ABOUT THE PROJECT

The $1.86 billion Forrestfield-Airport Link is jointly funded by the Australian and Western Australian governments and will deliver a new rail service to the eastern suburbs of Perth – with three new stations at Redcliffe, Airport Central and Forrestfield.

The rail link forms part of the METRONET vision to create liveable communities connected by world class public transport. The line will spur off the existing Midland Line near Bayswater Station and run to Forrestfield through twin-bored tunnels.

In April 2016 the Public Transport Authority awarded the design, construct and maintenance contract to Salini Impregilo – NRW Joint Venture.

Sustainability

Fact Sheet | November 2018

An efficient public transport system is an essential part of a sustainable city. The Forrestfield-Airport Link will reduce road congestion whilst improving the liveability, connectivity and amenity of residential areas in Perth’s eastern suburbs.

Providing public rail infrastructure alone will not make the project sustainable. Sustainability is a holistic concept that informs thinking and decision making. It is an integrated approach – part of the whole project life – that meets the needs of the present without compromising the needs of future generations.

Our Sustainability Vision

The Forrestfield-Airport Link will be an innovative and sustainable project. It will provide a solution for enhancing the connectivity, liveability and prosperity of Perth and its eastern suburbs including the airport. It is a journey to deliver a landmark transport project.

‘Excellent’ sustainability rating for project

The Forrestfield-Airport Link is the first rail project in Western Australia to achieve an Infrastructure Sustainability (IS) rating. The IS rating scheme provides a framework for the implementation of sustainability initiatives and evaluation of environmental, social and economic impacts of infrastructure projects and assets.

The project was awarded an Excellent Design rating at the Infrastructure Sustainability Council of Australia WA state conference in July 2018. The rating recognises the project’s commitment to, and delivery of, an innovative and sustainable transport solution for Western Australians.

An As Built rating, which is a measure of the sustainability performance of the project once construction has been completed, is also being sought. The As Built rating will verify that the commitments made as part of the design are implemented and that the project meets its expected sustainability performance.

More information

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The project’s Sustainability Strategy, prepared by the Public Transport Authority to guide the direction of sustainability during planning, design, construction and ultimately in operation, identified more than 130 initiatives. Many of these are being implemented on the project.

Sustainability strategy

Tunnelling

Tunnelling projects reduce the potential for impacts to areas which have environmental and social value, by avoiding sensitive areas and minimising disruption to communities.

For the Forrestfield-Airport Link, this has also meant being able to avoid disruption to the operation of Perth Airport, a key tourist and freight gateway into Western Australia.

Minimising water consumption

Perth has a drying climate and as a result, water is a scarce resource. The expected amount of water to be used during construction has been reduced by 29 per cent through the recycling of water used by the tunnel boring machines (TBMs) and other plant.

The project’s water usage doesn’t stop when construction is finished and, as such, the design of the project has included the implementation of smart monitoring to detect water leaks and reduce the water consumption by an estimated 11 per cent.

The whole of life water reduction of 910 million litres equates to enough water to fill 364 Olympic size swimming pools.

Minimising energy use

Perth is one of the sunniest capital cities in the world, providing a great opportunity for the use of solar energy to reduce our demand on fossil fuels. A 274 kW solar energy system will be installed at Forrestfield Station as part of the project, producing approximately the same amount of electricity as used by 56 households. Forrestfield Station will also feature glass panels on the roof to allow natural light to enter the station, reducing the amount of electricity needed for lighting during the day.

Sourcing of materials

Projects like Forrestfield-Airport Link are major consumers of resources, with large volumes of sand, concrete and steel used during construction. Working with the supply chain, the project has developed a tailored cement which uses recycled materials from other industries to reduce the volume of Portland cement required by up to 65 per cent.

A number of initiatives to beneficially reuse excess fill from the project are being investigated. By adopting whole-of-project thinking, soil excavated during the construction of the Bayswater dive structure, which is where the trains enter and exit the tunnels at Bayswater Junction, has been reused as backfill for the retaining wall adjacent to Forrestfield Station.

Heritage

Sustainability isn’t just about the environment; it’s also about considering the project’s social setting.

The project recognises the Whadjuk Noongar people as the traditional custodians of the land it is working on and acknowledges their elders past and present. There has been a strong focus on interpreting and enhancing the cultural heritage of the Whadjuk people in the final design, including the incorporation of story leaves as part of Redcliffe Station and Aboriginal artworks at Airport Central Station.

Innovation for the future

Numerous innovations have already been implemented, including both Australian first and state first technologies, processes and market transformations.

Tunnel boring is not new to Australia or to WA, with TBMs used in the construction of projects, such as the Joondalup to Mandurah train line. However, the Forrestfield-Airport Link has been the first project in Australia to use variable density TBMs, which are able to switch between modes of operation depending on the ground conditions they are tunnelling through.

Works also include construction of cross passages, which will be used in the event of an emergency in one of the tunnels and for maintenance works. Some of these cross passages are built using ground freezing rather than concrete grout injection to prevent the soil between the tunnels from collapsing during construction. By using this approach, a first for WA, the passages are able to be built from within the tunnels without any disturbance at the surface.

The project will continue to drive economic, social and environmental innovation during the design and construction phases and encourage the same from supply chains and service providers.

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