

Sustainability

Sustainable infrastructure is infrastructure that is designed, constructed and operated to optimise environmental and climate resilience and social and economic outcomes over the entirety of its life cycle.

Sustainability commitment

A project-specific sustainability commitment and associated sustainability requirements have been developed for the T2D Project that respond to the impact and opportunity areas identified during the project’s planning phase. This will inform contract and procurement documentation by:

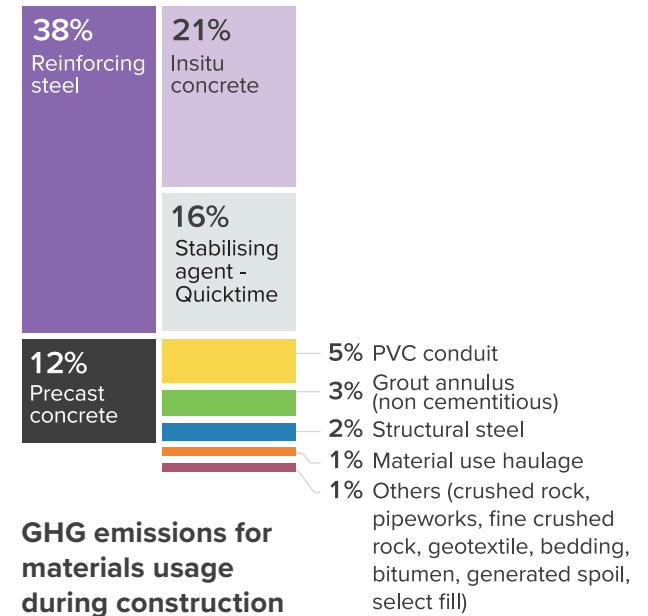
- fostering future-ready and resilient infrastructure and communities
- protecting and enhancing the local environment and communities
- integrating and embedding sustainability through developing measurable targets and consideration in project decision making and the supply chain.

Potential impacts to existing environment

There are many factors that contribute to positive and negative sustainability impacts and opportunities for this project, including its complexity and scale, the extended construction time period, the long-term operational activity and the demand on resources.

It is anticipated the project will create long-term opportunities for the community, environment and the economy, however it may also have some adverse sustainability impacts. Initial sustainability assessments have been completed based on the project design, seeking to identify sustainability impacts and opportunities anticipated to be most significant for the project including:

- whole-of-life greenhouse gas emissions and reduction opportunities
- circular economy
- climate change resilience
- greening and Water Sensitive Urban Design (v)
- reducing potable water use
- social
- urban renewal.



GHG emissions for materials usage during construction

Alternatives, mitigation and opportunities

Early design intervention is essential in ensuring sustainability success for the project and to mitigate construction and operation impacts. To support this, initiatives that address the key sustainability impact and opportunity areas, which depend on early intervention (i.e. implementation in the project design), have already been identified as follows:

Key impact area	Design element	Sustainability opportunities
Greenhouse gas emissions	Tunnel ventilation system and lighting	Design for tunnel ventilation system to prioritise energy efficiency. Optimise lighting design for energy efficiency.
	Tunnel design	Optimise horizontal and vertical alignment to minimise distance travelled and optimise tunnel cross-section (length and shape) to minimise construction requirements (energy and materials).
	Construction materials usage	Reduce Portland cement content in concrete, steel quantities and whole-of-life embodied emissions in pavement uses.
	Construction/haulage vehicles	Use of low emission vehicles in place of diesel-fuelled vehicles.
Circular economy	Project-wide materials	Maximise diversion of waste from landfill and use of recycled materials.
Efficient water use	Tunnel boring machines (TBM)	Minimise potable water use, including substitution of potable water.
	Landscape irrigation	Efficient use of water, including substitution of potable water.
Climate change resilience	Whole-of-project assets	Incorporate climate change and natural hazard adaptation measures.
Green infrastructure	Greening and water sensitive urban design	Increase green canopy cover by 20% and improve WSUD outcomes.
Social	Social infrastructure and community facilities, local businesses	Providing local employment opportunities, and minimising community disruptions and impacts.
Urban Renewal	Urban design and city shaping	Including improved connectivity, land use uplift and enhanced public amenity.

Mitigation of construction phase impacts will require a combination of early design intervention, design optimisation, identification of alternative resources (including non-potable water sources, use and generation of renewable energy, and materials with reduced embodied greenhouse gas emissions) and early engagement with suppliers and key stakeholders.

Mitigation of operational phase sustainability impacts will require a similar combination of mitigation measures as those required for construction, however with particular focus to whole-of-life impacts to be managed through maintenance activities, and any handover of assets which will take place.

Approvals, permits and authorisations

Depending on the final sustainability initiatives adopted for implementation as part of the project, approvals, permits or authorisations may be required. For example, if the use of recycled water during construction is implemented, relevant approvals from local councils, SA Water and SA Health may be required.



Greening opportunities, T2D Anzac Highway

Scan the QR code to view the suite of assessments included in the PAR or visit T2D.sa.gov.au/PAR.

