

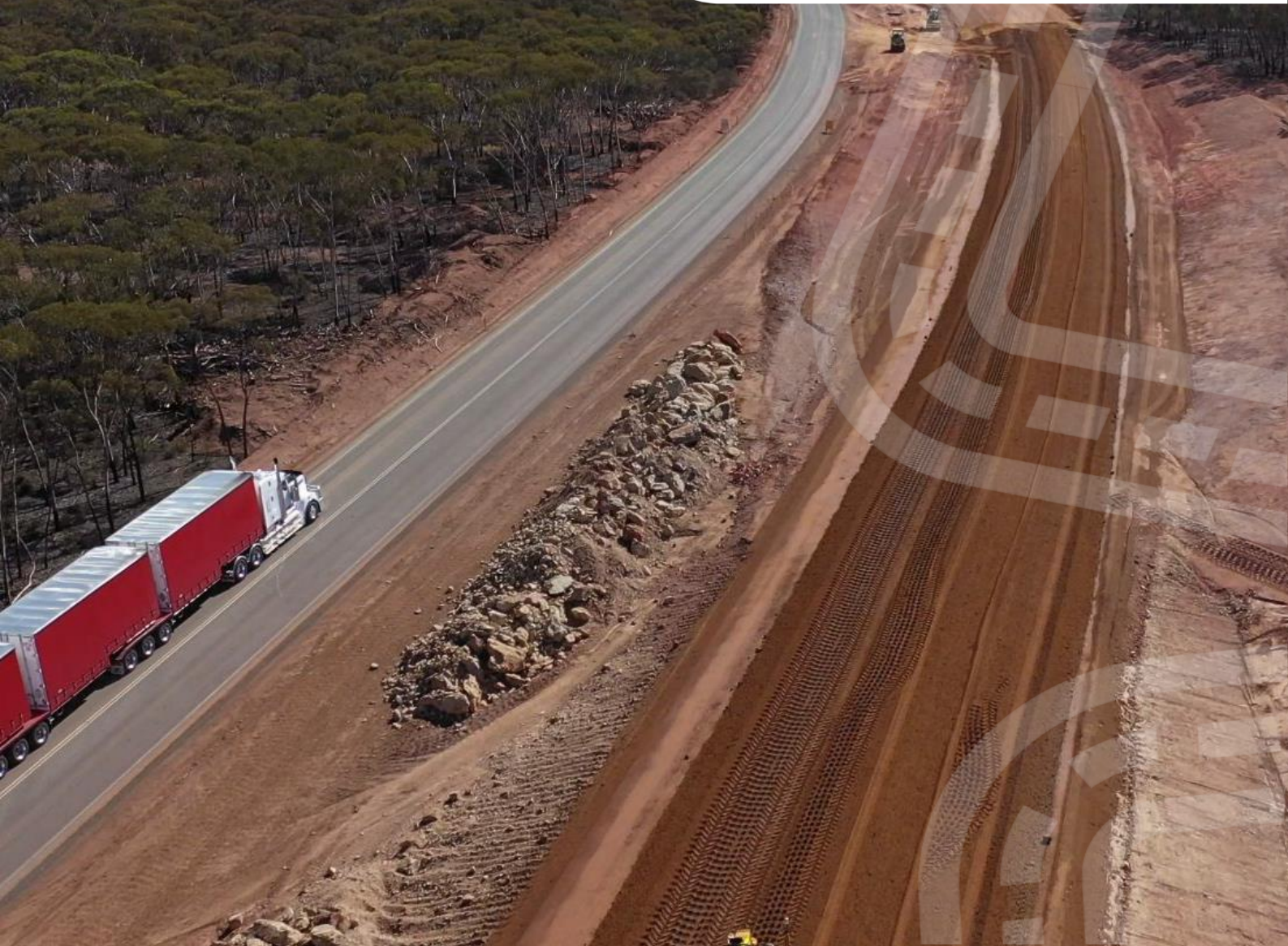


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# **Coolgardie-Esperance Highway Upgrade Emu Rocks: Annual Project Sustainability Report 2020/21**

Prepared by Highway Construction

This annual report covers the period from 1 July 2020 – 30 June 2021. This is the first Annual Sustainability Report for the Project.

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# About this Report

This report has been prepared by the Highway Construction – Emu Rocks Project team on behalf of Main Roads Western Australia (MRWA). This report forms part of MRWA annual sustainability reporting which is integrated into its Annual Report. This is the first Annual Sustainability Report for the Project. The content of this report has been collated and aligned with the Infrastructure Council of Australia (ISCA) Design framework and prepared in accordance with GRI principles. Material topics included in this report have been determined through a materiality assessment that adheres to ISCA Infrastructure Sustainability IS Rating v2.0 requirements.

Content included in this report has been prepared for the purpose of and in accordance with MRWA's Infrastructure Sustainability (IS) rating self-assessment process. It incorporates and builds on materials developed by MRWA prior to Highway Construction's involvement on the Project.

## Introduction

The Coolgardie-Esperance Highway upgrade, also known as the Emu Rocks Project (the Project) forms part of the Perth-Adelaide route on the National Land Transport Network. It is the major freight route through the Goldfields Esperance Region, with around 2 million tonnes carted on the route each year. Approximately 34% of all traffic on this section is heavy vehicles and 11% caravans.

The primary objective of the Project is to provide efficient and safe road access for all road users and to provide road infrastructure that supports economic and regional development. This will be achieved by widening the road, improving its geometry and constructing passing lanes that will improve travel times and safety for all road users.

Highway Construction is committed to supporting environmental, social and economic improvement in the communities in which it operates and follow sustainable procurement principles to achieve desired outcomes on this Project and beyond.

# Highlights

Sustainability Metric	Highlight
Indigenous Workforce	The Project has maintained 15% indigenous workforce participation
Diversity	The Project has maintained 20% female workforce participation
Community and Stakeholder Engagement	Community and Stakeholder Engagement has been positive with only one complaint
Minimise Water Consumption	The Project is mitigating evaporation loss from water storage facility
Waste diversion from landfill	Waste generated from site offices is the only waste going to landfill
Sustainable Procurement	The Project has spent \$4.2M with local businesses

# Overview

The State and the Commonwealth Government have committed \$60M in funding (80% Federal, 20% State) for the design and construction of the Coolgardie – Esperance Highway Upgrade Project, with the contract awarded to local WA company Highway Construction.

The Project aims to upgrade a 30 kilometre (km) section of highway between Widgiemooltha and Kambalda, to improve travels times, road safety and reduce ongoing maintenance costs.

Construction of the 30 km upgrade includes:

- Reconstruction and realignment of the road;
- Widening and sealing of the shoulders;
- Construction of passing lanes;
- Upgrade of intersections;
- Upgrade and replacement of culverts; and
- Adding line marking, audio tactile edge lines and road safety barriers.

Figure 1 shows a map of the Project area and proposed treatments along the 30 km stretch.

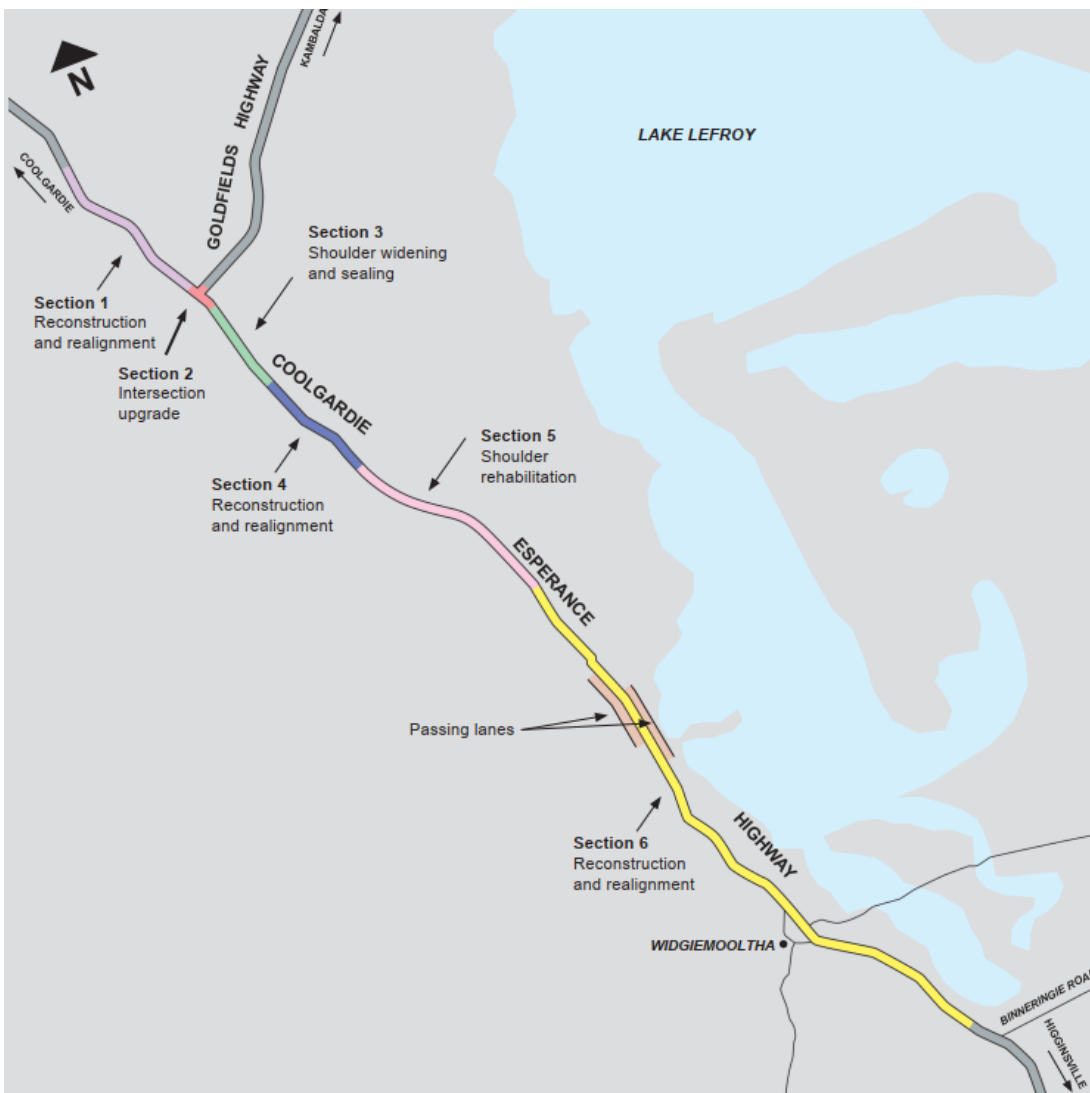


Figure 1 – Project Area Map

Construction began early 2021, with Section One completed in June 2021, and Section Three 90% complete. Work on the remaining Sections is ongoing, with the Project to be completed mid-2022.

The infrastructure Value Chain, including material sourcing, construction methodologies, operational outcomes, and waste management processes, are being implemented, monitored and reported as the Project progresses. A Lifecycle Assessment is planned, and the outcomes will inform subsequent Annual Sustainability Reports, as well as the Final Sustainability Achievement Report.

Further information and Project updates can be found on the MRWA Projects Page: [Coolgardie Esperance Highway Upgrade - Emu Rocks Section | Western Australia](#)

### **Overall approach to Sustainability**

Highway Construction's Corporate Sustainability and Procurement Policy commits the organisation to promote sustainability initiatives across all aspects of the business and on projects, including those tasks undertaken by sub-contractors and consultants. The Project team aims to integrate sustainability into all decision making throughout the design and construction of the Project to achieve the targeted sustainability outcomes.

The Projects Sustainability Management Plan (SMP) was developed and implemented to guide sustainable practice throughout construction and achieve the mandated self-assessed IS Rating contract score of  $\geq 40$ . The SMP identifies the project-specific resources, procedures and practices to be implemented to ensure that sustainable outcomes are achieved.

The Project Manager and Sustainability Manager both have responsibilities for overseeing the delivery of sustainability requirements and is supported by an Infrastructure Sustainability Accredited Professional (ISAP) consultant.

Sustainability progress is detailed in Monthly Reporting and presented at monthly Project meetings with MRWA. Sustainability is also being driven by the completion of a Lifecycle Assessment (LCA) for energy, material and water use on the Project.

### **Material Sustainability Issues**

Highway Construction undertook a materiality assessment attended by key personnel from Highway Construction, MRWA and the Design Team (GHD), to identify the topics most important to the Project. The most material sustainability topics for the Project identified were:

- Water - Water use (Wat-1) and Appropriate Use of Water (Wat-2)
- Resource Efficiency - Material Lifecycle Impact Measure and Management (Rso-6)
- Stakeholder Engagement - Stakeholder Engagement Strategy Development (Sta-1) and Implementation (Sta-2)

# Environmental Aspects Performance

## At a glance

Aspect	Year to 30 June	Total for Project
Forecast Clearing (ha)	65	65
Clearing permit allowance (ha)	-	100
Actual clearing to date (ha)	63	63
Rehabilitation/revegetation planned (ha)	0	13
Actual rehabilitation/revegetation to date (ha)	0	0
Environmental offset via Monetary contribution actual (\$)	-	-
Total water consumption from bores to date (kL)	19,130	19,130
Total water licence allowance from bores (kL)	45,000	90,000
Total water consumption from scheme to date (kL)	10,600	10,600
Total GHG emissions (scope 1, 2 & 3) to date (t CO <sub>2</sub> -e)	41	41
Total energy consumption to date (mj)	170	170
Total quantity of recycled content used in project (t)	0	0
Total imported materials used in project (t)	55,886	55,886
Total waste generated by project (t)	35	35

## Environmental context

The project area in the north is dominated by Eucalyptus woodland associations occurring on gently undulating plains and low stony hills and ridges. The project area in the south is characterised by Eucalypt woodland vegetation with mixed shrub understories and mixed shrubland vegetation associations. There are several records of priority flora species in the region, however none are located within the Projects construction boundary. No Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) were recorded in the Project area ([Appendix 1](#)).

No conservation significant fauna was recorded during surveys of the project area. Surveys concluded the proposed clearing required for the Project was expected to have minimal impact on existing habitat linkages as the clearing is a thin linear strip next to an existing break in connectivity. It was also concluded that all fauna habitats recorded in the Project area were locally common and likely to be found in better condition in locations away from the Project area.

List of protected fauna and flora species and habitat impacted by the Project can be found in [Appendix 2](#).

There are no wetlands within the project area. The project area is located in the Goldfields Groundwater Proclamation Area and a licence is required to take groundwater. Groundwater salinity in the region is generally in the range of 50,000 to greater than 300,000 mg/L Total Dissolved Solids (TDS).

Primary Environmental Approvals for the Project are:

- MRWA State-wide Purpose Clearing Permit CPS 818 will be used to undertake native vegetation clearing for the project.
- Highway Construction 5C licence to take groundwater (Application for a licence under Section 5C of the Rights in Water and Irrigation Act 1914).

### Environmental Management

The Emu Rocks project specific Environmental Management Plan (EMP) identifies the key environmental issues associated with the works and details Highway Constructions approach to managing these environmental risks during construction.

Implementation of the EMP ensures the Project will minimise the impacts on the surrounding environment by:

- protecting native flora and fauna ecosystems, and control the import of weed species;
- identifying Aboriginal heritage sites that intersect with the works and put controls in place to minimise disturbance;
- ensure dust controls are implemented;
- minimise the generation of waste; and
- comply with all relevant environmental legislation.

### Water Management

Scarcity of fresh water in the region is an issue. Water use was clearly identified as the most important material sustainability issue for the Project, with effective and careful management of water of high importance to stakeholders.

Highway Construction obtained a 5C Licence to take water from a nearby hypersaline bore. This water is used for earthwork construction and dust suppression. Due to the scarcity of naturally occurring fresh water ( $\leq 3,000$ ppm Total Soluble Salts), the Project has purchased scheme water for use in pavement construction. Potable water is carted to site for use at the site offices.

The following Water Reduction Initiatives have been considered, with some already implemented on the Project:

- use of 'WaterGuard' on fresh water storage facility to minimise water loss from evaporation;
- use of stabilisers in pavement construction to minimise fresh water usage;
- water recycled from concrete wash down bay used in stabilised sand production; and
- use of dust suppressant on unsealed haulage roads.

Source	Year to 30 June	Total for Project
Water purchased from the scheme (kL)	10,600	10,600
Water pumped from bores (kL)	19,130	19,130
Water pumped from rivers, lakes or harvested	-	-
Recycled or waste water use (typically from another industry)	-	-

### Carbon Emissions & Energy

The majority of the Projects carbon emissions will occur from diesel fuel use associated with operating plant machinery, site vehicles and diesel generators. Due to the location and nature of the Project, options for renewable energy sources, alternative methodologies, and operational energy reduction opportunities are limited. The Project investigated the opportunity to install solar

panels on the site office and the procurement of a low emission vehicle for the site vehicle fleet. However due to timing constraints and mobilisation requirements it was not feasible to implement these opportunities.

The Project has reduced greenhouse gas emissions during construction, by implementing construction practices that minimise haulage, prioritise locally sourced materials, and reduce the need to cart spoil by contouring oversize material into the landscape.

Source	Year to 30 June	Total for Project
Energy usage by source in mega joules	170	170
From fuel use (mj)	170	170
From electricity (mj)	-	-
Energy saved (mj)	-	-

### Materials & Recycling

Site office waste is the major waste stream being removed from site. The Project has explored options to recycle, however due to the remote location no waste provider has been identified to offer this service. As a compromise, the site offices are collecting paper for recycling and will be transporting the bins to recycling facilities themselves. The site offices have also installed water filters on crib water coolers, to eliminate the need to purchase bottled water. Other waste removed from site includes waste oil and drums. A hydrocarbon bin is in place to manage this related waste.

Waste from actual construction of the new road alignment is minimal, as the design balances cut to fill as much as possible, with oversize material incorporated into landscape design of the alignment, eliminating the need to cart material to spoil.

Material Life Cycle Impact Measurement and Reduction (Rso-6) was identified as having high materiality for the Project. Highway Construction has begun work to model the impacts of material use in construction to better understand impacts and identify opportunities for efficiencies.

Imported Materials	Year to 30 June	Total for Project
Gravel (t)	53,823	53,823
Cracker Dust (t)	105	105
Aggregate (t)	1,326	1,326
Concrete (t)	213	213
Steel (t)	18	18
Precast concrete (t)	244	244
Bitumen cutter (t)	18	18
Bitumen (t)	139	139
Waste to Landfill	Year to 30 June	Total for Project
General office waste (t)	35	35
Waste Recycled	Year to 30 June	Total for Project
General waste (site office / roadside litter) (t)	35	35



## Case Study

The Project secured an annual 45,000 kL water entitlement from Ramelius bore which will be used in earthwork construction and dust suppression. This water is hypersaline, typical of bore water encountered in the Goldfields region. As result, water with a salt content of less than 3000 part per million (ppm) was still required for pavement construction.

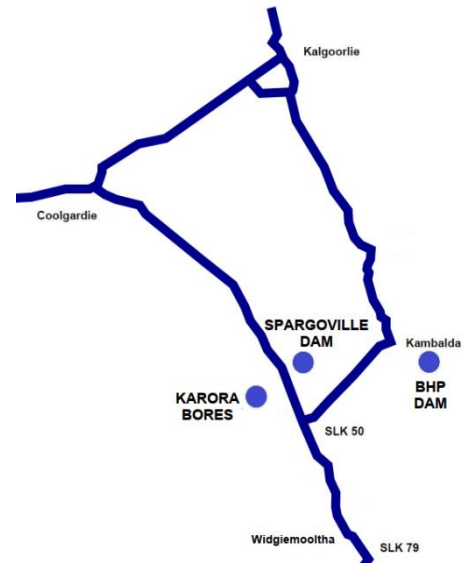
Treated wastewater from BHP Nickle West (Kambalda) was presented as an option during tender, however this option did not progress. Other water sources explored included the Shire of Coolgardie BP Dam and Widgiemooltha Dam. While these options may become viable in the future, the Project engaged Water Corporation to supply ~35,000 kL of scheme water over the course of 12 months to ensure an ongoing supply of fresh water for pavement construction.

The scheme water taken from the pipeline is being pumped into the Spargoville Dam, which is a redundant Water Corporation asset, with a storage capacity of 140,000 kL. Highway Construction has been given permission to use the facility to store water until its intended use, eliminating the need to construct a temporary dam.

It is estimated that each year the Spargoville Dam loses ~24,000 kL of water from evaporation. Recognising the scarcity of fresh water in the region, to combat evaporation the Project considered two options to mitigate the water loss:

1. Hexa-cover floating disc system – this is a floating cover on the surface of the water created by interlocking disc units. This option was recommended by Water Corporation who are currently using this system to reduce evaporation in their wastewater treatment operations. This option was identified as a positive legacy opportunity for future users of the redundant dam. Due to the high costs associated with the system, the transportation, the installation, and the removal relative to the construction timing, this option was not economically viable for implementation.
2. WaterGuard - WaterGuard is a liquid substance which spreads over the surface of water to form a very thin film reducing evaporation. WaterGuard is used in food and pharmaceutical applications. The WaterGuard method reduces evaporation by approximately 50%. This method was deployed as it was relatively inexpensive and requires little to no maintenance.

Given the cost and transportation energy-savings afforded by WaterGuard, the Project selected this option for use at Spargoville Dam. The Project team is monitoring the levels of the dam to measure its effectiveness and if evaporation has been mitigated. This may only be more visible in the coming warmer months.



# Economic Aspects Performance

## At a glance

Economic Aspect	Year to 30 June	Total for Project
Funding		\$60M
No. of vehicles per day		<15,000
Travel Time Saving		TBD
Increase of vehicle capacity		n/a
Increase in cycling and pedestrian facilities		n/a
<b>Workforce and Supply Chain</b>		
Number of people employed by supply chain at various stages of project	174	174
Total number of suppliers engaged	59	59
Total number of Indigenous Enterprise	4	4
Total number of Disability Enterprise	0	0
Buy Local Spend (to date)	\$4.2M	\$4.2M

## Economic context

The Project is located in the Goldfields-Esperance region of south-eastern Western Australia. The mining industry sector makes the greatest contribution to economic output in the region and the largest employer. Gold-related tourism is also a strong contributor to the region's economy. Over 290,000 vehicles use the Coolgardie-Esperance Highway at Emu Rocks every year. Around two million tonnes of goods and materials are carted through the region each year, with 34% of all traffic being heavy vehicles.

The upgrades undertaken by the Project will support the productivity of regional industries on this major freight route, and significantly improve safety for locals, tourists and freight operators alike. During construction, the Project is expected to create over 250 jobs and training opportunities for the local community, with a commitment to prioritise procurement of local products and services.



Figure 2 – Signage along Coolgardie-Esperance Highway approaching the Goldfields Highway intersection

## Key Economic Outcomes

Key economic outcomes of the Project include:

- Improved safety for all road users;
- Improved freight efficiency and reliability;
- Local job creation; and
- Investment in local contractors and businesses.

## Climate Change Assessments

To identify and treat risks associated with climate change, the Project will undertake a climate change risk assessment. To ensure risks are adequately understood and responded to, Highway Construction has engaged a Suitably Qualified Professional (SQP) to assist with a review of climate and natural hazard risks, drawing on current climate change projections, considering both direct and indirect risks to the asset. The Project will consult with relevant stakeholders, specifically with the asset owner, MRWA Goldfields-Esperance Region to identify treatment options such that there are no residual extreme or high priority direct or indirect risks.

## Sustainable Transport

Due to the Project's distance from urban and major regional population centres, impacts from personnel travelling to and from site to work have the potential to add up over the course of construction. To reduce these impacts, the Project team has devised two initiatives to promote sustainable transport outcomes:

- Strategy is in place to hire a 14-seater bus to transport operators to and from camp as the workforce grows. This will encourage team members to reduce their reliance on private vehicle use.
- Highway Construction Management has committed to using hybrid cars when visiting the site from Perth. After flying into Kalgoorlie, a hybrid car is hired to travel the rest of the way to site. The contribution made to minimising emissions with the use of the hybrid car is minor, however testing the efficacy of hybrid vehicles is a first step for Highway Construction to integrate low-emissions practices into business-as-usual operations.

## Equity and Distributional Impacts

Upon Project completion, the asset will positively impact road users, local residents, and other stakeholders, by improved safety and reduced travel times.

Additionally, heavy vehicles (specifically freight operators) are likely to experience better fuel economy and in turn reduce carbon dioxide emissions. Fuel economy is greater on flat routes (opposed to undulating gradients) and for vehicles that are able to maintain a consistent operating speed. By improving the alignments horizontal and vertical geometry, and providing safe overtaking opportunities, improved fuel efficiency will be experienced by road users.

# Social Aspects Performance

## At a glance

Social Aspect	Year to 30 June	Total to Date
Community Satisfaction to Project	n/a	n/a
No. of Stakeholders engaged with during Project development	35	35
No. of complaints	1	1
No. of legacy commitments	n/a	n/a
No. of heritage sites in Project vicinity	1	1
No. of heritage sites significantly impacted	0	0
No. of traffic safety incidents within Project boundary	2	2
% women in workforce	20	20
% Indigenous in workforce	15	15
LTIFR	0	0
No. of hours training during Project	0	0
No. of development employees and apprentices on the Project	1	1
No. of employees (FTEs) sourced from local community	9	9

## Social context

The Project sits within the Shire of Coolgardie, approximately 550 kilometres east of Perth. It encompasses an area of 30,400 km<sup>2</sup> and includes the towns of Coolgardie, Kambalda East, Kambalda West, Widgiemooltha and the Aboriginal community of Kurrawang, with the region classified as 'very remote'. The 2016 Census identified Shire of Coolgardie's population around 3,600 people, with a median age of 33 years. 51% of the population is employed in the mining industry with just over 11% of the population identifying as an Aboriginal or Torres Strait Islander person. The Project is remote in nature, where the 30 km long alignment interfaces only with one business owner. A list of key Stakeholders to the Project is included at Appendix 3.



Figure 3 – Welcome to Country by Traditional Owner Gina Sambo

## Community & Stakeholder Engagement

Management of community and stakeholder engagement during construction of the Project is detailed in the Community and Stakeholder Engagement Plan (CSEP). The overarching aim of the CSEP is to provide factual, accurate and regular information to the local communities to help improve their understanding of the project and thereby increase community tolerance of construction activities.

The Main Roads Emu Rocks Project webpage detailing key project objectives, milestones and progress is regularly updated to keep Stakeholders informed of the Project. In addition, roadwork updates and Project Newsletters have been issued to stakeholders.

The management of public enquiries and complaints is managed through the use of the Main Roads corporate customer relationship management system, CONNECT. All enquiries received will be acknowledged within 24 hours of receipt, via email or telephone, with the aim to respond within 5 working days.

## Heritage

Various heritage investigations have been completed along the 30 km alignment, via field surveys and desktop analyses, with an Aboriginal heritage risk assessment carried out just prior to commencing to construction. Investigations have identified one registered heritage site (Site 497 - Malbari Nidjuru - a ceremonial / mythological site) located in close proximity to the Project works. Under advice from the Department of Planning, Lands and Heritage (DPLH), it was confirmed that the Project does not intersect with the registered site. No other known Aboriginal or European heritage sites are impacted by the Project.

Measures to manage impacts to Aboriginal and European Heritage, including the discovery of an unknown site during works, is detailed in the Project's Environmental Management Plan. While the Project works do not intersect with the known registered site, Highway Construction erected a temporary barrier to isolate the area of significance from construction activities.



Figure 4 – Emu Rocks Operator

## **Diversity**

Highway Construction is committed to building a diverse and inclusive workforce. The Project has set an Aboriginal employment target of minimum 15% of the Contractor's total work hours and minimum 3% of the Contract sum through local Aboriginal businesses via works or services procured for the Project. An Aboriginal Participation Plan (APP) has been developed for the Project which details how Aboriginal people and Aboriginal businesses will be promoted and engaged to achieve these targets.

To date the Project's onsite workforce has maintained 20% women in the workforce. Two of the most senior positions on site, Highway Construction Senior Project Engineer and MRWA Project Manager are held by women. Events to promote cultural awareness, diversity, health and wellbeing are regularly held onsite to promote a diverse and inclusive culture.

## **Workforce Development**

A Strategic Workforce Plan is currently being developed to ensure the workforce engaged on the Project have the skills and competencies required to deliver the Project. A subsequent Training Management Plan will identify any skill gaps to ensure training is on focused on upskilling those gaps.

Several operators engaged on the Project are experienced in mining operations, however are not experienced in civil works. Supervisors and experienced civil operators are training these operators in the field to understand and implement construction methodologies required for road construction. Upskilling these operators has diversified the workforce.

The Project team is currently liaising with Central Regional TAFE to engage two trainees on the Project. Upon their completion of their Certificate III in Civil Construction Plant Operations, the trainees will be engaged as full-time Highway Construction employees until the completion of the Project.

## Case Study

Highway Construction was active in recruiting local Aboriginal people at the commencement of the Project, with the Emu Rocks Project Manager presenting at Central Regional TAFE on 17 January 2021 to talk about the upcoming project and employment opportunities.

The Project Manager encouraged those holding a valid C-class licence to obtain a basic traffic controller ticket and, following successful completion of the course, register interest with Advanced Traffic Management (ATM) who are engaged as a major supplier for the duration of the Project. The implementation of this strategy not only supports Indigenous engagement on the Project, but also ensured ATMs workforce capacity and addressed any skill gaps. As a result of the presentation, a Kalgoorlie local joined the project as a traffic controller in March, and remaining with the Project since.



Figure 5 – TAFE presentation 17 January 2021

# Appendix 1 - List of Protected Areas Project interfaces with:

The Coolgardie-Esperance Highway Upgrade at Emu Rocks does not interface with any known Protected Areas.

There are not Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) within the Project Area.



## Appendix 2 - Protected fauna and flora species and habitat

Name	Status	Type of Presence
<b>Flora</b>		
<i>Pityrodia scabra</i> – Wyalkatchem Foxglove	Endangered	Species or species habitat known to occur within area
<i>Tecticornia flabelliformis</i> – Bead Glasswort	Vulnerable	Species or species habitat known to occur within area
<b>Fauna</b>		
<i>Calidris ferruginea</i> – Curlew Sandpiper	Critically Endangered	Species or species habitat may occur within area
<i>Leipoa ocellata</i> - Malleefowl	Vulnerable	Species or species habitat likely to occur within area
<i>Pezoporus occidentalis</i> – Night Parrot	Endangered	Species or species habitat may occur within area
<i>Dasyurus geoffroii</i> – Chuditch, Western Quoll	Vulnerable	Species or species habitat may occur within area

## Appendix 3 – List of Stakeholders to the project

The following key stakeholders have been considered and involved in various aspects of the Project development and construction:

Stakeholder	Level of Participation
<b>Internal</b>	
Highway Construction	Responsible (Construct)
GHD	Responsible (Design)
Main Roads – Office of Major Transport Infrastructure Delivery	Responsible (Design, Construct)
Main Roads – Goldfields Esperance Region	Responsible (Construct, Operation)
Main Roads – Heavy Vehicle Services	Collaborate (Design)
<b>External</b>	
Shire of Coolgardie	Involve
Traditional Owners	Collaborate
Road Users	Inform
Widgiemooltha local residents	Consult
Emergency Services	Inform
Utility Providers – Telstra, Water Corporation, ATCO Gas	Inform
Arc Infrastructure	Collaborate
Karora Resources	Collaborate

## Appendix 4 – Glossary of Terms

Term	Definition
APP	Aboriginal Participation Plan
ATM	Advanced Traffic Management
CSEP	Community and Stakeholder Engagement Plan
DPLH	Department of Planning, Lands and Heritage
EMP	Environmental Management Plan
ISAP	Infrastructure Sustainability Accredited Professional
ISCA	Infrastructure Sustainability Council of Australia
ISMP	Industry Sustainability Management Plan
IS Rating	Infrastructure Sustainability Rating
km	kilometre
LCA	Lifecycle Assessment
Materiality Assessment	Process to identify the priority sustainability topics that should be included in the sustainability plan, strategy and targets
MRWA	Main Roads Western Australia
PEC	Priority Ecological Communities (PEC)
SMP	Sustainability Management Plan
SQP	Suitably Qualified Professional
SWTC	Scope of Works Technical Criteria
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community