Dam Safety Critical Infrastructure and Flood Risk Management Innovation

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The Kentucky Division of Water (DOW), in cooperation with the Department of Homeland Security (DHS) Science and Technology Directorate, is nearing completion of a four-phased project to establish a means of monitoring critical infrastructure, particularly dams, as part of the DHS Flood Apex Program. Kentucky DOW has utilized water level sensors to serve as a replicable, cost-effective and efficient solution that can be applied to dams and other infrastructure where flood risks may be lesser known on a wide scale across Kentucky (and the nation).

Kentucky DOW has tested and installed an extensive number of water level sensors at high and moderate hazard state owned dams, many of which are remotely located and have little or no existing instrumentation. Kentucky DOW has extended implementation to differing use cases including levees, low water crossings, and municipal stormwater applications to address pluvial flooding.

This presentation will discuss lessons learned and best practices which may be applied to critical infrastructure locations throughout the country that have limited information and/or instrumentation and/or have flash flooding or similar flooding issues related to sea level rise. Kentucky DOW will discuss the planning, prioritization, data management, installation/implementation, and maintenance involved in this endeavor. Lessons learned along the way will also be highlighted and discussed.

One particular aspect that will be highlighted is how Kentucky DOW addressed the need for a centralized data management platform and user interface to organize large amounts of multiple provider sensor data to streamline communication of risk in warning and alert delivery. This statewide monitoring program is intended to increase warning and response time, reduce risks to lives and property, and ultimately build community resilience to flood events.