business Model

From the above definitions, it indicates that the "Business Plan" is used as a collective terminology for a number of sub-models of which the "Compensation Model" is but one; and which can not exist and operate independently. The inputs used in one model also apply to other models and the outputs of the one may become inputs to another. Furthermore, input variables to these models are subject to accuracy and provision from external sources and industry research, which in turn are influenced by other project circumstances and available budget.

The Mangaung Business Plan emphasizes that a "custom made" business model for the City is developed, representing its own unique circumstances and demands. However, it is important to recognize that **a custom made business model**

for Mangaung, and its compensation model, can only be provided once a comprehensive set of well researched market data is available.

21.2.2.5 Data Base

A custom made business model for Mangaung emphasized the importance of the data base. To date, the data that has been used for the Operational Plan (as presented in this report) had to rely on low key research from existing data sets supported with ad hoc new research. The process however awaits the outcome of the much more intensive market research – in particular the outcome of on-board surveys, supported by household surveys.

The detailed, extensive data base that is still to be obtained refers predominantly to the results of the taxi surveys that is immanent to start and which results is expected by the middle of 2017. The same applies to the bus surveys which are expected to be reported by the end of 2016.

21.2.2.6 Operational Plan

To allow the custom made business model to be compiled, a detailed outline of the Operational Plan is required where crucial information is processed in a format acceptable the custom made business model; which in turn is dependent on the above mentioned surveys results).

It is possible to design a **preliminary** custom-made Business Model using preliminary Operations Plan detail, but then some assumptions have to be made about important principles that need to be negotiated and agreed with the Taxi and Bus Industries.

21.2.2.7 Scenarios and dominating determinants

The nature of the Business Model, based on alternative Business and operational concepts and its outcome, would be affected by a number of alternative approaches, strategies and policy directives that could be adopted. The IPTN could take a number of directions, all of which is subject to the outcome of the items listed below, namely – inter alia:

- The future available budget from Treasury/NDOT and the City combined (it would for example determine the choice in the two conceptual examples in (ii) above)
- The outcome of the Demand Model, which in turn is mainly dependent on the existing taxi and bus demand
- The Operational Plan that would be designed accordingly, but for which various options can be designed.
- The principles upon which the above is based, to be negotiated and upon which the Industry Transition process will happen

The above main determinants are elaborated below.

a) Extent of Business Model based on variations of Budget availability

- **Scenario A:** The budget allocation from NDOT (including the allocation from the City) may be too low to allow for both proper extensive infrastructure development AND a substantial operating cost budget to contract a IPTN Bus Operating Contract and/or a Stations Contractor, apart from other service contracts such as an EMV or another automated fare system. This may apply when the allocation from Treasury is less than R1 000 million over a 5-year period (average R200 m per annum). In this case it would be advisable that the Mangaung IPTN would only provide appropriate infrastructure for an indefinite (permanent) period, during which the Industry (bus and taxi) is allowed under controlled measures to use these facilities and provide the existing services. Essentially they would use the exclusive bus lanes and stations for parts of all the routes they serve currently and the City would merely exercise strict access control over the use of these facilities. A Compensation Budget (and Model), IPTN fare system etc. is then not necessary. The Business Model will then mainly consist of a Financial Model that controls and reports the capital expenditure for completion of the infrastructure plan, and internal budget control, whilst the industry transition process would mainly focus on the regulatory control and normalization of the legal status of the taxi industry, elimination the “non-complying elements” of the industry.
- **Scenario B:** As an alternative to Scenario A, assuming the same budget allocation but perhaps a little more, the City develops all necessary infrastructure and when it is completed, say after 5 – 7 years, and only then initiate a IPTN Operational Plan that will include operating contracts for IPTN buses, stations and an electronic ticketing system. Also important is that a Compensation budget (and its model), and most other sub-models of the Business Model will only become applicable when these operational contracts are to be initiated, given a lead time of about two years prior to the services becoming operational. This scenario is therefore more an extended version of Scenario A.
- **Scenario C:** Whenever the available budget is more than what is foreseen under scenarios A and B, then a variety of sub-scenarios can be defined depending on how much more budget is available, but in all cases the business model needs to be established imminently, which scenario is assumed to happen. Essentially it means that the more money is available the more the opportunity is created to allow both proper infrastructure development AND operational contracts for IPTN systems. In all of these cases all the sub-models of the Business Model will become necessary but the extent of the use of each will vary based on the extent of the additional budget.

b) Variations and extent of Operational Plan and Demand Model

- The design and cost of the Business Model may change given the extent of the demand and accordingly the nature of the Operational Plan. It could be designed based on a number of options about how future completion along the IPTN corridors are approached, each that would affect the Industry and compensation to them. The business design may vary mainly in terms of either a **full competitive** or a **non-competitive** operating environment, all of which are subject to City policy decisions and the outcome of negotiations with the Industry:
- **Scenario D:** A Full Competitive market environment would apply when the Industry is allowed to operate parallel to the IPTN system along the corridors where IPTN systems are created. Under this scenario taxi and conventional buses will not be allowed on the exclusive busways and stations (a standard IPTN characteristic), but they may operate on the roads adjacent to the IPTN routes. Alternatively, they may not be allowed to operate within a specific distance from the IPTN routes, say 500 meters from IPTN routes, but they may use parallel routes outside that distance range. The JHB IPTN-system is based on this approach.
- **Scenario E:** A Non-Competitive market environment would apply, also referred to as “Full Clearance” of the market area, where no competitive services are allowed within a declared market area which is larger than just the 500m buffer area. For example, no alternative services (taxi and bus) are allowed within the demarcated CBD area and/or also the main IPTN corridor areas. It means that transfers are to be provided at strategic points where the taxis and conventional buses cannot go beyond. They may cross the FC area in a diagonal direction and transfer to the IPTN at specific points within the FC area. Alternatively, a combination of a FC-area and in some cases only a 500-meters clearance would apply. The Tshwane model is based on this scenario.
- It is clear that differences in compensation to the industry would be applicable subject to the alternative scenarios that could be implemented. The choices between Scenarios D and E are again subject to City policy and negotiations with the Industry.
- In the case of Scenario D, compensation will be determined by the loss of revenue taken over by the IPTN system. Two sub-scenarios could be defined: only a few operators are removed and compensated, as against ALL operators are compensated – each for a percentage of the business loss. Johannesburg opted for the first sub-option but it resulted to disagreement (and violence/loss of life) amongst operators (who would benefit and who not).
- When Scenario E is applied the compensation is calculated based on other principles – also to be negotiated: Firstly, as seat-for-a seat principle is paramount to the extent of compensation to be paid. Therefore, the demand to be received by IPTN buses will be determined (Scheduling model) and the equivalent number of taxis to be removed will be based on that. Compensation will be calculated for the estimated business value of those taxi and bus vehicles to be removed. The on-board-survey results are essential to determine this value.
- A number of other negotiable principles also become applicable such as agreements about the fare structure to ensure the commuters don’t pay more (fare model) and the split on fare revenues amongst the feeder service operators and the IPTN operator. Another major factor is the right to become a shareholder of the Vehicle Operating Company – and whether or not the City has any right to influence this.
- The share value of the new company is also important, as is the question about whether “double-dipping” may happen if compensation is paid and at the same time the affected operators becoming shareholders expecting a specific return as shareholders in the new company, but at the same time they received compensation that was calculated as a form of loss of returns when they transfer the business to the IPTN company.
- The above are but a few examples that illustrate the complexity of the business model and how each variation of what may happen could affect the structure and eventual outcome of the business model including the compensation values, which should also be aligned with what happens with future shareholding and its returns to its shareholders.

c) Principles underlying the Business Model and Compensation

- In the preceding section the focus is on the need for negotiations with the Industry, given the obvious circumstances that the Business Model, and in particular the Compensation element, relates to negotiations with the Industry. This is also emphasized given the unavoidable situation that any act or format of Industry Transition will undoubtedly lead to a drastic turnaround ('destabilization") of the public transport industry within the metropolitan area. As such this process becomes a subject for extensive discussion by the Industry and negotiations.
- To conclude: for reasons that are outlined in the previous section, it is recognized that the business model is a process, and not an exact formula which can be predicted at one point in time as part of a specific Operational Plan at a specific date.
- The following business principles and policy measures are considered the corner stones of the Business Plan for the Mangaung ITPN:
  - IPTN as basis for IPTN services
  - Institutional framework
  - Acquisition of current public transport business
  - Principles underlying the Affected Operators and Compensation
  - Financial Resources
  - Fare Policy
  - IPTN service provision and other operational considerations.
  - IPTN infrastructure considerations
  - The competitive environment and protection thereof.

21.3 The Institutional Structure

The institutional framework will provisionally comprise of the following functional elements that may become part of the institutional framework, but which structure may be reviewed once the process outlined below is completed:

A Project Management Unit (The following table illustrates the outcome of the Integrated Fare Module.

i. **MMM Business Unit (MMM-BU)** which would serve as a directorate of the City and that would undertake all responsibilities of the City in terms of the IPTN, including contract management of all service providers associated with the IPTN system.

ii. **The Vehicle Operating Company (VOC)** that will be responsible for all bus operations of the IPTN system under contract with the City, and which will be owned by the current taxi and bus operators which will be removed and compensated by the City for such removal and that will have the right to become shareholders of the VOC either within one corporate structure or as subsidiaries of a central corporate structure.

iii. **The Station Operating Company (SOC)** that will be responsible for all station operations of the IPTN system under contract with the City. The SOC may or may not have the same ownership as the VOC but is subject to negotiations with the City in this respect.

iv. **A Fare System Operator (FSO)** that will own and operate the fare system (Electronic Fare Collections system) under contract with the City. The FSO will not set the fares (fares are determined by the City) and will pay over all revenues from fares apart from the service fee that is negotiated.

v. **Other potential or alternative functions (potentially structures)** may include the following, subject to decisions on how and what responsibilities are allocated to the above structures:
   - **A Fleet Manager** (own and taking care of the maintenance of the fleet). Given the strategic importance of the ownership and continuous access for the use of the prescribed fleet of buses, it may be decided that the buses may not be owned by the VOC, but the VOC may only operate the buses.
   - **An Infrastructure Maintenance Manager** that will continuously maintain all assets and infrastructure associated with the IPTN system, including the multi-modal transfer stations, the on-route stations, the exclusive right of way, and the signage and other roadside furniture.

The following procedures and principles are applicable to conclude the Institutional Model

- It is based on the universal concept of "Forms-Follows-Functions"
- It is executed through Section 78 process, by means of the following actions
- Defining the comprehensive functions to be performed as part of the IRPTN
- Grouping of associated functions that should or could be executed within a particular unit. Alternative groupings may be defined
- Determine and establish units or structures as basis for the organizational structure ("forms" or units)
- Determination of whether it can be executed internally or externally (departmental or business unit)
- Determine the implications of each and perform an assessment of the most preferred approach.
- Establish the organisational structure and HR planning
- Ultimately developing the SOP's

21.4 Stations Management Strategy

Stations are an important and essential element of the MMM IPTN system as they represent major system access points from suburban feeder and complementary routes to the higher volume, higher frequency trunk route configuration that makes the MMM IPTN system unique. The station management strategy aims to maximise the positive impact of a much more formalised public transport system on its customers making use of the system through the enhancement of passenger comfort, safety aspects, and ease of access to the system via its stops and stations, and the supporting integrated NMT environment.

Stations and buses can be regarded as the face of the IPTN system as it is on this front that passengers will most probably experience an initial contact with the system that could leave a lasting first impression with any individual, and may well make the difference between a passenger becoming a regular user or opting for a more accessible alternative.

Station management requirements are driven by the design of the concept of operations where access controlled stations, at which fare gates control access to a paid area before boarding, are positioned in areas with high volume passenger movement. Although these stations will be situated on the left hand side of the dual roadways in laybys, boarding and alighting will be enhanced through the availability of two level-boarding doors on the left side of the bus to facilitate fast boarding and alighting. This type of station will be situated at both ends of the trunk route. All other stations on the trunk route will be uncontrolled and unstaffed with fare control when boarding a bus. Passengers will enjoy level access and shelter from the elements, and will have full access to up-to-date static passenger information.

Although a final decision on detail still has to be taken by the MMM, it is envisaged that the Station Management function will be outsourced to a supplier owned by the taxi industry through a negotiated contract as part the value chain opportunities emanating from the introduction of the MMM IPTN services, and to limited job losses as far as possible, while still adhering to the entrenched value for money principle and maintaining service quality. The services rendered by the Station Management Company will include the operational staffing of the access controlled stations with two marshalls responsible for passenger liaison, movement control and limited fare evasion monitoring, and a round-the-clock security officer. Cleaning at all stations will be supplied by a roving team and a roving mobile team will augment the on-station security services at Access Controlled Stations with adequate communication to the Control Centre. A maintenance team will be on hand to see to the proper maintenance of the stations. Station Management supervision will be supplied by a roving supervisor.

Uncontrolled Access Stations are not staffed, but are included in the CCTV coverage, roving security, and cleaning and maintenance functions contracted to the station management company.

Open stations will be of modular design and could be replaced by more formalised access controlled stations should future demand warrant.

The performance of the station management company will be measured against a Service Level Agreement as part of the responsibilities of the Operations function of the MMM IPTN Business Unit.

Station operational times will commence 30 minutes prior to the commencement of bus services on any given day and will continue up to the time when the last bus has departed from a station. At this stage, 2 shifts of 8 hours per day are envisaged for the initial phases of implementation. The operational time may be extended in future subject to market requirements. Staff numbers and the cost of providing the services at stations are based on this assumption.

The Station Management Strategy is not confined to the actual station, but includes the broader station precinct. This encompasses the beautification of the area, the cleanliness and general safety of the precincts around stations.

The safety of staff and passengers alike is of paramount importance to the MMM IPTN system, as negative perceptions could harm the credibility of the system as a whole. The station management strategy will ensure safety at stations, further

enhanced by integrated NMT design and roving security teams to react to incidents and possible threats. Limited CCTV coverage of stations is also made available to enhance security.

Since stations will be the first points of contact for the majority of the users, staff at stations must therefore be trained to act as ambassadors of the city and the IPTN system. MMM and relevant contractor staff must be friendly, helpful, and be able to provide timely and correct information to commuters at all times. The operation and maintenance of the fare gates and ITS equipment and systems on stations will be shared between the contracted station management and the AFC and APTMS contractors responsible for equipment maintenance. Downtime of fare collection equipment for any reason must be minimised in order to facilitate the operational efficiency of the system as a whole. This applies equally to the station doors where the buses dock. Large capacity UPS support is planned for controlled access stations with a target of 8 hours of operation after the power supply is lost.

The station area is also a point of information through static displays, assistance from station staff and various on-line and smart phone applications.

Station design will accommodate the docking of all vehicles utilised in the IPTN system to ensure efficiency of various operating options and flexibility to allow for service and fare integration.

Optic cable sleeves will be laid when roadways and stations are constructed to allow for future requirements for the improvement to the quality of service delivery to passengers that would entail the increased use of more sophisticated equipment.

The proper functioning and upkeep of the station precinct and approach NMT infrastructure is recognised as a key requirement for the continued effective operation of the A RE YENG as a whole.

21.5 MMM Operations Control Centre Strategy

The Control Centre is at the heart of the daily MMM IPTN service operations and is key to the monitoring, co-ordination and control of the IPTN services delivered by a number of contractors to ensure the attainment of a high level of synergy from the interdependent components of the MMM IPTN Concept of Operations.

The ability of the MMM to monitor services being rendered by the Vehicle Operating Company (VOC) and the Station Management Company (SMC) in real-time is critical to the seamless and efficient functioning of the IPTN system. The MMM is responsible for the design and scheduling of the services and makes timetables to be operated by the VOC available on a weekly basis. A Bus Controller monitors the VOC's adherence to these timetables on a real-time basis with the support of the global positioning component of the APTMS. The Bus Controller has effective control over a bus driver actively operating a scheduled bus to ensure the seamless operation of the entire system. Real-time monitoring of station activity is executed in the Control Centre with the support of CCTV cameras at stations and direct communications with staff at access controlled stations and other MMM and VOC supervisory staff.

The monitoring functions of the Bus and Station Controllers on duty in the Control Centre while services are being operated are supported by a mobile Supervisor on the IPTN routes monitoring passenger demand fluctuations and incidents that may impact of services or passenger safety.

The main ITS subsystems are the Advanced Transport Management System (APTMS) and the Automated Fare Collection System (AFC), as well as the communication lines, servers, systems and equipment linking the individual system components to form an efficient operating support network. Service efficiency and quick decisions driven by the constant availability of critical current operating information, emanating from the Control Centre and the APTMS, is critical for the effective utilisation and optimisation of high-cost human resources and expensive assets such as buses. Operations success is thus heavily reliant upon the functionality of all ITS equipment and systems.

Given the responsibility of the MMM as Contracting Authority to manage and co-ordinate of all functions related to the operation and management of the MMM IPTN service delivery, the Control Centre supports this responsibility by:

- Real-time management and monitoring of the contracted bus services operated by the Bus Operating Company (VOC);
- Real-time controlling of bus drivers when they are operating in the IPTN contracted service environment to ensure network service integrity and service predictability;
- Relaying salient information received from bus drivers, stations, VOC management and on-route inspectors and supervisors to MMM Business Unit Management and stakeholders based on a communication matrix;
- Real-time management and monitoring of contracted station management functions through direct communications with station staff and CCTV imagery available in the Control Centre;
- Monitoring of Automated Fare Collection functionality and performance and the reporting of any malfunction and location of the malfunction to the AFC maintenance contractor for prompt action;
- Monitoring of APTMS equipment functionality and performance and the reporting of any malfunction and location of the malfunction to the APTMS helpdesk situated in the Control Centre for prompt action;
- Monitoring of various safety and security functions, irrespective of whether these services are supplied by the MMM or contractors such as station management and the VOC;
- Real-time recording and coordination of incidents and accidents, including crises notices and action required by Metro Police, SAPS, MMM, VOC and station management;
- Instruction to drivers and the VOC regarding special service requirements such as temporary route deviations or alternative service arrangements;
- Authorisation of ad hoc additional trips by the VOC when necessary;
- Monitoring of equipment functionality;
- Assistance to Call Centre when required;
- Keeping record of all incidents and service deviations to allow the Control centre Supervisor to disseminate the information for action by relevant stakeholders; and
- Service deviations and incidents recorded by the Controllers may be used to levy penalties on contractors in respect of service deviations in accordance with SLA stipulations.

The Control Centre is a part of the MMM Business Unit Operations functionality. The functions required from the Control Centre have been streamlined in the design of the IPTN Concept of Operations to include only functions critical to the efficient functioning of the IPTN system.

Staffing is reduced to two Bus/Station Controllers per shift while services are operating who will be responsible to monitor real-time bus movements, station activity and security issues, keep record of incidents and communicate as required with various stakeholders as and when required. The Control Centre will consist of normal office space equipped to be able to render the services required. One of 4 workstations will be reserved for the ITS maintenance contractor responsible for manning the help desk and attend to the ITS equipment in the adjacent server room when necessary to ensure minimum downtime. Connectivity with the MMM camera surveillance unit will be established to ensure the integration of available information and minimum duplication.

21.6 MMM Business Unit Strategy

The finalisation of a Section 78 process, in compliance with the Municipal Systems Act 32 0f 2000, is required to allow the MMM Council to make a final decision regarding the most effective structure to utilise to operate and manage the IPTN services and its responsibilities as Contracting Authority as envisaged in the NLTA. An IPTN Business Unit is the mechanism most frequently used by cities to manage and operate its IPTN system.

Most cities are unable to reach the cost-covering targets set in the DoRA funding motivation guidelines. Due to increasing funding constraints, cities, and especially smaller municipalities are finding it difficult to generate sufficient additional funding to cover these operating losses. It is thus imperative that a municipality creates internal capacity to be able to operate IPTN services at maximum efficiency and to reduce the reliance on consultants to execute operational duties after the commissioning of IPTN services.

A proposed Business Unit structure that will be able to fulfil its obligations and also cater for the creation of much-needed internal capacity is costed into the operating expenses of the IPTN services. The structure could also be adapted to include possible later functions such as the extension of the responsibilities of the MMM to include the issue of operating licenses and its role as Contracting Authority having to monitor services over a wider operating platform. It stands to reason that the structuring of a Business Unit, even if its structure is limited to execute only those tasks required to ensure effective functioning, will result in an initial relative cost contribution that could seem high for the first tranche of services to be rolled out. This effect is unfortunately unavoidable for the first phase rollout due to limited funding curtailing the ability of the MMM to implement a more sustainable operation.

The cost of executing a number of critical functions is allocated to the operating expenses of the business Unit as the structure in which all IPTN functions are to be executed. For the first phase rollout these include: (% of total remuneration and overheads of ± R20 million per annum)

- The fare collection and revenue control component - 16% of total Business Unit operating cost
- Control Centre and Management of operations - 25% of total Business Unit operating cost
- Customer Care - 12% of total Business Unit operating cost
- Total overhead cost - 11% of total Business Unit operating cost

64% of the total Business Unit operating expenses are thus allocated to the four critical components above. Additional to the three critical functional components above, provision has to be made for:

- Financial accounting and control
- Asset management
- Budgets and budget control
- Office Administration
- Provision is also made for an HOD/Executive Director to head up the IPTN
- ITS management, maintenance control, and network and data management

The operating cost of the Business Unit remains practically static when the second phase of services is implemented, while the bus fleet increases by 73% and daily passengers transported increase by 14 350 or 90%.

It is unlikely that the functions that need to be executed by the MMM Business Unit could be effectively transferred to other existing MMM departments due to the specialised nature of the IPTN operations and the hands-on management environment that needs to be sustained when working with specialised contractors and passengers with daily specialised travel and fare-related problems involving a banking partner that require immediate solving. The unit needs to operate with a skilled and specialised management team working in close relationship with the existing departments of the MMM.

The following functions are proposed to remain with existing MMM departments:

- The IPTN will utilise the services of the existing MMM Call Centre
- MMM pay points will be utilised to augment third-part vendor card sales and top-ups. The MMM pay point services should be extended to include a cashier in the Customer Care Centre
- The MMM IPTN Business Unit will make use of existing MMM HR and IR services, only making available HR information such as leave, overtime, etc for MMM HR to process
- MMM Marketing and Communications could remain responsible for Branding and integrated marketing functions while the MMM Business Unit should concentrate on customer service-related information, communication through social media and complaint resolution
- The MMM IPTN Business Unit could make use of the existing MMM website extended to also include the IPTN services
- The roadway maintenance function should remain with the existing MMM structures

The current views regarding the ideal structure of a Business Unit that can effectively manage the IPTN service network will be revised according to the decisions taken by Council after the completion of the required Section 78 process.

21.7 Fare System

21.7.1 Overview

A MMM IPTN Fare Strategy and Fare Policy is still to be developed and approved by Council to guide and provide the framework within which the fare structure could be finalised, approved and implemented.

A number of variables need to be taken into consideration with the development of a fare strategy and policy for the Mangaung Metropolitan Municipality IPTN services for approval by Council before implementation. In the broader South African context, the setting of fares is influenced by:

- the socio-economic profile of the area;
- the cost of providing the services, coupled to an acceptable fare box cost coverage;
- current fares charged by existing operators; and
- political priorities.

The departure point for a fare strategy is the determination of a technical fare, which is a theoretical exercise providing a basis for understanding the cost of the investment versus potential demand. This would give an indication of whether the proposed system is viable and sustainable and whether further subsidisation would be required to fund the level of service provision stipulated by the MMM.

The envisaged MMM IPTN services will serve different socio-economic segments of the market and will eventually carry passengers on trips varying widely in terms of distance travelled. An equitable fare policy and strategy should make provision for an acceptable cost-coverage ratio on both, long distance routes such as Thaba'Nchu and Botshabelo and the relatively short routes originating in the densely populated south-eastern quadrant where the first of the intended phased IPTN service rollouts will operate from.

Long distance fares are normally higher than short distance fares. The relative cost per kilometre for short distance fares is however usually substantially higher than fares charged on long distance routes. The Current fares charged for comparable services rendered by bus and taxi operators will be used as guidelines when determining the MMM IPTN service fares. IPTN fares should not exceed existing fares charged by the current taxi operators that carry at least 90% of passengers currently making use of public transport in the area from where the first phase IPTN services will operate.

A fare policy and strategy will be developed to cover the entire MMM IPTN service network and should not be influenced by phased implementation tranches. Possible short-term revenue shortfalls in the inception phase should therefore not have an impact on the proposed fare structure to the detriment of the full IPTN system.

The fare policy will address any fare concessions the MMM would wish to implement in terms of support for the reaching of priority socio-economic and political goals. Such fare concessions may include fare concessions in respect of the following:

- Special rates for learners/students
- Special rates for pensioners
- Special rates for other selected classes of passengers
- Discounts designed to entice passenger demand to shift form peak to off peak hours to maximise the effective use of the bus fleet

21.7.2 Mandate of the Contracting Authority

In the case of the MMM the city will be the contracting authority and therefore:

- The MMM's responsibility in terms of the NLTA is to set fares. Chapter 2, section 11 of the NLTA, addresses the responsibilities of the municipal sphere of government, which include:
- In the case of gross contracts for subsidised services, determining fare structures and fare levels and periodically adjusting fares after publishing the proposed adjustment for public comment; and
- Determining concessionary fares for special categories of passengers in the prescribed manner.

These responsibilities will also extend to future phases of the IPTN. Accordingly, a process will be initiated to develop a fare policy and structure for the MMM IPTN system, which will be executed in three phases. A comprehensive report will be drawn up for Council approval. The three stages will comprise:

- Fare status quo
- Fare policy
- Fare structure

It is intended that the approved document should enable service implementation as scheduled according to an approved go-live network-phasing programme that has not as yet been finalised.

21.7.3 Status Quo of Current Fare System

The current profile of public transport fares within the MMM jurisdiction will be the departure point for the development of a comprehensive fare policy and structure for the MMM's IPTN system.

- Interstate Bus lines, the existing bus operator, is contracted by the Free State Province to deliver specific services within the MMM jurisdiction. They apply a zonally, staged fare structure with an element of distance. This means that the operator splits the total route distance into fare zones. Fares charged are then based on the cost to the operator for serving that zone. The provincial contracts are based on a subsidy payment per kilometre over and above the fare value received from a passenger. The subsidy only applies to multiple journeys purchased by a

passenger. Single fare journeys are not subsidised. Fares vary based on origin and destination but are currently in the same region as the intended IPTN fare for a comparable journey.

- The minibus-taxi associations apply a flat cash fare per corridor, and in most cases the CBD is the main destination. It was observed that the CBD is also a major transfer point to other taxis serving the destination leg of the trip. These taxi-taxi transfers result in two fares to be paid by the commuter, one for each leg of the trip. The current fare is set at R10.00 per trip.
- Rail commuter transport is currently not a factor to consider in the short to medium-term as the rail services operating into the MMM area are designed as freight services. Although the PRASA options are reputedly under investigation, it is unlikely that passenger numbers would support the massive investment required to restructure rail services.
- The private car usage is limited form the areas of origin for the first phases of the IPTN service rollouts.

21.7.4 Fare Policy

Following the analysis of the status quo, a fare policy will be developed to inform fare structures, fare levels and application. It will be designed to be applicable to the first phased rollout and to remain valid into the future IPTN environment.

A fare policy takes into account policy directives of the national and provincial spheres of government, such as the national regulations on automated fare collection systems and the provincial Integrated Fare Management System Framework. In addition, the fare structure needs to be designed to assist the longer-distance passengers by ensuring that the shorter-distance passengers cross-subsidised them to a certain extent.

A fare policy is a fare structure methodology that optimises fare revenues, efficient revenue collection, affordability and public transport integration. Goals, objectives and strategies will then developed.

The main policy principles that govern an IPTN fare strategy are:

- The fare structure should support the principle of containing urban sprawl, while at the same time support contradictory policy principles such as providing affordable transport to low-income displaced communities;
- The fare structure should ensure system financial sustainability within budget constraints;
- The principle of cross-subsidisation is unavoidable in terms of concessionary user groups, long- and short-distance passengers, and socio-economic differentiation;
- The fare structure should recognise discounted fares for regular users and allow fare variations to motivate the achievement of goals such as optimum demand patterns during specific times of the day, including a shift of peak demand to off-peak services;
- Revision and annual increases of the fare structure should be based on a transparent process, inclusive of public participation; and
- To support the national policy directive that fare levels should be benchmarked against existing minibus-taxi fares.

21.7.5 MMM IPTN Fare Structure

Two factors are important in setting fare levels:

- The DoRA conditions that apply to the utilisation of the PTIS Grant state, inter alia, the following:
- "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 operational costs consist of fuel, labour, operator administration and vehicle maintenance."
- Proposed fares are to be in line with current minibus taxi fares, according to national policy directives.

The fare currently charged per mode per area varies substantially, and reflects very little integration, also lacking a common basis and clear interrelationships. Operators largely set fares charged to passengers with little influence from the cities or the provincial and national authorities. Collectively, it points to the need for a common authority to set the fare levels within the framework of an approved fare policy developed by the MMM, supported by a fare structure. The fare structure consists of all the elements that must be in place to achieve an acceptable balance between affordability to the user and sustainability of the system, inclusive of the following main elements:

- Fare structure (includes fare type, concessionary fares and fare levels);
- Fare media (includes fare payment instruments); and
- Fare rules (transfers, penalties, park and ride, and policy guidance).

It should be noted that the implementation of concessionary fares further increases the pressure on the already limited funding base. A decision on the source of funding to cover the discounts allowed through travel concessions should accompany the decision to introduce travel concessions. The following concessionary fares are options open to the MMM and are in place in various combinations at various cities.

- People older than 65 years are entitled to a 20% discount on all trips when travelling during the off-peak and over weekends. No discount will be applicable during peak period travel.
- Children under the age of 3 years travel free of charge on all services, provided that they are accompanied by an adult and do not take up additional seat capacity.
- Scholars and students are entitled to a 20% discount on all trips.
- People with disabilities usually do not receive travel concessions and do not wish to be treated differently to other passengers.
- Discounts are also to be considered for the purchase of bulk travel value loaded onto a card at any one time, usually in stratified multiples of a single fare.

Fare rules are usually introduced to integrate different services, operators and modes. The rules are to be defined as they are important to guide how the actual fares will be determined, taking into account transfers, validity periods and fare increases. Transfers during a particular trip refer to the time-period the system will allow a passenger to transfer from one service to another without having to purchase another trip. A free transfer window of 30 to 60 minutes is fairly standard depending on service distances and transfer options.

Fare increases will be included in the normal budgetary process of the MMM and would be subject to publication by the MMM to allow citizens to comment on the proposed fares. Although fares, usually approved by Council as part of the annual MMM budgetary process, still have to be approved together with the approval of this Operations Plan, all budget submissions based on the approved MMM IPTN concept of operations have already been based on a fixed amount flat fare-box income of R8.00 per passenger trip for the first phase of implementation. There will be no charge for travel into the CBD beyond the multimodal facility if a passenger had already purchased a trip from a residential area and have to transfer to another vehicle to reach such specific CBD destination. Current services rendered by taxi operators in the south-eastern quadrant are also based on flat fares irrespective of travelling distance for each trip undertaken. Bus fares vary for different destinations and currently subsidised through provincial contracts (PTOG).

The flat fare at current value utilised in the costing of the initial services is a net amount of R8.00 per trip, plus a limited amount (R0.50) to cover commissions and loading fees. A fare of R8,50 would thus result in an amount of R8.00 being earned by the MMM per passenger trip. Current taxi fares are set at R10.00 per trip and bus fares vary between fares slightly lower and fares higher than the proposed flat rate fare.

As the MMM will not make provision for top-ups at stations, a provision should be made for the payment of commission to vendors undertaking the top-ups for the MMM IPTN service cards to augment the inadequate commission made available by banks. Reliance on the banking partner to establish an adequate network of vendors has largely failed in other cities, as their commissions are inadequate to entice vendors to participate. An amount of ± 5% per trip as well as the availability of dispensing equipment is envisaged. It is also proposed that the MMM considers carrying the loading fee currently set at 2,5% or R1.50 per load event, whichever is highest on loads of not fewer than 10 trips. The cost of this concession should also be carried in the fare structure that may raise the actual flat fare charged to the passengers by a relatively small amount.

The initial fare system will be based on a simple EMV flat fare system. The system can be expanded to include distance-based fares and a points system when required for longer routes in future and could also be adapted to accommodate fare integration with other modes of transport.

22 Financial

22.1 Introduction

This chapter summarises the budgeted cost and financing of Phase 1 and 2 of the Mangaung Metropolitan Municipality Integrated Passenger Transport Network (IPTN) system. While costs include both the envisaged costs of planning, designing, building and implementing the system as well as running it, the chapter also addresses the expected indicative ongoing, recurrent costs of running the system through a twelve (12) year Financial Operational Plan. The planning, design, build and implementation costs have and will continue to be covered almost entirely from national grant funding discussed

further under 22.3 and to a degree are more predictable and certain. However the financing of ongoing operations post implementation will be from a combination of fare and other system revenue, national grants and the MMM's own general revenues. Operating costs and revenues are much more uncertain, entail ongoing commitments, and have substantial risks associated with them largely due to the difficulty in predicting revenue and variable costs over a longer term and the restriction on the extent to which ancillary operating costs may be covered by grant funding. These risks need to be carefully understood and managed by the MMM.

22.2 Summary of Costs

From a financial perspective, the broad cost components of the MMM IPTN System can be broadly categorised and distinguished as follows:

- The costs arising from designing and planning, building and implementing the system, including compensation of existing operators. These are grouped together since they are once-off costs, although in accounting terms they include both capital and operating costs.
- The cost of the key contracted service providers for running public transport operations, including the Vehicle Operating Company (VOC), the Station Services Contractor (including Law Enforcement) and the Fare System Operations/Maintenance. These are all recurrent operating costs paid to external service providers.
- The cost of managing the MMM IPTN System operations (including the Control Centre, Quality Management and the Automated Fare Collection (AFC) System) within MMM, as well as the associated marketing costs. These are also operating costs that are directly related to the MMM IPTN System operations, but are incurred within the MMM rather than paid out to external service providers.

22.3 Sources of funding

20.3.1 Public Transport Network Grant (PTNG) Allocations

The DoT requires that cities provide a detailed itemisation of all projected costs for the IPTN system during the year under consideration and for a subsequent three-year period. Cities should estimate the amounts required on a quarterly basis and also differentiate between the amounts being requested from the PTNG and the amount being provided by other sources (e.g. MMM internal funding).

Although the Network Operations Component of the PTNG contributes towards the operating costs of the additional, ancillary services and provides for vehicle financing and industry compensation, PTNG allocations are not intended to fully fund recurring annual operating costs throughout the life of the concession. In particular, the fare box is expected to cover the direct operating costs of the Vehicle Operating Company. The DoRA conditions that apply to the utilisation of the PTNG state that:

> *"From the start of operations, IPTN/IRPTN 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 operational costs consist of fuel, labour, operator administration and vehicle maintenance."*

Where the fare box cannot do so, these costs can be partly funded using the Public Transport Operations Grant (PTOG) (although practically this can happen only once the contracting function regarding such funding has been assigned by the city) and the MMM would be expected to use its internal funds to top up operating shortfalls.

Not only may the PTNG not be used for funding direct vehicle operating costs, but the extent to which it may fund ancillary costs is also restricted by the grant framework which permits only 70% of ancillary costs to be covered from the PTNG in the first two years of implementation and 50% thereafter.

The PTNG however remains the main source for infrastructure and establishment funding. The annual process for approval of medium-term expenditure allocations is as follows:

- Budget proposals should be submitted, based on business plans, by 31 July of each year;
- Proposals are then evaluated by a Joint PTNG Committee comprising the DoT and National Treasury;
- Presentations are made to the Joint PTNG Committee in September of the same year; and
- Provisional allocations are finalised in October/November of that year.

The drawdowns are based on the budget application on a quarterly basis, as follows:

- Q1: July to September
- Q2: October to December
- Q3: January to March
- Q4: April to June.

Table 22-1 below reflects the annual PTNG allocations to the MMM since its introduction as well as amounts already provided for in the DoRA of 2016 for 2016/17. It reflects the funds allocated by National Government in each year, the historical and planned annual PTNG expenditures, the amounts not spent and the allowed rollovers.

Table 22-1: PTNG Funding and Expenditure Profile

Description	2014/15 R'000	2015/16 R'000	2016/17 R'000
Permitted rollover from prior year	**0**	**14 944**	**0**
Funding	14 944	48 128	200 142
Cumulative Infrastructure Funds Available	**14 944**	**63 072**	**200 142**
Expenditure			
1. Planning (all plans specified in Grant Framework (excl. detailed design)	-	90 732	114 000
2. Institutional (costs of municipal project team if no Ops component)	-	-	-
3. Capital Equipment (ITS, fare systems, security & communication etc.)	-	-	-
4. Infrastructure (detailed design, busways, stations, depots, control centre facilities & NMT)	-	17 681	80 142
5. Industry Transition (technical advisor, negotiations etc. if no Ops Comp)	-	-	6 000
Cumulative Infrastructure Expenditure	**-**	**108 413**	**200 142**
Surplus/(Deficit)	**14 944**	**(45 342)**	**-**
Advanced/Bridged by MMM Internal Funding Sources	-	45 342	-
Permitted rollover	**14 944**	**-**	**-**

Table 22-2 below reflects the drawdown and budgeted expenditure by the MMM for the 2016/17 financial year on a quarterly basis at current cost (in 2016 Rands). The available budget from PTNG for 2016/17 is R200 142 000.

Table 22-2: PTNG Drawdowns and Budgeted Quarterly Expenditure in 2016 Rands

	National Treasury Payment R'000	MMM Budget Expenditure R'000	Notes
July – September 2016	30 142	-	(1)
October – December 2016	40 000	61 514	(1)
January – March 2017	Still to be advised	71 206	
April – June 2017	Still to be advised	67 422	
Total	**200 142**	**200 142**	

***Note 1**: MMM did not make any payments in respect of costs incurred for the period July-Sept 2016. Hence this quarter is reflected as zero. The Budgeted Expenditure of R61,51 million for the period Oct-Dec 2016 includes Planning Costs of R18,24 million actually paid by the MMM during Oct 2016. This amount paid was for costs incurred during July and Aug. Planning costs incurred during September of c.R9m but which are still unpaid are included in the costs for the quarter Oct-Dec 2016. Infrastructure costs of c.R6m incurred but not yet paid for the period July-Sept 2016 are also included in the Oct-Dec 2016 Budgeted Expenditure.*

The drawdown for the 2017/18 financial year and budgeted expenditure by the MMM on a quarterly basis is reflected in **Table 22-3** below. The PTNG allocation and expenditures in this table is reflected at current cost (in 2016 Rands). The escalated PTNG allocations and expenditures are discussed later under section 22.4.

Table 22-3: PTNG Drawdowns and Budgeted Quarterly Expenditure in 2016 Rands

	National Treasury Payment R'000	MMM Budget Expenditure R'000
July – September 2017	Still to be advised	22 629
October – December 2017	Still to be advised	19 831
January – March 2018	Still to be advised	38 833
April – June 2018	Still to be advised	118 179
Total	200 000	199 472

20.3.2 MMM Budget Allocations

There is currently no budget allocation available to augment the limited DoRA IPTN funding from MMM internal sources.

20.3.3 Public Transport Operational Grant (PTOG)

Both subsidised and unsubsidised public bus passenger transport services are operated within the Mangaung Metropolitan Council jurisdiction with destinations mainly within MMM CBD and Industrial employment and residential areas. Services that are currently subsidised are funded by the Public Transport Operational Grant (PTOG) through allocations made by the National Treasury in terms of the Division of Revenue Act (DoRA).

The bus operator providing these PTOG-funded services is Interstate Bus Lines.

The contracted operator operates the services in terms of contracts with the Free State Department of Transport. The contracts provide for the payment of dedicated subsidised trips on routes for which operating licenses were issued to the operator and are renewed on a year-to-year basis.

The subsidies are paid monthly in terms of specific rates per kilometre for all scheduled kilometres operated. The operator is responsible for the collection of fares and carries the patronage risk. Fare collection forms part of the total revenue received by the operator in addition to the PTOG kilometre-rate received via the contract.

The proposed MMM IPTN alignment will impact on some of the subsidised routes – either fully or partially. The extent of the impact of the introduction of the IPTN services still needs to be established through available service formation and negotiations to prevent a duplication of subsidisation paid for the mobility of the same group of passengers.

The MMM will enter into negotiations with the Free State Department of Transport with a view to adapting the contract renewals to accommodate the reduction in services to be contracted to align with the rollout programme of the various implementation phases of the MMM IPTN services. The MMM also intends to negotiate the transfer of PTOG funding no longer committed to actual services replaced by the MMM IPTN services to the MMM to augment current limited DoRA funding. Exact amounts are however not yet available.

20.3.4 Fare Revenue

DoRA funding requires that the MMM IPTN fare box revenue should cover the direct operating cost of the VOC. The estimated volume of this revenue will vary, depending on the system configuration, the phases being implemented, and the stage of the ramp-up of the passenger demand model.

The current modelled revenue for the first year of operation at current value (2016 Rands) derived from the fare box is estimated at R36.2 million per annum assuming the Phase 1 services as indicated in **Table 22-6** are implemented. Fare revenue has been escalated at a rate of 9 per cent per annum in the Multi-year Financial Operational Plan (**Table 22-6**). The expected revenue would change with any deviation to service designs such as the addition of complementary services. This would also impact on the cost of rendering the services.

Although fares, usually approved by Council as part of the annual MMM budgetary process, still have to be approved with the approval of this Operations Plan, all budget submissions based on the approved MMM IPTN concept of operations have already been based on a fixed amount flat fare-box income of R8.00 per passenger trip for the first phase of implementation. There will be no charge for travel into the CBD beyond the multimodal facility if a passenger had already purchased a trip from a residential area and have to transfer to another vehicle to reach such specific CBD destination.

Current services rendered by taxi operators in the south-eastern quadrant are also based on flat fares irrespective of travelling distance for each trip undertaken. Bus fares vary for different destinations and currently subsidised through provincial contracts (PTOG).

The flat fare at current value (2016 Rands) utilised in the costing of the initial services is a net amount of R8.00 per trip, plus a limited amount (R0.50) to cover commissions and loading fees. A fare of R8,50 would thus result in an amount of R8.00 being earned by the MMM per passenger trip. Current taxi fares are set at R10.00 per trip and bus fares vary between fares slightly lower and fares higher than the proposed flat rate fare.

As the MMM will not make provision for top-ups at stations, a provision should be made for the payment of commission to vendors undertaking the top-ups for the MMM IPTN service cards to augment the inadequate commission made available by banks. Reliance on the banking partner to establish an adequate network of vendors has largely failed in other cities, as their commissions are inadequate to entice vendors to participate. An amount of ± 5% per trip as well as the availability of dispensing equipment is envisaged. It is also proposed that the MMM considers carrying the loading fee currently set at 2,5% or R1.50 per load event, whichever is highest.

The initial fare system will be based on a simple EMV flat fare system. The system can be expanded to include distance-based fares and a points system when required for longer routes in future and could also be adapted to accommodate fare integration with other modes of transport.

22.4 Cost Analysis

22.4.1 Design, build and implementation costs and financing

Error! Reference source not found.**,** Error! Reference source not found. and **Table 22-6** (Appendix 4 of the Guidelines and Requirements for the PTNG) show the past, present and future estimated planning, infrastructure and transitional costs of Phase 1 and Phase 2. Planning costs include project management, systems planning, business planning, marketing and communication, preliminary and detailed infrastructure design, industry transition facilitation and AFC/APTMS planning. The costs from 2016/17 to 2018/19 include fairly substantial amounts for preliminary and detailed design of Phase 1 infrastructure. Other than a portion of consolidated Phase 3 planning and infrastructure costs, Phase 3 costs are excluded since this document does not deal with Phase 3 and will be the subject of a separate business plan.

While some of these costs are classified as operating costs, they are all once-off costs funded by the PTNG as detailed in **22.3.1.** The transitional costs exclude provision for industry compensation which is reflected separately because it is paid as a once-off lump sum amount – although accounted for as part of the network operating component. It should also be noted that costs associated with setting up the MMM Internal Business Unit pre implementation (e.g. costs of hiring and training staff) are included under operating costs before implementation. Operating costs after implementation include:

70 per cent of indirect operating costs for two years after the municipal financial year in which operations start and 50 per cent thereafter which can be funded by the network operations component of the PTNG; and compensation for the economic rights of existing operators funded 100 per cent in each phase.

The individual cost components included in the following tables are reflected at current cost (2016 Rands) and the escalated costs have been shown on a total basis. The escalation has been calculated differentially across the different cost components. Most categories of costs are escalated at an assumed inflation rate of 6 per cent except for infrastructure and vehicle components which need to be imported, where the escalation rate assumed was 10 per cent to account for exchange rate volatility.

Error! Reference source not found. shows that Phase 1 and Phase 2 of the system are expected to go live in the 2020 and 2021 municipal financial years respectively. To the extent that the PTNG sources of finance fall short of the budgeted capital requirements or the capital requirements are higher than budgeted, implementation can be slowed or, if funds are received more quickly and/or capital requirements are lower than budgeted, it may be possible to accelerate implementation. However, the lead time involved in building infrastructure or purchasing vehicles means that acceleration is not always feasible.

22.4.2 Ongoing operating costs

Chapter 17 – Business Structure and Institutionalisation describes the proposed business and organisational structure of the MMM IPTN system which reflects the recurring operating cost components post implementation of the system. Figure 17.3 provides a snapshot of the functions that will be executed internally and those that will be contracted out.

The figures relating to the recurring cost components already described in Chapter 17 are reflected in Table 20.7: Multi-year financial operational plan (Appendix 5 of the Guidelines and Requirements for the PTNG) which extends over a 12 year period from implementation of Phase 1. The recurring costs in Table 20.7 have already been escalated using differential escalation factors across the different cost components. Most categories of costs are escalated at an assumed inflation rate of 6 per cent except for salaries which have been escalated at 7 per cent.

Marketing and communication of the services is seen as a key ingredient for success, and is thus shown separately. The figure has been set relatively high on the basis that marketing is especially important in the initial period of the implementation and running of the system.

In addition Fare Collection, Control Centre Operations and Customer Care which are critical to the successful operation of the system have been reflected separately in Table 20.7 although these functions are expected to be performed by the Internal Business Unit.

Costs relating to outsourced operations such as the Vehicle Operating Company and Station Management Company include a margin/profit of 15 per cent which is still subject to change based on the outcome of negotiations with the various contracted service providers.

The fare box coverage for the direct operating costs (excluding the 15 per cent profit margin, insurance and vehicle loan servicing) is 106 per cent in the first year of operations and improves over the 12 year period. This complies with the DoRA condition applying to the utilisation of the PTNG.

The primary reason for the attractive fare box coverage is that fare revenue is escalated at a rate of 9 per cent and the direct operating costs included in the coverage calculation have been escalated at a target salary inflation rate of 7 per cent and a general target inflation rate of 6 per cent applicable to the other direct operating costs. Upon implementation of Phase 2, the incremental operating fixed costs are minimal and economies of scale are achieved with the increased revenue contribution resulting in a further improvement to the Farebox Coverage. This will also be the case when Phase 3 is implemented. In addition, the buses travel shorter distances translating into a lower cost per kilometre versus revenue per kilometre.

The vehicle loan servicing, although classified as an operating cost, is fully funded by the PTNG. In addition 70 per cent of indirect operating costs for years 2020 and 2021 being the two years after the municipal financial year in which Phase 2 operations start and 50 per cent thereafter are funded by the network operations component of the PTNG. These operating cost components are included in Tables 20.4, 20.5 and 20.6.

Table 22-4: Planning, Infrastructure and transitional costs (2016/17)

Mangaung Metropolitan Municipality (R'000)		2016 (July-Sept) Quarter 1 *(Note 1)*	2016 (Oct-Dec) Quarter 2	2017 (Jan-Mar) Quarter 3	2017 (Mar- June) Quarter 4	TOTAL
Area	**Expenditure item**	**PTN Grant**	**PTN Grant**	**PTN Grant**	**PTN Grant**	
Planning costs	Project Management	-	12 343	9 178	6 078	27 599
	Operations Plan (including UDAP)	-	13 849	3 000	2 048	18 897
	Business Plan	-	6 872	578	1 000	8 450
	Marketing & Communications Plan	-	987	1 583	1 150	3 720
	Preliminary, Detailed Infrastructure Design & Construction Monitoring	-	5 719	9 000	9 281	24 000
	ITS/IFM/ICT	-	500	1 500	1 500	3 500
	Industry Negotiations & Legal	-	2 085	1 500	1 500	5 085
	Other - CBD and Distribution Services Surveys	-	-	2 000	3 750	5 750
	Other - Transport Surveys	-	7 704	9 296	0	17 000
Infrastructure costs	Roadway civil works	-	5 495	16 467	27 180	49 142
	Land and property acquisition	-	-	-	-	-
	Other (NMT)	-	2 960	15 104	12 936	31 000
Transitional costs	Other (specify) - Transitional Advisors Remuneration and Travel	-	3 000	2 000	1 000	6 000
Sub total		**-**	**61 514**	**71 206**	**67 422**	**200 142**

Area	Expenditure item	PT Ops component	PT Ops component	PT Ops component	PT Ops component	Total
Operating costs		-	0	0	0	0
Total Operational Expenditures		-	0	0	0	0
Grand Total		**-**	**61 514**	**71 206**	**67 422**	**200 142**

***Note 1**: MMM did not make any payments in respect of costs incurred for the period July-Sept 2016. Hence this quarter is reflected as zero. The Budgeted Expenditure of R61,51 million for the period Oct-Dec 2016 includes Planning Costs of R18,24 million actually paid by the MMM during Oct 2016. This amount paid was for costs incurred during July and Aug. Planning costs incurred during September of c.R9m but which are still unpaid are included in the costs for the quarter Oct-Dec 2016. Infrastructure costs of c.R6m incurred but not yet paid for the period July-Sept 2016 are also included in the Oct-Dec 2016 Budgeted Expenditure.*

Table 22-5: Planning, infrastructure and transitional costs (2017/18)

Mangaung Metropolitan Municipality (R'000)		2017 (July Sept) Quarter 1	2017 (Oct-Dec) Quarter 2	2018 (Jan-Mar) Quarter 3	2018 (Mar- June) Quarter 4	TOTAL
Area	**Expenditure item**	**PTN Grant**	**PTN Grant**	**PTN Grant**	**PTN Grant**	
Planning costs (Phase 1)	Project Management	6 000	4 000	10 000	2 000	22 000
	Operations Plan (including UDAP)	2 000	2 000	1 500	1 000	6 500
	Business Plan	1 000	1 000	0	0	2 000
	Marketing & Communications Plan	219	331	333	337	1 220
	Preliminary, Detailed Infrastructure Design & Construction Monitoring	7 500	8 500	8 000	2 500	26 500
Planning costs (Phase 2)		0	0	1 000	2 000	3 000
Infrastructure costs (Phase 1)	Roadway civil works	10 000	5 988	0	0	15 988
	Top structures for stations / stops	0	0	10 000	15 000	25 000
	Depot	10 000	10 000	15 000	25 000	60 000
	Land and property acquisition	2 520	0	0	0	2 520
	AFC/APTMS	0	4 000	5 000	5 000	14 000
	Other (NMT)	0	0	0	0	0

Infrastructure costs (Phase 2)		0	0	0	1 910	1 910
Transitional costs	Other (specify) - Transitional Advisors Remuneration and Travel	2 072	2 072	2 072	2 072	8 286
Sub Total		**41 310**	**37 890**	**52 904**	**56 818**	**188 924**
Expenditure item		**PT Ops component**	**PT Ops component**	**PT Ops component**	**PT Ops component**	**Total**
Operating costs	Other (specify)	0	0	0	0	0
Total Operational Expenditures		0	0	0	0	0
Grand Total at Current Cost		**41 310**	**37 890**	**52 904**	**56 818**	**188 924**
Grand Total at Escalated Cost		**43 665**	**40 120**	**56 054**	**60 203**	**200 042**

Table 22-6: Planning, infrastructure, transitional, compensation and operational costs (2017 - 2021)

Mangaung Metropolitan Municipality (R'000)		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**TOTAL**
Area	**Expenditure item**	**PTN Grant**	**PTN Grant**	**PTN Grant**	**PTN Grant**	**PTN Grant**	
Planning costs (Phase 1)		114 000	58 220	22 389	0	0	194 609
Planning costs (Phase 2)			3 000	2 500	1 000	1 000	7 500
Infrastructure costs (Phase 1)	Roadway civil works	49 142	15 988	0	0	0	65 130
	Top structures for stations / stops	0	25 000	16 100	0	0	41 100
	Depots	0	60 000	40 000	0	0	100 000
	Land and property acquisition	0	2 520	7 480	0	0	10 000
	AFC/APTMS	0	14 000	37 368	0	0	51 368
	Other (NMT)	31 000	0	0	0	0	31 000
Infrastructure costs (Phase 2)		0	1 910	39 758	30 876	7 686	80 229
Infrastructure costs (Phase 3)		0	0	0	0	44 810	44 810
Transitional costs	Other (specify) - Transitional Advisors Remuneration and Travel	6 000	8 286	8 286	0	0	22 572
Industry compensation				0	117 500	85 500	203 000
Operating costs before implementation	**Expenditure item**	**PT Ops component**	**PT Ops component**	**PT Ops component**	**PT Ops component**	**PT Ops component**	**Total**
	Oversight entity	0	0	15 000	0	0	15 000

	Other (specify)	0	0	2 000	0	0	2 000
Sub Total		0	0	17 000	0	0	17 000
Total at Current Cost		200 142	188 924	190 881	149 376	138 995	868 318
Total at Escalated Cost		200 142	200 042	215 049	177 909	175 479	968 620
Operating costs after implementation	Vehicle repayments	0	0	0	34 425	34 425	68 850
	Indirect costs per Appendix 5	0	0	0	43 793	46 223	90 016
Grand Total at Escalated Cost		200 142	200 042	215 049	256 127	256 127	1 127 487

PTN Grant Amount	200 142	200 042	215 049	215 049	215 049	1 045 331
Escalation factor	1.00	1.00	1.00	1.19	1.19	
PTN Grant Amount after escalation	200 142	200 042	215 049	256 127	256 127	1 127 487

Excess/(Shortfall)	**0**	**0**	**0**	**0**	**0**	**0**

Table 22-7: Multi-year financial operational plan (Appendix 5 of the Guidelines and Requirements for the PTNG)

COST ITEM	Year 1 2020 R'000	Year 2 2021 R'000	Year 3 2022 R'000	Year 4 2023 R'000	Year 5 2024 R'000	Year 6 2025 R'000	Year 7 2026 R'000	Year 8 2027 R'000	Year 9 2028 R'000	Year 10 2029 R'000	Year 11 2030 R'000	Year 12 2031 R'000
Direct Operational Costs												
Vehicle operations contract/s (exclude profit, insurance & vehicle loan servicing)	44 148	46 170	82 024	86 220	91 336	97 050	103 196	109 807	116 917	124 566	132 793	141 645
Vehicle repayments (capital, interest, fees)	34 425	34 425	61 260	61 260	61 260	61 260	61 260	61 260	61 260	61 260	61 260	61 260
TOTAL DIRECT COSTS	**78 573**	**80 595**	**143 285**	**147 481**	**152 596**	**158 311**	**164 457**	**171 067**	**178 177**	**185 826**	**194 054**	**202 905**
Indirect Operating Costs												
Vehicle insurance	4 002	4 242	7 775	8 242	8 736	9 260	9 816	10 405	11 029	11 691	12 392	13 136
VOC Profit	12 386	12 725	22 659	23 358	24 200	25 136	26 141	27 221	28 381	29 627	30 967	32 406
Fare system operations/maintenance	2 199	2 331	3 471	3 679	3 900	4 134	4 382	4 644	4 923	5 219	5 532	5 864
Station services (including Law Enforcement)	14 913	16 053	22 115	23 816	25 649	27 625	29 754	32 048	34 521	37 186	40 058	43 154
APTMS operations/maintenance	2 349	2 490	3 499	3 709	3 932	4 168	4 418	4 683	4 964	5 262	5 578	5 912
Network authority institution	14 681	15 816	18 162	19 571	21 090	22 727	24 493	26 397	28 450	30 663	33 050	35 624
Fare and fare collection	3 916	4 226	4 562	4 923	5 314	5 735	6 190	6 681	7 212	7 784	8 402	9 069
Control Centre and Operations Supervision	3 302	3 563	3 844	4 148	4 476	4 830	5 212	5 624	6 069	6 549	7 068	7 627

Customer care	3 027	3 261	3 514	3 786	4 080	4 396	4 737	5 105	5 501	5 929	6 390	6 887
System marketing	1 787	1 326	703	223	71	75	80	85	90	95	101	107
Infrastructure maintenance												
Industry Transition Support (PTNG 100%)												
Compensation for Ops licenses (PTNG (100%)												
TOTAL INDIRECT COSTS	**62 561**	**66 033**	**90 303**	**95 456**	**101 446**	**108 086**	**115 222**	**122 893**	**131 139**	**140 005**	**149 537**	**159 786**
TOTAL COSTS – DIRECT & INDIRECT	**141 135**	**146 628**	**233 587**	**242 936**	**254 042**	**266 396**	**279 678**	**293 960**	**309 317**	**325 831**	**343 591**	**362 691**

INCOME SOURCE	**Year 1 2020 R'000**	**Year 2 2021 R'000**	**Year 3 2022 R'000**	**Year 4 2023 R'000**	**Year 5 2024 R'000**	**Year 6 2025 R'000**	**Year 7 2026 R'000**	**Year 8 2027 R'000**	**Year 9 2028 R'000**	**Year 10 2029 R'000**	**Year 11 2030 R'000**	**Year 12 2031 R'000**
Sources covering direct costs												
Fare Revenue	46 822	51 036	106 013	115 554	125 954	137 289	149 646	163 114	177 794	193 795	211 237	230 248
Advertising and merchandising												
Contracted IPTN portion of PTOG												
Council funds (e.g. rates)												
Contribution of PTN Grant to vehicle repayments – capital/interest/fees (100%)	34 425	34 425	61 260	61 260	61 260	61 260	61 260	61 260	61 260	61 260	61 260	61 260
Provincial/other (specify)												
TOTAL INCOME COVERING DIRECT COSTS	**81 247**	**85 461**	**167 273**	**176 814**	**187 214**	**198 550**	**210 906**	**224 374**	**239 054**	**255 056**	**272 497**	**291 508**
Farebox Coverage as % of Direct Costs (include profit and vehicle insurance)	**77%**	**81%**	**94%**	**98%**	**101%**	**104%**	**108%**	**111%**	**114%**	**117%**	**120%**	**123%**
Farebox Coverage as % of Direct Costs (exclude profit and vehicle insurance)	**106%**	**111%**	**129%**	**134%**	**138%**	**141%**	**145%**	**149%**	**152%**	**156%**	**159%**	**163%**
Sources covering indirect costs												
PTNG (70/30…50/50…100% industry transition/compensation)	43 793	46 223	45 151	47 728	50 723	54 043	57 611	61 446	65 570	70 003	74 769	79 893
Council Funds (e.g. rates)												
Developer contributions												

Parking levy												
Other												
TOTAL INCOME COVERING INDIRECT COSTS	**43 793**	**46 223**	**45 151**	**47 728**	**50 723**	**54 043**	**57 611**	**61 446**	**65 570**	**70 003**	**74 769**	**79 893**
TOTAL INCOME – DIRECT & INDIRECT	**125 040**	**131 684**	**212 424**	**224 542**	**237 937**	**252 593**	**268 517**	**285 820**	**304 624**	**325 058**	**347 266**	**371 401**
SHORTFALL (assuming use of PTNG for indirect costs)	**(16 095)**	**(14 944)**	**(21 163)**	**(18 394)**	**(16 105)**	**(13 804)**	**(11 162)**	**(8 140)**	**(4 693)**	**(773)**	**3 675**	**8 710**
SHORTFALL (excluding use of PTNG for indirect costs)	**(59 888)**	**(61 167)**	**(66 314)**	**(66 122)**	**(66 829)**	**(67 847)**	**(68 773)**	**(69 586)**	**(70 263)**	**(70 775)**	**(71 093)**	**(71 183)**

22.4.3 Strategies to address the deficit

As shown in **Error! Reference source not found.**, it is projected that there will remain a deficit which needs to be addressed. The following options could be considered by the MMM and will need to be explored further:

- city contribution from property rates - this may require an increase in existing rates which may not be feasible;
- advertising, sponsorship, branding, rental of space in the multi-modal facility, and other items of this nature could make further marginal, but relatively small contributions to income;
- further moderation of the system and reduction in ancillary costs – however this is likely to compromise the quality of the service and will lead to a decline in customer demand and revenue collection;
- increase in fares without reducing customer demand; and
- improving the customer demand profile.

22.5 Export Credit Agency/Capital Market

It is the intention that an Export Credit Agency (ECA) will be utilised to secure funding for the purchase of buses by the VOC. Due to the limited DoRA funding available, consideration is not given to utilising this source of funding for the MMM to acquire and own the bus fleet. The full purchase price of the buses has to be externally funded and ownership will vest in the VOC.

Regarding the procurement of ECA funding, the following processes are required:

- Following (or where possible, during) the evaluation of the potential bus suppliers, ECA availability will be assessed.
- An ECA Arranger Bank, which could be either a local or an international bank (the latter preferably with a local presence), will be chosen and appointed.
- In relation to the ECA Arranger Bank, the previous experiences of other municipalities and/or parastatals will be utilised in order to select the most appropriate arranger.
- With the assistance of the ECA Arranger Bank, an investor roadshow will effectively “sell” the MMM and the MMM IPTN Project to potential funders.
- Once proposals are obtained from the appropriate ECA, negotiations on behalf of the VOC will take place for the most appropriate funding terms.

It should be highlighted at this stage that commercial and financial closure with an ECA often takes many months to secure (at least 6 months is anticipated.) It is essential to attempt to identify those risks that could ultimately affect the ECA’s ability to fund the buses as early in the process as possible.

In addition, alternative-funding solutions will be considered throughout the process, in liaison with the ECA Arranger Bank, in the event that any short-term funding is required to cover possible funding discrepancies.

22.6 Funding, Procurement and Ownership of the Bus Fleet

The buses will be acquired, funded and owned by the VOC. Due to the smaller quantum of funding required to acquire the buses relative to other Municipalities, it is the intention to approach the DBSA for funding rather than using an Export Credit Agency (ECA) although both options are being considered.

No procurement contract has been awarded and the final terms of such a contract are not known at this time. In addition, the exact terms of the funding have yet to be established.

The bus funding costs have been conservatively estimated at 12.50% (capital, raising fees and costs and interest) but this is subject to change. Provision for an ECA underwriting fee (up to 8%) is also made within the financial modelling should it become necessary to utilise an ECA. Repayment terms of 12 years have been assumed.

The size of the bus fleet that will be ordered will be dictated by the expected size of and growth in passenger and service demand. At this stage the exact payment requirements of the bus supplier, and the exact terms of the funding/ECA repayment plan are not yet known.

The payment profile as presented in this document is expected to be significantly improved as more details become available.

23 Risks Register

The identification of project planning risk items has been a continuous process since the inception of the project. A project register was developed and is maintained on a monthly basis. The updated risk register forms an integral part of the monthly progress report submitted to the MMM. The severity of the specific risk items are indicated per workstream and is continuously monitored by the Project Management Unit (PMU) until the risk has no further potential impact on the project. Table 23-1 indicates the entire project risk register with the relevant detail attached to the respective risk items.

A separate project risk register for the implementation and go-live periods will be maintained by the PMU as soon as the individual planning phases of the IPTN are completed. This project risk assessment relates to the potential consequences that may arise if certain actions, processes, deliverables or timelines are not met by the respective workstreams. The risk assessment is based on the following considerations as well as the proposed weightings:

- Consequence of the Risk

The consequence if specific risk factors occurs is measured by the allocation the following weightings (see Step 4 of Table 23-1) to individual items, namely:

5 = very high

4 = high

3 = medium

2 = low

1 = very low

- Likelihood of risk occurring

The likelihood of risk occurring is shown under Step 5 of Table 23-1. The likelihood of the risk occurring is identified by the following scoring system, namely:

5 = highly likely

4 = very likely

3 = likely

2 = Unlikely

1 = Very unlikely

- Mitigation of risk

The mitigation of the risk is shown in Step 7: Risk Control Measures which is reflected in Table 23-1 below. The risks identified in Step 3 are used to compile the appropriate control measures to reduce or mitigate the specific risk.

- Risk scoring

The scoring of the risk is shown under Steps 6 and 8 in Table 23-1. The scoring is a number which is achieved by multiplying the consequence of the risk with that of the likelihood of the risk occurring. The value obtained through this exercise provides an indication of the scoring of the risk factors. The higher the score the more severe the risks are and the more important it is to reduce or alleviate the risks as soon as possible. The impact which mitigating measures have on the risk identified should constantly be assess to determine its impact on alleviating/reducing the risk.

Table 23-1: Project Risk Register

Step 2		Step 3	Step 4	Step 5	Step 6	Step 7	Step 8			Step 9
Ref No	SPECIFIC project / ACTIVITY / ITEM	IDENTIFY POTENTIAL RISKS	RISK RANKING			RISK CONTROL MEASURES	RESIDUAL RISK			Actioner / Initials
			Consequence	Likelyhood	Risk Rating	• Hierarchy of Control – Elimination, Substitution, Isolation, Engineering, Administration. • Additional information can be attached.	Consequence	Likelyhood	Risk Rating	
Project Management										
1	MMM IPTN / Programme / Go live date	Failure to achieve key project deliverables (completion of surveys, Ops Plan, etc) due to the inability to complete key activities could lead to the desired "Go live date of 2018 / 2019" not being achieved.	5	3	15	Monitor key project deliverables and ensure all challenges are proactively dealt with to eliminate delays. Communication with relevant stakeholders remain critical during this process.	3	3	9	Professional team, MMM
2					0				0	
Systems Planning										
1	MMM IPTN / Systems / First Order Route Planning and Full Network Design	Finalisation of traffic counts/on-board surveys/facility surveys and capture of this data on GIS. This could lead to the third draft of network not being finalized.	5	3	15	Monitoring of Sub-consultants progress.	3	2	6	Systems Work stream
2	MMM IPTN / Systems /Traffic and Transportation Surveys	Taxi/Bus Operators Buy-in of Survey Plan. The MOA has been signed and it reduces the risk to a large extent, but further issues may occur.This could affect the commencement of the surveys.	2	2	4	MoA has been signed. Identifiy potential future challenges early and source control measures to eliminate the consequence and likelyhood of the risk.	2	2	4	Professional team, MMM
3	MMM IPTN / Systems /Traffic and Transportation Surveys	Obtaining Surveyor Name list from Taxi Industry and MMM. Failure to obtain the list of candidates to assist with the surveys could causea delay to the implementation of the surveys.	2	2	4	Receive adequate number of members from the Industry as well as the community to assist with the surveys.	2	2	4	Systems Work stream
4	MMM IPTN / Systems /Traffic and Transportation Surveys	Obtaining Bus Contract Information from Province. The lack of bus contract information could impact the on-board surveys schedule.	3	3	9	Intervention by MMM to obtain existing bus contract information from Interstate	2	2	4	Systems Work stream
5	MMM IPTN / Systems /Traffic and Transportation Surveys	Inter-dependencies among sub-workstreams may compromise certain deadlines.	5	3	15	Workshop among the key sub-workstreams to refine some of the inter-dependencies and to incorporate the latest, overall client expectations in terms of deadlines.	2	2	4	Professional team, MMM
6	MMM IPTN / Systems / Patronage Estimation/ Demand Modelling	Finalisation of on-board surveys/household travel surveys and capture of this data on GIS. If the surveys are not finalised it could result in the final network and phasing not being finalised.	5	4	20	Monitor Sub-consultant progress and ensure all requirements to achieve the completion of the surveys are achieved. Proactively deal with challenges that might impact the commencement of the surveys.	3	3	9	Professional team, MMM
7	MMM IPTN / Systems / Operations	Insufficient funding made available by National Treasury (NT) to adequately fund the expected development tempo and implementation of the IPTN project, aggravated by utilisation of 2016/17 DoRA funding to cover funding shortfall in 2015/16 could delay project progress. Failure to obtain sufficient funding for the 3-year DoRA cycle will impact on the rollout of the IPTN project and may force a longer than expected term for meaningful IPTN project implementation to serve the Mangaung public Utilisation of 2016/17 DoRA funding to recoup 2015/16 funding shortfall reduces 2016/17 funding available to the project substantially	5	4	20	Redesigned phase 1 rollout plan that fits into budget availability to a reduced 22 bus level Current redesign for 48-bus rollout by July 2019 within budget limitations in progress as part of November 2016 NT/NDoT budget submission Already established that no addition funding will be made available during the 2016/17 to 2018/19 DoRA funding cycle	3	3	9	Professional team, MMM

8	MMM IPTN / Systems / Operations	Agreement may not be reached on the participation model for affected operators due to their expectations being based on benchmarking with other cities with full IPTN systems implemented. Taxi industry may withdraw from negotiation process. MMM could be faced with expensive compromises to procure taxi buy-in.	4	3	12	Services could be put out to tenderConsult taxi industry fully during the development of an operating and participation model Issue of existing affected bus company participation in Bus Operating Contract needs to be cleared with taxi and bus industryValue chain opportunities need to be agreed with taxi industryAddress taxi industry threat perceptions such as loss of continuous income stream	2	2	4	Professional team, MMM
Infrastructure											
1	MMM IPTN / Infrsustructure / NMT Works	Failure to conclude the issue and acceptance of IPW to implement works could lead to non invoicing & payment of external specialist services providers	5	3	15	GladAfrica to write a letter to the Client for acceptance of the IPW.	2	2	4	Infrastructure Work Stream
2	MMM IPTN / Infrsustructure / Designs	Delays to Infrastructure Design due to late comment on provided designs by MMM could lead to Programme slippage and delays to the project.	5	3	15	MMM team to be aware of timelines and procedures.	3	2	6	Infrastructure Work Stream
3	MMM IPTN / Infrsustructure / Designs	Delays to Infrastructure Design due to limited or inadequate design resources could lead to Programme slippage and delays to the project.	5	3	15	Design teams to resource additional staff and programme. Outsource design to others if required	2	2	4	Infrastructure Work Stream
4	MMM IPTN / Infrsustructure / Designs	Delays in approving quotes for specialist survey / design work could impact the completion of the detailed designs.	5	3	15	MMM team to expedite the approval process	2	2	4	MMM
5	MMM IPTN / Infrsustructure / Designs	Delays in payments to service providers could lead to late completion of design work.	5	3	15	MMM team to expedite the approval process	2	2	4	MMM
6					0				0	
Business and Finance											
1	MMM IPTN / Business and Finance / Information	Availability of information from Systems Planning and Industry Transition Workstreams	5	3	15	Constant communication and programme management with the Systems and Industry Transition Work Streams.	2	2	4	Professional team
2	MMM IPTN / Business and Finance / Information	Availability of information from Operations team for input into financial model	5	3	15	Constant communication with the Operations team.	2	2	4	Professiona team
3									0	
Legal and Compliance											
1	MMM IPTN / Legal and Compliance / Governance Protocols	Delayed approval of the MMM IPTN Governance Protocols. The Governance Protocols would provide the internal MMM structure on how to manage the IPTN Project within the MMM. Also provides the structure for communication between MMM and PMU. Delays in obtaining in principle approval, will delay structured implementation of the Project.	5	4	20	Timeous approval by the MMM Council of the Governance Protocols. To achieve this, Governance Protocols have been finalised and the necessary report for Mayco/Council approval of the Governance Protocols and Mayco presentation thereon was completed during February 2016 and sent to MMM. An amended Governance Protocols Document was forwarded to MMM during June 2016 for inclusion in the Council report on the adoption of the IPTN Governance Protocols. The current indication is that the report will not serve before Council before November 2016 due to the imminent municipal elections .	3	3	9	Legal and Compliance, MMM

2	MMM IPTN / Legal and Compliance / Confidentiality Agreements	Delayed approval of Confidentiality Agreements and Impartiality Declarations required in terms of section 13(1) of the NLTA. Non signature thereof might compromise the integrity of the Project.	5	4	20	Timeous approval by the MMM Council of the Confidentiality Agreements and Impartiality Agreements Undertaking. To achieve this, the necessary report for Mayco/Council approval of the Confidentiality Agreements and Impartiality Undertaking and Mayco presentation thereon was completed during February 2016 and sent to MMM. An amended Impartiality Declaration and Confidentiality Undertakings were forwarded to client during June 2016 for inclusion in the Council report on the adoption of the Impartiality Declaration and Confidentiality Undertakings. The current indication is that the report will not serve before Council before November 2016 due to the imminent municipal elections	3	3	9	Legal and Compliance, MMM
3	MMM IPTN / Legal and Compliance / Delegation of Powers	Delayed approval of a comprehensive set of delegation of powers and functions is crucial for purposes of streamlining the approvals constantly required for the Project. Any delay in obtaining this approval will negatively impact on the timeous implementation of the Project	5	4	20	Required delegation of powers and functions needs to be finalised as soon as possible. This can however only be done once the Governance Protocols report has been approved by Mayco/Council. A copy of the latest delegation of powers and functions approved by Council on 30 June 2016 was received on 18 July 2016. Approval of the Governance Protocols by Council is not expected before November 2016.	3	3	9	Legal and Compliance, MMM
4	MMM IPTN / Legal and Compliance / Section 78 Investigation	Delayed commencement of Section 78 Investigation into the appropriate MMM structure to manage the MMM IPTN is required by law if a municipality, amongst others, introduces a new municipal service or where a current municipal service is significantly upgraded, extended or improved. No final staff structure, apart from the IPTN Head of Department, can be approved or other staff appointed for the IPTN Unit unless such investigation has been finalized and the outcome approved by Council.In addition, non-compliance with section 78 might trigger a negative Auditor General finding	5	4	20	The process consist of 2 parts. Firstly, the Council must approve that MMM can commence with the section 78 process. Secondly, the MMM must appoint an appropriate service provider to conduct the section 78 investigation.As far as the first requirement is concerned, the section 78 report to commence with the process was finalised in February 2016 and approved by the MMM Council on 5 May 2016. As far as the second requirement is concerned, the final TOR was completed during July 2016 and forwarded to MMM for processing in terms of the MMM's SCM system. Outcome of the MMM SCM process regarding the appointment of an appropriate service provider is currently awaited	3	3	9	Legal and Compliance, MMM
5	MMM IPTN / Legal and Compliance / Mayco Approval	Failure to obtain Mayco approval for the MOA entered into with the taxi industry and signature thereof on 12 October 2016. Until such time as Mayco approval and ratification has been obtained, the signed MOA is for all intents and purposes of no force and effect. Unless approval obtained, expenditure incurred in terms of the MOA could be regarded by the Auditor General as unauthorised expenditure	4	3	12	MMM has been advised to obtain required approval and ratification as soon as possible through an appropriate report to Mayco. Further instructions in this regard awaited from MMM	3	3	9	Legal and Compliance, MMM
6					0				0	
Intelligent Transport Systems										

1	MMM IPTN / ITS / ICT Infrastructure	MMM current ICT infrastructure might not be sufficient for what would be required for the implementation of ITS systems.Additional, unexpected CAPEX cost for the implementation of ICT infrastructure might be required.	5	4	20	Survey/Investigate the current ICT infrastructure; and potential Service Providers in MMM	4	3	12	ITS
2					0				0	
Envitonmental and Sustainability										
1	MMM IPTN / Environmental and Sustainability / Community Engagement	Community Engagement Strategy must be tailored to the needs of the community and the Community Engagement Plans developed accordingly. Cannot be rolled out prior to finalization of logo and the media campaign.Delays the Community Engagement Process ahead of construction which could affect the social acceptance of the IPTN project	5	4	20	Working closely with the Marketing and Communication Work Stream and the Office of the Speaker in the development and roll-out of the strategy and the resultant plans.	3	3	9	Environmental, MMM
2					0				0	
Industry Transition										
1	MMM IPTN / Industry Transition / Stakeholder Engagement	Stakeholders (private public transport industry) may have a perception that they are isolated from the public transport planning and rationalisation process.A perception of isolation may lead to conflict that may affect the project planning and execution severely	5	3	15	A structured engagement programme and structure needs to be provided to the industry to provide assurance of ongoing involvement and engagement.	2	2	4	Industry Transition, Professional team, MMM
2	MMM IPTN / Industry Transition / Intermodal Facility	The current discussion between the Industry and MMM regarding the Intermodal Facility might hamper the continuation of engagements with the Industry.	2	2	4	Keep abreast of developments with MMM on this issue.	2	2	4	Industry Transition, MMM
3	MMM IPTN / Industry Transition / Appointment of ITA's	Delays in the appointment of ITA's. Lack of technical support for the Industry could lead to claims of lack of adequate support in engagements with the MMM and therefore challenge progress made and agreements reached.Hamper further progress of MMM's IPTN project and suspend further engagements	5	3	15	Decision regarding their appointment taken by MMM and process of their appointment expedited. Deviation report drafted to facilitate their appointment.Appointment of Industry approved ITA to be expedited	3	3	9	Industry Transition, MMM
4	MMM IPTN / Industry Transition / Appointment of ITA's	Lack of agreement within the Industry on the appointment of ITA's. Delay the appointment of ITA's.	2	2	4	Written confirmation from each association and the regional structure confirming their preferred service provider.	2	2	4	Industry Transition, MMM
5	MMM IPTN / Industry Transition / Appointment of ITA's	Process of the Industry appointing their representatives to engage with the MMM on their behalf, together with the ITA's, hampered by conflict within the associations and/or regional structures. Delays in progressing engagements with the Industry.	3	3	9	Independent facilitators appointed to assist and facilitate the Industry's processes, to the extent that the Industry welcomes such assistance	2	2	4	Industry Transition, MMM
6	MMM IPTN / Industry Transition / Information	Pace and progress of information sharing with the Industry slow. Knock-on effect of delaying progress in other workstreams which require Industry engagements.	5	3	15	Clear roadmap and timetable developed for Industry engagements	2	2	4	Professional team, MMM
7	MMM IPTN / Industry Transition / Industry representatives	Lack of mandate of Industry representatives.Delays in progressing engagements with the Industry	3	3	9	Independent facilitators appointed to ensure assist and facilitate the Industry's processes, to the extent that the Industry welcomes such assistance. Written confirmation of mandates of representatives from Associations	2	2	4	Industry Transition, MMM
8	MMM IPTN / Industry Transition / Taxi Industry	Instability within the Industry. Delays in progressing engagements with the Industry	2	2	4	MMM's engagement with the Industry must ensure that all stakeholders within the public transport sector are consulted so as not to contribute to any divisions within the Industry	2	2	4	Industry Transition, MMM
9	MMM IPTN / Industry Transition / Communication	Unclear lines of communication between MMM and the Industry. Delays in progressing engagements with the Industry	2	2	4	MMM Governance Protocols developed and finalised. MMM's Negotiation Strategy developed and finalised	2	2	4	Industry Transition, MMM

10	MMM IPTN / Industry Transition / Communication	The inclusion of multiple role players and lines of communication.Distorted and miscommunication of information with the Industry and the MMM	5	4	20	Limit the lines of communication and engagement with the Industry to those confirmed by the MMM and sanctioned by the Industry.	2	2	4	Industry Transition, MMM
11	MMM IPTN / Industry Transition / Surveys	Surveys - payments not being made timeously to those assisting with the counts and other logistical issues affecting participants. Derail engagements with the mini-bus Industry and be a cause of mistrust between the Industry and MMM	5	5	25	Eliminate/manage all issues that have the potential to derail engagements	3	3	9	Industry Transition, MMM, Professional team
12	MMM IPTN / Industry Transition / Surveys	Surveys – results of/data from the completed facilities surveys not being accepted by the mini-bus taxi industry. Resultant Concept of Operations, Business Plan and compensation models will not be accepted by the mini-bus taxi industry	5	5	25	Results of Facility Surveys needs to be shared with the Surveys Sub-committee, obtain their buy in, and further sharing with the rest of the industry (starting with the Joint Steering Committee) must be delivered jointly by the Surveys Sub-committee	3	3	9	Industry Transition, MMM, Professional team
13					0				0	
Marketing and Communications										
1	MMM IPTN / Marketing and Communication / Key activities	Delays in implementing some of the activities could affect conclusion of initiated processes.	3	3	9	Working closely with concerned stakeholders to minimize/avert delays.	2	2	4	
2					0				0	
Universal Access										
1	MMM IPTN / Universal Access / Funding	UDAP requirement from NDoT could lead to funding implications	2	2	4	Once we have documentation this will be main priority.	2	2	4	Professional team, MMM
2	MMM IPTN / Universal Access / Public Participation	Public Participation. Collected data to be given to designers in time	3	3	9	Immediate submission of PP	2	2	4	Professional team, MMM
3	MMM IPTN / Universal Access / NMT Projects	NMT Projects. Designs could be rushed / lack of experience in UA issues by contractors	5	5	25	Provide appropriate level of support.	2	2	4	Professional team, MMM

24 Implementation Strategy

The implementation strategy of this operations plan considers the current IPTN development scenarios which is combined to reflect a unique phased approach which is aligned around passenger demand and budget allocations to the City of Mangaung. Further to these factors, were the 1st Order Operational Plan (2014) considered as guideline document. The implementation plan of the 1st Order Ops Plan specifically makes reference to 4 Work Packages with their system characteristics, budgets and implementation time frames.

The phasing in this implementation plan however reflects the current phasing based on extensive surveys and investigations which verified passenger demand, the system design, and developmental requirements to finally develop the phased approach for the Mangaung IPTN in the short to medium term. These proposed phases are in line with what the 1st Order Operational Plan proposed but just packaged differently but ultimately to achieve the same outcomes. The network phasing is reflected below and discussed in more detail in the sections to follow.

24.1 Network Phasing

The implementation plan of the Operations Plan will provide an indication of the Phases 1, 2 and 3 alignments, costing and timelines of the Mangaung IPTN. This implementation plan will provide clarity on the planning and financials reflected in previous chapters but most importantly provide clarity on the implementation timelines of the various phases which commenced in 2015 till 2027. The Phase 1 route plan are addressed in more detail in Chapters 2 and 3 whilst Phases 2 and 3 will be addressed in less detail due to the lack of technical information for the future phases.

The main guiding chapters used to develop this Implementation Plan of the Mangaung Operational Plan is the Finance and Business Plan. The financial cost components reflected in Chapter 22 was used to develop this high level Implementation Plan. This implementation plan will consider the various financial components which will ensure implementation as planned.

The phasing of the Mangaung IPTN Network will further consider the following phases, namely:

- Phase 1
- Phase 2
- Phase 3

The combined map which reflects the three (3) phases is shown in Figure 24-1 below. Only phases 1, 2 & 3 are currently indicated and considered in this Ops Plan. In order to include the future phasing beyond Phase 3, on-board and other survey information is required to conduct a technical assessment on passenger demand, service requirements and potential costing of the infrastructure.

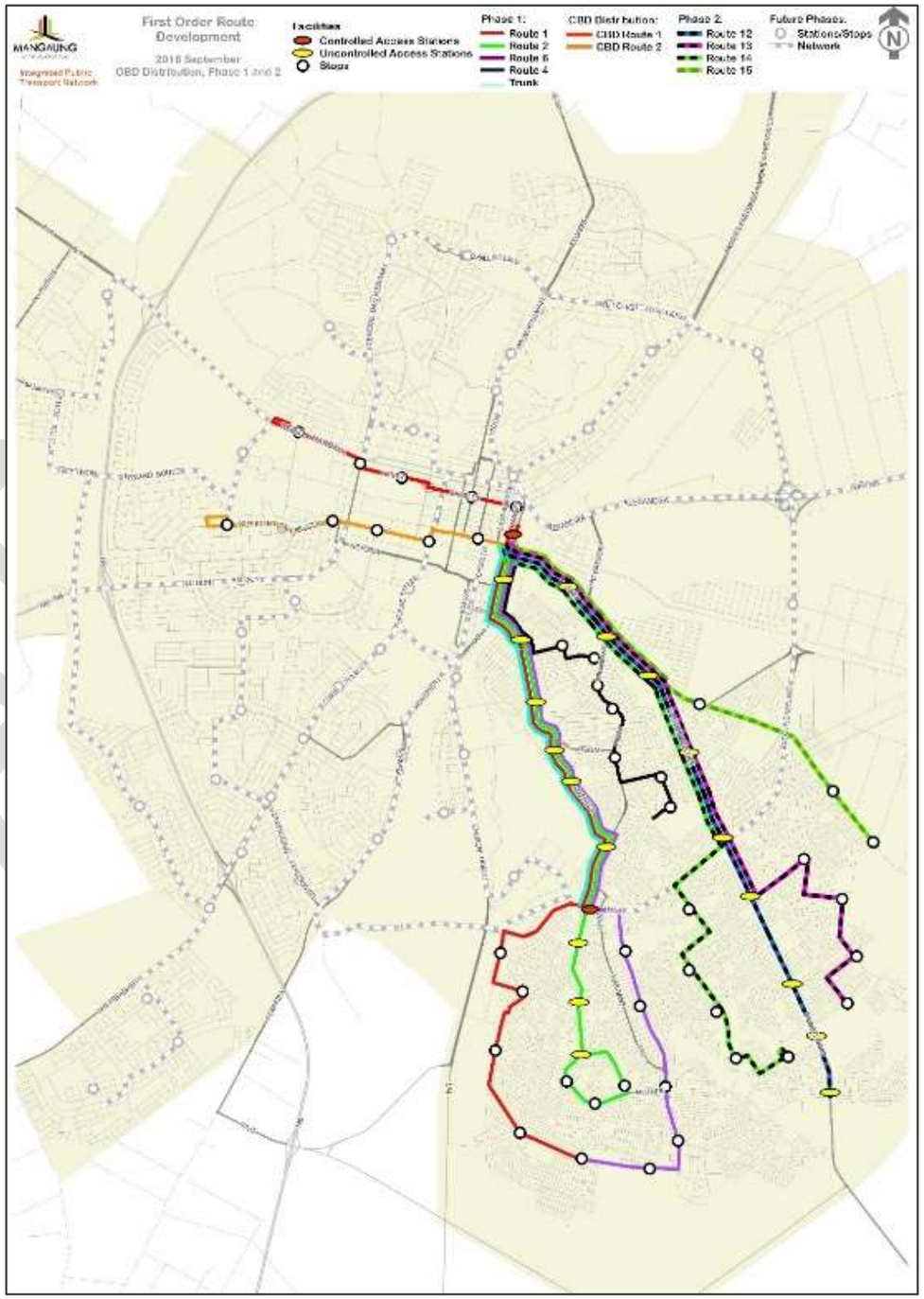


Figure 24-1: Phases 1, 2 and 3 of the proposed IPTN for Mangaung

24.1.1 IPTN Phase 1

The respective phasing illustrated in Figure 24-1 above provides an overview of the three critical phases being considered in the short to medium term. Figure 24-2 however illustrates the phase 1 route which starts at Chief Moroka Crescent (Rocklands) travels along Maphisa Rd and terminates within the CBD which consists of two separate complementaries. Table 24-1 provides statistical data on the Phase 1 route.

Table 24-1: Statistics for Phase 1 Route Alignment

Routes inclusive to Phase 1	CBD Complementary 1, CBD Complementary 2, Trunk Routes 1 & 2 and Complementary Route 1
Stations (Controlled Access)	4 stations (2 per location)
Stations (Un-Controlled Access)	18 Stations (2 per location)
Stops (CBD)	16 Stations (2 per location)
Stops (complementary routes)	3 Stops (1 per location) - Crescent 14 Stops (2 per location) – Comp Route 1
Service Type	Mixed Traffic lanes (no dedicated lanes)
Infrastructure Distance (km)	6.5 km Trunk Route 27.2 km Complementary Routes
Infrastructure Cost Estimates (R)	± R 240 mil
Go –live	**July 2019**

Note: The table above only reflects the main aspects applicable to this specific Phase and more detail regarding patronage, operations, management and costing can be obtained from the Chapters which covers the respective details.

Figure 24-3 illustrates the Phase 2 network planned for the Mangaung IPTN. The phase 2 IPTN is only planned for implementation after Phase 1 has been completed and is fully operational.

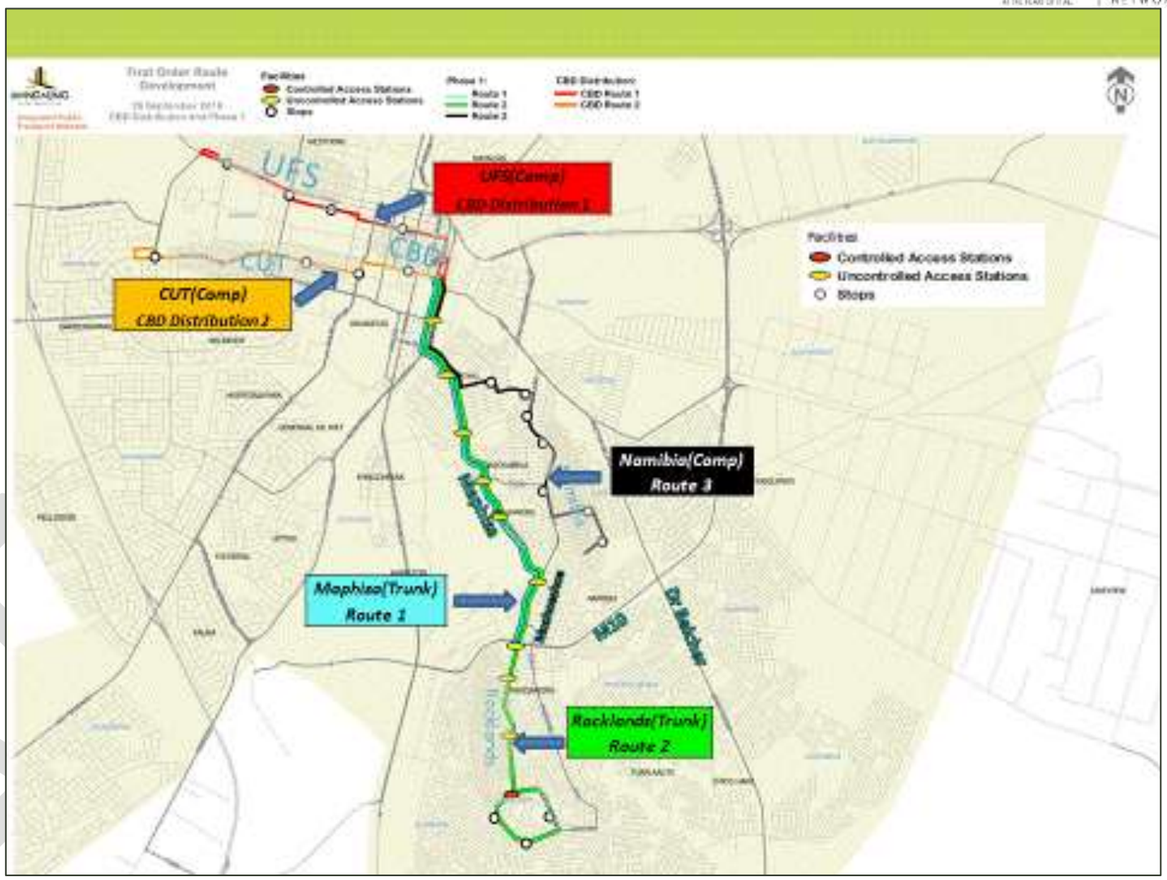


Figure 24-2: Phase 1 Route Alignment

24.1.2 IPTN Phase 2

Figure 24-3 illustrates the Phase 2 network planned for the Mangaung IPTN. The phase 2 IPTN is only planned for implementation after Phase 1 has been completed and is fully operational during July 2019. This is necessary due to the partial buyout of the Taxi industry and limited funding, the implementation timelines are moved out to the first month of the 2019/20 FY. Table 24-2 provides detail on the infrastructure requirements as well as the costing and go-live date for Phase 2.

Table 24-2: Statistics for Phase 2 Route Alignment

Routes inclusive to Phase 2	Complementary Routes 1 and 6, Route 13 (Trunk Dr Boucher)
Stations (Controlled Access)	2 stations (2 per location)
Stations (Un-Controlled Access)	8 Stations (2 per location)
Stops (complementary route)	8 Stops (2 per location)
Service Type	Mixed Traffic lanes (no dedicated lanes)
Infrastructure Distance (km)	5,1 km (Trunk route) 4.4 km Complementary Routes

Infrastructure Cost Estimates (R)	± R 70 mil
Go –live	July 2020

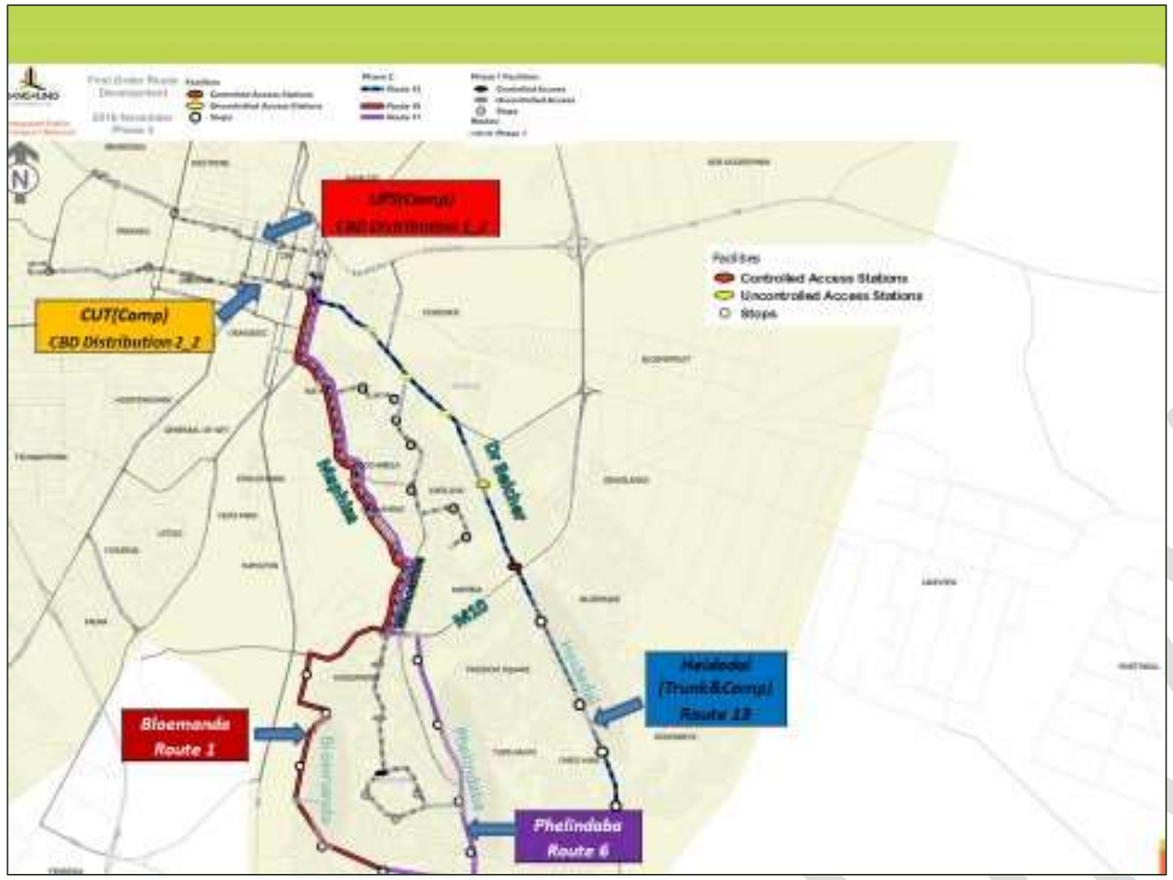


Figure 24-3: Phase 2 Route Alignment

24.1.3 IPTN Phase 3

The Phase 3 alignment is planned to provide full coverage of the proposed IPTN services to the entire South Eastern Quadrant. Figure 24-4 provides a proposed alignment for the Phase 3 network. Phase 3 is only planned for implementation after Phase 2 has been completed due to funding limitations created by the Taxi buy-out process. This shifts the go-live date out with a further year for scheduled go-live July 2021. Table 24-3 provides detail on the infrastructure requirements the estimated infrastructure cost and go-live date of Phase 3.

Table 24-3: Statistics for Phase 3 Route Alignment

Routes inclusive to Phase 3	Complementary Routes 12, 13 and 15
Stations (Controlled Access)	None
Stations (Un-Controlled Access)	None
Stops (complementary route)	24 Stops (2 per location)

Service Type	Mixed Traffic lanes (no dedicated lanes)
Infrastructure Distance (km)	16,8 km Complementary Routes
Infrastructure Cost Estimates (R)	± R 50 mil
Go –live	July 2021

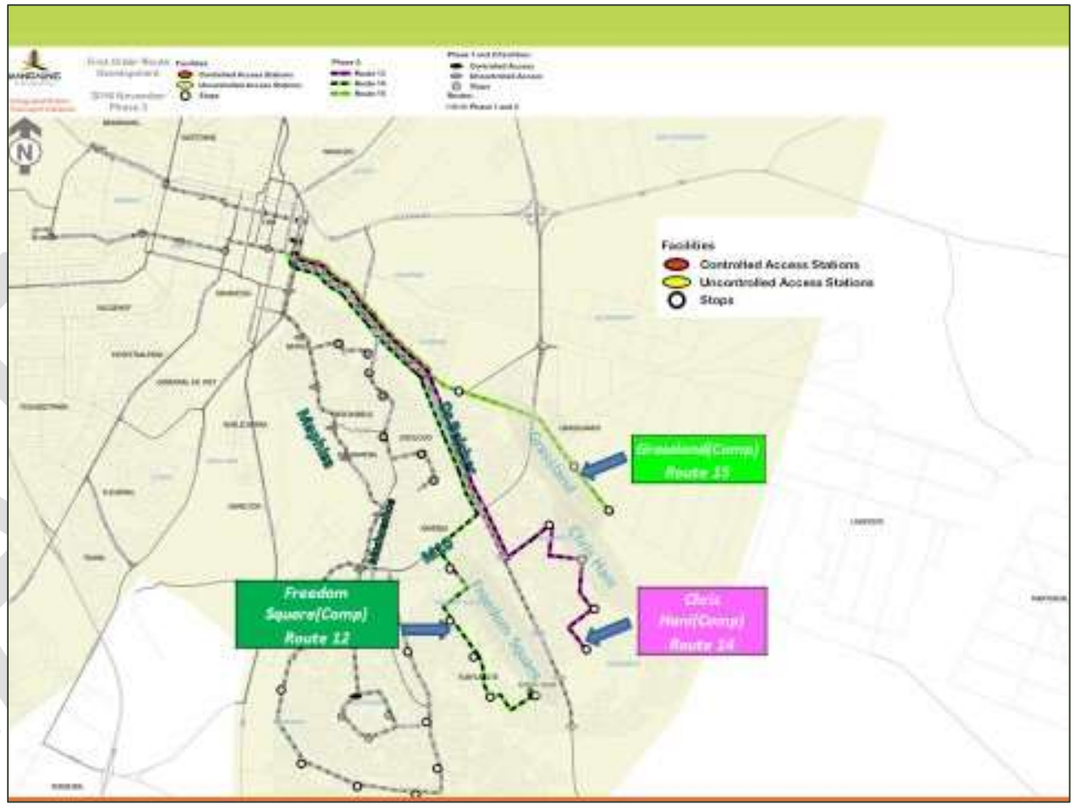


Figure 24-4: Phase 3 Route Alignment

Table 24-4 reflects the comparative analysis of the three (3) phases of the Mangaung IPTN.

Table 24-4: Comparative Statistics for Phases 1, 2 and 3

Descriptions	Phase 1	Phase 2	Phase 3
Description of Phases	CBD Complementary 1, CBD Complementary 2, Trunk Routes 1 & 2 and Complementary Route 1	Complementary Routes 1 and 6, Route 13 (Trunk Dr Boucher)	Complementary Routes 12, 13 and 15
Stations (Controlled Access)	4 stations (2 per location)	2 stations (2 per location)	None
Stations (Un-Controlled Access)	18 Stations (2 per location)	8 Stations (2 per location)	None

Stops (CBD)	16 Stations (2 per location)		
Stops (complementary route)	3 Stops (1 per location) - Crescent 14 Stops (2 per location) – Comp Route 1	8 Stops (2 per location)	24 Stops (2 per location)
Service Type	Mixed Traffic lanes (no dedicated lanes)	Mixed Traffic lanes (no dedicated lanes)	Mixed Traffic lanes (no dedicated lanes)
Infrastructure Distance (km)	6.5 km Trunk Route 27.2 km Complementary Routes	5,1 km (Trunk route) 4.4 km Complementary Routes	16,8 km Complementary Routes
Infrastructure Cost Estimates (R)	± R 240 mil	± R 70 mil	± R 50 mil
Go –live	**July 2019**	**July 2020**	**July 2021**

24.2 Infrastructure

In view of the limited budget allocations to Mangaung for the IPTN, limited civil works and IPTN related infrastructure are proposed for Phase 1 and 2. This infrastructure mainly includes:

- Extensive NMT infrastructure plans (walkways and cycle paths),
- 6 Access controlled stations (Phases 1, 2 and 3),
- Numerous uncontrolled access stations,
- Numerous Bus stops,
- Improving accessibility to include Inter-Modal facility to incorporate Taxi's and IPTN buses
- Limited roadway and busway improvements
- Resurfacing of existing roads (trunk & complementaries)
- Road furniture,
- Provision of a Bus Depot to house approximate 300 buses (includes future phasing),
- Intersection upgrades and improvements,
- Comms, ticketing and CCTV infrastructure provision,
- Traffic Control measures and improvements, etc.

A large number of the community within the SEQ rather choose to walk to the CBD and their place of work. This is done because the city is fairly flat and walking distances are relatively short compared to other cities. It is for this reason that the planning of the IPTN includes an extensive NMT programme for all three (3) phases of the Ops Plan. The budget makes provision for NMT as a separate budgetary component which is aligned to the phased approach of the IPTN system. The individual project details, budgets and timeframes for implementation of the respective NMT projects are shown in more detail in Chapter 8 (NMT).

NMT projects are not only identified for areas surrounding the IPTN phases but also includes areas which only forms part of future phases such as Thaba Ncu and Botshabelo. Both the aforementioned areas are currently serviced by provincially contracted (subsidised) bus services (IBL). These bus services operate between the CBD of Bloemfontein and the Thaba Ncu and Botshabelo areas. It is however important to make adequate provision for NMT facilities in these areas because commuters walk to taxi and bus facilities to access public transport going to the city. The NMT programme already commences with the implementation of Phase 1 but subsequently has a long-term implementation plan across all future Phases and mainly to continuously improve this mode (walking) of transport.

24.3 Approved Capital Budgets

According to the Mangaung Metropolitan Municipality's approved MTEF budget for the period 2016/17 to 2018/19, a number of NMT and other infrastructure are earmarked for implementation as part of the IPTN. The budget allocation for the 2016/17 FY is fairly fixed as these projects are currently in the design stage, ready for implementation during the 2016/17 FY. The capital budgets for the outer years (beyond 2019) can however still be adjusted according to the requirements of the IPTN Planning processes. These budgets will however have to be adjusted and approved by the annual Adjustment Budget process. The figures of the capital budgets for FY 2017/18 and 2018/19 is thus indicative of the MMM's commitment to implement specific IPTN related infrastructure over the period mentioned. The projects list shown in Table 24-5, is based on Phase 1 of the IPTN. Excluded from this budget however is the administrative and organisational establishment costs, management costs as well as the Industry buy-out costs.

Table 24-5: MTEF Approved 2016/17 to 2018/19 Capital Budget of the Mangaung IPTN

No	Project Number	Project Name	Approved multi-year budget		
			2016/17	2017/18	2018/19
1	6122010014	Control Centre			R 20 000 000
2	6122010002	Botshabelo NMT		R 10 000 000	
3	6122010003	Thaba Nchu NMT		R 10 000 000	
4	6122010012	IPTN PH 1A Maphisa Trunk Stations		R 16 000 000	
5	6122010011	IPTN PH 1A Fort Hare Trunk Stations		R 32 000 000	R 18 000 000
6	6122010004	Mangaung NMT			R 10 000 000
7	6122010007	IPTN Ella Street NMT	R 1 000 000		
8	6122010001	IPTN Elizabeth NMT	R 1 500 000	R 10 000 000	
9	6122010008	IPTN Park Road NMT	R 2 500 000		
10	6122010010	IPTN PH 1A Maphisa Trunk Corridor - NMT (1 km)	R 4 600 000		
11	6122010005	IPTN PH 1A Fort Hare Trunk Corridor - NMT (1 km)	R 13 000 000		
12	6122010006	IPTN PH 1A Harvey Road Trunk Corridor – NMT (1km)	R 13 000 000		
13	6122010009	IPTN PH 1B Fort Hare & Harvey Rd Trunks – NMT (1km)	R 44 542 000	R 30 000 000	R 35 000 000
14	6122010015	Intelligent Transport System		R 3 000 000	R 12 045 000
15	6122010013	IPTN Depot		R 9 042 000	R 40 000 000
	Totals per Financial Year		R 80 142 000	R 120 042 000	R 135 045 000

Source: MMM Approved MTEF 2016 – 2019 Table Sa36 page 124

The details of the individual NMT projects listed in Table 24-5 above and the specific measures proposed for Phase 1 of the IPTN can be seen under Chapter 8 (Non-Motorised Transport).

24.4 Capital Projects Implementation

The proposed capital projects for the 2016/17 financial year can be grouped into mainly four individual projects. These projects are:

- NMT in Mangaung CBD, Thaba Nchu and Botshabelo
- IPTN Pedestrian Bridge in the CBD
- NMT along the Trunk route in Harvey Road
- NMT along the Trunk route in Fort Hare and Harvey Roads

The budget allocation of the four projects have been revised from the approved MTEF of the Municipality ass can be seen in Table 24-6 below.

Table 24-6: Proposed Capital Budget Implementation Process and Budgets (2016/17)

Item No.	Description of Services	Due Date	Estimated Cost
1	**Provision of NMT Facilities**		
1,1	Stage 1 Inception	Sep-16	R 110 297
1,2	Stage 2 Concept	Nov-16	R 551 488
1,3	Stage 3 Design	Dec-16	R 551 488
1,4	Stage 4 Document & Procurement	Jan-17	R 330 892
1,5	Stage 5 Contract Administration	Feb-17	R 551 488
1,6	Stage 5 Construction Month 1 (Two Contractors)	Feb-17	R 5 534 756
1,7	Stage 5 Construction Month 2 (Two Contractors)	Mar-17	R 5 534 756
1,8	Stage 5 Construction Month 3 (Two Contractors)	Apr-17	R 5 534 756
1,9	Stage 5 Construction Month 4 (Two Contractors)	May-17	R 5 534 756
1,10	Stage 6 Close-Out	Jun-17	R 110 297
	TOTAL		**R 24 344 979**
2	**Pedestrian Bridge**		
2,1	Stage 1 Inception	Sep-16	R 350 264
2,2	Stage 2 Concept	Dec-16	R 1 401 058
2,3	Stage 3 Design	Feb-17	R 2 101 587
2,4	Stage 4 Document & Procurement	Mar-17	R 1 050 793
2,5	Stage 5 Contract Administration	May-17	R 1 751 322
	TOTAL		**R 6 655 025**
3	**Trunk Route Phase 1A**		
3,1	Road furniture & NMT Project Management	Feb-17	R 690 000
3,2	Road furniture & NMT Construction Month 1	Mar-17	R 1 303 333
3,2	Road furniture & NMT Construction Month 2	Apr-17	R 1 303 333
3,3	Road furniture & NMT Construction Month 3	May-17	R 1 303 333
	TOTAL		**R 4 600 000**
4	**Trunk Phase 1B**		
4,1	Stage 1 Inception	Nov-16	R 222 710
4,2	Stage 2 Concept	Dec-16	R 1 113 550
4,3	Stage 3 Design	Jan-17	R 1 113 550
4,4	Stage 4 Document & Procurement	Feb-17	R 668 130
4,5	Stage 5 Contract Administration	Mar-17	R 1 113 550
4,6	Stage 5 Construction Month 1 (Two Contractors)	Mar-17	R 10 021 950
4,7	Stage 5 Construction Month 2 (Two Contractors)	Apr-17	R 10 021 950
4,8	Stage 5 Construction Month 3 (Two Contractors)	May-17	R 10 021 950
4,9	Stage 5 Construction Month 4 (Two Contractors)	Jun-17	R 10 021 950
4,10	Stage 6 Close-Out		R 222 710
			R 44 542 000
TOTAL (Projects 1, 2, 3 & 4)			**R 80 142 004**

The capital project spending reflected in Table 24-6 above is in line with the implementation plan of the project and therefore the MTEF reflected in Section 24.3 should be adjusted to align with spending reflected in Table 24-6. It is however important to note that the changes in project budgeting (as per Table 24-6 above) have not yet been approved through the Adjustment budget process required by the MFMA. The overall approved capital budget for the IPTN for the 2016/17 FY however remains the same at R 80 142 000 and it is only the spread of capital between specific projects that differs from the approved MTEF of the MMM.

The spending under the specific processes indicate that the intention of the MMM is to have as many contractors possible appointed by the latest March 2017 where after approximately three (3) months remain for implementation. In some instances the implementation of the projects show a six (6) month implementation timeframe whereby the NDoT will be requested to provide for a budget rollover for the 2017/18 financial year. The contractual commitment will however have been made with contractors and service providers by the Municipality. Approving budget rollovers by NDoT will allow the Municipality adequate time to finalise these projects which forms part of the overall IPTN project of the MMM.

24.5 Approach to Implementation

The economies of scale from an infrastructure provision, operational costing vs income generation perspective improves as more phases are implemented and comes on line. Improved financial benefits through fare revenue will be achieved as more phases come on-line. It is thus important to constantly measure the operational and infrastructure related costs against passenger demand, fare box revenue and the city's ability to implement new phases, given the limited funding available to the MMM to implement.

With the phasing planned as highlighted above the focus was rather on improving current PT services within the Mangaung area through the addition of limited infrastructure. Furthermore, a vastly reduced service offering is proposed for Mangaung which will rather be a high quality service than the conventional Full BRT service. It should however be noted that the major cost drivers of the IPTN system are the Taxi and Bus industry buy-outs. Other cost drivers also include the provision of a Bus Depot, the VOC and the Internal Business Unit which increases implementation and operational costs severely on an annual basis. The aim was to limit these to the minimum to reduce the long term financial dependency (funding short falls) on the Municipality to a minimum.

25 Public Participation, Marketing and Communications

25.1 Public Participation

25.1.1 Introduction

The Integrated Public Transport Network being implemented by Mangaung Metropolitan Municipality is expected to alter the economic landscape of Bloemfontein and change the living conditions of the ratepayers for the better. The introduction of the modern and sophisticated transport service will change the way people commute for both social and economic reasons. The system will bring more reliability, efficiency and safety to the way people move from one place to another. The implementation phase including construction and other earthwork related activities, may result in short term inconveniences to the public. There's a therefore a profound need to communicate regularly the various phases of the project from inception to completion. It is for this reason the Marketing and Communications Workstream of the IPTN has been established to ensure that there's proper profiling of the project and that ratepayers are kept abreast of developments regarding the implementation of the IPTN system. An Integrated Marketing Communication strategy is in place to ensure phased approach to the task of profiling and communicating issues related to the IPTN project.

25.1.2 General Project Consultation

Key stakeholders to the project have been identified and form part of a stakeholder matrix to ensure that relevant parties are consulted and kept abreast of developments and progress around the IPTN project. The stakeholders are segmented according to their role and impact on the project. Thus far the stakeholders who have been active on the project are leaders of the taxi industry (under Industry Transition). Other stakeholders include ratepayers regarding the effects of the IPTN project to their day to day lives, particularly those who will be affected by the construction process and may need to be relocated. The Environmental management team also has a dedicated workstream wherein it takes responsibility for ensuring that there's full compliance with relevant statutes in this regard.

25.1.3 Objectives of the Public Participation Process

The primary objectives the Public Participation process could be summed up as follows:

- To enlist the buy-in of citizens/ratepayers on the IPTN project
- To instill a sense of ownership and pride on the project/system.
- To ensure that we implement a system that responds to people's needs and challenges as opposed to making assumptions.
- To ensure that relevant stakeholders play their part in respective areas of the project that concern them, i.e. taxi industry.
- To ensure that the system doesn't become a white elephant once completed and gets to be used as envisaged.

25.1.3.1 Consultation Mechanisms

Mechanisms of carrying out consultation processes may vary from one stakeholder to the other. The Industry Transition team had to convene meetings with leaders of various taxi industry associations with their technical advisors. In consulting members of the public, the following mechanisms are explored:

- Town/community hall public meetings.
- Public notices through media.
- Official municipal correspondence
- Media advertising
- Meetings with selected communities by municipal councillors.

25.1.3.2 Environmental Impact Assessments

The Environmental Management team works closely with the Marketing and Communication workstream to ensure that all matters related to compliance with environmental statutes are clearly communicated and adhered to.

25.1.4 The Communication strategy

The Integrated Marketing Communication strategy outlines a phased approach to this process. It propagates a process that fosters the communication of milestones achieved in the project. This includes all processes that need to be concluded an initiation stages such as the signing of the Memorandum of Agreement with the taxi industry. The strategy also outlines the need to communicate to the public once construction begins to ensure that they are informed of any impact on their daily lives, i.e. closure of roads/routes and available detours during this period. The strategy emphasises the need for the creation of a website through which information would disseminated to commuters. The website would also work as an interactive platform to solicit service feedback from commuters.

As part of the strategy, the following have been achieved thus far:

- Completion of the Integrated Marketing Communication strategy
- Initiation of Corporate Identity of the IPTN system
- Conclusion of partnership with the Central University of Technology regarding the above
- Conclusion of media partnership with the SABC
- Planning and hosting the signing ceremony of the MoA with taxi industry
- Relaunch of the IPTN project by the Executive Mayor

25.1.5 Communication Mechanisms during Construction

The team will ensure proactive communication during the construction phase to ensure that inconveniences are minimised regarding the day to day lives of members of the public. This would include increased travel times due to closure of roads during construction and advice on the necessary adjustments they need to make. Various methods are used to achieve this:

- Community meetings.
- Public notices through media.
- Notices usung official municipal correspondence, i.e. statements of account.
- Media advertising, i.e. radio, print media, notices on information boards, outdoor media, etc.
- Visible notice boards in areas leading to or surrounding construction sites.

25.1.6 Conclusion

A decision is awaited regarding the status of the previous name of the IPTN system (Hauweng). Should it be decided by the leadership of the Municipality that the process of naming the IPTN system be started anew, a public consultation process will ensue. This would include getting members of the public to participate in the process of naming the system. This would be done in partnership with organisations like the SABC and community radio stations - using some of their popular platforms such as primetime shows. So we have been adhering to the set timelines save for some minor delays due to availability of stakeholders in certain processes. .

25.2 Customer Information Services and Integrated Marketing and Communications (CIS & IMC)

25.2.1 Introduction

The Customer Information Service is an important function of the IPTN system. From a communication point of view, our role would be ensuring that queries lodged regarding operations of the system are attended to timeously. The CIS platform will be useful for the proactive communication of technical information regarding operations of the system, i.e. delays experienced in the service, suspension of the service, disruption of service due to labour disputes, etc.

25.2.2 Customer Relationship Management (CRM)

Through the functions performed under Customer Information Services, the operator of the system will be able to source customer feedback regarding the efficiency of the service or challenges experienced thereof. This feedback mechanism in turn would assist the operator in coming up with immediate interventions to address challenges raised by commuters. Customer Relationship Management will also be implemented through customer satisfaction surveys conducted physically (field agents) or using the website of the IPTN system.

Annexure A: Example Annexure