

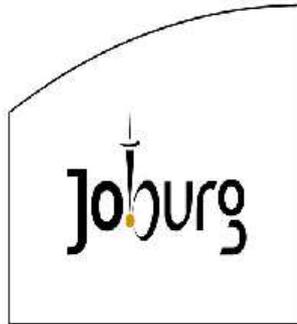
APPENDIX A – MTC BUSINESS PLAN 2018/2019

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2018/19 BUSINESS PLANS
with 2017/2018 adjustment



APPENDIX B1 – SALE OF ASSET TERMS

1. The sale of the network asset will transfer ownership of all the physical components of the network asset which includes the Passive network and the Active network.
2. The asset sale will include all nodes and associated equipment, fibre and operational monitoring software.
3. The sale of the network asset will include the transfer of liability of all contracts currently signed with service providers who are leasing current dark fibre assets.
4. The successful bidder will incur all capex and operational expenses related to new (added) network components and maintenance from the date of sale.
5. All responses to the RFP must be prepared to reach acceptable terms for collocation, power, secure space, etc. with all collocation space owners currently housing MTC equipment, circuits or fibre (only some of which may be State agencies).
6. The bidder must demonstrate the ability to secure adequate collocation agreements in such a manner as to provide seamless delivery of existing services prior to closing.
7. In the event of a sale, network services will no longer be restricted to original authorized users. Following a sale, MTC would become an open network.
8. A sale transaction will be in the form of the purchase of the MTC's assets (excluding land and buildings)
9. Citizens in low-income areas are particularly vulnerable and broadband is important to help level the playing field. As the world becomes increasingly connected, broadband access is key to education, job training and even access to one's own medical records. We expect bidders to this RFP to be sensitive to this reality and to be willing to work with MTC to develop creative solutions for supporting all members of the community with equitable services.
10. MTC is committed to creating an open, non-discriminatory network that values customer choice. MTC's network is a municipality owned, carrier-neutral, open-access, middle-mile network that provides wholesale connectivity at reasonable prices under non-discriminatory terms to ISPs.
11. The physical network is designed to facilitate interconnection to support multiple last-mile carriers co-existing in the same geographic area. MTC will therefore agree to sell to service providers that embrace a policy of net neutrality in their operations.
12. The bidders are expected to share an open access policy which states the operator's intention to interconnect and wholesale bandwidth services to any qualified ISP at reasonable rates.
13. The purchaser agrees to offer network services to MTC who in turn supplies Government (CoJ Departments, MoEs, Government Departments in the City), Retail (Public and Residential) and Wholesale (Enterprises) for the period of 12 years (to be reviewed every 3 years), based on the service contract covered in Section B 1.2.
14. MTC has been mandated to contribute to socio-economic development and empowerment. This will be done using SMMEs. MTC will on board SMMEs as agents to resell services to its residential and enterprise customers. The procurement of services related to this Agreement from the Service Provider will be in accordance with preferential procurement regulations on subcontracting. MTC will require that 30 percent of services must be provisioned by SMMEs. The Service Provider will be responsible for developing the skills of small enterprises on MTC's SMME program. Skills development includes but is not limited to, business and practical training. Until such time, if any, as this Agreement is terminated pursuant to this Agreement, the selected Service Provider will not directly or indirectly, solicit, initiate, entertain or accept any proposals from, discuss or negotiate with, provide any agreement to work with and or engage with any SMMEs, without the knowledge, consent, screening and approval by the appointed MTC account managers and executives responsible for the SMME plan.
15. Should the bidder wish to sub-contract any portion of the contract, the bidder is requested to provide the necessary details of the sub-contracting party. In line with the relevant regulations, the sub-contracting party must be a Black Owned Enterprise with 51 percent,

- or more, black ownership and any of female black owned, youth black owned, black people with disabilities owned or black military veterans owned enterprises.
16. The bidder is not entitled to sub-contract more than 25 percent of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level of bidder, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contracted portion. It is therefore important that the sub-contractors B-BBEE certificate is provided.
 17. MTC requires a first right of refusal on the option to purchase the network asset at the end of the agreed period, and thus requires the bidder to submit a proposal to this effect (i.e. how this requirement will be enabled).

APPENDIX B2 – SALE OF ASSET – INFORMATION STATEMENT

Attached Sale of Asset - Information Statement

**INFORMATION STATEMENT IN TERMS OF THE MUNICIPAL FINANCE
MANAGEMENT ACT: MUNICIPAL ASSET TRANSFER REGULATIONS, 2008
REGULATION 5(3)(B) AND REGULATION 8(3)(B)**

MTC TRANSFER OF JBN BROADBAND NETWORK

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SECTION A: Purpose and Background

1. PURPOSE OF THE INFORMATION STATEMENT

1.1. The purpose of this information statement is to provide the Municipal Council of the City of Johannesburg, the parent Municipality of Metropolitan Trading Company (“**MTC**”), in compliance with regulations 5(3)(b) and 8(3)(b), with sufficient information in order to:-

1.1.1. Conduct a public participation process to facilitate the determinations of the Council to assess whether the JBN Broadband Network is considered a high value asset and whether the asset is not needed to provide the minimum level of basic municipal services;

1.1.2. Allow the Municipal Council to approve the transfer or disposal of the JBN Broadband Network in principle and fully consider the accompanying consequences of the proposed transfer or disposal; and

1.1.3. Request the Municipal Council to authorise the public participation process.

2. BACKGROUND

2.1. The City of Johannesburg Vision 2040 has identified optimal deployment of ICT as a critical factor in the City’s development, through access to economic opportunities, knowledge and greater access to services.

2.2. It recognises the ability of ICT to move the City’s economy to a qualitatively higher state of deployment and acknowledges that there is a low percentage of households with access to computers and internet,

especially broadband connectivity, which is a serious impediment in the achievement of the City's ICT objectives, as well as the achievement of socio-economic goals that ICT can help the City achieve.

2.3. The City's vision is in line with the National Development Plan, which is of the view that universally available and affordable digital services will serve the achievement of the following objectives:-

- Promoting economic growth;
- Development and competitiveness;
- Driving the creation of decent work;
- Promotion of nation building and strengthening social cohesion;
- Connecting the public administration and the citizens;
- Making educational and information products accessible to all; and
- Reducing spatial exclusion and enabling seamless participation by the majority in the global ICT system, not simply as users but as content developers and application innovators.

2.4. In June 2010 Ericsson South Africa was commissioned to Build and Operate a City-wide broadband network for the City of Johannesburg over a 15 year period. The Broadband Network would be transferred back to the City after the 15 years. Of the 15 years, the first 3 years were contracted for the building of the broadband infrastructure and the following 12 years would be for the service provider to operate and commercialise the Broadband Network in order to realise its investment with the City and its entities being the main tenant for the service provider.

2.5. Ericsson South Africa subsequently ceded the agreement with the City of Johannesburg to Citi Connect Communications ("**CCC**") to build the Johannesburg Broadband Network ("**JBN**"). The City of Johannesburg together with Ericsson South Africa established B-Wired to operate and

commercialise the network for the duration of the Build, Operate and Transfer (“**BOT**”) contract.

- 2.6. By the middle of 2013, CCC had built approximately 900 kilometres of the network and B-Wired had already started operating and commercialising the network. An assessment of the building and operation of the Broadband Network, however, revealed significant breaches of the agreement. The City had to terminate the BOT agreement due to non-performance on CCC’s part and other breaches of the agreement.
- 2.7. Following the conclusion of the arbitration process and the payment of the settlement amount, the City conducted an assessment on the feasibility of the business case for owning and operating the network. A due diligence of the network was also conducted to confirm the status of the network infrastructure as well as its functionality. The City then started a process of in-sourcing the Broadband Network.
- 2.8. The City planned to use the Broadband Network to lower its own costs and those of its Municipal Owned Entities (“**MOEs**”), and to increase access to telecommunications services by its residents in the City, and in the process stimulate economic development and improve Municipal service delivery.
- 2.9. In September 2015, MTC, the MOE established by the City of Johannesburg to take over operations of the Broadband Network, received transfer from the City of Johannesburg of the Broadband Network as a going-concern telecommunications business with network assets, intangibles and creditors for approximately R1.25 billion, financed by means of a shareholder loan account.
- 2.10. MTC is and was established as a Broadband Network Company designed to offer both wholesale data services to public and private entities as well as retail and also provide incidental services on behalf of the City. Spare capacity on the JBN run by MTC is provided to Network Operators and to

ICT Resellers who then sell directly to Enterprises, SMMEs and households. In addition, the Company performs any other municipal service assigned to it by the City as defined in the Service Delivery Agreement (“**SDA**”) entered into between MTC and the City, as amended from time to time, this forms part of its core mandate.

2.11. MTC is responsible for the enablement of the many Smart City programmes of the City as well as the rendering of the full spectrum of networking services and other incidental services to the City and many of its Municipal Entities which also forms part of its core mandate.

2.12. MTC began operating as such as at 4 September 2015, through its Memorandum of Incorporation.

3. EXECUTIVE SUMMARY

3.1. The MTC mandate, as directed by the City in order to advance service delivery and revenue generation, has been hampered due to the following:-

3.1.1. MTC’s budget not being sufficient to maintain and upgrade the network in a way that impacts customer experience positively and increase customer base to generate additional external revenue;

3.1.2. MTC’s inability to implement rigorous preventative maintenance, continuous monitoring of outages, properly establish control and call centres and rapid response to issues;

3.1.3. MTC’s inability to service the R1.25 billion shareholder loan to the City, which has increased to R1.7 billion, as at 28 February 2019, due to interest;

- 3.1.4. As at June 2018, MTC's financial performance was at a surplus of R47 million however, MTC's financial position reflects accumulated losses at approximately R656 million as a result of losses incurred in previous financial years.
 - 3.1.5. The ability of MTC to continue as a going concern has been dependant on a number of factors. The most significant of these is that the directors continue to procure funding for the ongoing operations of MTC and re-negotiate the terms and conditions of the conduit loan that was used to fund the acquisition of the broadband network business; and
 - 3.1.6. There is insufficient time to market and develop the network in a way that will increase the MTC customer base and profitability.
- 3.2. A new business model was thus proposed to place MTC in a better position to honour its mandate of providing reliable broadband services to the City of Johannesburg.
- 3.2.1. The new business model focuses on raising capital that will allow MTC to honour a significant portion of its total shareholder debt of R1.7 billion, through the selling of the Broadband Network asset to a service provider.
 - 3.2.2. The sale of asset will also allow MTC to advance its business and continue to perform its intended mandate and provide reliable services to the City of Johannesburg and its critical programmes.

- 3.2.3. Once the asset has been sold, MTC will enter into a service level agreement with the service provider in order to purchase network services.
- 3.3. The burden of upgrading, maintaining and operating the network will thus be transferred to the service provider.
- 3.4. The services purchased from the service provider will be at a favourably negotiated price, which will allow MTC to continue fulfilling its mandate.
- 3.5. The carrying value of the network asset is R600 579 000 as per the audited financial statement, as at 30 June 2018, is broken down as follows:-

<i>Item</i>	<i>Network Asset</i>	<i>Intangible Asset</i>	<i>Total</i>
<i>Cost</i>	<i>R665 994 000</i>	<i>R115 800 000</i>	<i>R781 794 000</i>
<i>Accumulated depreciation</i>	<i>(R110 745 000)</i>	<i>(R70 470 000)</i>	<i>(R181 215 000)</i>
<i>2017/2018 total carrying value</i>	<i>R555 249 000</i>	<i>R45 330 000</i>	<i>R600 579 000</i>

- 3.6. MTC believes that it can sell the asset at a range between R853 million and R1.008 billion which will allow MTC to retain the business, honour its financial obligations and perform its intended mandate at a profitable level, through obtaining services from the service provider at discounted rates.
- 3.7. It is anticipated that a procurement process aimed at ensuring that the transfer of ownership of the asset will be done simultaneously with the procurement process for the supply of services which is fair, equitable,

transparent and competitive, in keeping with the Municipality's supply chain management policy.

- 3.8. Both the transfer of asset process and the procurement of services will commence upon Council's approval of the public participation process which is aimed at facilitating the determinations of the Council and assess whether the asset is considered a high value asset and whether the asset is not needed to provide the minimum level of basic municipal services as well as approve the transfer or disposal of the asset in principle.
- 3.9. The appointment of the potential buyer of the asset and service provider will be done on condition that Council approves the transfer of the asset in terms of Regulation 10 of the MFMA as well as the completion of the Section 33 process of the MFMA.

SECTION B: Information Statement Requirements

4. This information statement shall provide details on the following:-

- a. The valuation of the asset and the method used;
- b. The reasons for the sale;
- c. The benefits;
- d. The proceeds; and
- e. The expected gains and/or losses.

4.1. VALUATION OF ASSETS

A. Valuation of the 2015 procured asset

4.1.1. The MTC JBN Broadband Network has been verified and it was confirmed that the asset indeed exist. MTC appointed Accenture to conduct an independent valuation of the network in June 2018.

4.1.2. The Auditor General of South Africa has audited the 2017/2018 Annual Financial Statement. There were no findings raised by the Auditor General regarding the asset.

4.1.3. The summary below provides the information of the verified network asset:-

Distance Type	“As Build’ Documentation Distance (in Km)	Verified Distance (in Km)
Total Fibre Length	3000	2945.95
Total Trench Length	1150	897.26

4.1.4. The network consists of two layers – the active and passive network.

4.1.5. The **active network** uses electrically powered switching equipment, such as a router or a switch, to manage signal distribution and direct signals to customers.

4.1.6. MTC’s active network is located at the Core, Metro, Aggregation Nodes, and Access Sites. The current network comprises of the following components:-

4.1.6.1. 9 Core (Super) Nodes that jointly manage all data traffic across the entire Network;

4.1.6.2. 7 Metro Nodes that manage traffic data within a restricted portion of the Network;

4.1.6.3. 29 Aggregation Nodes. These are similar to a metro node, however cover a smaller portion of the Network;

4.1.6.4. 275 Access Sites;

4.1.6.5. 5 rings which connect the nodes. These links give the network redundancy i.e. in the event that one link goes down, the node is still operational;

4.1.6.6. The core nodes are located in the following areas:-

- Midrand Teljoy Building;
- Sandton Library;
- Randburg Civic;
- Roodepoort Civic;
- Johannesburg Metro Centre;
- Jabulani Civic;
- JMPD Martaindale;
- City Power Reuven; and
- Region G Admin

4.1.6.7. The network consists of two types of assets:-

a. Tangible Assets:-

- Active Network



- Passive Network



Manhole



Duct



Fibre



Civils

b. Intangible Assets

- Licences;
- Tools (service desk and OpManager)

4.1.7. The **passive network**, such as Routes, Fibre and Patching Equipment, uses optical splitters to separate and collect optical signals and only requires powered equipment at the source and receiving ends of the signal.

4.1.8. MTC's passive network includes 390 leased cable infrastructure links. This covers the MTN, Internet Solutions, MWEB and Cool Ideas links.

Active and Passive Network Components

Network layer	Equipment
Active	Routers
	Switches
	OPW's
Passive	Fibre (96/48/12 core strands)
	Ducting
	Manholes
	Patch panels
	Civils

4.1.9. It was also confirmed that 2945,95km out of the 3000km of the total fibre length was verified and that 897.26km of the 1150km of total trench length was verified. (The total fibre length and the duct lengths were approximate figures given on the MTC request for quotation for asset verification). The other parts of the network were not verified because their sites were not completed due to challenges with the community and access challenges. The trenches were dug, but fibre could not be installed.

4.1.10. The valuation exercise concluded the following fair values for the MTC JBN network assets:

Asset Types and Summary Totals on 2015 Replacement Cost

Cost Type	Total (2015 New Replacement Cost)	Total Fair Value
Total Route Cost	R609 616 636.54	R544 590 861.97
Total Equipment Cost	R80 203 773.81	R50 971 915.75

Total Equipment Installation Cost	R2 422 340.13	R1 499 543.89
Total Equipment Configuration Cost	R9 278 676.64	R5 743 942.68
Total Network Design Cost	R6 891 140.19	R6 156 085.24
NOC Software/Hardware	R39 306 488.30	R28 824 758.08
Wayleave Expenditure	R4 159 782.00	R3 716 071.92
Customer Relationship Intangible Assets		R85 156 417.00
	R751 878 837.60	R726 659 596.53

METHOD USED TO EVALUATE ASSETS

4.1.11. The following method was used when evaluating the MTC JBN network asset:

4.1.11.1. The **2015 new replacement cost** was determined using the cost of similar function equipment as currently available in the market according to averaged prices of suppliers willing to quote and is supported by internationally sourced indicative prices. Appropriate indices from official sources to reflect replacement costs in September 2015 were determined and applied, based on South African Cost Price Indices, StatsSA Telecommunications Equipment Index, and ZAR equivalents of US Dollar inflation, as appropriate to each asset type, between September 2015 and April 2018.

- 4.1.11.2. The **fair value** considers the remaining useful life for each asset type, as at September 2015. Based on management information of an average installation date of December 2012 for all assets, the remaining useful life for each asset type amounts to the economic useful life less 32 months (useful life that has elapsed).
- 4.1.11.3. The NOC Software/Hardware, Wayleave Expenditure and Customer Relationship Intangible Asset (active contracts) values were provided by MTC management.
- 4.1.11.4. The scope of the Valuation was restricted to long-term assets of the telecoms business purchased in September 2015, comprising of Routes, Network Equipment at Nodes, NOC Software/Hardware, and associated intangible assets, but excluding other MTC assets such as “insurance” assets held for contingencies, etc.
- 4.1.11.5. The GRAP 106 was applied for assets acquired or purchased through a transfer of function (business combination) which stated that assets must be initially measured at fair value on the date of acquisition. In determining the fair value, GRAP17 was referred to as a guidance. The following principles of GRAP17 were considered:-
- 4.1.11.5.1. Fair value may be estimated using a depreciated replacement cost method;
- 4.1.11.5.2. The depreciated replacement cost of an item of plant or equipment may be established by

reference to the indexed price for the same or a similar asset; and

4.1.11.5.3. When the indexed price method is used, judgement is required to determine whether production technology has changed significantly over the period, and whether the capacity of the reference asset is the same as that of the asset being valued.

4.1.11.6. In terms of GRAP17 and GRAP31 the entity is required to categorise assets into classes in accordance to their nature or function. *The assets* acquired through the transfer of function were classified as follows:

4.1.11.6.1. Network infrastructure – refers to the network routes that connect all the MTC sites, this is generally referred to as the passive network;

4.1.11.6.2. Network equipment – refers to all the network equipment within each node/site, this is generally referred to as the active network;

4.1.11.6.3. Software – refers to licensed programs deployed as part of the network;

4.1.11.6.4. Customer Relationship – refers to revenue contracts ceded through the transfer of function; and

4.1.11.6.5. NOC Software/Hardware – refers to all equipment within the NOC, used to remotely monitor the network.

4.1.12. The approach to Valuation included:-

4.1.12.1. Network Route

4.1.12.1.1. Determine current replacement cost per constructed linear metre of Routes (trenching labour, other labour, locally sourced components and fibre) according to a variety of sources: *including* Quantity Surveyor estimates, MTC project experience, and industry quotations; and

4.1.12.1.2. Estimate the constructed length of each Route according to an assessment of distances provided by physical walk-downs, 'As Build' records, duct length from management records, OTDR measures of fibre length (adjusted to trench length), and Google Maps "walk". The 'As Build' was used as the primary measure of distance; and

4.1.12.1.3. Allocate the cost per metre to the estimated length of each Route.

4.1.12.2. Network Equipment and Software:-

4.1.12.2.1. Determine the current replacement cost of similar function network equipment or software as currently available in the market according to averaged prices of suppliers

willing to quote, supported by internationally sourced indicative prices; and

4.1.12.2.2. Determine current cost of network planning and design, and physical installation and configuration of Node equipment, by reference to engineering and consultant quotations.

4.1.12.3. Other Considerations:-

4.1.12.3.1. Determine appropriate indices from official sources to reflect replacement costs in September 2015, based on South African Consumer Price Index, StatsSA Telecommunications Equipment Index, and ZAR equivalents of US Dollar inflation, as appropriate to each asset type, between September 2015 and April 2018;

4.1.12.3.2. Research economic life of the various asset types according to local and global practice and manufactures' specifications and use as guidance to assess the appropriate asset Useful Life;

4.1.12.3.3. Estimate the number of years the network was in operation before the transfer of function, based on an average installation

date for Routes and Nodes according to management; and

4.1.12.3.4. Estimate remaining useful life as at September 2015 based on the above factors.

4.1.12.4. Operational Exceptions:-

4.1.12.4.1. The design documentation references various routes which, after detailed research, do not seem to exist or is part of an existing issues list known as the 'Assets Under Construction'; and

4.1.12.4.2. The 'Assets Under Construction' were assumed to have been planned as part of the design however never materialise.

B. Enhancement to the procured asset as at 2018, verified and audited

4.1.13. The Network Asset and Intangible asset carrying value as per the audited financial statements as at 30 June 2018 are as follows:-

Item	Network Asset	Intangible Asset	Total
Cost	R665 994 000	R115 800 000	R781 794 000
Accumulated depreciation	(R110 745 000)	(R70 470 000)	(R181 215 000)
Carrying Value – 2017/2018	R555 249 000	R45 330 000	R600 579 000

4.1.14. The cost of R665 994 000 for the Network Assets includes the following:-

- 4.1.14.1. R616 216 000 for the procured asset;
- 4.1.14.2. R33 801 000 for additions to the network asset during the 2016/2017 financial year end; and
- 4.1.14.3. R15 977 000 for additions to the network asset during the 2017/2018 financial year end.

4.1.15. The cost of R115 800 000 for intangible assets includes the following:-

- 4.1.15.1. R110 520 000 for the procured asset;
- 4.1.15.2. R1 171 000 for additions to intangible assets during the 2016/2017 financial year end; and
- 4.1.15.3. R4 109 000 for additions to intangible assets during the 2017/2018 financial year end.

4.1.16. In terms of GRAP standards, it is permitted to state assets and liabilities at provisional amounts in the financial statements when assets and liabilities are acquired from a transfer of function. Therefore, the network asset was provisionally stated in the Annual Financial Statements for 2015/2016 and 2016/2017.

4.1.17. During the 2017/2018 financial year, MTC managed to complete the valuation of the network asset and verification process. The opening balance was re-stated to factor changes in the fair value as at 01 September 2015 (being the acquisition date). The retrospective adjustments as required by GRAP 105 resulted in the following adjustments:-

- 4.1.17.1. A decrease of R333 912 000 of non-current assets as follows:-

4.1.17.1.1. Network Assets: R225 709 000

4.1.17.1.2. Intangible Assets: R78 212 000

4.1.18. Below is a summary of the effect of re-stating of the provisional values:-

Item	Network Asset	Intangible Asset	Total
Provisional Value	R871 925 000	R188 732 000	R1 060 657 000
Value as per asset verification	R616 216 000	R110 520 000	R726 736 000
Difference	R225 709 000	R78 212 000	R333 921 000

4.1.19. It must be noted that there were no disposals of the network assets and intangible assets during the period 5 September 2015 to 30 June 2018.

4.1.20. The carrying value of the Network assets and Intangible assets amounted to R538 489 896 as at 28 February 2019 which can be broken down as follows:-

4.1.20.1. Network assets: R511 023 897. This includes additions amounting to R1 756 678 as at 28 February 2019;

4.1.20.2. Intangible assets: R27 456 999. No additional intangible assets were purchased as at 28 February 2019.

4.2. REASONS FOR SALE

4.2.1. MTC's Mandate:-

- 4.2.1.1. Executing the MTC mandate which is aligned to the City of Johannesburg's Smart City programmes, as well as the rendering of the full spectrum of networking services and other incidental services and municipal services involves the maintenance of an enabling functional and well-maintained network.
- 4.2.1.2. The City of Johannesburg aims to achieve, amongst others, 5% economic growth by 2021 and MTC must contribute to this growth through:-
 - 4.2.1.2.1. Economic development – by using the JBN Broadband Network to assist the City in doing business easily, creating jobs through SMME growth enablement, allowing access to digital services as well as allowing for SMME stimulation;
 - 4.2.1.2.2. Enhance service delivery – through E-Health, E-Learning, E-Licensing, E-Property, digitally enable safer communities and other Smart City solutions;
 - 4.2.1.2.3. Enable digitalisation of the City – through affordable universal connectivity for digital services, supporting all Smart City and Dipheto go programmes; and
 - 4.2.1.2.4. Contributing to social responsibility – through bridging the digital divide, providing free Wi-Fi.

4.2.2. Dependency on the Network in order to achieve the mandate:-

4.2.2.1. Broadband is an essential empowerment tool for people and the use of broadband is driven to an extent by broadband supported services being made available and affordable to consumers. It is thus essential for MTC to ensure that the broadband infrastructure is run effectively at all times and become an enabler of economic growth and SMME sustainability.

4.2.2.2. The current MTC offered services include:-

4.2.2.2.1. Wholesale services:-

- Duct leasing;
- Dark Fibre Leasing;
- Fibre Access

4.2.2.2.2. Business Services / Enterprise Services:-

- IT Enterprise services:-
 - Internet service;
 - Local Area Network;
 - Fibre Maintenance;
 - Hosting;
 - VoIP;
 - CCTV;
 - Wireless Access;
 - Equipment Rental;
 - IT Support;
 - Installation

- Telco offered enterprise services:-
 - MPLS VPN or Layer 3 VPNs;
 - Ethernet link;
 - Managed Services;
 - ISP or CSP Peering

4.2.2.2.3. Residential services:-

- Voice;
- High-speed internet;
- Broadcast TV and Video on Demand (VoD);
- Public Wi-Fi

4.2.2.3. The network capability assessment:-

4.2.2.3.1. The network can currently offer a majority of the Business IT services indicated above. The network is also capable of offering Telco offered business services like MPLS VPN but MTC does not have customers that consume these services.

4.2.2.3.2. Some of the services like Public Wi-Fi are offered in the basic form where users are relayed to the Internet without being identified. A proper Public Wi-Fi should collect information on who is using the network and what they are authorised to do on the Internet. Infrastructure to authenticate and authorise users is required. In this case the network is offering partial capability that requires further investment.

4.2.2.3.3. To properly offer residential services, investment in Subscriber Management Infrastructure is required.

4.2.3. Key Constraints:-

4.2.3.1. The City has investigated the contract concluded with Ericsson South Africa and CCC and concluded that the contract was irregular and that the conduct of Ericsson and CCC was unlawful. It was decided that the City should not conduct business with the two companies and a recommendation was made to National Treasury that the companies should be placed on the list of restricted suppliers. This means MTC is restricted from using Ericsson technology and skills, which makes it difficult to conduct business as the current infrastructure utilises Ericsson equipment.

4.2.3.2. MTC currently does not have sufficient funding to invest on the network infrastructure. MTC receives limited capital budget from the City of Johannesburg and the budget regulatory guidelines further gives constraints in terms of getting capital budget for the purposes of network infrastructure investment.

4.2.3.3. Below shows the table of the approved capital budget given to MTC over the past three (3) years, current year and the approved budget for the next two (2) years:-

2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
R0	R40 000 000	R24 000 000	R4 500 000	R0	R0

4.2.3.4. It has become extremely difficult for MTC to execute its mandate due to not being solvent. There is thus limited funds to assist MTC maintain its Broadband Network and limited prospects of MTC obtaining additional funding from the City, given its inability to honour its commitments related to current total shareholder debt of R1.7 billion.

4.2.3.5. Sustainability Challenges:-

4.2.3.5.1. There is limited funding and the network requires extensive investment to perform upgrades and increase overall functionality; currently MTC cannot function optimally with the current network and its constraints. The City of Johannesburg has indicated that there is no funding available to develop the network robustness. Due to these poor network conditions current service level agreements breaches are possible and this will cost MTC millions;

4.2.3.5.2. There is a concern that competitors are continuously growing;

4.2.3.5.3. The renewals of licenses is costly; and

4.2.3.5.4. The relationship with the current vendor is beyond repair.

4.2.3.6. Limited skillset: MTC does not have sufficient skills and resources within the organisation to maintain the Network and overhaul the asset to scale its operations based on higher demand. Heavy capital and manpower investment

is required to develop the infrastructure to be enabling. There is not enough staff to maintain and operate the asset as there is insufficient budget to fund the organisational structure in order to obtain the required number of skills.

- 4.2.3.7. MTC has limited to no technology customisation capacity which is required to apply required technology customisations to enhance and improve the network.
- 4.2.3.8. MTC has limited to no technology and data integration capacity which is required to apply integration / migration of impacted service onto the MTC network.
- 4.2.3.9. MTC has limited facilities required to house all equipment required to provide services. Nodes are inaccessible after hours thus technicians are unable to repair the network after hours, this impacts service delivery. There is insufficient cooling at some of the sites with temperature readings as high as 25°C (eg. Sandton Library and Alexandra Testing Station). There are manholes, manhole covers and ducts which are damaged and vandalised by the public, which contributes to revenue leakage.
- 4.2.3.10. It will take a long time to develop and market the network and MTC is currently under time pressure from the City of Johannesburg to show value from this network.
- 4.2.3.11. MTC has limited tools of the trade including fleet required to travel to different sites for network safeguarding, maintenance and enhancements.

- 4.2.3.12. There is limited network capabilities which is prohibiting MTC from improving on services currently offered, as well as unlocking untapped value by offering future services (eg. Retail services).
- 4.2.3.13. MTC has to comply with all legislative constraints. The SCM processes which need to be followed are time consuming and make it difficult for MTC to execute its mandate speedily.
- 4.2.3.14. The current network asset itself has become old and unreliable and the following has been found when assessing the network, which adds to MTC's inability to execute its mandate:-
- 4.2.3.14.1. Competitive fibre suppliers have installed fibre on the same route as the MTC infrastructure, which interrupts and interferes with the operations of the MTC JBN network infrastructure;
 - 4.2.3.14.2. There has been vandalism of the network infrastructure and no funds to install sufficient security measures to protect the asset from further vandalism, should the infrastructure be fixed;
 - 4.2.3.14.3. There is inadequate capacity in the services container for MTC infrastructure and additional costs will need to be incurred to install containerised structure to support the City of Johannesburg initiatives and connectivity;

- 4.2.3.14.4. The server rooms at all sites are cluttered and inadequately maintained by a sister department;
- 4.2.3.14.5. There is no 'Enviro-racks' available in any of the data centres;
- 4.2.3.14.6. The MTC Ericsson ECN430 Controller Node devices are unstable and need frequent hard resets, as the EFN324X nodes controlled by the ECN devices freeze due to controller failure, causing all network links on the EFN 324X switches to fail until reset. Some equipment spontaneously restart due to high temperatures of the environment;
- 4.2.3.14.7. There is no preventative and routine maintenance schedule in place for the fibre ring;
- 4.2.3.14.8. There is no corrective maintenance which impacts in the performance of the network;
- 4.2.3.14.9. There is no monitoring of 3rd party works which will affect the integrity of the infrastructure;
- 4.2.3.14.10. There is no remote fibre testing capability and no access control implemented to prevent unauthorised access to the fibre infrastructure;

4.2.3.14.11. Most of the network equipment have worked past their intended lifespan and have thus become unreliable and unstable; and

4.2.3.14.12. There are high outages on the existing network.

4.2.3.15. There is limited growth of the company and this is an on-going concern.

4.2.4. Mitigating Business Model options explored:-

4.2.4.1. Taking into consideration the challenges faced by MTC a decision has been taken to re-evaluate its business plan in order to enable MTC to transform into an effective, sustainable, profitable business with beneficial services to the City of Johannesburg and its residents.

4.2.4.2. When evaluating possible business models to use going forward, the following was considered:-

4.2.4.2.1.1. Option 1 - To repair and maintain the “JBN Broadband Network Asset” and continue operations as is. This option was not viable as MTC would have a challenge to address the urgent needs of the private sector turnaround times and funding;

4.2.4.2.2. Option 2 - Replace all equipment and revitalise MTC to an optimal Structure. This option was also not viable for the same reasons that made Option 1 not viable;

- 4.2.4.2.3. Option 3 – Creating a Joint Venture with a private sector party to rejuvenate MTC. This option was not viable as the Municipal Finance Management Act and the Municipal Systems Act were a concern where the entity of the City cannot have a shareholding by a private party which is less than 51%;
- 4.2.4.2.4. Option 4 - Public Private Partnership. This option was not viable as the history of public private partnerships was reviewed and found to be not successful in most cases. The duration to implement a public private partnership was also a concern as the urgency of normalising the business was a critical consideration;
- 4.2.4.2.5. Option 5 - Build Operate Transfer. This option was considered however after engagement with transactional advisory services it was considered less viable as it required a combination of legal processes including PPP as well as Transfer of Asset processes which would delay the implementation of the new business plan and deprioritise the urgency of normalising the business;
- 4.2.4.2.6. Option 6 – Sell the asset. This option would assist MTC in trying to break even, even if selling the asset as is would result in a R573 million loss if the asset was sold on a fair market value.

- 4.2.4.3. A decision was thus made to proceed in implementing a combination of the options in order to ensure that MTC implements a viable turnaround strategy that will convert MTC into a profitable business with beneficial services to the City of Johannesburg and its residence.
- 4.2.4.4. The new MTC enhanced business model involves selling the Network Asset to a service provider who will own the asset, maintain it, upgrade it in order for it to function properly and commercialise the Network as they please.
- 4.2.4.5. MTC will then purchase the network services at negotiated terms from the service provider.

4.3. BENEFITS

- 4.3.1. With the sale of the asset and the conclusion of a service level agreement, MTC becomes a digital and Smart City enabler for the City of Johannesburg, its entities and citizens by focusing only on commercialisation and leveraging the service provider's network to provide services to MTC customers. This allows MTC to leverage an optimised network to recover costs and generate higher revenues.
- 4.3.2. MTC is able to meet demand and scale services provided to current and future MTC clients.
- 4.3.3. There will be an improved time to market. The expansion of the service catalogue to cater for future revenue streams spanning four (4) targeted main client portfolios (City of Johannesburg, Government Departments, Businesses (retail and/or wholesale) and the Public). The ability to shift to the retail space, through SMME enablement,

where there are greater break-out points to enable greater revenue streams for potential increase revenue. This will stimulate socio-economic growth and support the Smart City initiative.

- 4.3.4. Customer experience will be enhanced as MTC's differentiator enabled by quality and world class service delivery.
- 4.3.5. No technology customisation and no data integration will be required.
- 4.3.6. MTC will have sustainable revenue as a result of secured network assets to ensure that MTC's revenue and brand is not affected. This will ensure sustainability of the organisation and address sabotage, leakage and mileage usage of ducts.
- 4.3.7. There will be improved operational efficiency.
- 4.3.8. MTC will be able to expand on services provided by unlocking untapped value from offering future services (eg. Retail services) as enabled by leading Telco capabilities.
- 4.3.9. All new products and services deployed and scaled to harness the full potential of the network (both active and passive). This will address the challenge of the current underutilisation of the network asset.
- 4.3.10. The leveraging of the service providers network, resource expertise and capacity to provide maintenance will enable MTC to fulfil its current mandate.
- 4.3.11. Following the proposed business model will also assist MTC with its current constraints as follows:-
 - 4.3.11.1. MTC's budget will no longer be affected by the need to maintain and upgrade the network in a way that will impact

customer experience positively. The service provider will be liable for maintaining the network which will allow MTC to focus more on commercialisation of the MTC business and performing at a profit;

4.3.11.2. The sale of the asset as well as MTC's focus on commercialisation will allow it to obtain enough funds to pay off its shareholder loan to the City;

4.3.11.3. There will be no need for MTC to renegotiate the terms of the shareholder loan.

4.4. PROCEEDS

4.4.1. Proceeds expected to be generated from the sale of the asset is broken down as follows:-

- The network asset and intangible asset
- Potential contracts

THE NETWORK ASSET and INTANGIBLE ASSET

4.4.2. The carrying value of the Network assets and Intangible assets amounted to R538 489 896 as at 28 February 2019 (refer to paragraph 4.1.20).

4.4.3. Over a 12 year period, projections show positive returns. Whilst the network asset is subject to depreciation, the revenue continues to generate growth year on year.

POTENTIAL CONTRACTS

- 4.4.4. MTC's previous audited total revenue at 30 June 2018 was R191 million and is projected to increase in the 2018/2019 financial year from R250 million to R350 million.
- 4.4.5. Revenue for MTC is generated either by internal customers such as municipal owned entities and government departments or external customers (private entities such as MTN, Internet Solutions, Link Africa). MTC currently has a mixture of both internal and external customers which has enabled it to grow rapidly since its inception in 2015.
- 4.4.6. The target market plan, seeks out external customers segmented into residential and business with different price plans. Whilst the residential segment targets the different income brackets, the business segment is sub-divided into small-business users, large business users, and key customers. It is expected that the residential market share will increase in revenue by 10%, 20% and 30% in the first three years respectively and from the 4th year the annual growth is projected at 5% per year. For residential customers our target market is 350 000 customers from a potential customer base of 1 million customers. We have targeted a varying base between 45% to 10% to make up the potential market base. The target market base ranged from low income (45%) to higher middle income (10%). For business customers we projected based on the primary CoJ segment of key customers, large business customers and small business customers which amounts to more than 25 000 customers.
- 4.4.7. The total projected revenue from external customers over the 12-year period is estimated from R8.5 billion to R13 billion. Of the projected revenue, MTC currently has existing contracts to the value of

approximately R240 million over the 12 year period. As part of the sale of the asset, MTC expects to receive between R100 million to R150 million as proceeds towards these contracts that will be foregone as a result of the sale.

4.4.8. Revenue projections for internal customers using the current budget as well as the actuals in terms of the extracts from the financial statement and revenue summaries. Furthermore, three types of scenarios were calculated:-

4.4.8.1. Scenario 1 - The current scenario (where the prevailing rate for 100Mbps link is R12 000 and 1Gbps is R76 000 per month respectively);

4.4.8.2. Scenario 2 - A discounted scenario (50% discount); and

4.4.8.3. Scenario 3 - An ideal scenario (where everyone in the City is switched over to a 1Gbps link).

4.4.9. Total projected revenue for all 433 sites would amount to, over a 12 year period, between R4 billion to R5 billion using Scenario 1, between 2 billion to R2.5 billion using Scenario 2, and between R1.5 billion to R2 billion using Scenario 3.

4.4.10. For simplicity, our projection is based on Scenario 3 and that all sites will provide a 1Gbps link.

4.4.11. Based on the signed service level agreement, which will be entered into between MTC and the service provider, we estimate an amount between R100 million to R150 million per annum payable as revenue

to the service provider. However, as part of the sale, the service provider should advance between R100 million to R150 million to MTC.

- 4.4.12. Several internal projects are still in the planning phase by the City of Johannesburg and have not yet kicked-off (e.g. SAP Cloud for COJ, e-Service Payment and Billing). These projects also add to the value of the network asset as the projects will be delivered via the network asset. These projects are valued at a potential between R80 million to R120 million per year over the next 12 years.
- 4.4.13. During the due diligence and building of the asset register, expertise were sought by external contractor at cost of approximately R35.5million. Once the asset was transferred to MTC, MTC had to conduct its own asset valuation. Quotes received from a closed tender amounted to an average of R13.5 million. MTC then proceeded to obtain a quote from an organ of state which was priced at approximately R18 million. As a final decision, MTC then went to seek the services from a panel which was implemented from an open tender process. MTC got a response of R16 million negotiated to R8 million. As a result we believe that going to the market the overall valuation is estimated between R20 million to R30 million. An added value, estimated between R15 million to R20 million, is based on the fact that this information is documented, structured and stored on a cloud-based portal that is well structured, highly available and enables easy access. This brings the total estimated intangible asset value between R35 million and R50 million.
- 4.4.14. The total estimated proceeds ranges between R853 million and R1.008 billion and consists of the following:-

- 4.4.14.1. The carrying value of the Network assets and Intangible assets amounted to R538 million.
- 4.4.14.2. Potential external customer revenue amounts to ranges between R100 million to R150 million.
- 4.4.14.3. Potential internal customer revenue amounts ranges between R100 million to R150 million.
- 4.4.14.4. Potential internal projects amounts ranges between R80 million to R120 million.
- 4.4.14.5. Network intangible assets (Repository) ranges between R35 million and R50 million.

4.5. EXPECTED GAINS OR LOSS

- 4.5.1. The total proceeds (as detailed in paragraph 4.4.14) ranges between R853 million and R1.008 billion.
- 4.5.2. The carrying value of the Network assets and Intangible assets amounted to R538 million as at 28 February 2019 (as detailed in paragraph 4.1.20).
- 4.5.3. Therefore, the total gain from the sale of the asset ranges between R315 million and R470 million.

APPENDIX C1 – SERVICE TERMS

1. The service provider will supply operational capacity and availability at the levels required by MTC (*service measures to be specified at the Briefing Session*).
2. The parties will benchmark future service levels and costs through an independent party to generally experienced levels of network service and cost available in metropolitan Johannesburg regardless of technology. However, this is subject to the relationship between sale price and service cost noted above.
3. Bidders may provide alternative proposals but must bid on the stated basis.
4. The Bidder shall provide for the following incident reporting and resolution procedures:
 - 4.1. The Bidders' network is monitored 24 hours per day, 7 days per week, utilising a centralised control center for real-time status and alarm conditions on certain network elements.
 - 4.2. Network surveillance: Observing, monitoring, analysing, and reporting on network alarms. Identifying network failures, general incidents or degradation of service. Locate and dispatch technicians whenever the network experiences failures, or when equipment reaches a point of degradation on the network. General incidents and adverse network conditions must be reported to the Bidder service desk for root cause analysis, troubleshooting, and escalation.
 - 4.3. Support Requests for incident resolution must be opened within 10 minutes of any incident reported by MTC.
 - 4.4. Incidents generated by network surveillance must be opened within 20 minutes of all major alarms.
 - 4.5. Support requests for incident resolution will be categorized and handled based upon impact and service. The impact for support requests for incident resolution is categorized by the following: LOW – Service Degraded for 1 User; MEDIUM – Service Down for 1 User or Degraded for Several Users; HIGH – Service Down for Several Users.
 - 4.6. Escalation support requests for incident resolution will be escalated based upon the severity of the outage relative to the MTC impact, the progress being made to restore the service, or if action is needed by a higher level of authority to aid in the restoration of the service.
 - 4.7. Network redundancy. Large areas of the Bidder network are redundant. In the event of network failure, traffic will automatically reroute within seconds to an alternate path.
 - 4.8. Scheduled maintenance activities. Unless expressly stated elsewhere in this Agreement, all MTCs whose MTC traffic may be impaired or affected during the scheduled maintenance will be notified 72 hours before a routine scheduled maintenance window will take place. In the event that an "Emergency Maintenance Window" is required, the Bidder will give MTC as much advanced notice as possible. An emergency maintenance window is defined as repair work that is required to restore service that is not performing to engineered standards. If the scheduled maintenance day or time needs to be altered for MTC, every effort will be made to accommodate the request.
 - 4.9. Notification of service impairments. If service disruptions or degradation of service of any type is detected through network surveillance, the Bidder Service Desk will notify the MTC point(s) of contact or the MTC Help Desk via phone, including electronic mail MTCs may call the Bidder Service Desk at any time for updates.
5. For the successful bidder to be able to deliver the above services, the bidder's network design would need to meet the minimum requirements as per APPENDIX C2 - DETAILED MINIMUM TECHNICAL DESIGN SPECIFICATIONS.

APPENDIX C2 - DETAILED MINIMUM TECHNICAL DESIGN SPECIFICATIONS

1. Design overview

The redesign will be based on Seamless MPLS technology that offers a unified control plane from the access all the way to the backbone. Seamless MPLS is an efficient MPLS-based transport that employs a hierarchical approach to solve scaling and convergence issues associated with a MPLS deployment, while ensuring end-to-end service provisioning and monitoring. End-to-end provisioning implies that service configuration should only happen at the service edges and nowhere else in the network.

The network described in this RFP is illustrative in nature as far as the active component is concerned and bidders are free to suggest their alternative network design. For MTC to be able to compare pricing from bidders, it is important for all bidders to supply pricing for the network components covered in this section.

To allow the current network to be able to meet the stringent service level agreements, the current network needs to be redesigned..

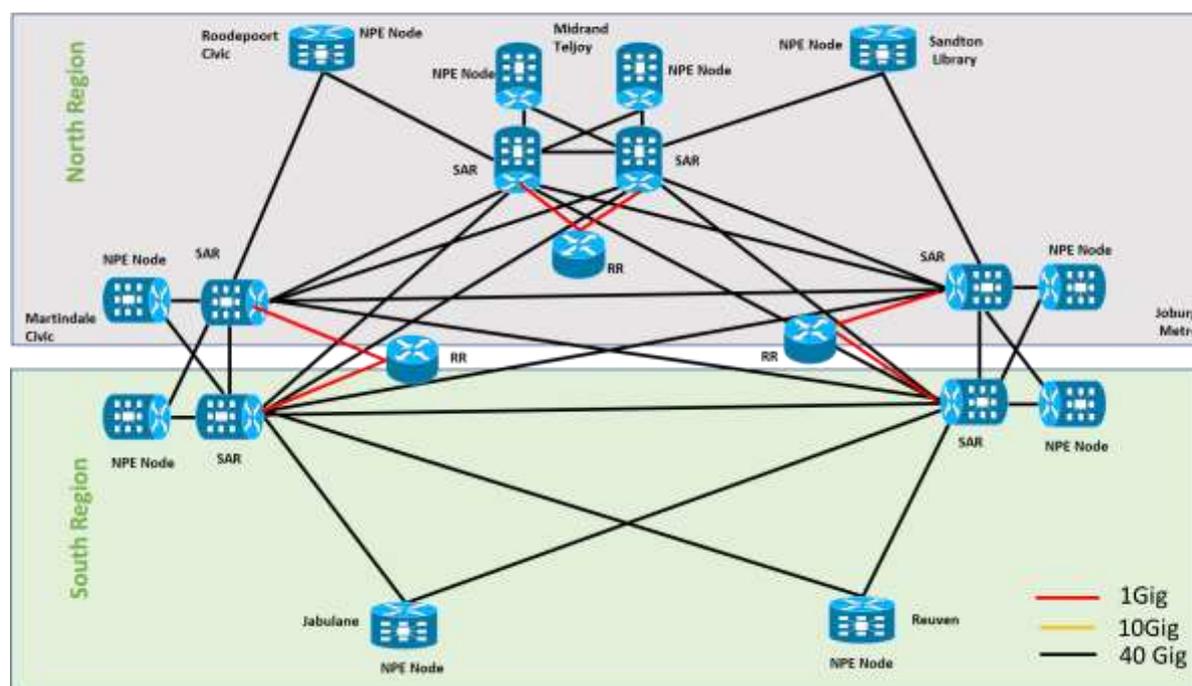
2. Design Requirements

The following are the major design requirements for MTC IP/MPLS transport network.

- 2.1. Design should be an End-to-end IP/MPLS based solution. That is the design should foster for unified control plane.
- 2.2. Network architecture should cater Wi-Fi, FTTx, enterprise MPLS based services and transport of traffic from IoT devices.
- 2.3. Minimize single point of failure and maximize stability and availability in the Core and Aggregation.
- 2.4. Network architecture should be services agnostic.
- 2.5. Network architecture should be scalable.
- 2.6. Network architecture should be flexible enough to facilitate any service insertion at any network hierarchy.
- 2.7. Network architecture should provide ease of management and troubleshooting.
- 2.8. Network architecture should incorporate standard network technologies.
- 2.9. Design should be simple AS topology.
- 2.10. Network should be end-to-end IPv6 enabled.
- 2.11. Network should be flexible to support service specific QoS requirements
- 2.12. Network architecture should be highly resilient and reliable
- 2.13. Data Centre Network (DCN) should offer 99.9999% availability to all services that in the Data Centre.
- 2.14. Minimum number of NAT location should be considered to optimally use Public IPv4 pool. NAT deployment should be on router which contains full internet routing table and does private/domestic peering.

3. Converged Backbone Network

Proposed MTC Core Network



This layer will consist mainly following types of routers:

- The Network Provider Edge (NPE) router that will be used to aggregate Access Rings.
- The Services Aggregation Router (SAR) that will be used to connect the network to the Data Centers and other ISPs via Internet Border Routers (IBR). Wi-Fi access controllers (WLC) will also be connected to SAR nodes.
- Route Reflectors that will be used to provide BGP scalability.

The NPE routers will connect to the SAR routers via 40G links. The Route Reflectors however, connect to the SAR via 10G links.

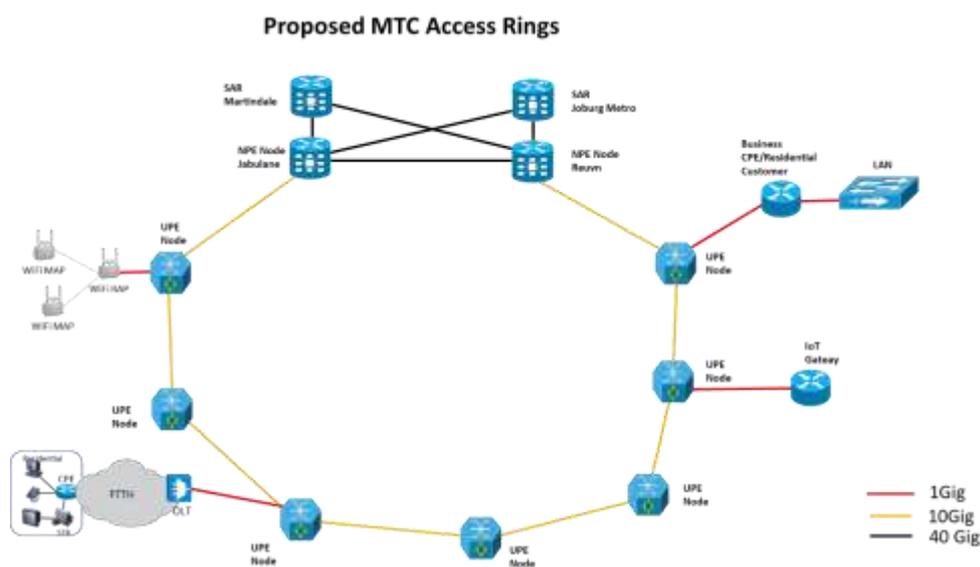
The NPE will be used to aggregate all Access Rings into the backbone network. At the Data Centres, two NPE nodes are required. This is to ensure that there is high availability connection for Access Rings into the Data Centre.

All NPE will have Broadband Network Gateway (BNG) and Carrier Grade Network Address Translation (CGNAT) embedded in them to optimize traffic patterns while reducing power consumption and real estate requirements through consolidation.

The Internet Border Router (IBR), which is also part of the backbone layer, will be used to provide peering with other Service Providers. For MTC to be able to protect its client base against denial of

service attacks, these routers must create a secure perimeter around the network. The IBR routers must therefore have DDoS protection mechanism embedded in them.

4. Access Layer Design

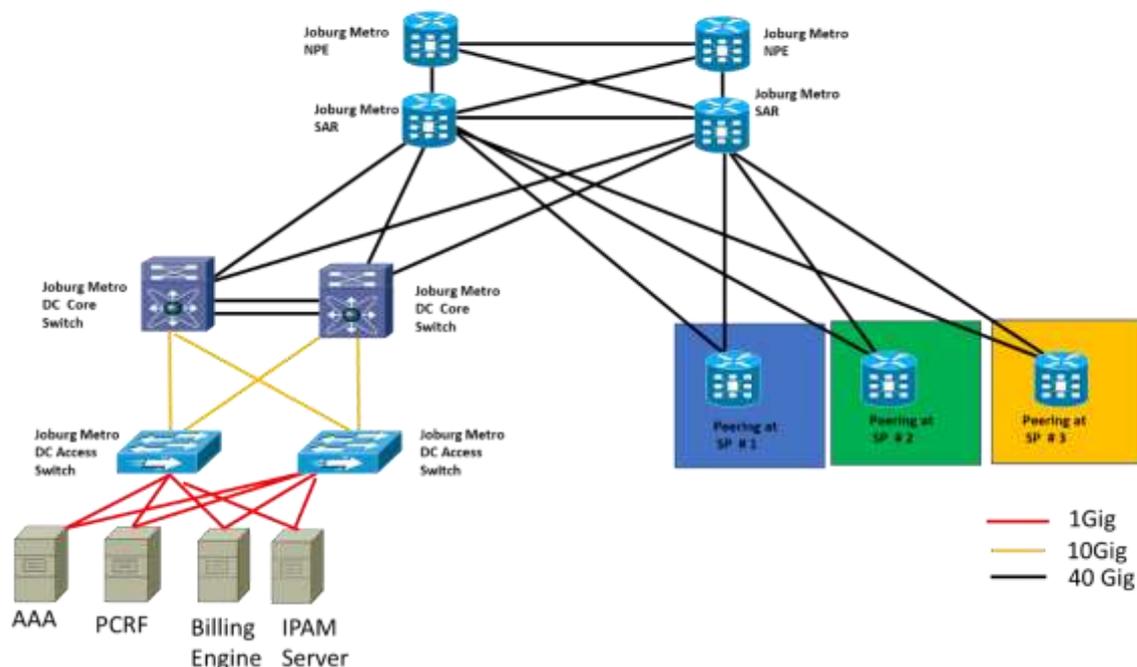


The proposed Access Rings consist of multi-service nodes that will be connect to each other via a 10G ring. The nodes are referred to as multi-service because they should be able to connect to the following:

- Business CPE and Residential Customer CPE.
- Optical Line Terminating node that will be used to roll out FTTH using GPON technology.
- Wireless Mesh
- IoT devices are expected to connect the network via IoT Gateway.

5. Data Centre

Proposed MTC DC Networking (Joburg Metro DC)



Data Centre Network Switching

The data centre switching should be highly available to ensure that Service Provider can be able to support stringent Service Level Agreements. The two core Data Centre nodes should appear to the rest of the network as one virtual node. Please propose Data Centre Architecture that will support that.

Subscriber Management

For the network to be able to support residential market, it is important for subscriber management layer to be designed. Please indicate you this must be done focusing on the following.

- Radius based infrastructure for Authentication, Authorization and Accounting of subscriber sessions.
- IP Address Management.
- Policy and Charging Rules Function
- Billing Engine

Please indicate how the above-mentioned infrastructure will integrate with BNG functionality that is embedded on the NPE routers.

In cases where the bidder has the above-mentioned infrastructure in their own networks, the bidder is expected to show how that existing infrastructure will be extended to this new environment.

6. Network Management

The MTC Network Management System will be a next-generation solution that provides device management, network provisioning and network assurance across core, edge, aggregation and access networks. It will enable end-to-end network management of MPLS based Carrier Ethernet that has been designed.

The NMS system must be located at any two of the three Data centers and the two should operate in high availability mode to provide resiliency in the network.

7. IP/MPLS Architecture

Requirement	Compliant (Yes/No)	Supporting Documentation (OEM)
The bidder shall clearly state the design approach.		
The proposed architecture shall be modular.		
The supplier shall provide the proposed network HLD.		
The supplier shall provide the proposed network LLD scoping.		
Must support QoS aware traffic shaping		
The solution should support IPv6		
The solution must support Multiprotocol BGP (MPBGP)		
The proposed solution shall be SDN architecture (Open Architecture).		
The proposed architecture shall be based seamless MPLS to offer end to end unified control plane.		
The bidder should provide a technology evolution to Segment Routing based network.		
The proposed solution shall support enable less than 50ms recovery and switchover from any event.		
The proposed architecture shall support scalable and flexible end to end services.		

Requirement	Compliant (Yes/No)	Supporting Documentation (OEM)
The solution shall support MPLS-TE, FRR, RSVP-TE, MLDP.		
The solution shall provide Backbone Bridging with MPLS based Ethernet VPN.		
The proposed equipment shall support PCEP, BGP-LS, NETCONFIG/YANG, EVPN.		

8. Converged Backbone and Access Network Specification

Requirement	Compliant (Yes/No)	Supporting Documentation (OEM)
The solution shall support Data Centre interconnection to support EVPN VXLAN.		
The solution shall support the MPLS based access network.		
The core must minimize single points of failure to maximize stability and availability		
The proposed architecture shall provide 40/100G in the core.		
The proposed architecture shall provide 1G user access and 10/40G in the uplink for all UPE nodes.		
All NPE-nodes shall connect to SAR-node.		
The proposed architecture shall have separate dedicated NPE and SAR PEs.		
The bidder is expected to show how the following will be supported by multi-service UPE: <ul style="list-style-type: none"> • IoT Connectivity • FTTx • Public Wi-Fi • <i>Enterprise CPE</i> 		

9. Peering

Requirement	Compliant (Yes/No)	Supporting Documentation (OEM)
The proposed solution shall be MPLS enabled.		
The proposed Peering architecture shall be highly redundant.		
Indicate how Route-Reflectors can be used to scale Peering		
The proposed architecture shall provide 40/100Gbps capacity to peering providers.		
The Peering Routers should support embedded DDoS mitigation capabilities. If not, elaborate on how DDoS will be implemented.		

10. Broadband Network Gateway Architecture

Requirement	Compliant (Yes/No)	Supporting Documentation (OEM)
The proposed BNG Architecture shall be highly redundant.		
The BNG function should be embedded in the NPE routers. Bidders are welcome to propose alternative solutions (e.g vBNG or Standalone Centralised BNG Router) Show how the BNG redundancy shall be geographically dispersed.		
The proposed solution shall support Carrier Grade Nating (CGN)		
The proposed solution shall support 10/40G capacity.		

11. Network Management System (NMS)

Requirement	Compliant (Yes/No)	Supporting Documentation (OEM)
The proposed NMS shall be integrated with existing Network Management Systems.		
The supplier shall fully state the hardware and software specifications for both the client and server.		
The NMS shall perform the following minimum functions:		
<ul style="list-style-type: none"> • Real time fault and incident management • Problem Management (Root Cause Analysis) • Configuration Management • Performance / Utility Management • Security Management • Inventory Management • Provisioning • Statistics and Reports 		
The NMS shall be web based and support leading internet browsers (e.g Mozilla Firefox, Microsoft Internet Explorer and Google Chrome) as well as support from mobile devices.		
The proposed system shall have the backup and restore features.		
The system shall support fine-grained and flexible RBAC model that allows the smallest unit of user access/permission granted/revoked.		

12. Facilities

Modular Data Centre Basic Requirements	Compliant (Yes/No)	Supporting Documentation
<p>Prefabricated structure - 6m (l) x 3m (w) x 2.8m (h):</p> <ul style="list-style-type: none"> - Frame: 304 Stainless Steel - Walls: flame retardant expanded polystyrene (minimum 80mm thickness) injected panels with chromadek sheeting (minimum 1.0mm) thick on both sides. - Water and dust proof sealing - Roof: to be mono pitch steel insulated panels covered with IBR sheeting - Windows: Anodized aluminium frames with 5mm transparent safety glass (Low-E) - Doors: The external doors to be manufactured from steel sandwich panels. External doors are fitted with a weather guard, door-stopper and a retaining hook. 4 Lever Mortise locks are fitted to external doors. c/w Biometric Access Controls - Floor – 5mm interlocking PVC tile with raised floor with 38mm GRP grating 		
Fire Detection & Suppression System		
Monitoring System		
Cable trays		
Air-conditioning System – Inverter N+1 redundancy		

Modular Data Centre Basic Requirements	Compliant (Yes/No)	Supporting Documentation
2 off 42U 600mm x 800mm Cabinet Assembly c/w biometric access control		
6kVA Rectifier & Inverter System N+1 redundancy		
4 off 48Vdc back up batteries (8 hour capacity) c/w battery stand		
Electrical reticulation c/w distribution board and surge protection		
CCTV monitoring		

13. Network Deployment and Migration Plan

There is fiber capacity that can be used to build the proposed redesigned network in parallel. Please provide Network Deployment and Migration Plan.

14. Network Operation and Maintenance

The Service Provider is expected to provide a methodology on how the Network will be operated and maintained. Please expand on focusing on:

- Equipment Replacement Options
 - Same Day – 4 Hours or Less
 - Next Business Day (overnight shipping)
- Return Merchandise Authorization (RMA) policy
- Onsite Spares for Critical Components

APPENDIX D – DTI PPPFA AND LOCAL CONTENT

When using soft copy please double click the picture below (ensure you have PDF reader).
Hard copy will be provided.

Disclaimer: Information provided is for indicative purpose and MTC should not be held liable for the use of the information.



IMPLEMENTATION GUIDE

PREFERENTIAL PROCUREMENT REGULATIONS, 2017 PERTAINING TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, ACT NO 5 OF 2000

March 2017