



Description: **Design and Installation of Upgraded 3G and New 4G DAS**

Requirement: **Improvement to Coverage on Sydney Harbour Bridge**

Solution: **Implementation of a New Outdoor DAS**

◆ Overview

The Sydney Harbour Bridge, or 'The Coathanger' as it is affectionately known, is a steel arch bridge across Sydney Harbour that carries a variety of traffic between the Sydney central business district and the North Shore. The bridge is an iconic part of the Sydney landscape and provides an impressive view of the nearby Opera House. Completed in 1932, the bridge is the tallest steel arch bridge in the world, measuring 134 metres from the top to water level.

CAM was commissioned by VHA (Vodafone/Hutchinson Australia) to design and install U850 services in order to improve cellular coverage for mobile traffic passing over the bridge. Macro coverage to the bridge was severely degraded due to the nature of the steel structure and surrounding water.

◆ What did the Project Involve?

CAM PTY provided a detailed feasibility study and subsequent design and installation services starting in July 2013 and completing work in November of the same year.

Based on the CAM's recommendations, the existing active ION M Telstra DAS was identified as being suitable for a U850 deployment thanks to its frequency compliance. In order to enable VHA U850 services, existing filters on the Telstra system needed to be swapped to allow VHA services to pass through. A project plan was established in line with planned road closures to gain access to the remote unit locations which were located on the gantries above the highway and also on the roadside located within dedicated enclosures.

Main equipment room works required connection of VHA Node B equipment and RF plumbing into the adjacent Telstra cabin located within the South Pylon. All connectivity to the remotes was already in place and fibre was fed from this location.

Designing the outdoor DAS system presented difficulties considering the vast amount of intertwining steelwork and the sea below. The bridge is listed so drilling into the structure was prohibited and CAM had to work around infrastructure that had been put in place by existing operators.

Contractors working on the structure were required to have Police Clearance and all works took place out of hours including during the night. Installation was also challenging due to numerous bridge lane closures.

The placement across the bridge of fireworks in preparation for New Year's Eve provided an additional risk which was factored into the project.

The work was executed under the close supervision of CAM's Project Manager Jim Hazelden and Site Controller James Spear with Martin Butcher and Ryan Salway overseeing RF Engineering. CAM worked in close association with the landlord RMS, mobile operator Telstra, New Era and Huawei.

◆ Why was the Project so Successful?

The project delivered enhanced 3G coverage and new 4G coverage for users of the bridge, helping them stay connected as they made the journey across this historic landmark.

The project's success can be attributed to the single point of contact provided to the client and excellent communication with all parties involved. A cost study was conducted to ensure that the client received the most competitive solution.

Vodafone Hutchinson praised CAM for the successful execution of the project.

