UGANDA VIRTUAL WEIGH-IN-MOTION (VWIM) PROJECT

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ABSTRACT

The Source of the Nile Bridge was built across the River Nile, located at Jinja, to reduce traffic in the eastern part of Uganda, ease road safety issues, and create a reliable and faster connection to other parts of the country. The bridge serves as the major import and export route to the coast of Kenya and was designed with a structural life of 120 years. Weigh-In-Motion (WIM) enforcement was not part of the original plan but was later added to protect the bridge structure and pavement from undue damage from overloaded vehicles, as it was seen as essential to add WIM systems at both approaches to the bridge in order to achieve the expected lifespan.

This presentation describes the Virtual Weigh-In-Motion (VWIM) system deployed at the site to monitor trucks on the bridge and select overweight vehicles for enforcement. Opting for a VWIM system provided several benefits over other options for traffic monitoring and commercial vehicle enforcement. The system is more economical, providing a lower cost of construction and operation compared with manned inspection stations. The system has a smaller footprint than inspection stations which allowed for optimal positioning of the WIM sensors to monitor bridge traffic and collect loading data. Continuous data collection and weight violation reports enabled remote monitoring of weight violations at all times to provide the roads authority with information for allocating resources.