CASE STUDY

AECOM Selects QuantAQ Sensors To Characterize Emission Sources For Sydney Airport

Sydney Airport sought a cost-effective solution to characterize emission sources at and around the airport and inform appropriate air quality measures. Leveraging QuantAQ's advanced sensor technology, infrastructure consulting firm **AECOM** implemented a tailored network to answer their air quality questions while operating under unique logistical challenges.

PRODUCT

MODULAIR™

LOCATION

SYDNEY, AUSTRALIA

Building strategic, long-term air quality networks

Organizations are increasingly motivated to build and report on robust ESG plans, but taking the first step can be tricky, especially when compliance with monitoring regulations doesn't fully characterize corporate or environmental risks.

Sydney Airport's commitment to sustainability includes ensuring that their operations don't negatively impact the surrounding communities. While the airport installed and commissioned their own on-site air quality monitoring station in 2018 in accordance with regulations, a single monitoring station couldn't tell the full story—and at their high price point, adding more regulation-grade stations wasn't a feasible solution.

Plus, with nearby construction sites, off-site heavy industry and a major motorway running around the airport, under the runways and near the monitoring station, it was difficult to decipher where pollution was really coming from. They needed a strategic plan to better understand and manage their air quality.

Infrastructure consulting firm AECOM conducted a complete review of Sydney Airport's operations and relevant benchmarks to inform appropriate air quality measures. The plan included a flexible air quality monitoring network with 7 MODULAIR™ sensors from QuantAQ.

Monitoring for unique logistical challenges

Sensors were placed around the airport, including along boundary fences, to monitor pollutants spanning particulate matter (PM), NO_2, CO, and O_3. To determine whether pollution from airport operations was contributing significantly to their overall air quality, multiple sensors were used to triangulate the pollution sources.

Compact and low-maintenance devices were key to meeting the airport's unique logistical needs. The MODULAIR™ sensors, capable of operating without a mainline power source or disruption to the surrounding area, aligned perfectly with safety requirements. They were similarly essential in providing continuous and accurate service, a critical feature given the airport's access restrictions like security clearances and mandatory escorts, which posed time-consuming challenges for on-site maintenance. One sensor co-located with the existing reference station enabled the team’s consistent confidence in the devices’ accuracy.

"Minimal interaction was key for us. We don't have to be out there every three or four weeks to calibrate or repair—we have continuous monitoring with good uptime."

— James Enright, AECOM Senior Environmental Scientist

Easy data accessibility through the QuantAQ API has also streamlined how AECOM delivers automated air quality reports to the airport’s stakeholders. The team can customize their data presentation to match client preferences, empowering clients to seamlessly dive in and interact with each sensor's data as desired.

Leading proactive ESG measures

Through the network, AECOM acquired valuable insights to help the airport distinguish emissions attributed to the motorway from their own contributions. Thanks to the sonic anemometer—which determines wind speed and direction—and the precise view into the local air profile from the QuantAQ sensors, the AECOM team and airport gained a new understanding of the role the nearby roads played in the local air quality profile.

"The small meteorology station gauge on each sensor gives us the ability to directionalize the pollution."

— James Enright, AECOM
Senior Environmental Scientist

Over an initial 12 month period, the AECOM team ran the network to understand general trends, including the seasonal changes in pollutant concentration. Now they're evaluating the impact of various airport zones, such as loading and unloading areas, which have higher traffic and lower air circulation. Totaling less than half the cost of another expensive regulatory station, the 7 QuantAQ units are a versatile solution that easily allows the team to pivot their focus by relocating the devices through an easy setup process.

The swift implementation of this cost-effective project positions Sydney Airport as a proactive leader in comprehending and enhancing its facility's air quality. With the help of QuantAQ's precise MODULAIR™ sensors, AECOM is able to inform the airport's air quality management strategy.

About

AECOM is a global network of design, engineering, construction and management professionals partnering with clients to imagine and deliver a better world.

Sydney Kingsford Smith International Airport is Australia's busiest airport, the oldest continually operating commercial airport in the world, and the main gateway to Australia.

QuantAQ provides air quality monitoring networks to groups who need truly actionable and local air quality data. Our durable, professional-grade sensors can detect a range of gases and particulate matter with more convenience and at a fraction of the cost and complexity of traditional monitoring solutions.

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