

SCOPE:

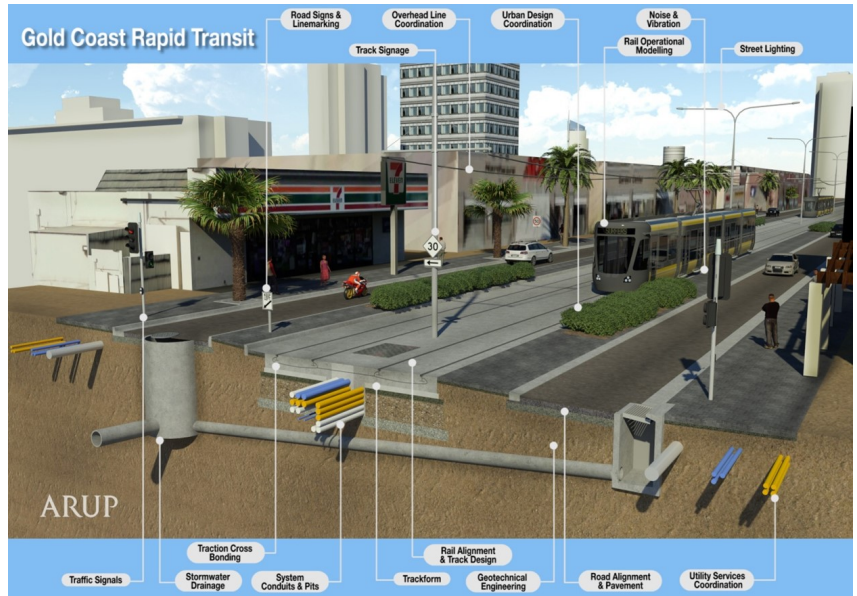
Macros to help to efficiently and accurately model a light rail design using 12d Model software.

12d DIMENSIONS:

- Customisation

# Gold Coast Rapid Transit

Macro Development



## Project Summary

A number of new macros to help to efficiently and accurately model the Gold Coast Rapid Transit light rail design using 12d Model software.

## The Challenge

The Gold Coast Rapid Transit consists of 13km of dual track light rail system in a shared Road and Rail corridor, connecting the Griffith University to Broadbeach.

Technically challenging, the light rail system occupies much of the existing road corridor requiring alterations to the functionality of the road network. This design requires very close coordination between the rail and road alignments to ensure an integrated approach. As part of a multi discipline design team, Arup has also delivered the designs for four bridges, numerous retaining walls, track form, stormwater drainage, system conduits and pits, lighting, traffic signals and more.

software were investigated, and a number of potential tools identified to help the team efficiently and accurately deliver the project. The particular issues identified were the application of cant to not just the rails but also the surrounding trackslab, kerbs, etc., and also checking and presenting stopping sight distance requirements particular to light rail design.

## The Solution

The solution was a number of new macros to help to efficiently and accurately model the light rail design using 12d software.



Image credit: Gold Coast Bulletin

It was decided to deliver the detailed design as a fully integrated 12d project, with 12d Model design teams including rail, road, stormwater drainage, survey (by Others) and utility services (by Others).

## Result

The 12d Model macros helped the team to efficiently and accurately model the light rail design.

Before commencing rail design, the team worked with 12d Solutions to identify the unique modelling requirements of a light rail system. With the help of the 12d Support team, the functionality needs and existing tools available to complete the work using 12d

## 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](http://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.

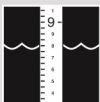
Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.



## 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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