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REID HIGHWAY DUPLICATION – Altone Road to West Swan Road: Annual Project Sustainability 2020

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This annual report covers the period from 1 July 2019 – 30 June 2020.

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About this Report

This report has been prepared by the Reid Highway Duplication: Altone Road to West Swan Road project team on behalf of Main Roads Western Australia (MRWA). This report forms part of Main Roads' annual sustainability reporting which is integrated into its Annual Report. The report content is prepared in accordance with GRI principals. Material topics reported in this report have been determined through a materiality process that adheres to the Infrastructure Sustainability Council (ISCA) of Australia's GRI Materiality Assessment process.

Introduction

The Project has provided Decmil the opportunity to work collaboratively with Main Roads to progress its adoption of the Infrastructure Sustainability rating scheme and to build capacity around its implementation as well as promoting opportunities to seek resource efficiency outcomes.

As the Reid Highway Duplication project commenced prior to the end of the last reporting year, this report details the project inception to June 30 2020.

Highlights

Key highlights for the Reid Highway Duplication project include:

- Exceeding the targeted Infrastructure Sustainability rating self-assessment score for the Design phase of the project.
- More than 95,000 tonnes of recycled materials used in the construction of the project up to the end of the 2020 financial year
- 100% of goods and services procured from within the Perth Metropolitan area
- $1.9 million dollars of goods and services procured from Aboriginal businesses
- Construction of five cultural markers, including shadow markers along the new four kilometre stretch of pedestrian shared path

Overview

Reid Highway Duplication is a $70 million project that is jointly funded by the Federal and State Governments, being delivered by Decmil Southern Pty Ltd as a design and construction contract, with the design developed by WSP. Construction of the project began in March 2019 and is expected to be completed by October 2020. The project is being constructed to improve the safety for road users, pedestrians and cyclists along the growing east west corridor and the Swan Valley.

The section of Reid Highway between Altone Road and West Swan Road is the only single carriageway section between the western end of Reid Highway North Beach and the eastern end at Middle Swan. Upgrade of the road from single to dual carriageway is expected to benefit the growing communities in Bennett Springs, Dayton, Caversham and West Swan and the broader City of Swan region by reducing congestion. The upgrades will also provide increased east-west access for freight and road users between the industrial area of Malaga and key freight routes in addition to the improved road user and cyclist access to Whiteman Park and Swan Valley tourist precinct.

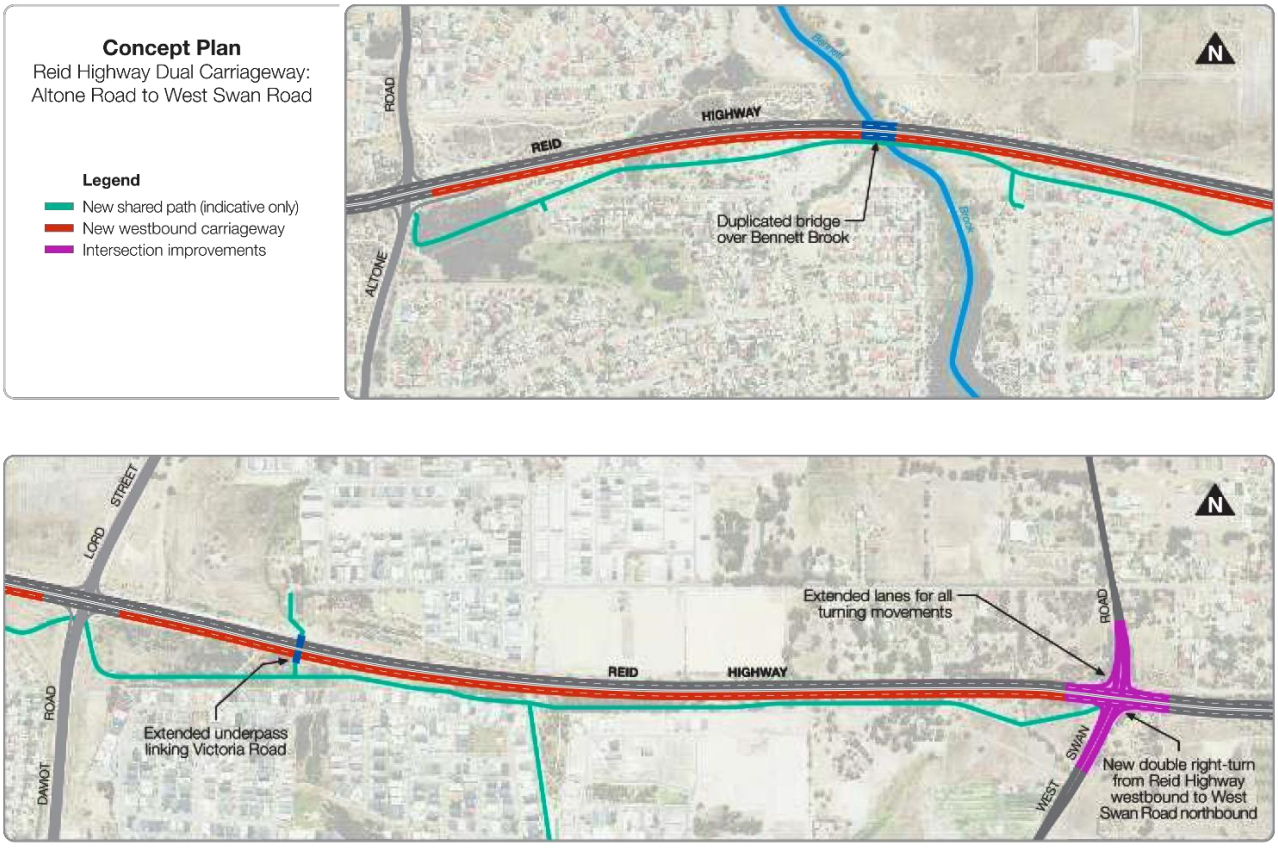
The project includes the design and construction of an upgrade to a four kilometre section of Reid Highway with the new dual carriageway

being constructed to the south of the existing road as shown in Figure 1.

In addition to the duplication of Reid Highway, the works included:

- At-grade intersections between Altone Road and West Swan Road along Reid Highway have been constructed
- New shared path and local links on the southern side of the highway
- Modifications to Reid Highway and West Swan Road intersection
- A new bridge over Reid Highway, connecting the northern and southern sections of Arthur Street
- Install bridge beams and deck for a second carriageway across Bennett Brook
- Extend the underpass to link Victoria Road
- Noise walls
- Signage, fencing, drainage, landscaping and street lighting

The project also includes the construction of a new bridge at Arthur Street, with additional funding to support this bridge provided by the City of Swan. The City's support and construction of the Arthur Street bridge provides alternative access for buses and residents between Caversham and Dayton, including access for students and families to the new Caversham Valley Primary School.



*This concept is indicative only and is subject to change during the detailed design process

Figure 1 Project location and concept plan

The Project was the first to contribute to local industry participation under the WA Industry Participation Strategy (WAIPS). More than 500 hundred metropolitan Perth construction workers have been engaged during the delivery of the project, with 99% of those workers coming from locally sourced subcontractors and suppliers. As a result, the Project has contributed in a meaningful way towards the Decent Work and Economic Growth United Nations' Sustainable Development Goal (SDG). The project has also worked towards the goals set out in the *Women in STEM Decadal Plan* and achieved a 5% female workforce, recognising a small, but important contribution to the Gender Equality SDG.

Beyond the capacity building, the project has actively sought to pursue circular economy opportunities, working with the NorthLink Central Section team to use recycled materials along the four kilometre project, making an important step towards Western Australia's *Waste Strategy* goals.

Further information on the Reid Highway Duplication project can be found at https://www.mainroads.wa.gov.au/projects-initiatives/projects/metropolitan/reid-highway-dual-carriageway/

Overall approach to Sustainability

Decmil is committed to the sustainable development of our business through effective management of the economic, environmental, and social issues and risks, which are aligned to the MRWA Sustainability Policy. This policy was adopted by the Project Team which was adopted to guide the approach to sustainability on the project.

Reid Highway Duplication was one of Main Roads first projects to undertake a self-assessment against version 2.0 of the Infrastructure Sustainability rating scheme. The scheme, launched in 2018 by ISCA, seeks to extend the traditional environmental, social and economic themes to include consideration of workforce sustainability and advancing the integration of sustainability considerations into decision making.

The overarching performance target for the Project was a target score of 40, equating to a self-assessment level of Silver. In pursuing this level, the project has identified that the greatest opportunities to progress the key state government initiatives associated with the WAIPS, the Waste Strategy, and considering Whadjuk values important to the project area in the design of infrastructure. These reflected in our targeted credit performance levels:

- Level 1 for Leadership and Management credits (Lea-1, Lea-2, Lea-3)
- Level 1 for Options Assessment (Ecn-1)
- Level 2 for Climate and Natural Hazards (Res-2)
- Level 1, and a 5% reduction (equivalent to Level 1.33) for Energy Efficiency (Ene-1)
- Level 1, and a 5% reduction (equivalent to Level 1.33) for Avoiding Water Use (Wat-1)
- Level 1, and a 5% reduction (equivalent to Level 1.33) for Materials Lifecycle Impact Measurement and Reduction (Rso-6)
- Level 1 for Resource Strategy Development (Rso-1)
- Level 1 for Resource Recovery (Rso-4)
- Level 1 for Legacy (Leg-1)
- Level 1 for Urban and Landscape Design Context (Con-2)

A score of 45 was been set by the project team as the target score based on the target levels set for each of the credits in consultation with the Design and Construction team for the project, with a score of 46 achieved at the end of the Design phase of the project.

Material Sustainability Issues

The most material sustainability topics for Reid Highway Duplication were identified by the project team and key Main Roads stakeholders are:

- Water quality impacts to Bennett Brook (IS credit Env-1)
- Impacts to neighbouring residents, particularly dust during construction (IS credit Env-4) and light spill during operation (IS credit Env-5)
- Disturbance to the heritage values held by the Whadjuk people (IS credit Her-1 and Leg-1)
- Engaging with and recognising the views of stakeholders including the community and the City of Swan (IS credit Sta-1 and Sta-2)

Adapting to impacts from climate change, reducing impacts to the natural environment and minimisation of the environmental impact associated with the materials used to build and maintain the road and shared paths were also important to the Project.

Environmental Aspects Performance

At a glance

Aspect	Year to 30 June	Total for Project
Forecast Clearing (ha)	93.9	93.9
Clearing permit allowance (ha)	93.9	93.9
Actual clearing to date (ha)	93.9	93.9
Total Water Consumption to date (kL)	72,504	72,504
Total water licence allowance (kL)	500,000	500,000
Total GHG emissions (scope 1, 2 & 3) to date (t CO_2-e)	593	593
Total energy consumption to date (MJ)	8,416	8,416
Total quantity of recycled content used in project (t)	95,711	95,711
Total imported materials used in project (t)	508,864	508,864
Total waste generated by project (t)	41.8	41.8

Environmental context

The duplication of Reid Highway between Altone Road and West Swan Road was initially considered as part of the original construction of Reid Highway in 1995, with the project included in the original approval granted under the *Environmental Protection Act 1986* (Ministerial Statement 376).

The quality of the remnant native vegetation left after construction of the single carriageway has significantly declined, with weeds, illegally dumped rubbish and impacts from neighbouring activities contributing to this decline. No conservation significant flora exist within the project area, although two patches of remnant Banksia woodlands show affinity with Federally listed Threatened Ecological Communities. No conservation significant fauna have been identified during fauna surveys of the site. However, the clearing of the remaining vegetation for the construction has the potential to disturb Black Cockatoos and the Quenda (Southern Brown Bandicoot) with the loss of low to moderate value habitat and temporary disturbance due to construction activities.

Wetland areas are located throughout the project area, which intersects Bennett Brook and forms part of Bush Forever Site Number 305, an important riverine habitat corridor.
Bennett Brook has traditionally been fed by groundwater although declining groundwater levels has resulted in increased volumes of stormwater being discharged into the Brook, ultimately flowing into the Swan River. The project area is located with the Swan Groundwater Proclamation

Area and Perth Groundwater Proclamation Area and intersects with the Gnangara Underground Water Pollution Control Area but not within the boundary of the Public Drinking Water Source Area.

Environmental Management

Project specific management actions, including the development of an Environmental Management Plan and compliance with the conditions associated with MS376, have included:

- minimisation of land disturbance and restoration to pre-disturbed conditions as far as is reasonably practicable;
- prevention of pollution of any surface, and provision of suitable equipment and facilities to prevent the discharge of contaminants that may pollute the atmosphere, any body of water or land areas, or which may harm aquatic life or other wildlife;
- protection of native flora and fauna ecosystems, and control of the import of weed species;
- minimisation of waste quantities generated, and determination of their hazard rating and type;
- recycle, re-use or recovery of resources from waste, as far as is economically feasible;
- adequate dust controls onsite:
- minimisation of all noise generated, and compliance with site noise standards;
- recording carbon emission types, and identifying and implementing initiatives to reduce total emissions;
- compliance with all applicable legislation and site requirements; and
- education and awareness raising activities with the project personnel to ensure that environmental obligations and commitments have been met.

Water Management

The project has actively sought to reduce the water it needed to construct the project and to avoid where possible the use of potable water sourced from Water Corporation. Key to this was staying well within the groundwater allocation of 500 million litres for the project, which has been achieved.

Source	Year to 30 June	Total for Project
Water purchased from the scheme in litres	420,000	420,000
Water pumped from bores in litres	71,600,000	71,600,000

Carbon Emissions & Energy

The transport and construction sectors are major contributor to greenhouse gas emissions in Australia. For projects like Reid Highway Duplication, the whole of life carbon footprint includes both the consumption of fuels for plant and equipment during construction, electricity used for lighting and the emissions from cars and trucks using the road once it is built.

The modelling and monitoring of carbon emissions including fuel consumption and electricity use has been undertaken on the Project, covering the design, construction and operational phases based on the Greenhouse Gas Workbook for Road Projects and considering the ISCA Energy and Carbon Guidance, *National Greenhouse and Energy Reporting Act 2007* and the ISO14064 Greenhouse Gas suite of Standards.

Source	Year to 30 June	Total for Project
Total Energy usage by source in mega joules (MJ)	7,995	7,995
From fuel use (MJ)	7,995	7,995
From electricity (MJ)	0	0

Materials & Recycling

The Project has actively sought to pursue circular economy opportunities and recognises the role it has in helping Western Australia achieve the goals of the State *Waste Strategy*. The Project has also been working with the neighbouring NorthLink Central Section project to use recycled materials where possible along the four kilometre project.

Material and Waste Statistics

Virgin Imported Materials	**Year to 30 June**	**Total for Project**
Sand (t)	86,619	86,619
General fill (t)	25,817	25,817
Limestone (including crushed) (t)	12,691	12,691
Crushed Rock (t)	46,278	46,278
Crusher Dust (t)	16,263	16,263
Aggregate (t)	488	488
Asphalt (t)	39,217	39,217
Recycled asphalt (t)	711	711
Concrete (t)	8,400	8,400
Precast concrete (t)	707	707
Cement stabilised backfill (t)	1,030	1,030
Steel (t)	394	394
Emulsion (t)	83,227	83,227
Bitumen cutter (t)	15,575	15,575
Bitumen (t)	63,984	63,984

Waste to Landfill	**Year to 30 June**	**Total for Project**
Unsuitable material (t)	10.8	10.8
General Waste (t)	30.3	30.3
Other (t)	0.7	0.7
Waste Recycled		
Sand (t)	4	4
General waste (site office / roadside litter) (t)	6.1	6.1
Steel (t)	96.4	96.4
Concrete (t)	79.7	79.7
Green waste / mulch (t)	3.6	3.6
Gyprock (t)	1.4	1.4

Imported recycled content	**Year to 30 June**	**Total for Project**
Sand (t)	95,000	95,000
Recycled asphalt (t)	711	711

Economic Aspects Performance

At a glance

Economic Aspect	Year to 30 June	Total for Project
Workforce and Supply Chain		
Number of people employed by supply chain at various stages of project	627	627
Total number of suppliers engaged	35	35
Value of Indigenous Enterprises engaged	$,1,931,265	$,1,931,265
Buy Local Spend	100%	100%

Economic context

The Project is honoured to have been the first pilot project announced under the WA Industry Participation Strategy (WAIPS). Since the commencement of the Project, including during the COVID-19 pandemic which saw significant disruption to the local, regional and national economy, the Project has exceeded its anticipated local employment target, with more than six hundred metropolitan Perth construction workers engaged during delivery. The Project also provided opportunities for employment across the supply chain, with more than 99% of workers on the project coming from locally sourced subcontractors and suppliers.

Social Aspects Performance

At a glance

Social Aspect	Total for Project
Percent of women in workforce	5%
Percent of Indigenous people in workforce	10.4%
No. of development employees and apprentices on the project	5
No. of employees (FTEs) sourced from local community	33

Social context

The project area is a significant location for the Whadjuk Noongar people, with a number of sensitive sites located around the project area. This includes:

- Site 3692 “Bennett Brook in toto”, a Mythological site
- Site 3744 “Marshall’s Paddock” a Skeletal Material/Burial
- Site 3840 “Bennett Brook Camp Area” which includes Artefact, Ceremonial, Fish Trap, Historical, Man-made Structure, Mythological, Skeletal Material/Burial, Camp, Hunting Place, Plant Resource and Water Source sites
- Site 20030 “Ancient Well” a Water Source which has previously identified as potentially the only remaining ‘traditional’ well within Whadjuk country.

Recognising the cultural value of the area, the project has avoided sensitive heritage sites as well as integrated elements into the public art and design of structures with five cultural markers including two laser-cut steel shadow sculptures along the four kilometre pedestrian shared pathway built as part of the project. The cultural marker points have been installed at the entries to the pedestrian shared at Altone Road (see image below) and West Swan Road, at Bennett Brook, at the Underpass, and at a significant site near Arthur Street known as Jack and Mabel Moore’s campsite, which will also include seating.

The signage and sculptures will celebrate the lives of the Whadjuk Noongar people, tell stories about the local area, recollect the historical significance of the area and describe the local natural environment. The marker points will provide information in Whadjuk Noongar language. The same wording will be presented in English in the surrounding concrete base of the marker prior to completion of the project.

Stakeholder Engagement

Decmil’s strategic approach to community and stakeholder engagement was documented in a Community and Stakeholder Engagement Plan (CSE Plan). The CSE Plan guided identification and consideration of potential issues and impacts of construction on the local community and key stakeholders.

An extensive list of stakeholders was developed over the various stages of the project. Stakeholders included Main Roads, Federal, State and Local Government, Members of Parliament, adjacent landowners, residents, business owners and operators, environmental groups, special interest and community groups, the broader community, the freight industry, road users, cyclists, regulatory bodies, media and others.

Stakeholder involvement was guided by the International Association for Public Participation (IAP2) Spectrum of Public Participation Framework. Based on this spectrum, Decmil’s approach focused on using the right technique at the right time for the right purpose.

Key challenges

A key challenge was constructing the project in a way that balanced the varying and competing needs of the local community, road users and stakeholders in a way that was socially, environmentally and economically sustainable. Building strong relationships with the local community at the outset provided a solid platform for proactive communication and resolution of issues.

There were more than 500 residents within 100 metres of Reid Highway that were directly impacted by daily construction activities. In addition, there were a small number of retail, hospitality and tourism businesses along West Swan Road that were directly impacted by road works including overnight works, lane closures, road closures and detours.

Key challenges included managing impacts of:

- clearing
- noise, dust and vibration from construction works
- noise wall construction and the perceived need for additional noise walls
- visual and operational impacts including impacts on residential amenity and privacy
- temporary and permanent changes to property access

In addition to advanced information and notification of works and expected impacts, various mitigation strategies were implemented to minimise impacts of construction on local residents and businesses. Water carts were used to dampen down dust prone areas when excavation equipment was being used. Vibration monitors were placed in resident's back yards to monitor vibration levels during use of heavy machinery. Works across residential driveways were either scheduled on days that most suited the residents or undertaken in a manner that still enabled access. Temporary screening was offered to resident's in locations where privacy was compromised by bridge construction works. Temporary signage was provided to roadside shops located within the works zone.

Communication and Engagement Tools

We ensured we reached a diverse range of stakeholders through a number of direct and online activities and tools, using a personal approach on more sensitive issues and broadcast communication to get a consistent message across larger catchments.

Communication Tools and engagement activities were detailed in Tactical Communication Plans (TCPs) which were developed for all major works. TCPs timetabled the instances when disruptions or disturbances were likely, indicated the methods of communication to be employed and to which stakeholders or stakeholder groups. Communication and engagement tools included:

- Stakeholder meetings and briefings, including monthly meetings with City of Swan
- Distribution of Construction Updates, Roadworks Updates and Newsletters
- Advertising road closures
- Email updates
- Signage
- Fact Sheets
- Information on the project website
- Community Information Line (Main Roads Customer Information Centre)

Enquiries and complaints

The majority of community enquiries and concerns were raised via Main Roads Customer Information Centre. 340 calls were received between 1 July 2019 and 20 June 2020. The breakdown of the nature of calls and consultation is as follows:

- General enquiries – 40%
- Complaints – 35%
- Noise wall consultation - 20%
- Other – 5%