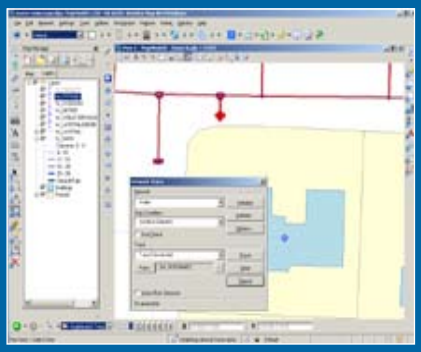
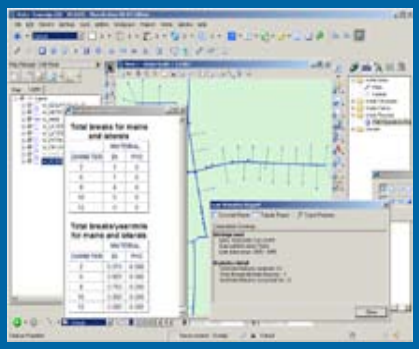
BENTLEY WATER

GIS FOR MANAGING WATER UTILITY ASSETS

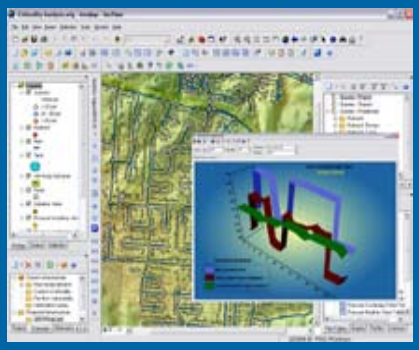
Bentley® Water is a comprehensive geospatial engineering solution for municipal water networks design and management. An integrated GIS and design environment coupled with an intelligent network model allow municipalities and utilities to address all operations of a typical water supply network. Bentley Water leverages all the advantages of Bentley Map™ – Bentley's GIS platform – with support for Oracle Spatial and full integration with Bentley's Haestad Methods solutions.



Isolation trace information is presented visually for quick, decisive action



Create custom tabular and cross tabular leak analysis reports



Share network connectivity, maintenance records, and operational data with WaterGEMS to run hydraulic modeling analyses

Intelligent Network Model

A simple, yet comprehensive connectivity model consisting of valves, pipes, structures, water records and connections form the basis of the Bentley Water intelligent network model. Accurate placement and smart editing commands automatically maintain network connectivity while creating intelligent facilities through a robust connectivity inference engine. Bentley Water guarantees the integrity of your network connectivity and intelligent facilities based on your own standards. You can place, modify, and attribute intelligent water system facilities while Bentley Water guarantees the integrity of your network connectivity based on your own standards. Dynamic property-based facility annotation enables you to change existing annotation just by updating the facility properties.

All the Advantages of a GIS Platform

Bentley Water includes a complete GIS platform, Bentley Map. This enables users to take advantage of all its features, including spatial analysis, buffer zone generation, map management, thematic and overlay analysis features, business and topological rules enforcement, and many more. Support for Oracle Spatial in 2-tier and 3-tier environments provides flexibility for storing Bentley Water data in Oracle to OpenGIS standards. Spatial data storage in Oracle is provided with Bentley Water through the Bentley Map Oracle Connector in a 2-tier environment. Or you can take advantage of optimistic locking and versioning and other benefits with Bentley® Geospatial Server in a 3-tier environment. This allows you to manage all water facility data through a single storage mechanism.

Network, Tracing, and Leak Analyses

User-defined "what if" reports allow you to determine such things as what service accounts would be affected by specific changes in the network, or which valves need to be closed to isolate a specific section of the network. A powerful tracing routine re-symbolizes the network to show which valves are required to shut off flow to any given pipe flagging affected pipes and connections.

The Bentley Water leak analysis utility automatically associates geospatially positioned leak records to pipes producing detailed reports based on diameter, material, or any other user-defined attribute.

Interoperability with Hydraulic Modeling Workflows

Because Bentley Water transparently integrates with the industry-leading Haestad Methods hydraulic modeling and analysis software; WaterGEMS®, WaterCAD®, HAMMER®, and even EPANET users can share network connectivity, maintenance records, and operational data to run hydraulic simulations of their potable water distribution systems.

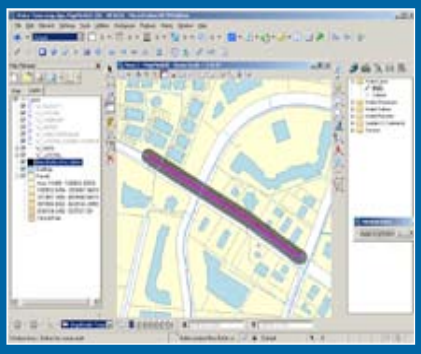
Extensibility and Customization

Bentley Water is completely customizable, from dialogs to attributes through the XFM (XML Feature Modeling) environment. With XFM you can completely develop your network as it exists with the pipes, valves, connections, and structures actually used. The dialogs are dynamically configured to reflect the options defined in the XFM schema. Dialog items can be arranged at your discretion and property-based annotation and symbology can be completely configured.

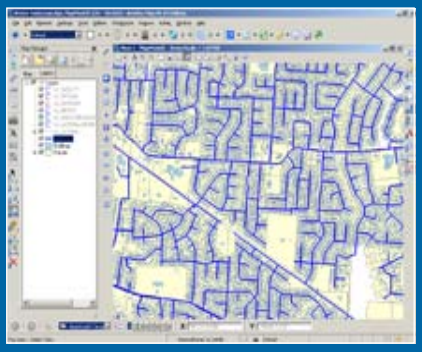
Publishing and Output

When used in concert with Bentley Geo Web Publisher™, Bentley Water users can publish their water network data through a web browser with customized levels of access to data. Casual desktop users can also use Bentley® PowerMap™ or Bentley® Redline to visualize the water network in a managed environment. Maps, work prints, and other documentation can be printed, plotted, or published in a wide variety of formats including PDF, DGN and DWG among others. All the power of MicroStation plotting is available along with the ability to generate map books in Adobe PDF format. Bentley Water gives you print preparation tools to add grids, north arrows, and title-blocks to maps or work prints, as well as create sophisticated thematic representations of the network.

For more information about Bentley Water, visit
www.bentley.com/BentleyWater



Create topology overlay analysis with Bentley Map



Bentley Water allows you to manage your entire water supply network.

BENTLEY WATER SYSTEM REQUIREMENTS

- Processor:
  Intel Pentium-based or AMD Athlon-based PC or workstation
- Operating System:
  Microsoft Windows 2003 (SP2 or higher recommended), Windows XP, Vista
- Pre-requisite application:
  MicroStation
- Memory:
  128 MB (256 MB or more typically results in better performance)
- Hard Disk:
  200 MB minimum free disk space
- Input Device:
  Mouse or digitizing tablet
- Output Device:
  Most industry-standard devices are supported. Works with output devices supported by Windows
- Video:
  Supported graphics card. Dual-screen graphics supported with vendor-supplied drivers for Windows. Multi-monitor configurations supported with, Windows 2003, Windows XP and Vista

BENTLEY WATER AT-A-GLANCE

Facility Creation and Editing

- Accurate and smart Place, Update and Delete tools for nodes, valves, pipes, and structures (fittings, pumps, hydrants, etc.)
- Single menu contains network maintenance commands
- Water records and connections
- User-customizable features, attributes, and dialogs
- Robust connectivity inference engine
- Dynamic property-based facility annotation
- Takes advantage of the power of MicroStation® for placement and editing
- Generation of water network information from graphics or scanned maps
- Access to image data through integration with MicroStation Raster Manager

Intelligent Network Model

- Simple, yet comprehensive connectivity model persisted through XML attributes
- Placement and editing commands dynamically maintain connectivity rules
- Pipes can be connected to each other or to facilities and facilities can be connected to pipes through the connectivity inference engine
- Logical connectivity model maintained as XML attributes
- Your choice of storing water network and associated information in DGN, Oracle Spatial or RDBMS/DGN

Data Exchange and Interoperability

- Interoperability with WaterGEMS, WaterCAD and HAMMER models
- Interoperability with Bentley Geospatial Sever, Bentley PowerMap Field, and Bentley Geo Web Publisher
- Export directly to EPANET
- Import/Export standard GIS data types (DGN, DWG, SHP)
- Export to any format supported by Bentley Map
- Network creation from scanned maps or imagery
- Utilize Oracle Spatial data for enhanced enterprise data access

Thematic Mapping and GIS Tools

- Includes all of the Bentley Map functionality
- Rule-based annotation
- Property-based annotation
- Property-based symbology
- Thematic presentation of data and map management
- Spatial analysis
- Buffer zone generation
- Thematic and overlay analysis features
- Business and topological rules enforcement

Customization

- Customizable feature definitions
- Configurable property-based annotation and symbology
- Dynamic dialogs
- Simple XML language
- Leak analysis reports as an HTML page through XML style sheets

Facility Management and Network Analysis

- Analysis of directed, weighted, linear networks
- Creation and editing of network entities
- Ability to isolate valves to close
- List generation of consumers out of service based on valve state (open/close)
- Leak geospatial association tools
- Leak Analysis with tabular and cross-tabular reporting
- Connectivity tracing for connected, upstream and downstream tracing
- Isolation tracing re-symbolizes network to show required shut off valves
- Support for shortest path, radial searches, trace-forward and trace-back
- Annotate graphic objects automatically from attributes
- Generate buffers and zones for analysis
- Measurement tools provide for distance, area, and volume calculations
- Query spatial and ancillary data for selected graphic elements
- User-defined "what if" reports

Presentation, Output, and Publishing

- Add grids and title blocks to mapping data
- Utilize powerful raster tools for image backdrops
- Thematic representation of attributes and graphics
- Supports high-resolution output to printers and plotters
- Publish water network information to a Web browser via Bentley Geo Web Publisher
- Provide view, query, and redline capabilities to field users via Bentley® PowerMap Field
- Generate buffers and zones for analysis
- Support for Adobe PDF printing
- Output support in DGN and DWG formats.
- Generation of map books in Adobe PDF format.

ABOUT BENTLEY

Bentley Systems, Incorporated provides software for the lifecycle of the world's infrastructure. The company's comprehensive portfolio for the building, plant, civil, and geospatial verticals spans architecture, engineering, construction (AEC) and operations. With revenues now surpassing $400 million annually, and more than 2400 colleagues globally, Bentley is the leading provider of AEC software to the Engineering News-Record Top Design Firms and major owner-operators, and was named the world's No. 2 provider of GIS/geospatial software solutions in a recent Daratech research study.

For more information, visit www.bentley.com or call 1-800-BENTLEY.

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