



REMOTE MONITORING | POINT ORANGE & PALETTE SCADA-AS-A-SERVICE

REAL-TIME NOTIFICATION OF POTENTIAL FLOODING
DURING STORM EVENTS

BACKGROUND

Western Virginia Water Authority (WVWA) installs multiple sewer flow meters each year for six months between October and April, capturing flow from **sewer metering areas (SMAs)**. The SMAs are prioritised for metering based on the normalised quantity of wet weather overflows. This data is primarily used for calibration of WVWA's **InfoWorks Integrated Catchment Model (ICM)** hydraulic model but is also used to determine the peaking factor between dry and wet weather flow:

"While the data is invaluable for these purposes and the temporary units provide alarms and can be remotely accessed, we needed a cost-effective solution that would give us real-time notification of potential flooding during storm events at fixed locations." said **Jim O'Dowd, Infrastructure Asset Manager at WVWA:**

"The solution needed to be easy to deploy and require minimal support and maintenance."



STAKEHOLDER

WVWA is a mid-sized utility located in **Southwest Virginia**, providing water and sewerage services to approximately **200,000** people. Similar to most municipalities in the Mid-Atlantic region, the Authority's sewer system has experienced wet weather overflows due to inflow and infiltration.

BUSINESS NEEDS

WVWA trialled various sensor options, initially using ultrasonic technology, but found that the set-up and reliability of this option, especially during a flood scenario, was problematic. In addition, battery life and signal reliability were concerns.

WVWA approached **Au2mation** to develop a solution with them, and **Au2mation** recommended the use of **Metasphere's Point Orange**, their new battery-powered cellular RTU, to solve the complex issues involved in aligning data output, telecommunications strength, and reliability of fixings. The challenge was to monitor the manholes effectively enough to anticipate storm and flood events, with an easy-to-deploy solution and the minimum of support and maintenance.



THE METASPHERE SOLUTION

Au2mation developed a solution with WVWA based on the Metasphere Point Orange and Palette products between 2015 and 2017, to monitor manholes across the network, using equipment stationed at each monitoring point. The solution uses a Point Orange RTU, a pressure sensor, and pressure cable installed through a drilled hole in the side of the manhole over to a fibreglass box which contains the Point Orange and external antenna.

Point Orange is a self-contained RTU with internal battery pack, IP68 unit enclosure, either a 4G (NB-IoT/ Cat-M1) or tri-band 3G modem, and quad band GSM/GPRS fallback, auto-switching internal and external antenna options, software configurable AI, CI, DI, Modbus and SDI-12 communication options, integrated submersion sensor, local diagnostic points and intelligent alarm reporting. It communicates with Metasphere's Master Control System, DNP3/ WITS DNP3 Masters or FTPS servers.

The data collected is then communicated to Palette, Metasphere's cloud-based 'SCADA-as-a-Service' (SaaS). Benefits to WVWA are:

- Third-party configuration, monitoring, back-up, and system management
- Shared infrastructure: servers and software running SCADA reduces cost
- Fixed annual costs covering the full service: help with WVWA's budgeting and planning
- No special software required to access the system and its data



BENEFITS

The ideal alignment was attained in 2017 - Jim O'Dowd, Infrastructure Asset Manager said:

'The accuracy of the sensor was within a few inches of the ultrasonic, more than sufficient to alert our staff when a 10 ft manhole is half-full, and a foot below the rim respectively. There is no risk of the Point Orange being submerged, and no need to open a manhole lid to change batteries or update the firmware.'

Prior to this solution, drop manholes and manholes prone to pressurised surcharge could not be monitored; now, any manhole is a candidate for monitoring with pressure sensors and Point Orange.

FIND OUT MORE!

If you would like to monitor assets for floods and stormwater, get in touch to find out how Point Colour RTUs transform your operation.



For general enquiries:

METASPHERE LTD
Millfield, Dorking Road,
Tadworth, Surrey KT20 7TD
+44 (0)1737 846 100
info@metasphere.co.uk
www.metasphere.co.uk

For Australasian enquiries:

METASPHERE AUSTRALIA PTY LTD
Terrace 3, 1-7 Napier Street,
North Sydney, NSW 2060
+61 (0)299 567407
info@metasphere.net.au
www.metasphere.net.au