

Future-Proofing Western Australia's Maritime Assets for Navigational Aids with Scenario Modelling

Client

Ventia, the maintenance contractor for the Western Australia Department of Transport (DoT) maritime assets (recreational)

Location

Western Australia

Vitals

- 35 Marine Facilities \$1B plus
- Over 1400 Navigation aids \$100M plus
- Ventia has held the Department of Transport WA contract since 1995

The Challenge & Opportunity

Aging maritime assets, limited capital funding, and lengthy investment approval processes posed significant risks to the Western Australia Department of Transport (DoT). With over 1,400 navigational aids and 35 marine facilities stretching across Australia's longest coastline, **DoT needed a data-backed approach to justify increased investment and prevent further asset deterioration.**

The current annual capital budget (a quarter of the annual maintenance budget) is inadequate to replace more than 150 navigation aids which are in poor condition (below 30% of their design life), with many assets having exceeded their design lifespan. A growing number of failures were being temporarily resolved by redirecting maintenance funds, an unsustainable workaround that risked undermining ongoing upkeep.

The Solution

Ventia partnered with Brightly to implement Predictor, a scenario modelling tool already familiar to DoT. **By integrating real-world asset condition data – collected and organised through Ventia's Asset Management Planning System (AMPS) – the model was used to simulate multiple “what-if” funding scenarios and long-term deterioration curves.**

This allowed DoT and Ventia to jointly develop a 10-year predictive funding strategy aligned with Treasury WA's business case expectations, enabling transparent communication around the consequences of delayed or insufficient funding.

The Journey So Far

Predictor was initially applied to DoT's navigational aids, including buoys, beacons, and piles with lights. Each asset was assessed and rated on a 1–5 condition scale, with corresponding degradation curves and maintenance logic programmed into the model. Ventia addressed modelling complexity by simplifying maintenance into primary high-cost activities while integrating client-assessed risk factors, such as environmental exposure and criticality.

Following refinements, **Ventia is now preparing to expand modelling to DoT's facility assets, including wharves, jetties, buildings, services, and accompanying inland infrastructure.** The goal is to present consolidated findings and scenario outputs to Treasury WA by 3rd quarter of 2025, with a formal business case submission to follow before the end of the year.

Modelling Outcomes and Scenario Comparison

Two funding scenarios were developed and refined to forecast asset conditions over a 10-year horizon. One approach front-loads capital investment to rapidly address the most deteriorated assets in the early years, while others spread funding more evenly over time. Together, these models represent a step-change from reactive maintenance to proactive, strategic planning, providing a clear, evidence-based foundation for long-term investment decisions.

Benefits to DoT and the Broader Community

- Strengthens DoT's case for increased capital investment using real data and forward-looking analytics
- Enables proactive risk mitigation, reducing the chance of asset failure and associated safety risks
- Supports the safe and efficient operation of WA's coastal and inland waterways, essential for recreational boating, commercial fishing, and maritime industries
- Enhances stakeholder confidence through interactive scenario reporting and evidence-based business case preparation
- Offers repeatable, scalable methodology for other asset owners facing similar challenges

Next Steps

- Present modelling outputs to Treasury WA by 3rd quarter 2025
- Finalise and submit the business case by end of 2025
- Refine modelling to account for CPI changes, reactive maintenance, and asset componentisation
- Continue improving data capture and accuracy (historical costs) for long-term forecasting
- Extend Predictor application to DoT's facilities maritime assets

“We’re excited to continue learning how Brightly Predictor can help us optimise DoT’s assets,” said Jimmy Seng, Asset Management Services Manager – Defence & Social Infrastructure (D&SI) at Ventia. **“The ability to visualise long-term outcomes based on data is an exciting prospect in helping us to secure funding and unite stakeholders around a common goal – safeguarding WA’s people on the water.”**

