



Smart Freeways Mitchell Southbound Reid to Vincent: Project Annual Sustainability Report 2021/2022

Prepared by the Intelligent Freeways Alliance

Main Roads

The document review process for the Public Annual Sustainability Reports should be undertaken in accordance with the [Annual Sustainability Report Review Process on page 3 of this document](#).

Approval for Publication

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Disclaimer

All information was true and accurate at date of publication. Data is subject to change pending audits, verifications, and reviews.

Abbreviations and Acronyms Table

Abbreviation	Full Form
ASS	Acid Sulfate Soils
CRC	Crushed Recycled Concrete
DAWE	Department of Agriculture, Water and Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DPLH	Department of Planning, Land and Heritage
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority of Western Australia
FTE	Fulltime Equivalents
FOGO	Food Organics and Garden Organics
GHG	Green House Gas
GJ	Gigajoule: unit of energy which is equivalent to 1 billion Joules
ha	Hectare(s)
HWA	Hester Avenue to Warwick Road Alliance
IAP2	International Association for Public Participation
IFA	Intelligent Freeways Alliance
IS	Infrastructure Sustainability
ISC	Infrastructure Sustainability Council
ITS	Intelligent Transport Systems
kg	Kilogram(s)
kL	Kilolitre(s)
km	Kilometre(s)
KPI	Key Performance Indicator
KRA	Key Result Area
LGA	Local government Area
LTIFR	Lost Time Injury Frequency Rate
LUMS	Lane-use Management System
m	Metre(s)
Main Roads	Main Roads Western Australia
NOP	Non-Owner Participant
PEIA	Preliminary Environmental Impact Assessment
PSP	Principle Shared Path
RAP	Reclaimed Asphalt Pavement
RMDL	Ramp Metered Dynamic Lane
SCM	Supplementary Cementitious Materials
SDG	Sustainable Development Goals
SMP	Sustainability Management Plan
SFMS	Smart Freeway Mitchell Southbound Hester Avenue to Vincent Street
tCO _{2e}	Tonnes of carbon dioxide equivalent
UN	United Nations
VMS	Variable Message Sign

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1 About this Report

1.1 Purpose

This report has been prepared for the Intelligent Freeways Alliance Project (herein 'the Project'). This report was compiled by the Intelligent Freeways Alliance (IFA) team on behalf of Main Roads Western Australia (herein 'Main Roads'). This report will accompany the Main Roads Annual Sustainability Report and will ultimately be integrated into the Main Roads Annual Report. The report content is prepared in accordance with Global Reporting Initiatives principals. This report summarises the sustainability initiatives and potential environmental, social, and economic impacts of the Project. Material topics described in this report have been determined through a materiality process that adheres to the technical requirements of the Infrastructure Sustainability Council (ISC).

This report provides the necessary information required in the Infrastructure Sustainability (IS) Essentials Pilot rating being pursued by the Project.

1.2 Sustainability Statement

The Alliance commits to and recognises the importance of Main Roads' "Keeping Australia Moving" Strategic Direction and Sustainability Policy and will strive to deliver a project that achieves new benchmarks of sustainability in the infrastructure sector.

"We are committed to delivering a Project that achieves net-positive social, economic, and environmental outcomes. As an Alliance we strive to deliver sustainable outcomes in the infrastructure sector by:

~Using our purchasing power to encourage industry awareness and application of sustainable principles

~Promoting greater resource use of efficiency, including in relation to energy, materials, and waste during construction and operational phases

~Ensuring a well-considered and strategic approach to stakeholder engagement informed by local context, permitting stakeholder input on negotiable issues, and

~Ensuring our solutions contribute over the long-term to greater local and regional resilience, including in relation to natural hazards and climate change."

– Kurt Fallon, Alliance Project Director

1.3 Highlights

The following Highlights (Figure 1) present the Project’s six key impact areas with their alignment to the United Nations’ (UN) Sustainable Development Goals (SDGs), which attend to the Project’s most material areas (see Section 3.2). While the Project is in early stages of design, a number of highlights have been included with referenced sections within the report for further information.

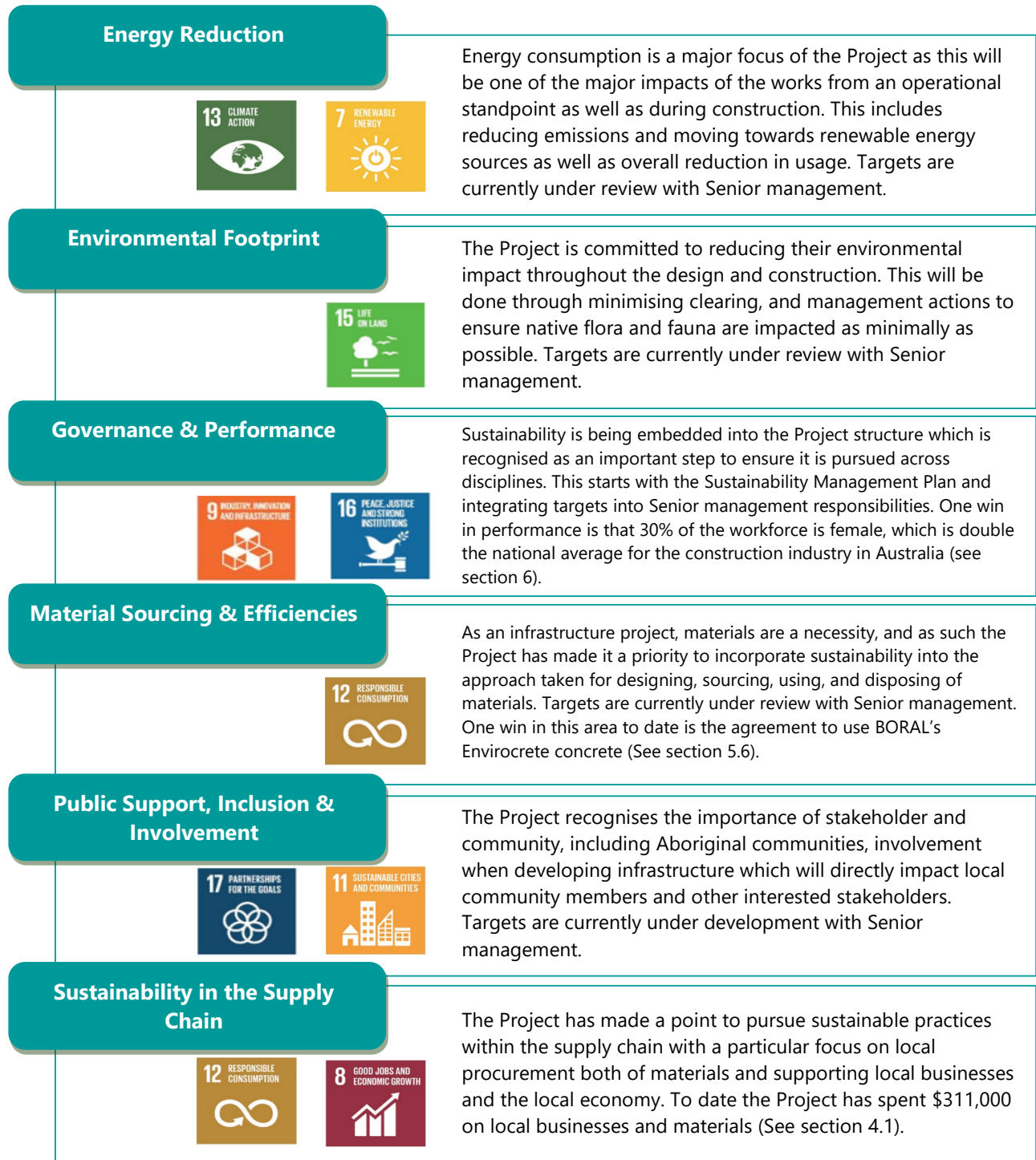


Figure 1 Project Key Impact Areas and Highlights

2 Project Overview

The Mitchell Freeway southbound lanes between Hester Avenue and Vincent Street currently experience congestion in the morning peak. Main Roads' data estimates that during the morning peak period, up to 45,000 road users use this section of the freeway.

To address this, a 'Smart Freeway' system is being implemented along the freeway, with entry ramps to be modified with co-ordinated signals. Smart technologies are being installed, including electronic overhead signs which display speed reductions and lane closures. This is being rolled out as two separate projects, one from Hester Avenue to Warwick Road (HWA) which is already under construction, and the other is this Project which extends from Reid Highway to Vincent Street. The Reid to Vincent portion was awarded to IFA in December 2021 and is now in the Design and Procurement phases.

The Smart Freeway Mitchell Southbound (SFMS) Reid Highway to Vincent Street Project will upgrade the southbound section from Reid Highway to Vincent Street. This will alleviate heavy congestion during peak periods, reduce pressure on the local road network, reduce travel times for up to 180,000 motorists per day using the Mitchell Freeway southbound, and improve safety and connectivity for people living and working in Perth's northern suburbs.

The Project is also seen as an important infrastructure addition, supporting Perth's projected population and economic growth through improving the projected capacity of the Freeway.

The Main Roads Project website link is found [here](#) and includes information for both Projects along the Smart Freeway Mitchell Southbound alignment. The Project specific website is currently being created and will be linked in subsequent reports.

The Project has adopted a set of four values which set the expectation for how the Project works together to create a positive culture. These are:

1. Trust – Promoting collaboration, innovation, and maximising performance
2. Inspire – Solutions focused, accept the challenge, share the risk
3. Clarity – Effective management of interfaces across all stakeholders
4. Kaya – Bringing awareness about Aboriginal Culture

Kaya is the Noongar word for hello, more information surrounding noongar language can be found [here](#).

2.1 Locality and Scope

The Project is a 36km stretch along the length of the Mitchell Freeway Southbound located within the boundaries of the City of Stirling, the City of Vincent and the Town of Cambridge. Please see Figure 2 below for a detailed map of the Project location. The Project is part of a larger upgrade, and is indicated by the purple line running between Reid Highway and Vincent Street.



Figure 2 Project Location and Scope

The works include all investigation, design, construction, testing and commissioning required for the widening of ramps and associated services and modifications (including integration of the Hester Avenue to Warwick Road (HWA) and Stephenson Avenue sections where they join Mitchell Freeway).

The works include:

- 15% design of Powis Street on ramp
- Entry ramps to accommodate ramp metering
- Establishment of 20 gantries ranging from 14 – 22 metre (m) spans across the entire project between Reid Highway and Vincent Street
- Installation of Lane-use Management System (LUMS) and associated fibre optic cabling from Reid Highway to Hutton Street
- Installation of Bluetooth and CCTV at specific locations
- Installation of Dynamic Message Signs
- Installation of Vehicle Detection System
- Installation of Variable Speed Limit Signs
- Installation of weather stations
- Installation of emergency and roadside assistance phones
- Installation of Automatic Incident Detection systems. The associated civil works include:
- Ramp widening and resurfacing inclusive of revised pavement, lighting and drainage^ requirements
- Relocation and modification of services
- Modification of existing Principal Shared Paths (PSP)
- Installation of verge side concrete barriers
- Installation of approximately 700 m of retaining walls at an average height of 2.2 m
- Establishment of access pathways and tracks
- Installation of fencing and retaining walls
- Installation of emergency stopping bays
- Signing and pavement marking modification
- Revegetation and landscaping of all disturbed areas as a consequence of the project works.
- Testing and commissioning of all smart systems and associated equipment.

2.2 Value and Funding

The SFMS Project is part of the 'Transforming Freeways' strategic program. This Project is jointly funded by the Western Australian (\$32.5m) and Federal (\$32.5m) governments to support population and economic growth by improving the capacity of Perth's freeway network (Main Roads Western Australia, 2022). Whereas widening is relatively costly and requires additional corridor space, smart freeway infrastructure provides increased capacity without the significant cost of widening – effectively 'sweating the asset'.

2.3 Delivery Agents/Partners/Contractors

The IFA is comprised of Main Roads, who are the Owner Participants, along with NRW, Service Stream and WSP. Each Non-Owner Participant (NOP) is committed to sustainable development within their individual operations (Table 1).

Table 1 Overview of NOP's Approach to Sustainability

Company	Approach to Sustainability
NRW	NRW is a long-established WA business committed to sustainable business development and project delivery. While first established as a mining company, NRW has experience delivering core infrastructure projects across WA, working with the state government and ISC to achieve sustainable outcomes on Bunbury Outer Ring Road and the Forrestfield Airport Link.
Service Stream	Service Stream is committed to adopting sustainable business practices which support and improve business operations, enhance the wellbeing of its employees and reduces its impact on the environment. Service Stream is currently supporting clients in their delivery of sustainability ratings through ISC in addition to championing sustainability initiatives as part of continual business improvement.
WSP	WSP provides a multi-sector sustainability team of more than 50 people operating across Australia and New Zealand. They support clients' projects, assessing, improving and reporting sustainable performance across the built environment, including sustainable infrastructure. WSP has experience in assisting in the delivery of ISC-accredited infrastructure projects across Australia by providing expert technical and advisory services.

2.4 Project Timeline

Timeframes for key sustainability milestones are summarised in Table 2. These are estimates and may be subject to change as the Project progresses.

Table 2 Key sustainability Milestones

Milestone	Timing
Contract Award	15 December 2021
ISC Kick-Off and Materiality Assessment	19 April 2022
Sustainability Management Plan Finalisation	22 June 2022
Design Phase	Late 2021 to Mid-2022
First Annual Report Submission	July 2022
First Bi-annual Presentation	25 August 2022
Procurement Phase	Early 2022 to Late 2022
Construction Phase	Late 2022 to Mid-2023
ISC Design Submission	Late 2022
Second Bi-annual Presentation	February 2023
Second Annual Report Submission	July 2023
Third Bi-annual Presentation	August 2023
ISC As Built Submission	Late 2023

Fourth Bi-annual Presentation	February 2024
Practical Completion	Early 2024
Final Annual Report Submission	July 2024

3 Governance

3.1 Approach to Sustainability

The Project operates in accordance with the sustainability policy and expectations established with agreement by the Project Board. In addition, the Project has committed to outstanding sustainability performance by developing and adhering to a sustainability management structure. The Project also strives for continual improvement in sustainability performance, driven by the UN SDGs. The Sustainability Policy has been provided in Appendix 1.

The Project has created a Sustainability Management Plan (SMP) to guide and manage the Project's sustainability outcomes. A sustainability coordinator has been engaged and the responsibility for the Project's sustainability related targets have been divided between the senior management team with core responsibility resting with the Health, Safety, Environment and Sustainability (HSES) Manager.

The Project has also developed a weekly reporting system using a dashboard which is updated once a week to track progress on the Project and against the Key Result Areas (KRAs) the Alliance has agreed upon, which includes sustainability KRAs.

The Project is undertaking a pilot of ISC's IS Essentials rating. The intent of the pilot is to help develop the tool through trialling the process and providing feedback to ISC. 'Champions' have been elected for various credits being undertaken in the IS rating and these individuals have also been given responsibility for the aligned commitments within the Project's contract. A target pathway has been developed to guide the Project team.

Regular meetings are undertaken between the sustainability coordinator and the champions to monitor and guide progress of ISC credit completion and contract commitments. Weekly meetings also occur with the sustainability coordinator and the HSES manager to discuss next steps, identify challenges, and provide updates on progress. Sustainability matters are brought up in Board meetings by the HSES manager as appropriate.

To date there have been several sustainability wins including integration of sustainability metrics into the tender process, the acquisition of an electric forklift for warehouse works and three hybrid company vehicles, and the development of an Aboriginal trainee program for electrical work. The Project is also in the process of getting Green Power through Synergy for several building spaces.

3.2 Material Sustainability Issues

For the IS Essentials pilot, a Materiality Assessment was undertaken which identified the significant (material) categories and credits. This materiality assessment was undertaken in a multidisciplinary workshop which involved the key internal stakeholders. A visual representation of each category in the IS rating is included below in Figure 3, mapping the materiality of each topic against the influence

on the Project’s assessments and decision making.

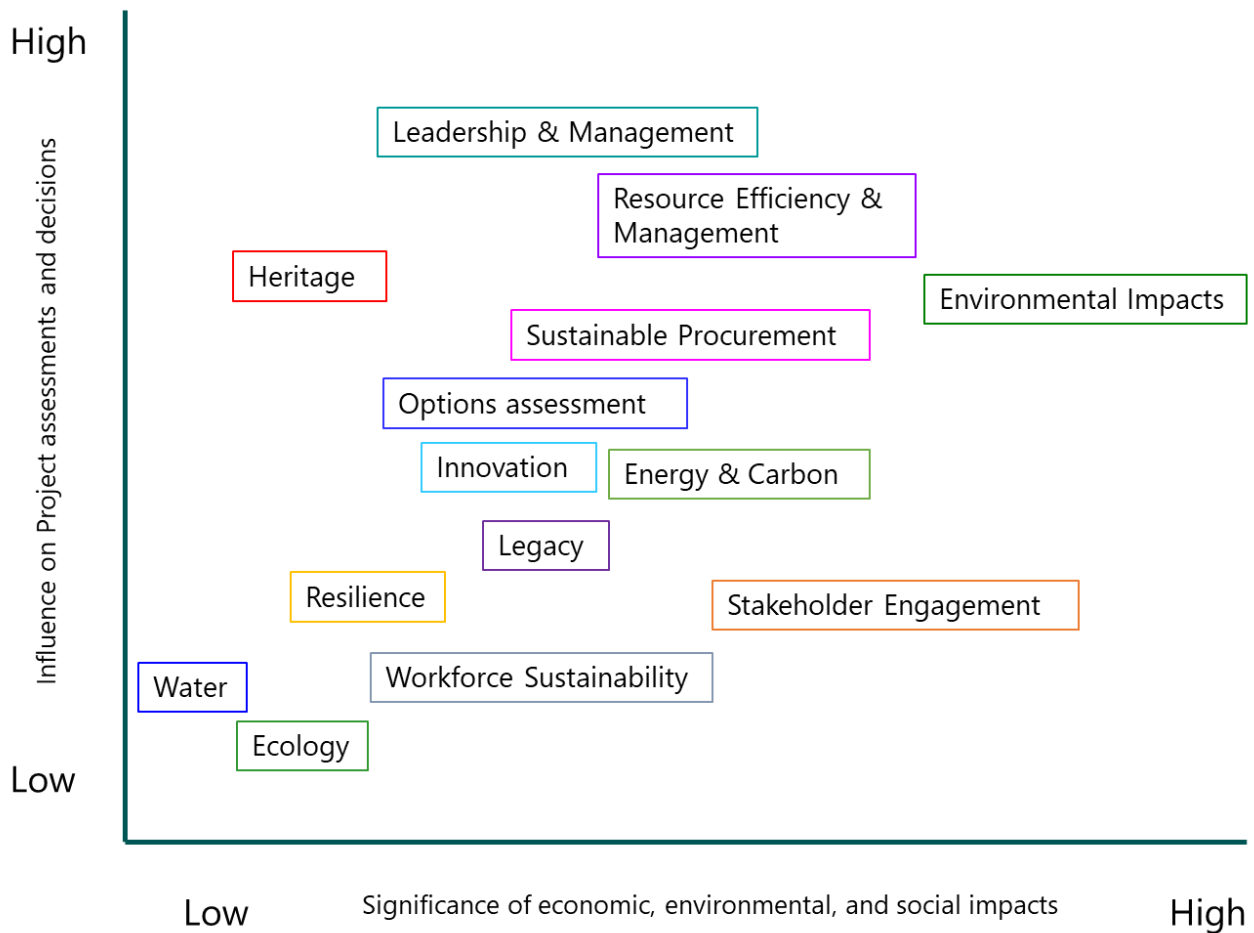


Figure 3 Prioritisation of Material Topics

High impact categories are listed below:

- Leadership & Management
- Resource Efficiency & Management
- Environmental Impacts
- Heritage
- Sustainable Procurement
- Options Assessment
- Energy & Carbon
- Stakeholder Engagement

These align with the key sustainability impact areas, which have been mapped in Figure 4.

Specific High Impact credits as per the ISC Materiality Assessment are those that received a ‘High’ or ‘Very High’ rating. These have been listed below:

- Env-1 Receiving Water Quality
- Env-2 Noise
- Env-3 Vibration
- Env-4 Air Quality
- Env-5 Light Pollution

- Rso-1 Resource Strategy Development
- Rso-4 Resource Recovery and Management
- Sta-1 Stakeholder Engagement Strategy
- Sta-2 Stakeholder Engagement and Impacts

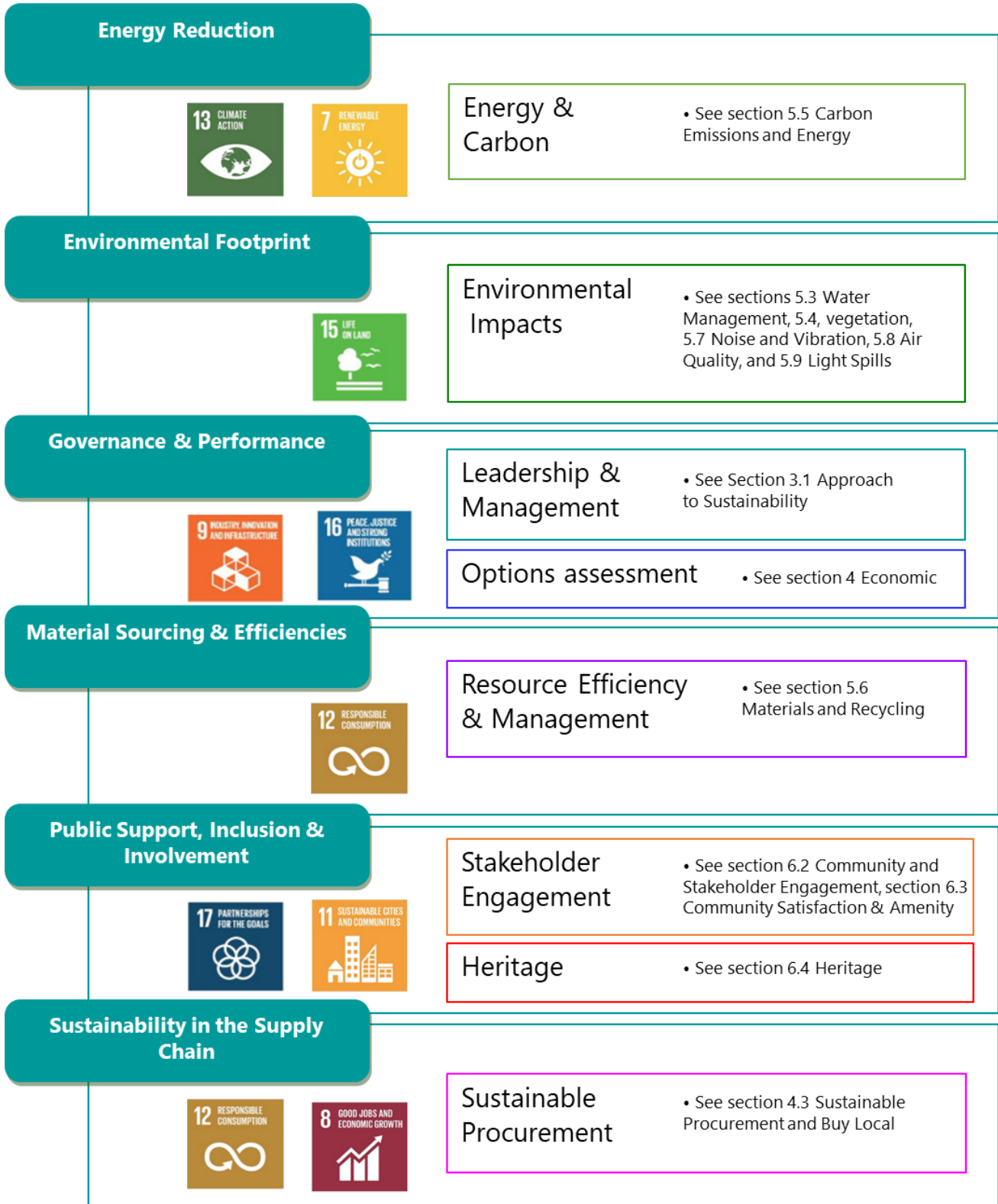


Figure 4 High Material Topics Aligned to Key Impact Areas

3.3 Sustainability Targets

The Project has developed a list of targets which were awaiting final endorsement by senior management at the time of issue. As such, they have not been included in this report but will be made publicly available as a separate document once they have been approved.

3.4 United Nations Sustainable Development Goals

The Project has mapped the Key Impact Areas against the SDGs to identify those with synergies to the targeted issues. This has been visually represented in Figure 5.

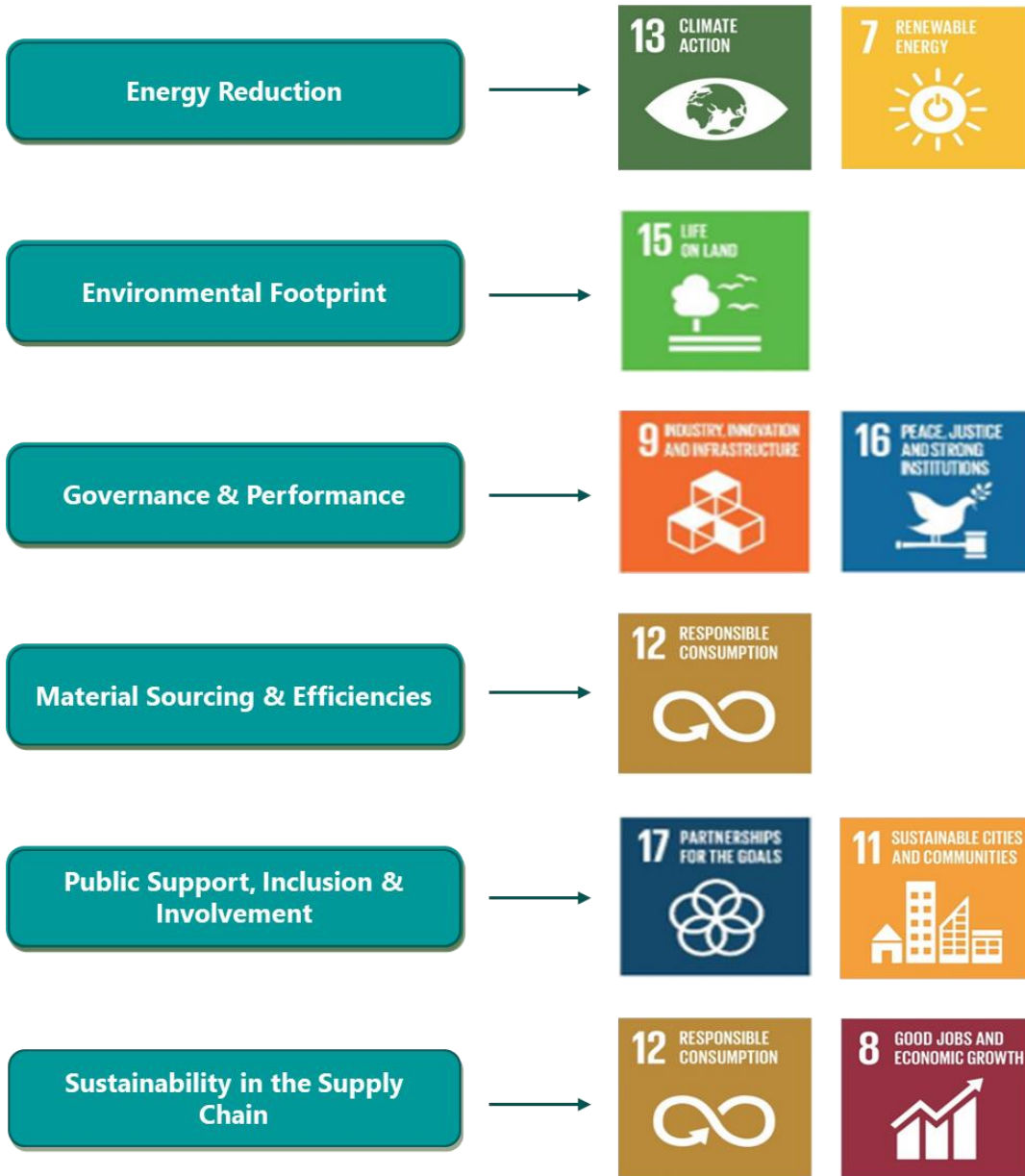


Figure 5 Key Impact Areas Mapped Against SDGs

3.5 Climate Change Assessments

Climate Change is becoming a risk and a pressure in all corners of the world, frequently impacting infrastructure across Australia. To ensure that infrastructure is sufficiently resilient to withstand localised climate change impacts, it is important to assess the Project to identify what impacts may occur and how they can be mitigated through adaptations in design, construction, and operation. In the Perth Metropolitan area, the following climate projections are summarised in Table 3. The Project has scheduled the climate change risk assessment workshop for August 2022. Once the assessment has been undertaken, the Project will mitigate all identified risks ranked high or above.

Table 3 Climate Change Projections for the Perth Metropolitan Area

Climate Change Impact	Baseline	Climate Projections (RCP8.5)	
	2020	2030	2090
*Annual extreme maximum temperature (°C)	46.7	47.6	50.5
*Annual extreme minimum temperature (°C)	-1.3	-0.5	1.9
*Relative Humidity (mean 9am) (%)	63	62.6	61.6
*Days/annum > 35°C	28	36	63
*Frost potential days/annum (average)	3.4	2.1	0.9
*Drought Factor	6.8	7.0	7.8
*Time spent in drought (%)	42.5	52.5	75
^Mean rainfall (mm)	736.8	574.7	471.6
*Maximum rainfall (mm/24hrs)	132	138.6	165
Flooding	n/a	n/a	n/a
Sea-level change (m)	n/a	n/a	n/a
^Sea surface temperature increase (Fremantle)	-	0.12	0.61
Cyclone event frequency per year (Not relevant)	two with one severe (Baseline 1970-2008)	No data	No data
Coastal inundation	n/a	n/a	n/a
*Annual average wind speed (km/h)	16.6	16.6	16.7
*Maximum wind gusts (km/h)	124	126.5	130.2
Frequency of hail events	No data	No data	No data
Increased frequency of lightning events	No data	No data	No data
*Mean daily solar exposure (MJ/m2)	18.9	19.8	20.8
*Fire 'severe' fire danger (days/yr.)	4.2	4.7	6.9

* Hope, P. et al., 2015 ^Department of Water and Environmental Regulation, 2021 +Bureau of Meteorology, 2021

3.6 Technology and Innovation

The Project has created an innovation register which any team member can access to input opportunities identified or pursued which may be categorised as innovations in their discipline area. This register tracks innovations identified which are then presented to the Board for implementation or to be abandoned. The intent of the register is to foster an innovative mindset within the Alliance and to provide a centralised and accessible location to ensure knowledge sharing and collaboration is pursued.

3.7 Innovation Case Study

One of the Project's most significant innovations to date is the design of a ramp metered dynamic lane system (RMDL). This is a system that has never been implemented in Western Australia before, and therefore presents an exciting opportunity for the Project.

Perth's freeway network is characterised by high-speed high-volume roads. There are significant opportunities to reduce forecast growth in congestion through the adoption of Smart Freeway technologies such as Ramped metering. Ramped Metering is the process of regulating vehicle entry onto a freeway to minimise flow breakdown and optimise mainline traffic flow efficiency. It is activated during peak freeway activity and when it is needed to manage incidents. Under other conditions it is de-activated to allow vehicles unrestricted on-ramp access to the freeway.

In order to implement effective ramp metering, sufficient storage must be accommodated to ensure that queues resulting from the activation of the metering does not flow back through interchanges causing congestion or safety issues. This may require the implementation of a RMDL. Implementing a RMDL is a last resort in ramp metering design, where there is a requirement for design storage due to predicted traffic volumes during peak hours as well as existing physical constraints that do not allow for safe merging under free flow operations outside of peak hour periods. Figure 6 below provides an overview of the RMDL in both states: available and unavailable to drivers. The RMDL will work primarily as an integrated system of specific metered ramps with several interfaces.

RMDL operation is well defined in VicRoads Managed Motorways Design Guide Volume 2 Part 2 Network Optimisation Tools, which provided a guide for implementation in Western Australia. While RMDLs have been implemented in Europe and in other Australian States, as of January 2022, no RMDLs are in operation within Western Australia. The RMDL has been designed by the Project, as requested by Main Roads, for implementation within two adjacent Projects, HWA and the Stephenson Avenue Extension. As such, the Project will aim to include this as a State-first innovation within their ISC submission.

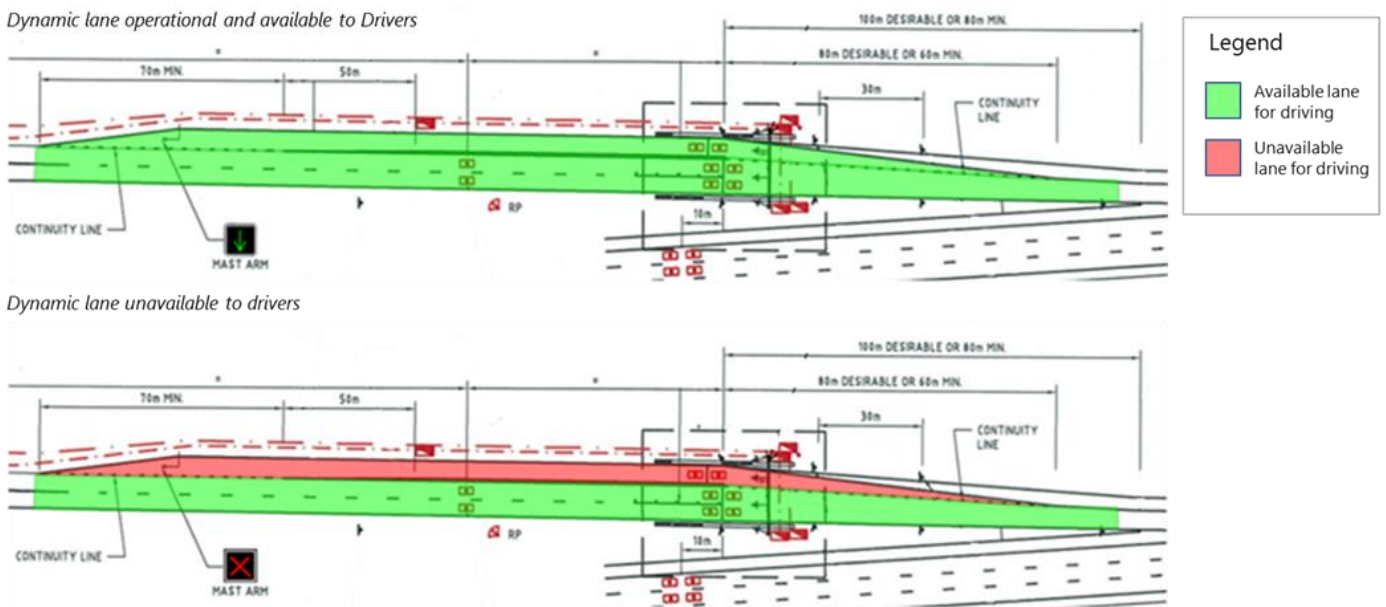


Figure 6 Drawing of RMDL to Provide a Visual Explanation of Functionality

4 Economic

4.1 Key Economic Context

The Project is part of the 'Transforming Freeways' strategic program which aims to upgrade Perth's freeways in a number of different ways, including the provision of smart freeway technologies for managing traffic flow. As a Project within a larger strategic context, the Project will help respond to an existing Infrastructure Australia Priority Listing: Mitchell and Kwinana freeways upgrade (Infrastructure Australia, n.d.). Along with the other upgrades, this Project will see benefits in reducing congestion at known pinch points and increasing efficiencies, particularly during peak periods, which will reduce travel times and fuel consumption for commuters. Along the entire alignment (Mitchell Freeway Southbound from Hester Avenue to Vincent Street), the average reduction in travel times is projected to be 7 minutes. Key economic aspects are summarised in Table 4.

The Project will be undertaken along the freeway, which is within the transport corridor, with land uses reflective of this. As the Project works are along a major transport corridor in Perth, several residents and businesses will be impacted by the Project and therefore are considered stakeholders. Further engagement will be undertaken with these stakeholders before works in their local area commence.

Table 4 Summary of Economic Aspects

ECONOMIC ASPECT	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Funding Received	\$	tba*	tba*
Indigenous Enterprises	#	13	13
Disability Enterprises	#	0	0
People Employed by Supply Chain [^]	#	45	45
Suppliers Engaged	#	29	29
Buy Local Spend	\$	311,000	311,000
*Due to the nature of the Project being a small portion of a larger upgrade, the total funding received is unable to be reported in this Annual report			
[^] The supply chain for this Project is defined as all suppliers and subcontractors engaged by the Project			

4.2 Key Economic Outcomes

The Project anticipates delivering several positive economic outcomes for the Project. Key anticipated outcomes include:

- Employment opportunities for small local businesses and Aboriginal businesses throughout the duration of the Project
- Upskilling of youth entering the workforce, in particular those entering electrical trades through a traineeship working with ITS Cabinets
- Travel to work time reductions for those travelling southbound during peak periods, by approximately 7 minutes along the entirety of the alignment (Hester Avenue to Vincent Street)

4.3 Sustainable Procurement and Buy Local

The Project endeavours to deliver its procurement function in a way which maximises sustainable outcomes. This includes through emphasizing local procurement, a focus on using Aboriginal businesses, and embedding sustainability metrics into the procurement process starting with tendering.

For the Project, 'Buy local' is defined as procurement from businesses and of materials within 100 km of the Project boundaries. As a focus of procurement, buying materials and procuring services from local businesses is important on multiple fronts. Utilising the expertise of local businesses is key to lifting up small businesses surrounding the Project boundary and thus helps the local economy. Buying local has the added benefit of reducing carbon emissions through movement of materials. It has the possibility to drive synergies between nearby Projects and promote reuse of items and materials which have been used or displaced by other road and rail Projects in the nearby vicinity. This has environmental, economic and financial benefits. One example of a local business employed by the Project is Oak Civil Construction, a construction firm based in Malaga approximately 10 km from the Project boundary. This firm is currently providing Traffic Management for early works. In addition to being Oaks Civil a local business, the firm is 100% Aboriginal-owned and operated.

Procurement is managed on the Project through several mechanisms. Management plans oversee the wider application of procurement processes and procedures. Underpinning these management plans is a sustainable procurement action plan, detailing the steps for engaging, screening, contract award and monitoring.

The Project also has multiple objectives sitting under these plans which are as follows:

- Provide a framework for a consistent and uniform approach to local industry procurement that maximises direct and indirect opportunities for local businesses
- Increasing local employment and local industry participation
- Prioritise procurement of goods and services that improve local or social outcomes
- Increase employment of people from disadvantaged backgrounds
- Raise awareness with supply chain partners and industry
- Ensure the social and local procurement strategy is sustainable
- Become an industry leader
- Build capacity of local providers to assist with their future business growth objectives

Specific procurement targets include:

- Procurement of local businesses to account for >90% of Project spend. 'Local' refers to businesses with a main office within 100 km of the Project boundary.
- Engagement of Aboriginal businesses providing services and materials/products for the Project to account for 3%.

4.4 Sustainable Transport

The Project will ease traffic flow on the freeway leading to reduced commute times and associated emissions. A section of PSP works is also under investigation, which will aid in continuing to connect sections of PSP along the alignment for active transport commuters.

4.5 Economic Case Study

The Project will be providing opportunities for local Aboriginal youth to upskill in electrical trades by working on the Intelligent Transport Systems (ITS) cabinets within the warehouse. Instead of pursuing the cheaper option to purchase pre-fitted cabinets from the suppliers, the manufacturing of ITS cabinets will instead be done onsite with the trainees.

The Project is currently in discussion with a business who will provide trainees. On the 12th of August

2022 an informal barbeque with potential trainees will take place to discuss the Project and the opportunity being offered for those interested in a traineeship. Project team members will use the session to explain the ITS cabinets and provide an opportunity for potential trainees to view the cabinets in person, as can be seen in Figure 7.

Following this initial informal meet and greet, other opportunities for integration of trainees will be identified. This includes traineeship opportunities for those individuals with less technical expertise. In addition to these alternate pathways, a selection of the ITS trainees that show the most aptitude will be taken to on-site commissioning, providing a cradle-to-grave perspective of the ITS industry. While this exciting initiative is still in the early stages of development. The Project will continue to progress and will present a more in-depth update to the case study in the proceeding report.



Figure 7 Potential Trainees at a meet-and-greet with Project Team Members and ITS Cabinets

5 Environmental

This Project will occur extensively in Brownfields along the length of the Mitchell Freeway. No significant environmental impacts have been identified and controls and management processes have been implemented to ensure impact to environmental receptors is mitigated. A summary of the environmental aspects of the Project can be found below in Table 5. It should be noted that the Project is currently in the Design phase and as such ground disturbing works have not yet occurred.

Table 5 Summary of Environmental Aspects

ENVIRONMENTAL ASPECTS	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Native Vegetation Cleared	ha	0	0
Native Vegetation Retained (due to design)	ha	-	-
Revegetation/rehabilitation Undertaken	ha	0	0
Number of Trees Cleared	#	0	0
Number of Trees Retained (due to design)	#	-	-
Total Water Consumption	kL	0	0
Total Non-Potable Water Consumption	kL	0	0
Total Potable Water Consumption	kL	0	0
Non-Potable Water Replacement	%	-	-
Total Green House Gas emissions [^]	t CO ₂ e	0.0605	0.0605
Total Energy Consumption	GJ	25.77	25.77
Renewable Energy Mix	%	0	0

[^] [Inclusive of Scope 1, 2 & 3 emissions](#)

A summary of resource inputs and waste for the Project are detailed in Table 6. As above, it should be noted that the Project is still in the design phase and as such generation of materials and waste has not yet occurred. Once works do commence, the Project has a number of options for diversion of waste from landfill. Several other projects are currently underway in the vicinity of the Project which may provide opportunities for reuse of materials. There are also options nearby for both recycling materials and procuring recycled materials. Examples include the Balcatta Recycling Centre and WA Recycling.

Table 6 Resource and Waste Summary

RESOURCE INPUTS AND GENERATED WASTE	UNIT	TOTAL THIS PERIOD	TOTAL FOR THE PROJECT
Resource Inputs (Materials)			
Total Quantity of Virgin Materials Used	t	0	0
Total Quantity of Recycled Materials Used	t	0	0
Total Quantity of Reused Materials Used Onsite	t	0	0
Percentage of Recycled Material Used	%	0	0
Resource Outputs (Wastes)			
Waste Sent to Landfill	t	0	0
Waste Diverted from Landfill	t	0	0
Total Waste Generated by Project	t	0	0
Waste Diversion Rate	%	0	0

5.1 Environmental Context

The Project exists within the Perth Metropolitan transport corridor along the Southbound Mitchell Freeway, approximately 5 km inland from the coast of the Indian ocean. It sits within the Perth Basin, which is an onshore and offshore sedimentary basin, and within the Swan Coastal Plain.

The overall environmental context is not particularly material as most of the work being undertaken is occurring on brownfields within the transport corridor and on top of existing freeway infrastructure. Historic aerial imagery confirms that the Project boundary supports two small areas of remnant vegetation however, all other areas within the Project boundary have been previously cleared. The state of vegetation within the Project boundary range from 'Degraded' to 'Degraded – Completely Degraded' conditions. Planted vegetation will be cleared by the Project. One species of fauna has been identified as having a potential to be impacted within the Project boundary; the Carnaby's Cockatoo, an endangered bird species (see Appendix 2).

No water bodies exist within the Project boundary, however there is a chance for the Project works to impact Herdsman Lake, within the Glendalough Open Space, which is a receiving water body for drainage systems within the Project boundary. The Project also intersects with a sump land associated with Lake Gwelup which is located 390 m west of the Project boundary. The Project lies on top of the Perth Coastal and Gwelup Underground Pollution Control Area, which is a Priority 3 (P3) Protection Area for public drinking water supply (Main Roads, 2022). The Project is also located above two Proclaimed Groundwater Areas, the Perth and Gwelup Groundwater areas (Main Roads, 2022). It is illegal to take water in a proclaimed area without a licence under the Rights in Water and Irrigation Act 1914 (WA).

No conservation reserves or heritage sites are found within the Project boundaries; however, a list of nearby Protected Areas can be found in Appendix 3. Twenty-three suitable trees have been identified within the Project boundary, three of which contain hollows which could be used by Carnaby's Cockatoo habitat. The Project is investigating opportunities for enhancing the environment, for example through revegetation however, initiatives are in preliminary stages of development.

5.2 Environmental Management

The Project has a suite of management methods for ensuring environmental compliance and risk mitigation. The Alliance has developed an environmental commitment statement which aligns to the

corporate environmental policies of the Alliance members along with Main Roads' Environmental Policy.

The Project has an Environmental Management Plan to manage all aspects related to the Project such as risks, ecologically sensitive areas, acid sulfate soils, air quality & dust management, water quality, demobilisation and rehabilitation, among others as well as outline compliance obligations. As part of the Project's contractual obligations, environmental management is required to be managed through the implementation of a third-party certified system compliant with AS/NZS ISO 14001 Environmental Management Systems. The Project has developed their Management System to align with this requirement.

Key environmental legislation impacting the Project includes:

Western Australian Legislation (including subsidiary regulations):

- *Environmental Protection Act 1986*
- *Biodiversity Conservation Act 2016*
- *Contaminated Sites Act 2003*
- *Rights in Water and Irrigation Act 1914 (WA)*
- *Agricultural and Related Resources Protection Act 1984 and Regulations 2002 (WA)*
- *Soil and Land Conservation Act 1945 (WA)*
- *Biodiversity Conservation Act 2016 (WA)*

Commonwealth Legislation:

- *Environment Protection and Biodiversity Conservation Act 1999*
- *National Greenhouse Gas and Energy Reporting System Act 2007*
- *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*
- *Fuel Quality Standards Act 2000*

The Project has undertaken a Preliminary Environmental Impact assessment (PEIA). The PEIA concluded that the Project is unlikely to have significant impacts that would trigger the need for a referral to the Environmental Protection Authority (EPA) or trigger for a referral to the Department of Agriculture, Water and Environment (DAWE). The environmental approvals and allowance are summarised in Table 7.

Table 7 Environmental Allowances, Approvals and Permits

ENVIRONMENTAL ALLOWANCE TYPE	UNIT	PROJECT ALLOWANCE
Water Abstraction Licence (5C)	kL	24,300

5.3 Water Management

As mentioned in section 5.1, no water bodies exist within the Project boundaries, aside from the two Proclaimed Ground water areas which are unlikely to be impacted as the Project will not be dewatering. this being said, works may impact Herdsman Lake, a receiving water body for drainage systems within the Project boundary, and Lake Gwelup which has a sump land that intersects the Project boundary. The northern section of the alignment is also situated on top of the groundwater table (Department of Water and Environmental Regulation, accessed 2022). Figure 8 shows pre-construction bore investigations along the Project alignment. While works have not yet started, the

Project is actively progressing through preliminary investigations and setting up for works.

Due to the nature of works and a low operational water footprint, the materiality assessment undertaken with the Project team identified water use and water sources as having low materiality on the Project. As such, both Water credits in the IS Essentials Rating scheme have been screened out. A summary of the Project’s water parameters can be found below in Table 8. As mentioned previously, construction has not yet commenced and therefore no water has been used to date on the Project.

Table 8 Water Parameters

WATER PARAMETER	TOTAL THIS PERIOD		TOTAL FOR PROJECT	
	kL	%	kL	%
Potable Water				
Standpipe / Scheme Water Purchased	0	0	0	0
Non-Potable Water				
Bore Water	0	0	0	0
Surface Water	0	0	0	0
Recycled / Wastewater	0	0	0	0
Total Water Used	0	00.0	0	00.0



Figure 8 Pre-construction Bore Investigation on Site

5.4 Vegetation

5.4.1 Clearing

A PEIA was undertaken prior to any construction works and found no presence of any threatened or

priority flora or vegetation communities within the Project boundary. Vegetation found within the Project ranged in condition from 'completely degraded' to 'degraded – completely degraded'. No remnant vegetation is marked for clearing.

Clearing of native vegetation will be managed with relevant environmental approvals and permits. Pre-clearing inspections will also be undertaken to check for hollows capable of being utilised by Carnaby's Cockatoos, and to identify no-go areas and to ensure clearing remains within limits.

5.4.2 Revegetation/Rehabilitation

Rehabilitation works are to be planned and undertaken with thought given to the historical existence of flora and fauna. As the design phase is ongoing, the specifics have not yet been finalised, however drought tolerant native species will be preferenced.

5.4.3 Dieback

The presence or potential presence of dieback has been investigated using the Dieback Public Map through Natural Resource Management Western Australia. Due to the low density (or lack) of *Phytophthora cinnamomii* susceptible species, the Project boundary is classified as uninterpretable. Irrespective, Project works have the potential to spread dieback from the Project boundary to other locations outside the Project boundary. Management of this potential risk is detailed in the Environmental Management Plan. All processes are being implemented as the Project progresses.

5.5 Carbon Emissions and Energy

Energy use and the associated carbon emissions for the Project are primarily associated with electricity use during design and construction, diesel and petrol from the Project's vehicle fleet, emissions associated with production of materials such as concrete and steel used in construction, and the electricity associated with ITS throughout the infrastructure's operational life.

The Project is currently in the process of investigating and implementing several options for avoiding and reducing energy consumption and the generation of GHG emissions. Ongoing opportunities include:

- LED lights including in the ITS manufacturing warehouse, and within the ITS cabinets
- Purchase of Synergy Green Energy for the main site office
- Incorporation of hybrid vehicles into the Project fleet where possible
- Procurement of materials with a reduced embodied energy footprint
- Use of temporary solar lighting towers during works

The energy use on the Project to date inclusive of the design and construction phase is detailed in Table 9.

Table 9 Energy Parameters

ENERGY PARAMETERS	TOTAL THIS PERIOD			TOTAL FOR PROJECT		
	LITRES	KWH	% OF TOTAL USE	LITRES	KWH	% OF TOTAL USE
Unleaded (on and off road)	111.20	-	0.06	111.20	-	0.06
Diesel Used (on and off road)	2610.77	-	1.17	2610.77	-	1.17
Liquefied Petroleum Gas (LPG)	0	-	0	0	-	0
Biodiesel	0	-	0	0	-	0
Hydrogen	0	-	0	0	-	0
Oil	0	-	0	0	-	0
Other	0	-	0	0	-	0
Purchased Electricity from Grid	-	7159	98.77	-	7159	98.77
Green Power Mix	-	0	0	-	0	0
Generated from Renewable Energy Onsite and Used Onsite	-	0	0	-	0	0
Total Energy Used	-	7159	100.0	-	7159	100.0

Note: Energy in gigajoules (GJ) is calculated using the conversion values detailed in the [National Greenhouse Account Factors](#).

5.6 Materials and Recycling

A Resource Efficiency Strategy and Action Plan (REAP) has been developed to guide the Project in pursuing opportunities for sourcing materials, material reuse, and recycling. The Project also has several materials and recycling commitments.

A base case has also been developed for the Project's participation in the IS Essentials Pilot rating scheme which, when verified, will provide a baseline for the Project to compare actual resource use, recycling opportunities, and efficiencies in design and construction methods.

As a focus of the Project, locally available materials and resources will be considered and utilised where feasible. Identification of opportunities is ongoing. Initiatives have already been identified and are in progress of being finalised. These include small initiatives such as diversion of containers which fit within the Containers for Change scheme, and larger impact initiatives such as the use of Boral's Envirocrete as the concrete for use on pads, gantry footings and slabs. Envirocrete is a product developed by building and construction material company Boral as their response to the increasing demand for more environmentally friendly materials (BORAL, 2022). This concrete product incorporates recycled and waste raw materials to reduce the embodied emissions and overall environmental impact of concrete during the manufacturing and construction phase of projects (BORAL, 2022). This product reduces the amount of Portland cement content by a minimum of 40%, significantly reducing embodied emissions compared to standard concrete (BORAL, 2018).

A breakdown of the materials used on the Project can be found below in Table 10-12. The waste statistics will be updated as the project progresses. As mentioned previously, construction has not yet commenced and therefore no materials have been used to date.

Table 10 Imported Raw/Traditional Materials for the Project

IMPORTED RAW/TRADITIONAL MATERIALS			
MATERIAL	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Aggregate	t	0	0
Aluminium	t	0	0
Asphalt	t	0	0
Ballast	t	0	0
Bedding Aggregate	t	0	0
Bitumen	t	0	0
Bitumen Cutter (MCC)	t	0	0
Bitumen Cutter (SCC)	t	0	0
Cement	t	0	0
Cement Additives	t	0	0
Cement Stabilised Backfill	t	0	0
Clay	t	0	0
Concrete	t	0	0
Crushed Dust (including Cracker Dust)	t	0	0
Crushed Limestone	t	0	0
Crushed Rock	t	0	0
Crushed Rock Base	t	0	0
Emulsion Based Prime (e.g. Ecoprime)	t	0	0
Ferricrete	t	0	0
Geofabric Polymers	t	0	0
Glass (including Glass Beads)	t	0	0
Gravel	t	0	0
Laterite	t	0	0
Lime	t	0	0
Lime Additives	t	0	0
Mechanically Stabilised Earth Backfill	t	0	0
Mulch	t	0	0
Paint (Waterborne, Thermoplastic, Cold Applied Plastics)	l	0	0

Perspex	t	0	0
Plastic	t	0	0
Precast Concrete	t	0	0
Sand	t	0	0
Steel	t	0	0
Synthetic Binders	t	0	0
Topsoil	t	0	0
Other	t	0	0

Table 11 Imported Recycled Materials for the Project

IMPORTED RECYCLED MATERIALS			
MATERIALS	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Crumb Rubber	t	0	0
Crushed Recycled Concrete	t	0	0
Crushed Recycled Glass	t	0	0
Eco-blocks	t	0	0
Geopolymer Concrete	t	0	0
Low Carbon Concrete	t	0	0
Mulch and Soil Conditioner (not including Food Organic and Garden Organics (FOGO))	t	0	0
Mulch (FOGO)	t	0	0
Soil Conditioner (FOGO)	t	0	0
Reclaimed Asphalt Pavement	t	0	0
Recycled Aggregate	t	0	0
Recycled Aluminium	t	0	0
Recycled Clay	t	0	0
Recycled Granular Material	t	0	0
Recycled HDPE Plastic Pipes	t	0	0
Recycled Mineral Sand	t	0	0
Recycled Sand (as per the definition in the Contractor Monthly Reporting form)	t	0	0
Supplementary Cementitious Materials – slag	t	0	0

Supplementary Cementitious – fly ash	t	0	0
Supplementary Cementitious – silica fume	t	0	0
Supplementary Cementitious – other	t	0	0
Topsoil	t	0	0
Warm Mix Asphalt	t	0	0
Other	t	0	0

Table 12 Materials Reused on the Project

MATERIALS REUSED WITHIN THE PROJECT SITE			
MATERIAL	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Aggregate	t	0	0
Asphalt (RAP)	t	0	0
Clay	t	0	0
General Fill	t	0	0
Granular Material	t	0	0
Limestone	t	0	0
Mulch	t	0	0
Overburden	t	0	0
Road Base	t	0	0
Sand	t	0	0
Spoil	t	0	0
Topsoil	t	0	0
Other	t	0	0

5.7 Noise and Vibration

A noise modelling and assessment report was undertaken post-construction of the Southbound Widening works from Cedric Street to Vincent Street Project in May 2021. This post-construction monitoring is being used as a noise baseline for the current Project as it is being undertaken along the same corridor. Baseline vibration monitoring will be undertaken by the Project team using vibration monitors which allow for real-time alerts when they sense vibration above the acceptable level. These monitors will continue to be used throughout construction where activities necessitate their use.

Noise and Vibration have high materiality for the Project during construction as there are a number of receptors within 100 m of the Project boundary, including residents and Lake Monger.

The Project will address noise and vibration during construction through ongoing management. As construction has not yet commenced, monitoring and management actions for noise and vibration have also not commenced.

5.8 Air Quality

Project activities can create air quality issues through the vehicle emissions and the generation of dust. Airborne dust particles have the potential to impact sensitive receptors in the natural and built environments causing safety, health, and environmental hazards.

On this Project, the construction activities which are most likely to impact air quality include clearing and topsoil stripping. During operation of the asset, while vehicle traffic is projected to increase, the upgrades the Project is undertaking to improve traffic flow may result in an overall benefit to the emissions levels.

The Project is addressing air quality through management actions, objectives, and monitoring actions which are outlined in the EMP. As construction has not yet commenced, monitoring and management actions for air quality have also not commenced.

5.9 Light Spill

Light emanating from construction works can negatively impact surrounding communities and ecological receptors. Receptors include residents within a 100 m boundary of key Project work sites such as gantry locations. With regards to light spill, some properties may receive light spill from permanent electronic signs during the operational phase and therefore the Project will focus on education and awareness with these residents. The operation of LUMS will have the largest impact on potential light spill, however during construction lighting towers will also be used for installation of structures during night works.

The Project will address light spill through conformance with relevant legislation and monitoring of sensitive receptors. Monitoring of light spill will occur throughout the construction period through night-time light spill audits completed on a quarterly basis. Records will be kept of audit results, and any complaints received. The Project has also developed objectives related to light spill which include zero community complaints relating to Project light emissions and zero safety incidents caused by inappropriate use of light on the Project.

As construction has not commenced yet, monitoring and management actions for light spill have also not commenced.

5.10 Contamination

A search of the Department of Water and Environmental Regulation's (DWER) Contaminated Sites

database identified 35 sites/locations that occur within 200m of the Project boundary; however no sites were identified which were within the Project boundary itself. This has not been deemed a material issue for the Project and is not being pursued for the IS Essentials Pilot rating.

5.11 Acid Sulfate Soils

Disturbance of Acid Sulfate Soils (ASS) is most likely to occur on the Project during piling works. A desktop assessment, undertaken as part of the Alliance Pile and Footing Design Report has outlined the spatial risk of encountering ASS, based on the DWER's Acid Sulfate Soil Risk Map. Interrogation of the DWER ASS State-wide Risk Mapping dataset indicated that several sections of Project works are mapped as "High to Moderate risk" for ASS. However, field surveys indicate this is most likely to be present within peat soils below the water table level and therefore are unlikely to be triggered by most works undertaken. As such, this has not been deemed a material issue for the Project and therefore will not be pursued for the IS Essentials Pilot rating.

The Project has set out management actions to mitigate the risks associated with ASS within planning, and construction, including management actions for unexpected finds. Monitoring is also to be undertaken through soil samples both before works commence and during construction.

6 Social

A summary of key social aspects and performance for the Project is detailed in Table 13.

Table 13 Summary of Social Aspects

SOCIAL ASPECT	UNIT	TOTAL FOR THIS PERIOD	TOTAL FOR THE PROJECT
Stakeholders engaged*	#	68	68
Stakeholder enquiries received	#	16	16
Heritage sites in project vicinity ^x	#	0	0
Length of Principal Shared Path (Addition/Refurbished)	km	0	0
Women in Workforce**	%	30.4	30.4
Indigenous People in Workforce**	%	1.72	1.72
Lost Time Injury Frequency Rate (LTIFR)	#	0	0
Hours of Training Undertaken	hrs	554	554
Development Employees and Apprentices on the Project	#	0	0

^xProject vicinity is defined as within the project boundary.

*Includes stakeholders who made an enquiry and were engaged through the communications and complaints process.

**Workforce refers to Alliance organisation employees and subcontractors who have booked hours to the Project.

6.1 Social Context

As mentioned in Section 2.1, the Local Government Areas (LGAs) located within Project boundaries include The City of Stirling, the City of Vincent, and the Town of Cambridge. Land surrounding the alignment changes along the 36km corridor and includes a mix of residential and commercial space. Lake Monger, which sits adjacent to the Project, is a conservation wetland and is zoned for recreation and conservation purposes.

An assessment of local context and stakeholder characteristics has been undertaken to better inform the Project's community and stakeholder engagement. The assessment undertaken explores only the characteristics of LGAs located within the Project boundary due to the proximity to Project impacts. This assessment looked at several parameters such as the method of travel to work, the median age of the population, gender parity, language spoken at home and the percentage of Aboriginal and Torres Strait Islander population. The percentage of people using cars to travel to work ranged from 54.8% of people as drivers or passengers in the Town of Vincent, to 70.1% of people in the City of Stirling, indicating a high percentage of the population will likely interact with the Project on a regular basis.

6.2 Community and Stakeholder Engagement

The Project's approach to Stakeholder and Community Engagement is aligned with Main Roads' overarching Community and Stakeholder Engagement Strategy and supporting documentation. The Project's approach will support Main Roads' vision to build partnerships with the community and deliver work with identified stakeholders and the wider community in an open, accountable, fair and flexible manner. This is being undertaken through the Community and Stakeholder Engagement management plan, which will guide the Project on engagement. The expectations of community and stakeholders identified by the Project have been outlined in the Community and Stakeholder Engagement Plan.

The strategic approach to engagement for the Project is based on the International Association of Public Participation (IAP2) Consultation Spectrum, an internationally recognised framework which defines the public's role in any public engagement/participation process. The majority of engagement for this Project will occur at the "inform" and "consult" level, with occasional processes at the "involve" level due to the nature of the infrastructure work being undertaken.

Through the early stages of Project development, the Project has been liaising with key stakeholders including local government authorities, the Department of Transport, the Public Transport Authority, the Water Corporation, Western Power, the Department of Biodiversity, Conservation and Attractions, and DevelopmentWA. The Project aims to continue to liaise with key stakeholders and the community through the pre-construction stage of the Project.

The Project has undertaken a Stakeholder identification and analysis activity which maps each stakeholder identified against a matrix of their influence and interest. This analysis also identified why each stakeholder has an interest/influence and what IAP2 engagement level(s) are appropriate.

A number of key legacy issues were identified from previous Projects in the same location, along with risks identified through a social risk assessment. Some key risks/issues identified include:

- Dangerous temporary crossings for Pedestrian and Cyclist during construction
- Temporary and permanent access changes to residents and businesses near the on ramps
- Construction impacts (noise, light, dust, vibration impacts) on residents and businesses
- Traffic delays on the existing networks due to construction works

The Project has stakeholder and community-related objectives and targets which are currently under review with Senior management. The Project has also developed a list of non-negotiables and negotiables within which the frame of stakeholder and community engagement will operate. The list of negotiables may grow as the Project progresses and discovers new items through Stakeholder engagement. At present the list of negotiables is as follows:

- Location of mobile Variable message signs (VMS) in proximity to businesses
- Visual barriers to reduce light spill from gantries to impacted residents. **It should be noted this item is currently outside of the Alliance's scope of works and will be assessed on a case-by-case basis*

The list of non-negotiables includes the following items:

- Project budget
- Alignment of the freeway and on-ramps
- Location and size of gantries and associated infrastructure along the freeway, on-ramps and arterial roads
- Clearing of vegetation
- Permanent changes to Hutton Street intersections with Hector and MacDonald streets
- Alignment of new PSP near Hutton St on-ramp
- PSP detours

6.3 Community Satisfaction and Amenity

Continuous Community and Stakeholder Engagement is important to the Project as it will build trust and understanding between the Project team and relevant stakeholders and impacted community members. Community satisfaction and amenity will be addressed through a number of avenues and initiatives including:

- Reduced commute time post-project operations

The Project has identified different ways of engaging with Stakeholders and Community members depending on who they are. This includes doorknocking and in-person meetings. Community members are able to voice their concerns through these engagement methods, or contact the Main Roads Customer Information Centre via email or phone.

All concerns will be reported through the Main Roads CONNECT database to be managed centrally.

6.4 Heritage

6.4.1 Aboriginal Heritage

The Project is located on the land of the Whadjuk Noongar People. Several sites of continuing cultural and heritage significance are located near the Project boundary. The following sites of significance which have Registered Site status were identified through the Department of Planning, Land & Heritage (DPLH) Aboriginal Heritage Inquiry System and include:

- Lake Monger Velodrome – Artefacts/Scatter, Camp (15 m southeast of Project boundary)
- Lake Monger – Mythological, Quarry, Skeletal Material/Burial, Camp, Hunting Place, Ochre (75 m SW of Project boundary)
- Lake Monger Northwest and West – Artefacts/Scatter, Camp (370 m West of Project boundary)
- Herdsman Lake – Skeletal Material/Burial, Camp, Hunting Place (700 m West of Project boundary)
- Lake Gwelup – Artefacts/Scatter (950 m West of Project boundary)

Only one site was identified within the Project boundary: Site 21538, Stirling Wetlands (Mythological, Camp, Hunting Place, Meeting Place, Named Place, Water Source). This site has a 'Stored data/Not a Site' status in the DPLH Aboriginal Heritage Inquiry System. A review of the Main Roads Aboriginal Heritage Risk assessment and consultation and advice from DPLH was sought regarding potential impacts and it was concluded that no further heritage investigations were required.

The Heritage Management Plan draws upon consultation with Aboriginal Stakeholder groups and the Australia ICOMOS Burra Charter for Places of Cultural Significance (2013) to develop the Management Plan and express the Alliance's commitment to addressing heritage concerns and achieving positive heritage outcomes.

No Section 18 Approval was required for the Project. The Project will continue to comply with all relevant heritage legislation including:

- The Aboriginal Heritage Act 1972 (WA)
- Heritage Act 2018 (WA)
- Aboriginal Heritage Regulations 1974 (WA)
- Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth)
- Native Title Act 1993 (Commonwealth)

The Project has developed an Aboriginal Heritage Management Plan as an overarching document to guide the Project. This Management Plan outlines the five heritage objectives that the Project has

developed and management actions to undertake in order to achieve the objectives. The KRAs within the Management Plan include improved Aboriginal sustainability, and Aboriginal participation and business spend targets. The Project has also developed an Aboriginal Participation Plan which outlines the Project's commitment to engaging and involving Aboriginal businesses and individuals on the Project.

In addition, the Project has made efforts to promote heritage learnings through educational signage, an example of which can be seen in Figure 9, and celebrations such as NAIDOC week. Cultural Awareness Face-to-face sessions are run for all Project personnel on a quarterly basis, run by an Aboriginal Alliance team member who is local to the area. The Project is also in discussion with Aboriginal Apprentice Scheme organisations for the supply of Trainee Electricians as part of the cabinet fit-out in the warehouse.

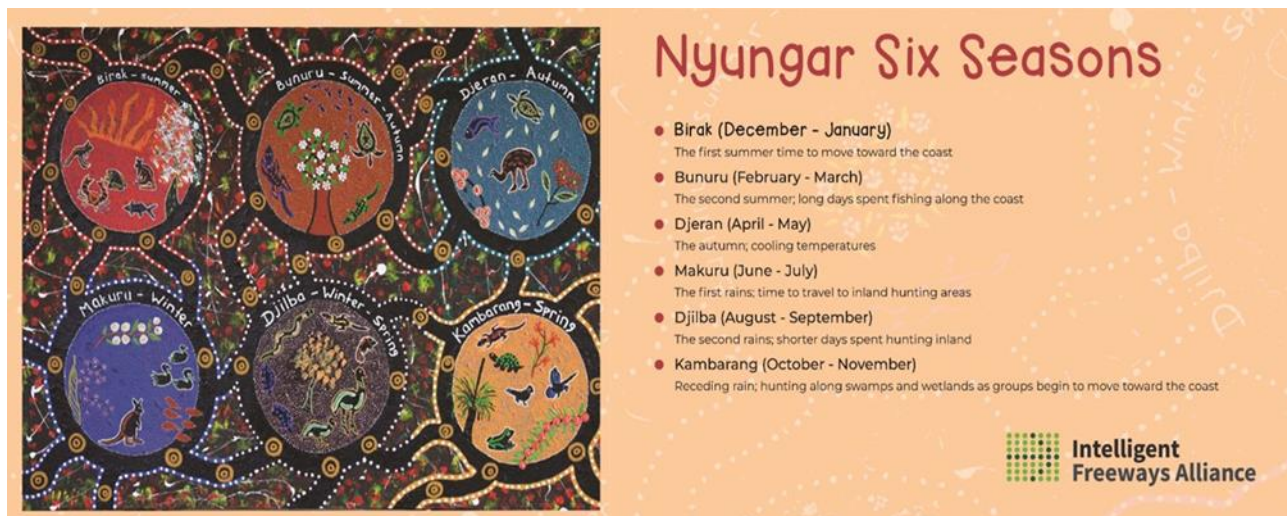


Figure 9 IFA Office Banner Depicting the Nyungar Six Seasons

6.4.2 European Heritage

The Project also outlined a context for the European heritage, which includes significant structural developments in the area in the 1960s and 1970s, extensions of the freeway throughout the 70s and 1980s, and the construction of the Joondalup railway line completed in 1992. Due to the nature of these post-settlement land-uses within the Project boundary, along with subsequent construction works that have occurred along the alignment prior to this Project's construction start, it is unlikely that items of European heritage significance will be uncovered.

6.5 Road Safety

This Project aligns with the WA State Government's '[Road Safety Strategy 2021-2030](#)', as set out in Main Roads Policy. Road safety will be improved upon completion of the Project through the implementation of Smart Freeways Technology as VMS will allow for increased visible signage for speed limits, travel times, and updates on road conditions and hazards. On ramp signalling and the VMS will also help to ease traffic congestion creating safer road conditions.

6.6 Diversity

The Project has an Aboriginal Participation Plan which identifies how the Project will maximise Aboriginal participation. Actions include seeking out Aboriginal subcontractor, delivery partners, and supply packages, training and mentoring Aboriginal people employed on the Project, and recruitment of Aboriginal candidates. At present, the Project has three Aboriginal individuals hired on the Project (two Fulltime Equivalents (FTE)) and is procuring materials and services from several

Aboriginal businesses. These include the light vehicle fleet, electrical trainees, and small construction firms to perform civil works.

The Project has also pursued diversity through women employed in the workforce. During the reporting period, the Project has directly employed (not including subcontractors) 53 women (30.4%), with two in a senior management role during this period. The percentage of women in the workforce is a highlight for the Project, as it is more than double the national average for the construction industry in Australia (Wang et. al., 2021, NAWIC, 2020).

6.7 Traffic Management & Community Safety

As a Project under the 'Transforming Perth's Freeways' strategic program, one of the intended outcomes of the installation of ITS is eased traffic flow, particularly during peak-hour traffic.

In addition to this, a Traffic Management Plan has been developed for the Project to help manage traffic and maintain road safety for road users while construction is ongoing. Construction for the Project has not commenced, and therefore no safety outcomes have been achieved to report. However, initiatives have been developed to improve road safety including:

- Reduction in the number of freeway closures required for gantry installations

6.8 Workforce Safety

IFA has an Occupational Health and Safety (OHS) Management system which is accredited to ISO 45001. The Project has developed a Safety and Health Management Plan, in accordance with AS/NZS 4801 – Occupational Health and Safety Management Systems, which details management practices, commitments, health and safety principles, and the Project's Safety objectives and targets.

The Project's primary safety and health objective is to have an incident and injury free project. This will feed into Key Performance Indicators (KPIs) which vary between positions. As the Project is not yet in the construction phase of works, there are no outcomes to report as of yet. During the Project works thus far, there have been three reported minor incidents to date and no lost time injuries.

A Project risk register has also been developed to identify high risk activities and develop actions to mitigate and reduce associated risk. Other management activities IFA will undertake to ensure workforce safety include:

- Communicating to employees, and creating a culture of safety through supervisor position and over attending site safety systems of work
- Inspections use a targeted risk-based approach which enables a greater understanding of where successes and gaps exist
- Creation of an information/education program around Sustainability and what it means in the construction field, not only at an office staff level but also at a blue-collar level.

6.9 Legacy Commitments

Legacy initiatives are currently under investigation on the Project. One initiative of note is the apprenticeship program for Aboriginal trainees. The Project is currently in discussion with an Aboriginal traineeship business to provide electrician trainees for works relating to the ITS cabinets in the Project warehouse.

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8 Glossary

A glossary of terms used throughout this document is detailed in Table 14.

Table 14 Glossary of Terms

Term	Description	Link to Further Information
Material; Materiality	Relevant topics are those that may reasonably be considered important for reflecting the organisation's economic, environmental, and social impacts, or influencing the decisions of stakeholders.	Global Reporting
Scope 1 Emissions	Scope 1 greenhouse gas emissions are the emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level. Scope 1 emissions are sometimes referred to as direct emissions.	Clean Energy Regulator
Scope 2 Emissions	Scope 2 greenhouse gas emissions are the emissions released to the atmosphere from the indirect consumption of an energy commodity. Scope 2 emissions from one facility are part of the scope 1 emissions from another facility.	
Scope 3 Emissions	Scope 3 emissions are indirect greenhouse gas emissions other than scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business. Some examples are extraction and production of purchased materials, transportation of purchased fuels, use of sold products and services, and flying on a commercial airline by a person from another business.	
Sustainable Development Goals (SDGs)	The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.	United Nations Sustainable Development Goals 2030

9 Appendices

Appendix	Title
Appendix 1	Project Sustainability Policy
Appendix 2	Protected/Conservation Significant Flora and Fauna Species and Habitat
Appendix 3	List of Protected Areas
Appendix 4	List of Project Stakeholders

Appendix 1 – Project Sustainability Policy



SUSTAINABILITY POLICY

The Intelligent Freeways Alliance recognises and supports Main Roads Western Australia's "Keeping Australia Moving" Strategic Direction and Sustainability Policy and are committed to delivering a project that achieves net-positive social, economic and environmental outcomes.

We will strive to deliver new benchmarks for sustainability in the infrastructure sector by:

- Complying with all regulatory obligations.
- Using our sustainability management system to contribute to the achievement of the United Nations Sustainable Development Goals by 2030, whilst addressing our project's biggest sustainability risks and opportunities, and considering social, economic, and environmental aspects over the long term.
- Using our purchasing power to encourage industry awareness and application of sustainability principles by selecting and managing suppliers based on their sustainability performance.
- Seeking out pioneering initiatives in sustainable design, process and advocacy.
- Ensuring our solution contributes over the long term towards greater local and regional resilience, including in relation to natural hazards and climate change.
- Promoting greater resource use efficiency, including in relation to energy, materials and water during construction and operational phases by reducing demand, using lower impact alternatives, promoting recycling and offsetting residual impacts where viable.
- Adopting best practice urban and landscape design, pursuing opportunities to achieve green infrastructure, ecological enhancement, heritage interpretation, water quality improvement, flood mitigation and community well-being.
- Managing temporary impacts on local environmental receptors during construction and where possible strive for long term enhancements at local water, noise, vibration, air quality and light receptors.
- Ensuring a well-considered and strategic approach to stakeholder engagement informed by the local context, permitting stakeholder input on negotiable issues.
- Developing local industry skills, including by implementing suitable training and recruitment programs, promoting a constructive and positive workplace culture for all people involved with the project, and building a diverse and inclusive workforce.

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**Intelligent
Freeways Alliance**

Appendix 2 – Conservation Significant Flora and Fauna Species and Habitat

SPECIES	CONSERVATION SIGNIFANCE CODE		IMPACT
	FEDERAL	STATE	
Flora			
No significant flora located within the Project Boundary	-	-	-
Fauna			
<i>Calyptorhynchus latirostris</i> (Carnaby's Black Cockatoo)	EN	T	Potential clearing of foraging habitat. 27 potential breeding trees identified, 3 with hollows suitable for breeding. Some of these trees may be impacted during Project works

Appendix 3 – List of Protected Areas

PROTECTED AREA	DETAILS	LOCALITY/ PROXIMITY	IMPACT
Environmental			
Bush Forever Site 212 – Lake Gwelup	As per the Bush Forever Policy managed by the Department of Planning, Lands and Heritage	500 m W of Project boundary	No impact expected
Lake Gwelup (UFI: 8173)	Conservation Category Wetland as per the Department of Biodiversity, Conservation and Attractions (DBCA)	560 m SW of Project boundary	No impact expected
Lake Monger (UFI: 8183)	Conservation Category Wetland as per the DBCA	75 m W of Project boundary	No impact expected
Herdsmen Lake (UFI: 8192)	Conservation Category Wetland as per the DBCA	720 m SW of Project boundary	No impact expected
Heritage			
Stirling Wetlands, (ID: 21538)	Stored data/ Not a Site (Mythological)	Intersects with the Project	No impact expected
Lake Monger NW & W (ID: 3318)	Registered Site (Artefacts/Scatter)	370 m W of Project boundary	No impact expected
Lake Monger Velodrome (ID: 3323)	Registered Site (Artefacts/Scatter)	15 m SE of Project boundary	No impact expected
Lake Monger (ID: 3788)	Registered Site (Mythological Site)	75 m SW of Project boundary	No impact expected
Lake Gwelup (ID: 3501)	Registered Site (Artefacts/Scatter)	950 m W of Project boundary	No impact expected
Herdsmen Lake (ID: 3585)	Registered Site	700 m SW of Project boundary	No impact expected

Appendix 4 – List of Project Stakeholders

STAKEHOLDER GROUP	SPECIFIC STAKEHOLDERS
Client	Main Roads Western Australia
Contractors	NRW
	Service Stream
	WSP
Emergency Services	Western Australian Police Services
Government - Local	City of Stirling
	City of Vincent
	Town of Cambridge
Government - State	Department of Water and Environmental Regulation
	Department of Biodiversity, Conservation & Attractions
	Main Roads Western Australia
	Department of Transport
	The Public Transport Authority
	Development WA
Community	Commuters on the Freeway
	Local Business owners along the freeway alignment (i.e. Hutton Street on-ramp)
	Residents of the City of Stirling
	Residents of the City of Vincent
	Residents of the Town of Cambridge
	WestCycle
Regulators	Environmental Protection Agency
Third Party Non-Profits	Infrastructure Sustainability Council
Utilities	Western Power
	Synergy
	Water Corporation