**Annexure A**


**Independent Communications Authority of South Africa**
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# APPOINTMENT OF A SERVICE PROVIDER AT THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA TO TEST AND BENCHMARK THE PERFORMANCE AND QUALITY OF SERVICES (QOS) FOR VOICE AND DATA SERVICES FOR A PERIOD OF SIX (06) MONTHS IN FOUR (04) PROVINCES ON AN 80/20 PPPFA 2000:PREFERENTIAL PROCUREMENT REGULATION, 2017.

## 1. Scope of work

ICASA intends to appoint a service provider to conduct QoS measurements for mobile voice and data services offered by operators on multi-technology (2G, 3G and 4G) environment. The results will provide an indication of quality of service experienced by end users of mobile voice and data services, and help in identifying areas where network performance needs to be improved.

### 1.1. Drive Test Benchmarking

The objective of this exercise is to ascertain the effectiveness of mobile networks to provide acceptable service by using a third-party audit to identify issues in each specific network and analyse the root causes; with the reasons given, establish whether there are issues with quality of customer experience and pinpoint the issues for the operators to remedy and mitigate the causes. Key objectives of the project are:

1. To measure the following parameters:
    - Call Retention: Drop Call Rate;
    - Radio Accessibility: Call Setup Success Rate;
    - Video streaming: Youtube video streaming and Video MOS;
    - Web Browsing: Static Pages and Live web browsing;
    - Network capability testing and download speed: File download and upload.
1. To measure and analyse end-to-end service quality from subscribers' perspective for mobile voice and data services in South Africa.
2. To benchmark the competitive positioning of four South African mobile network operators (Cell C, MTN, Telkom and Vodacom).
3. To produce high quality reports for ICASA's internal and external distribution.
4. To ensure transfer of skills and training in script writing and post-analysis to ICASA staff.

The details of the test plan shall include measurement profile as defined in table 1.

**Table 1: Measurement Profiles**

| Test Description | Measurement | Description |
|---|---|---|
| Network Performance | FTP DL (15 MB) | Downloading a 15 MB file from the test server |
| | FTP UL (5 MB) | Uploading a 5 MB file to test server |
| | HTTP Get (3 MB) | Downloading a 3 MB file from the test server |
| | HTTP Put (1 MB) | Uploading a 1 MB file to the test server |
| | Ping (32 bytes) | Ping sessions with size 32 bytes payload |
| | Video: YouTube | Video streaming from YouTube during 60s (TBC) |
| | HTTP Browsing: Kepler | Downloading content from the test server |
| | Live Web Browsing | Download content from live web page (Gumtree, News24, MSN) |
| | Ping (32 bytes) | Ping to www.google.com |
| | Short Call | Call Duration (10s) + 30 seconds (for the setup and release phases) + |

| | | |
|---|---|---|
| | | 30 seconds (for the minimum pause interval) |
| | Long Call | Call Duration (120s) + 30 seconds (for the setup and release phases) + 30 seconds (for the minimum pause interval) |

The proposal shall contain a detailed methodology and approach to attain the above objectives. The proposal to ICASA shall outline the detailed methodology, resource requirements and man-hours, hardware/software tools and expertise that will be required during the project.

The bidder(s) shall provide a detailed methodology and project plan including cost breakdown. The service provider will be required to submit weekly progress/status report during the project, and the final report will be submitted at the end of contract. The Project Leader shall do the on-going management of the service in accordance with the service level agreement.

## 1.2. Equipment Supply

ICASA will provide the necessary administrative support and will require the appointed bidder to complete the monitoring and reporting.

### 1.2.1. Measurement tools

A service provider will provide the measurement tools and the vehicle for the duration of the project as indicated below:

Field measurement tools:

- Drive tests equipment;
- Post-processing tool;
- Indoor testing tools;

### 1.2.2. Airtime and test numbers

- ICASA will provide the test sims (with airtime) and test numbers (termination numbers).

1.2.3. Vehicles

- Service Provider Vehicle (fuel and tolls fee included).

1.2.4. Mapping and post-processing tools:

- Mapping tool for routes planning;
- Analysis tool for post-processing of the log files.

1.2.5. Test Server

The successful bidder will be required to provide an FTP server for testing.

### 1.3. Logistics and Accommodation

The appointed bidder will be responsible for logistic arrangements such as accommodation, daily allowances and transportation of the field measurement team.

### 1.4. Test Area and Route Plan

ICASA will issue a route plan and waypoints as shown in Appendix A. The extent of the drive tests scope will cover the provinces shown in table 2 and will simulate the customer experience using voice, data and video services.

**Table 2: Drive test areas and static points**

| Province | Target District | Drive Test Area | Static Measurements |
|---|---|---|---|
| Eastern Cape | Buffalo City | East London | Mdantsane Taxi Rank, University of Fort Hare, Moses Twebe Community Hall, Dutywa Mall, Lady Frere Hospital |
| | | Mdantsane | |
| | Amathole | Dimbaza | |
| | | Dutywa | |
| | Chris Hani | Lady Frere | |
| Western Cape | Eden | George | Paternoster public clinic, Department of Home |
| | Cape Winelands | Worcester | |

| | | | |
|---|---|---|---|
| | | Paarl | Affairs - Malmesbury District Office, Worcester Public Library, Mbekweni Youth Centre, Conville Community Library, Zellies Taxi Rank, George Airport |
| | West Coast | Malmesbury | |
| | | Saldanha | |
| Mpumalanga | Ehlanzeni | Lydenburg | Standerton Public Library, Bethal Clinic, Tshwane University of Technology (eMalahleni Campus) , Kwaguqa Ext 11 Community Hall, Ethandakukhanya Community Hall |
| | Gert Sibande | Bethal | |
| | | Standerton | |
| | | Piet Retief | |
| | Nkangala | Emalahleni | |
| KwaZulu-Natal | Amajuba | Newcastle | Spar Taxi City, Hlabisa Gateway Clinic, Ulundi Airport, Ulundi Library, Ohlelo Community Hall, Msinga Taxi Rank |
| | Umzinyathi | Msinga | |
| | Zululand | Ulundi | |
| | Uthungulu | Ohlelo | |
| | Umkhanyakude | Hlabisa | |

The draft routes of the areas to be tested are captured in Appendix A, the final routes will be finalised with the appointed service provider before the start of the project.

There are five (5) areas of interest per province of which voice and data measurements will be conducted by a way of a drive test methodology. Drive test distance is estimated at 300 km per area of interest and thus 1500 km is a total drive test distance per province for each phase as indicated in section 4. Static

measurements which consist only of mobile data service will also be conducted at stationary points listed in table 2 to simulate a stationary user experience.

## 2. Period of assignment

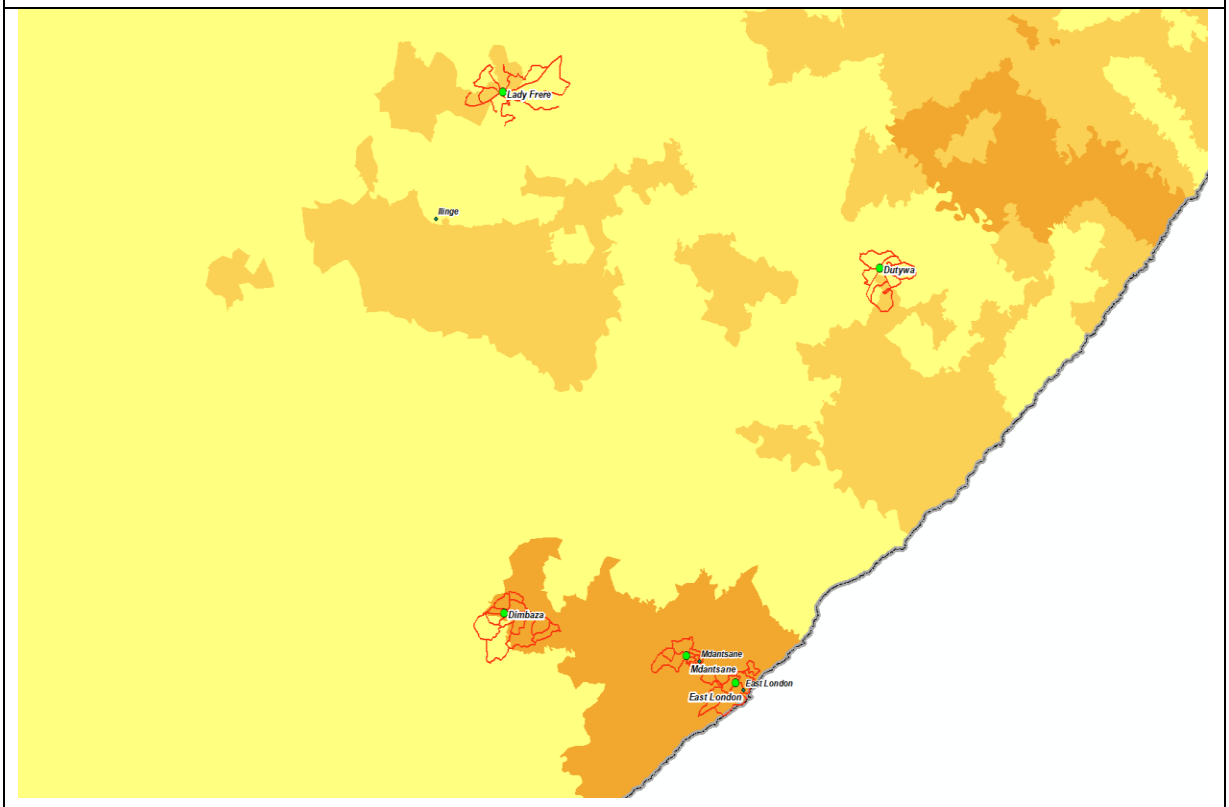
All work is to be carried out in accordance with the time schedule as agreed with the Authority. The project is expected to be completed within six (6) months. Drive tests and stationary tests for data services will only be conducted in one phase, however drive tests for voice services will be conducted in two (2) phases i.e. phase 1 and phase 2 (re-drive). The Authority will not be responsible for any cost incurred due to an extension of the project.

## 3. Briefing Session

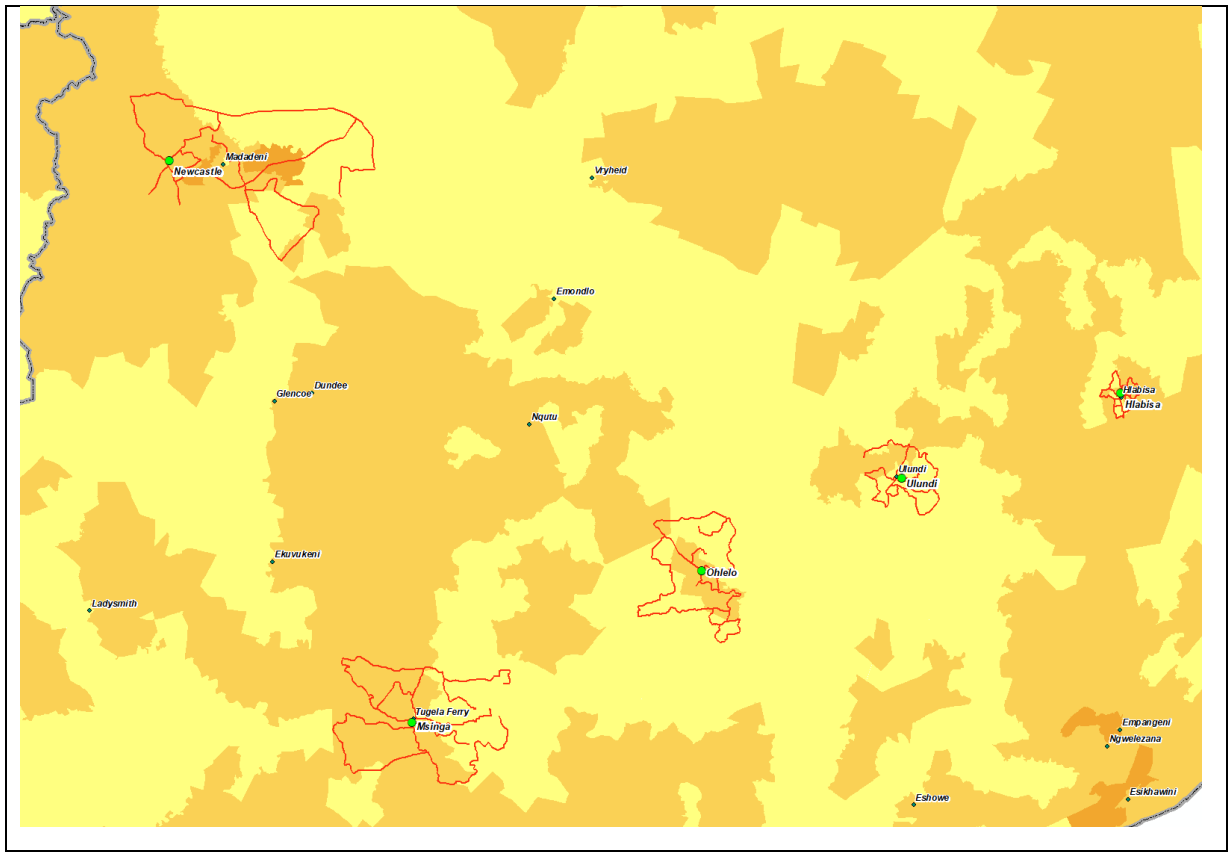
There will be a non-compulsory briefing session.

## Route Plan 2018/2019

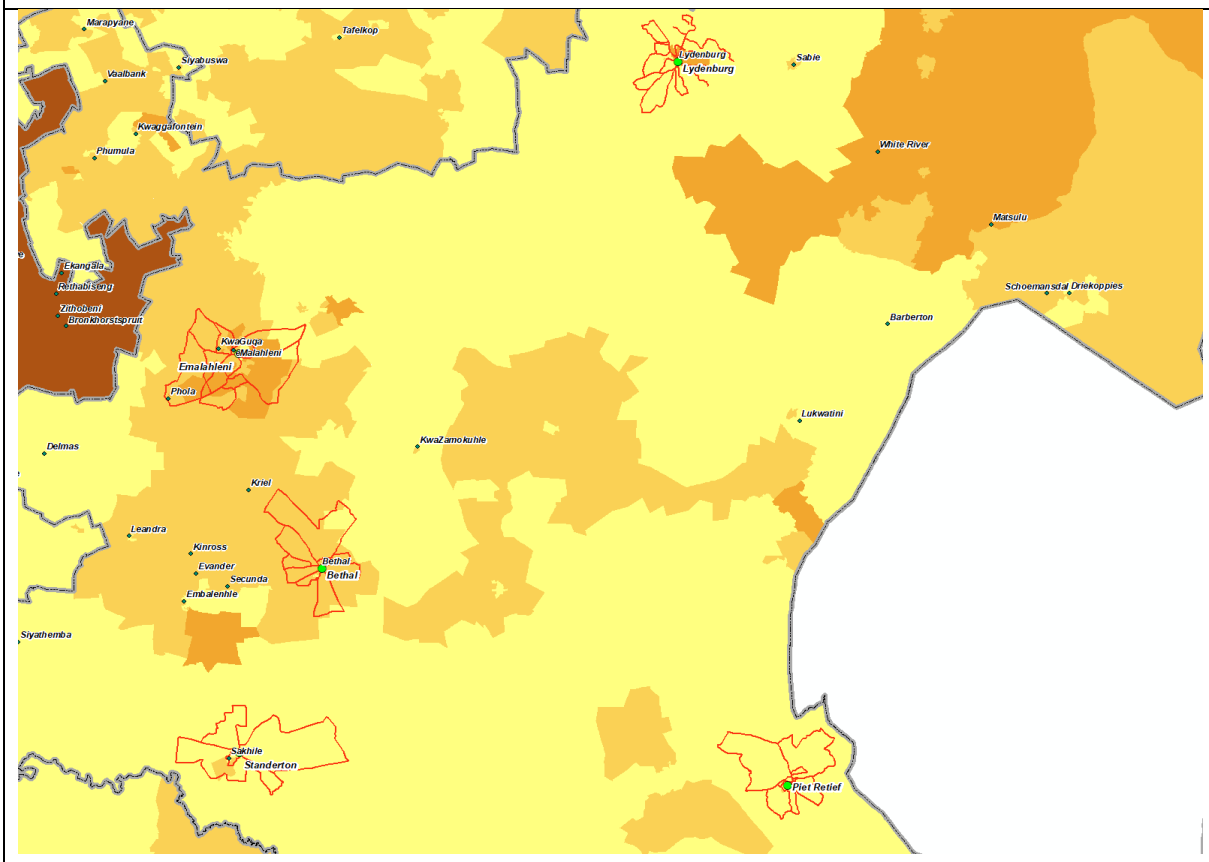
**EASTERN CAPE PROVINCE**



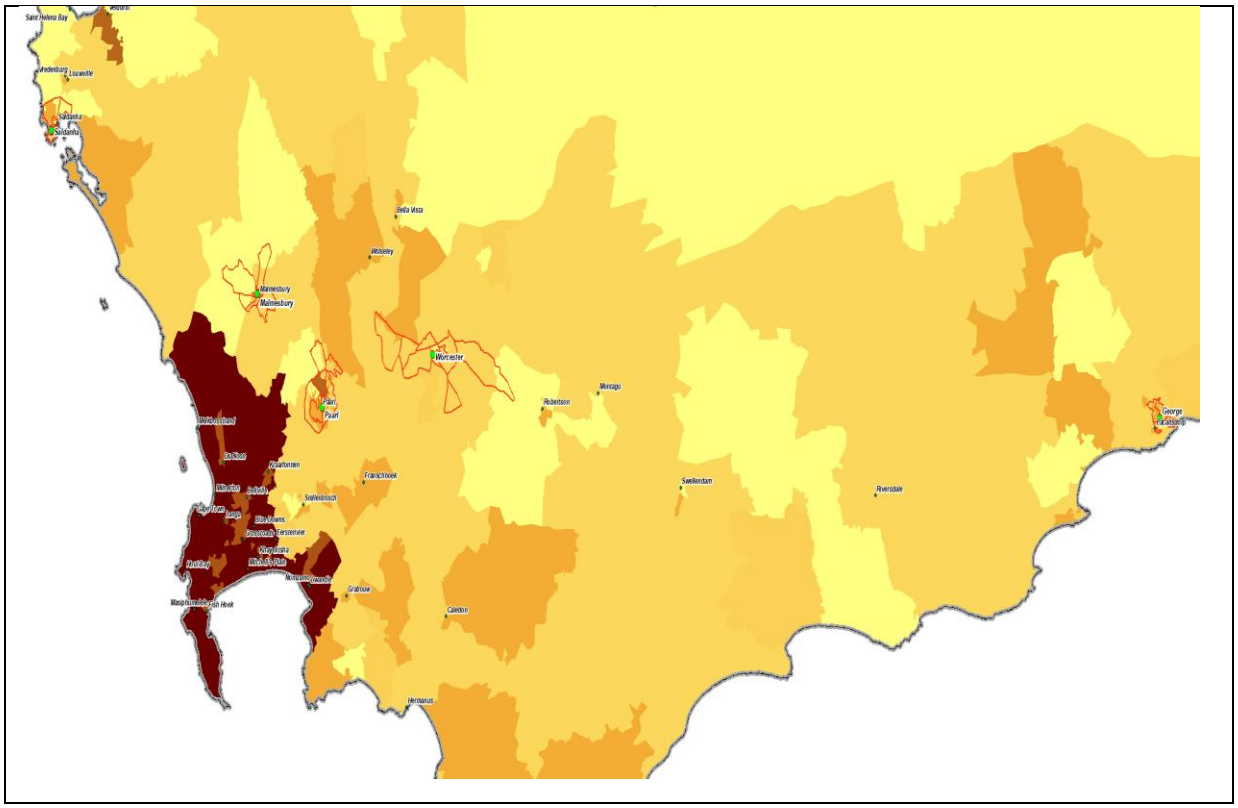

**KWAZULU-NATAL PROVINCE**


Newcastle
Madadeni
Vryheid
Emondlo
Dundee
Glencoe
Nqutu
Hlabisa
Hlabisa
Ulundi
Ulundi
Ekuvukeni
Ohlelo
Ladysmith
Tugela Ferry
Msinga
Empangeni
Ngwelezana
Eshowe
Esikhawini

**MPUMALANGA PROVINCE**




**WESTERN CAPE PROVINCE**


Saldanha
Bella Vista
Wolseley
Malmesbury
Worcester
Robertson
Montagu
George
Franschhoek
Stellenbosch
Swellendam
Riversdale
Caledon
Hermanus