Bentley®
Advancing Infrastructure

How OpenFlows™ WaterGEMS® Can Help You

11 Ways to Advance Traditional Water
Distribution Modeling and Management

Trying to describe how Bentley's OpenFlows WaterGEMS (and OpenFlows WaterCAD®) can help a water system engineer or operator can be difficult. Users need to think of the software not as tool, but rather a toolbox comprised of advanced hydraulic analysis capabilities. Depending on the problem you need to solve, it could be deployed as a means to size pipes, select pumps, identify pressure zone or district meter area (DMA) boundaries, predict chlorine residuals, or plan flushing operations. Here's a few ways OpenFlows WaterGEMS can make your job easier.

1. HOW BIG SHOULD THIS PIPE BE?
The most fundamental use of hydraulic models is for pipe sizing. This covers a range of uses, such as system master planning, capital budgeting, system extensions, land development projects, and rehabilitation studies. OpenFlows WaterGEMS can help decide between pipes that are too small, too big, or just right.

2. WHERE DO I PUT MY TANK, AND HOW BIG AND TALL SHOULD IT BE?
No decision impacts water system planning more than where a water tank should be placed and what their overflow level (which determines the pressure zone hydraulic grade) should be. OpenFlows WaterGEMS can analyze tanks in terms of the pressure it can supply, the volume required for normal operation and emergency flow, and the most desirable location.

3. WHAT PUMP SHOULD I BUY?
Don't just pick a design flow and select the cheapest pump of that size. Energy costs are the biggest component of a pump's lifecycle cost. OpenFlows WaterGEMS enables you to determine what pump is best for your situation. Since systems don't have a single pump, the software has tools to see how these pumps can work together to maximize efficiency and lower costs. Moreover, OpenFlows WaterGEMS can also help determine how new and existing pumps can be operated efficiently.

4. DO WE HAVE SUFFICIENT CAPACITY FOR THE PROPOSED BUILDING, CAMPUS, OR INDUSTRY?
This is the question water utilities are asked most often. A developer is building a project and wants to know if you can supply the water for normal use and emergencies. OpenFlows WaterGEMS is a great tool for determining capacity and, if inadequate, designing the needed improvements.

5. WHAT'S THE AVAILABLE FIRE FLOW?
Determining the available fire flow across the entire system in a single step helps you identify where your system has adequate or inadequate capacity. Once you know where improvements are needed, OpenFlows WaterGEMS can help you design them.

6. WHERE ARE THE WEAK LINKS IN THE SYSTEM?
Most systems have places where a single pipe break can put a large number of customers out of service. OpenFlows WaterGEMS can identify those locations. It can indicate if a problem is due to lack of adequate isolation valves or inadequate pipe capacity and help you correct the problem before anyone is out of service.

STAY IN SYNC
Identify and control imports from GIS and other sources to ensure your model reflects the real world.

QUICKLY CONNECT TO AREAL MAPS
Specify control points to align the model and convey visual design outcomes for optimal results.

EFFICIENTLY CREATE CUSTOMIZABLE REPORTS
Mix and match maps, graphs, tables, and other data, then output to nearly any format.

BRING ENGINEERING INSIGHT INTO THE CONTROL ROOM
Synchronize with SCADA and develop effective strategies for energy savings and emergency response.

7. WHAT'S THE WATER QUALITY IN THE SYSTEM?

Water quality monitoring is expensive. OpenFlows WaterGEMS can fill in the water quality values throughout the system. You will able to determine where disinfectant residual will be low, and design then improvements or make operational decisions to correct problems before they occur.

8. WHERE DID MY WATER COME FROM?

In systems with multiple sources, it is helpful to know which water sources contributed to customers at precise locations. In many systems, the solution to this question is more dynamic and unintuitive than you would suspect. OpenFlows WaterGEMS can show you who gets water from each source, including how a specific source varies over time.

9. HOW DO I PLAN MY FLUSHING OPERATION?

Flushing water mains can remove deposits and bring fresher water into an area – but it is best not to randomly open hydrants. OpenFlows WaterGEMS can help you intelligently plan these operations and develop the report for operators to carry out the work.

10. HOW CAN I SET UP DISTRICT METERED AREAS?

DMAs are useful for managing water delivery and identifying water loss. OpenFlows WaterGEMS can help lay out DMAs (identify valves to close and pipes to meter) and determine how those actions will impact the system.

11. HOW DO I IDENTIFY PIPES THAT NEED REPLACEMENT?

OpenFlows WaterGEMS' pipe renewal planner can combine pipe break data, criticality calculations, and capacity determinations to identify pipes that need to be considered for replacement or rehabilitation. Then, the software can help with project design.

These are just a handful of the questions Bentley's water distribution software can answer. As with any other toolbox, innovative users can find all sorts of applications for OpenFlows WaterGEMS. In the hands of a good modeler, it can make everyone more productive. OpenFlows WaterGEMS streamlines model building and model management processes so that you can spend more time engineering your water networks. Request a demonstration today.

Identify district metered areas automatically.

Locate and respond to fires and pipe breaks effectively.
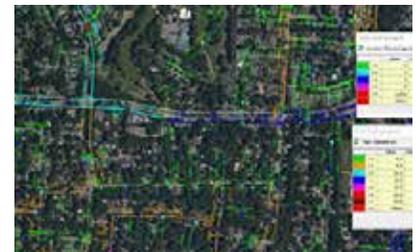
Color code your drawing base on any property.