



Bentley Sustaining Infrastructure

UPGRADING WITHIN THE BENTLEY® INROADS® FAMILY Moving from InRoads Storm & Sanitary® to InRoads Suite V8i®

Bentley InRoads Storm & Sanitary is now upgradeable to Bentley InRoads Suite V8i, Bentley's integrated, cohesive solution for road design and site modeling. Combining the best in road, site, survey, and drainage functionality, InRoads Suite V8i runs on MicroStation (DGN) or AutoCAD (DWG), moving project data seamlessly between CAD platforms with no need for translation. Most importantly, InRoads Suite includes Bentley's powerful Roadway Designer for 3D modeling and support of Machine Control for construction.

Roadway Designer represents the most advanced 3D modeling capabilities available in civil engineering, providing interactive 3D design using constraint-driven typical sections with intelligent components. As a civil engineer or designer, *you* control the entire modeling process—visually, graphically, interactively, and dynamically. Streamlined and intuitive, you don't have to be a software programmer to run Roadway Designer, nor do you require a programmer to create constraints, components, or sections. Be empowered and make your concept a reality!

*From field-to-finish—InRoads Suite V8i—the right tools
for complex, multidiscipline design scenarios*

Intelligent Storm and Sanitary Networks

InRoads Suite drainage tools enable you to intuitively design, analyze, and manage your storm and sanitary networks on MicroStation or AutoCAD. Use industry standard techniques to create new or expand existing drainage networks in a full 3D environment.

Streamlined Site Functionality

InRoads Suite robust site design tools enable site engineers to design and construct building sites, landfills and embankments as well as excavate and perform site remediation. Site tools feature comprehensive design, analysis, plan production, and reporting capabilities on MicroStation or AutoCAD. Use flexible coordinate geometry tools and a feature-based digital terrain model to interactively create and edit site features with on-the-spot, onscreen verification.

Comprehensive Survey Tools

InRoads Suite survey tools enable you to process raw survey data to your

InRoads Storm & Sanitary
Drainage Design
3D Modeling



InRoads Suite
Drainage Design
3D Modeling
Survey
Geometry
Road/Site Design

The InRoads Suite Advantage

- Design roads and corridors dynamically with Roadway Designer
- Employ full road and site design capabilities
- 3D modeling
- Fully integrated civil engineering for:
 - Road and site design
 - Design/construction
 - Storm and sanitary design/analysis
 - Bridge geometry
 - Comprehensive quantity management
- Interface to Machine Control

For a limited time, Bentley Civil upgrades include a **subscription of SELECT**, Bentley's premier service contract that provides flexible licensing options and unparalleled support!

CAD environment of choice, MicroStation or AutoCAD. Eliminate field-to-office waits. Survey teams can verify data on-the-spot and in the field. Make the most of preferred workflows to capture feature-based survey data and attributes, and automatically annotate each feature in your design file. Then apply industry standard methodologies to produce plot-ready graphics from electronic field book (EFB) and global positioning system (GPS) data.

Multi-Function Road Design

From field to design to construction—for road design, corridor modeling, road widening, road resurfacing, landfill design, and building site design—InRoads multi-function, interactive design tools are tailored to the specific requirements of the civil engineering community. InRoads features advanced DTM functionality as well as comprehensive design, analysis, plans production, and reporting capabilities for the world's most popular CAD formats.

NEW FUNCTIONALITY WITH INROADS SUITE V8i

Upgrading to InRoads Suite V8i offers more tools and functionality to better streamline your workflows and help you work faster and smarter than ever before!

Import

- LiDAR import (LAS and ASCII)

Survey

- Survey data reduction
- Custom survey data import
- Dynamic survey data editing
- Survey adjustments
- Survey data to drainage

COGO

- Graphical COGO
- Traversing

Geometry Design

- Horizontal and vertical element tools
- Horizontal and vertical regression
- Multi center curves
- Parallel horizontal and vertical
- Traverse editing and adjustments

Land Development

- Create and edit lots
- Split parcel
- Create setbacks

Surface Design

- Generate longitudinal and transverse features
- Form gridded model
- Apply template to feature

Surface Editing

- Edit feature
- Intersect feature
- Merge surfaces

Cross Sections

- Cross section creation, annotation, reporting
- Drainage structures in cross sections

Volumes

- Average end area
- Triangle or prismatic
- Grid approximations

Design Evaluation

- Site visibility tools
- Road visibility tools
- Mass haul diagrams
- Drive virtual roadway

Roadway Designer Typical Sections

- Graphically created
- Parametric constraints
- Component driven
- Assemble components into sections
- Associative relationships
- Interactive testing

Roadway Designer 3D Modeling

- Horizontal and vertical controls
- Dynamic, step, or batch modeling
- Visual highlights of problem areas
- Dynamic volumes
- Virtual command editing
- Transition control
- 4-port viewing, plan, profile, cross section, and superelevation

Plan and Profile Plan Generator

EXISTING INROADS STORM & SANITARY FUNCTIONALITY

The excellent tools and functionality provided in your current InRoads Storm & Sanitary include:

Data Interoperability

- Seamless integration between CAD platforms in both DGN and DWG environments

Centralized Data Model

- Single data source for all modules within the InRoads family of products

Network Layout

- Interactive network layout relative to digital terrain models and alignments
- Creation of network entities, such as pipes, inlets, manholes, culverts, pumps and channels
- Edit model in Plan and Profile

Multi-Inlet Placement

- Automatic placement of inlets at defined intervals and offsets from baseline
- Automatic connection to inlets with proper pipe length
- Easy modification of inverts and depth of cover

Pipe Generation

- Projection of pipe profiles in previously generated road profile windows or along the network itself
- Accounting for inlets, manholes, and crossing pipes or culverts
- Display and annotation of drainage data in the profile window

Drainage System Operations

- Manipulation of the sanitary system for field or design conditions
- Application of flow rates by point discharge or use demographic data
- Application of design checks to ensure the system meets minimum and maximum design requirements

Industry-Standard Analysis

- Use of the common hydraulic methods, such as Manning's equation, Darcy-Colebrook methodologies, Bernoulli, and the continuity principles
- Backwater and junction losses from HEC-22 methodologies
- Surface runoff analysis by the Modified Rational method or SCS methodologies
- Interface to popular analysis packages, such as HEC-RAS, WSPRO, and MicroDrainage

Feature-Based DTM

- Flexible, double-precision
- Intelligent features
- Verification of pipe cover, identification of low points, merging of channel surfaces into existing surfaces and more

Surface Runoff

- Calculation of peak runoff of drainage basins
- Establishment of time of concentration (Tc)
- Generation of IDF tables from industry-standard formulas or user-specified tables

Production and Drafting Tools

- Use of profile and cross section sheet cutting tools to improve productivity
- Production of "smart" labeling of plan, profile, and cross-section elements
- Updating of labels as data model is specified

Database Management and Reporting

- Maintenance of all related physical model data, computations, and network attributes in an ODBC-compliant database for use in reports, queries, and annotation

For more information on Bentley Civil Suite deals,
call 1-800-BENTLEY or [request a Sales Representative contact you.](#)