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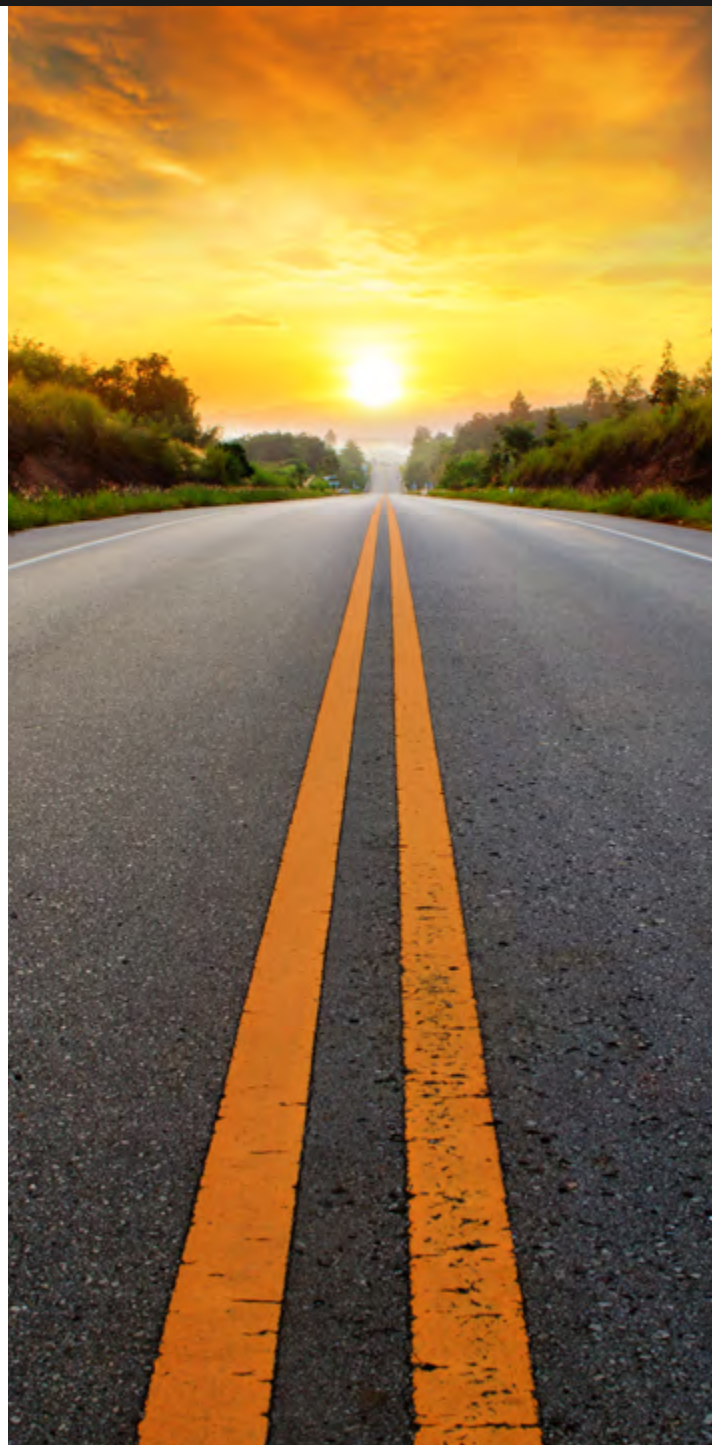
OpenRoads™ Designer for State and Local Authorities

Rural Road and Drainage Design

Table of Contents



Welcome to OpenRoads Designer: a product tour guide for state and local agencies

This e-book provides a look at how OpenRoads Designer software helps state and local agencies in the U.S. connect the data, people, workflows, and ideas that are necessary to support today's infrastructure projects—no matter the size or scope.

We recognize that most city and county engineers hold multiple job titles. Our workflows and applications allow for quick modeling and dynamic editing, adhering to standards and encouraging collaboration across disciplines. Using a single composite model, you can efficiently achieve various project outcomes, including:

- Providing reality context
- Working with multiple disciplines
- Adapting to change
- Supplying key deliverables

Why OpenRoads Designer?

OpenRoads Designer was built with your municipalities in mind. Do you handle multiple responsibilities? You're in luck! OpenRoads Designer is a single application that includes a variety of capabilities to meet your design and engineering needs.

Why migrate now?

As technology advances, it's essential to stay ahead of the curve. The demand for increased accuracy, superior models, and enhanced visualization is higher than ever. Switching from old CAD technology to the new OpenRoads Designer can significantly enhance your capabilities.

OpenRoads Designer offers cutting-edge capabilities that set it apart from the competition, making it the superior choice for modern infrastructure projects. You need an application that makes your job easier, not harder. Embrace evolution and digital transformation with OpenRoads Designer.

What about the learning curve and training?

Adopting new software can be daunting. But at Bentley Systems, your success is our priority and we've got your back. Our team of highly qualified experts is here to guide you every step of the way with tailored sessions. Let's maximize your experience together!

Survey capabilities

OpenRoads Designer offers comprehensive survey capabilities that streamline the process of collecting, managing, and analyzing survey data. It provides robust capabilities for field data collection, enabling seamless integration with various survey equipment and data formats. The software supports automated data processing, including error detection and correction, ensuring high accuracy and reliability.

With advanced visualization and modeling features, users can create detailed terrain models, perform topographic analysis, and generate precise survey reports. OpenRoads Designer's survey functionalities enhance collaboration and efficiency, making it an essential application for civil engineering and infrastructure projects.

- Import from LandXML
- Label contours and spot points
- Display contours, triangles, spots, and flow arrows
- Import from over 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
- Raster images
- Attach point cloud
- Attach reality mesh
- Point cloud classification
- Reality mesh edit, drape, and extract tools
- Scalable terrain models

Road design

Stop wasting time on manual drafting instead of engineering. Working in 2D is repetitive and requires multiple applications to get one design.

OpenRoads Designer's automation capabilities and ability to handle large data, accelerate design time, reduce risk, and lower project costs, saving you frustration by removing manual rework. OpenRoads Designer shares data between design and construction with 3D modeling and collaboration features.

Purpose-built capabilities for road engineering
Use an application with comprehensive design, analysis, simulation, and construction documentation features. Design roadways, interchanges, roundabouts, water and sewer facilities, and land development with one application.

Work smarter, not harder
Get it right the first time with built-in user-friendly design standardization and automation workflows, ensuring that your work always meets contract requirements while reducing labor intensive manual drafting work—no coding required.

Create, reuse, and save time
Save time and ensure design standards with user-friendly templates for roadway or other alignment-based design. Create commonly used geometric layouts that can maintain constraints and relationships. Store, access, and place at any time and watch your design update.

Seeing is believing
Traditional 2D layouts can be confusing for non-project team members and the public. Simplify the approval process and deliver real-time visualization of actual design content without the need for a dedicated visualization specialist or additional software.

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.

Did you know that most of the industry-leading drainage functionality in OpenFlows™ is available inside OpenRoads? You get the best of both worlds, enabling you to avoid the worry of data loss when transferring between civil and specialist hydraulics packages.

Existing utilities
Create existing utilities using Extract from Graphics, or leverage ModelBuilder to import a Shapefile of an existing water supply pipe. OpenRoads allows users to include georeferenced 3D designs with real-world context through the seamless integration of reality data and design information.

Steady state flow analysis
Compute peak flows for an analysis scenario or compute a design scenario. Switch between scenarios and see your model update.

Proposed drainage
Not only can you create new drainage systems, but changes made to the road project automatically and accurately update the drainage design as well.

Unsteady state flow analysis
Conduct critical storm analysis, show overflows, see pond hydraulics, compare scenarios with graphs and symbology, and utilize analytic symbology.

Plan production and documentation

Frustrated with recutting cross sections every time your surface changes, and then redoing your plan set because of it? We understand.

OpenRoads Designer enhances project deliverables with dynamic updates and a streamlined sheet production process, ensuring efficient and timely project completion.

Efficiently produce sheet sets
Automate the production of high-quality drawings, including multidiscipline documentation sets, which are consistent across the entire project. Automatic annotation updating helps assure the accuracy of your final construction documents.

Create plan, profile, and cross-section sheets by including multiple plan or profile views on a single sheet. Sheet index support also allows you to create sheets and sheet numbers in collaboration with other disciplines.

Accurate reports for better decisions
Powerful reporting capabilities automate the production of a variety of standard and customizable reports, including horizontal and vertical alignments, quantity takeoffs, and clearance reports.

Bring your design to life
Provide clients and the local community with stunning visualizations that typical 2D software cannot deliver. OpenRoads includes Bentley LumenRT™ Designer, which turns your project into an amazing model for creating realistic images and videos—no graphic designer required.

Future-proof your deliverables
OpenRoads is a digital twin authoring environment. Your federated 3D models serve as the foundation for digital twins, and with iModelHub™, assets will have an ever-evolving audit trail.

OpenRoads Designer: software of choice for road design

40+
Years experience

44
US DOT Agencies

37
European countries

50%
Canadian MOTs

29
Chinese provinces

50%
European countries

Use Cases

See what leading design firms have accomplished.

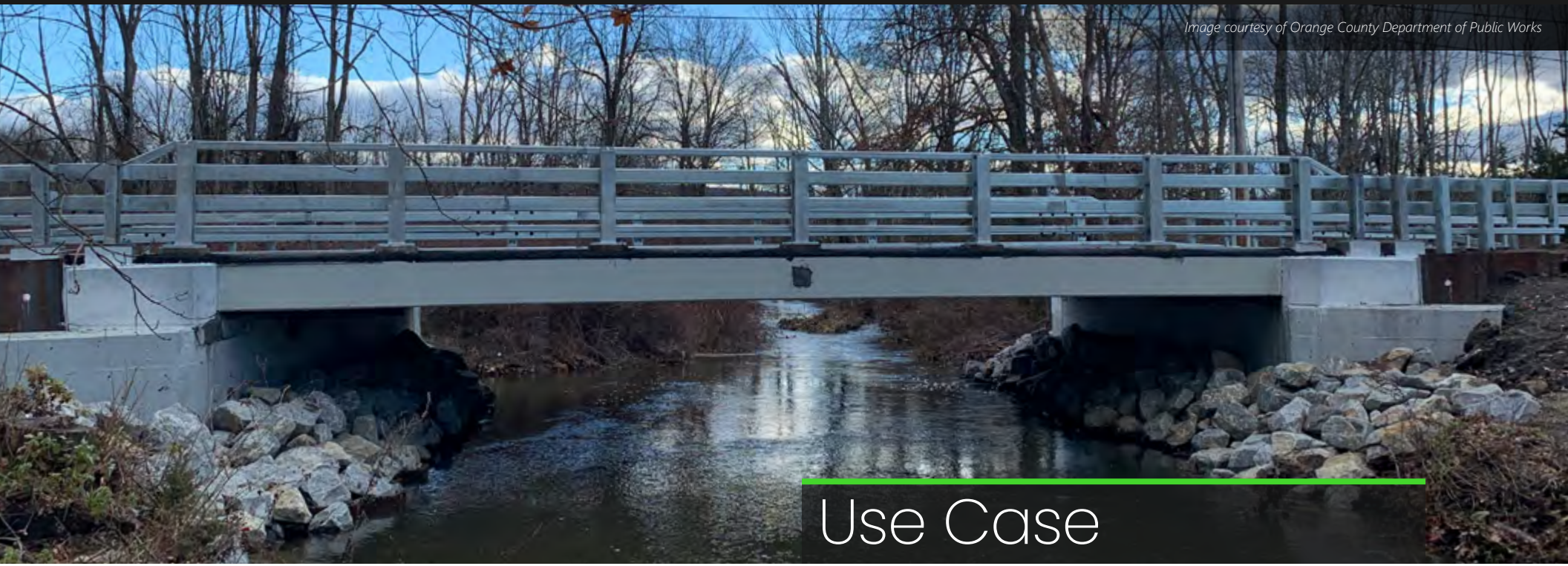


Image courtesy of Orange County Department of Public Works

Use Case

Replacement of Board Bridge

Orange County Department of Public Works | *Orange County, New York, United States*

To create vertical alignments and cross sections for a local bridge, the Orange County Department of Public Works looked to Bentley's OpenRoads Designer solution. The project was a local bridge on a town road that carried around 1,500 cars per day. If the bridge were to be closed, it would hinder a vital crossroad between two major state routes. The project was an integral abutment with precast voided slab units as the deck and was completed using OpenRoads Designer.

The Orange County Department of Public Works was able to stay consistent and up to date using this current technology and plans to work on their first, full bridge design project using solely OpenRoads Designer in the future. **Project Playbook:** OpenRoads


Image courtesy of Florida Department of Transportation

Use Case

Citrus Way Roundabout FPI 439448-1

Florida Department of Transportation | *Brooksville, Florida, United States*

To help eliminate fatalities and reduce injury crashes at a flashing-light intersection in Hernando County, Florida Department of Transportation (FDOT) proposed constructing a modern single-lane roundabout. With multiple mines and local businesses in the vicinity, as well as large trucks with low ground clearances frequenting the roadway area, the project presented design and construction challenges. FDOT realized that they needed a 3D modeling solution that could accommodate the iterative design process of balancing speed control of the roundabout while ensuring safe passage for oversize/overweight vehicles.

They selected OpenRoads to model the intersection, digitally perform clash detection, and review different design options in a short period of time, optimizing vertical and horizontal roadway geometry of the roundabout. Leveraging the comprehensive corridor templates in Bentley's application, FDOT expedited construction of a temporary pavement diversion. Working in an open 3D modeling environment where multiple disciplines could collaborate virtually in real time improved productivity, reduced rework, and resulted in delivery of the project one fiscal year ahead of schedule. **Project Playbook:** MicroStation®, OpenRoads

Getting started

Is budget and training your biggest concern?

Bentley makes it easy for state and local authorities to find the license that offers the best options, affordable price, and one-to-one training you need to be successful through Virtuosity, Bentley's eStore for practitioner licenses.

Remember, investing in advanced technology like OpenRoads Designer pays off in improved efficiency, accuracy, and project outcomes. Don't let budget limitations hold you back—explore the possibilities today!

Watch Video