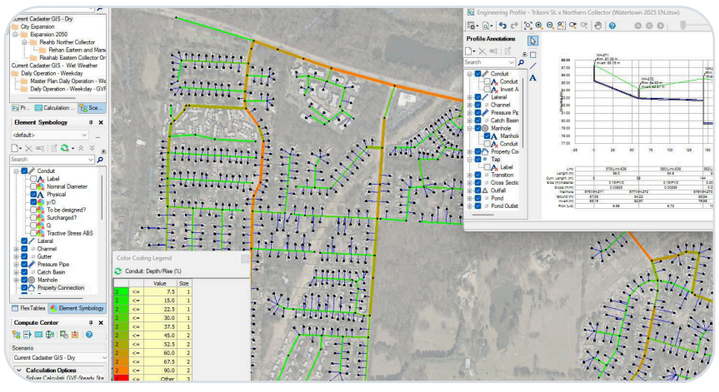
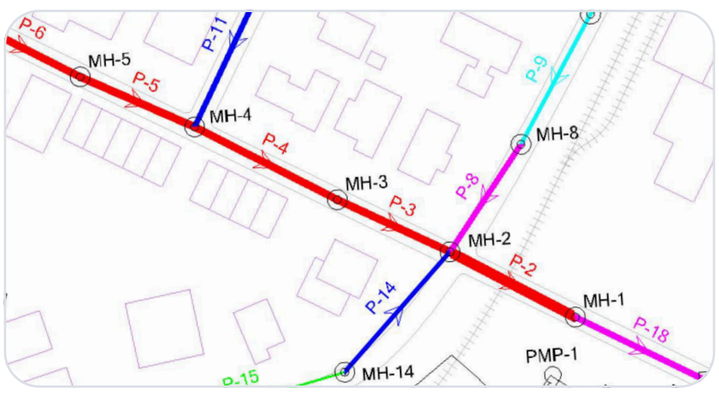
OpenFlows™ Sewer

Wastewater collection system modeling and management



Produce optimal urban sewer planning and overflow remediation analysis and designs.



Configure, evaluate, visualize, and compare an unlimited number of scenarios.

Advanced sewer system design and analysis

OpenFlows Sewer is powerful hydraulic analysis software for planning, designing, and analyzing sanitary, stormwater, and combined sewer systems. By integrating advanced hydraulic and hydrologic analysis in a single environment, OpenFlows Sewer helps engineers understand system performance, evaluate alternatives, and make data-driven decisions. They can proactively manage capital improvement programs, rehabilitate aging infrastructure, and mitigate sanitary and combined sewer overflows, ensuring resilient, compliant systems that can adapt to growing populations, evolving regulations, and future demands.

AI-assisted modeling

Bentley Copilot, integrated into OpenFlows Sewer, brings generative AI into the modeling workflow, helping engineers work faster and more efficiently. Using natural language prompts, users can interrogate model data, launch ribbon commands, and perform basic edits without navigating complex menus. Productivity is further enhanced by the ability to upload and query external documents, such as city codes or design standards, directly within the modeling environment, helping teams validate designs, reduce rework, and maintain consistency with regulatory requirements.

Integrated modeling and interoperability

OpenFlows Sewer streamlines model creation by synchronizing network data from GIS, CAD, databases, and spreadsheets into a single, connected environment. Engineers can work in OpenFlows Sewer as a stand-alone application or directly within familiar platforms such as MicroStation®, AutoCAD, and ArcGIS Pro, and Bentley's Civil design applications(e.g., OpenRoads™ Designer), reducing friction across disciplines and project teams. Built-in coordinate system detection and reprojection simplify spatial workflows. Projects can be extended into digital twin workflows, enabling sewer models to be viewed in 3D and collaboratively reviewed alongside other infrastructure data in Bentley Infrastructure Cloud™.

Advanced analysis and scenario management

Gain insights and a deeper understanding of system behavior by evaluating and comparing an unlimited number of what-if scenarios. The multiple scenario annotation capability allows for easy visual comparison of results directly within the model. Powerful thematic mapping, enhanced 2D flood extent analysis, and dynamic graphing help teams clearly communicate results and support informed decision-making. Reporting is streamlined with direct export to Microsoft Office, while high-fidelity Google Maps backgrounds provide real-world context for analysis and stakeholder communication.

System requirements

Minimum: Windows 10 (32-bit and 64-bit), 11, Server 2019, or Server 2022, can run stand-alone on MicroStation, OpenRoads, OpenSite®, OpenRail™ Designer, AutoCAD, or ArcGIS Pro 3.1 (SewerGEMS® only)

OpenFlows Sewer at-a-glance

OpenFlows Sewer includes the capabilities of SewerGEMS and SewerCAD®. See the comparison checklist to decide the tier that best suits your project and analysis needs.

Interoperability

- Operates as a stand-alone application or integrated within MicroStation, AutoCAD, ArcGIS Pro, and Bentley's Civil design applications (e.g., OpenRoads Designer)
- Manages project data and files with ProjectWise® integration
- Connects sewer models to Bentley Infrastructure Cloud for 3D visualization and collaboration

Model building and data connection

- Builds and synchronizes models from GIS sources (shapefiles, geodatabases, Geometric Networks), CAD drawings, spreadsheets, and databases (including Oracle Spatial and ODBC)
- Imports and exports common industry formats, including LandXML, SWMM, MicroDrainage, MX Drainage model files, and InRoads® storm and sanitary data
- Automatic coordinate system detection and reprojection for external data sources
- Automated catchment delineation from terrain models, with runoff calculation using NRCS Curve Number and Rational “c” methods based on land use
- Improved catchment delineation for headwalls and cross-sections
- Allocate dry and wet weather loads from geospatial data, flow monitors, or property connections
- Connect to SCADA for live and historical data to define model inputs and calibrate results
- Support for text string output from user data extensions for custom reporting

Scenario and model management

- Active topology to activate or deactivate network elements
- Comprehensive, unlimited scenarios and alternatives
- Customizable engineering libraries
- Dynamic and static selection sets
- Orphan node and dead-end pipe queries
- Sub-model management
- Surface flow path tracing from terrain
- Multiple scenario annotation for side-by-side visual comparison of different scenarios

Hydraulics and operations

- 1D/2D hydraulic analysis for surface flood modeling with enhanced 2D results reporting and visualization
- Two available solvers for the full set of 1D St. Venant equations: implicit dynamic and explicit dynamic (EPA-SWMM)
- Gradually varied flow solvers for sewer (with convex routing and EPANET-based pressure network solution) and stormwater (with rational method flow calculation)
- Extreme flow factors for use with steady-state simulation
- Long-term continuous simulation
- Critical storm analysis
- Automatic constraint-based design of gravity systems
- V-shaped and parabolic gutters
- Culvert headwalls with SWMM and HDS-5 culvert support
- Inline control structures and diversions (weirs, orifices, and depth-flow curves)
- Air valves for high points in force mains
- SCADA signal integration for operational controls
- Low-impact development controls
- Modeling of individual property connections, taps, and laterals
- Evaporation definition
- Aquifer simulation
- Pollution analysis with optional definition of land use categories and surface characteristics
- Operational logic using rule-based controls (if-then-else)
- Tractive stress calculation
- HEC-22 inlet capacity and node headloss calculations
- Variable-speed pumps
- Totalizing flow meters
- Flow meter tool for measuring flow in specific gravity and pressure pipe

AI assistance – Bentley Copilot

- Integrated “how do I” help and documentation search
- Perform natural language model interrogation with the Bentley Copilot AI assistant
- Launch ribbon commands and perform basic model edits via text prompts
- Query uploaded external documents (e.g., city codes) against the model

Interface and graphical editing

- Dynamic ground elevation assignment and updates from terrain model
- Modern ribbon interface with unlimited undo and redo
- Element editing tools, including morph, split, and reconnect
- Merge nodes in close proximity feature
- Automatic property-based element labeling and annotation
- Element prototypes for standardized model building
- Multiple background file layer support
- Background display of Google Maps, image files, CAD drawings, and GIS data
- Optimized graphical display for smooth navigation of large-scale models

Results preparation

- Multiple scenario annotation for side-by-side visual comparison of different scenarios
- Thematic mapping with property-based color coding, symbology, and annotation
- Advanced tabular reporting with FlexTables
- Dynamic profiling and engineering profile annotation tables
- Direct export of reports and tables to Microsoft Office formats
- Custom reports generation
- ArcGIS Pro visualization (with Esri license)
- Gutter cross section viewer
- Grid browser and graphing tools for visualizing 2D results (depth, WSE, velocity over time)
- Create reporting transects for detailed 2D flow analysis over time
- Animation video (AVI) creation of results over time

Find out more at Bentley.com
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