Great Northern Highway Upgrade – Muchea to Wubin: Annual Project Sustainability Report 2017

This annual report covers the period from July 2016 to June 2017. A previous annual sustainability report was prepared for the project for the 2014/15 and 2015/16 financial years.

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About this Report

This report has been prepared by the Great Northern Highway - Muchea to Wubin (GNH M2W) 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 principles. Main Roads processes determine which aspects are Material and to be reported on by the project.

Overview

In 2014, the Australian and Western Australian governments announced that detailed planning was underway for a $344.8 million upgrade of the 218 km section of Great Northern Highway (GNH) between Muchea and Wubin, referred to as GNH M2W. An additional $29.8 million was funded separately for the New Norcia Bypass. The GNH M2W project is a planning, design and construction program being delivered collaboratively by an integrated project team, comprised of Main Roads WA and industry partner, the Arup Jacobs Joint Venture.

The project has prioritised a series of road upgrade packages over a 218km stretch through the Western Australian Wheatbelt, to be delivered by 2019, with several of these construction contracts already underway. The overall program of works has included to date a planning review of the entire corridor, identification of a corridor upgrade strategy, prioritisation of contract packages, and progression of these contract packages through detailed design to the issue of tenders for construct only contracts.

Among the improvements to be made are town bypasses, wider roads, more passing lanes, flattening crests and easing curves, safer roadsides, more rest stops and additional facilities for heavy vehicles.

The upgraded road between Muchea and Wubin will provide for better network connectivity for heavy freight travelling between the north and south of Western Australia, along with improved safety for the community. Traffic and freight volumes on the Great Northern Highway - a major freight route between Perth and the state's North-West - have continued to increase. Approximately 30% of traffic at Muchea is heavy vehicles and this increases to approximately 60% of traffic at Wubin. A key driver for this project is to upgrade the highway to cater for 53.5 m vehicles travelling to the proposed de-coupling area at Muchea, on the outskirts of Perth.

Overall, undertaking this program of works will improve road safety, increase freight efficiency, improve network reliability, enhance travel wellbeing, contribute to sustainable and viable communities and enhance the environment. The project webpage can be found here.

Overall approach to Sustainability

The GNH M2W has focussed on achieving sustainable outcomes through incorporation of efficiencies into the design, developing and implementing sustainability clauses for construction contracts, trialling of Aboriginal employment targets, engagement with local communities and investing in local businesses during the construction phase

The program is registered with the Infrastructure Sustainability Council of Australia as a program of works, for an Infrastructure Sustainability rating for both Design and As Built phases, which will incorporate all of the individual construction contracts delivered under the project. The project is the first

registered rating for Main Roads WA that is applying the IS rating framework to ‘construct only’ contracts as part of an overall program of works. The targeted rating is 48 (commended), and project tracking indicates that the program is on track to achieve this rating.

No rating submission has been undertaken to date on the project, with the rating application and evidence collection still ongoing for the design phase of the project. At the time of writing, one construction contract has neared completion, with a second contract well under way. Detailed design is complete for a further three contracts.

Achievement highlight

On Friday 16 December 2016 the GNH M2W project team was awarded the Main Roads WA 2016 Managing Director’s Excellence Awards (Sustainability Award). Main Roads stated that:
"The award was for applying the Infrastructure Sustainability rating framework to the GNH M2W project and not only achieving outstanding sustainability outcomes, but also generating important lessons learned and sharing of knowledge both internally to Main Roads and externally to industry. The project is the first regional program of works to apply the IS rating framework. The project has focussed on achieving sustainable outcomes through incorporation of sustainability clauses into construction contracts, trialling of Indigenous employment targets, engagement with local communities and investing in local businesses."

Environmental Aspects Performance

Environmental context

The GNH M2W project areas are adjacent to a number of protected area (Appendix one). Direct impacts to the protected areas listed are not anticipated. Indirect impacts may occur due to storm water run-off and potential contamination of runoff, dust generation during construction and accidental clearing within the boundary of the protected area. These potential indirect impacts are being considered and managed via the asset design (i.e. drainage design) and application of environmental management systems during construction.

In addition, the remnant vegetation of the WA Wheatbelt that is in good or better condition is generally considered to have high biodiversity value. Some clearing of this remnant vegetation is required for the project, however impacts have been minimised. The significant species and habitats that will be impacted by works is listed at Appendix 2.

Environmental Management

The importance of Environmental Management to GNH M2W is reflected through the project objective of 'Enhance the Environment - Undertake practices to help retain and enhance the environmental values of roadsides'. Environment is a key part of the project delivery structure and has been an integral part of the design development. The Integrated Project Team has been involved in driving optimal environmental outcomes through the following:

- Integration of all disciplines to achieve project environmental objectives
- Designing offline sections of road to reduce clearing of roadside vegetation (including protected flora, threatened native vegetation and protected species habitat).
- Development of Environmental Management Plans for construction and environment related specifications for tender documents.

Preliminary Environmental Impact Assessments (PEIA's) have been prepared for all contract packages in planning stages of the project. Detailed EIAs are currently being prepared for each contract package. Targeted EIAs have been prepared to support referral under the EPBC Act and applications for Permits to Clear Native Vegetation (EP Act Part V) for the New Norcia Bypass, Miling Straight and Muchea North contract packages.

The EIAs undertaken to support the referral under the EPBC Act of the New Norcia Bypass, Miling Straight and Muchea North packages are publically available via the Commonwealth Department of the Environment and Energy website. EPBC Referral documentation for the Walebing to Wubin is also currently available on the project website.

A key environmental success of GNH M2W to date has been the integration and consideration of environmental values in both selecting preferred upgrade alignment options and in finalising the detailed design scope for each contract package. This has resulted in a smaller clearing footprint for the project to date and reduced levels of impact to key biodiversity values such as Carnaby's Black Cockatoo breeding and foraging habitat, leading to sustainable environmental outcomes.

Site	**Clearing of Native Vegetation**
New Norcia Bypass	Actual to date: 4.19 ha Actual FY2016/17: 2.6 ha
Miling Straight	Actual FY2016/17: 12.5 ha
Miling Bypass	Planned: 18 ha
Pithara	Planned: 12 ha
Muchea North	Planned: 53 ha
Dalwallinu to Wubin	Planned: 23.5 ha
Walebing	Planned: 15 ha
Moore River	TBC

Landscape and rehabilitation designs are being prepared for each contract package as aligned to detailed design progression for the project. To date the following areas are planned to be rehabilitated in association with the first two contract packages:

- New Norcia Bypass: 23 Ha
- Miling Straight: 121 ha.

Rehabilitation works have not occurred on the project to date as the construction phase is still ongoing.

Site	**Environmental Offset**
New Norcia Bypass	Monetary Contribution to Department of Environment Regulation (DER): $157,263 (actual)
Miling Straight	Monetary Contribution to DER - $98,109 (actual)
Walebing to Wubin (proposed)	Monetary Contribution to DER - $78,000 Carnaby Black Cockatoo Habitat – 130ha
Muchea North (proposed)	Carnaby Black Cockatoo Habitat – 200ha Carnaby Black Cockatoo Nesting boxes - 39

Water use assessment and management

Managing water consumption across the program is critical, particularly due to the limited availability of potable water in the region. A water balance model is being prepared for each construction package identifying the key water end uses and water quality requirements for each contract package. Water usage will vary between construction packages depending on the scope and associated asset components (i.e. bridges). Following completion of the water balance assessment, this information is considered throughout design and provided as information to contractors to inform their water source and use planning in the construction phase.

Requirements are also written into the construction contracts for contractors to assess, identify and implement water efficiency initiatives. This information is provided as information to contractors for each contract package to help them develop initiatives. On the Miling Straight construction contract, a reduction in freshwater use is being achieved by adding locally available saline water to freshwater stored in Turkey nests, and through the use of Geogrid to minimise requirements for imported fill (and associated water required for placement and compaction).

Water purchased from the scheme in litres	New Norcia Bypass (not incl June 2017): 512.5 kL Miling Straight (from November 2016): 12.7 kL
Water pumped from bores in litres	New Norcia Bypass (not incl June 2017): 82,914 kL Miling Straight (from November 2016): 63,344 kL
Water pumped from rivers, lakes or harvested in litres	New Norcia Bypass: 0 kL Miling Straight: 33,367 kL
Recycled or waste water use (typically from another industry) in litres	New Norcia Bypass: 0 kL Miling Straight: 0 kL

Carbon Emissions & Energy

The GNH M2W team has been seeking to reduce carbon emissions and energy use across the infrastructure lifecycle including from use of the road itself. Main Roads WA identified the need to improve the freight efficiency of the Great Northern Highway (GNH). Currently, freight transport costs are high due to restrictions preventing the use of triple road trains on the 218km section of the GNH between Muchea and Wubin. In particular, there are safety, amenity and community concerns associated with the passage of the GNH through New Norcia and Bindoon, preventing the passage of larger and more efficient vehicles. Improving freight efficiency will have the flow on effect of reducing emissions and emissions intensity for freight movements.

The energy footprint of GNH M2W has been assessed. The main energy uses (and sources of greenhouse gas emissions) identified to date for the construction and operational phases of the project include:

- For construction: Fuel use by vehicles, stationary generation (i.e. diesel generators), lost carbon sink from vegetation removal/clearing and energy use for site offices (i.e. grid electricity, generators).
- For operation: Vehicles using the road.

Reducing construction carbon emissions and energy use has been targeted through a focus on reducing haulage (and associated fuel use by haulage vehicles), by investigating locally available sources of materials (fill and gravel), and consideration of use of marginal materials in fill. During the design phase there has also been a significant focus on minimising vegetation clearing, which will reduce the lost carbon sink from vegetation removal. During construction phase on the Miling Straight energy reduction initiatives include carpooling for workers, use of local borrow pits (reduced haulage) and reduction in

diverting unsuitable material to landfill. Achieving a reduction in operational carbon emissions and energy use has been targeted through design efficiencies in the road (maximum desirable grade of 3%).

Source	Usage by site
Energy usage by source in mega joules	New Norcia Bypass: Generators (Diesel): 30,000,000 MJs from fuel and electricity Miling Straight: 28,444,842 MJs from fuel and electricity
From fuel	Fuel use data for the construction phase of the project has been collated and tracked as outlined below. New Norcia Bypass: On road - 698.6 kL / 26,945,493 MJs Off road - 80.6 kL / 3,111,314 MJs Miling Straight: On road - 46.3 kL / 1,661,996 MJ Off-road - 744.7 kL / 26,714,626 MJ
From electricity	New Norcia Bypass: 0 kwh Miling Straight: 18,950 kWh / 68,220 MJ (site office)
Energy saved	New Norcia Bypass: Energy saving initiatives included: switch off office and camp generators over the weekend periods (where feasible), switch off plant when not in use where feasible. Amount energy saved TBD. Miling Straight: Carpooling - 16,000 L (526,400 MJ) Borrow Pit Location - 20,000 L Unsuitable Material Diversion - 110,160 L Overall fuel use saving - TBD

To date carbon emission for GNH M2W has totalled 4,474 t CO_2-e for scope 1,2 and 3 emissions associated with energy use.

Materials & Recycling

Sourcing of construction materials is a key consideration for GNH M2W due to the rural location of the construction sites and associated haulage distances. The use of naturally occurring / locally sourced materials is a key consideration in all contracts on the project.

Estimates of material use (footprint) have been developed for each concept/reference design in order to guide the development of materials-saving initiatives during the detailed design and construction phases. A key focus of the design phase is achieving an earthworks cut to fill balance for each contract package to minimise either material import requirements or waste generation. The materials estimates are being provided as information to contractors to inform their selection and sourcing of materials. Requirements are also being written into tenders for the project for contractors to assess opportunities for materials use reduction, types, sources and transport. Use of recycled materials is encouraged during the construction phase

Examples of material conservation and recycling activities on the New Norcia Bypass included the construction team reusing all timber formwork and any leftover/excess concrete in creating temporary concrete blocks for formwork support and in construction of pedestrian pathways throughout the New Norcia township. This accounted for a saving of approximately 50m3 of concrete. The construction contractor also sought to locally source embankment and fill materials to reduce vehicle haulage costs, with 40% of gravel coming from within 3km of the site, and the remainder coming from within 15km of the site. It is anticipated that Miling Straight will recycle 48,300 tonnes of existing road materials.

Material and Waste Statistics

Material	New Norcia Bypass	Miling Straight:	Total
Sand	381,400 Tonne	364,180 Tonne	745,580 Tonne
Gravel	145, 600 Tonne	86,900 Tonne	232,500 Tonne
Asphalt	997 m^2	423 Tonne	
Concrete	1,300m^3	1,600 m^3	2,900 m^3
Steel	180 Tonne (estimate)	-	180 Tonne
Reinforced concrete	900m (piping and box sections) (tonnes TBC)	1,300 m^3	
Emulsion	-	54,400 L	54,400 L
Bitumen cutter	-	7,512 L	7,512 L
Bitumen	-	7,512 L	7,512 L

Waste	Total New Norcia Bypass & Miling Straight
Unsuitable fill moved offsite	3,600 m^3
Landfill	11 Tonne (estimate)
Sewage	164,800 L

Economic Aspects Performance

Following is a snapshot of the economic impact and performance of GNH M2W.

Economic Aspect	Impact
Funding	$344.8 Million (State: 20% Federal: 80%)
Workforce and Supply Chain	
Number of people employed by supply chain at various stages of project	Pre-construction - 46 Construction - 11 Early Works - 21 Main Contracts - 491
Total number of suppliers engaged	Pre-construction: 36 Main Contracts – 113
Indigenous Enterprise	$70,357
Disability Enterprise	Nil
Buy Local Spend (to date)	$4.34 Million

Buy local

GNH M2W has invested in the local community through job creation, town-site enhancement and opportunities for local contractors and businesses to be involved in some of the smaller scopes of pre-construction works such as fencing or relocating services. A sustainable procurement initiative has been established to encourage the use of local contractors and suppliers. Local businesses have had the opportunity to register their services via an Expression of Interest process. Supplier details are then shared at construction tender stage and considered during the procurement of early pre-construction works. On the New Norcia Bypass construction package, both the fencing and water service relocation works were undertaken by businesses local to the region.

New Norcia local businesses have also had the opportunity to provide food and accommodation services to construction workforces, as there are very limited options in close proximity to the construction site. By

utilising local providers the construction contractors have significantly reduced the need to use temporary transportable accommodation, while also investing money back into the local community.

Climate Change Assessments

GNH M2W identified a high risk for harsher fire weather, with more frequent and/or severe fires impacting road user safety from climate change. In response to this, a number of adaptation measures are being implemented on the project. Treatments have been incorporated into landscaping through a clear zone strategy, fire breaks and suitable revegetation species selection. Emergency response requirements has been considered along the alignment and safety improvements will assist with reducing the risk of collisions in periods of reduced visibility.

A number of risks identified for the corridor related to the climate change projection for increased intensity of high rainfall events. An outcome of this is that the drainage calculations for each package are being sensitivity checked against potential rainfall intensity increases associated with climate change.

Sustainable Transport

Given the rural nature of the road corridor, requirements or opportunities for sustainable transport initiatives through design are limited. Specific design responses are being developed if issues or opportunities arise as associated with a particular design package. Footpaths are being upgraded in the following towns as part of the GNH Muchea to Wubin project: Pithara, Dalwallinu and Wubin. Additionally pedestrian facilities are being developed at the scenic lookout on the New Norcia Bypass.

There is limited public transportation and nil public rail transportation in the project area. Where there is public transport facilities opportunities have been taken to make it accessible to users. This includes a parking lane in Pithara and in the Muchea North section allowances have been made to incorporate existing informal school bus stopping areas, with appropriate pull-off distances and turn-around areas where necessary.

Social Aspects Performance

Community & Stakeholder Engagement

Consultation and Stakeholder engagement is vital to all public infrastructure projects. For the GNH M2W project early consultation was undertaken with a number of stakeholders to obtain early input and feedback to inform the initial review and planning activities. The purpose of many of the early consultation activities was to identify issues of importance to the community and other stakeholders.

A program wide communication and stakeholder management strategy has been established for the project. This identified key stakeholders, mitigation strategies for stakeholder risk, and the identification of key communication strategies. In addition to a regularly updated webpage detailing key project objectives, milestones and progress, regular updates are provided to different communities along the alignment through development of brochures, council meetings, and targeted stakeholder meetings. For the more sensitive Bindoon Bypass Corridor Assessment a stand-alone Communications and Stakeholder Engagement Plan was developed, implemented and reported upon.

There are several examples available within the Bindoon Bypass Corridor Assessment of ongoing engagement with personally impacted stakeholders to explore options within the endorsed corridor route which have the potential to lessen the direct impacts on the landowners. These include investigating options to lessen impacts on surrounding landowners, with broad support from adjacent property

owners. For further information refer to https://www.mainroads.wa.gov.au/BuildingRoads/Projects/Regional/greatnorthernhwy/Pages/default.aspx

Addressing community concerns

Where possible, issues raised by the community and stakeholders are considered as part of the design process to minimise potential impacts. Key concerns raised by the wider community focus on ongoing access to GNH, including placement of intersections and driveways to facilitate ongoing farm movements. Additionally, the Bindoon Bypass Corridor Assessment raised some specific concerns around the compensation process and timing, effect on lifestyle due to noise and visual amenity impacts and potential impacts of reduce trade in the town of Bindoon. These concerns are common in road upgrade projects.

The GNH M2W project is currently in the delivery stage of the program. Ongoing liaison continues with all stakeholders (landowners, local shires, government agencies) to make sure that individual impacts are minimised during design. Examples of liaison activities include: reducing the number and impacts of severance; accommodation works to replace affected infrastructure; protection or replacement of government and privately owned utilities and services; and, planning for changes of access to properties and towns.

Heritage

GNH M2W has conducted regular meetings and engagement with the Whadjuk and Yued Traditional Owners through the South West Aboriginal Land and Sea Council (SWALSC) coordinated claimant group meetings. The topics discussed at meetings and engagement sessions reflect common issues raised by the traditional owners, i.e. preservation of documented heritage sites, opportunities for indigenous advancement through contracting and work opportunities, participation in future heritage studies, Section 18 approvals progress and project updates and progress reports.

The New Norcia Bypass bridge name was endorsed by the Yued Working Party after a period of engagement in December 2016. Consultation has also been undertaken with the Yued Working Party and New Norcia Aboriginal Corporation regarding the development of Interpretation panels at the New Norcia Bypass scenic lookout. Ethnographic and archaeological surveys have been undertaken with traditional owner in the Calingiri, Moore River and Walebing sections of the project.

The town of New Norcia is of significant heritage value, being Australia's only privately owned monastic town and a popular tourist destination. Prior to construction of the New Norcia Bypass the town was bisected by GNH. The section of GNH which bisects New Norcia was experiencing increasing volumes of heavy vehicle traffic. Combined with the narrow seal widths and limited overtaking lanes, the heavy vehicles were causing significant delays for general traffic, were detrimental to the preservation of the town's heritage value and pose a significant safety risk to the local community and tourists who frequent the site.

As the heritage precinct in New Norcia spans both sides of GNH, visitors need to cross the road at multiple locations. The highway alignment through the town created several conflict points between heavy vehicles and local, tourism and pedestrian traffic. Additionally, the inclusion of heavy freight vehicles through the town centre compromised New Norcia's reputation of being a peaceful destination. The combination of safety and noise issues detracted from the experience offered by the town, its attraction to tourists and its ability to sustain and grow its tourism industry. The Benedictine community at New Norcia has been supportive of the bypass around the town due to the many benefits to the town resulting from the removal of heavy vehicle through traffic.

Road Safety

Road safety is a key part of the GNH M2W, and is reflected in the project objective to 'Improve road safety'. Improving road safety has been an integral part of the planning and design phase. On a project wide basis, a number of strategies and design approaches impacting road safety have been developed, being:

- Rest Area Strategy – formalise spacing to address driver fatigue
- Overtaking Strategy – provide increased overtaking opportunities (including Over size Over Mass (OSOM) vehicle considerations
- Public Transport Strategy – considerations for public transport operators
- Road Safety Strategy – provides input into upgrade options assessments
- Intersection Strategy – define intersection geometric requirements
- Pedestrian and Cycle Strategy

In addition to these broader strategies, specific actions have also been undertaken for each contract package with respect to progressing design. The actions include undertaking an options assessment for each package to determine the optimum alignment. Safety in Design workshops are held for each contract package at each stage of design (15%, 85% and 100%). Constructability workshops are undertaken for each package to consider constructability aspects and potential design optimisation. Road Safety Audits are also a requirement for each package.

The following design elements have been adopted for the upgrade of the GNH M2W project:

- Alignment Improvements – on new sections of work, horizontal and vertical geometry has been improved consistent with current design standards. In addition, speed differential between light and heavy vehicles will be reduced through the adoption, wherever feasible, of a 3% desirable grade for long lengths of uphill gradient.
- Wide Centreline Treatment – the introduction of wide centreline treatment on new works (with an increased surfacing and formation width) and on sections of existing road with shoulder surfacing significantly improves road user safety though increased separation of opposing traffic.
- Truck Stopping Bays/Rest Areas – a project wide strategy for the provision of truck stopping bays/rest areas has been developed and implemented in the individual contract packages as appropriate (e.g. Miling Straight, Walebing).
- Overtaking lanes – a project wide strategy for the provision of overtaking lanes has been developed and implemented in the individual contract packages as appropriate (e.g. Muchea North, Miling Straight, Miling Bypass, Pithara).
- Pavement Marking – raised pavement markings and audio tactile road markings are being provided in most areas.
- Access to properties adjacent to GNH – formalisation of driveways and access to properties, consistent with Main Roads WA policy, thus improving user safety.
- Stock crossings of GNH – consideration of stock underpasses or advanced flashing warning lights.

Workforce Safety

GNH M2W project has a Health Safety and Environmental (HSE) management plan that covers all activities and staff / subcontractors to deliver the project, including designated project HSE representatives from all parties, weekly toolbox talks on safety, regular safety forums e.g. every 6 months, HSE audit schedule, Leadership Safety Walks to observe behaviours and encourage safety conversations, monitoring of incidents, formal investigation of incidents, lessons learnt, and training for high risk activities. 100% of the Integrated Project Team is represented in formal health and safety committees through the respective parent organisations. Additionally there are two HSE specialists within the team. To date the only injuries that have occurred were a minor arm injury and a rolled ankle.

Project construction works are being managed through the requirements outlined as per the Main Roads WA Major Works (AS2124) contract structure, including traffic management. As a result all traffic management incidents on site are reported and appropriate actions put in place to address the issues raised. Additionally, the project team has developed several initiatives to improve the safety of team members travelling to, from and within the project site including journey management procedures and the development of a Telstra phone coverage map.

GNH M2W was awarded a Jacobs BeyondZero Excellence award in 2016 for development and application of a permit for ground disturbance activities.

Community Amenity

GNH M2W developed a project wide strategy for rest areas and landscaping aimed at enhancing the landscape form, local characteristics along the alignment and providing inviting stopping areas. A rest area design strategy has been developed for new rest areas to increase natural surveillance at rest areas. Further to this the project was able to accommodate a scenic lookout at the New Norcia Bypass to provide views back to the New Norcia town. The area contains parking for light vehicles, benches/seating and interpretive material on the town history.

Diversity

As a result of consultation with the Yued Traditional Owners (who cover the majority of the project area), GHN M2W has committed to promoting employment outcomes for local Yued people and the broader Aboriginal community. The project has targeted improving workforce diversity through initiatives centred on Aboriginal participation and local workforce development.

Various approaches to employment targets to promote local Aboriginal employment have been trialled within the construction contracts. GNH M2W worked with Nudge, a 'not for profit' organisation with a focus on getting young people into jobs and training opportunities. A contract requirement was developed in collaboration with Nudge based on the skill base available in the local community. To date, there has been several local Aboriginal people employed by the construction contractors in the construction teams.

Key statistics

Number of FTE equivalent positions held by women in the Integrated Project Team:

- Preconstruction - 14.2
- Construction - 3

Number of women inducted to construction site:

- Integrated Project Team: 2 women in Superintendents Team

- New Norcia Bypass: 8
- Miling Straight: 8 FTE positions held by women. 19 women inducted to site

Number of FTE equivalent management / senior positions held by women expressed as a percentage:

- Preconstruction (Integrated Project Team) - 30%
- Construction (Integrated Project Team) - 16%
- TOTAL for Integrated Project Team - 20%
- New Norcia Bypass: 0%
- Miling Straight: 0%
- Early works contracts: 1 female in Pithara and Miling Straight fencing senior management role

Number of Aboriginal workers employed:

- Integrated Project Team: 0
- Early works contracts (fencing for Pithara): 1 Aboriginal worker inducted
- New Norcia Bypass: 5 Aboriginal workers inducted
- Miling Straight: 19 Aboriginal workers inducted

Workforce Development

All employees engaged on the project are part of the larger organisations of Main Roads WA, Jacobs or Arup. As part of their respective home companies, 100% of personnel engaged in the Integrated Project Team have access to career development pathways, appraisals and training opportunities. In addition, training has been provided for specific project requirements i.e. first aid course, 4WD course and NEC3 contract training.

The various contract packages offer training programs to promote skills and knowledge, and provide opportunities for career enhancement and up-skilling. Typically the training is tailored to meet legislative requirements (federal and state) and aligned with best practice principles around policies and procedural compliance. The contractors have qualified trainers who support onsite training with the flexibility of meeting project deliverables to mitigate risk.

Appendix 1 - List of Protected Areas Project interfaces with:

- Barracca Nature Reserve (A Class reserve managed by the Department of Parks and Wildlife);
- Reserve 209 (C Class reserve managed by the Shire of Chittering);
- Nugadong Nature Reserve (A Class reserve managed by the Department of Parks and Wildlife);
- Buntine-Marchagee Recovery Catchment (not formally protected);
- Crown Reserves 248, 24671 and 17262 (C Class reserve managed by the Department of Water);
- Nugadong Nature Reserve (Class A);
- Crown Reserve 248;
- Crown Reserve 4484;
- Crown Reserves 24671 and 17262.

Appendix 2 - Protected fauna and flora species and habitat

Protected fauna species and habitat:

- Carnaby's Black Cockatoo breeding and foraging habitat;

- Forest Red-tailed Black Cockatoo foraging habitat;

Protected flora species and habitat:

- *Acacia isoneura* subsp. *nimia* (P3);

- *Acacia scalena* (P3);

- *Chamelaucium* sp. Wongan Hills (P3);

- *Frankenia glomerata* (P3);

- *Grevillea asparagoides* (P3);

- *Stylidium squamellosum* (P2);

- *Acacia drummondii* subsp. *affinis* (P3);

- *Verticordia serrata* var. *linearis* (P3);

- *Verticordia lindleyi* subsp. *lindleyi* (P4);

- *Acacia drummondii* subsp. *affinis* (P3);

- *Eucalyptus caesia* (Caesia) (P4);

- *Haemodorum loratum* (P3);

- *Acacia isoneura* subsp. *nimia* (P3);

- *Chamelaucium* sp. Wongan Hills (P3);

- *Chamelaucium* sp. Wongan Hills (P3);

- *Chamelaucium* sp. Wongan Hills (P3);

- *Frankenia glomerata* (P3);

- *Grevillea asparagoides* (P3)

- Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community (Critically Endangered).