

OpenRoads" Designer

The all-in-one solution for road and highway design, accurate deliverables, and effortless collaboration

Thank you for your interest in exploring this content.

Carahsoft is the **Trusted Government IT Solutions Provider**® supporting a broad portfolio of industry-leading technologies through GSA, NASA SEWP V, ITES-SW2 and a wide range of other contract vehicles.

As the **Master Government Aggregator**®, Carahsoft connects government agencies, industry partners, and technology providers to deliver innovative, mission-focused solutions.

In partnership with Bentley Systems, we provide technology solutions that drive modernization, strengthen operations, and ensure compliance with evolving government standards.



To learn more about how Carahsoft can support your technology needs, please visit carahsoft.com



Explore More Resources:
carah.io/BentleyResources



Join Events & Webinars:
carah.io/BentleyEvents



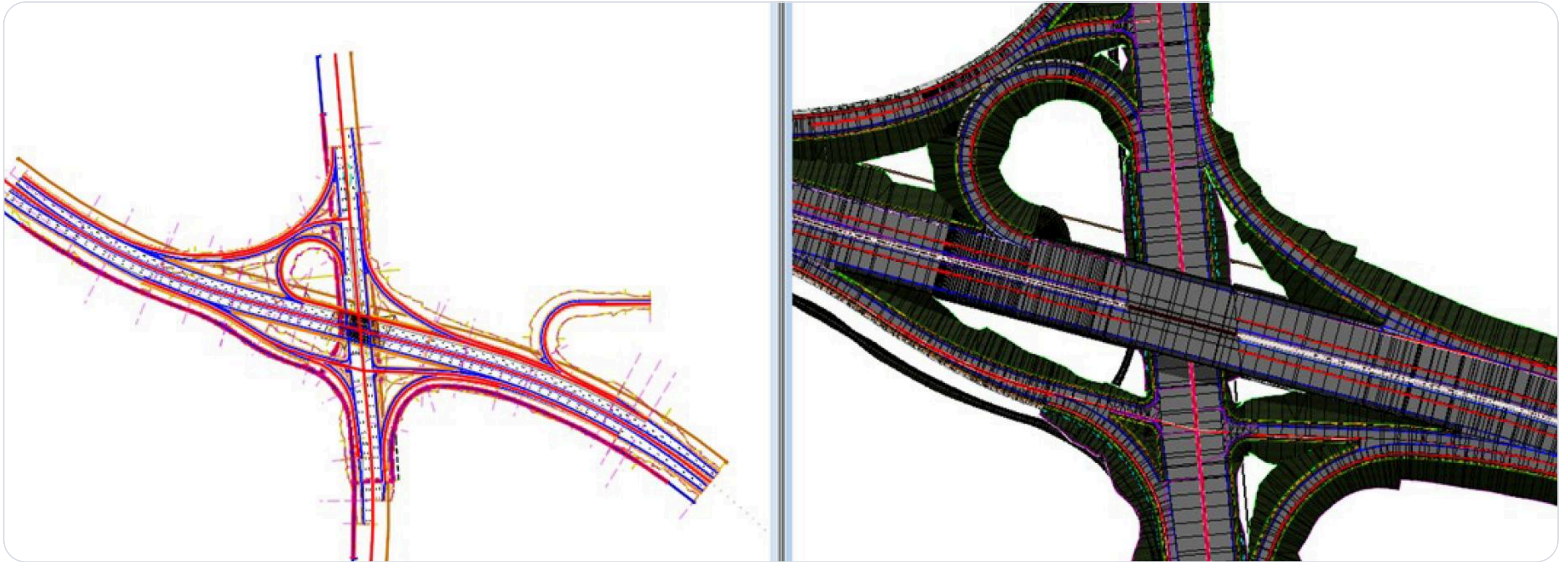
Discover Technology Solutions:
carah.io/Bentley



Learn About Procurement:
carah.io/BentleyContracts



Connect With Our Team:
Bentley@carahsoft.com
844-722-8436



OpenRoads™ Designer

The all-in-one solution for road and highway design, accurate deliverables, and effortless collaboration



OpenRoads: Smarter road design starts here

OpenRoads Designer is the all-in-one software that helps engineers and designers in DOTs and engineering firms to deliver accurate, model-based road and highway designs. The software streamlines project workflows by simplifying updates from field survey data and enhancing collaboration with stakeholders—reducing errors and costly rework before construction begins. With specialized, AI-powered tools for survey, terrain analysis, geometry, parametric corridor modeling, drainage, and geotechnical design, OpenRoads Designer supports the full road engineering workflow in a single application. Its open ecosystem supports interoperability across CAD and GIS platforms, boosting efficiency from start to finish.

Data and design integration

OpenRoads Designer unifies 2D and 3D workflows through a single, model-centric approach. The intelligent 3D model serves as the single source of truth, with 2D construction documents generated directly from it and automatically updated when the design changes. 3D models can be extended for 4D scheduling and 5D cost estimation and published as data-rich iModels for stakeholder review at any point in the design process. The design you create today becomes a valuable digital asset for decades of operation and maintenance.

Detailed road design

OpenRoads Designer supports every aspect of roadway design including geometrics, survey, drainage, utilities, quantity takeoff, cut/fill, site grading, lane configurations, and adaptation/rehabilitation work, all in a single, connected environment. Parametric modeling automates design updates across disciplines, while AI-powered tools like the Label Organizer keep plans clear and legible with minimal manual effort. Flexible deliverable options, whether 2D plans, 3D models, or digital twins, ensure your team can meet growing BIM mandates and digital delivery requirements with confidence.

Road rehabilitation and overlay projects

Rehabilitating existing roads or designing overlays demands precision and efficiency. OpenRoads Designer streamlines these projects with powerful tools for modeling existing conditions, analyzing pavement performance, and designing mill-and-

overlay strategies. With dynamic corridor modeling, automatic superelevation and cross-slope corrections, and real-time design adjustments, you can generate precise quantities, integrate with 5D cost estimation, and produce construction-ready 2D and 3D deliverables in a single environment.

Drainage and utilities

Road, drainage, and utility design are deeply interconnected; yet too often, they're handled in separate tools, leading to errors, misalignment, and costly rework. OpenRoads Designer ends these silos by integrating drainage and utility workflows directly into the road design environment. From steady-state hydraulic design and culvert analysis to catch basin storage and catchment delineation, your team works from a single model with full visibility across disciplines, ensuring your drainage designs are compliant, coordinated, and construction-ready.

AI-powered intelligence

OpenRoads Designer embeds AI directly into the design workflow to help teams work faster and with greater confidence. The Label Organizer uses AI to automatically reposition overlapping annotations, ensuring clear, legible plans with minimal manual effort. Bentley Copilot provides on-demand, natural-language guidance inside the application, answering questions, explaining workflows, and even referencing user-supplied project standards. Together, these capabilities accelerate onboarding, reduce support dependency, and keep experienced engineers in their design flow longer.

System requirements

Minimum: Windows 11 (25H2), Windows Server 2019, Windows Server 2022*, Windows Server 2025*, Intel or AMD processor 2.5 GHz or greater **, 16GB memory
Recommended: 32 GB memory
Connectivity: Internet connectivity is required for some functionality including but not limited to Bentley Copilot, Google 2D and 3D maps, Google 3D tiles, AI label Organizer and OpenGround® Integration.

*LumenRT is not certified on Windows Server 2022 and Windows Server 2025.
** OpenX products are not supported on a CPU that does not support SSE2. OpenX products are not supported on a CPU which does not have AVX instructions.

OpenRoads Designer at-a-glance

Platform

- MicroStation® functionality
- Production drafting
- Creation of parametric solids, surfaces, meshes, and feature models
- Item types for custom attribution
- Reporting and tables
- Easy integration of hundreds of geographic coordinate systems
- Printing and plotting
- Civil file health monitoring for automated version tracking and issue detection
- Integration of CAD data in many formats: DGN, DWG, DXF, PDF/U3D, IFC, Rhino 3DM, STL, VRML World, and SketchUp SKP
- Export common data formats including IFC export
- Integrated Bentley LumenRT™ visualization capabilities
- Google Maps integration replaces Microsoft Bing Maps
- OGC/API ArcGIS feature connection service
- ProjectWise® integration
- SDK for developing custom applications
- ArcGIS cell fixed size property to hold point features constant

Terrain modeling

- 3D geospatial context including one click terrain import from Cesium World Terrain (Technology Preview Version)
- Import from Esri, USGS, and SRTM services
- Create complex and delta terrain models
- Edit terrain models
- Transform terrain models
- Label contours and spot points
- Display contours, triangles, spots, and flow arrows
- Local depressions support for analysis
- Import HEC-RAS SDF files
- Vertical datum selection for terrain support
- Set elevations on 2D contours
- Integrate and import from over 20 common formats (graphics, point clouds, ASCII, InRoads®, GEOPAK, MX, lidar, DEM, and LandXML)

Geotechnical

- OpenGround Integration
- Query gINT® project files
- Display borehole locations, profiles, and cross sections
- Annotate boreholes with the ability to batch annotate

Geometry

- Horizontal geometry—arc or chord-based arcs, clothoid spirals
- Vertical geometry—parabolic or circular
- Horizontal and vertical best fit and regression
- Geometry alignment replacer
- Geometry snaps indicating persistence
- Complex redefine to replace sections of geometry
- Deed boundary and reporting tool
- Geometry points in 2D and 3D models
- Item type alignment pick lists
- Equal spaced points
- Named groups for points
- Constraint visibility for geometry points
- Parametric cells
- GEOPAK parcel and survey chain import
- 12d model data import
- Customizable geometry reports
- Regression points table for tabular editing of regression data

Deliverables

- Plan and/or profile sheet generation
- Cross-section sheet generation
- Left-to-right or right-to-left sheets
- Sheet and object annotation
- AI-aided Label Organizer
- DGN Checker Utility validates DGN structure before iModel creation
- Export to common formats: DWG, DXF, LandXML, and IFC
- Text frames and leaders for bulk annotations
- Hatching in cross-sections and profiles
- Cross-section maximum height option for tall sections
- Deed writer tool
- Profile depth adjustment for drainage nodes, crossing points and boreholes

AI assistance

Bentley Copilot (Technology Preview)

- Integrated “how do I?” help and documentation search
- Interactions such as “How do I set up superelevation” or “Guide me through a sight distance analysis and flag areas that don’t meet AASHTO standards.”

AI Label Organizer (Technology Preview)

- Uses AI to automatically reposition overlapping label annotations

Survey

- Read/write standard raw survey formats
- Conduct survey data reduction
- Feature coding for custom survey feature connectivity, display, and annotation
- Adjustments: least squares, compass, crandall, and transit
- Show terrain modeling
- Complete dynamic graphical and tabular editing of survey field book data

Reality modeling

- Raster images
- Attach point cloud
- Attach reality mesh
- Point cloud classification
- Scalable terrain models
- Google Photorealistic 3D tiles
- 3D Tiles format support
- Reality mesh edit, drape, and extract tools

Drainage and utilities

- 3D modeling of utilities, storm, and sanitary drainage
- Culvert design and hydraulic analysis
- Pond design and analysis
- Hydraulic analysis of low impact developments
- HEC-22 4th Edition compliant
- Steady-state (e.g. rational method) and unsteady-state hydraulic design and analysis

Modeling

- Corridor modeling
- Superelevation
- Site grading optimization
- Dynamic cross sections
- Customizable earthwork reports
- Earthworks—triangulated and end area volumes

Find out more at Bentley.com
1.800.BENTLEY (1.800.236.8539)
Outside the U.S.: +1.610.458.5000
Global office listings: [bentley.com/contact](https://www.bentley.com/contact)

© 2026 Bentley Systems, Incorporated. Bentley, the Bentley logo, Bentley LumenRT, gINT, InRoads, MicroStation, OpenGround, OpenRoads, OpenRoads Designer, and ProjectWise are either registered or unregistered trademarks or service marks of Bentley Systems, Incorporated or one of its direct or indirect wholly owned subsidiaries. Other brands and product names are trademarks of their respective owners. CS-15611