

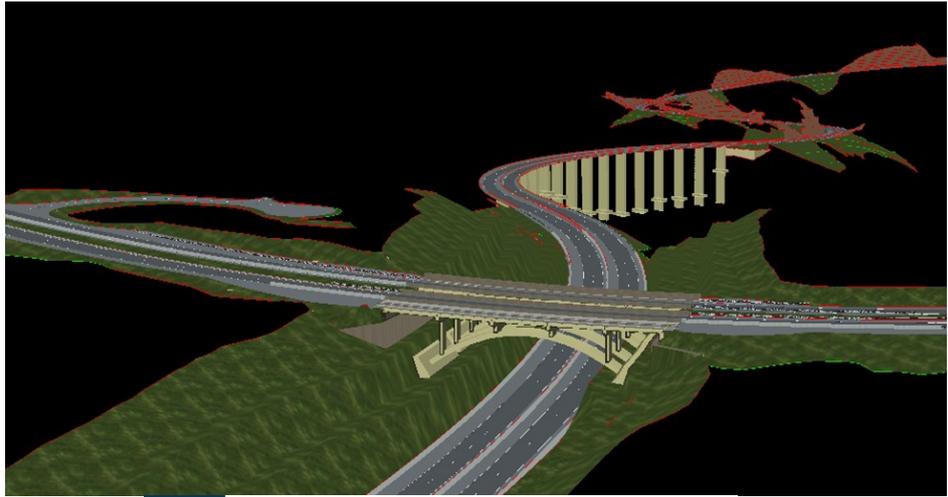
Harrison Infrastructure Group (HIG)

Toowoomba Second Range Crossing

12d DIMENSIONS:

- Roads and Highways
- Visualisation

Toowoomba Second Range Crossing



Project Summary

The Toowoomba Second Range Crossing project is a 42km long alternative range crossing route to the north of Toowoomba. It connects the Warrego Highway near Helidon in the east to the Gore Highway at Athol in the west, via Charlton where it re-joins the Warrego Highway heading towards Dalby. This upgrade to the road network improves freight efficiency, connectivity, functionality, safety reliability, and capacity. The section focussed on here is the New England Highway overpass where it intersects with the Toowoomba Second Range Crossing.

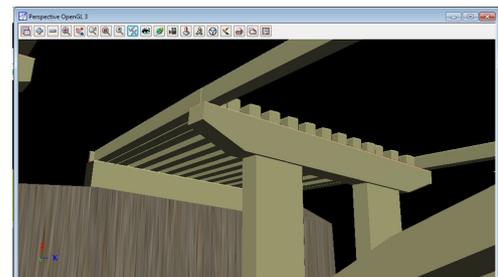
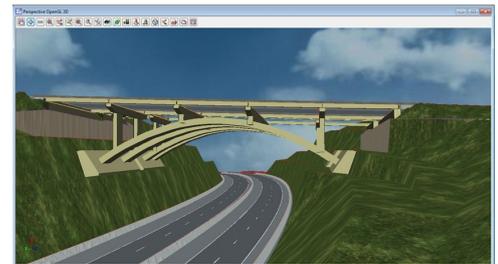
The Challenge

The task undertaken was to provide a 3D visualisation of the double arched bridges on the New England Highway, which cross over the Toowoomba Second Range Crossing at Mt Kynoch. A visualisation for the 800m long viaduct had previously been created, and this was used for visiting VIPs so they would have an insight into the overall finished project, considering construction had only just commenced. The New England Highway overpass was originally designed for a standard pier and deck unit bridge construction, with the arches being a late addition. The Department of Transport and Main Roads (TMR) therefore required another visualisation for the new arched bridges.

To create the remaining bridge components, they used the 12d Model CAD tools to create 2D shapes of the arch supports, abutments, headstocks and deck units. These were saved to the extrudes.4d file and extruded along alignments that had been created previously.

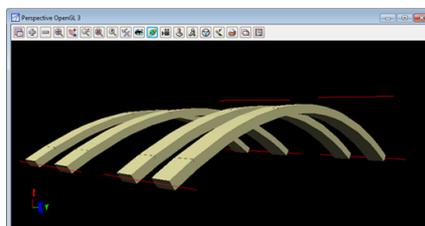
The Result

With the help of 12d Model, HIG was able to deliver the required information quickly and easily.



The Solution

The approach adopted was to create the visualisation similar to how the bridge would be constructed, by building each component up and in its own model. The first visualisation created was for the arches. Using the detailed design drawings, HIG was easily able to create super alignments from setout points and pipe/culvert the alignment to the arch cross sectional dimensions.



For more information

To find out more about how you can create better designs faster with the 12d Model solution for civil engineering design, visit www.12d.com.



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Roads and Highways

12d Model's design option is the smarter solution for the design, modification and maintenance of Road and Highway projects.

Enjoy advanced 3D tools to design local and major roads, intersections, roundabouts, highways, interchanges and much more.



Ports and Dredging

12d Model is the solution for port infrastructure and dredging, easily managing the very large datasets and complex volume calculations often required by these projects.

A complete range of flexible and customisable volume calculation tools allow teams to extract and present the information quickly and easily.



Land Development

12d Model is the most versatile solution for the creation of sustainable land development projects, including residential, commercial and industrial developments, recreational areas, landfills, and agriculture projects.

Easily manage all aspects of your land development project from earthwork quantities, road design utilities and drainage design.



Airport Infrastructure

12d Model provides a solution for the design, construction and analysis of new airports, as well as the upgrade and maintenance of existing runways and airport infrastructure.

Easily manage large airport infrastructure projects and share data across multi-disciplinary teams.



Rail

12d Track has been specifically designed for the survey, design and construction of light, heavy and high speed rail projects.

Extensive railway tools in 12d Track allow the rail designer to quickly and easily design their projects. These options are built on the existing 3D modelling and design tools available in 12d Model.



Mining Infrastructure

12d Model's powerful set of exploration, site investigation, survey and analysis tools are crucial for the initial design, construction and ongoing operation of mining projects.

Comprehensive tools for the survey, design and construction of access roads, railways, earthworks and services allow for the coordinated design and management of mining infrastructure from within 12d Model.



Drainage, Sewer and Utilities

12d Model provides comprehensive tools for the design, analysis and optimisation of stormwater and sewer projects using rational, dynamic (hydrograph) and 2d drainage methods.

Powerful clash detection management allows for efficient 3D modelling of service networks such as gas, electricity, telecommunications and water prior to construction.



Surveying

12d Model is a complete surveying package providing the tools to manage all facets of surveyed data including LIDAR, topographical, as-built, conformance, traversing, geodetics, data mapping, labelling and much more.

The 12d Field option runs on a ruggedized tablet and gives the user access to full 12d Model functionality, allowing you to take the entire project into the field with the most comprehensive pick-up and set-out tools.



Oil and Gas

12d Model assists with the design, construction and mapping of oil and gas pipelines, original site exploration and the wide range of infrastructure required for oil and gas projects.

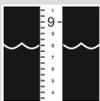
Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.



Construction

12d Model is the ultimate software for construction with powerful set-out options, direct interfaces to machine control and detailed conformance reporting and auditing.

Manage 3D data and control volumes, quantities and progress claims with 12d Model. Set-out your project and undertake conformance and as-built surveys live on-site using 12d Field.



Rivers, Dams and Hydrology

12d Model handles very large datasets and interfaces with a wide range of analysis packages, making it perfect for flood studies and the management of rivers and dams.

12d has partnered with industry leading analysis software, allowing users to apply 2D drainage analysis from within 12d Model.



Environmental

12d Model's ability to handle very large datasets combined with flexible and comprehensive 3D analysis and modeling tools make it perfect for a wide variety of environmental projects.

Existing workflows can adopt 12d Model easily as it allows users to directly interface with GIS systems and most software packages and file formats.

Why Choose 12d?

- **Powerful data processing & intelligent functionality.**
- **Modular, easy to update & completely customisable.**
- **Seamless integration with major industry software and hardware.**
- **Used in over 55 countries worldwide.**
- **Friendly support & training from industry experts.**

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