Improving Systems

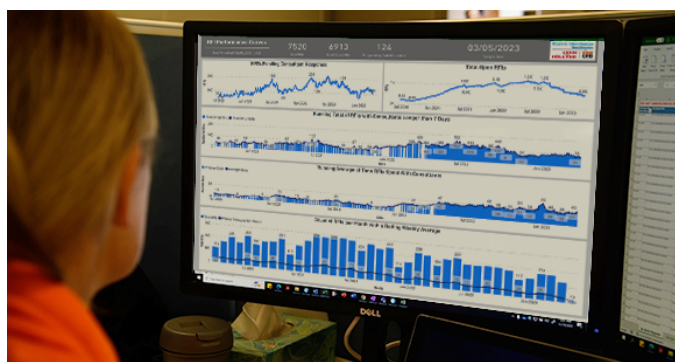# Systems Innovation: PowerBI Reporting

Determined to work smarter, not harder, the Rozelle Interchange Project has used PowerBI to revolutionise its reporting processes.

PowerBI draws data from the Project's existing databases including Project Pack Web (PPW), Hexagon, PCR, 3D Safety, Soteria, Sharepoint and others. It displays dynamic reports that offer more insights than static reports, while reducing time spent on report preparation and administration.

Over 200 PowerBI reports are regularly used on the Project.

The case studies below illustrate just some of the ways the Project has used PowerBI to drive efficiencies and create useful reports.
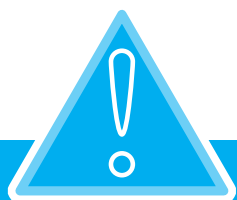
- M&E Smart Completions Report
- Handover Report
- Completions Report
- Work Lots Report
- COVID-19 Report

Benefits

The benefits of PowerBI reporting include:

- **Up to date data.** Rather than producing daily, weekly, monthly and quarterly reports, PowerBI reports use data connectors to draw and report on data in real-time. Data in the reports is always up to date, can be filtered for the appropriate time frames, and is more accurate as a result.

- **Time savings**. By automating data reporting, administrators save time.

- **Dynamic data**. By clicking on chart, table and map elements, users can drill down into the data, filtering to see performance of site teams, companies, individuals and more.

- **Data security**. Access can be granted and revoked based on user groups and individual profiles.

- **Data access.** Access to reports can be more readily shared than desktop-based reports, as they sit on a cloud-based platform. Report charts can be embedded into documents, websites and more.

- **Merging data.** Data from various systems can be merged, making it easy to report on information across different platforms.

- **Chart types.** PowerBI makes it easy to plot data on innovative chart types and maps.

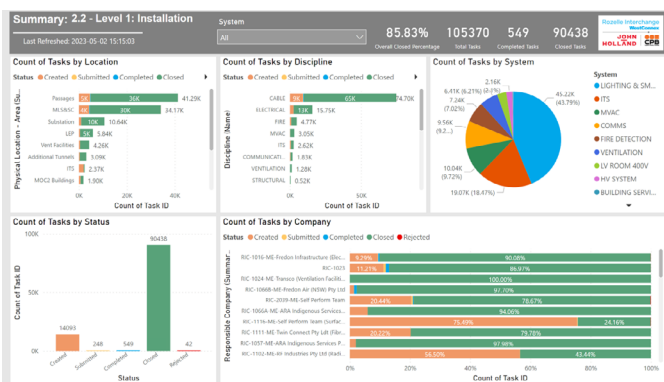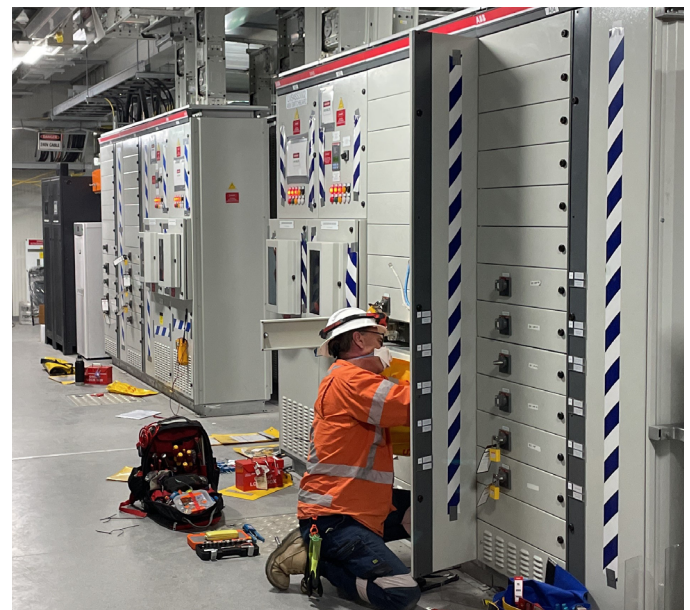# Case Study: M&E Smart Completions Report

Challenge

With over 105,000 individual tasks requiring completion under the Mechanical and Electrical (M&E) installation scope on the Rozelle Interchange Project, tracking and visually presenting task progress in a useful format required a bespoke solution in PowerBI.

Project Solution

The Smart Completions Report in PowerBI automatically extracts information from the M&E Team's task management system, Hexagon.

This end-to-end PowerBI report combines quality assurance, logistics and completions data from Hexagon, and displays M&E construction progress in an easy-to-read format.

The report displays the overall installation progress, and the data can be drilled down to show the status of each of the Project's individual 37,000+ cables and 45,000+ assets.

The PowerBI report bridges a gap in the Hexagon platform by displaying data in the format needed by engineers and management. Using the PowerBI report, the construction team can readily identify any construction areas requiring extra attention.

The M&E Smart Completions summary report provides an overview of task completion, broken down by location, discipline, status, company and system.

The asset list shows the status of each individual asset within the M&E installation scope - all 45,000!

Similarly, the cable list shows the installation status of each of the 37,000+ cables in the M&E scope.

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Case Study: Handover Report

Rozelle Interchange
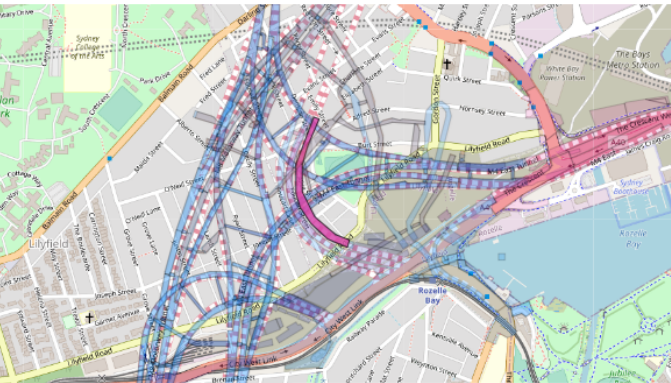**WestConnex**

JOHN HOLLAND | CPB CONTRACTORS

Challenge

Since 2019, the Rozelle Interchange Project site has evolved from a tunnel excavation and earthworks site to a multi-faceted civil infrastructure, M&E construction and live commissioning operation.

The Civil, Tunnel Excavation, Tunnel Fit-Out and M&E Teams have had interfaces across numerous interconnecting sites and systems. Responsibility for the 2km² surface area and 24km of underground tunnels has passed between the various teams multiple times over the Project's 5-year duration. Tracking and communicating the status of these handovers required a bespoke reporting solution to ensure all teams were on the same page.

Project Solution

Each handover interface between teams is accompanied by a Handover Checklist outlining the tasks that must be completed before that handover can occur (work lots closures, non-conformances, punch lists and defects). The PowerBI Handover Report contains a record of the Handover Checklists and their progress to completion, and displays them on an interactive ARCGIS mapping visual.
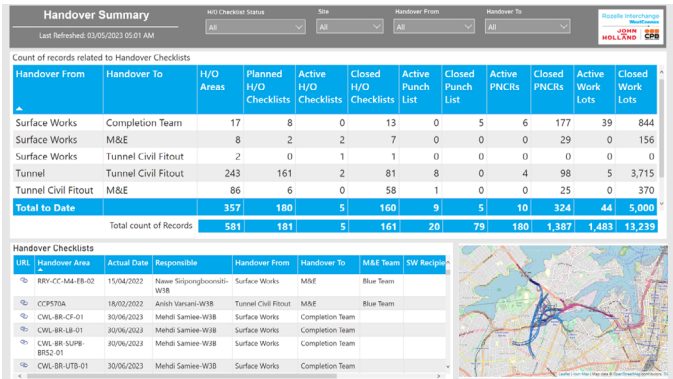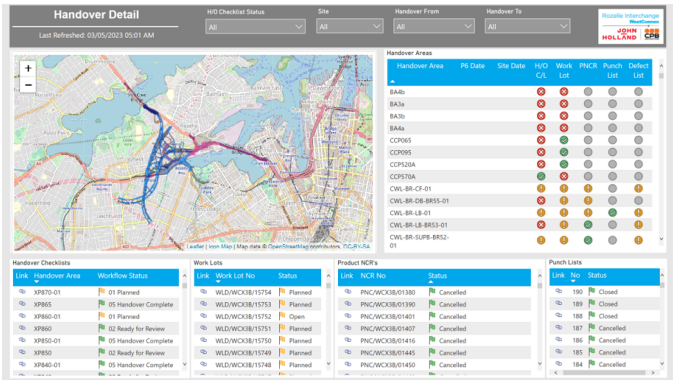

Individual sections of the site can be selected on PowerBI, and the report will dynamically display the relevant Handover Checklists associated with that area.

The solution simplifies communication between the teams, encourages transparency and accountability, and ensures that sites are handed over in a suitable condition for the next team to complete their scope.

Over the Project's 5-year duration, PowerBI reports have helped track responsibility for site areas as they have transitioned between Tunnelling, Surface and M&E Team responsibility.

Handover Summary

Handover From	Handover To	H/O Areas	Planned H/O Checklists	Active H/O Checklists	Closed H/O Checklists	Active Punch List	Closed Punch List	Active PNCRs	Closed PNCRs	Active Work Lots	Closed Work Lots
Surface Works	Completion Team	17	8	0	13	0	5	6	177	39	844
Surface Works	M&E	8	2	2	7	0	0	0	29	0	156
Surface Works	Tunnel Civil Fitout	2	0	1	1	0	0	0	0	0	0
Tunnel	Tunnel Civil Fitout	243	161	2	81	8	0	4	98	5	3,715
Tunnel Civil Fitout	M&E	86	6	0	58	1	0	0	25	0	370
Total to Date		357	180	5	160	9	5	10	324	44	5,000
Total count of Records		581	181	5	161	20	79	180	1,387	1,483	13,239

Handover Checklists

URL	Handover Area	Actual Date	Responsible	Handover From	Handover To	M&E Team	SW Recipient
	RRY-CC-M4-EB-02	15/04/2022	Nawe Siripongboonsiti-W3B	Surface Works	M&E	Blue Team	
	CCP570A	18/02/2022	Anish Varsani-W3B	Tunnel Civil Fitout	M&E	Blue Team	
	CWL-BR-CF-01	30/06/2023	Mehdi Samiee-W3B	Surface Works	Completion Team		
	CWL-BR-LB-01	30/06/2023	Mehdi Samiee-W3B	Surface Works	Completion Team		
	CWL-BR-SUPB-BR52-01	30/06/2023	Mehdi Samiee-W3B	Surface Works	Completion Team		
	CWL-BR-UTB-01	30/06/2023	Mehdi Samiee-W3B	Surface Works	Completion Team		

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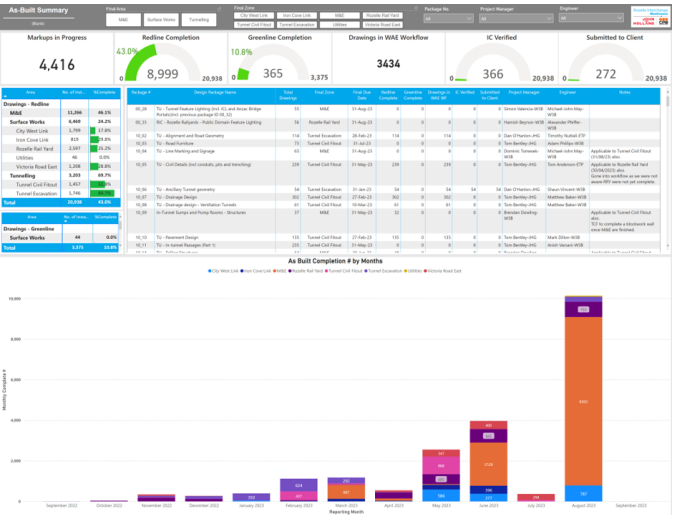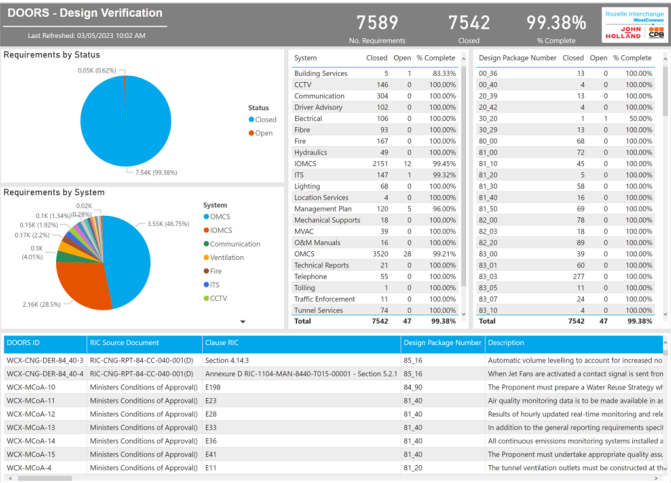
Case Study: Completions Report

Challenge

On the Rozelle Interchange Project, there are over 232,000 individual completion deliverables relating to JHCPB's contractual and regulatory obligations. They cover everything from design and quality assurance documentation to survey, operations manuals, property and environmental traceability documentation. Tracking these deliverables required a reporting system that could draw data from numerous databases and platforms.
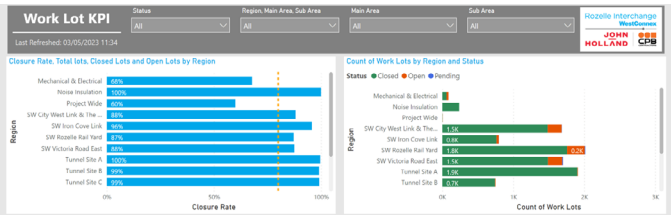
Project Solution

The Completions PowerBI report compiles information from numerous systems to track completions progress. The As-Built Summary page shows the progress of over 20,000 As-Built drawings as they achieve Independent Certifier verification and are submitted to the Client. Progress can be drilled down to show the accountable owner and site.

Similarly, the Requirements Traceability page shows progress against individual Deed and Minister's Conditions of Approval requirements.
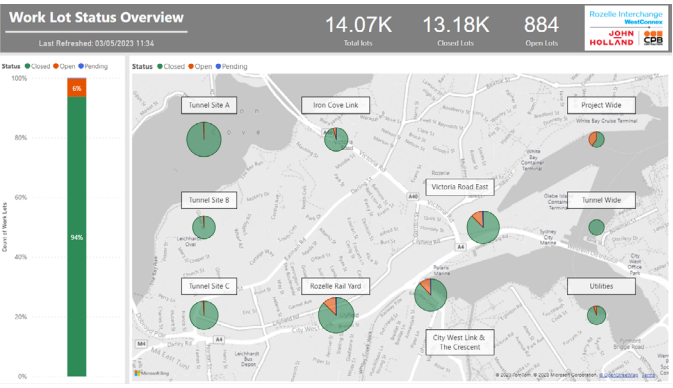

Case Study: Work Lots

Project Solution

The Work Lot PowerBI report draws on information stored in PPW. It displays open and closed work lots by engineer, site and design package. The status and comments associated with each work lot are displayed in an easy-to-use format. The Work Lot Report makes it easy to identify each employee's outstanding work lot requirements and holds them accountable to achieving their deliverables.
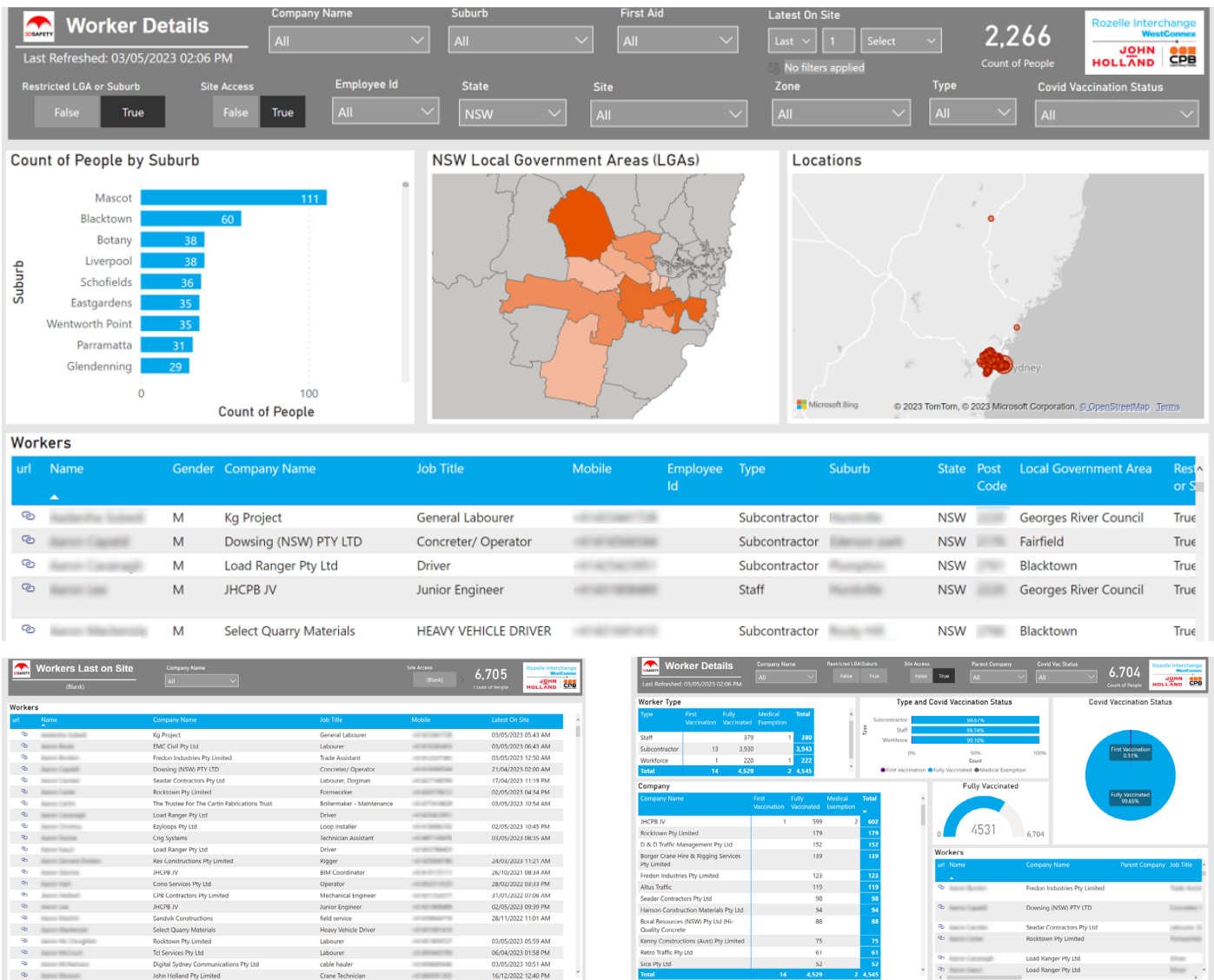
Challenge

Tracking progress of work lot statuses (open, pending and complete) across each site, team and design package.

Case Study: COVID-19 Report

Challenge

During the peak of the COVID-19 outbreak, site access requirements were changing rapidly as a result of Public Health Orders . On any given day, project personnel's legal right to attend work changed depending on their home address, vaccination status, potential exposure to COVID-19 and role type. Supervisors required a simple but constantly up-to-date dashboard to understand who in their teams could attend work, and when.

Project Solution

The COVID-19 PowerBI report compiled relevant project personnel information (LGA of concern, vaccination status etc.). The report drew on 3D Safety and Sharepoint List data, and merged the two. At the click of a button, management-level staff could see which of their employees were eligible to attend site on any given day. A list of mobile numbers in the report allowed the HR team to quickly send bulk (yet personalised) text messages to advise personnel of their work arrangements and whether they could attend site.

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