



New, Integrated 1D/2D Hydraulic Modeling for Flood Analysis

With the release of CONNECT Edition Update 4, **OpenFlows™ SewerGEMS®** and **OpenFlows™ CivilStorm®** now provide user-friendly tools for connecting 1D network elements with 2D surface flows. This significant new expansion of capability enables engineers to better understand surface flooding depth and velocity, flood hazard, and inundation times, and communicate this information to stakeholders with versatile mapping and reporting tools.

With this new functionality for more comprehensive analysis of storm and sewer flooding, users will:

Access integrated hydraulic modeling of surface (2D overland) flows with sewers, stormwater inlets, detention facilities, and other elements.

- Model surface inundation due to overflows at structures such as manholes and inlets, river flooding, or tidal effects.
- Create scenarios and make comparisons among different alternatives to rapidly find the best solution for flood risk mitigation.
- Easily modify 2D grid properties using drawing elements, such as land-use polygons, spot elevations and breaklines (very useful for modeling proposed development attributes that differ from existing geospatial data sources).

Simulate hydrological and hydraulic processes to support emergency planning and green-initiative design.

- Determine the extents of flood-prone areas and estimate the flood hazard based on water depth and flow velocity.
- Identify and prioritize areas where capital improvements are needed.
- Identify bottlenecks and hotspots that hinder the capacity of stormwater drainage systems.
- Simulate mitigation options, such as low-impact development controls or additional conveyance capacity.

Explore and present model results using a wide range of integrated visualization capabilities, including mapping and animation tools.

- Easily generate a 2D computational grid for a detailed picture of flooding impacts over the ground surface.
- Use mapping tools to map flood depth, hazard, direction, and velocity. Animate these results over time, or export raster data to incorporate in further geospatial analysis.
- Export results from OpenFlows SewerGEMS or OpenFlows CivilStorm for use in LumenRT, Bentley's 3D reality modeling solution, to generate realistic visualizations of flooding events. Seeing results in a realistic 3D context can help stakeholders better understand the risks and impacts of flooding events and potential mitigation actions.

WHO CAN ACCESS THIS NEW FUNCTIONALITY?

This integrated 1D/2D modeling capability is provided at no additional charge to users with a current subscription for OpenFlows SewerGEMS or OpenFlows CivilStorm and will be included for those who maintain a subscription for these products.



Hydraulic simulations help engineers to predict or better understand problems and create efficient solutions that increase the resilience of urban drainage systems.