

# Road and Bridge Construction Planning Solution

Connect People and Data to Optimize Construction



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## Bentley's Road and Bridge Construction Planning Solution

With governments spending more on road and bridge projects, the heavy civil industry is moving toward utilizing more 3D/4D digital workflows and collaborative project delivery processes. By extending the value of the 3D design model into construction, transportation owner-operators can better coordinate design delivery and construction planning to speed the delivery of safer and more sustainable projects.

Our road and bridge construction planning solution provides transportation owner-operators with the ability to advance from traditional PDFs to 3D/4D model-based workflows and increase collaboration between design and construction teams. By turning design models into construction models, organizations can optimize project plans, schedules, and resources, as well as increase jobsite safety. From the office to the field, the result is less disruption to the public and increased visibility, predictability, and productivity on your projects.

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## Capabilities at a Glance

As the demand for infrastructure continues to grow, so do challenges, such as inflation, rising material costs, and workforce shortages. Without adopting more efficient digital workflows, it will become harder for transportation owner-operators to deliver successful projects quickly and safely.

The road and bridge construction planning solution provides 3D/4D digital design and construction workflows to connect people and data to optimize construction.

### **3D/4D Construction-focused Planning and Collaboration**

Leverage model-based workflows and cloud technology to create a secure, single source of truth that aligns design and construction for better project outcomes.

### **4D Construction Modeling, Visualization, and Simulation**

Turn linear design models into construction models to improve the use of data and to better optimize project plans, schedules, and resources.

### **Cost Projection and Automated Quantity Takeoffs**

Utilize 4D workflows to break horizontal projects into constructible components with auto-calculated quantity takeoffs (QTO) for more accurate cost projections.

### **Electronic Data Capture in the Field**

Extend the value of the 4D model into the field for status checks, work planning, and inspections.





## Benefits of Better Construction Planning

Disconnected workflows between design and construction teams are a big reason to make the shift to 3D/4D model-based workflows. Traditionally, design teams flatten their 3D design models to 2D PDFs for construction planning and coordination. This practice loses much of the design intent and leads to lengthy review processes, costly change orders, and schedule delays. But as contractors adopt digital technology, 3D design models are becoming more valuable throughout development, as they enable teams to capture additional project data, which will improve the coordination between design delivery and construction planning.

### Benefits

- ◆ Improve design quality and intent
- ◆ Streamline design and construction review processes
- ◆ Optimize project schedules while keeping original design intent
- ◆ Anticipate impacts on traffic flows within time and spatial contexts
- ◆ Increase transparency to inform the public and meet regulations
- ◆ Improve safety planning to reduce jobsite accidents and injuries
- ◆ Plan sustainability into projects and lower carbon footprint
- ◆ Visualize and resolve conflicts before construction begins
- ◆ Reduce change orders and rework on projects

# Industry Leaders Are Using the Road and Bridge Construction Planning Solution

## NYS DOT Industrializes East 138th Street Bridge

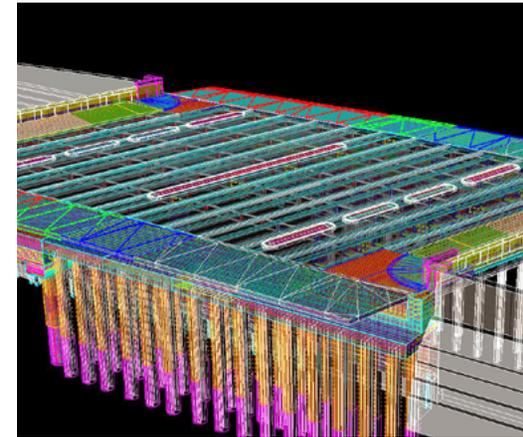
NYS DOT needed to replace an aging bridge to accommodate growing vehicular and pedestrian traffic in New York City. For this project to be successful, they needed to create a construction sequencing plan to keep the bridge functional throughout replacement. To do this, they utilized the road and bridge construction planning solution to facilitate 4D visual construction sequencing, traffic control planning, and public outreach for improved project coordination. This 4D simulation enhanced understanding of the construction process, which kept stakeholders from manually sifting through 200 pages of paper plans.

[Read the Case Study](#)

## WSB Increases Access to Greater Minnesota with TH 169 Roadway Expansion Design

WSB and MnDOT worked together to convert 2.8 miles of TH 169 into an expanded freeway with upgraded interchanges, bridges, and underground utilities. To do this, they leveraged digital capabilities from Bentley, enabling them to combine the 3D design model with the construction timeline to establish a 4D model that portrayed the excavation, road work, and infrastructure assembly. Together, they identified gaps and overlaps in the timetable, and they discovered overlooked tasks that would have increased costs and reduced safety for on-site workers.

[Read the Case Study](#)





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## Getting Started

For many firms, the thought of implementing new processes can seem overwhelming. But with the road and bridge construction planning solution, teams will have the capabilities to future-proof their technology adoption step by step.

**With these digital design and construction workflows, you will be able to connect people and data to optimize construction and deliver more projects, faster and safely.**

- ◆ 3D/4D construction-focused planning and collaboration
- ◆ 4D construction modeling, visualization, and simulation
- ◆ Cost projection and automated quantity takeoffs
- ◆ Electronic data capture from the field

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**Learn more about the road and bridge construction planning solution.**

**Learn More**