





# VISUAL SIMULATIONS - METHODOLOGY

## SITE VISIT & PHOTOGRAPHY

Site photographs were taken with a Canon digital SLR camera fitted with a 50mm focal length lens, mounted on a tripod and panoramic head. A series of photos were taken at predetermined viewpoints, situated on public land. The locations of each viewpoint were fixed by field measurements and LIDAR.

## NZILA GUIDELINES & PANORAMA PREPARATION

The visualisations have been produced in accordance with the NZILA Best Practice Guidelines for Visual Simulations (BPG 10.2) and also adhere to Boffa Miskell's internal Visualisation Guidelines.

Camera lenses of different focal lengths capture images with differing fields of view. To understand how illusions are created by different lens sizes, one must understand depth of field and how "depth of field" and "field of view" are related. As can be seen below (derived from Fig 9 of the NZILA BPG), a photo taken with a 28mm lens will provide a horizontal field of view of 65° - using a 50mm lens will provide a "cropped" (40°) version of the same view. The same image size can also be achieved by taking multiple 50mm photos in "portrait" mode, and using digital stitching software to merge and crop to 65° or 40°.

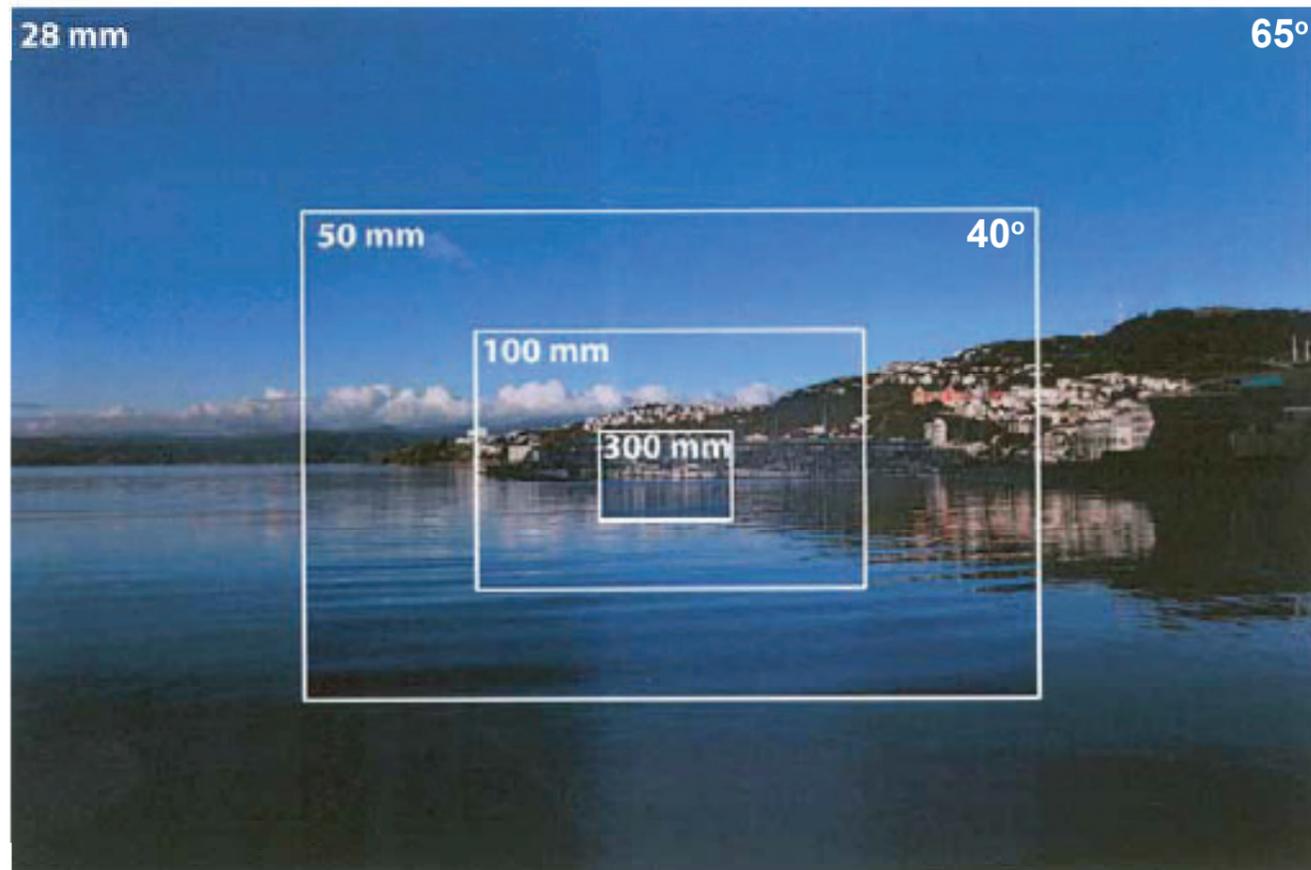
## COMPOSITING

Virtual camera views were then created in 3D modelling software, and a combination of 3D LIDAR (point cloud) data and 3D engineering drawings imported to each of these views. These were then matched to the corresponding photographic panorama, using identifiable features in the landscape and the characteristics of the camera to match the two together. The simulations were then assembled using graphic design software.

## RECOMMENDED IMAGE READING DISTANCE

According to the NZILA Guidelines, views which have a field of view of 40° should be viewed from a distance of 55 cm when printed at A3. For convenience, Boffa Miskell has adopted an image reading distances of 50cm.

This will ensure that each simulation is viewed as if standing on-site at the actual camera location, and is in accordance with Section 7.11 of the NZILA BPG (reproduced below). Users are encouraged to print these pages on A3 transparency, go to the viewpoint and hold at the specified reading distance in order to verify the methodology.



LENS	HORIZ FoV <sup>1</sup>	PAPER SIZE	ACTUAL IMAGE SIZE <sup>2</sup>	READING DISTANCE <sup>3</sup>
28mm	65°	A4	277mm W x 185mm H	215mm
		A3	400mm W x 267mm H	315mm
		A2	574mm W x 383mm H	450mm
50mm	40°	A4	277mm W x 185mm H	380mm
		A3	400mm W x 267mm H	550mm
		A2	574mm W x 383mm H	790mm

