

# Case Study

## Clyde Gateway



### Company overview

**Background** The Bridgeton Cross Shelter is a rare and particularly high quality example of street furniture. It was constructed in 1874 by George Smith & Co. Sun Foundry. The structure is a decorative, octagonal cast-iron shelter supported on cast-iron columns and elaborately ornamented underneath the red-tiled roof. It is known as the “Umbrella.”

Its restoration will be the centre piece of a wider £1.5m public realm project being delivered by Clyde Gateway centred on the Cross. Delivery of these works will seek to improve the image and economic standing of Bridgeton as a retail hub.

Web site: [www.clydegateway.com](http://www.clydegateway.com)

### Feasibility Study

For this feasibility study it was proposed that a highly detailed and dimensionally accurate digital survey be carried out using a Leica Scanstation2 3D laser scanner.

3D laser scanning would allow both a digital document of the structure and the creation of a 3D digital model that could be used to present the results of a precise paint analysis carried out by Clyde Gateway and Historic Scotland.

The agreed deliverables were:

- A series of laser scans of the entire canopy
- Combined registration of this data to form a 3D point cloud of the entire canopy.
- A summarised report of the project with the typical associated costs to achieve similar outcomes in future restorative projects.



### The outcome

The shelter was scanned from various vantage points and then all these pointclouds were combined into one complete 3D representation of the structure by a method called “registration.” This processed scandata allowed for the creation of surface mesh data. By importing this data into 3D Studio MAX and using it as a template it was possible to create a 3D digital model of the shelter.

Once the simplified 3D digital model was created in 3D Studio MAX it was imported to another program, Z-Brush, so it could be sculpted further using a pen and tablet device. This allowed all the finer details of the ironwork to be created using both the simplified data and high definition photography as reference.

The main objectives of the project were achieved. A highly accurate 3D digital model was created ready to be textured to visualise the proposed new paint colour schemes resulting from Clyde Gateway and Historic Scotland’s detailed paint analysis study.

Unfortunately there was insufficient resources in the feasibility budget to carry out any texturing. However, different 3D perspective views were “rendered” and then printed out at A0 size. This helped Clyde Gateway and Historic Scotland to decide on 2 proposed paint schemes with a view to being commissioned to continue and texture the paint schemes for Clyde Gateway and the community to assess.