Case Study: Lighting Towers Visual Inspection

Overview

An engineering firm was tasked with conducting a visual assessment and maintenance of 24 industrial lighting towers at a major port. Several of the towers (up to 30 metres high) were situated in hard to access locations due to surrounding buildings and shipping containers.

"We needed to identify area's of deterioration, and record their location in reference to each tower, so we could efficiently plan the required maintenance" says lead Engineer.

Current Process

Current inspection method includes using a camera with a telephoto lens, or the use of an EWP (elevated work platforms) to gather information on the condition of the towers.

Challenges

"Not all angles and components are visible from the ground. The manual recording of where photos are taken and the significant time and effort required to organize photographs is a challenge for us. Also, hire of EWP's are expensive and subject to weather, meaning significant co-ordination is required" says the lead engineer.

New Process

A drone was used to capture imagery from all angles across the 24 towers. The photographs were processed by industry leading software into 3D models, providing a digital replica of each tower. "We wanted to better mitigate risks, by reducing the amount of time spend at height in an EWP, and the reduction in EWP hire costs and time personnel spend on-site".

Outcome

The deliverables were 3D reality models of all 24 towers, providing a comprehensive digital record of the current condition. Within the online platform, the towers could be inspected, tagged for defects, and shared with sub-contractors.

"Using the models, we were able to get started on our work very quickly. Much of the visual inspection could be completed remotely. We had a much better idea of what we needed to look at when we go to the site, so we could focus attention on those areas".

Engineers could properly assess the extent of the defects and determine the scope of repairs required. "It was much easier to identify where photos were taken, and much easier to provide information to clients and sub-consultants or contractors. I particularly like the ability to select a target on the model and then view the target in a high-res photograph".

Key Benefits

Providing access to sub-consultants also resulted in better sub-consultant pricing since they had better information.

Using drone technology and industry leading software resulted in:

- Reduction in OH&S risks by minimizing the use of EWP's
- Elimination of the need for manual sorting of photographs
- Reduction in costs of EWP hire
- Reduction in personnel costs
- Easier sharing with sub-contractors
- Better quality outputs

DATA CAPTURE

COMPLETE   vs.   RESTRICTED ANGLES

TIME ON SITE

2 DAYS   vs.   6 DAYS

DATA TURNAROUND TIME

2 DAYS   vs.   6 DAYS

REPEATABLE ACCURACY

enhancing the superpower of spatial intelligence

| YES | vs. | NO |

EQUIPMENT

| INSPECTION DRONE | vs. | HAND HELD CAMERA, ELEVATED WORK PLATFORMS |

HUMAN RISK

| NO | vs. | YES |

STAFF REQUIRED ON-SITE

| 1 | vs. | 2 |

PRICE STRUCTURE

| CONSISTENT | vs. | VARIABLE |

COST

| $ | vs. | $$$ |

INCLUDES

1. COMPLETE 3D DIGITAL REPLICA
2. INSPECTION/ANALYSIS AND PLANNING TOOLS
3. TREND ANALYSIS TOOLS
4. PDF INSPECTION REPORTING TOOLS
5. COLLABORATION TOOLS