

ISC Case Study



Maritime Safety Queensland: A new beacon of sustainability.

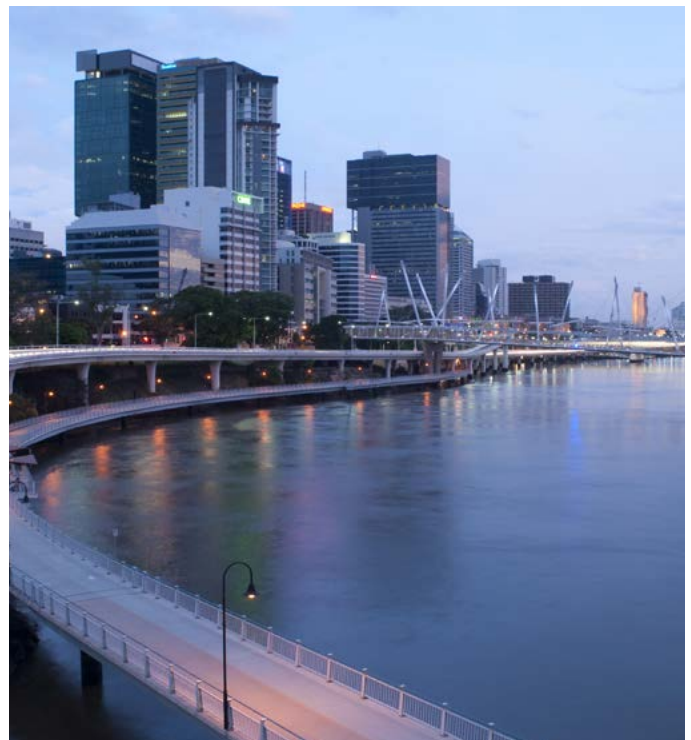
Since Pharos lit up the night for ships in ancient Alexandria, humans have marked our waterways to ensure safe and smooth passage. Beacons may have ancient origins, but ingenious thinking and innovative technology have combined to help Maritime Safety Queensland set new standards for sustainable marine infrastructure.

“When ships are off the coast, they are often out of sight out of mind. But maritime infrastructure plays an important role in our transport network. By working with IS Essentials, we challenged many of our business-as-usual decisions to deliver safer, more sustainable infrastructure.”



Amanda Scarpato

Director Maritime Program Management Office, Maritime Safety Queensland
Queensland Department of Transport and Main Roads.



Overview

Just as traffic lights and signs guide drivers on the roads, buoys and beacons do the same on water. But exposed to the elements, beacons have had a surprisingly short lifespan of just 40 years. With 30 beacons – 12 in Cairns’ port and another 18 in the port of Weipa – ready for replacement, Maritime Safety Queensland (MSQ) decided it was time to think differently.

Fast facts

- **Rating achieved:** Bronze rating (score of 28.3)
- **Project lead:** Maritime Safety Queensland, with a mission is to protect Queensland’s waterways and the people who use them, and to provide safer, cleaner seas
- **Firsts:** The program of works to replace 30 beacons is part of the IS Essentials pilot project and the Department of Transport and Main Roads’ first maritime project to register for an IS Essentials rating

About IS Essentials

IS Essentials streamlines the IS Rating Scheme for infrastructure programs and projects with a capital investment of less than AU\$100 million. Aligned with the UN Sustainable Development Goals, IS Essentials can help government agencies, private asset owners and investors to measure, improve and report on economic, environmental, cultural, and social impact. Pilot projects are currently underway, and each participating project contributes to IS Essentials’ development by providing feedback and informing the final version of the Technical Manual.

Key achievements

1. Collaboration drives innovation

The IS Essentials rating process inspired a new level of collaboration which sparked innovation, built capacity and drove cultural change, says MSQ’s Amanda Scarpato.

In Cairns, for instance, 12 beacons – each 180 metres apart – form a visual line either side of the port entry channel to mark its extremities. The C12 beacon, halfway down the channel, is used by smaller ferry and reef adventure vessels to exit and enter the channel due to their lesser draught compared to bigger ships. This beacon was often bumped by vessels and was on a lean. After talking to the Regional Harbour Master, the project team settled on a solution: installing an additional two retroreflective colour bands to increase the structures visibility and hopefully reduce the frequency of collisions. This reflective wrapping is now a standard design for beacons that have a particular secondary significance, such as C12 beacon in the Cairns channel.

In Weipa, a conversation with the Regional Harbour Master uncovered an opportunity to avoid the old beacons ending up as scrap. “In less than an hour, the Regional Harbour Master had contacted the local fishing club and identified an option for the piles to be transformed into artificial reefs near Weipa, to support the very popular local recreational fishing industry, which attracts boaties from all over Australia,” Amanda notes.

“We were determined to harness local knowledge and to build relationships with Traditional Owners to find better, more sustainable ways of delivering this essential infrastructure.”



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 Director Maritime Program Management Office, Maritime Safety Queensland Queensland Department of Transport and Main Roads.

2. Designed for safety AND sustainability

A beacon’s pile – the shaft fixed to the seabed – has a normal design life of 50 years. But the ‘furniture’ – the ladders, platforms and lights – must be replaced multiple times over the beacon’s lifespan.

Rather than opting for traditional galvanised steel ladders, which can corrode quickly in a marine environment, the project team selected stainless steel which “costs more upfront but lasts three times as long,” Amanda explains.

The lanterns that light the way are LED lights – which are far more reliable, brighter and draw less power than traditional filament lighting. In turn, these lights are more suitable to be powered by batteries charged by solar means, they are smaller and also safer to install than their traditional counterparts. With a vastly increased globe lifespan and a battery life of three years, rather than the single year of the previous versions, maintenance is dramatically reduced and the ascent up the steel ladders by MSQ staff must be made far less frequently -which has not only financial and operational benefits, but improves WH&S outcomes for staff.

Another benefit of smaller, lighter lanterns is that they can be held aloft on taller poles which lift the light and prevents the light being obscured by birds roosting on the platform handrail. This is particularly relevant in Weipa. This prevents unnecessary trips out to inspect a light that has falsely been reported as being out due to a bird blocking the light beam.

“The lanterns are Bluetooth-enabled, which means a team member can check the functionality and battery power from a boat and then move on to the next one. They don’t need to leave the boat which again improves safety outcomes,” Amanda explains. The satellite-equipped beacons being trialled off Weipa can also be monitored from MSQ’s office in Cairns.

“The IS Essentials process encourages everyone to put their ideas together – and the result improves BAU.”

3. More than a tender tickbox

Rather than a one-off “tick”, IS Essentials can enhance every program by influencing thinking at the front end of projects and by systematising practices. IS Essentials challenges teams to identify opportunities that drive more sustainable outcomes – and then provides a mechanism to demonstrate, during the operational phase, that a project lives up to its promise.

For MSQ, this meant specifying sustainability in the tender documentation for, construction.

“We realised we needed criteria to understand how contractors would commit to delivering sustainable infrastructure, so we included this in MSQ’s tender documentation for the first time. It was just a one-pager, but it sent a signal to the market – and to ourselves – that sustainability is now an important objective for our maritime infrastructure.”

Importantly, the sustainability requirements did not influence the cost, and the project has “come in under budget”. Amanda says the greatest advantage of working with IS Essentials has been the “shift in mindset” it has engendered.

IS Essentials helped to guide a “program management, rather than just project management approach”. This meant thinking about the big picture and “clustering” a program of works together “to deliver faster and better, cheaper and more sustainably”.

“Following strong stakeholder engagement, we can now take the IS Essentials principles and apply them to other infrastructure projects.”

“MSQ’s beacons project – verified by IS Essentials – demonstrates that we can make our waterways safer and cleaner, while saving money and delivering infrastructure that is environmentally and socially sustainable.”



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