

# LOCAL GOVERNMENT STAYS 'GREEN' WITH MACHINE LEARNING

CITY OF RYDE USES HISTORIC AERIAL IMAGERY AND ML TO BENCHMARK THE AREA'S TREE CANOPY COVERAGE



Captured: 18/04/2020  
North Ryde, NSW

## CITY OF RYDE ANALYSES TREE CANOPY COVERAGE USING NEARMAP HISTORIC IMAGERY AND MACHINE LEARNING

Whether you're outside for exercise or just walking the dog, chances are you're seeing the local park, garden or nearby trees with renewed appreciation these days - an experience of green space which, so often, is measured only in anecdotal terms.

City of Ryde aims for a strong sense of balance and sustainability as the City's population grows by over 30% over the next 15 years. Protecting and enhancing Ryde's natural and urban environments calls for a quantifiable approach, such as creating a benchmark for the tree canopy across the entire Local Government Area (LGA).

"It's a balancing act for all Council staff in every LGA but it is particularly challenging for the staff that manage the 207 Parks and Open Space areas in Ryde," explains Lindsay Mason, head of the Land Information team at the City of Ryde, a Council which is only 12 km from the Sydney CBD.

The council area, bounded by the Lane Cove National Park in the North and the Parramatta River in the south, has lush connecting corridors and river walks. "In terms of green space the local community, many of whom are raising families in the area, value it highly," Mason says.

"In order to protect a resource, you need to be able to measure what you currently have," which is a task that's easier said than done, Mason adds. "The community values all green space. It doesn't differentiate who owns it, so we wanted to measure the total tree canopy cover, not just those areas in the council's ownership."

Aerial imagery is ideal for the job, but Mason notes that commissioning bespoke surveys is very expensive and to measure change over time, would require several years of data capture, scheduled at similar times of the year.

"Twelve months ago we signed a contract with Nearmap and got half the equation solved. Not only do we have the up-to-date aerial imagery, we also gained access to the Nearmap catalogue of historical imagery and it's all been captured using the same method, so it is consistent, which is perfect for analysis."

## GOING THE 'EXTRA MILE'

Along with high-resolution aerial imagery, Nearmap also provides location content derived from the image capture process. As a rare 'deep tech' company, it builds the camera systems and owns the image processing, delivery, and

everything in between, including the data - and that's where Mason saw the opportunity to take things further for the City of Ryde.

The Nearmap in-house AI team works with customers in government, insurance and utilities sectors, and was keen to collaborate with the LGA.

"I asked about the AI team using their expertise and the latest machine learning technology to help us calculate tree canopy cover from the existing imagery, and I was really impressed with the quality of the results and the time it took to provide the analysis," Mason says.

"It quantified what the tree management staff were saying and it has provided them with data upon which they can base their business decisions."

Nearmap fits easily into the LGAs own ecosystem of geospatial information systems (GIS) and most government customers choose to integrate for maximum efficiency.

"At Ryde we have over 170 layers of GIS data available to staff, including external services, land parcel boundaries and house numbers, as well as internal layers for planning, engineering and infrastructure. Now we can have tree canopy cover as an additional overlay," Mason says.

Including this tree canopy layer within the council's GIS allows staff to consider the green space during their daily work. Meanwhile, the ability to observe trends is valuable for supporting decision-making and communicating these to the community.

"Governments around the country are trying to green our cities by undertaking wide-scale tree planting programs, but how do you measure their effectiveness? It's all about having a baseline," Mason says. "You're more inclined to start or continue a project if you can easily measure its success."



Captured: 18/04/2020  
Ryde, NSW

# CITY OF RYDE

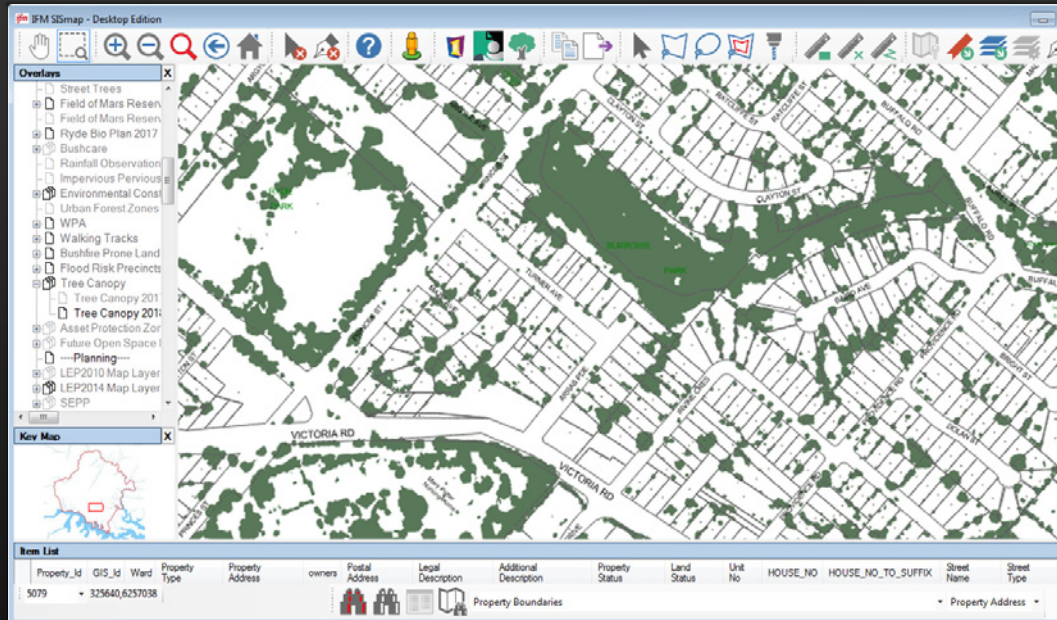


Captured: 18/04/2020  
Ryde, NSW

**40.65KM<sup>2</sup>**  
OF TOTAL AREA

**207**  
PARKS AND OPEN SPACE  
AREAS TO MANAGE

**30%**  
POPULATION GROWTH  
OVER NEXT 15 YEARS



## CHALLENGE: CREATE A BENCHMARK FOR THE TREE CANOPY ACROSS THE ENTIRE LOCAL GOVERNMENT AREA (LGA)

City of Ryde sought a quantifiable approach for managing its natural and urban environments. Developing a benchmark for the area's tree canopy from scratch would take years. High-resolution aerial imagery from Nearmap includes 10+ years of historical captures with consistency that's perfect for analysis and provides a tree canopy layer within the council's GIS.

# ABOUT NEARMAP

Founded in 2007, Nearmap is a leading aerial imagery and geospatial technology provider, delivering content at scale and covering large urban areas throughout Australia, the United States, New Zealand, and Canada.

Nearmap is one of the world's 10 Most Innovative Companies of 2020, according to Fast Company and recognised as an Australian technology pioneer, listed on the ASX and headquartered in Sydney. Among its 'deep tech' credentials, Nearmap combines patented plane-mounted camera systems, world-class survey operations capability, and an automated photogrammetry pipeline, to provide imagery within days of capture.

Superb high-resolution aerial imagery from Nearmap provides decision-supporting detail that is reliably up-to-date, and instantly accessible. Nearmap renders an 80 per cent higher resolution (7.5cm per pixel) than satellite mapping and matches urban terrain to scale, allowing accurate measurements of structures remotely, from the pitch of a roof to the height of a skyscraper. Regular surveys cover 90 per cent of Australia's population with major centres surveyed up to 6x per year to ensure relevant location intelligence.

Captured: 18/04/2020  
Meadowbank, NSW



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