

Annexure 2.1:
Particular Technical Requirements
Gauteng

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1 GENERAL

1.1 Purpose of the Document

- 1.1.1 The purpose of this document is to provide the Particular Technical Requirements (“PTR”) which form part of the minimum Requirements of the Passenger Rail Agency of South Africa (“PRASA”) for the Gauteng (“GP”) related Works that form part of the planning, design, supply, construction, installation, testing, commissioning and maintenance of a new and expanded fully integrated, functional, complete and future-proofed National Global System for Mobile Communications-Railway (“GSM-R”) Redundancy Network in PRASA’s GP, KwaZulu-Natal (“KZN”) and Western Cape (“WC”) service regions (“the Project”) that the Bidder shall meet and deliver at the Bidder’s cost therefore within the Bid Price.

1.2 Executive Overview

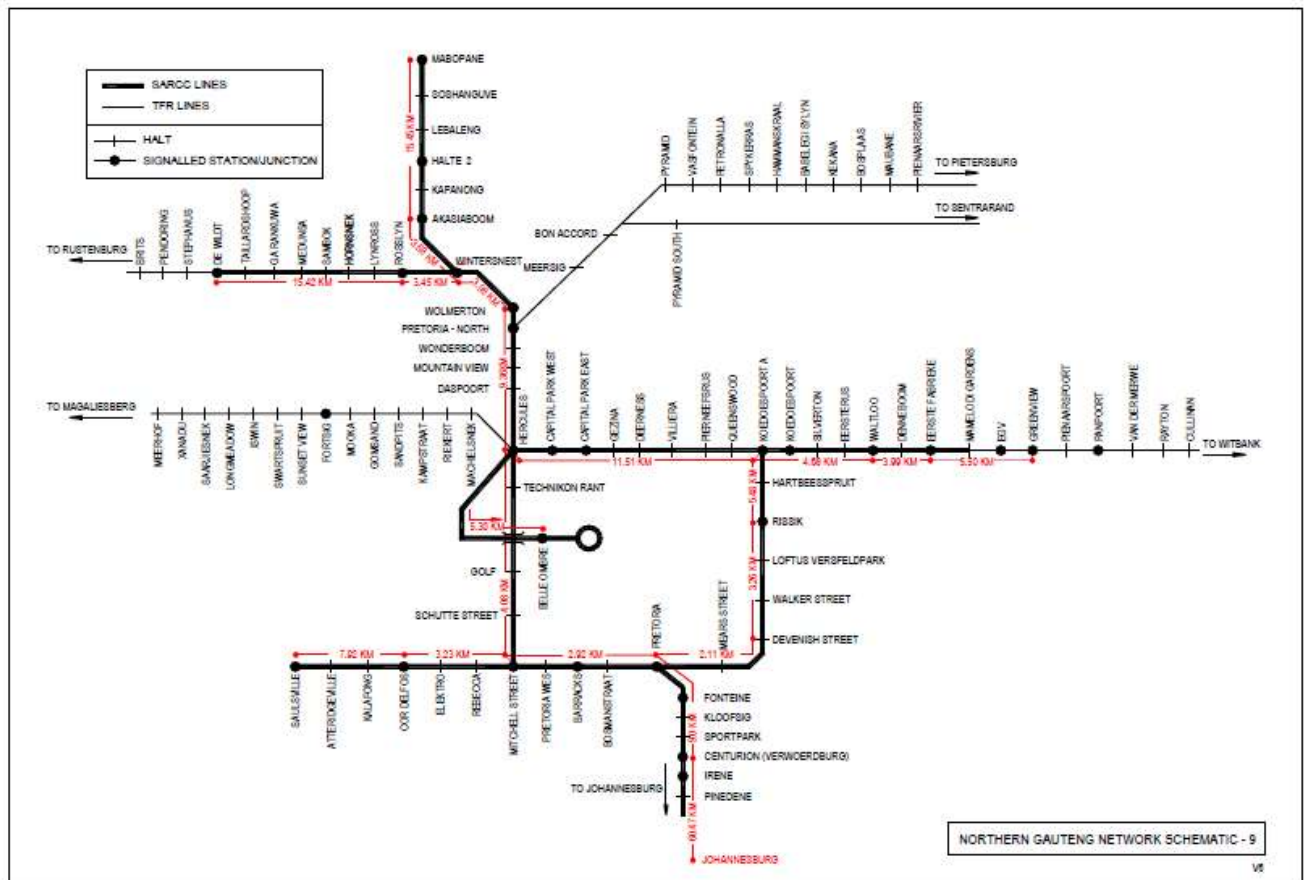
- 1.2.1 Notwithstanding any other PRASA Requirements stated throughout the RFP, the Bidder shall uncompromisingly deliver the whole of the Works required to achieve successful delivery of the Project.

1.3 Location and Minimum Extent of the Works

- 1.3.1 The boundaries of the Site are the GP region rail servitude.
- 1.3.2 Figure 1.3.1 below shows the Northern Gauteng Network

Figure 1.3.1: Northern Gauteng Network

RFP for the Design, Construction, and Implementation of a PRASA National GSM-R Redundancy Network



1.3.3 Figure 1.3.1 below shows the Southern Gauteng Network

RFP for the Design, Construction, and Implementation of a PRASA National GSM-R Redundancy Network

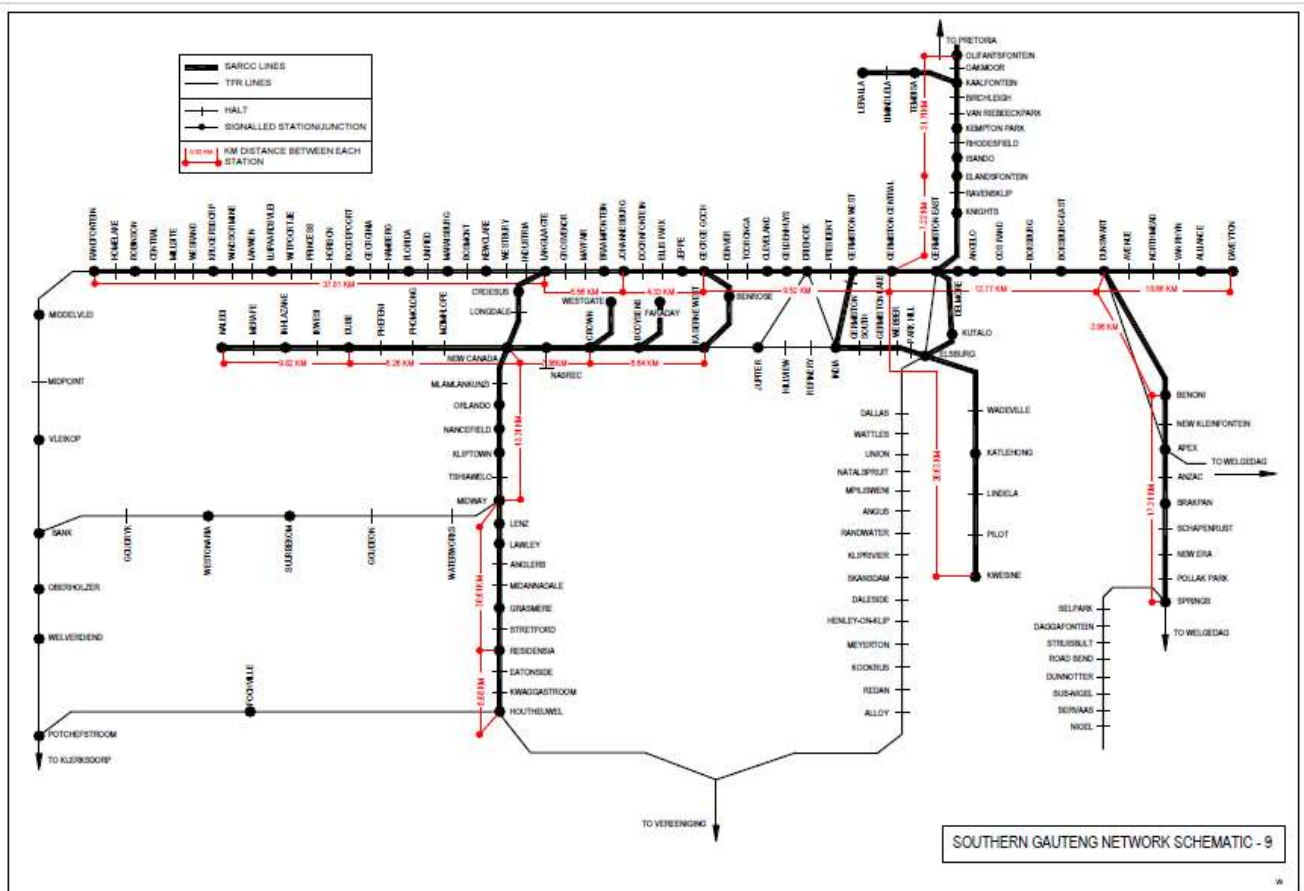


Figure 1.3.2: Southern Gauteng Network

1.3.4 The Site(s) includes at least the following GSM-R sites located in old Signal Equipment Rooms ("SER"):

- | | |
|----------------------|------------------------|
| a) Benoni | n) George Goch |
| b) Bosmanstraat | o) Germiston Central |
| c) Braamfontein | p) Grasmere |
| d) Capital Park East | q) Green view |
| e) Centurion | r) Halte 2 |
| f) Cor Delfos | s) Houtheuwel |
| g) Crown | t) Irene |
| h) Daveyton | u) Park (Johannesburg) |
| i) Driehoek | v) Kaserne West |
| j) Dube | w) Koedoespoort |
| k) Eerst Fabrieke | x) Krugersdorp |
| l) Florida | y) Langlaagte |
| m) Fonteine | z) Lawley |

- | | |
|----------------|--------------------|
| aa) Maraisburg | ii) Pretoria North |
| bb) Midway | jj) Princess |
| cc) Naledi | kk) Residensia |
| dd) Nancefield | ll) Rosslyn |
| ee) Nasrec | mm) Saulsville |
| ff) New Canada | nn) Soshanguve |
| gg) New Era | oo) Waltloo |
| hh) Orlando | pp) Wolmerton |

1.3.5 The Site(s) includes at least the following GSM-R sites located in New (Refurbished) Signal Equipment Rooms ("SER"):

- a) Cleveland
- b) Elandsfontein
- c) Ikwesi
- d) Kaalfontein
- e) Kempton Park
- f) Olifantsfontein
- g) Rissik
- h) Roodepoort

1.3.6 The Site(s) includes at least the following stand-alone GSM-R sites:

- | | |
|---------------------------|------------------------|
| a) Boksburg | i) Mabopane |
| b) Cor Delfos Greenfield | j) Westrand |
| c) Devenish Street | k) Mountain View |
| d) Faraday / Village Main | l) Pinedene Greenfield |
| e) Golf (Technikon Rand) | m) Rhodesfield Station |
| f) Limindlela | n) Streford |
| g) Lindela | o) Wadeville |
| h) Luipaardsvlei | p) Westgate |

1.3.7 The Site(s) includes at least the following GSM-R sites located in Passenger Station buildings:

- a) Birchleigh
- b) Brakpan
- c) Doornfontein
- d) Elsburg

e) Ga Rankuwa

f) Robinson

1.3.8 The Site(s) includes at least the following GSM-R sites located in Sub-Station buildings:

a) Van Rhyn

2 MINIMUM REQUIREMENTS

2.1 General

- 2.1.1 The Bidder shall ensure that the CTCs Dispatcher Servers are redundant and interfaced with the TFR Gauteng CTC radio communications System for seamless radio call to the TFR Train Radio.

2.2 Centralised Train Control Centre

- 2.2.1 The Bidder shall Design and Implement a GSM-R Redundant Core Site to be located at the GNC building.
- 2.2.2 The Bidder shall perform the necessary site surveys, risk assessments and other studies required for the design and implementation of the GSM-R Redundant Core Site at the GNC building.
- 2.2.3 The contractor shall design, install and commission the following systems to work in hot standby mode for Network Redundancy:
- a) MSC and its subsystems
 - b) BSC and its subsystems
 - c) BTS and its subsystems
 - d) SMS
- 2.2.4 Both the MSC and BSC systems of the proposed solution shall be capable of being installed in the same or different location from the current System for Redundancy in case of any System failure.

2.3 Relocation of Current Sites

- 2.3.1 The Bidder shall relocate all GSM-R sites from their current location to the new SERs built as part of the Gauteng Resignalling project.
- 2.3.2 The Bidder shall perform the necessary site surveys, risk assessments and other studies to determine the feasibility of moving GSM-R sites into the new SERs in terms of coverage, available space and any other relevant factors.
- 2.3.3 Where it is not possible to move the GSM-R to the new SERs, the Bidder shall establish new GSM-R Equipment room, within the SER site boundaries, in accordance to the specification in the RFP.
- 2.3.4 The Bidder shall establish the new GSM-R Equipment rooms in the same location where the new SERs will be established as part of the Gauteng Resignalling project, should the SER not been built yet.
- 2.3.5 The Bidder shall provide a detailed motivation, for approval by PRASA, should it not be possible to place the GSM-R site within the SER site boundaries.

- 2.3.6 The Bidder shall link all GSM-R sites to the newly installed underground Optical Fibre Network.
- 2.3.7 The Bidder shall fully reinstate all and any vandalised sites as part of the relocation to the SER or new GSM-R Equipment room.