VIRTUAL WEIGHBRIDGE SYSTEM

CURRENT CONTRACT DETAILS

The contract details is as below

Assignment Name:
Installation, Integration & Management of Ten (10) Virtual Weighbridge Stations at selected Locations along the National Highway Road Network

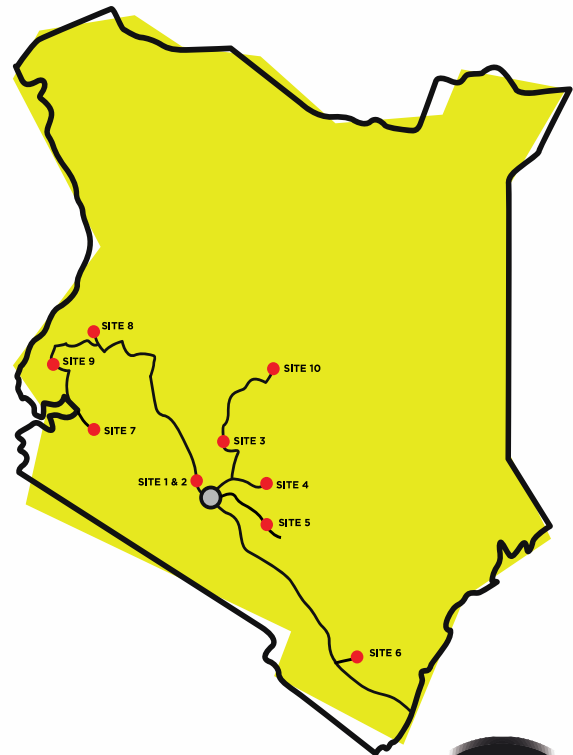| **Start Date (Month / Year):** October 2017	**Project Period:** 36 Months

Technology
- High Speed Weigh-in-motion (WIM) using Kistler Quartz Sensors.
- ICT Network (Integrated MPLS Connectivity giving real time coverage)
- Control Center in Mlolongo to be manned 24hrs with advanced analytical capabilities.

Site Locations
- Southern Bypass 1
- Southern Bypass 2
- Sagana
- Yatta
- Kamulu
- Kaloleni
- Ahero
- Eldoret
- Mayoni
- Laisamis

Contractor:
AEA LIMITED
www.aealimited.com

AEA LIMITED
...WEIGH ahead of the REST...

(Map of Kenya showing: SITE 8, SITE 9, SITE 10, SITE 7, SITE 3, SITE 1 & 2, SITE 4, SITE 5, SITE 6)

High Speed Weighing in Motion (HSWIM) Basic features:

- ❖ Overview Camera -weight-violating vehicle documentation
- ❖ Automatic number plate recognition (ANPR) cameras
- ❖ Has staggered half-width sensors, with 3 rows of weighing sensors setup

WORKING PRINCIPLES

❖ The Virtual Weighbridge System (VWS) runs on a High Speed Weighing in Motion (HSWIM) backbone which captures data from the sensors and cameras, classifies the vehicle and thereafter transmits the database for analyses to the Control Center. The Control Center housed at the Athi River Weighbridge and has processing units that analyses, store and allow access of the data through a web-based graphical user interface to the system operators, enforcement unit and the KeNHA officers in charge. The system having distributed capability allows transmission of live data allowing the people in charge to use the data for enforcement purposes.

VMS FLOW CHART

1. VWS Camera Reads No. Plate of Truck and Opens an Account

2. VWS WIM Sensor Reads Weight Information and No. of Axles to enable Accurate Sorting of Vehicle Class and Weight Reading in VWS System

3. VWS Site Equipment Readings are Transmitted in Real-Time to HQ Data Centre for Backup and Analysis

4. VWS System Administrator(s) Carries Out Analysis on Incident Cases of Road Misconduct and Compiles Report(s) for Client

5. The VWS System sends automatic notification messages and tags in real-time
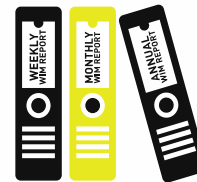
6. VWS System Reports Submitted to Client as per agreed Schedules for Further Action

Virtual Weighbridge Capability

- ❖ Single/dual tyre detection
- ❖ Applicable for enforcement, pre-selection and statistics
- ❖ Traffic counting and classification
- ❖ Vehicle 3D profile measurement (length, width and height)
- ❖ In-house and Cloud storage of the data.
- ❖ Unmanned stations.

Importance of VWB system

Overloaded vehicles pose a number of risks to the road and road users that will be reduced by the using WIM System, including:

a. Damage to roads, bridges and pavements
b. The safety risk and potential danger to other road users because of undistributed loads
c. Unfair disadvantage to tax paying, compliant road users
d. Helping to identify overloaded vehicles over time.

Relevance to KeNHA's trunk road network

a. Provide Historical data for making decisions regarding Axle Load Control
b. Provide data for the prosecution traffic offenders
c. Provide information on road lane and wheel track measurement (road ruts and sensor surface wear estimation)
d. Provide real time traffic data for road planning purposes

CONCLUSION

There can be no doubt, Weigh in Motion Systems when is combined with other technologies such as ANPR, RFID readers and an analysis system helps in the removal of illegal over weight vehicles hence reduce the costs of premature road repairs, allowing the road Authority to use our resources more beneficially.

It also helps make Kenyan roads safer by enabling very accurate identification of overweight vehicles that potentially cause a danger to other motorists.