

WHAT CAN XPSWMM MODEL?

Stormwater Management:

- Stormwater Master Plans
- Major/Minor or Dual Drainage Systems
- Watershed Master Plans
- Contaminant & Sediment Loading and Transport
- Pollutant Removal
- 1D/2D Urban Flooding
- Detention Pond Optimization
- Stormwater Design
- Interconnected Pond Routing
- LID/WSUD and BMP design and analysis

Sanitary 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

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



XPSWMM

xpswmm is a comprehensive software package for dynamic modeling of stormwater, sanitary or combined systems, and river systems. It is used by scientists, engineers and managers to develop link-node (1D) and spatially distributed hydraulic models (2D) for analysis and design. Its use over the last 25 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 system! This comprehensive software will allow you to Model With Confidence.

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VISIT OUR WEBSITE TO LEARN MORE ABOUT OUR PROGRAMS THAT HELP YOU MODEL WITH CONFIDENCE!

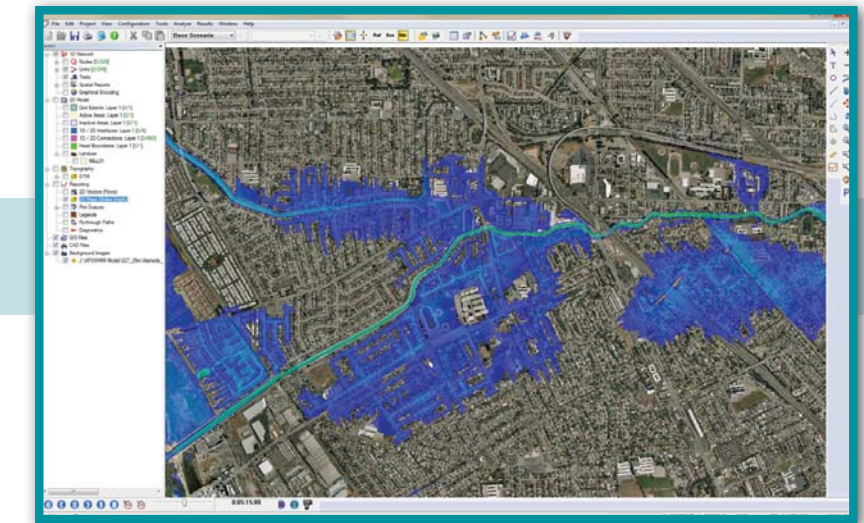
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MODEL WITH CONFIDENCE



STORMWATER & WASTEWATER MANAGEMENT MODEL



MODEL WITH CONFIDENCE WITH **xpswmm**



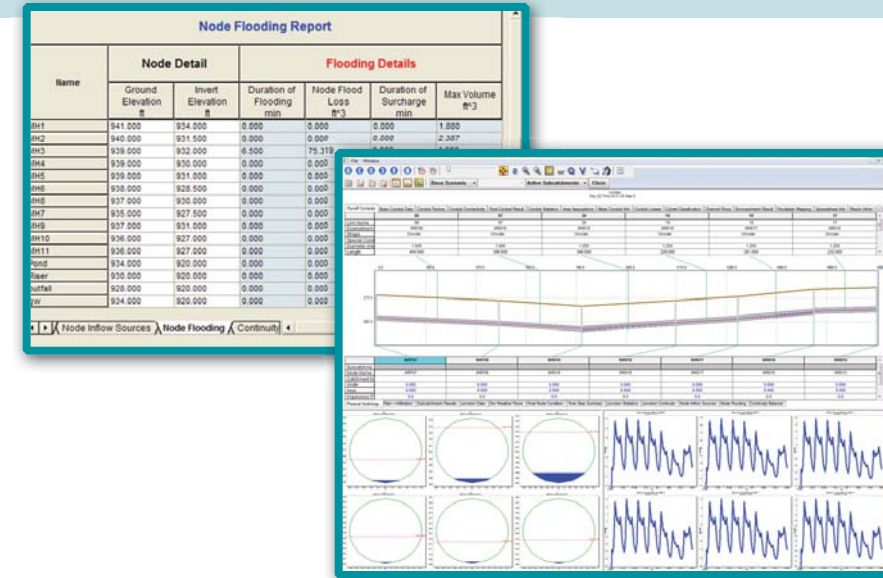
WHY **xpswmm**?

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 perform fully integrated system modeling – channels, pipes, streets, control structures, ponds, weirs, pumps, catchments, groundwater table, overland floodplains, rain gardens, infiltration trenches, and more.

Model the Real World. You need a tool with model elements that accurately reflect the physical realities of your drainage system. The number of available element types, shapes and control parameters are unparalleled in free or competing proprietary software packages. Minimize the need for approximations and “modeling tricks” by using **xpswmm**.

Regulatory Approval. Widely used and accepted in private practice, it is also EPA tested and FEMA approved. Countless regulatory organizations are familiar with **xpswmm** and prefer modeling performed with its powerful tools.

Localization. **xpswmm** has been customized and localized for many niche markets around the world. Specific hydrologic methods, specialized hydraulic routines, and purpose-built output templates will help you model according to local standards.



EFFICIENT MODEL SETUP

Build your model quickly while having a world of data at your command. Get a model up and running with:

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.

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**!

ACCURATE ANALYSIS

You want a model with power and versatility when you need answers. Have confidence with:

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.

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** lets you model complex systems as they really are – regardless of where the water goes.

EPA SWMM5. Choose this engine as a solution option rather than the more versatile **xpswmm** engine if needed. Import and export SWMM5 format files.

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

VERSATILE RESULTS

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

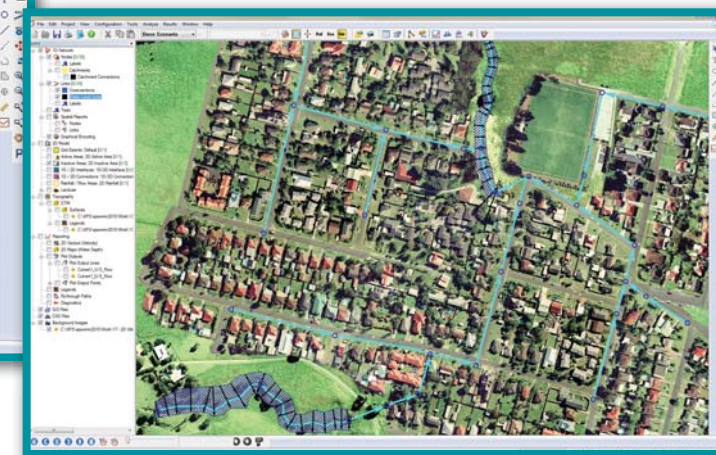
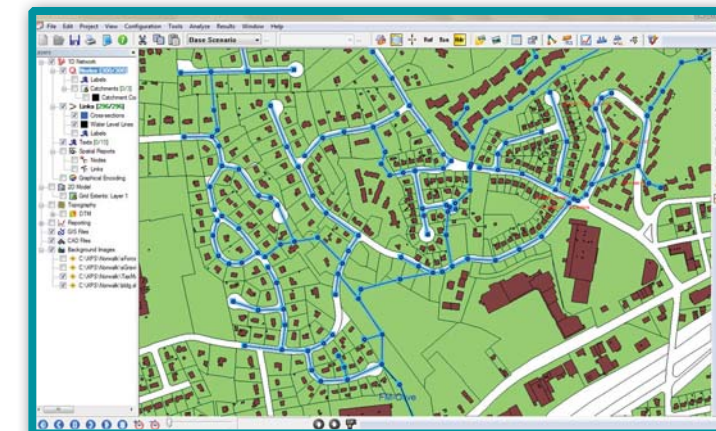
Full Results Output Document. This comprehensive text file allows you to review complete model data, computational details and complete results.

XP Tables. View and edit model input/output data in a user-customizable spreadsheet environment.

Profile/Cross Section Plots with Animation. View HGL, water surface elevation and data tables in a customizable plot window.

Flood Mapping. Create color-coded flood depth maps, floodplain boundary maps, flood hazard maps, and base flood elevation (BFE) contour maps.

Animations. Create/watch movies of flow progression over time. See it like it will happen in the real world.



VALUE OPTIONEERING

How will a new design or a different flow input affect your system? How can you rapidly assess your options?

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

Design Tools. Automatically identify flow choke points and let **xpswmm** design remediation (pipe sizes, slopes). Use automated Detention Pond Optimization methods to configure storage.

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/BMP/WSUD. Evaluate the impact of various configurations of low impact development (LID) schemes - whether for water quantity control or water quality effects.

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 build, optimize, and visualize the model.

EPA Tested, FEMA Approved. **xpswmm** is approved by the US Federal Emergency Management Authority (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.