

Proposed Kumototo Site 10
Wellington

Visualisation Simulation Methodology

- Buildmedia Limited

buildmedia
seeing is believing

Contents

1.0 Introduction

Buildmedia was engaged to prepare imagery visualizing the Kumototo Site 10 development on Waterloo Quay. 10 Artistic impressions and 1 visual simulation was produced. The following evidence is in relation to the visual simulation.

The visual simulation viewpoint was selected by Urban Perspective Ltd. in conjunction with other specialist's knowledgeable with the project.

Buildmedia are recognized specialists in this discipline and utilise the best surveying and computer visualisation practices available. The proprietary techniques and processes Buildmedia has developed, create robust and dependably accurate imagery.

Buildmedia's work does not include the assessment or interpretation of the visual simulations for issues relating to the development visibility and its visual effects.

The following methodology description explains the steps Buildmedia employed in the creation of the Kumototo Site 10 visual simulation.

2.0 Process Methodology Kumototo Site 10 Visual Simulation

The Visual Simulation created by Buildmedia was prepared using best surveying and visualisation practices and involve a series of processes and steps to ensure consistency and accuracy in the development of the image. The following steps briefly identify the method in which the Proposed Kumototo Site 10 Development was visualised.

2.1 On Ground Photography

A series of photographs were captured at the location on 11th September 2014 using a professional Canon 6D digital camera with a 35 mm lens (1.0 multiplier) using a robotic tri-pod. Photographs were captured every 13 degrees using a specialist robotic panoramic head to remove parallax error.

Camera positions for the viewpoints were captured by Spencer Holmes Ltd. The coordinate system used was New Zealand Transverse Mercator.

2.2 Development of the 3d model of the Development

The 3D model of the proposed development was supplied to us as a SKP file *by Athfield Architects*.

Landscape detail was supplied by Isthmus.

The SKP file was imported into 3DS Max where it was then repositioned into the correct coordinate system using ground survey data.

The 3d model was compared to both hard and soft copies of plans and elevations to ensure consistent accuracy.

2.3 Creating the Panoramic Photo

All photographs captured on site by Buildmedia were post-processed to remove any elements of lens distortion and stitched together using specialized photogrammetric panoramic software.

Each photograph was then tied into its adjacent photograph using relative tie points to create an accurate panorama. A minimum of 20 control points were used to ensure a high level of accuracy.

Panorama photographs are generated with 124 degree field of view using true rectilinear projection to accurately simulate a camera lens with an equal field of view of 124 degrees.

90 degree panoramas were also generated using specialised panoramic software.

A 50mm image was also produced to replicate a photograph taken with a 50mm lens.

2.4 **Virtual Camera Placement**

Virtual cameras are placed into the 3D scene matched to the GPS coordinates of the field camera position ascertained on site by Spencer Holmes Ltd.

The field of view and aspect ratio of the virtual camera was then adjusted to match the rectilinear image field of view of 124 degrees.

2.5 **Generation of Tie Points for each Panorama**

Tie points are specific, identifiable surveyed objects visible in both the 3D model and the panorama photograph. They are used to match the virtual camera target to the rectilinear image.

Tie point were captured by Spencer Holmes Ltd on Friday 16th September 2014. The 3D tie point position indicators were added into the 3D scene at the actual positions determined by Spencer Holmes Ltd. The virtual camera was then altered in direction so that the tie points matched the rectilinear image. Multiple tie points were used across the whole width of the view to ensure consistent accuracy. They were then rendered and overlaid onto the existing panorama.

2.6 **Rendering**

In the 3D model, the sun and environment was simulated at the precise day and time each original photograph was captured. This ensures the lighting of the development as well as the shadows cast, are accurate representations of how the project would appear post construction in the field photography.

2.7 **Final Image Enhancements**

2D image editing software was used to correctly edit what would normally appear in the foreground of the image. Foreground features were transcribed out of the original photograph and placed into their exact position in front of the 3D object.

Buildmedia carefully compared onsite photography, landscape plans and aerial photography when photo-editing the photography.

Final post effects such as blurring the higher resolution 3d render to match the photography plus mimicking other environmental factors such as distance haze were applied as post effects to improve the quality of the final result.

2.8 **Final Image Correction**

A final image correction is applied to remove the stretching found at the edges of the rectilinear image. This distortion is corrected by applying a rectilinear perspective correction. This removes the stretching on the sides of the image and provides a more accurate simulation of the view.

2.9 Presentation sheet layouts

The final images were assembled using Adobe InDesign into PDF sheets that included titles, tie-point information, and necessary camera information.

3.0 Conclusion

Buildmedia use the best surveying and visualisation practices and involve a series of processes and steps to ensure consistency and accuracy in the development of each visual simulation. These visual simulations accurately represent the proportions and location of the proposed development and views from the selected locations as prescribed by the design information available.