Bridging the Gap

Your Connection to Engineering Services — October 2024

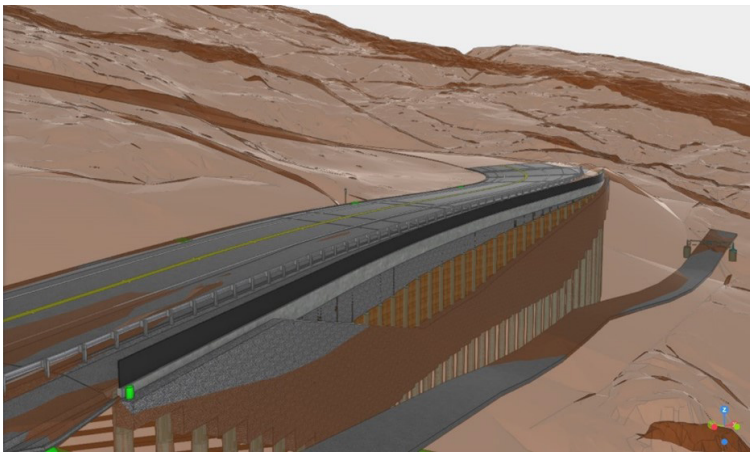
Caltrans Uses Building Information Modeling to Save Thousands of Dollars in an Emergency

How does Caltrans Division of Engineering Services (DES) use 3D modeling to save $520,000? Thanks to the application of Building Information Modeling for Infrastructure (BIM4I), the Department saved over half a million dollars on an emergency project along State Route 36 in Humboldt County.

In May 2024, our Director's Office issued an Emergency Pilot Project after a landslide occurred in Bridgeville, CA. A series of intense storms with heavy rainfall over the past two years damaged the roadway. DES Bridge Design and Structure Construction teams used BIM4I to design and build a soldier pile ground anchor wall to stabilize the landslide. The project is currently under construction.

BIM4I helped Caltrans designers find a coordination issue between the roadway design model and the structures retaining wall design model. Using the models, Structure Construction also identified a conflict between the wall's ground anchor and the existing underdrain. Resolving these issues before construction started, not only saved time and money but also benefitted the environment. The department avoided carbon emissions from construction equipment that would have been needed for rework.

BIM4I is a process that involves creating and managing a digital model of an infrastructure project, usually in the design phase, before construction begins. Caltrans is running a pilot program to extend the use of BIM4I into the construction phase. Caltrans teams worked with the project contractor to combine the model with the construction schedule and produced a 4D simulation.



The simulation allows everyone to review the sequence of construction activities and adjust workflows to meet or exceed the schedule.

The use of new technologies has many benefits. BIM4I enhances collaboration, increases efficiency, and reduces construction costs and time while fostering a more sustainable future. It improves accuracy and streamlines workflow as construction begins. Also, it enhances understanding of the project as it progresses in real time and provides a resource for future reference.

BIM4I enhances project outcomes and drives innovation in construction practices. By investing in the right technology, training, and fostering a collaborative culture, project teams can unlock the full potential of BIM4I and effectively navigate the complexities of modern infrastructure design and construction practices.

Visit Working with the Division of Engineering Services to learn more about joining Caltrans where you can work on projects like this.