



WATERCAD®

WATER DISTRIBUTION MODELING AND MANAGEMENT

WaterCAD® is an easy-to-use hydraulic and water quality modeling solution for water distribution systems. Utilities, municipalities and engineering firms trust WaterCAD as a reliable, resource-saving, decision-support tool for their water infrastructure.

From fire flow and constituent concentration analyses, to energy consumption and capital cost management, WaterCAD helps engineers and utilities analyze, design, and optimize water distribution systems.

Model in stand-alone, or within your favorite CAD platform

Out of the box, WaterCAD® users can work within stand-alone and MicroStation® platforms, with available AutoCAD integration to model within their favorite CAD environment. Regardless of the platform used, WaterCAD maintains a single set of modeling files for true interoperability across platforms.

The stand-alone interface offers unparalleled versatility with easy-to-use model layout tools, multiple background support, conversion utilities from CAD, GIS, and databases, and unlimited undo and redo layout.

The MicroStation interface, included at no additional cost with all WaterCAD versions, provides a geospatial and engineering design environment with unrivaled visualization and publishing tools. AutoCAD users can also add AutoCAD integration features to build and lay out models with engineering precision within an environment they are already comfortable with.

Streamlined model building

The LoadBuilder™ and TRex™ geospatial modules – included with WaterCAD at no additional cost – help engineers allocate water demands and node elevations based on geospatial data found in shapefiles, DEMs, and even CAD drawings, avoiding potential manual-input mistakes and speeding up the model building process.

WaterCAD users can also use CAD drawings to directly create hydraulically connected models; import topology and data from GIS; and create persistent, bidirectional connections between shapefiles, databases, spreadsheets and the WaterCAD model.

Water quality modeling

The built-in water quality features help WaterCAD users perform constituent, water age, tank mixing, and source trace analysis to develop comprehensive chlorination schedules, simulate emergency contamination events, visualize zones of influence for different water sources, and improve turbidity, taste, and odor by identifying water blending problems in the system.

Fire flow analysis

Using the Fire Flow Navigator, WaterCAD users can quickly and accurately establish the ability of their network to provide protection against fires. WaterCAD simultaneously models multiple fire flow events evaluating flows and pressures across the entire system.

Criticality analysis and operations modeling

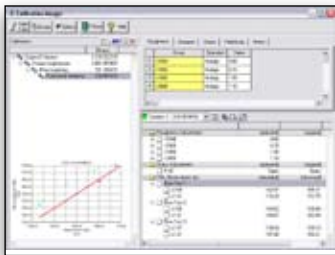
The Criticality Analysis Center is a comprehensive utility to identify critical assets in water distribution infrastructure, and evaluate the risk associated with their failure. Also, by using rule-based operational controls, variable-speed pumping (VSP), and pressure-dependent demands (PDD), engineers can find operational bottlenecks, minimize energy consumption, and model real-time operations to improve system performance.

Comprehensive scenario management

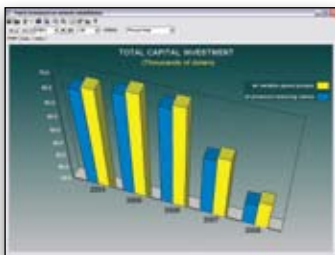
WaterCAD Scenario Management Center gives engineers full control to configure, run, evaluate, visualize, and compare an unlimited number of whatif scenarios within a single file. Engineers can easily make decisions by comparing unlimited scenarios, analyzing rehabilitation alternatives for multiple planning horizons, evaluating pump operation strategies, or flushing alternatives for emergency contamination events.



Stand-alone, MicroStation, and AutoCAD platforms for total freedom and versatility



Use the built-in manual calibration or leverage the available Darwin Calibrator module



Visualize and grasp the meaning of your modeling results easily

WATERCAD SYSTEM REQUIREMENTS

Processor:

Pentium III at 1 GHz
(recommended: Pentium 4 at 1.2 GHz)

Operating System:

Windows Vista, Windows XP,
and Windows Server 2003

Memory:

256 MB (384 MB recommended,
1Gb recommended for large networks)

Hard Disk:

500 MB of free storage space,
with additional room for data files

Display:

800 x 600 resolution, 256 colors

Platform pre-requirements:

WaterCAD runs without platform restrictions using the stand-alone interface. If integration with CAD platforms is desired, these are the requirements: MicroStation V8i, AutoCAD 2009.

Support for older platform software versions is available if required. Contact your Bentley representative for details.

ABOUT BENTLEY

Bentley Systems, Incorporated is the global leader dedicated to providing comprehensive software solutions for sustaining infrastructure. Architects, engineers, constructors, and owner-operators are indispensable in improving our world and our quality of life; the company's mission is to improve the performance of their projects and of the assets they design, build, and operate. Bentley sustains the infrastructure professions by helping to leverage information technology, learning, best practices, and global collaboration – and by promoting careers devoted to this crucial work.

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WATERCAD AT-A-GLANCE

Interoperability and graphical editing

- One set of files for three compatible interfaces:
 - Stand-alone Windows interface included
 - MicroStation-based interface included
 - AutoCAD-based interface available
 - Consider WaterGEMS for ArcGIS integration
- Seamless compatibility with WaterGEMS
- Unlimited undo and redo
- Element morphing, splitting, and reconnection
- Automatic element labeling
- Scaled, schematic, and hybrid environments
- Element prototypes
- Aerial view and dynamic zooming
- Named views library
- Multiple background-layer support
- Image, CAD, and GIS background support

Hydraulics, operations, and water quality

- Steady-state simulation
- Extended-period simulation
- Constituent-concentration analysis
- Criticality analysis
- Source tracing
- Tank-mixing analysis
- Water-age analysis
- Fire-flow analysis
- Rule-based or logical controls
- Variable-speed pumping, with option to use APEX® (Automatic Parameter Estimation eXtension)
- Leakage and sprinkler modeling
- Pressure-dependent demands

- Scenario modeling-based unidirectional flushing
- Valve modeling

Results presentation

- Thematic mapping
- Dynamic, multi-parameter, and multi-scenario graphing
- Contouring
- Advance profiling
- Advanced tabular reporting with FlexTables®
- Property-based color coding and symbology
- Property-based annotation

Data connection and model building

- Bidirectional synchronized database and shapefile connections
- Spreadsheet, database, and ODBC connections
- Polyline-to-pipe conversion from DXF files
- SCADACONnect® available for live data connections
- Daily, weekly, monthly, and superimposed patterns
- Unaccounted-for water and leakage estimation
- Composite demands global edition
- Area, count, discharge, and population-based loading
- Pipe length-based demand loading
- Elevation extraction from CAD drawings and surfaces
- Series-pipes skeletonization (available)
- Parallel-pipes skeletonization (available)
- Branch-trimming skeletonization (available)
- Multi-criteria automated skeletonization (available)

Model management

- Unlimited scenarios and alternatives
- Comprehensive scenario management
- Tree-based scenario and alternative management
- Scenario and alternative inheritance properties
- Global attribute tabular edition
- Sorting and persistent filtering on tabular reports
- Statistical analysis from tabular reports
- Automated-model skeletonization
- Personalizable engineering libraries
- Dynamic and static selection sets
- Local and global engineering-units management
- Sub-model management
- Drawing review tools for connectivity consistency
- Automatic topology review
- Orphaned nodes and dead-end pipes queries
- Support of ProjectWise® XM / ProjectWise® Geospatial Management

Optimization

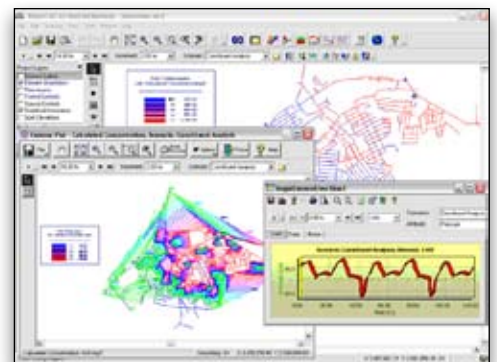
- Genetic algorithm calibration, design, and rehabilitation (available)
- Automated model calibration with Darwin Calibrator (available)
- Optimized design and rehabilitation with Darwin® Designer (available)

Energy and capital cost management

- Energy cost analysis
- Capital cost analysis
- Automatic design and rehabilitation (available)



Layout your WaterCAD model from scratch with extreme freedom and ease



Optimize chlorine usage by clearly understanding constituent dynamics in your system