

# 3D Laser Scanning

Accurate | Fast | Cost Effective

## Our People, Your Service

Fyfe Pty Ltd, with its head office in Adelaide, South Australia, is a well established land and resource development consultancy specialising in providing comprehensive engineering, surveying & town planning services to South Australia, Queensland & the Northern Territory.

Since commencing in 1982 as a one man survey practice, the company has progressed to become a major player in providing engineering and survey consultancy services to the energy industry.

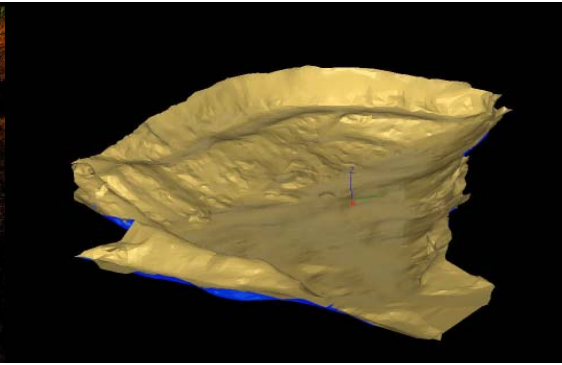
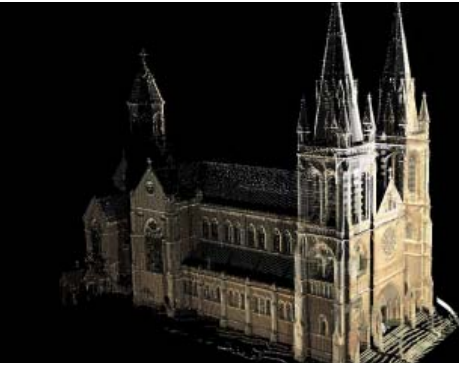
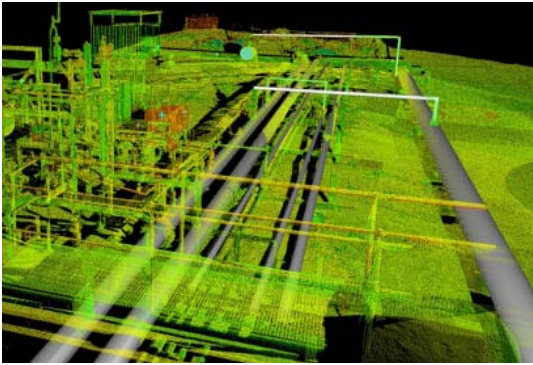
Fyfe currently has a significant number of engineers and surveyors working on pipeline, oil and gas and coal seam methane projects.

## 3D Laser Scanning

Terrestrial 3D laser scanning has been commercially applied in the surveying industry since the mid 1990's. Recent technological advances have made laser scanning more accurate, faster and more cost effective, allowing it to be utilised in a greater range of survey applications.

Fyfe use a pulse based 3D laser scanner. This scanner measures the time taken for a single laser beam to travel to and from the surface of the target. From this time measurement, a distance is calculated and when combined with specialised software, results in a 3D position. This procedure is repeated up to 50,000 times a second to capture a huge amount of information in a very short time.





## Plant

Industrial plants are often busy, complicated and dangerous, making them notoriously difficult to survey. Using laser scanning it is possible to quickly acquire accurate high resolution asbuilt survey information. This data can then be converted to smart 3D models for use in design packages and maintenance databases.

Highly accurate asbuilt plans can be produced from these models, and the amount of survey data collected during the scan means the plans can be incredibly detailed. This provides engineers complete confidence when designing new plant equipment, retrofitting or replacing existing plant equipment.

## Heritage

With the advent of laser scanning technology it is now possible to survey the intricate and detailed features of cultural heritage sites and structures.

In the past, this type of survey has been the exclusive domain of photogrammetry. However it is now possible to quickly capture a full 3D point cloud and produce an accurate asbuilt of the structure. This data can then be extracted as 2D or 3D CAD data incorporating elevation, plan and section views.

This data also provides an accurate 3D archive of the site or building which can be utilized for restoration or monitoring the structure over time.

## Infrastructure

Laser scanning is a non contact measurement technique which means that features can be surveyed remotely.

Large roads, rail corridors and complex structures such as bridges can be captured quickly and easily with minimal risk to the surveyor and causing minimal disruptions to infrastructure and traffic flow.

Having the data in its absolute entirety means that accurate models can be extracted in the office with complete confidence and can be converted to 2D plans, 3D CAD designs or mesh models.

## Topography

The volume of data collected by a laser scanner eliminates the need for interpolation between survey points. Previously surface shapes were determined by measuring points along major changes of grade at 10 or 20 metre intervals and interpolating between them. This interpolation has been the source of numerous errors and inaccuracies .

Laser scanning eliminates these errors and inaccuracies by collecting larger amounts of data with minimal spacing hence there is no need for interpolation or estimation of the surface. This data density can pick up subtle variations in the surface, allowing for a more reliable estimation of the cost of the actual work required.



FYFE ENGINEERS & SURVEYORS

For further information on this exciting new technology and the services currently offered by Fyfe, please contact Scanning Manager, Joe D'Aloia or Scanning Expert, David Bourke

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