

Appendix 4 - Preparation of Visualisations

Introduction

The photo-simulations or visualisations were prepared by Gavin Bentley, structural designer and 3D visualisation specialist, and Adrienne van Hellemond and Melinda Drysdale, Graphic Designers, using best engineering and visualisation practices. The photographs were taken by Blair Brixton, Senior Landscape Architect at the direction of David McKenzie, Principal, Landscape Architecture; all of Opus. Survey inputs were provided by the Opus, Wellington and the remote-control model helicopter camera platform was provided by Aerial Imaging, Ōtaki.

Methodology

Viewpoint locations were decided, marked and surveyed to later tie into the roading design CAD model. Local visual reference points, such as trees, highway signs, power poles and light standards were also identified and surveyed for location and level for use as height and location checks in later modelling.

Photographs have been taken using a DSLR camera (Canon EOS 600D) with a 50 mm lens setting and this focal length was used consistently for all the photographs taken. The 50 mm setting was used as this produces a reasonably focussed representation of what is seen by the human eye. It is also our understanding that by using a 50mm lens an image is achieved that is of the same size as seen by the human eye, as opposed to a 38mm lens (wide angle) which reduces the size of the image.

All photographs were taken at human eye level using a tripod to 1.5m, with the exception of those for Views 6 and 7, where views were obscured by existing vegetation or an elevated position was otherwise required to be at human eye level relative to what will be seen of the Project.

As eye-level views were obscured from the View 6 location, a model gyroscopic, remote-control, camera mounted helicopter was used to take elevated views at 20m above ground level to best illustrate the view north to the Project's proposed Ōtaki River Bridge. The View 7 photograph was taken via the model helicopter at a level of 30.28 m above ground, which equates to 1.5 m above the deck of the proposed Te Horo Underpass. In both instances a survey reflector was attached to the bottom of the model helicopter and a surveyor positioned to accurately locate the helicopter at 20 m above ground as a check height. In the case of the View 7 photograph, the remote controller of the model helicopter then guided the helicopter vertically from the 20 m survey check mark to the actual photograph elevation and the photographer then remotely took a series of photographs. The photograph elevation was also confirmed by the surveyor.

As a wide field of view was required to best represent particular components of the Expressway over a relatively wide area of view, each view was made up of a series of photographs tiled together to form a panoramic simulation with the individual images 'stitched' or digitally merged in "Adobe Photoshop".

A computer model was created in "Autodesk Civil3D" using topographical data as part of the overall roading design for the Project. This model was then transferred to "3D Studio Viz" (a 3D visualisation programme) and was used as a basis for illustrating the Expressway formation and associated bridge components of the Project depicted in the visualisations.

The viewpoint position, height and focal length of the lens of the original photo images were used to define a representative camera setting in 3D Studio Viz model at the same position, height and focal length. The 3D Studio Viz software has camera matching capability and by using the photo panoramic image as a background and by employing utilities within the programme, the model was orientated, sized and positioned to best represent how each component of the Project will look against the panoramic background.

Rendered images of the roading model were produced in 3D Studio Viz as a reference for the graphic designer. These rendered images were to the same height and width proportions as the base photo panorama.

The image of the rendered model alone was then brought into “Adobe Photoshop” as a unique layer and overlaid on the base photo panorama.

Using “Adobe Photoshop” effects and tools, the graphic designer then enhanced the combined image. For instance, brought foreground objects to the front, erased background objects that would be hidden or removed, and added a visual representation of the indicative landscape and stormwater mitigation measures. Further digital manipulation has been carried out to provide “realistic” effects to the modelled simulation and rendered materials.

Conclusion

The visualisations provided show the Expressway formation and associated structures digitally placed into photo backgrounds in proportion to landforms and objects in the same location. They have been manipulated in an attempt to produce a “realistic” impression and they should be treated as artist’s impressions only.