

# Jacobs Rail & Transit



## ABOUT JACOBS SOLUTIONS

Our 1,500 Rail and Transit professionals worldwide support over 230 clients with the right mix of engineering, regulatory, and business management expertise. At Jacobs, our Rail and Transport teams are linking communities and advancing economic and social flexibility with transit solutions that connect people, places, assets and pursuits.

We have a strong history in Australia's rail sector providing a full spectrum of services to clients. We continue to deliver value through cost-effective solutions and services ranging from transportation planning, design, engineering, and construction management to land

development, environmental permitting and support with innovative financing measures and public-private partnerships.



**Jacobs**

Challenging today.  
Reinventing tomorrow.

## JACOBS CLIENTS

Whether your journey includes keeping pace with capacity demand, accelerating technology innovations, ensuring safety and security, or maintaining existing transport networks, we are on board to serve all aspects of high-speed and conventional passenger rail, freight and logistics, mass / public transit, and innovative bus solutions.

**Transit Agencies** – We support agencies operating all bus and rail modes. Significant clients include Department of Transport and Planning, Rail Project Victoria, Suburban Rail Loop Authority, Transport for NSW, Queensland Rail, Public Transport Authority, Department for Infrastructure and Transport.

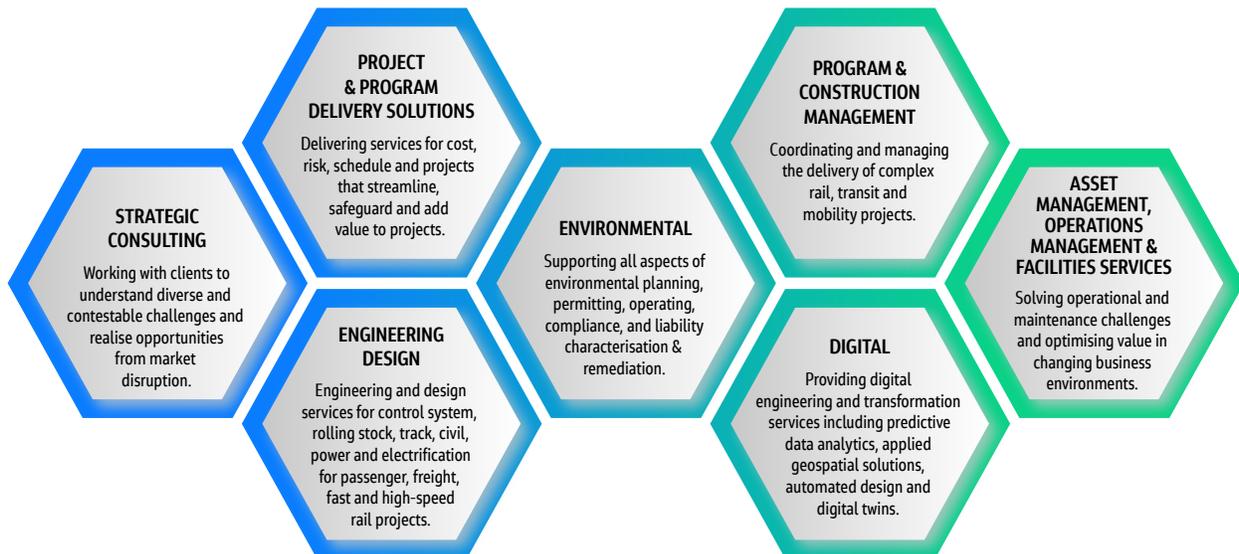
**High Speed and InterCity Rail** – We work closely with owners and operators of rail networks, including High Speed Two (HS2), ARTC, PTA (supporting Bunbury Fast Rail).

**Freight Rail** – Our ANZ portfolio includes ARTC, BHP, Rio Tinto, Aurizon, Roy Hill.



## JACOBS SERVICES

Our global network of expertise and knowledge is yours, so you can create, deliver and succeed with certainty – not just today but into tomorrow. We draw on our expertise across a wide range of disciplines to deliver innovative solutions for a more connected, sustainable world.



### PROGRAM AND CONSTRUCTION MANAGEMENT

As the top ranked Program Management / Construction Management firm<sup>(1)</sup>, Jacobs provides program and construction management services for complex transportation and transit programs worldwide. We draw on our integrated processes and databases, refined through delivering award winning projects. Our multidiscipline approach takes advantage of best practices developed across large, complex transportation programs.

**Note:** (1) by Engineering News-Record



## MAJOR PROGRAMS

At Jacobs, we work with our clients to deliver some of the largest and most complex infrastructure programs. Our work spans the full range of services from Staff Augmentation to full Delivery Partner approaches. We tailor our support to each client's requirements. Among the major programs we support in Australia and New Zealand are:

**Suburban Rail Loop | Melbourne** – Reshaping the way people move around the city, Suburban Rail Loop will circle Melbourne's middle suburbs, connecting all major rail services and integrating with other transport and active transport networks, to provide commuters and travelers a more convenient and seamless travel experience. We are providing a range of technical, engineering, planning, environmental and engagement services to the project as part of a joint venture.



**Cross River Rail | Brisbane** – Brisbane's rail network is at capacity. Cross River Rail will provide a vital second river crossing, easing capacity constraints, improving the travel experience for thousands of commuters on a daily basis, and positioning the city for future growth. Alongside our Alliance partners, we are helping the Cross River Rail Development Authority deliver this city shaping project, responsible for delivering the rail, integration and systems package for the project. The package includes designing and reconfiguring the rail network at either end of the new cross city tunnels, supplying and installing supporting rail systems, integrating Cross River Rail into Queensland Rail's existing network, and completing seven station upgrades.



## DESIGN SERVICES

Whether it is bus, high speed rail, light rail, metro, streetcar, or commuter and freight rail, Jacobs can meet any client's design needs. Among our specialized services, we offer design for signals, communication systems, mechanical and electrification systems; and ballasted, direct fixation, and embedded trackwork including special trackwork, down to the supporting structures including bridges and tunnels.

**Level Crossing Removal Project | Melbourne** – Improving city-wide connectivity and resilience, the Level Crossing Removal Project (LXRP) will remove 110 level crossings, duplicate track, and deliver new stations and rail stabling yards across Melbourne. As part of the South East Program Alliance, Jacobs are working with LXRP to deliver multiple projects, providing detailed design, environmental and sustainability consulting services. We are also providing specialist support for various disciplines including climate change assessment and resiliency, carbon accounting, materials and audit support.



**Sydney Light Rail | NSW** – Sydney Light Rail is a central part of Sydney's broader transport network, helping to ease congestion on its busy roads, boosting capacity and providing a more sustainable transport option for people travelling through the inner Sydney area each day. Alongside our joint venture partner, we provided detailed design services for track, civil and structural work for the entire Sydney CBD and South Eastern Light Rail project, helping Transport for New South Wales deliver a key initiative of Sydney's Long Term Transport Master Plan. The work, which was completed in 2019, included the design of approximately 12 km of new light rail double track, tunnel, bridge, stabling and maintenance facilities, road reconfigurations, drainage upgrades and utilities integration.





## CONSULTING AND ADVISORY SERVICES

We are a diverse, global team of technical experts, advisors and practitioners who work collaboratively across all market sectors and throughout the infrastructure lifecycle from strategy, financing and economic advice, business case and planning advice, through to capital and operational delivery improvements across our client's organizations. Our ability to provide real and robust, deliverable solutions and trusted advice leads to better, more certain outcomes and greater sustained value.

## ASSET MANAGEMENT

Jacobs provides expert condition assessment, forecasting, and decision support for major capital programs. Our capabilities include specifying, procuring, testing, commissioning, and supporting major Enterprise Asset Management systems.



### **ISO55001 AMS Assessment, Queensland Rail, Queensland**

Queensland Rail engaged Jacobs to provide an independent assessment of its Asset Management System against the requirements of the relevant International Standard ISO 55001. Queensland Rail was looking to improve the asset management of its operating assets. The independent assessment of the ISO55001 AMS for Queensland Rail demonstrates Jacobs' ability to investigate and determine recommendations to enhance an organisation's approach and effectiveness in their management system for managing assets.

**Public Transport Authority Perth** – Jacobs developed the Maintenance Standard for the Public Transport Authority Perth's Network and Infrastructure business. In drafting the Standard, Jacobs included all maintenance activities from day-to-day to reactive to major planned maintenance.



It was developed to align with the Public Transport Authority Perth's asset management system and major works engineering standard. Jacobs also developed the asset readiness procedure and supporting templates and forms for the Network and Infrastructure business.

**BHP Asset Management Plan** – Jacobs rewrote the Asset Management Plan for BHP's signalling system to optimise current practices. This was to understand the performance of the equipment under the current asset management practices and make recommendations to the asset management system (as appropriate) with an increased focus towards maintenance practices, both day-to-day and major planned works. Additionally, the Asset Management Plan was rewritten in consideration of BHP moving to a moving block signalling system (CBTC).

## PLANNING

Jacobs works with transit and rail clients from project inception through delivery. We have led Alternatives Analyses, Environmental Assessments, Public Outreach and Preliminary Engineering for Bus Rapid Transit, light rail, and passenger rail programs throughout Australia and New Zealand.

**Auckland Light Rail** – Jacobs was first commissioned by Auckland Transport to undertake the role of LRT Technical Advisor and develop a business case for LRT options, including a comparison with bus rapid transit alternatives. Work was extended to develop a Reference Design and carry out planning investigations of feasible LRT alignment options.



**Suburban Rail Loop** – Our SRL approvals team have developed the Cultural Heritage Management Plans and the first fully digital Environment Effects Statement in Victoria, representing a significant achievement in major infrastructure planning. The team worked together to develop risk assessments, produce approvals strategies, review technical assessments, and prepare key environmental and planning documentation. The exhibition of the digital Environment Effects Statement was supported by community information sessions, with materials about the Environment Effects Statement available at public libraries along the SRL East alignment.

## ADDITIONAL SERVICES

In addition to our core Program Management, Construction Management and Design Services, Jacobs is investing in new technologies and capabilities to help our clients take on their biggest challenges. Among the new capabilities that Jacobs can deliver to rail and transit clients are:



### StreetLight

Using our proprietary data processing engine RouteScience® to algorithmically transform trillions of spatial data points over time, StreetLight measures vehicular, transit, bicycling, and pedestrian travel patterns, making them available on-demand via the world's first SaaS platform for mobility, StreetLight InSight®.



### Artificial Intelligence

Jacobs has recently expanded our partnership with Palantir, focused on leveraging Palantir's AI capabilities to commercialize new AI solutions spanning critical infrastructure, advanced facilities, supply chain management and more.



### PA Consulting

Jacobs 65% stake in PA Consulting unlocks expert support grounded in a deep understanding of the systems and technology that shape the rail and transit sector. No other combination can offer the same mix of technology and consulting expertise.

## SUSTAINABILITY AND RESILIENCE

### Resilience

Jacobs delivers resilience through comprehensive infrastructure, technology, intelligence, and operational solutions that help governments, cities and private sector clients survive, recover, adapt, and thrive regardless of the chronic stresses and acute shocks they experience.

Jacobs is supporting our clients as they make investments to address long term resiliency, including flood modelling services, flood mitigation designs and carbon reduction / green energy related projects.

#### **Climate Change Network Vulnerability and Risk Assessment for the Government of Western Australia Public Transport Authority**

The Public Transport Authority engaged Jacobs to undertake a Climate Change Network Vulnerability and Risk Assessment. Jacobs adopted a staged approach to considering climate change and natural hazards related risks for the Public Transport Authority rail network / METRONET transport infrastructure projects; developing a Climate Change Resilience Framework, undertaking spatial vulnerability mapping and performing a climate change risk assessment for five vulnerable hot spots across the network. The Climate Change Network Vulnerability and Risk Assessment was provided to METRONET project managers and precinct planners to support project decision making and feedback into design development.

### Zero Emissions Vehicles

Reducing global transportation sector emissions is a top priority, and the greening of public and private vehicles is one way for entire populations to take steps towards reducing their carbon footprint and environmental impacts. Vehicle owners worldwide are under pressure to decarbonise their operations, and shifting to zero-emissions vehicles is a key element of this effort.

We have been helping our ANZ clients through this transition over the last 3 years.





**Aurizon Rail Decarbonisation Program** – Jacobs have been supporting Aurizon in their journey as the Australian leader in freight rail fleet decarbonisation. The work conducted has included rolling stock specification authoring, procurement support, rail standards zero emission technology gap analysis, charging infrastructure specification and technical advice, depot planning for charging infrastructure, grid connection and electrical system depot layout and design. Projects have included a Diesel Electric Locomotive conversion to Battery Electric Locomotive, a Battery Electric Tender, a new Standard Gauge Battery Electric Locomotive, all of which are Australian first products.

**Roy Hill Battery Electric Locomotive 100% Design Review**  
 Jacobs were engaged to provide technical and engineering advice for the 85% and 100% design submissions from Wabtec for their (Australian first) heavy haul battery locomotive. The role included reviewing all aspects of design for compliance, standards, operations, maintenance and providing general guidance to Roy Hill in support of this delivery milestone.

**Wellington Mass Rapid Transit Detailed Business Case**

As part of a joint venture, Jacobs is providing design and feasibility for a proposed Mass Rapid Transit system in the New Zealand capital city of Wellington. Prior to the Jacobs rolling stock team’s engagement, consideration of onboard energy storages systems for the Light Rail Vehicles (and charging infrastructure) was not in sufficient detail. Our team took the proposed topography, operations, and a reference vehicle, and conducted journey simulations to determine the optimal location and length of charging infrastructure on the project. This simulation work fed into the project’s Power Study, forming the electrical distribution network design and assets. Jacobs also conducted research into future zero emission technology to understand if benefits existed with product development in 5-10 years’ time.



**WANT TO KNOW MORE?**



Please visit the link in the QR code to learn more about our capabilities or contact [railandtransitinfo@jacobs.com](mailto:railandtransitinfo@jacobs.com)



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