



KINGS PARK FEATURE SURVEY

PROJECT Kings Park feature survey | Perth, WA

CLIENT Kings Park Botanic Gardens & Parks Authority

THE SITE

Kings Park, perched above Perth City, is one of the largest inner-city parks in the world. At just over 4km² the botanical gardens house over 2,000 of Western Australia’s local plant species including unique wildflowers. The Kings Park Botanic Gardens and Parks Authority are internationally recognised for their scientific research, leading horticulture, conservation and public education.

It is a mecca for people, locally, interstate and international, and is visited by nearly six million people each year. Access through the park is provided by several roads, designated cycle and pedestrian pathways, plus numerous soft sandy tracks through the native bushland.

THE CHALLENGE

As part of the planned upgrades and resurfacing of the 10km network of roads through the park, a detailed survey of the roads was required for detailed design planning purposes. It was quickly recognised that Mobile Laser Scanning (MLS) would be the most efficient methodology to deliver the exacting tolerances required to Main Roads Western Australia standards.

A significant challenge to capturing the winding roads through the park is the tall roadside vegetation that the park is famous for. Overhead tree canopies denied clear

satellite coverage to the MLS system along the majority of the roads. The renowned 30m tall Lemon Scented Eucalypts that line Fraser Ave have inter-locking canopies which provide shade along the roadway, but also restrict GNSS signals.

THE SOLUTION

Due to the high number of people accessing the park it was imperative to complete the survey in a manner that would minimise disruption to the public and could be conducted safely and discreetly. MNG proposed to use their new Riegl VMX-2HA MLS system on the project coupled with the Flir Ladybug 5+ 360° spherical camera for imagery to conduct the survey. .



THE RIEGL VMX-2HA MLS SYSTEM IN OPERATION

CASE STUDY

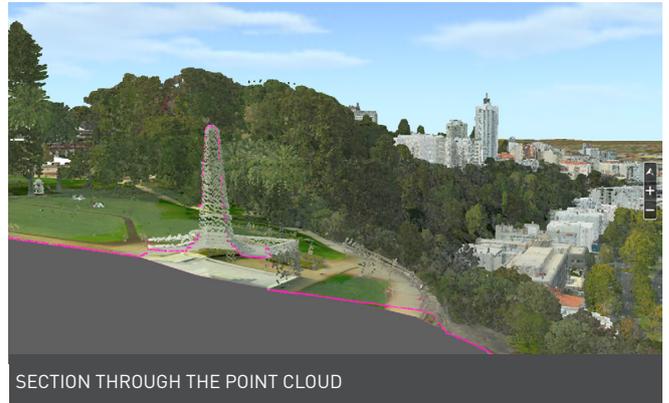
Utilising MLS allowed the survey to be conducted without road closures and without active traffic management. The dual scanner system provided an extremely high density of data and with multiple passes along the roadways enabled a high level of data analysis to maximise the accuracy of the survey.

Further to the road upgrades MNG consulted with the client and proposed to utilise their Riegl VQ-480 II Aerial Laser Scanning (ALS) system to complement the detailed road survey throughout the park. Over 60% of Kings Park is natural bushland and difficult terrain to move through, hence the ALS system is ideal for the survey. Riegl's Waveform-LiDAR technology enables high speed, high accuracy measurements making it ideal for multi-target situations through vegetation.

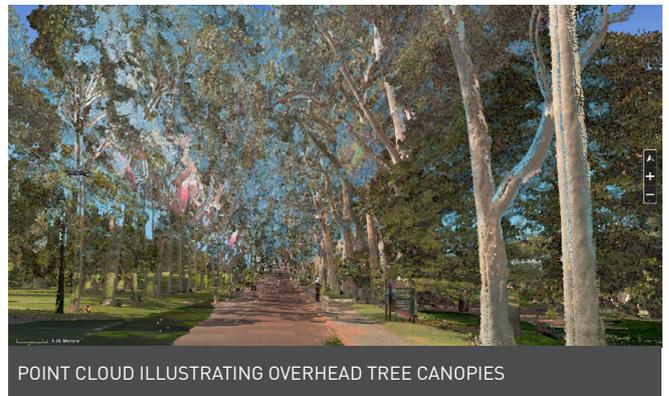
THE OUTCOME

The two LiDAR datasets were merged to provide a superior product for the road upgrade, plus map the urban forest terrain throughout the park.

The dataset surpassed the specifications for the road pavement project, plus with the aerial survey, including high accuracy RGB and near infra-red aerial imagery, has enabled the client to have one homogenous high accuracy highly detailed reference survey for future works.



SECTION THROUGH THE POINT CLOUD



POINT CLOUD ILLUSTRATING OVERHEAD TREE CANOPIES

A KEY BENEFIT TO THE CLIENT WAS THE ABILITY TO AMALGAMATE MLS AND ALS TO PRODUCE ONE HOMOGENOUS REFERENCE SURVEY.



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