



Brisbane Motorway Services tunnels into linear asset management



Overview

■ **The Challenge**

Brisbane Motorway Services required an asset management solution to enable real time management of the Clem Jones Tunnel (known as CLEM7) and associated road construction. Brisbane Motorways, on behalf of the client, also needed to optimise its asset investments through proactive lifecycle strategies by capturing accurate and comprehensive information about all assets within the tunnel and motorway.

■ **Solution**

Brisbane Motorway Services engaged IBM Business Partner Sharp Business Solutions to implement IBM® Maximo® Asset Management to help manage the operational status of the road, and to reduce maintenance costs

via the enablement of proactive and preventative maintenance. Using the recently-released Maximo Linear Asset Manager module, Sharp implemented a solution that facilitates tracking and management of continuous assets for Brisbane Motorway's tunnel and roads.

■ **Benefit**

Brisbane Motorway Services is now equipped to manage continuous assets using dynamic segmentation, simplifying the capture of information about the condition of the roadway for maintenance staff, and providing senior management with timely information to make strategic maintenance decisions. The flow of information between key stakeholders including field maintenance and operations,

administration and finance, and core engineering management teams has helped build a proactive maintenance strategy to extend and monitor asset life and to ensure optimal availability and reliability of the toll road.

Key Learnings

- Ensure business objectives are clearly identified at the start of the project.
- Understand the scope of business and cultural change the project is required to deliver and plan the project methodology accordingly, to ensure project objectives are successfully met.
- Clearly articulate the business rules to ensure they are correctly implemented within the software solution and be prepared to adapt as business needs evolve.

Brisbane Motorway Services

Brisbane Motorway Services (BMS) serves as a joint venture between Leighton Investment and Facility Management and Conneq Infrastructure Services (previously Bilfinger Berger Services), to operate and maintain the 6.8km tolled motorway known as the Clem Jones Tunnel (CLEM7).

BMS is engaged to operate, maintain and repair all civil, structural, mechanical, electrical and roadside tolling services for the CLEM7 according to strict project governance standards including ISO 9001, ISO 14001 and AS 4801.

Completed in March 2010, the A\$2.2 billion CLEM7 Tunnel was built under the Brisbane River, crossing between the suburbs of Woolloongabba and Bowen Hills in Brisbane, and is one of Queensland's largest infrastructure projects. The modern design includes an important smoke extraction ceiling that will rapidly draw out smoke in case of a fire or explosion — the first of its kind in Australia. Assets under management include over 100 jet fans, 14 km of dual carriageway, 28 km of wall panels, 165 emergency phones, 2,000 lights, 350 cameras and 38,000 tunnel lining segments.

The Business Problem

BMS required an asset management solution to enable timely and cost effective tunnel maintenance. A critical process in tunnel design is associating asset location to adjunct parts in order to successfully manage the infrastructure.



“Our business objective is to deliver accurate and timely preventative maintenance programs to ensure the tunnel is able to operate safely for the public, and at maximum efficiency for the client,” said Andrew Wheatley, Operations and Maintenance Manager CLEM7, and General Manager, Brisbane Motorway Services.

A key BMS requirement was to accurately manage the location and condition of individual assets, using this information to analyse segments of the road – rather than individual elements, enabling proactive maintenance and helping to prepare asset lifecycle maintenance strategies. For example, repeated problems with a group of connected tunnel lining segments can indicate an underlying condition that needs to be addressed plus the history of that location needs to be recorded over time. Similarly, proactive maintenance strategies for the extraction fans can extend the asset life.

Solution – IBM and Sharp Business Solutions

Managing roadways as a continuous asset requires dynamic segmentation, giving staff the ability to identify work requests by chainage, lane, direction, offset and height – along the 6.8km stretch of road and tunnel. Traditionally, this level of visibility has been almost impossible with the hierarchical asset view available in typical enterprise asset management applications.

In order to gain a comprehensive and real time view of its assets, BMS engaged IBM Business Partner* Sharp Business Solutions to implement an IBM Maximo Asset Management solution incorporating the recently-released Maximo Linear Asset Manager module.

With a directive to maximise return on assets while focusing on asset maintenance and service delivery, including continuous traffic movement through the toll road, the project has addressed several key areas including:

“The Maximo linear asset management functionality allows us to report accurately on any specific length of the tunnel, providing greater detail on our asset performance. This was also a great benefit during the defect management phase.”

Andrew Wheatley, Operations and Maintenance Manager – CLEM7 and General Manager, Brisbane Motorway Services

BRISBANE MOTORWAY SERVICES



A LEIGHTON CONTRACTORS BILFINGER BERGER JOINT VENTURE



- Development of coordinated maintenance programs using advanced scheduling to deploy staff with appropriate skills at the right time and for the right job
- Improving compliance with contractual obligations, service level agreements and corporate governance standards
- Spare parts accounting
- Enhancing reporting processes to evaluate operational status more accurately while reducing maintenance costs
- A reporting process which is transparent to the client and Brisbane City Council

“Sharp Business Solutions had a flexible approach to the implementation of the Maximo project, bringing together the business requirements with the capability of the Maximo product. Their Implementation Framework provided a strong roadmap for the project that enabled the project to be delivered on a tight timeframe with no slippage or cost overruns,” said Andrew Wheatley.

Business Benefits for Brisbane Motorway Services

Through the implementation of IBM Maximo Linear Asset Manager, BMS can now enter asset condition and labour information into Maximo, resulting in meaningful business reports to accurately manage roadway and tunnel assets from an

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asset perspective – and a financial perspective.

“Maximo linear asset management functionality allows us to report on the condition of any specific length of the tunnel, providing greater detail on our asset performance. This is a great benefit when planning for future maintenance,” said Andrew Wheatley.

Now BMS has the ability to review work history and better plan proactive maintenance – so work requiring road closure for safety reasons, including the regular inspection of the critical smoke extraction ducts or repairing a segment of road surface that has deteriorated, is planned in advance. Careful planning has minimised the need for excessive tunnel closures and has optimised the activity scheduled during closure times to include inspection, repair, regular maintenance and cleaning.

Maintenance staff are now able to capture and track more accurate asset information more effectively. This has enabled:

- Delivery of key information to senior management and stakeholders in a timely manner, as opposed to the 2-4 week delay in reporting previously experienced when staff had to manually update paperwork
- Improved compliance reporting processes made possible by a more reliable audit trail and asset information
- Accurate evaluation of operational status enables management to forecast asset and staff availability and facilitates better planning of staff and asset replacement schedules
- Proactive maintenance planning to increase asset uptime

"The solution will continue to drive benefits as more information is gathered about the various sections and locations of equipment within the tunnel. This information will enable better strategies for preventative maintenance on the assets, therefore lowering the overall operating and future cost of maintenance," said Andrew Wheatley.

Brisbane Motorway Services is planning to use the increased functionality offered by its Maximo solution to implement additional reporting features, and to create a mobile application that will enable onsite engineers to retrieve and enter data about any maintenance job immediately.

About Sharp Business Solutions

Sharp Business Solutions helps customers to obtain the best possible return on their investment in assets through the use of asset management systems and services. With experience in Maximo product suite gained over many years of implementations across various industry sectors, Sharp Business Solutions is an Advanced IBM Business Partner* and leader in IBM Maximo solutions.

www.sharpsolutions.com.au

About IBM

IBM Australia is a leading supplier of information technology, software and services in Australia, helping customers of all sizes to adapt and prosper in the online world. Maximo Linear Asset Manager can help organisations maintain assets more efficiently, extend asset life, reduce operating costs and more effectively monitor and manage their efforts to meet compliance requirements. Maximo Linear Asset Manager integrates seamlessly with other asset management and work management functions through IBM Maximo Asset Management. Maximo Linear Asset Manager and Maximo Asset Management comprise an adaptable asset management solution based on an industry-standard, service-oriented, Internet-ready architecture.

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