Tender Briefing

GNP-036-14

GNP-036-14 - Invitation for a suitable service provider for the procurement, installation and maintenance of Microwave and LTE Communications Networks for the Southern Kruger Park IPZ project

26 February 2015
The aim of this tender is to provide the telecommunications infrastructure to support the Anti Rhino Poaching initiative in the Kruger National Park (KNP).

SANParks has established an Intensive Protection Zone (IPZ) in the Southern part of the KNP, roughly from Skukuza to the Southern, Western and Eastern park boundaries.

This tender addresses 2 key areas of communications:

- A high speed packet microwave based network that creates a highly available backbone, and
- The possibility of an LTE based access network to supplement the current tactical communications systems (V/UHF radios) by adding a high speed data capability.

This network is part of the tactical mission critical communications system and network reliability is priority.

This tender is for SANParks to procure equipment to build a wholly owned network, and is not aimed at Service Providers supplying managed services.
General Requirements and Process

• Bidders must answer the entire tender – i.e. both the Microwave and LTE sections.
• All towers for planning purposes should be assumed at 15m.
• Most towers belong to either Telkom or Vodacom with some being owned by SANParks. (SANParks will facilitate permission from tower owners to utilise towers).
• The requirement is for the bidders to plan the network and price the following (using the GPS locations and link list supplied):
  – Microwave, LTE and Network Management equipment,
  – Power equipment (including Solar Panels, batteries and any other required power equipment),
  – Assume that the towers exist and do not need any upgrading for this phase.
  – NOTE: Please do not price all of the links in the Google Earth model supplied, the sites required are only in the IPZ (Southern Portion). Price only the links listed in the Excel worksheet.
• The bidders that are shortlisted will be required to attend site visit of all of the sites and will have the opportunity to quote on any additional infrastructure upgrades that are required (i.e. towers, security fences, etc.). The following will be quoted after the visits:
  – Quote for Technical Support after installation (maintenance).
  – Accommodation and access.
  – Quote for Installation (price per site, quote may be revised to include for special requirements discovered after site visit, increase after visit (and motivated).
The microwave backbone
Part 1 - Requirements

• The microwave system must meet the following requirements:
  – It must be based on highly reliable point-to-point microwave technologies (no P-t-P Wi-Fi or other technologies will be entertained).
  – It must be packet based and provide Ethernet interfaces to all sites that it terminates in.
  – It must use unregulated spectrum in the 5Ghz (5470 – 5725MHz) or 17Ghz (17.1 – 17.3Ghz) band with between 100 and 500Mb/s throughput depending on the link length and achievable throughput.
    • SANParks doesn’t want to apply for microwave spectrum from ICASA, and
    • The risk of major interference inside the KNP is negligible.
  – It must have the minimum visible footprint to reduce the environmental impact.
  – It must run from 24V power supplies and the bidders are required to supply the power systems to run the systems.
    • There is no grid power at many of the sites and solar panels, batteries, PoE injectors and any other power equipment must be supplied.
  – It must be all outdoors – i.e. no split mount configurations will be entertained.
  – The antenna’s sizes must be optimised to reduce the environmental impact.
• NMS systems to manage the microwave system must be quoted.
• Phabeni gate is not currently connected due to very slight LOS limitations. Bidders must connect this site, either through a tower height upgrade at Shabeni, or by using NLOS microwave equipment.
The microwave backbone
Part 2 - Schematic
The LTE access network
Requirements

• The LTE system is required to add high speed data to the tactical environment to support modern command and control applications that run on mobile phones.
• SANParks will not be using this network for commercial operations nor will it be used for revenue generating activities.
• SANParks will submit an application for spectrum to ICASA if the LTE system is shown to be cost effective from the tender responses.
• Simulations have been done using LTE band 20 (832 to 862 Mhz uplink and 791 to 821 Mhz downlink) and LTE band 3 (1710 to 1785 Mhz uplink and 1805 to 1880 Mhz downlink) and bidders must quote equipment in one of these bands with band 20 being preferred as it is an open slot in the TV frequency at present.
• A very small EPC core including HSS, PGW, SGW, MME and PCRF must be quoted for less than 100 users.
• SANParks requires that they are able to commission and control their own SIM cards. Capability to achieve this must be quoted.
• The specifications calls for 360 degree coverage at each site using 3 sectors, using the microwave system for backhaul.
• NMS capability to manage all components of the LTE system must be quoted.
• Handsets need not be quoted, although the network must support handsets with the specifications in the SOC.