APPLICATION NOTE
Monitoring Surface Water and Flooding

A Tennessee city operates both ADS® ***TRITON+***® flow monitors and ADS **ECHO™** level monitors. The flow monitors are used for I/I assessment and capacity studies while the level monitors are primarily used for overflow abatement. The existing relationship between ADS and the city for monitoring water flows and levels spurred them to contact ADS concerning flood monitoring. Previously, the city deployed personnel from the fire department during heavy rains to visually monitor water levels at three different bridges. Fire personnel would check the river level gauges (see Image 1) hourly and assess flood danger. While necessary, this consumed valuable emergency personnel resources.

Image 1: River gauge of city in Tennessee

A New Method to Optimize Resources

Seeking a more efficient, immediate, and safe process, the utility recommended that ADS and the fire department speak about potential solutions. Once in contact, the fire department learned about similar applications using the **ECHO** for remote monitoring of stream levels to avoid park flooding (Image 2) and river levels for contributing data to the hydraulic model (Image 3).

Image 2: ADS **ECHO** installed for stream monitoring to avoid park flooding

Image 3: ADS **ECHO** installed on a bridge for river level monitoring of the Detroit River

A Better Solution

The city implemented remote level monitoring on three different bridges (Image 4). Consequently, they were able to conserve their fire resources for more urgent tasks. Moreover, they acquired the capability to check river levels at any time and from any location using a web-enabled device, receiving alarms when preset thresholds were exceeded.

Image 4: ADS **ECHO** level monitor installed on a bridge

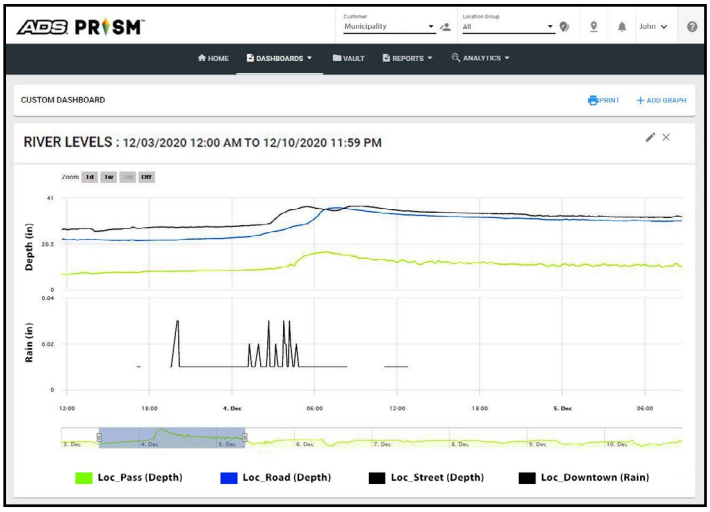

Image 5: Graph showing river level rise at three bridge locations, **ECHO** monitor located on a bridge along with rain data (black)

The Opportunity for Automated Flood Monitoring and Notification

As with other previously cited examples, the city discovered that automated, remote monitoring, especially during bad weather, has multiple benefits:

- Continuous monitoring enables immediate viewing of site data as needed.
- Personnel, such as emergency responders, can be re-directed to more urgent tasks that may arise during bad weather.
- Data is continuously collected enabling analysis and a better understanding of the waterway's behavior (Image 5).
- Site visit safety risks are eliminated during severe weather.
- The monitoring system can be interfaced with public facing information and alerts networks.

Bringing Visibility to a Wide Range of Surface Water Applications

Remotely located level monitors have an extremely wide range of uses including:

- Canal systems
- Channels and culverts
- Reservoirs
- Roads and residential areas
- City parks and recreational areas
- Retention ponds and lagoons

When cities need to be informed and alerted to changing surface water conditions, the complete **ECHO** system including remote monitor, communications, and ADS **PRISM™** software, provides immediate and accurate insights leading to timely, informed action.

ADS Empowering Customers to See, Understand, and Act!™

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