CASE STUDY

ICONIC PARK SURVEYED UNINTRUSIVELY AND SAFELY IN GREAT DETAIL

PROJECT: Kings Park Feature Survey – Kings Park, Perth, Western Australia **CLIENT:** Main Roads Western Australia

PROJECT BACKGROUND

Located in Perth, Western Australia, Kings Park is one of the largest inner-city parks in the world. At just over 4km^2, the botanical gardens house over 3,000 of the State's local plant species, as well as cafes, bushland walk trails, and a variety of children's play areas. Visited by nearly six million people each year, access through the park is provided by several roads, designated cycle and pedestrian pathways, and numerous soft sandy tracks through the native bushland.

The Main Roads Western Australia (MRWA) required a detailed survey of Kings Park's winding 10km network of roads to support planned road upgrades and resurfacing works.

CHALLENGES

Kings Park is famous for its tall roadside vegetation, thick bushland and changing terrain, which presented significant challenges for the survey mapping task.

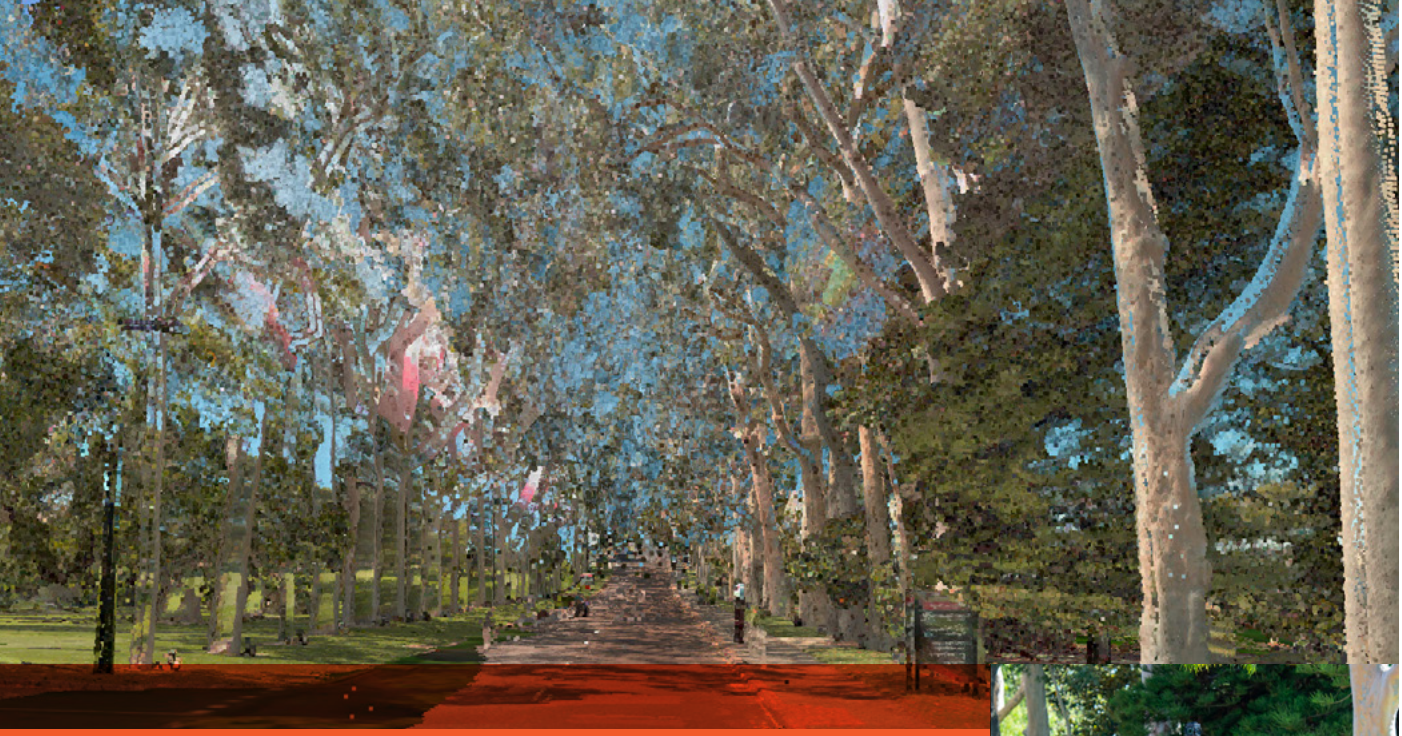
MNG recommended using Mobile Laser Scanning (MLS) to deliver the exacting tolerances required to meet MRWA's standards, however the 30m tall overhead tree canopies prevented the satellite coverage needed to run the MLS system along majority of the roads.

Due to the high number of people accessing Kings Park, it was imperative the survey be completed safely and discreetly and cause minimal disruption to the public.

MNG had to consider which solutions would best address these challenges.

SOLUTIONS

MNG proposed to use its Riegl VMX-2HA MLS system, coupled with the FLIR Ladybug 5+ (360° spherical imaging camera), to conduct the survey. This revolutionary technology produces dense, accurate and feature-rich data and includes multiple camera systems for precisely georeferenced images.



DUE TO THE HIGH NUMBER OF PEOPLE ACCESSING KINGS PARK, IT WAS IMPERATIVE THE SURVEY BE COMPLETED SAFELY AND DISCREETLY AND CAUSE MINIMAL DISRUPTION TO THE PUBLIC.

Utilising MLS meant the survey could be conducted without road closures and without active traffic management – helping keep people safe and minimise disruption. The dual scanner system provided high density 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 enhance the survey using a crewed light aircraft for an aerial survey with Aerial Laser Scanner (ALS) and four-band imagery sensors to capture the entire area of Kings Park.

Over 60% of Kings Park is natural bushland and difficult terrain - the ALS system presents the ideal solution to this challenge.

The ALS Waveform-LiDAR technology provides high speed, high accuracy measurements, making it ideal for multi-target situations through vegetation.

OUTCOMES

The combined aerial and ground survey was completed to map all of Kings Park's road network, natural bushland, features and terrain.

The combined MLS and ALS dataset delivered a homogeneous, highly accurate foundation spatial data set to support MRWA and park management and design for the future.

The aerial survey provided colour and near infra-red imagery to assist with vegetation mapping and health management.

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