Image courtesy of Alabama Department of Transportation

OpenRoads™ Designer
One Application. Start to Finish.

Extremely versatile, OpenRoads Designer is used for all types and phases of civil projects, large and small, by users at every level of expertise. It handles a wide variety of complex tasks with ease, including interchange design, roundabout design, site development, sanitary and stormwater network design, and the production of construction staking reports. Traditional 2D methods are manual and tedious, full of communication and data gaps, leaving you frustrated, exhausted, and with a project that costs you accuracy, time, and money. From survey through plan production and construction documentation, OpenRoads Designer is the one application you need to meet project requirements on time, every time, regardless of change.

Data and Design Integration

OpenRoads makes collaborating on 2D and 3D models easier and more efficient than ever. From team-level, work-in-progress collaboration to project-level, multidiscipline coordination, project managers, reviewers, site workers, and inspectors can view designs, perform virtual walkthroughs, query model information, and analyze embedded property data. These tasks can all be done directly in the OpenRoads application or using a web browser.

Detailed Road Design

OpenRoads is all you need for geometrics, survey, drainage, utilities, quantity takeoff, cut/fill, site grading, lane configurations, and mobility. Roadway designers and engineers require software that seamlessly collaborates across disciplines, addresses growing industry demands, and includes automation to remove tedious manual work. Whether you need to produce traditional 2D deliverables, advance to 3D modeling, support digital transformation, or all the above, OpenRoads is the choice for road design.

Leverage and integrate reality data to design in context.

Drainage and Utilities

3D models of drainage and utilities are quickly becoming a necessity; however, road design, drainage design, and utilities modeling are often completed by separate team members utilizing different software. Working in a vacuum leads to lack of coordination across disciplines, costly mistakes from out-of-date data, and missed opportunities to address conflicts. OpenRoads can help you with everything from the creation of models from 2D artifacts and external data, through steady and unsteady state hydraulics and hydrology, to BIM and plans production.
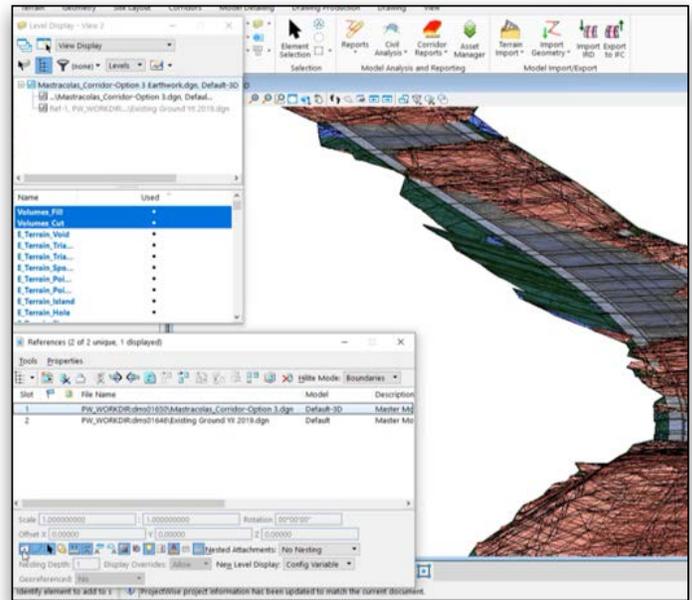

Precisely calculate, visualize, and summarize cut-and-fill analysis.

2D, 3D, and Beyond

Even as the transportation industry is moving towards the creation of 3D models, the need for a variety of deliverables continues to be part of the project workflow. With OpenRoads, you can create whatever deliverables you might need. Whether it is 2D or 3D, plans or models, digital or paper, OpenRoads is designed to allow you to work in all these arenas simultaneously, leveraging information from one to help populate the other. Our 3D models can be leveraged for 4D scheduling and 5D cost estimation, bringing your design to constructed fruition, on time and on budget.

With OpenRoads Designer, meet contract requirements on time, every time, regardless of change.
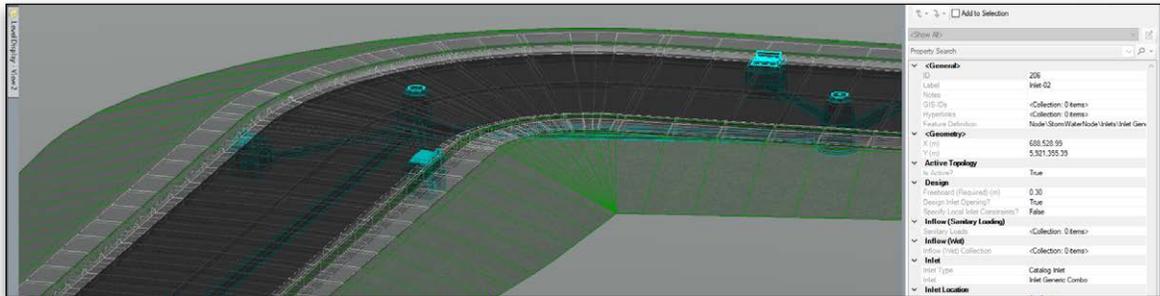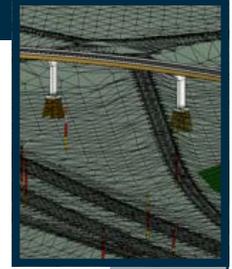

Create, manipulate, design, and analyze stormwater networks.

Partnership for Success

The key to your success goes beyond the software you use. It is also dependent on doing business the way that best serves your organization. That is why we have a variety of subscription and license options, as well as 24/7/365 support to ensure you are up and running on your software quickly and continuously.

Bentley can work with your organization to **build a path forward that supports people, process, and technology**.

Unlike others in the industry, we provide **innovative subscription programs** that are designed to ensure that your team is equipped to do their work and receive timely support from product experts. Choose from term licensing, use-based pricing, hosted and on-premise services, and cloud services, all of which include use analysis and the flexibility to pivot as needed.
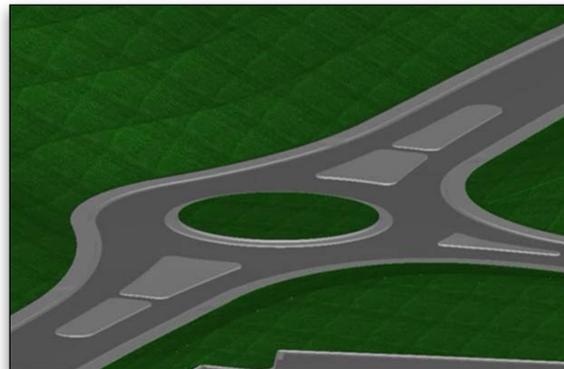
Create a more efficient, data-rich model and leverage visualization capabilities to communicate design intent and accelerate stakeholder buy-in.

OpenRoads Designer Capabilities

Platform	OpenRoads Designer
All MicroStation® functionality	✓
Production drafting	✓
Create parametric solids, surfaces, meshes, and feature models	✓
Item types for custom attribution	✓
Reporting and tables	✓
Easily integrate hundreds of geographic coordinate systems	✓
Printing and plotting	✓
Integrate CAD data in many formats: DGN, DWG, DXF, PDF/U3D, IFC, Rhino 3DM, STL, VRML World, and SketchUp SKP	✓
Integrated visualization capabilities	✓
LumenRT visualization	✓
ProjectWise® integration	✓

Survey	OpenRoads Designer
Read and write standard raw survey formats	✓
Survey data reduction	✓
Feature coding for custom survey feature connectivity, display, and annotation	✓
Adjustments: least squares, compass, crandall, and transit	✓
Dynamic graphical and tablular editing of survey field book data	✓

Reality Modeling	
Raster images	✓
Attach point cloud	✓
Attach reality mesh	✓
Point cloud classification	✓
Reality mesh edit, drape, and extract tools	✓
Scalable terrain models	✓

Terrain Modeling	OpenRoads Designer
Import from LandXML	✓
Label contours and spot points	✓
Display contours, triangles, spots, and flow arrows	✓
Import from 20+ common formats (graphics, point clouds, ascii, InRoads®, GEOPAK, MX, LiDAR, and DEM)	✓
Import from Esri, USGS, and SRTM services	✓
Create complex and delta terrain models	✓
Edit terrain models	✓
Transform terrain models	✓

Geotechnical	OpenRoads Designer
Query gINT® project files	✓
Display borehole locations	✓
Display borehole cross sections	✓
Display borehole fence diagram	✓
Annotate boreholes	✓

Geometry	OpenRoads Designer
Parking lots	✓
Pad layout	✓
Parcel layout	✓
Horizontal geometry (arc or chord)	✓
Horizontal geometry - clothoid spirals	✓
Vertical geometry (parabolic or circular)	✓
Horizontal and vertical best fit	✓
Customizable geometry reports	✓

Deliverables	OpenRoads Designer
Plan and profile sheet generation	✓
Cross section sheet generation	✓
Sheet and object annotation	✓
Reporting	✓
Synchronization with iModelHub	✓
Export to common formats: DWG, DXF, LandXML, and IFC	✓

Drainage and Utilities	OpenRoads Designer
3D modelling of utilities, storm, and sanitary drainage	✓
Steady-state (e.g. rational method) hydraulic design and analysis	✓
Culvert design and hydraulic analysis	✓
Unsteady-state hydraulic analysis	✓
Pond design and analysis	✓
Hydraulic analysis of low impact developments	✓

Modeling	OpenRoads Designer
Site grading optimization	✓
Profile modeling	✓
Dynamic cross sections	✓
Earthworks - triangulated volumes	✓
Earthworks - end area volumes	✓
Customizable earthwork reports	✓
Superelevation	✓
Corridor modeling	✓

NEW! Bentley now offers Virtuoso Subscriptions, which include your infrastructure modeling, simulation, or construction application bundled with the virtually delivered services of experts to accelerate and advance the success of an infrastructure practitioner.

As a Bentley user, we are committed to your rapid on-boarding, fast project start-up, and increased productivity. You will have **unlimited access to training and learning resources**, such as webinars, virtual conferences, virtual classrooms/live instruction, monthly special interest groups (SIGs), learning paths, quickstarts, accreditation programs, Bentley Communities, and many other resources!