

Hatch Designs a Complex New Bridge to Support Economic Development

Digital Design Environment Accommodated Client Change Requests, Saving Time and Money

SUPPORTING A GROWING INDUSTRIAL ESTATE

Established in 2002 at the southeast part of the Melbourne metropolitan area, Carrum Downs Industrial Estate sparked a flood of economic development. As a multitude of industrial designs and engineering firms filled the estate, job growth reached 13 times higher than the regional average.

With more people traveling to the area, Major Roads Projects Victoria moved to duplicate and expand Rutherford Road and Lathams Road, which would involve constructing a new bridge. Hatch, a global management, engineering, and development consultancy, was contracted to design the bridge, though they had to work in close communication with the client's civil team.

CONTINUOUS DATA UPDATES REQUIRE FLEXIBILITY

Hatch quickly realized that the bridge needed a complex design. It would be built in parallel to an existing bridge, with just 7 meters between them. The north side of the new bridge would incorporate a foot path with an edge curb.



Establishing a connected data environment with ProjectWise streamlined communication with the client and ensured that all material was up to date. Image courtesy of Hatch.

Additionally, the client's civil team continually provided major updates and redesigns, which would have required many hours to remodel using older design techniques. Hatch needed a way to incorporate flexible digital design for both the road and bridge elements.

COMBINING APPLICATIONS FOR UNIFIED DESIGN

After weighing their options, the design team determined that they could easily meet all the design requirements with Bentley applications. They first established a connected data environment with ProjectWise to streamline and speed their continual communications with the client and ensure that all material was up to date.

They combined the capabilities of OpenRoads, which they had deployed on previous projects, with the capabilities of OpenBridge Modeler to design all aspects of the bridge, from the supports to the road, in a single environment. The work environment enabled them to take data captured by the client's civil team and use it to update and optimize the design.

A 100% DIGITAL PROJECT

The Lathams Road project is digital – from the design software to design processes, data storage, components, collaboration environment, the delivery portal, and the deliverables.

Being the first digital bridge design within the Lathams Road project scope ensured Hatch had complete digital collaboration and seamless data sharing. The digital design provides transparency between design teams and the client, reducing risks and strengthening the client and design team partnership.

PROJECT SUMMARY

ORGANIZATION

Hatch

SOLUTION

Bridges

LOCATION

Carrum Downs, Victoria, Australia

PROJECT OBJECTIVES

- ◆ To accommodate economic growth by constructing a new bridge.
- ◆ To use 100% digital processes and create a digital model.

PROJECT PLAYBOOK

MicroStation[®], OpenBridge Modeler[®], OpenRoads Designer, ProjectWise[®]

FAST FACTS

- ◆ The creation of Carrum Downs Industrial Estate, southeast of Melbourne, sparked a flood of economic development.
- ◆ Hatch was contracted to build a new road bridge to accommodate increased traffic in the area.
- ◆ The client's civil team continually provided major updates and complex redesigns, which would have required many hours to remodel using older design techniques.

ROI

- ◆ Establishing a connected data environment with ProjectWise streamlined communications with the client and ensured that all material was up to date.
- ◆ By using OpenBridge, the design team fulfilled all client requirements and delivered a well-designed digital model.
- ◆ Digital design saved Hatch significant time and money, establishing a new benchmark for future infrastructure projects in the region.

“By using OpenBridge Modeler, and investing in the training required, we have returned that investment many times over due to the automated updates based on civil design changes and parametric updates from component-level modification.”

– Joseph Armstrong, BIM Principal, Hatch

PREVENTING EXPENSIVE DESIGN MISTAKES

Using OpenBridge for the first time, the design team fulfilled all client requirements and delivered a well-designed digital model. They quickly incorporated all updates and changes provided by the client’s civil team, including major alterations to the friction slab configuration, without the need for data conversion.

By greatly reducing the risk of accidentally using out-of-date data, they prevented costly design mistakes. The digital design saved them significant time and money, and established a new benchmark for future Hatch infrastructure projects in the region.

IMPROVED QUALITY OF LIFE

When completed by mid-2023, the project will improve traffic flow and travel times, and enhance connectivity for the local community and businesses in Carrum Downs and Seaford. The road upgrade will make it safer and easier for residents to walk or cycle around the area, and the new safety barriers will lower the risk and severity of crashes.

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Using OpenBridge the design team fulfilled all client requirements and delivered a well-designed digital model. Image courtesy of Hatch.