



Smart Freeways Mitchell Southbound Reid to Vincent: Project Annual Sustainability Report 2022/2023

Prepared by the Intelligent Freeways Alliance

This annual report covers the period from 01/07/2022 to 30/06/2023. This is the second annual report to be prepared for the project.

Previous annual sustainability report includes (2021/2022).

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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
CO ₂ e	Carbon Dioxide Equivalents
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPLH	Department of Planning, Land and Heritage
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority of Western Australia
EPD	Environmental Product Declarations
FOGO	Food Organics and Garden Organics
GHG	Green House Gas
GJ	Gigajoule: unit of energy which is equivalent to 1 billion Joules
GTO	Group Training Organisation
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
LCGs	Large-Scale Generation Certificates
LGA	Local government Area
LTIFR	Lost Time Injury Frequency Rate
LUMS	Lane-use Management System
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
SDG	Sustainable Development Goals
SFMS	Smart Freeway Mitchell Southbound Hester Avenue to Vincent Street
t	Tonnes
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 Smart Freeways Mitchell Southbound Reid to Vincent 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 principles. 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 WA 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 – Kurt Fallon, Alliance Project Director

1.3 Highlights

The following highlights 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).

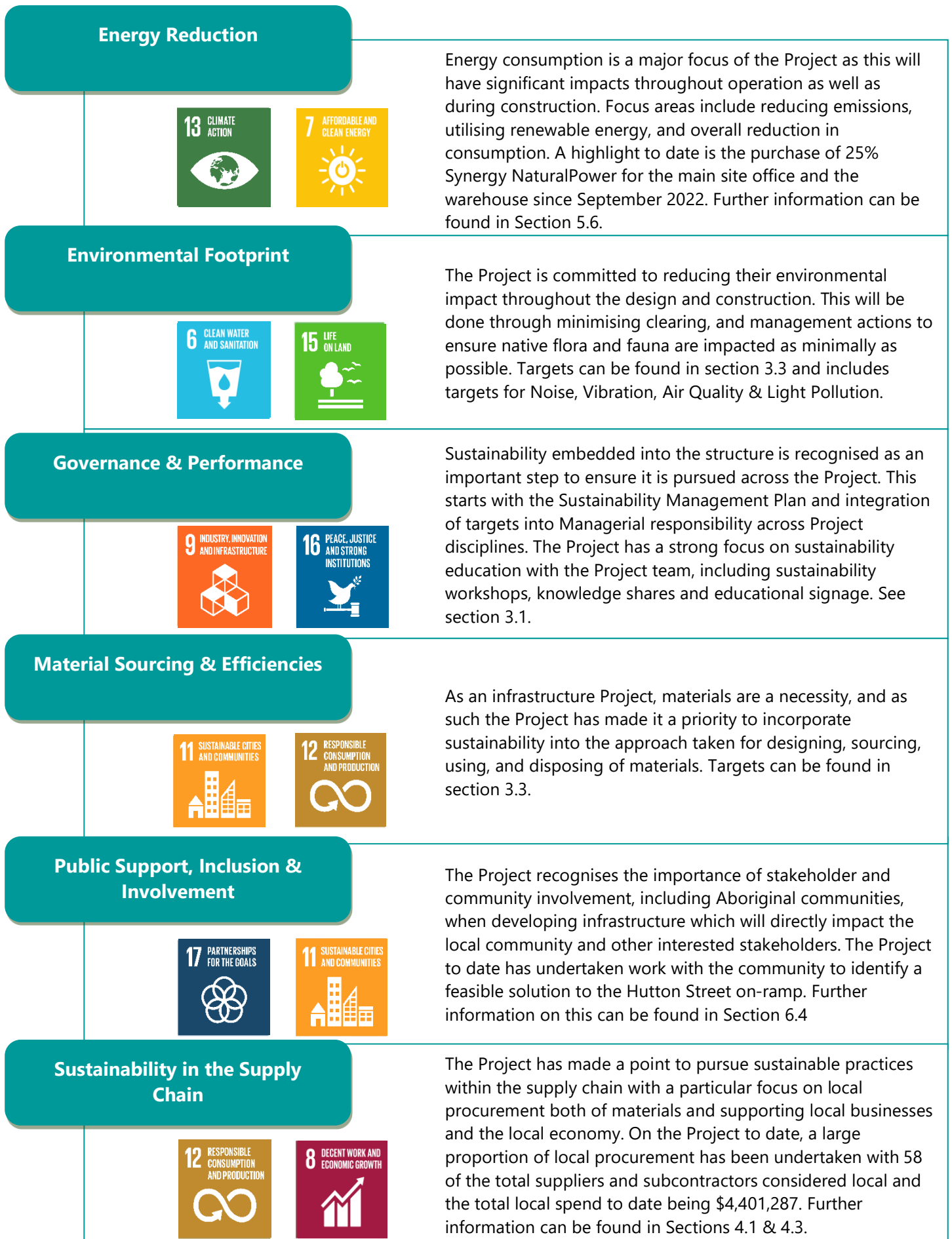


Figure 1 Project Key Impact Areas and Highlights

2 Project Overview

The Smart Freeway Mitchell Southbound (SFMS) Project is part of the Transforming Freeways strategic program. This program is jointly funded by the state and federal government and supports population and economic growth by improving the capacity of Perth's freeway network. Whereas widening is relatively costly and requires additional corridor space, smart freeway infrastructure provides increased capacity without the significant cost of widening.

The Mitchell Freeway southbound lanes between Hester Avenue and Vincent Street currently experience congestion in the morning peak. Main Roads' data suggests that up to 28,000 road users use this section of the freeway during morning peak hour.

The SFMS Project will address heavy congestion during peak periods, reduce pressure on the local road network, reduce travel times for up to 60,000 motorists per day and improve safety and connectivity for people living and working in Perth's northern suburbs.

The SFMS Project involves three Projects – Hester Avenue to Warwick Road (Hester to Warwick Alliance – HWA), Reid Highway to Vincent Street (Intelligent Freeways Alliance – IFA) and the Stephenson Avenue Extension – phase two (S2M Evolution Alliance) Projects.

The Intelligent Freeways Alliance (IFA) is designing and constructing the Reid Highway to Vincent Street section of the Project. IFA and Hester to Warwick Alliance (HWA) are both completing works between Warwick Road and Reid Highway.

The IFA is also responsible for testing and commissioning all smart systems and associated equipment along the whole alignment prior to opening to traffic.

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:

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

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

2.1 Locality and Scope

The Project is a 12km 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 indicated by the purple line running between Reid Highway and Vincent Street.

Smart Freeway Mitchell Southbound: Hester Avenue to Vincent Street



Figure 2 Project Location and Scope

The works include all investigations, design, construction, testing and commissioning required for the widening of ramps and associated services and modifications (including integration of the Hester to Warwick and Stephenson Avenue phase 2 Project sections where they interface with the SFMS Project).

The works include:

- 15 percent design of a replacement Powis Street on-ramp;
- Entry ramps to accommodate ramp metering;
- Establishment of 23 gantries (ranging from 14 – 22 metre spans) between Warwick Road and Vincent Street;
- Installation of:
 - Lane-use Management System (LUMS) and associated fibre optic cabling from Reid Highway to Hutton Street;
 - Bluetooth and CCTV at specific locations;
 - Dynamic Message Signs (DMS);
 - Vehicle Detection System (VDS);
 - Variable Speed Limit Signs (VSLS);
 - Automatic Incident Detection (AID) systems;
 - Provision of a dynamic lane technical solution at Powis Street, Stephenson Avenue and Hodges Drive;
 - Co-location of PTA antennas on three of the LUMS gantries.

The associated civil works include:

- Ramp widening and resurfacing inclusive of revised pavement, lighting and drainage requirements;
- Relocation and modification of services which may be affected by work carried out by the Contractor in order to complete the Project works;
- Modification of existing Principal Shared Paths (PSP);
- Installation of verge side concrete barriers;
- Establishment of access pathways and tracks;
- Installation of fencing, retaining walls and emergency stopping bays;
- Signing and pavement marking – removal of signing and pavement markings no longer required, provision of new signing and pavement markings and modifications to existing signing and pavement markings required as a result the Project works;
- Revegetation and landscaping where required;
- Testing and commissioning of all smart systems and associated equipment prior to opening to traffic.

2.2 Value and Funding

The SFMS Project is part of the 'Transforming Our Freeways' strategic program which focuses on improving Kwinana and Mitchell Freeways to maintain a productive and reliable Freeway corridor (Main Roads, 2020). This Project is jointly funded by the Western Australian (\$49.9m) and Federal (\$49.9m) governments to support population and economic growth by improving the capacity of Perth's freeway network (Main Roads Western Australia, 2023).

2.3 Delivery Agents

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 have been updated from the first annual report to reflect timelines that have shifted in the past year. Future facing dates 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-2023
First Annual Report Submission	July 2022
First Bi-annual Presentation	25 August 2022
Procurement Phase	Early 2022 to Late 2023
Second Bi-annual Presentation	February 2023
Construction Phase	Late 2022 to Mid-2024
Second Annual Report Submission	July 2023
Third Bi-annual Presentation	August 2023
ISC Design Submission	Late 2023

Fourth Bi-annual Presentation	February 2024
ISC As Built Submission	Mid 2024
Practical Completion	Separable Portion three: Mid 2024
Final Annual Report Submission	Mid 2024

During this reporting period, the Project has progressed works in the following areas:

- Engaged 41 subcontractors & suppliers to undertake works
- Commenced the following works:
 - Clearing Vegetation (nearing completion)
 - Demolition Works
 - Piling Works
 - Paving Works at Vincent Street
 - Drainage Works
 - Relocation of Underground Services
 - Asphaltting Works
 - ITS Slab & Concrete Foundations
 - Pit & Pipe installations
 - Cabinet Assembly
 - Factory Acceptance Testing
 - Pre-Installation Testing setup and pre-works
 - Streetlighting
 - Commissioning and Go-Live reports and strategy
 - Modelling & Shop detailing of Structural Steel Components

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 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 to guide and manage 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. While the Senior Management Team holds core responsibility for sustainability outcomes, the Project has focused on sustainability education at all levels and actively involves Project team members including engineers, administrative staff, and others with the Infrastructure Sustainability (IS) rating & achievement of Main Roads sustainability requirements. The Project has also actively pursued education through informative signage and provision of sustainability workshops, team updates and knowledge shares.

The Project has also developed a weekly reporting system using a dashboard which is updated once a week to track progress on the Project works and against the Key Result Areas (KRAs) the Alliance has agreed upon, some of which align to the sustainability targets detailed in Section 3.3.

The Project is undertaking a pilot of the ISC IS Essentials rating tool. 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. To date, progress against the design submission has been undertaken in a number of areas including Leadership & Management, Sustainable Procurement, Energy & Carbon, Stakeholder Engagement, and Legacy.

Regular meetings are undertaken between the Sustainability Coordinator and the champions to monitor and guide progress of ISC credits 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. The Project has monthly meetings with Main Roads' sustainability team and the ISC Project Manager to ensure open communication as well as provide a regular touch point for questions, feedback and guidance where required. 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, setting up the Synergy bills for the main site office and the warehouse with 25% Natural Power energy (see section 5.6 for more information), and the ongoing partnership with ARRA group to support Aboriginal electrical apprentices for components of the Intelligent Transport Systems (ITS) Project works (See Section 4.5).

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. Once the Project was underway, a revision

to the materiality assessment was pursued, adjusting responses to reflect changes in scope and additional information. 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.

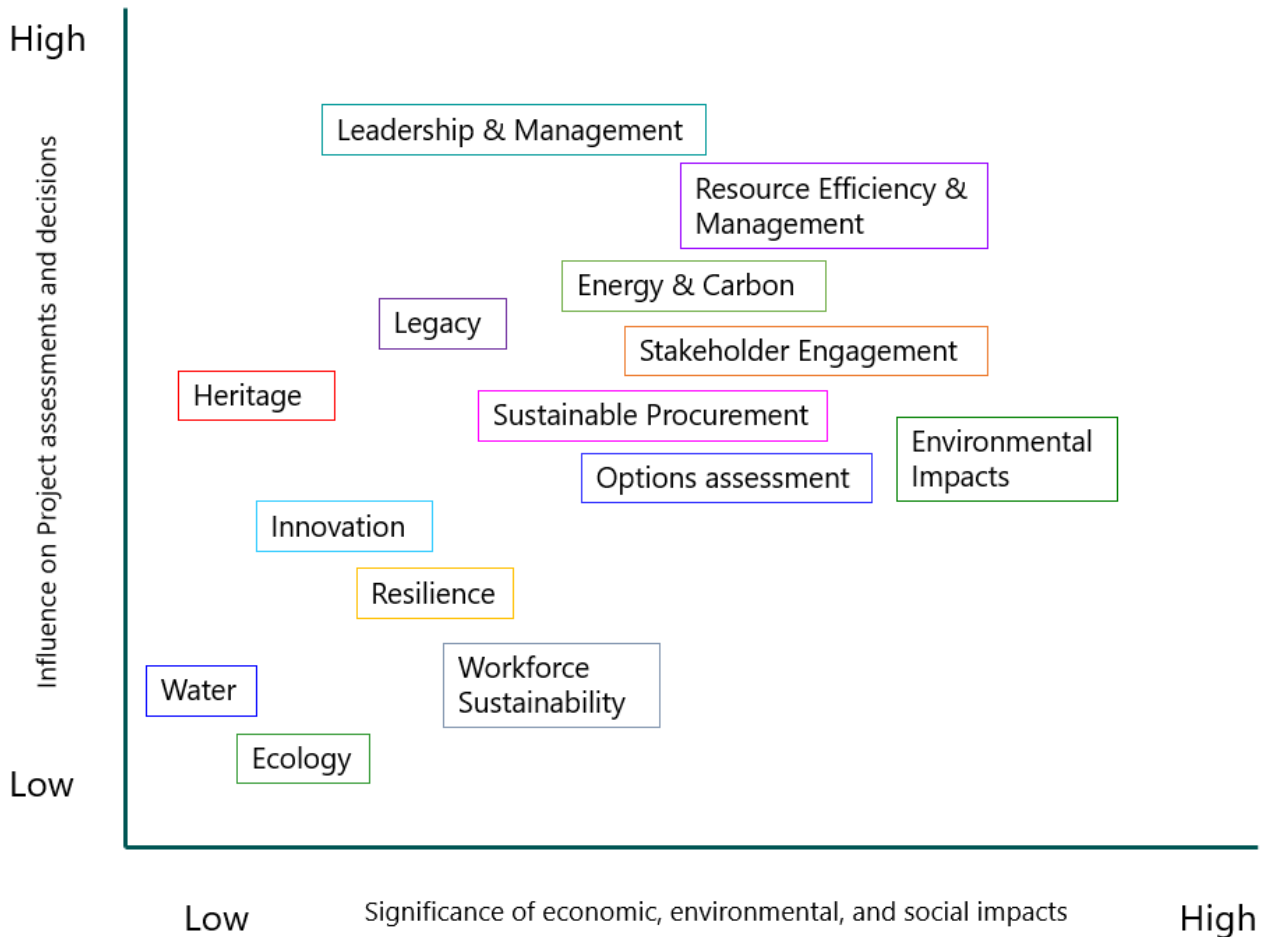


Figure 3 Prioritisation of Material Topics

High influence categories and associated 'High' and 'Very High' ISC credits are listed below:

- Leadership & Management
- Resource Efficiency & Management
 - Rso-1 Resource Strategy Development
 - Rso-4 Resource Recovery and Management
- Energy & Carbon
- Legacy
- Stakeholder Engagement
 - Sta-1 Stakeholder Engagement Strategy
 - Sta-2 Stakeholder Engagement and Impacts
- Sustainable Procurement
- Heritage
- Environmental Impacts
 - Env-2 Noise

- Env-3 Vibration
- Env-4 Air Quality
- Env-5 Light Pollution
- Options Assessment

3.3 Sustainability Targets

The Project has developed a list of targets which can be found below in Table 3. These align with the ISC credits with a materiality score of 'High' or above, as listed in Section 3.2. Targets relating to credits with lower materiality have been include in their relevant sections where applicable.

Table 3 Project Targets for Material ISC Credits

Key Impact Area	Credit	Target	Timing	Status
Environmental Footprint	Env-2 Noise	All noise cases (complaints, enquiries and claims) that relate directly to IFA works are responded to as soon as practicable and within five days as per the Community Engagement Stakeholder Management Plan	Construction	On Track
Environmental Footprint	Env-3 Vibration	Zero non-compliant construction vibration monitoring results per month throughout construction related directly to IFA Project works. Non-compliant results are those that hit or exceed 5mm/s.	Construction	On Track
Environmental Footprint	Env-4 Air Quality	All air quality cases (complaints, enquiries and claims) that relate directly to IFA works are responded to as soon as practicable and within five days as per the Community Engagement Stakeholder Management Plan	Construction	On Track
Environmental Footprint	Env-5 Light Pollution	Design to ensure 60% achievement of lux level (unit of illumination) or lower at sensitive receptors for all new lighting installed, upward light spill to 2% during operation. Where less than 2 lux levels cannot be achieved, the Project will adhere to AS/NZS-4282-2019 Category V requirements. This is excluding gantries.	Design, Construction, Operation	On Track
Material Sourcing & Efficiencies	Rso-1 Resource Strategy Development	Retain and reuse materials on Project footprint through the conservation of >90% of topsoil.	Design, Construction	On Track
Material Sourcing & Efficiencies	Rso-4 Resource Recovery & Management	Divert >85% of Clean/Inert spoil from landfill	Construction	On Track
Material Sourcing & Efficiencies	Rso-4 Resource Recovery & Management	Divert >60% of Office waste from landfill	Design, Construction	On Track
Material Sourcing & Efficiencies	Rso-4 Resource Recovery & Management	Divert >70% of other inert and non-hazardous waste from landfill	Construction	On Track

Public Support, Inclusion & Involvement	Sta-1 Stakeholder Engagement Strategy and Sta-2 Stakeholder Engagement & Impacts	Generate awareness of the Project and minimise the impact of works on the community/stakeholders. Target of acknowledging all enquiries within 24 hours and responding within five days	Design, Construction	On Track
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3.4 United Nations Sustainable Development Goals

From the materiality assessment undertaken for the ISC rating, the credit points have been mapped against each of the UN SDGs.

This has been used to inform which SDGs the Project may have the most impact on. All SDGs that received over 20 points in ISC’s materiality process have been included in the mapping against the Project’s key impact areas which are included in Figure 1. Below, Figure 4 outlines this mapping exercise.



Figure 4 Key Impact Areas Mapped Against UN SDGs

3.5 Climate Change Assessments

Climate Change is becoming a risk and a pressure in all corners of the world and is significantly 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 4. The Project undertook a climate change and resilience workshop on the 22 August 2022 with a multidisciplinary internal team. From this workshop along with published data and information, a climate change risk register was developed with controls identified and incorporated into design. A review & update of the climate change risk register will occur during the construction phase.

Table 4 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/m ²)	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

The Project identified a total of 16 climate risks, with only one categorised as 'High' (2030 risk) and 'Extreme' (2090 risk) which has been reduced to 'Medium' (2030 & 2090 risks) after the adopted controls. This risk was "Increased temperature leading to car breakdowns" which was an indirect risk to the health and safety of road users.

Controls adopted by the Project to combat climate change risks include:

- Installation of fans in critical devices (e.g. ITS cabinets) to reduce overheating;
- CCTV and Automatic Incident Detection Systems along freeway route to enhance reaction-time during increased probability and intensity of climatic events.

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 Alliance Management Team or Board to decide if they will be implemented or abandoned. Innovations to be pursued are also included in the monthly sustainability reports as updates. 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.

At the time of writing, two potential innovations have been identified that the Project believes may be eligible for inclusion as innovations for the Innovation credit in the IS Essentials pilot rating.:

- ITS Cabinet Assembly on-site in Western Australia
- Use of Ramp Metered Dynamic Lane system (see 3.7 Innovation Case Study)

These are both currently in progress of being pursued for the Design rating submission.

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 5 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 June 2023, 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.

In the Kwinana Northbound Smart Freeways infrastructure, ramps are much larger with vehicle storage space for queuing. In some locations along the Mitchell Freeway Southbound lanes, the length of the ramps are limited and the ability to widen the ramps due to space constraints has resulted in the RMDL alternative which used technology to maximise queuing in peak period.

As of June 2023, the Project has completed the design architecture of the control system, completed

both the Technical and Functional specification and engaged a supplier to complete the manufacture, programming and supply of key components of the RMDL.

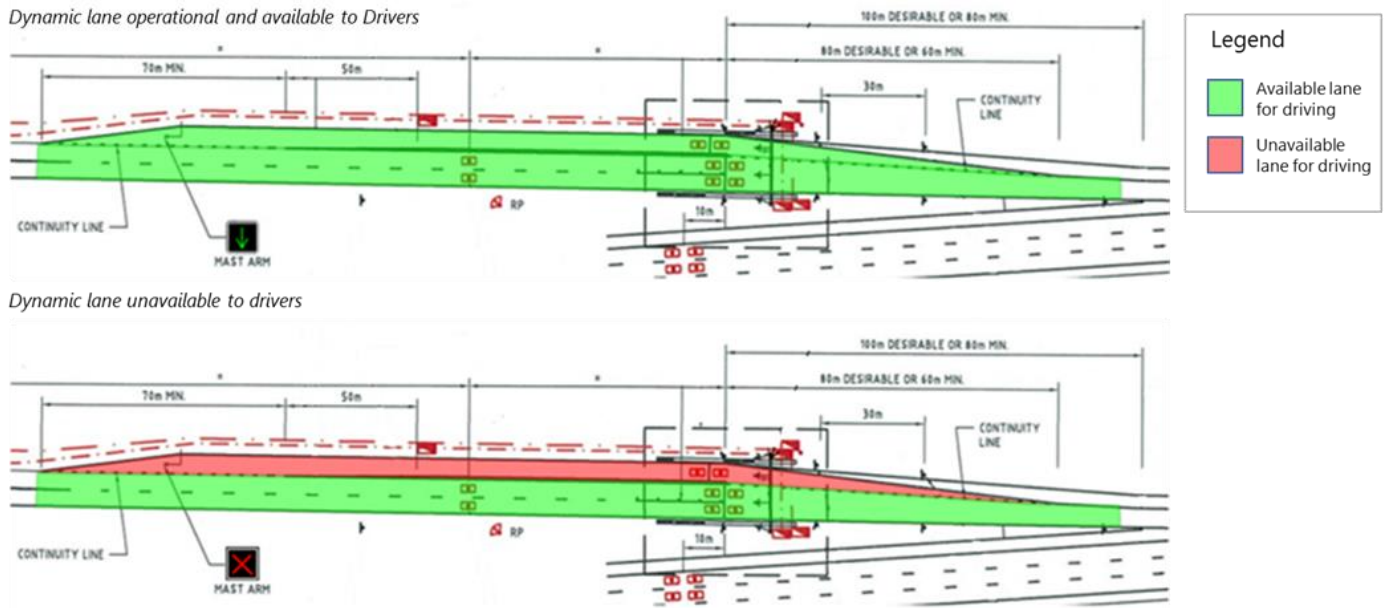


Figure 5 Drawing of RMDL to Provide a Visual Explanation of Functionality

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 variety of 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, 2022). 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. A combination of all the current Mitchell Freeway upgrades is projected to reduce travel times by seven minutes. Key economic aspects are summarised in Table 5.

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 have been and will continue to be impacted, and therefore are considered stakeholders.

Table 5 Summary of Economic Aspects

ECONOMIC ASPECT	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Funding Received	\$	\$99.8m	\$99.8m
Indigenous Enterprises	No.	9	9*
Disability Enterprises	No.	0	0
People Employed by Supply Chain [^]	No.	400 ^x	445 ^x
Suppliers Engaged	No.	41	70
Buy Local Spend	\$	4,090,278	4,401,287

**Please note that this has been amended from the previous report after a review.*
[^]The supply chain for this Project is defined as all suppliers and subcontractors engaged by the Project
^xDetermined through the mobilisation schedule

4.2 Key Economic Outcomes

The Project anticipates delivering several positive economic outcomes in the economic sphere. 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 an apprenticeship working with ITS Cabinets
- Travel to work time reductions for those travelling southbound during peak periods, by approximately seven minutes along the section of current Mitchell Freeway upgrades

4.3 Sustainable Procurement and Buy Local

The Project endeavours to deliver its procurement function in a way which maximises sustainable outcomes. This includes an emphasis on local procurement, a focus on engaging Aboriginal businesses and embedding sustainability questions into the procurement process starting with tendering, including supplier/subcontractor's:

- involvement: in the Sustainability Supply Chain School
- use or production of products with sustainability labels
- tracking of materials, waste, water, and energy
- employment of Aboriginal Peoples

For the Project, 'buy local' is defined as procurement from businesses 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 upskilling 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 the 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. As of 30 June 2023, of the total suppliers and subcontractors awarded work on the Project, 58 are considered local businesses with head offices within 100 km of the Project boundaries.

Several examples of packages awarded to local businesses are:

- Pit and pipe works being undertaken by Boodja Services,
- Street lighting and ITS Cabinet installation being undertaken by Wilco Electrical,
- Structural Concrete Footings being undertaken by Totem Civil, and
- Traffic Management undertaken by Oaks Civil Construction.

In addition to the aforementioned businesses being local, they are also Aboriginal owned and offer opportunities for apprenticeships and employment to Aboriginal peoples.

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
- Cultivate industry leadership, through opportunities developed
- 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 three percent.

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 will also be upgraded along the Hutton Street onramp, which will aid in reducing pedestrian conflict points for active transport commuters. Further information can be found in Section 6.4 Social Case Study – Hutton Street On-Ramp Community Feedback.

With regards to construction, effort has been made to increase the sustainability of the fleet used by team members. Three of the vehicles used for the Project are hybrid cars, which represents just over 13 percent of the total fleet. The Project investigated fully electric vehicles to incorporate into the fleet; however, these were deemed unfeasible due to monetary constraints, availability in the rental market, and availability in Western Australia specifically for electric and hybrid utility vehicles for those individuals' making trips on site or carrying equipment.

A lesson that came from this experience is the opportunity to push away from renting a high number of utility vehicles on Projects which operate within the metropolitan region. Changing the mentality around what type of vehicle is required for a specific type of work opens up opportunities to rent or purchase vehicles that are hybrid or electric. It has also highlighted the important role infrastructure Projects can play in increasing the Western Australian electric car market and charging infrastructure network as the lack of charging stations near the Project head office and site locations provided an additional barrier. There is an opportunity here for Projects, particularly larger Projects with longer timeframes, to invest in electric charging infrastructure that will continue to exist after the Project is completed.

4.5 Economic Case Study – Aboriginal Electrical Apprenticeship Program

The following case study was reported in the Project's 2021/2022 Annual Report as the apprenticeship program was about to commence, with updates to the progress of the program which has now been ongoing for over six months.

The manufacturing of Intelligent Transport Systems (ITS) cabinets is being undertaken onsite with the three local Aboriginal apprentices. This initiative was implemented to upskill local electrical trades in ITS. The decision was made in lieu of purchasing pre-fitted cabinets.

On the 12 August 2022, an informal barbeque with potential apprentices took place to discuss the Project and the opportunity to undertake an apprenticeship. Project team members used the session to explain the ITS cabinets and provide an opportunity for potential apprentices to view the cabinets in person, as can be seen in Figure 6.



Figure 6 Potential Apprentices at a meet-and-greet with Project Team Members and ITS Cabinets

The program has now been running for over six months and has received positive feedback on student progression, competency, and knowledge as well as high levels of participation from Aboriginal apprentices. Focusing on collective skill-based learning through practical applications in construction and electrical competency training, the three apprentices have been upskilling their current knowledge and applications in the electrical field to become job ready in the ever-changing infrastructure environment. The apprentices work towards their individual Training Management Plans as developed by the Group Training Organisation (GTO) and to the competencies as per AS3000. This is overseen by the requirements of the apprenticeship. The Project is currently awaiting updated information from the GTO on the progress of apprentices.

The Program has provided the chance for career progression in multiple competency areas including:

- Principles of electrical installation, both in a workshop and onsite environment
- Theoretical and hands on training on how devices are powered and how they communicate with control systems
- Installation training of cable and protective devices and which situations they are most effective in
- Manufacturing techniques spanning electrical, electronic and ITS

Figure 7 provides an example of a completed ITS cabinet which the electrical apprentices participated in realising. Given the success of the program to date, the Project is in the process of increasing the number of apprentices engaged.

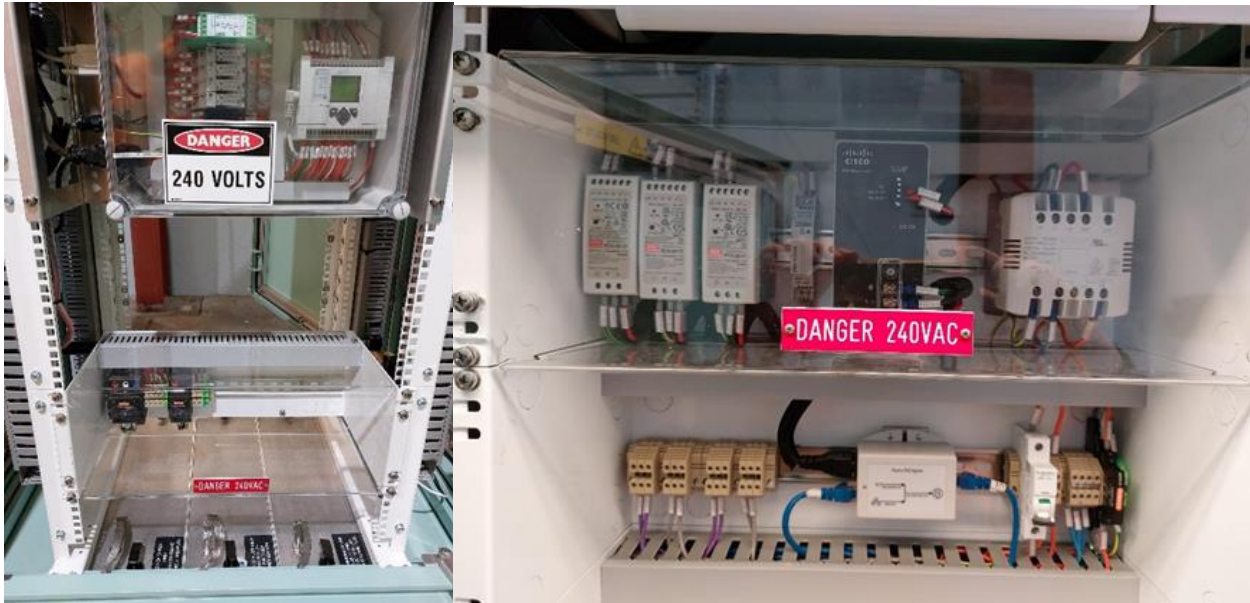


Figure 7 Completed Cabinet Internals

5 Environmental

The Project works will occur extensively within brownfields between Reid Highway and Vincent Street on Ramp along of the Mitchell Freeway south bound. 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 6.

Table 6 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
Total Water Consumption	kL	4028	4028
Total Non-Potable Water Consumption	kL	4028	4028
Total Potable Water Consumption	kL	0	0
Non-Potable Water Replacement	%	0	0
Total Green House Gas emissions [^]	t CO2-e	298.7	305.2*
Total Energy Consumption	GJ	3295.1	3,305.1*
Renewable Energy Mix**	%	2.9	2.9

[^] Inclusive of Scope 1, 2 & relevant scope 3 emissions

*Note adjustments have been made to figures reported in previous reports, following data audits.

**Inclusive of Green Power mix & onsite generated renewable as per Table 10

A summary of resource inputs and waste for the Project are detailed in Table 7. The Project has a number of options for diversion of waste from landfill. Several other Projects are currently underway in the vicinity which may provide opportunities for reuse of materials. There are also options nearby for both recycling materials and procuring recycled materials. To date, a significant proportion of resource outputs have been sent to Carramar Recycling Facility as well as West Coast Metals Recycling. The Warehouse recycling is taken by Veolia and sent to a recycling facility as well.

Table 7 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	5,341.6	5,341.6
Total Quantity of Recycled Materials Used	t	180.0	180.0
Total Quantity of Reused Materials Used Onsite	t	0.0	0.0
Percentage of Recycled Material Used	%	3.3	3.3
Resource Outputs (Wastes)			
Waste Sent to Landfill	t	14.2	14.2
Waste Diverted from Landfill	t	2,822.7	2,822.7
Total Waste Generated by Project	t	2,836.8	2,836.8
Waste Diversion Rate	%	99.5	99.5

5.1 Environmental Context

The Project exists within the Perth Metropolitan transport corridor along the Southbound Mitchell Freeway, approximately five 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 occurring 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 ranges 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, a conservation significant bird species (Appendix 2).

No water bodies exist within the Project boundary, however Herdsman Lake, within the Glendalough Open Space, is a receiving water body for drainage systems within the Project boundary. Despite this, the Project is unlikely to have any impact on Herdsman Lake given the nature of the works and the distance of the Project to the lake.

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 as Carnaby's Cockatoo habitat; however, it is unlikely all of these trees will be impacted by the Project. The Project is investigating opportunities for enhancing the environment, for example through revegetation however, initiatives are in preliminary stages of development as construction is still in progress.

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 Climate Change, Energy, the Environment and Water (DCCEEW). The environmental approvals and allowance are summarised in Table 8.

Table 8 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 a water cart in use for construction 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 for this 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 9. Construction has now commenced with water being used in the following works: pavement works, piling, dust suppression, and concrete works. To date, 4028kL of water has been used for Project works.

Table 9 Water Parameters

WATER PARAMETER	TOTAL THIS PERIOD		TOTAL FOR PROJECT	
	kL	%	kL	%
Potable Water				
Standpipe / Scheme Water Purchased	TBD	TBD	TBD	TBD
Non-Potable Water				
Bore Water	4028	100	4028	100
Surface Water	0	0	0	0
Recycled / Wastewater	0	0	0	0
Total Water Used	4028	100	4028	100



Figure 8 Water Cart On-Site in Operation

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 native vegetation is within the Project boundary.

If any clearing of native vegetation is required, the relevant environmental approvals and permits will

be obtained. 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.

As of 30 June 2023, the Project has cleared a total of 3.9 hectares (ha) of vegetation, none of which is native vegetation as per Table 6.

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 and construction phases are ongoing, the specifics have not yet been finalised, however drought tolerant native species will be preferenced. No revegetation work has been undertaken to date.

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. To date no presence of dieback has been recorded by the Project, with ongoing weed and hygiene monitoring as part of the Project Monthly Environmental Inspection.

5.5 Carbon Emissions and Energy

Energy use and the associated greenhouse gas (GHG) emissions for the Project are primarily associated with electricity use during design and construction, diesel and petrol from the Project's vehicle fleet, GHG 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
- Procurement of materials with a reduced embodied energy footprint
- Use of temporary solar lighting towers during works (Figure 9)



Figure 9 Solar Lighting Tower in Use

Since September 2022, the Project has purchased Synergy NaturalPower at 25% for the Warehouse and the Main Site Office each month. This has represented a significant portion of the energy consumption for the Project to date and created a meaningful reduction in the Project's carbon emissions. NaturalPower is a service under Synergy's accredited Australian GreenPower program, essentially supporting an increase in the amount of renewable electricity feeding into the grid (Synergy, 2023). Further information on this initiative can be found in Section 5.6 Environmental Case Study – NaturalPower in the Offices.

Additionally, three hybrid vehicles currently form part of the Project fleet, accounting for estimated savings of 8.9 t CO₂e compared to the Business-as-Usual diesel utility vehicles. All lighting towers in use for night works to date have been solar towers. At present there are seven solar lighting towers in use for nightworks, accounting for estimated savings of 86.8 t CO₂e compared to diesel lighting towers.

The energy use on the Project to date inclusive of the design and construction phase is detailed in Table 10.

Table 10 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)	2,727.17	-	2.77	*2,842.17	-	2.85
Diesel Used (on and off road)	65,809.39	-	81.19	*67,634.75	-	81.16
Liquefied Petroleum Gas (LPG)	117.6	-	0.09	117.6	-	0.09
Biodiesel	0	-	0	0	-	0
Hydrogen	0	-	0	0	-	0
Oil	0	-	0	0	-	0
Other	0	-	0	0	-	0
Purchased Electricity from Grid**	-	143,182.7	13.02	-	*143,182.7	12.99
Green Power Mix	-	25,990.50	2.62	-	25,990.50	2.61
Generated from Renewable Energy Onsite and Used Onsite	-	2,738.88	0.30	-	2,738.88	0.30
Total Energy Used	-	132,591.08	100.0	-	139,750.08	100.0

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

Note: ITS device testing is being undertaken currently, which has not been captured in this year's Annual Report. Once the testing has finished, the energy consumption will be calculated by the Project team and provided in next year's Annual Report.

*Note: adjustments have been made to figures reported in previous reports, following data audits.

**Note: this excludes Greenpower percentage purchased from the grid as this is captured in the line below.

5.6 Environmental Case Study – NaturalPower in the Offices

The Project has a main office which sits across two energy meters, a warehouse where the ITS cabinets are being assembled, and a site office along the Project alignment for on-site work. Three of the four accounts are registered with Synergy's NaturalPower program at 25% of the total monthly bill. These two accounts cover the main office, and the warehouse. The only building which does not have any NaturalPower mix is the site office along the freeway alignment. This building is a rented unit for which the Synergy account is controlled by the building owner.

NaturalPower is a Synergy scheme for commercial green energy which allows for a percentage of every energy bill to be offset with a renewable energy solution (Synergy, 2023). The program is a part of Synergy's accreditation under Australia's GreenPower program in which Synergy buys large-scale generation certificates (LGCs) on behalf of a company or individual for a slightly higher energy tariff (Synergy, 2023). The LGCs come from nationally accredited GreenPower renewable energy sources and is fed back into the grid, helping to increase the amount of renewable energy running through the grid (Synergy, 2023). Further information on the NaturalPower energy scheme and how it contributes to supporting Australia's renewable energy sector can be found on Synergy's website, [here](#).

From this contribution each month for three of the four Project energy bills since September 2023, the Project has managed to achieve the following positive outcomes:

- Reduction in 16,893.6 kg of CO₂e from the energy consumed for operation of office building compared to the base case.

- 18.17% overall Green Power mix from the Project start to 30 June 2023

5.7 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, including the four targets detailed in Table 3, and the initiatives detailed in the below paragraphs.

A base case has also been developed for the Project's participation in the IS Essentials Pilot rating scheme which has been verified and provides 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 to utilise local materials is ongoing. Initiatives have already been identified and are in progress of being finalised. This includes larger impact initiatives such as the use of concrete and other materials which have Environmental Product Declarations (EPDs). EPDs are independently verified and registered documents that provide transparent data and other relevant information about the life cycle impacts of a product, including information on resource, energy and water consumption, carbon footprint impacts and pollution metrics (EPD Australasia, 2019). The Project has made an effort to choose concrete with EPDs, in particular pursuing Holcim concrete products as this supplier is now able to provide EPDs for all of their mix designs for any Project and at any point in the Project life cycle (Holcim, 2023).

Small initiatives have also been pursued such as the diversion of containers which fit within the Containers for Change scheme. To date the Project has diverted 1514 containers from landfill since the Project started collecting Containers for Change in August 2022. The Project has set up an account with the Containers for Change scheme and chosen the Australian Marine Conservation Society as the charity that all container payments will be donated to on the Project's account.

A breakdown of the materials used on the Project to date can be found below in Table 11-13. The waste and materials statistics will be updated monthly as the Project progresses.

Table 11 Imported Raw/Traditional Materials for the Project

IMPORTED RAW/TRADITIONAL MATERIALS			
MATERIAL	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Aggregate	t	28.00	28.00
Aluminium	t	0	0
Asphalt	t	682.06	682.06
Ballast	t	0	0
Bedding Aggregate	t	0	0
Bitumen	t	0	0
Bitumen Cutter (MCC)	t	0.415	0.415
Bitumen Cutter (SCC)	t	0	0
Cement	t	0	0

Cement Additives	t	0	0
Cement Stabilised Backfill	t	245.00	245.00
Clay	t	0	0
Concrete	t	404.00	404.00
Crushed Dust (including Cracker Dust)	t	0	0
Crushed Limestone	t	0	0
Crushed Rock	t	763	763
Emulsion Based Prime (e.g. Ecoprime)	t	2.29	2.29
Ferricrete	t	0	0
Geofabric Polymers	t	0	0
Glass (including Glass Beads)	t	0	0
Gravel	t	0	0
Limestone	t	2331.25	2331.25
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 (PVC)	t	14.28	14.28
Precast Concrete	t	81.30	81.30
Sand	t	722	722
Steel	t	68.00	68.00
Synthetic Binders	t	0	0
Topsoil	t	0	0
Other	t	0	0

Table 12 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 13 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	50	50
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	130.00	130.00
Spoil	t	0	0
Topsoil	t	0	0
Other*	t	0	0

5.8 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, or less than 5mm/s. These monitors will continue to be used throughout construction where activities necessitate their use, such as during piling works near sensitive receptors.

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

The Project will continue to address noise and vibration during construction through ongoing management. Throughout construction works undertaken in this reporting period, the Project has undertaken vibration monitoring where vibratory works are undertaken with monitors placed at the boundary of the nearest structures (such as residents and businesses). Examples where this was undertaken include Hutton Street single-lane merge and Vincent Street works. To date, no non-compliant construction vibration monitoring results have been recorded.

5.9 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. Movement of dry spoil and vegetation may aerosolise dust and particulate matter, leading to a reduction in air quality in the nearby area.

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. This benefit to air quality and emissions reductions is supported by a study undertaken in Leeds, United Kingdom which found that low speed stop-start traffic conditions have significantly higher emissions than freely moving traffic (Khalfan et. al., 2017).

The Project is addressing air quality through management actions, objectives, and monitoring actions which are outlined in the EMP. Management actions include regular services of equipment, ensuring all vehicles meet the current emissions regulations prior to their use on-site, and procedures for dust

suppression throughout works and during shut-down periods. Periodic air quality monitoring is being conducted on the Project where works activities have the potential to have air quality impacts (such as dust). Monitoring is also undertaken through daily visual checks for visible emissions on vehicles and dust generation. To date no exceedances have been recorded.

5.10 Light Spill

Light emanating from construction works can negatively impact surrounding communities and ecological receptors. Residential receptors include residents within a 100 m boundary of key Project work sites such as gantry locations. 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 are being 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 visual light spill inspection during periodic night works when temporary lighting towers are being set up for any potential residential and vehicle traffic. Records will be kept of 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.

The Project has seven solar powered lighting towers that have been put in locations where the existing street lighting has been temporarily removed. These lights are checked prior to commencement of nightworks to ensure that there is no spill of light into adjacent residential areas. No complaints have been received by the Project regarding light spill from the Project to date. During nightworks, where artificial lighting is required, this is monitored during these works to ensure neither residential, ecological, or commuters are impacted.

5.11 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. One site has been self-identified as PASS at Stephenson Avenue historical refuse site. Self-identification occurred due to prior testing undertaken by Stephenson Avenue Extension Project. This has not been deemed a material issue for the Project and is not being pursued for the IS Essentials Pilot rating.

5.12 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 being undertaken through soil samples during construction. Soil testing has been undertaken in potential high-risk areas for both Potential Acid Sulfate Soils (PASS) and ASS. To date, no results have come

back positive for either PASS or ASS. Testing will continue as construction is ongoing at high-potential locations as works progress through these areas.

6 Social

A summary of key social aspects and performance for the Project is detailed in Table 14.

Table 14 Summary of Social Aspects

SOCIAL ASPECT	UNIT	TOTAL FOR THIS PERIOD	TOTAL FOR THE PROJECT
Stakeholders engaged*	no.	12,217	12,285
Stakeholder enquiries received	no.	231	247
Heritage sites in Project vicinity ^x	no.	0	0
Length of Principal Shared Path (Addition/Refurbished)	km	0	0
Women in Workforce**	%	[^] 11.2	14.9
Indigenous People in Workforce**	%	6.1	5.6
Lost Time Injury Frequency Rate (LTIFR)	no.	0	0
Hours of Training Undertaken	hrs	500	1054
Development Employees and Apprentices on the Project	no.	#7	#7

*Includes stakeholders who made an enquiry and were engaged through the communications and complaints ^xProject vicinity is defined as within the Project boundary.

Process, and subscribers to the Project electronic mailing list for Project and traffic updates.

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

[^]Percentage of total new employees for the period in question

[#]Total number of individuals who were employed as trainees or apprentices for any length of time during the reporting timeframe (reporting year or Project total)

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 12km corridor and includes a mix of residential and commercial space. There is also Lake Monger, which sits adjacent to the Project and is a conservation wetland 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 53.7% of people as drivers or passengers in the Town of Vincent, to 69.5% of people in the City of Stirling, indicating a high percentage of the population will likely interact with the Project on a regular basis (ABS, 2021).

Worth noting, and as mentioned in last year's Annual Report, several 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 cyclists 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

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 supports 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 is updated annually and guides the Project on all communications and engagement. The Plan identifies all stakeholders (through a matrix of their influence and interest), provides a situational analysis, an engagement strategy, communications protocols, reporting and record keeping, measurable outcomes, timelines and activities.

This strategic approach 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 occurs at the "inform" and "consult" level, with occasional processes at the "involve" level due to the nature of the infrastructure work being undertaken. In depth consultation was carried out in October 2022 around the Hutton Street reconfiguration and as a result of strong community dissatisfaction, Project designs were changed to accommodate stakeholder feedback. For further information on the Hutton Street reconfiguration, see Section 6.4 Social Case Study – Hutton Street On-Ramp Community Feedback.

In the early stages of Project development, the Project liaised 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 continues to liaise with key stakeholders, notably the local government authorities (City of Stirling and City of Vincent); businesses impacted by the Hutton Street redesign; road users who sign up to the Project Page through the Main Roads website (www.mainroads.wa.gov.au/smart-freeways) and the community within the Project boundary. Prior to any works occurring in local areas, engagement is being undertaken with affected stakeholders through letter drops and meetings where required.

The Project has stakeholder and community-related objectives and targets and has also developed a list of non-negotiables and negotiables within which the frame of stakeholder and community engagement will operate.

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

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.

6.3 Community Satisfaction and Amenity

Positive, regular and consistent community and stakeholder engagement is vitally important to the Project team as it builds trust, understanding and support from the relevant stakeholders and impacted community. Community satisfaction and amenity is being addressed through a number of avenues and initiatives including:

- Reduced commute time post-Project operations
- Community Feedback Survey,
- Positive comments emailed through Main Road's website's Contact Page
- Positive feedback voiced to workers on site when and where safe to do so.
- Positive comments in the media (ie 6PR talkback radio)

The Project has identified and carried out different methods of engaging with stakeholders and community members depending on who they are and the situation. This has included door knocking and in-person meetings, enabling community members to voice their concerns through direct engagement or to contact the Main Roads Customer Information Centre via email or phone. Other methods employed on a regular basis include letter box drops with notification of works letters; and electronic direct mail (EDMs) to road-users who subscribe to traffic updates on the Main Roads website's Project page as mentioned above. In addition, quarterly meetings are held with the City of Stirling and City of Vincent to give a Project update and address any concerns or issues.

All enquiries, claims, concerns and meetings are reported through the Main Roads CONNECT database, managed centrally and updated by the Project's Community Engagement Team.

6.4 Social Case Study – Hutton Street On-Ramp Community Feedback

As part of the Smart Freeway Mitchell Southbound Project, coordinated traffic signals are to be installed at each on-ramp from Hester Avenue to Vincent Street. Requirements for the Hutton Street southbound on-ramp include coordinated traffic signals and the construction of a third lane to enable easier and safer merging during peak periods.

Hutton Street ramps (northbound and southbound) are quite unique as they are the only ramps on both Mitchell and Kwinana freeways with intersections connecting to the local road network. This posed some challenges for the Project, to ensure the road layout provided efficient traffic data to the smart technology. Without accurately monitoring vehicle queues along the ramp, the coordination element with other ramps in the system cannot work effectively. This is because it is designed to increase the rate of vehicles moving onto the freeway as traffic increases.

To ensure accurate data readings of traffic along the Hutton Street on-ramp, the intersections at Hector Street and McDonald Street needed to be closed.

The Southbound onramp connected to the local road network at two points, Hector Street which is a residential area, and McDonald Street which is within an industrial/commercial area serviced by over 20 trucks each day. In addition, the Osborne Park Primary School is located adjacent to Hutton Street and needed to be taken into consideration when identifying alternate options.

A Communications and Engagement Plan was written to identify all impacted businesses and stakeholders. The Plan outlined a strategy for consultation to communicate these road changes to the community and key stakeholders as follows:

- Early & transparent engagement with stakeholders was delivered to provide information and understand key concerns
- A range of methods to promote the changes including a maildrop to 3000 residents and business owners with a letter (October 2022) from the Alliance Director describing the changes; an online survey with feedback with feedback options; contact form online, plus VMSs
- Face-to-face meetings with commercial landowners/business owners, either on McDonald Street or in the broader local area were offered and carried out by the Community & Stakeholder Engagement Manager and Construction Manager
- Responses were quickly managed due to the potential for outrage and close-out issues
- Feedback was gathered from the community via Main Roads Connect
- City of Stirling also gathered feedback through their own channels
- A consultation close-out report was provided to the City of Stirling

The feedback was reviewed by the Project team and Main Roads, with several months spent evaluating different options in an effort to address the concerns raised while still meeting Project requirements. There were some concerns raised regarding the proposed road closures including access to businesses, increased heavy vehicle movements near local schools and properties, tree removal, and traffic congestion creating safety issues and restricting access to other local roads.

Following the consultation and evaluation process, variations to the design were developed, with the adopted option minimising impacts and addressing the community sentiment. Key amendments included:

- Improved access for Hutton Street eastbound and southbound traffic entering the on-ramp
- The left turn to McDonald Street to remain open (in original design was closed completely)
- A T-shaped cul-de-sac design at Hector Street to ensure tree retention
- A dedicated left turn from Cape Street on to a new third lane along the on-ramp
- Street parking modifications along Cape Street (to be managed by the City of Stirling)

These changes were communicated back to the community in March 2023 with a mail drop of the Hutton Street Fact Sheet which was also uploaded to the Main Roads website Project page. This can be found [here](#). Figure 10 provides an example of the proposed layout provided in the Hutton Street Fact Sheet.

CURRENT LAYOUT



1. Left turn from on-ramp to McDonald Street
2. Left turn from McDonald Street to on-ramp

Figure 10 Hutton Street On-Ramp and McDonald Street Intersection

PROPOSED LAYOUT



1. Left turn to remain from on-ramp to McDonald Street
2. No access to on-ramp. McDonald Street traffic to use cul-de-sac turn, giving way to traffic from on-ramp

Since March, A follow-up meeting with key businesses and the City of Stirling has been carried out. Feedback from stakeholders since these proposed changes were made public has been markedly more positive.

6.5 Heritage

6.5.1 Aboriginal Heritage

The Project is located on the land of the Whadjuk Noongar People. Several sites of continuing cultural and heritage significance are located outside 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 Southwest 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).

The only site identified within the Project boundary: Site 21538, Stirling Wetlands (Mythological, Camp, Hunting Place, Meeting Place, Named Place, Water Source) 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. 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 Alliance 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 targets for Aboriginal participation (10% of total personnel) and business spend (3% of direct Project cost). The Project has also developed an Aboriginal Participation Plan which outlines the Project's commitment to engaging and involving Aboriginal businesses and individuals.

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

In addition, the Project has made efforts to promote heritage learnings through educational signage, and supported events such as NAIDOC Week and National Reconciliation 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 has also taken on a number of Aboriginal apprentice electricians as part of the cabinet fit-out in the warehouse.

For National Reconciliation Week, a Co-Chair of Reconciliation WA and Co-Director of the Danjoo Koorliny Project was invited to join the IFA team in the Balcatta office for a National Reconciliation Week presentation. During the Morning tea, which was organised by the IFA's Andrew Yarran, Carol spoke openly about the history behind the week and the importance of acknowledging our shared history (See Figure 11 & Figure 12). The team had a chance to ask questions, and discuss the past, present, and future of reconciliation in Australia. The Project is immensely grateful to Carol for taking the time and sharing this experience with us.



Figure 11 National Reconciliation Day Group Photo



Figure 12 National Reconciliation Day Discussion

Further information about National Reconciliation Week can be found [here](#).

6.5.2 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. To date, as construction has commenced, no items of European heritage significance have been uncovered.

6.6 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.

6.7 Diversity

The Project has an Aboriginal Participation Plan which identifies how the Project will maximise Aboriginal participation. Actions include seeking out Aboriginal subcontractors, delivery partners, and supply packages, training and mentoring Aboriginal people employed on the Project, and

recruitment of Aboriginal candidates. As of 30 June 2023, the Project has 11 Aboriginal individuals working on the Project and is procuring materials and services from several Aboriginal businesses. These include the light vehicle fleet, electrical apprentices, and small construction firms to perform civil works. Further information can be found in Section 4.3.

The Project has also pursued diversity through women employed in the workforce. To date, the Project has employed 66 women (includes subcontractors who have booked hours to the Project) (14.9%), with two positions in senior management held by women during this period.

6.8 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 now commenced, and the following safety outcomes have occurred to date:

- All Traffic Management Plans reviewed and approved by Main Roads and aligned with traffic management of adjacent Project to reduce the impact to road users
- Sections of Project works (temporary multi-lane closures) conducted as night works to reduce impact to road users
- Ongoing monitoring of current Traffic Management Plan implementation

Initiatives developed to improve road safety which have commenced are:

- Reduction in the number of freeway closures required for gantry installations
- Regular site drives by traffic crews and site supervisors to assess the condition of all temporary controls including temporary tape.

6.9 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 ISO 45001 – 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 health and safety objective is to have an incident and injury free Project. This will feed into Key Performance Indicators (KPIs) which vary between positions. The Project has now started the construction phase of works, with the following outcomes to report to June 2023:

- 19 reported minor incidents to date
- no medically treated injuries or 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. This risk register is reviewed and updated at least quarterly as work packages commence and subcontractors are onboarded. Other management activities IFA is undertaking 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.

7 Reference List

- Khalfan, A. M. M., Andrews, G. E., & Li, H. (2017). Real world driving: Emissions in highly congested traffic. SAE Technical Paper Series. <https://doi.org/10.4271/2017-01-2388>
- Australian Bureau of Statistics. (2021). Search Census Data. ABS. Retrieved from: <https://www.abs.gov.au/census/find-census-data/quickstats/2021/LGA57910>; <https://www.abs.gov.au/census/find-census-data/quickstats/2021/LGA58570>
- Bureau of Meteorology. (2022). *Daily Global Exposure: Perth Metro*. Australian Government, Bureau of Meteorology.
- Department of Water and Environmental Regulation. (2021). *Western Australian climate change projections*. Joondalup: Government of Western Australia.
- Department of Water and Environmental Regulation. (n.d.). *Groundwater Map*. Government of Western Australia. Retrieved 2022 from: <https://maps.water.wa.gov.au/Groundwater/>
- EPD Australasia. (2019). *Environmental Product Declarations*. EPD Australasia. Retrieved from [EPD-AUSTRALASIA-BROCHURE WEB 28-feb 2019.pdf](#)
- Holcim Australia. (2023). *ViroDecs™ Environmental Product Declaration*. Holcim Australia. Retrieved from [ViroDecs™ Environmental Product Declaration \(holcim.com.au\)](#)
- Hope, P. et al. (2015). *Southern and South-Western Flatlands Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports*, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia
- Infrastructure Australia. (2022). *Transforming Perth's freeways strategic program: Phase 2 and 3: Infrastructure Australia*. Transforming Perth's Freeways Strategic Program: Phase 2 and 3 | Infrastructure Australia. Retrieved from: <https://www.infrastructureaustralia.gov.au/projects/transforming-perths-freeways-strategic-program-phase-2-and-3>
- Main Roads Western Australia. (2023). *Smart Freeway – Mitchell Southbound*. The Government of Western Australia. Retrieved from: <https://www.mainroads.wa.gov.au/projects-initiatives/all-projects/metropolitan/smartfreeways/>
- Main Roads Western Australia. (2022). *Smart Freeways Mitchell Southbound – Reid to Vincent Project: Preliminary Environmental Impact assessment (PEIA) Southern Section*. The Government of Western Australia.
- Main Roads Western Australia. (2020). *Transforming Our Freeways*. The Government of Western Australia. Retrieved from: <https://annualreports.mainroads.wa.gov.au/AR-2020/welcome/our-stories/transforming-our-freeways.html#:~:text=The%20strategy%20focuses%20on%20improving,movement%20of%20people%20and%20freight.>
- Synergy. (2023). *Synergy NaturalPower – Commercial Green Energy*. Synergy. Retrieved from: <https://www.synergy.net.au/Your-business/Business-energy/Renewable-energy/Commercial-green-energy>

8 Glossary

A glossary of terms used throughout this document is detailed in Table 15.

Table 15 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.

A handwritten signature in blue ink, appearing to read 'Kurtis Fallon'.

Kurtis Fallon
Alliance Director
February 2022

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The logo for the Intelligent Freeways Alliance, featuring a grid of green dots of varying sizes to the left of the text '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			
Calyptrorhynchus latirostris (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 St. Johns Ambulance State Emergency 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
	Local sports clubs & grounds
	Subiaco Restoration
	WestCycle
	Local hospitals and health facilities
Regulators	Environmental Protection Agency
Third Party Non-Profits	Infrastructure Sustainability Council
Utilities	Western Power
	Synergy
	Water Corporation