

Cardno
Stephen Bennett

CLIENT: Goldling

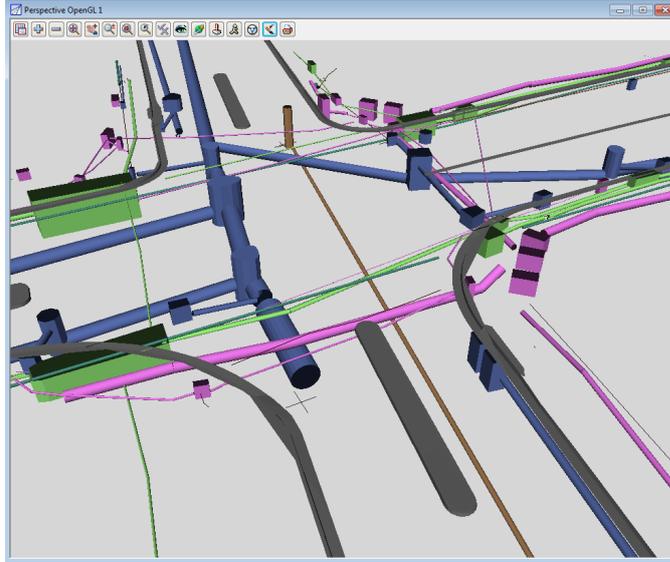
SCOPE:

Integration of new and existing transport systems

12d DIMENSIONS:

- Road design

Gold Coast Rapid Transit



Sections can subsequently be cut quickly for design coordination and construction planning

Project Summary

The Gold Coast Rapid Transit (GCRT) is a major infrastructure project that aims to integrate new and existing transport systems, support urban regeneration and facilitate sustainable transit-oriented development.

The GCRT Project comprises a 13km light rail system between the Gold Coast University Hospital on Parklands Drive in Southport and the Broadbeach South Station adjacent to Pacific Fair Shopping Centre. The Project brings together the world's best

infrastructure and urban design solutions to create a vibrant and bold future for the City.

Cardno's involvement with the GCRT Project has been to provide consulting services in regard to underground utilities, landscape architecture and urban design, building structures, building services, building certification, way finding and temporary traffic management planning.

The Challenge

The major 12d task undertaken by Cardno on the GCRT Project was the assessment of existing underground utilities and space-proofing of proposed and relocated utilities. Accurate underground utilities records are rare. Records are usually incorrect, incomplete, or inadequate.

Cardno was faced with the challenge of coordinating a variety of survey data, identify existing utilities that clash with the proposed track alignment, and provide design solutions for the protection or relocation of these utilities. This included allocation of corridors for utility owners to commence detailed design.

The Solution

Incoming field data was assessed and re-modelled where accuracy was lacking. The field survey data was received in strings & points format. Cardno designers converted these raw strings into 3d pipe & conduit super strings. Where field data was not provided, gaps were interpolated or extrapolated to provide a completed model.

Existing underground manholes and pits are traditionally surveyed with a point to represent the structure. To provide a complete existing model, manhole extents and pits sizes were also surveyed and then accurately modelled.

By utilising the developed 12d model, clashes with the track alignment were easily identified which enabled the Cardno team to allocate corridors for the various utility owners.

Result

The result is an interactive 12d model containing the proposed track, all known services and proposed service corridors along the construction route.

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.

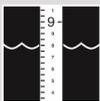
Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.



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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