

# **Metropolitan Road Improvement Alliance Annual Sustainability Report 2018-19**



# About this Report

This report has been prepared by the Metropolitan Road Improvement Alliance project team on behalf of Main Roads Western Australia. 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. Main Roads processes determine which aspects are Material and to be reported on by the project.

The project has formally adopted the Infrastructure Sustainability Council of Australia's (ISCA) Infrastructure Sustainability framework.

As part of the planning for the project works numerous environmental approvals were required to be obtained. Some information relating to these permits is summarised in this report.

## Highlights

Some of the key highlights to date include:

- Three projects being delivered by the one team.
- Nine Indigenous enterprises contracted.
- Two community and stakeholder perception survey undertaken.
- 92% local content procured.
- 1510 people inducted.
- 27 Indigenous employees participating in workforce.
- 545 tonnes of comingled waste recycled.
- 23 bandicoots trapped and relocated across ARU.
- 83 fauna individuals trapped and relocated at ARU.
- Bibra Drive design changes to save trees and reduce dampland clearing at request of community.
- Use of crushed recycled concrete as a subbase material for some pavement areas.
- Noise wall 8 (MDC) design changed to satisfy residents.

## Overview

The Metropolitan Road Improvement Alliance (MRIA) was formed to deliver the design and construction of three scopes of work in the Perth Metropolitan area. The contract was awarded in May 2017 and construction across all sites is on track to be completed by late 2019. The project is being delivered by the alliance formed between Main Roads Western Australia (Main Roads), CPB Contractors, Georgiou Group, WA Limestone, GHD, AECOM and BG&E.

The three packages of work have undergone various design changes and significant scope changes since conception. Despite this, the works have generally been maintained within the original development envelopes which has meant that the changes haven't created significant challenges for environmental objectives. Some sustainability objectives that have been identified for the project as a whole are outlined below:

- Promote a culture of shared responsibility for outcomes and improve the knowledge, awareness and skills of project team members in relation to sustainability;

- Reduce our impact on the natural environment by focusing on emissions, pollution, waste, land use and resources;
- Encourage initiatives and innovation that provide value for money and leave positive legacies for the road network users, stakeholders and communities;
- Engage with the communities in which we operate to deliver long lasting benefits to local stakeholders.

Various targets have been identified and linked to different sustainability aspects such as energy, water and waste, sustainable design and inclusion and many of these are based on contractual content. An update of each construction site is provided below.

### Wanneroo Road Widening, Joondalup Drive to Flynn Drive

Construction on this site began in late 2017 and lanes opened up to motorists in April of 2019. Some finishing works will continue to be undertaken including median construction, landscaping, kerbing and the completion of the shared path.

Wanneroo Road Widening is expected to significantly improve congestion and create safer, more efficient travel in the northern corridor. It has included the duplication of a 3.2km section of the existing Wanneroo Road between Joondalup Drive and Flynn Drive which will support improved servicing of the residential and industrial areas of the north-west corridor.

Further information can be found at the following link:

<https://project.mainroads.wa.gov.au/home/current/wanneroowidening/Pages/default.aspx>

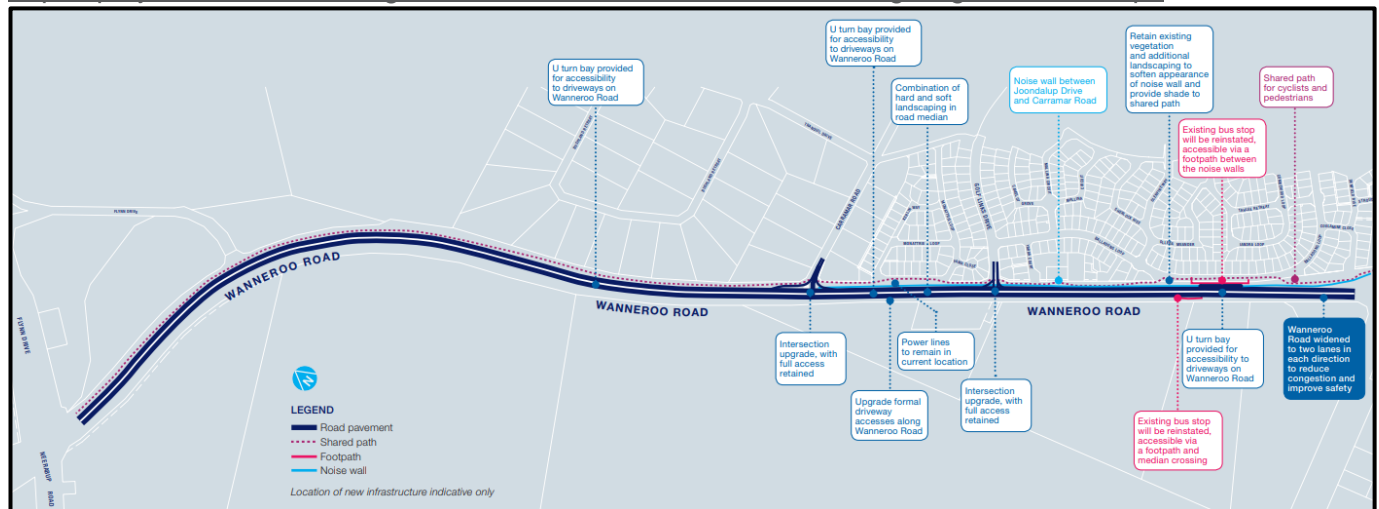


Figure 1 Wanneroo Road Widening locality and scope

### Armadale Road Upgrade, Tapper Road to Anstey Road

The 6.9km section of Armadale Road between Tapper Road and Anstey Road is being upgraded to a dual carriageway with dedicated turning lanes, intersection improvements and new shared path facilities. The project value is \$145m.

Construction is well underway on the intersection upgrades with significant progress made in the last few months on bridge structures. Traffic switches have been undertaken and priming and asphaltting works are underway.

Further information can be found at the following link:

<https://project.mainroads.wa.gov.au/home/current/armadalerdupgrade/Pages/default.aspx>



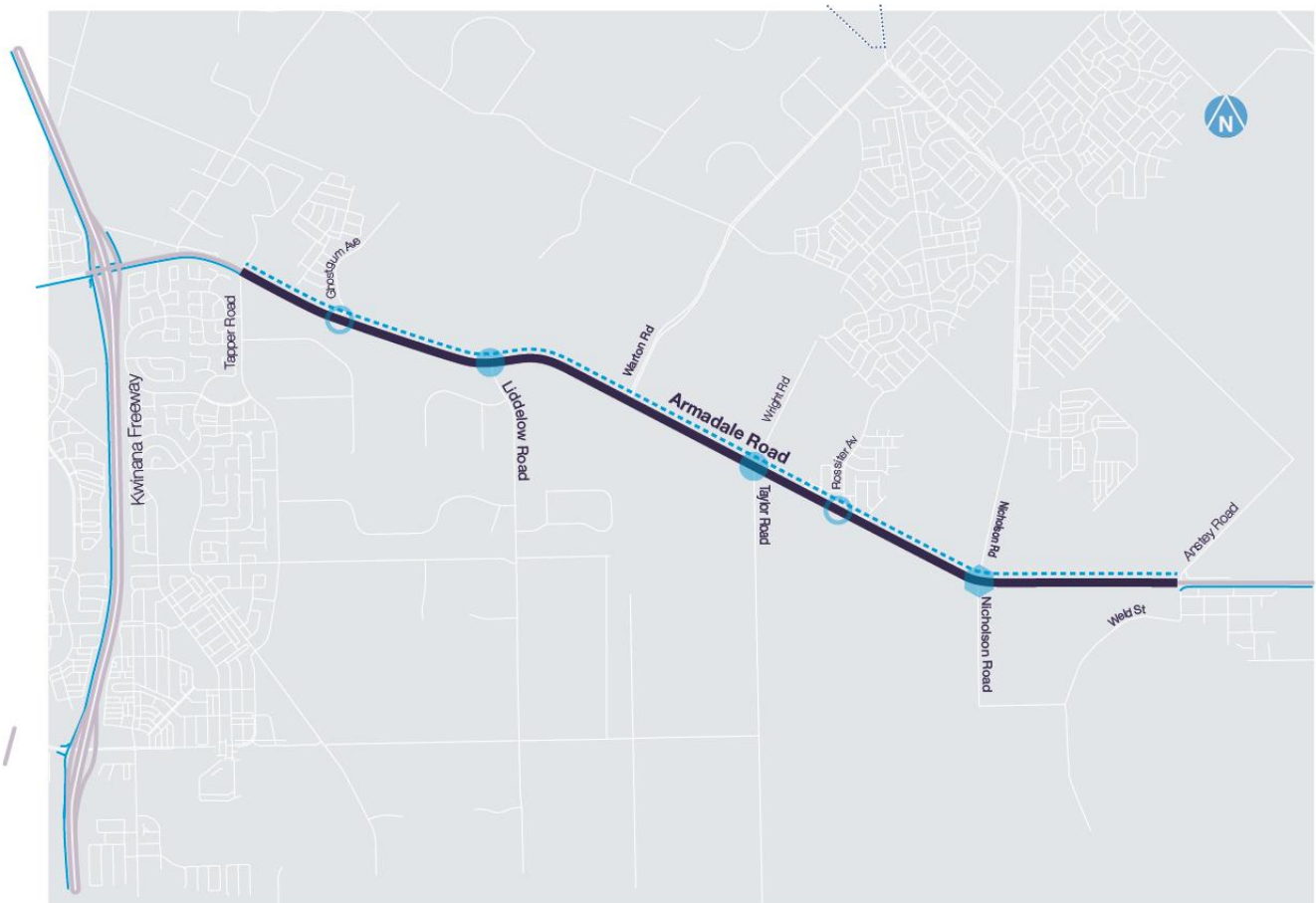


Figure 2 Armadale Road Upgrade locality and scope

## Murdoch Drive Connection

The \$100 million Murdoch Drive Connection will reduce congestion, improve travel times and provide a southern connection to Fiona Stanley Hospital. The project will also support the growth of the Murdoch Activity Centre and tie into a number of other road projects in Perth's southern corridor.

The scope comprises the upgrade of the Kwinana Freeway and Roe Highway interchange and an extension to Murdoch Drive at Farrington Road. This will include bridges over Kwinana Freeway and Farrington Road, an underpass for cyclists and pedestrians, connection to local roads and the provision of noise walls across the site. Works across all bridges are well underway or complete and a major traffic switch has been completed to enable works to begin on part of the freeway loop.

Further information can be found at the following link:

<https://project.mainroads.wa.gov.au/home/current/murdochdrive/Pages/default.aspx>



Figure 3 Murdoch Drive Connection locality and scope

The main identified stakeholders to the Project (all three scopes) include Federal and State Governments, Local Government Authorities, environmental regulators and advocacy groups, local residents and business, Aboriginal custodians, road users (including pedestrians and commuter / recreational cyclists), public transport operators and patrons and the freight industry.

### Overall approach to Sustainability

The approach to sustainability at MRIA is based on both the Main Roads' and CPB Contractor's Sustainability policies (CPB Contractors is the largest non-owner alliance partner), thereby addressing both construction and operational sustainability outcomes.

The project is using the Infrastructure Sustainability Council of Australia's (ISCA) Infrastructure Sustainability (IS) rating tool to guide its processes and outcomes and is registered to be formally verified. The project is aiming to achieve an 'Excellent' rating. Round 1 was submitted in June 2019 with a confirmed design rating score expected in August.

The Environment Manager is responsible for the sustainability outcomes of the project and this is predominantly managed by the Environment and Sustainability Coordinator. The Environment and Sustainability Coordinator oversees the general processes relating to day-to-day sustainability initiatives.

# Environmental Aspects Performance

## At a glance

Aspect	Year to 30 June	Total for Project
Actual clearing to date (native) (ha)	16.34	26.64
Rehabilitation/revegetation planned (ha)	42.1	42.1
Actual rehabilitation/revegetation to date (ha)	3	3
Total Water Consumption to date (kL)	258,202.8	362,109.8
Total GHG emissions (scope 1 & 2) to date (t CO <sub>2</sub> e) (excluding clearing)	4,516.6	5,889.63
Total energy consumption to date (GJ)	64,247.64	83,766.46
Total quantity of recycled content used in project (t)	-	-
Total imported materials used in project (t)	388,326	527,419
Total waste generated by project (t)	7,357.24	7,569.06

## Environmental context



Figure 4 Merops ornatus (rainbow bee-eater)





Figure 5 Western Bearded Dragon

### **Wanneroo Road Widening, Joondalup Drive to Flynn Drive**

This site has two distinguishable vegetation areas either side of the existing road, with native Tuart woodland and other degraded native vegetation in the north and planted and degraded (mostly non-indigenous weeds) in the south. The Tuart woodland provides the predominant fauna habitat at the site, with the most significant species being the Carnaby's Black Cockatoo. This cockatoo is classified as 'Endangered' under the EPBC Act and 'Threatened' under the WC Act. Other listed species which may be present within the site is the Quenda and Carpet Python.

There is little surface or ground water, at this site, with the nearest mapped wetland being Lake Joondalup.

Wanneroo Road Widening is subject to the conditions from the Minister for the Environment as detailed MS 629, which is part of the overall Metropolitan Region Scheme Amendment No. 992/33 Clarkson – Butler.

Upon referral to the Department of the Environment and Energy (DotEE), these works were considered not to be a controlled action with no conditions (EPBC 2015/7632).

### **Armadale Road Upgrade, Tapper Road to Anstey Road**

These works will see some clearing of native vegetation either side of the existing Armadale Road, with the larger impacts occurring at the intersection of Liddelow and Armadale Road. Some of the vegetation for the works is Banksia Woodland (TEC), which is potential habitat for the Carnaby's Cockatoo. The majority of works will occur in land which has previously been disturbed, thereby minimising vegetation disturbance.

Surface water flows at the site will be managed through the installation of additional drainage

infrastructure to minimise any significant changes to the current water flow patterns adjacent. MRIA has also consulted with the Department of Biodiversity, Conservation and Attractions (DBCA) and the Bush Forever section of the Department of Planning, Lands and Heritage (DPLH) to determine the best outcomes for drainage flows in relation to local Bush Forever, DBCA managed reserves and other significant areas.

Armadale Road Upgrade is subject to the conditions outlined in the Native Vegetation Clearing Permits CPS 7623/1 and 7332. The works were referred to DotEE which were found to be not a controlled action (EPBC 2017/7972).

### **Murdoch Drive Connection**

The site is located directly east of the Beeliar Regional Park predominately within the existing road reserve. The works require minimal works within mapped wetlands (less than 0.1 ha), in locations where land has previously been disturbed and native vegetation has been cleared historically for other projects.

The vegetation impacted as part of these works is a mixture of native, cleared with weeds and planted/rehabilitated. The significant fauna species which may occur in this site include:

- Carnaby's Black Cockatoo
- Forrest Red-tailed Black Cockatoo
- Quenda
- Lined skink
- Jewelled ctenotus
- Black striped snake
- Carpet python

Murdoch Drive Connection is subject to the conditions outlined in the Ministerial Statement 1008 (MS 1008). This includes the compliance with a range of environmental management plans.

### **Environmental Management**

An Environmental Management Plan (EMP) has been developed for each site, outlining relevant legislation (including approval conditions), contractual requirements, and environmental aspects and impacts, and the management, monitoring and contingency actions associated. These include incorporating the conditions within applicable approval conditions, including those from any OEPA approved management plans, for the construction phase of the sites.

MRIA operates under the CPB Contractors Environmental Management System which is accredited under ISO14001:2015. This system assists in the implementation of the site EMPs, with internal permitting systems for high risk activities (clearing and dewatering), where site works cannot commence unless approved by the project Environment Manager.

As part of clearing processes, intensive fauna trapping is undertaken to minimise impacts to the local fauna. Over the course of the project, more than 700 native animals were relocated prior to clearing works.

### **Water Management**

MRIA has installed a number of groundwater production bores across the three work sites to supply construction water needs over the duration of the project. All bores are metered and meter readings are recorded at the end of each month and reported on a monthly basis to Main Roads and annually to the Department of Water and Environmental Regulation. Where appropriate, bore operating strategies were developed and approved by the regulator to manage the monitoring and operational requirements of the various bores. Scheme water is also used on the project mainly for site office uses.



MRIA aims to reduce water use wherever possible across all sites through planning and management. Murdoch Drive Connection and Armadale Road Upgrade are both in close proximity to residents, therefore it was important that measures were in place to reduce any impact to the community. During longer breaks in construction, some chemical suppressants are used as a dust control mitigation and to reduce required water use.

Source	Year to 30 June	Total for Project
Water purchased from the scheme in litres	497,300	732,300
Water pumped from bores in litres	237,865,000	341,515,700
Water pumped from rivers, lakes or harvested in litres	-	-
Recycled or waste water use (typically from another industry) in litres	-	-

## Carbon Emissions & Energy

The most significant use of energy on a major road project such as this is typically seen during construction rather than operation. This considers the use of diesel in plant and other vehicles, energy consumption at site offices and all temporary lighting and generators that are used to aid construction works. As summarised above, the project to date has produced 5,889.63 tonnes of CO<sub>2</sub>-e emissions through electricity and fuel use.

Efforts to reduce the emissions and impacts associated with the carbon footprint of the project have been investigated for construction and operation. There were some design changes that significantly reduced the requirement for asphalt and general fill on the project:

- Armadale Road Upgrade: the use of a granular pavement and spray seal followed by a Stone Mastic Asphalt (SMA) over Full Depth Asphalt (FDA) reduced asphalt requirements by up to 20,000 t.
- Wanneroo Road Widening: Granular pavement replaced the use of FDA at all intersections, reducing asphalt requirements by approximately 25,000 t.

Source	Year to 30 June	Total for Project
Energy usage by source (MJ)	-	-
From fuel use (GJ)	63,271	82,517
From electricity (GJ)	976	1,249.06
Energy saved (MJ)	-	-

## Materials & Recycling

Investigations have been undertaken to assess the most appropriate use of materials across the whole project. This includes investigating where design changes can reduce required materials, or alternative materials can be used in place of traditional ones to minimise the associated carbon footprint.

Contractual targets for recycling and waste management on our waste contractors are being managed and monitored. The following is a list of initiatives that have seen reductions in virgin material use or something similar:

- The use of Crushed Recycled Concrete (CRC) as subbase material in selected areas of the pavement, commenced July 2019.
- At WRW, Bitumen Stabilised Limestone (BSL) profiling's were mixed with sandy material and reused in the embankment layers beneath the PSP's.
- Where possible, WRW left existing pavement in place and proof-rolled as a subgrade layer as per specification.
- All projects – use existing pavement (asphalt, spray seal, basecourse, subbase) as embankment fill where there are no better options.
- MDC shared excess fill material with ARU to reduce import of fill from quarry.
- ARU are using oversize material that is not suitable as fill from Nicholson Road Bridge for access tracks / temporary pavements.
- Recycled crushed glass has been used for embankment fill at Armadale Road Upgrade.

#### Material and Waste Statistics

Imported Materials	Year to 30 June	Total for Project
Sand (t)	125,465.47	210,852.16
Gravel (t)	0	171.76
Limestone (t)	110,014.39	157,429.8
Crushed Rock (t)	55,586	64,119.24
Aggregate (t)	2,923	2,923
Asphalt (t)	33,167.78	33,678
Concrete (t)	19,736.46	20,626.38
Steel (t)	1,145.67	1,156.15
Reinforced concrete (t)	3,806.23	4,219.98
Emulsion (t)	484.13	484.13
Bitumen cutter (t)	87.22	91.85
Bitumen (t)	338.79	338.79

Waste	Year to 30 June	Total for Project
Unsuitable fill moved offsite (t)	-	-
Landfill (t)	182.87	204.74
Sewage (t)	-	-
Concrete rubble (t)	4,857.68	4,857.68
Pavement rubble (m <sup>3</sup> )	-	-
Unsuitable material (m <sup>3</sup> )	810	966
General/Green Waste (t)	-	-
Unsuitable fill used for rehabilitation purposes (t)	-	-
Recycled (t)	545.25	595.05

Imported recycled content	Year to 30 June	Total for Project
Sand (t)	-	-
Road Base (t)	500	500
Asphalt/Profiling (t)	-	-

Steel (t)	-	-
Concrete (t)	100	100
Crushed glass (t)	1,000	3,000

### Noise (from construction and future operation)

The construction works must abide by conditions set out in the LGA approved Out of Hours Noise Management Plans in accordance with the *Environmental Protection (Noise) Regulations 1997*. Controls are implemented that are adequate to minimise noise and aim to avoid unnecessary noise and disturbance to residents and the local community.

Design measures such as noise walls have been included at Wanneroo Road Widening and Murdoch Drive Connection, where noise modelling deemed them appropriate to minimise impacts of noise and vibration to sensitive receivers.

### Pollution

Pollution on the project is defined as the introduction of contaminants into the site areas. This includes discharges from construction works, waste and spoil and the uncovering of contamination or asbestos.

MRIA incorporates appropriate control measures to prevent unlawful environmental damage or pollution. The aim of the project is to cause no pollution to land or waterways as a result of construction activities.

### Discharges & Spills

Contingency plans are adopted for any spills and incidents are managed following these plans. Discharges must be compliant with regulatory requirements and must not impact adjacent properties which is managed through the use of monitoring and various management plans.

Outcome aims for adjacent environment, particularly wetlands, native vegetation and other environmentally sensitive areas remain intact.

### Vibration

Vibration as a result of construction works has the ability to effect people and buildings. Vibration may be caused by the use of heavy vehicles, earth moving equipment and compactors. Due to the proximity of nearby residents, schools, churches, offices and retail outlets it is recognised that the works will cause some disturbance.

Control of vibration is limited to the appropriate selection of construction machinery, including rollers which can operate on oscillating mode, instead of hammer mode. Monitoring of ground vibration is also undertaken near sensitive receptors. Results are measured and recorded to ensure that vibration levels are considered appropriate in relation to surrounding receivers.

### Light spill

Out of hours works and security lighting have the potential to cause light spill into residential areas and fauna habitat. Temporary lighting is generally positioned to minimise/eliminate light spill into residential and other sensitive properties. Temporary solar lighting has been used at Armadale Road Upgrade for road lighting, which has a bat wing dispersion minimising the light spill and bright, directional light typically experienced with temporary lighting.



# Economic Aspects Performance

## At a glance

Economic Aspect	Year to 30 June	Total for Project
Funding	\$145m	\$346m
Number of people employed by supply chain at various stages of project	Current 334	334
Total number of suppliers engaged	111	209
Total number of Indigenous Enterprise	47	127
Total number of Disability Enterprise	0	0
Buy Local Spend (to date)	\$58m	110m

## Economic context

### Wanneroo Road Widening, Joondalup Drive to Flynn Drive

Wanneroo Road Widening between Joondalup Drive and Flynn Drive has been an isolated section of single carriageway with limited opportunities for overtaking, creating a pinch point. This typically results in northbound and southbound congestion impacting more than 26,000 vehicles per day. These high volumes are expected to grow rapidly due to urban expansion and growth of the Neerabup Industrial Area.

The majority of this growth will be focused in areas north of Joondalup Drive with the intended development of a new strategic activity centre at Yanchep and associated residential growth, as well as the Neerabup Industrial Area which is expected to provide up to 20,000 local jobs once it is completed.

The Wanneroo Road Widening project will accommodate this growth and support ongoing development of Wanneroo Road as a major north-south alternative to Mitchell Freeway, complementing future interchange works at the intersections of Joondalup Drive and Ocean Reef Road.

The project will provide local, regional and state economic benefits through reduced travel time and improved safety of commercial and freight trips to the North West Corridor, including Neerabup Industrial Area. It will also improve safety and efficiency along State Route 60, attracting more tourist trips to regional centres along Indian Ocean Drive.

### Armada Road Upgrade, Tapper Road to Anstey Road

Traffic count data indicates that more than 27,000 vehicles per day use the section of Armada Road between Tapper and Warton, with 18,000 per day using Warton Road to Anstey Road, resulting in a level of service 'E'.

These traffic volumes regularly exceed the capacity of the existing single carriageway section, creating significant congestion and delay for road users. By 2021, a level of service 'F' will apply if no improvements are made, leading to significant delays for commuters accessing Kwinana Freeway and businesses located within or close to the Cockburn Central Activity Centre.

There is also significant residential and commercial development either underway or planned on the

northern side of Armadale Road, along with increasing development in the Cockburn Central District (Cockburn Gateway Shopping Centre, Cockburn Train Station, Jandakot Industrial Area etc).

This section of Armadale Road also services as a RAV4 (27.5 m road trains) freight route. The primary objective is to address congestion on Armadale road with the provision of dual carriageway for this section.

The project will provide additional lane capacity to improve safety and operational efficiencies in the area, along with better access and traffic flow. The outcome will be shorter journey times, more reliable access to places of work and more effective scheduling for the freight industry.

### **Murdoch Drive Connection**

The Murdoch Drive Connection to Kwinana Freeway and Roe Highway was identified as a key component of the Murdoch Specialised Activity Centre Structure Plan, first endorsed by the State Government in 2007 and revised in 2014. The Structure Plan states that "...the success of the activity centre will depend upon the staged delivery of key transport infrastructure to ensure an appropriate level of accessibility to and within the centre, in particular the provision of a southern access route."

The project will provide better access to Fiona Stanley Hospital from the south for patients and emergency vehicles. Importantly, the project will also help the Murdoch Activity Centre meet its economic potential as a major employment centre based around health, education and research. Once fully developed, it is expected that the Murdoch Activity Centre will become one of the largest employers outside the Perth CBD with up to 35,000 jobs.

Access to the Murdoch Activity Centre and Fiona Stanley Hospital from Kwinana Freeway Northbound is currently limited to South Street (via Murdoch Drive). During busy periods, this limitation creates severe congestion on South Street and the freeway and an increased safety risk, which would otherwise intensify if the Murdoch Drive Connection was not constructed.

### **Procurement – Project Wide**

Each project site has prepared a specific Project Procurement Plan (PPP). The PPP is governed by the CIMIC Group Procurement Policy.

The CIMIC Policy, together with CPB Contractor's procurement procedures, tools and knowledge resources form the basis of the Project's procurement approach. Integration of sustainability into Procurement will be achieved as per the steps outlined in the table below.

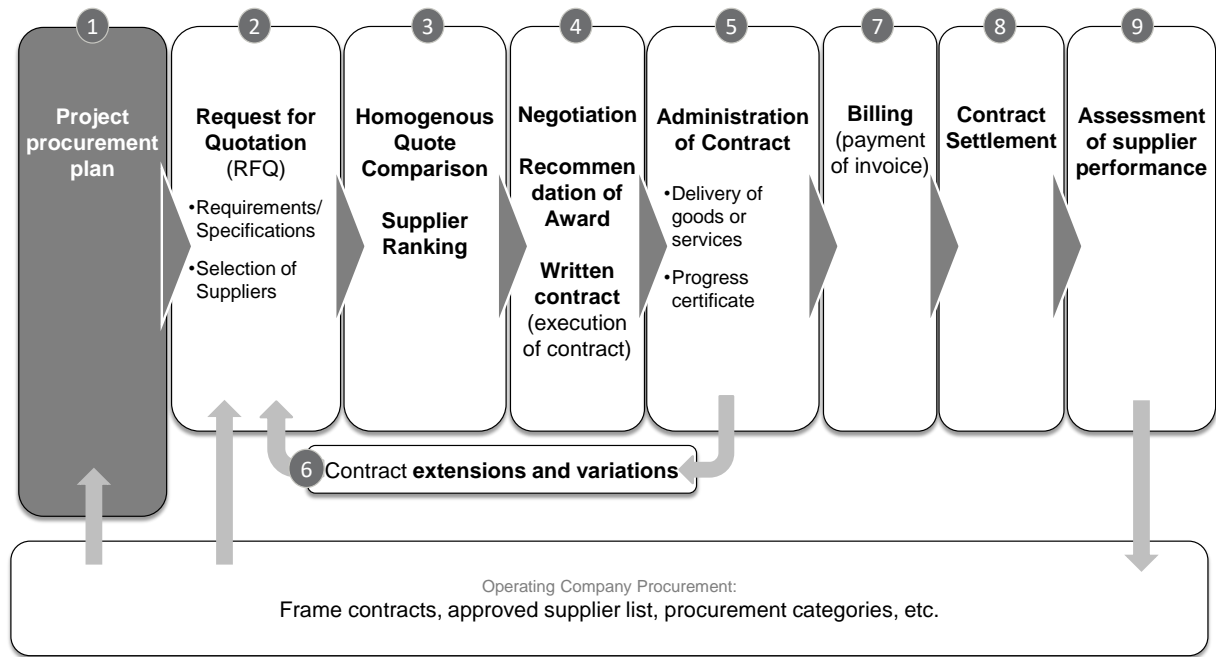


Figure 6 Procurement process at MRIA

Following initial approval of this PPP, the following procurement process will be adopted by the MRIA team to execute all the Work Package procurement requirements in accordance with the relevant plans and policies.

Generally, a formal and competitive tender process (with a minimum three tenderers) will be followed for each package. However, in circumstances where this is not appropriate or feasible (e.g. insufficient number of capable/suitable tenderers, proprietary products, etc) alternative approaches will be developed and set out in the RFQ. The pre-qualification process assesses prospective suppliers on non-financial criteria to consider sustainability outcomes.

The following overarching principles will be applied throughout the procurement process:

- To use best endeavours to procure all services, equipment and materials within budget where feasible and always based on a balanced assessment of the best value for money;
- To procure technically conforming goods and services which (where feasible) meet programme requirements, or otherwise (if sufficient time is not available) are available in a reasonably timely manner;
- To procure goods and services which meet quality, safety, health, environmental and sustainability requirements;
- To reduce project procurement risk by the use of appropriate controls and clear tender/contract documentation;
- To maximise local content, opportunities for aboriginal employment and enterprises and opportunities for smaller contractors (Main Roads prequalified) in line with the Alliance objectives;
- To effectively, fairly and promptly administrate subcontracts from creation through to release; and
- Ensure that all QA/QC deliverables are received, registered and approved prior to releasing securities/retention.

## Key Economic Outcomes

This package of works will reduce congestion by removing bottlenecks from our road network, improving access to and from Kwinana Freeway and increasing freeway capacity from Russell Road to the



Narrows Bridge. It will improve congestion in Perth's northern corridor which is one of the fastest growing areas of the State.

The projects support major public transport improvements such as the METRONET Cockburn to Thornlie rail extension and provide better options for commuters and for those who traverse our suburbs on a daily basis.

The projects complement other new road projects including Kwinana Freeway Northbound Widening from Russell Road and Roe Highway and the development of Perth's first "Smart Freeway" between Farrington Road and Narrows Bridge.

Further, the Murdoch Activity Centre is identified as a Specialised Activity Centre in the State Government's planning strategy for Perth and Peel. The location of the St John of God Hospital Murdoch, the new Fiona Stanley Hospital, Murdoch University and Challenger Institute of Technology in the Murdoch Activity Centre presents the opportunity to develop a significant employment centre based around main activities of health, education and research which will assist in diversifying the Western Australian economy.

## Sustainable Procurement and Buy local

The Alliance objective is to maximise local content, opportunities for aboriginal employment/enterprises and opportunities for smaller contractors (MRWA prequalified). Buy local has been identified as a priority issue for the project and outcomes will be monitored.

Results as at 30<sup>th</sup> June 2019 are summarised below:

	TARGET	TO DATE		
		%	Value	#
Australian Content	100%	100%	\$120m	184
Local Content	95%	92%	\$110m	170
Overseas content	0%	0%	\$0	0
Main Roads prequalified	20%	11%	\$11.9m	5
Disability Content	0%	0%	\$0	0
Indigenous Enterprises	3%	4.57%	\$11,358,679	9

## Climate Change Assessments

Considering and adapting to the changing climate improves the resilience of infrastructure projects into the future. Climate change risk assessment workshops were held with a multi-disciplinary group of to assess direct and indirect climate risks associated with the project. The Intergovernmental Panel on Climate Change (IPCC) has developed globally accepted climate change scenarios of which the RCP4.5 scenario was adopted to reflect asset component lifetimes. The highest priority risks identified are expected to occur as a result of increased temperatures and increased frequency of storm events that have the potential to impact road users. General design standards are in place that accounts for potential climate change impacts within the design life of the asset.

Adaptation responses that were identified by the team have been implemented through design considerations or will be mitigated through operational maintenance and processes. A number of the risks will be addressed through the general process that reassesses and updates standards, policies and asset component specifications. It is expected that climate change risks will be considered as part of these updates.

## **Sustainable Transport**

### **Actions taken to improve cycling and pedestrian facilities**

Armadale Road currently has narrow and degrading shoulders and is not fit for use by cyclists. As part of the project, a 4.0 m wide PSP will be provided for the full extent of the upgrade, providing pedestrians and cyclists with a dedicated facility away from high speed traffic.

A shared path connection has been provided from Joondalup Drive to Flynn Drive/Neerabup Road intersection with path connection provides local connectivity into the adjacent local residential areas. A 1.5m shoulder has been provided allowing safer travel for on-road cyclists between the project extents.

PSP connectivity between the north and south on Kwinana Freeway northbound will be maintained with a new PSP to suit the new road alignment. The PSP includes an underpass to eliminate the need for pedestrians and cyclists to interact with traffic on Roe Highway. A new shared path will provide connectivity between Murdoch Drive and Farrington Rd. Furthermore, a series of footpaths ensure connectivity between Murdoch Drive, Farrington Rd and Bibra Drive.

### **Actions taken to improve road bases public transport**

Public transport services utilising Armadale Road are currently limited to only a few services. The Armadale Road Upgrade will provide bus stops at major intersections to facilitate increased bus services particularly with the rapid development occurring on the north side of Armadale Road.

Bus embayments have been provided for the respective bus stops, and path connections to the two existing bus stops on Wanneroo Road, improving connecting for local residents.

Two bus routes are affected by the project works. The project will involve construction of two new bus embayment to maintain connectivity within the existing bus network.

### **Considerations given to future proofing transport infrastructure**

Armadale Road will see traffic more than double by 2031 as land-use changes. The Ultimate design for Armadale Road is a six-lane dual carriageway, which will cater for demand beyond 2031. The design of the Armadale Road Upgrade takes into account the Ultimate design and seeks to minimise disruptions caused by construction in the future.

Wanneroo Road Widening has been designed to connect on the southern side to Wanneroo Road / Joondalup Drive intersection.

The Ultimate design for Kwinana Freeway northbound is a five lane carriageway, which will cater for demand beyond 2031. The design of the Kwinana Freeway northbound takes into account the Ultimate design and seeks to minimise disruptions caused by construction in the future.

### **Stakeholders engaged to identify opportunities**

MRIA has worked with a number of key stakeholders, including representative resident groups, environmental, cycling advocacy groups and local government to identify opportunities of influence. Four Construction Reference Groups (CRG) have been established across the three projects (Murdoch Drive Connection includes an additional Kwinana Freeway Northbound Widening reference group) to provide a mechanism for the project team to engage with key stakeholders.

Some key areas of influence include:

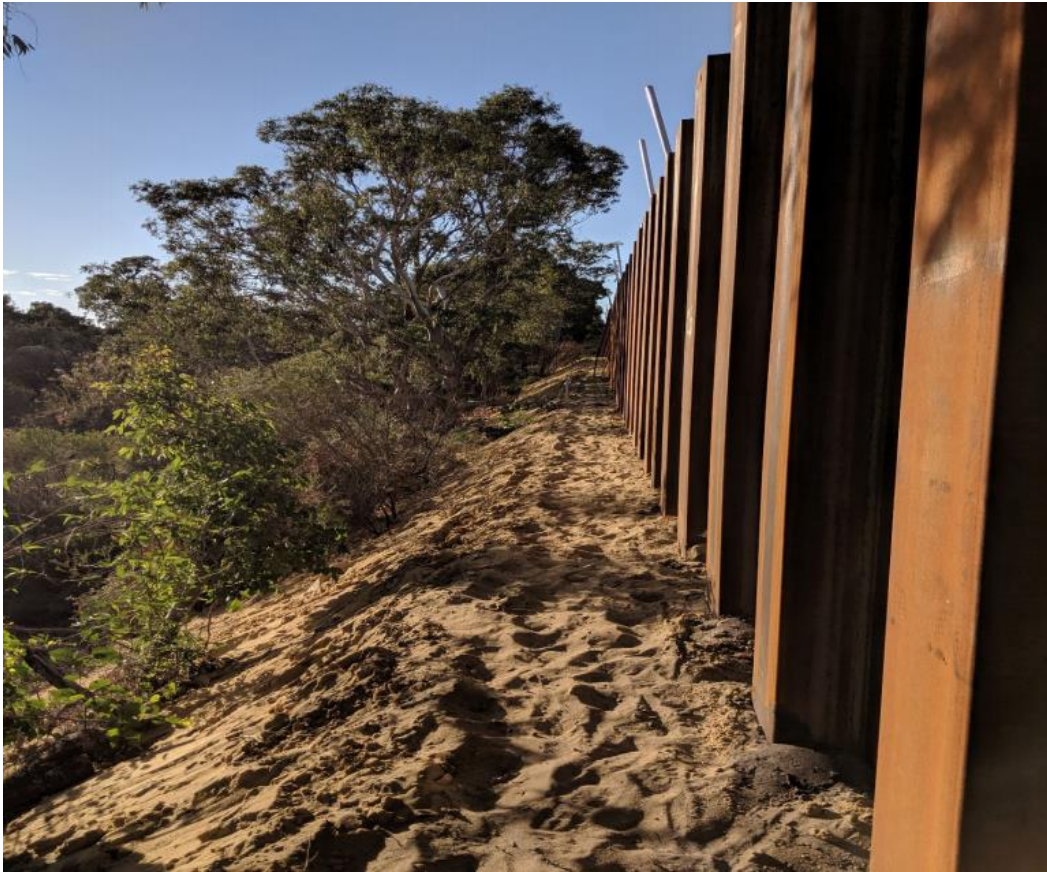
- The Wanneroo Road Widening CRG chose the treatments for noise walls across the project
- Alternative intersection treatments were investigated at Carramar Road intersection, and ultimately an acceleration lane was provided, creating a safer intersection
- Early engagement for the Murdoch Drive Connection saw design changes to reduce connectivity (and traffic impacts) to local roads. Following community concern raised following public information sessions in August 2017, extensive traffic modelling and microsimulation was conducted, various options considered and ultimately a new design announced in January 2018.
- The Murdoch Drive Connection project may require the removal of an aging playground located in the road reserve. Consultation with local residents and the City of Cockburn led to consideration of relocation of the playground to City of Cockburn land. Given the age of the playground, the City of Cockburn safety review deemed the playground unsuitable for relocation and a commitment provided to upgrade an alternative playground in the same suburb in the case of removing the aging playground.
- During construction of the Armadale Road Upgrade project, significant traffic impacts were expected due to this east west road already being heavily congested. Working closely with local business, residents and the CRG, traffic management plans have been guided by feedback from the local community. Cyclist detours were adjusted based on recommendations from Westcycle; community members have provided road safety feedback, and connectivity to local businesses has been a key consideration in guiding staging of construction activity
- In consultation with the Banjup community and City of Cockburn, the intersection of Armadale Road and Liddelow Road was modified to left turn movements only for the safety of road users during construction.
- The Armadale Road Upgrade project has accommodated some of the landscape feature upgrade requirements proposed by the City of Armadale.



# Social Aspects Performance

## At a glance

Social Aspect	Year to 30 June	Total for Project
Community Satisfaction to Project – including feedback forms completed and Community/ Stakeholder Perception surveys completed	1023	1040
No. of complaints	271	379
No. of traffic safety incidents within project boundary	49	53
% of women in workforce	26%	28%
% indigenous in workforce (staff/wages)	3.4%	3%
LTIFR	0	0
No. of project induction held since June 2017	1297	1915
No. of development employees and apprentices on the project	MRIA complies with the GBT policy. Final reporting is due by 30 July for the 2018-2019 year. This figure will be advised soon once all reporting is completed.	Under the Government Training Building Policy MRJA submitted a total target training rate of 8.70% and listed 52 apprentices and trainees for the 2017-2018 year.
No. of employees (FTEs) sourced from local community	118 (average number)	98 (average number)



## Social context

Stakeholders to MRIA projects (Murdoch Drive Connection, Armadale Road Upgrade and Wanneroo Road Widening) include: Federal and State Government, Local Government Authorities (City of Cockburn, City of Melville, City of Armadale and City of Wanneroo), environmental regulators and advocacy groups, local residents and business, Aboriginal custodians, road users (including pedestrians and commuter / recreational cyclists), public transport operators and patrons and the freight industry.

To promote a high level of community and stakeholder awareness and support, objectives on each project include:

- Raising and measuring community and stakeholder awareness and satisfaction of the project, including scope, benefits of the project and what to expect during and post-construction
- Working collaboratively with statutory regulators / authorities to facilitate approval processes
- Providing opportunities for those affected to influence project decisions and outcomes
- Building trusted relationships with stakeholders and members of the community to encourage direct communication / identification of issues, concerns or preferences
- Engaging with project area landowners and seeking opportunities to minimise impacts on their properties and business operations
- Ensuring consistent messaging is conveyed to all stakeholders
- Identifying, recording and resolving issues with affected stakeholders in an open, transparent and timely manner.
- Honouring commitments to landowners and stakeholders
- Promoting the Alliance, the milestones and results achieved (with respect to and in accordance with the media protocols agreed with Main Roads and Government)
- Enhancing the reputations of Government, the Alliance and its participants.

Through engagement, community members and key stakeholders have been provided opportunities to influence elements of the design, and the methodology for how works are staged and delivered. Interactions with construction reference groups (CRGs) and direct contact with the project team which have granted positive outcomes for the communities which we are working within include:

- Murdoch Drive Connection – Peterborough Circle noise wall lowering with consent  
Some property owners on Peterborough Circle raised concerns for the five to six metre high off-boundary noise wall that was to be built behind their properties to meet the requirements of Ministerial Statement 1008 clause (6.2) and State Planning Policy 5.4. This wall was designed to provide noise protection to homes within the road upgrade footprint, however many property owners raised concerns for loss of visual amenity and sunlight into their homes and noted that in comparison, noise was not of a top concern for them. A survey was conducted to understand each impacted property owners' preference with regards to noise protection versus visual amenity and sunlight, and subsequently the design was modified. A new design incorporated full noise protection for properties who's owners preferred to maintain the opportunity for a maximum height wall, and a reduced height wall for the remainder without compromising the effectiveness of the noise model. To enable the wall to be lowered against Ministerial Statement 1008 and State Planning Policy, owners who opted for a reduced height wall were offered to sign a waiver consenting to the noise wall being of a lower height and agreed to a section 70A notification being registered on the title to their property. All owners with reduced height walls were pleased to do so, and a happy medium was accomplished for the street.
- Armadale Road Upgrade – temporary road closures  
The CRG for this project has been of great value to the planning and staging of works to date. For major and minor community traffic impacts, plans for closures and detours are proposed to the group at bi-monthly meetings and with their local knowledge MRIA has been able to design detours that are best suited to the communities which we are working within. For the benefit of shortening the construction period and thus shortening the time that the local community is disrupted by the road works, the CRG has endorsed and encouraged temporary closures of roads adjoining to Armadale Road i.e. Liddelow Road, Nicholson Road, Taylor and Wright Roads, and Rossiter Road. Members have been supportive of the short term pain for the long term gain mentality, and through CRG members carrying this sentiment to their resident and stakeholder groups, support for the way MRIA work has been high.



Figure 7 Wanneroo Road Widening Construction Reference Group Site Tour, March 2019



## Community & Stakeholder Engagement

The following engagement methods have been undertaken:

- Technical Working Groups (TWGs) involving local government technical officers are established to collaborate throughout the design process. At the commencement of the Murdoch Drive Connection and Armadale Road Upgrade projects, TWGs met fortnightly to monthly when critical items required frequent discussion. Now that the design of the projects is at a stage where little input is needed on a regular basis, TWG members meet as required and the primary focus is the implementation of the design principles.
- Construction Reference Groups (CRGs) provide a community stakeholder forum for input into areas such as noise wall design and location, fauna management and as a mechanism to voice community sentiment and concern.
  - The Armadale Road Upgrade project CRG meets bi-monthly and eight of ten planned meetings have been held to date.
  - The Murdoch Drive Connection project CRG meetings were also bi-monthly and saw high attendance and interest in meetings during the design phase. Since construction commenced attendance decreased, and members were asked if they still had an interest in participating in a formal forum. Members advised that they were content to be kept informed of upcoming works, and formal meetings have been put on hold until October when a site tour will conclude their duty and participation in the CRG.

Community and stakeholder groups have been communicated with in these ways:

- 6 week construction activity lookaheads provided via email to key stakeholders
- Roadwork updates
- Construction updates
- Project newsletters
- Variable Message Sign boards on site advertising for advance notice of traffic impacts
- Email broadcast to subscriber database (2000+ recipients per project)
- Targeted mail outs and letter drops for impacted residents within 200m of night works or within areas where resident movements are directly affected by road closures
- Shared information with local government communications teams and CRG members to spread the word via their channels. This group includes the coordinator of the Cockburn Chat online group with a 20,000+ following.
- Dedicated project web pages and travel map
- Targeted face to face engagement

## Addressing community concerns

MRIA acknowledges the early importance of community and stakeholder engagement, and by identifying and addressing issues of the community throughout the design and construction phase of each of its projects, it has been possible to achieve sustainable outcomes and maximise community satisfaction.

Key engagement activities to date:

- One-on-one consultation with property owners with regards to accommodation works. This includes new fencing for new property boundaries, temporary access tracks and new driveways, and the undergrounding of residential Western Power services. Several meetings are held with property owners throughout the accommodation works process to discuss the rationale for changes/upgrades and propose MRJA's design and/or solutions. MRJA then works with the resident to negotiate terms, timing and materials to be used which is best suited to their individual



needs, within allocated budgets. As a result property owners feel valued and are directly involved in the decision making process.

- Continued involvement of the CRG per project to assist MRIA in identifying, discussing and providing advice on community issues associated with the Project.
- Market research. MRIA conducts research to monitor communication and stakeholder engagement issues including a baseline Project awareness survey, to monitor:
  - Local community and local stakeholder awareness;
  - Timeliness and usefulness of Contractor information;
  - How information is provided to the public; and
  - Project sentiment
- Advance notice of disruption - In line with LGA out of hours permit requirements, residents are provided with 48 hours' notice for out of hours works.

Community concerns are raised via Main Roads customer information centre (CIC), face to face, via surveys and feedback forms and through an enquiry email. A robust and strategic approach by the community team, and by those working on site, effectively manages community and stakeholder relations and expectations on all MRIA projects.

- When complaints for noise, vibration or dust complaints are received, the community team (or 24/7 duty manager delegate during out-of-hours) will investigate what is happening on site, and depending on the activity, if possible, changes will be made to lessen the disturbance to residents. If the impact cannot be changed and is within noise and/or vibration safe working limits as per noise management plans, information is provided to the Complainant with regards to how long the impact will last for, what works are happening that requires the activity to be undertaken in this way. Once informed, residents tend to accept the disturbance as they understand the long term benefit and requirement for the work.

A Community and Stakeholder Engagement Plan for each project ensure MRIA works in accordance with Main Roads' Community Engagement Policy. The key principles are as follows:

Principles	Objectives
Transparent communication builds trust and reduces conflict	Relationships with stakeholders and the community are built through timely and open communication. Commitments throughout the project are followed through efficiently and effectively.
Informed and diverse participation leads to meaningful input	Processes are designed to allow for difference and a diverse range of community and stakeholders to participate. They are inclusive, consistent, timely and appropriate.
Meaningful community and stakeholder input increases the quality of decisions	Input from engagement activities are incorporated into the final decision to the maximum extent possible. Decisions deliver a high value to the public.
Engagement is enabled by leadership at all levels	Systems, culture and decision making supports quality engagement planning, delivery, evaluation and continuous improvement.
Planning and resourcing supports engagement	Appropriate time, finances and people are all allocated to projects to manage engagement activities and ensure quality outcomes.

The strategic approach to engagement for MRIA projects is based on the International Association of Public Participation (IAP2) Consultation Spectrum. The IAP2 Consultation Spectrum is an internationally

recognised benchmark which defines the public's role in any public engagement / participation process. Stakeholders are profiled and the engagement methodology tailored to provide the appropriate level of involvement in the decision-making process.

The IAP2 levels of engagement range across a spectrum - three levels of this spectrum are relevant and appropriate for MRIA projects being:

Inform	Involve	Collaborate
Consistent, clear and easily accessible information on all aspects of the project for all stakeholders and the broader Western Australian community.	Direct consultation which involves listening to stakeholders and the community and providing clear and informed feedback.	Collaboration with stakeholders to develop planning and construction solutions and deliver win-win outcomes.

A Senior Stakeholder & Community Relations Advisor dedicated to all MRIA projects implements the strategy and manages the associated activities and/or risks and opportunities.

## Heritage

Targets on the project are set for heritage that include "the number of public art of urban design features delivered that have a reference to the local community, history or heritage". The methods used to establish the heritage context for the project included desktop reviews of the local Municipal Heritage Inventories and the State Heritage Register. The method of management is through a KPI for quality. This particular indicator is about delivering public art pieces that demonstrate some reference to the local community, history and involve local artists. Extra incentive to include artwork by an Indigenous artist is also measured.

Design aspects that incorporate heritage include:

- The delivery of noise walls for the Wanneroo Road Widening that have urban design patterns and colours that reference the historic lime kilns of the Carramar area.
- Making reference to the railway heritage of the Armadale/Fremantle Rail Line (State Heritage Place Number 24004) and Bridge (LGA Place No. 115) in the design of the landscape and bridge abutment patterns for Bridge No. 1820.
- Referencing the natural heritage of the wetlands at Murdoch Drive Connection in the design of the landscape and bridge abutment patterns for Bridge No. 1694.

The Environment Management Plans all include a Heritage subplan which outlines the controls that are in place for heritage management.

## Road Safety

### Targets and expected performance for road safety on the project

Armadale Road Upgrade is subject to Main Roads ROSMA reporting for crash reduction treatments. In the most recent 5-year reporting period, 11 killed or serious injury (KSI) crashes occurred at intersections within the project area. Where project works are occurring, the average KSI crash reduction is expected to be 91% based on intersection treatments. Two of these intersections, at Ghostgum Avenue and Warton Road, were upgraded in 2014 and no treatments are proposed. Although no KSI crashes occurred at the remaining intersections, treatments at those intersections are in line with a safe systems approach.

At midblock sections on Armadale Road there were a total of 8 KSI crashes in the 5-year period. Analysis of all crashes indicated a prevalence of rear end crashes during peak hours, indicating significant congestion-related crashes. Treatments to Armadale Road, including reducing congestion, will result in a 73% reduction in KSI crashes.

Between 2012 and 2016, there was a total of 5 severe crashes resulting in either fatality or hospitalisation, the Wanneroo project targeted and achieved a design reduction in severe crashes by 69%.

Murdoch Drive Connection project is subject to Main Roads ROSMA reporting for crash reduction treatments. A total of 6 KSI crashes were recorded on Kwinana Freeway northbound within the project limits between 2012 and 2016. The crashes were a mix of rear end, run off road and side swipe crashes. Where project works are occurring, the average KSI crash reduction is expected to be 51% based on midblock and intersection treatments.

### **Method of management i.e. plan, objective or KPI, audits or reviews**

Armadale Road Upgrade design is subject to road safety audits. Crash statistics will continue to be monitored by Main Roads and any defects will be corrected during the course of the project.

The objective of Wanneroo Road Widening was to increase road safety and decrease traffic congestion between the project extents, which through Main Roads Road Trauma Reduction Strategy has been achieved. The project further has undergone Road Safety Audits and External Verification by the client, and an independent verifier to provide assurance that the project will meet its objectives.

Murdoch Drive Connection project has undergone numerous road safety audits. Crash statistics will continue to be monitored by Main Roads.

### **Specify initiatives developed or treatments that aim to improve road safety for all road users**

Armadale Road Upgrade will greatly improve safety on Armadale Road through the provision of safe system intersection treatments, including roundabouts and grade-separated roundabouts. The provision of a four-lane dual carriageway with impenetrable medians will ease congestion and reduce potential vehicle conflicts. Further information on safety initiatives can be found in the Armadale Road Upgrade ROSMA report.

With duplicating the carriageways a median has been provided to separate and minimise potential for head on collisions of oncoming traffic. The road has proposed median street lighting, a reduction in speed limit the intersections at Golf Links and Carramar allow for median storage and an acceleration lane respectively. Additional road infrastructure to protect vehicle users against hazards, traffic control mechanisms such as road signage and line marking has also been provided.

Kwinana Freeway - the project will provide an additional lane on Kwinana Freeway northbound and increase the number of added lanes instead of merges, which will reduce congestion and improve traffic flow. Verge and median barriers will protect road users from verge and median hazards.

Roe Highway - the project will provide verge and median barriers to protect vehicles from collisions with roadside hazards.

Murdoch Drive/Farrington Road intersection – Grade separation was selected as preferred treatment to eliminate the crossing of vehicles to maintain traffic flow and to avoid the need for a third intersection over a short distance.

### **Report outcomes the project has achieved**

Construction is due to be completed in late 2019 and therefore the project has not yet achieved many outcomes. MRIA aims to have positive outcome based on improve road safety for the end user and reduction impacts on residents.

## **Traffic Management**

The traffic management team at the Alliance is staffed with maintaining a safe work site for employees and members of the community while maintaining an acceptable level of service for the road network.

MRIA has a target set out in the Performance Management Plan to maintain the average speed of daily network users compared to pre-construction speeds. The impact on local network operations falls under the reputation KRA.

This is done through a variety of processes but focuses on a tailored traffic management plan implemented for every temporary traffic switch undertaken. This includes methodology and measures to minimise traffic management activities during peak hour conditions.

The implementation of traffic management is planned using a hierarchy process. Ideally full road closures will be undertaken in order to minimise safety and congestion risk to the general public and workers. When this can only be achieved through complex and major detours, other methods are used in place such as lane closures and stop-start. The plant and equipment used throughout the installation of barriers is designed to minimise risks to the workforce. This traffic management method includes the use of attenuated trucks and cone trucks, which eliminate the need for workers to be on the ground adjacent to oncoming live traffic.

## **Workforce Safety**

Keeping our people safe is our absolute priority and the most important thing that we do. We actively promote a culture where safety is integrated into our normal business practices. We set clear expectations of our leaders to ensure that we do not compromise the safety of our people for any reason. This includes our subcontractors. As an Alliance we work hard to make our workplaces safe and we are constantly assessing the safety of our workplaces. Our company-wide framework helps to ensure our best-practice management of safety and health combined with active involvement from senior leaders to demonstrate a personal visible commitment.

Safety and health objectives, targets and key performance indicators are established at all levels of the organisation with performance against these monitored and analysed to benchmark current performance and provide the basis for continuous improvement.

ONE HSE Cultural Framework guides our behaviour (Everyone, Supervisors and Managers) and defines what each of us can do to build and maintain a positive HSE Culture.

The Safety Essentials focus on the key seven area's the organisation has defined as high risk work. When undertaking these works 'above the line' controls must be the preferred option. The intent is to use higher levels of controls as per the Hierarchy of Controls (Elimination to Engineering) to reduce high potential incidents from occurring.

## **Community Amenity**

Targets on the project are set for community amenity that include "the average number of shade trees within 5 metres of new sections of shared pathway, measured as the number of tree stems per 100 lineal metres of shared path excluding bridges and underpasses". The methods used to establish the



benefits to community amenity targets for the project included desktop reviews of the local greening frameworks and urban forestry targets and community feedback through construction reference group engagement. The method of management is through a KPI for roadside quality.

Outcomes the project has achieved so far include:

- The design of a coherent alignment of shade trees (and preservation of existing trees) along the new shared path for the Wanneroo Road Widening project.
- The design of shade trees (and shrubs) along the new principal shared path for the Armadale Road Upgrade project.
- The design of shade trees, preservation of existing trees and inclusion of visual screening vegetation along the new principal shared path sections for the Murdoch Drive Connection project.

## Diversity

The Alliance adheres to the Workplace Relations Management Plan as per requirements under the Building Code 2016 Act. MRIA has adopted an Indigenous Management Plan to assist with engagement of Indigenous workers and improved reporting on the project.

The Alliance participated in the Career Trackers programme. A total of 4 Indigenous students so far have worked on the various projects in the summer and winter programme, enabling them to gain valuable experience in the workplace. The project also has a target spend of 4% of the DCT on engagement of Indigenous employees. This target is part of a reputation KRA and the target areas for Indigenous companies/ workers are:

- Supply and subcontract work won through competitive process;
- Salary workers and wages staff;
- Employee/ subcontractor training.

This is supported by the Indigenous Engagement Management Plan which has been developed for the project to achieve certain objectives and targets associated with Aboriginal participation on MRIA.

Social Aspect	Year to 30 June	Total for Project
% Indigenous in workforce (staff)	2%	2%
% Indigenous in workforce (labour hire) – reported on since Oct 17	5%	5%
% women in senior management	9	

## Workforce Development

The Alliance complies with the requirements for the Government Building Training (GBT) Policy. The final total training rate will be known by 30 July 2019. All staff and wages employees were sourced from the WA state with a small selection from over east, however these employees were seeking to return back to WA as it was their original point of hire.

Under the Safety KRA, the project aims to have a high level of engagement with the project team including subcontractors. This involves safety toolbox talks and various compulsory training that will encourage a prominent culture of safety and support.

The following table shows the number of inductions held each month for the MRIA project since the start of 2018.

Project Inductions											
2018											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	51	52	68	104	87	104	121	101	121	96	115
2019											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
167	166	116	93	148	162	-	-	-	-	-	-

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

## **Wanneroo Road Widening**

- Bush Forever Site 383

## **Murdoch Drive Connection**

- Beeliar Regional Park (Bush Forever Site 244)
- Roe 7 offset sites

## **Armadale Road Upgrade**

- Bush Forever Sites 390, 263, 344, 342 and 345

## Appendix 2 – List of Stakeholders to the project

Community and Stakeholder Management Plans are developed for all MRIA projects, identifying stakeholders and methods of engagement and communication.

Stakeholders include but are not limited to:

- Federal and State Government,
- Local Government Authorities,
- Environmental regulators and advocacy groups,
- Local residents and business,
- Aboriginal custodians,
- Road users (including pedestrians and commuter / recreational cyclists),
- Public transport operators and patrons, and
- Freight industry.