

First CORS for Lagos State, Nigeria, completed

—by Jerome Okolo

Developed by the Nigeria-based company GeoQinetiq Limited, the first Continuously Operating Reference Station (CORS) to be built in Lagos State, Nigeria, became operational last November. The state government plans to use world-class, ultra modern technologies such as CORS to provide the foundation for the transformation of the State of Lagos, including a successful implementation of the Lagos Mega City Project. “This initiative will help improve land management and town planning practices and contribute to alleviating road congestion through an improved public transportation infrastructure,” said GeoQinetiq’s managing director Juliet Ezechie.

The Lagos State CORS project began in June, 2007, with the formation of a five-man Advisory Committee of experts, chaired by the former Surveyor-General M. A. O. Durowoju. The Committee’s mandate was to examine and recommend the best sustainable mapping and GIS solution for creating a fully digital enterprise Geographic Information System (GIS) for Lagos State. Its report was presented to the Executive Council of Lagos in September 2007. Following its recommendations, a Technical Committee under the Chairmanship of Dr. Femi Hamzat, the Hon. Commissioner for Science and Technology, was constituted.

The Lagos State Digital Mapping/Enterprise GIS comprises seven major components:

1. Geodetic control and digital aerial photo acquisition;
2. Determination of a geoid model and establishment of a Continuously Operating Reference Station (CORS);
3. Orthophoto, contour lines and digital (vector) mapping;
4. GIS database and enterprise GIS;
5. Bathymetry survey of Lagos lagoons and creeks;
6. Supply of equipment and training;
7. Public enlightenment and education.

GeoQinetiq Limited, the leading geophysical, geospatial and logistics solutions provider in Nigeria, was contracted to design and install the CORS and train GIS and Geomatic professionals from the office of the Surveyor-General of Lagos State in operating the station.

GeoQinetiq teamed up with Leica Geosystems in equipping the CORS with Global Navigation Satellite Systems (GNSS) receivers [GRX1200GG] and SpiderNet networking software. An integrated network of base stations will be deployed at strategic locations across Lagos State to collect very-high-accuracy, real-time and post-processed data for a wide range of surveying and construction applications.

The major advantage of a CORS is that, by definition, it operates continuously from a permanent and stable location, it tracks dozens of GPS and GLONASS satellites and receives, and stores the data transmitted by the satellites in real time. The software monitors the performance of CORS equipment at the reference station, while also processing the data, removing errors, and transmitting it to users in Lagos State in real-time. The CORS data will be made available to Lagos State MDAs, surveying and engineering contractors, and construction companies. Surveyors will play an important role in validating position information in the field throughout the State of Lagos.

Nigeria’s decision makers consider CORS an important enhancement to a wide range of GNSS surveying, mapping, and positioning activities. The data collected by GNSS CORS can improve the accuracy of surveyed positions to under one centimeter. With CORS, a host of derived data products can be delivered which, in turn, will make possible additional GNSS applications.

The CORS network being built by GeoQinetiq Limited for Lagos State is envisaged to include up to 10 stations. Upon its completion, the need for surveyors to establish local control or set up temporary field reference stations at specific job sites will be eliminated, leading to faster surveys and less exposure of surveyors’ equipment to accidental damage or even theft.



Photo courtesy of GeoQinetiq