WHAT CAN xpswmm MODEL?

**River Systems/Floodplain Management:**
- 1D/2D River Hydraulics
- Floodplain Mapping and Hazard Maps
- Levee Interior Drainage
- Culvert and Bridge Analysis
- Fully Coupled Urban and River Drainage Systems
- Escape Route and Emergency Action Planning

**Sanitary/Foul Water and Combined Sewer Systems:**
- Capacity Analysis and Collection System Hydraulics
- CSO and SSO Mitigation Studies
- RDII Infiltration and Inflow Studies
- Real Time Control Systems
- Water Quality

**Stormwater Management:**
- Stormwater Master Plans
- Major/Minor or Dual Drainage Systems
- Watershed Master Plans
- Contaminant & Sediment Loading and Transport
- Pollutant Removal

**Stormwater Design:**
- 1D/2D Urban Flooding
- Detention Pond Optimization
- Stormwater Design
- Interconnected Pond Routing
- LID/WSUD/SuDS and BMP design and analysis
MODEL WITH CONFIDENCE
xpSWMM

WHY xpSWMM?

Because you want to be confident that the models you create and submit for review are accurate and easily understood.

Holistic Modeling. Hydrology, Hydraulics and Water Quality. Experts know that a change to one element in a system may affect the performance of the entire system. xpSWMM allows you to fully evaluate the interaction of all system elements — channels, pipes, streets, control structures, ponds, weirs, pumps, catchments, groundwater table, overland floodplains, rain gardens, infiltration trenches and more in a single model.

Regulatory Approval. Widely used and accepted in private practice, it is also EPA tested and FEMA approved. The U.K. Environment Agency conducted rigorous benchmark testing of xpSWMM and xp2D with positive results. Countless regulatory organizations around the world are familiar with xpSWMM and prefer modeling performed with its powerful tools.

Accurate Simulation. You need a tool with model elements that accurately reflect the physical realities of your systems. The number of available element types, shapes and control parameters available are unparalleled compared to free or competing proprietary software packages. Minimize the need for approximations and “modeling tricks” by using xpSWMM.

Industry-renown Support. Nothing is worse than facing a deadline and wasting time trying to troubleshoot an error. xpSWMM is supported by engineers who have used the software in the professional world. They understand your need for urgency and are driven to help you succeed.

EFFICIENT MODEL CONSTRUCTION

Don’t lose time with manual entry or toggling between software programs. Build your model quickly in one application while using all available information.

GIS Integration. Dynamically link to almost any external database to build your model and populate model parameter fields. xpSWMM, an independent, standalone system, provides versatility to work with data in any ODBC/OLE compliant database; streamlined linkage to ESRI Shapefiles and MapInfo MID/MIF files is pre-configured.

Import existing models and designs from HEC RAS, EPA SWMM and MicroDrainage to save time in model creation.

Digital Terrain Model. Create or import land surfaces in xpSWMM to allow generation of cross sections of open channels, assignment of 1D node elevations, or computation of overland flow depths/directions (2D hydraulics).

CAD Integration. Work with data from any DXF, DWG, LandXML, or 12D file. No need to redraw in xpSWMM!
VERSATILE REPORTING

You need to view and understand model output easily. Your reputation as a modeler depends on those results. **xpSWMM** gives you options:

- **Full Results Output Document.** This comprehensive text file allows you to review complete model data, computational details and complete results.
- **XP Tables.** View and edit model input/output data in a user-customizable spreadsheet environment.
- **Dynamic Section Views.** Review HGL, water surface elevation and data in flexible dynamic animation window.
- **Spatial Results.** Visualize flooding results spatially to provide understanding and communicate in vibrant color the depth, hazard, and flood elevations across the model.
- **Animations.** Create/watch movies of flow progression over time. See it like it will happen in the real world.

ACCURATE ANALYSIS

Reduce the risk of inaccurate results. Make sure your model completes full 1D and 2D dynamic calculations.

- **Dynamic Analysis.** **xpSWMM** solves the full St. Venant Equations. Dynamic modeling allows the effects of storage and backwater in conduits and floodplains and the timing of the hydrographs to yield a true representation of hydraulic conditions.
- **Integrated 1D/2D Flow.** **xpSWMM** can fully couple 1D network flow with 2D overland flow to accurately model interaction between flood waters and drainage systems, including underground pipes and natural channels. **xp2D** solves the full shallow water equations which is important and lets you model complex systems as they really are – regardless of where the water goes.
- **Analysis/Calculations.** Choose between 64 bit single or double precision **xpSWMM** engines for the best comprehensive solution. Use the Solve Manager to allow parallel processing of multiple runs such as those generated by the Global Storms and Scenario Manager features. SWMM5 models can be imported and exported to/from our modeling system.

**WSPG.** Choose this engine as a solution option for simple hydraulic analysis. Import older WSPG models, too!
DELIVER YOUR MODEL

Deliver your model to clients and/or regulators easily and with the confidence that they will see the value in your analysis or design.

xpviewer Encryptor and Free Reader. Your clients and regulators don’t have to own xpswmm to view and approve your model. Users of xpswmm can encrypt a model so that their clients can review it with the free reader software that includes all the powerful tools used to report, review and visualize the model.

Tested and Approved. xpswmm has been tested by the U.K. Environment Agency with positive results, and approved by the US Federal Emergency Management Agency (FEMA), meeting NFIP criteria for hydraulic or hydrologic projects (DFIRM, CLOMR, LOMR). It was also the first and only proprietary stormwater and wastewater model to be tested by the EPA’s Environmental Technology Verification (ETV) Program.

Model Export. xpswmm model data input and results may be output to various formats that may be preferred for submission/review by your clients including GIS files, graphics, text or tabular data, maps and more.

VALUE OPTIONEERING

How will a new design or a different flow input affect your system? Make sure your software program can allow you to rapidly assess your options!

Solve Manager. Improve model simulation time by running multiple models simultaneously in parallel.

Scenario Manager. Examine multiple “what if” scenarios within a single project with full tracking of changes. Compare scenario results graphically and in tables.

Global Storms. Evaluate the model across the range of rainfall events and events durations to identify the critical storm. xpswmm provides automated encroachment station calculation, leaving you with more time to evaluate options.

Real Time Controls. Evaluate operation management plans and practices that produce changing conditions in your model, including time-dependent and condition-controlled elements such as gates and weirs.

LID/SuDS/WSUD/GSI. Evaluate the impact of various configurations of stormwater control systems - whether for water quantity control or water quality effects.

Node Flooding Report

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FEMA Approved
When lives and property depend on the engineering decisions that you make, you want the data supporting your work to be reliable and easy to understand. You don’t want to risk taking shortcuts with insufficient calculations or make assumptions about system elements when you don’t have to.

**xpswmm** is a complete software package for dynamic modeling of stormwater systems, sanitary or combined systems, and river systems. It is used by engineers, scientists and watershed managers to develop link-node (1D) and spatially distributed (2D) hydrologic and hydraulic models for analysis and design. Its use over the last 30 years has made it one of the most stable and well-used simulation software programs in the world.

**xpswmm** simulates natural rainfall-runoff processes and the hydraulic performance of drainage systems used to manage our water resources. It allows integrated analysis of flow and pollutant transport in engineered and natural systems including ponds, rivers, lakes, overland floodplains and the interaction with groundwater.

Use **xpswmm** for fully integrated hydrologic and hydraulic modeling—simulate the whole water cycle in one complete model! This comprehensive software will allow you to Model With Confidence.