Annual Sustainability Report –

Great Northern Highway

June 2016

mainroads WESTERN AUSTRALIA

Annual Sustainability Reporting Template for Major Projects with IS commitments	**Period Covering July 2015 to June 2016**
This reporting template is to be used as a basis for a Main Roads WA major project to produce a standalone sustainability report. While these indicators are a basis to what the report should include the author should be aware that they produce a report targeted at the intended report audience (it is linked to the Main Roads WA Annual and Sustainability Report) and it should include all information necessary so that it can be read as a standalone report. This report is also an opportunity for the project to showcase its sustainability credentials and strengthen the project partner's reputation for sustainable development. The indicators below are loosely based on the indicators of the Global Reporting Initiative (GRI) v4. Main Roads encourages the use of GRI principles when developing a public sustainability report for a major project and many of the indicators can be explained or defined further by referring to the information and guidance available via the GRI website.	
Project Name	**Great Northern Highway: Muchea to Wubin Stage 2 Upgrade**

Topic	**What to report?**	**Content Reported**
General Project Information	General Project Overview including: -location; length; who is involved; project value; improvements considered; reasons for these improvements; other reasons why the project is important; values, principles, standards and norms project has adopted; governance structure	Main Roads Western Australia has established the Muchea to Wubin Integrated Project Team (IPT), comprising Main Roads WA and industry partners Jacobs and Arup to conduct a comprehensive planning review of the full Muchea to Wubin link (~218 km) of the Great Northern Highway through the Wheatbelt of Western Australia. This planning review was a critical component of the Great Northern Highway (GNH): Muchea to Wubin Upgrade Stage 2. Among the improvements considered to date are more passing lanes, flattening crests and easing curves, safer roadsides, more rest stops and additional facilities for heavy vehicles. The planning review examined the previous upgrade strategy developed in the 1990s and, having carefully considered current requirements for the movement of people and freight, delivered a revised upgrade strategy. The IPT has prioritised construction packages to be delivered over the four-year period from 2015-2016 to 2018-2019, the design for which is presently in progress. To date one construction contract has been awarded for the upgrade program for the New Norcia Bypass. This contract was awarded to Decmil Australia, who commenced work in May 2016.
Why is Sustainability important to this project?	Statement from most senior decision maker on why sustainability and sustainable development is important to the project Highlight the top Sustainability aspects for the project and why they were determined to be the top aspects	Key priority areas of safety, ecology, community and resources were identified for the project with respect to sustainability. These were identified via multi-disciplinary workshops held in the planning stages of the project, to map the project system and key issues and opportunities. This information was then considered against both the IS rating framework as a guide for defining sustainable outcomes and as aligned to the broader project delivery objectives, which are: • Improve road safety • Increase freight efficiency

Topic	What to report?	Content Reported
		• Improve network reliability • Enhance travel wellbeing • Contribute to sustainable and viable communities • Enhance the environment.
Status of Infrastructure Sustainability rating	Is the project registered for a rating What is targeted rating? What rating has been achieved to date? Any other important progress information.	The project is registered for an IS rating with the Infrastructure Sustainability Council of Australia (ISCA), to obtain both a 'design' and 'as built' rating. The project is targeting a 'commended' rating level, with a score target in the upper bracket of this rating category of 48. No rating submission has been undertaken to date on the project, with the rating application and evidence collection still ongoing for the program of design work comprising 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.
Report Profile	Specify reporting period; previous report (if any); reporting cycle i.e. annual; point of contact(for report and project); state if any of the information is subject to external assurance	This annual report covers the period from July 2015 to June 2016. A previous annual sustainability report was prepared for the project for the 2014/15 financial year. Lara Mist (+61 8 9469 4650) is the Sustainability Lead for the project at the time of reporting; being a point of contact for the report information. James Nelson (+61 8 6229 7024) is the project Communications Manager as a point of contact for broader project queries.

Water use by Source	Detail the management approach to this sustainability aspect.
	Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.
		A water balance model is being prepared for each contract package in an Excel based format. The water balance model has been built based on project team knowledge and experience of road construction, identifying the key water end uses and water quality requirements for each contract package. These usages will vary between construction packages depending on the scope and associated asset components (i.e. bridges). Indicative end water uses identified broadly for the project include:
		• Road construction:
		  ○ Embankment foundation/roadbed
		  ○ Embankment
		  ○ Pavement
		  ○ Concrete works (i.e. culvert head walls cast in-situ)
		  ○ Dust suppression
		• Bridge construction:
		  ○ Earthworks dust suppression
		  ○ Concrete works (i.e. asset curing)
		• Revegetation and landscaping (irrigation and dust suppression)
		• Water storage losses (i.e. dams)

Topic	What to report?	Content Reported
		• Equipment wash down • Site facilities (offices, camps, drinking, HVAC). Following completion of the water balance assessment, this information is considered throughout design and provided as information to contractors to inform their water source/use planning. Requirements are also being written into tenders for the project for contractors to assess, identify and implement water efficiency initiatives. Water source investigations have also been undertaken by the project team throughout the design phase. A desk study level overview of water sources was carried out to assess which locations might be suitable for providing construction water during construction of the pavement and associated earthworks. This information is also provided to contractors in a report at the time of tender for the various contract packages.
Scheme/potable	Water purchased from the scheme in litres	Scheme/potable water usage data for the construction phase of the project has been collated and tracked as outlined below. **New Norcia Bypass (C01/15):** 1500 L
Ground water	Water pumped from bores in litres	Groundwater usage data for the construction phase of the project has been collated and tracked as outlined below. **New Norcia Bypass (C01/15):** 10,000 L
Surface water	Water pumped from rivers, lakes or harvested in litres	Nil
Recycled water	Recycled or waste water use (typically from another industry) in litres	Nil
Carbon Emissions & Energy	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	Energy use footprint calculations are being undertaken for each contract package in accordance with and based on the *Greenhouse Gas Assessment Workbook for Road Projects* and *AS ISO 14064.1 – 2006: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals*. The Carbon Gauge tool (industry carbon calculator) has formed the basis of the energy modelling process. Scope 3 emissions have also been calculated for the project, specifically focused on vehicles travelling on the road during operation. Operational energy and emissions associated with road-use is not accounted for in Carbon Gauge. This section of the footprint is calculated based on project-derived transport data and the methodology outlined in the Queensland Government's Department of Transport and Main Roads *Cost-benefit Analysis Manual (2011).* The main energy uses (and sources of greenhouse gas

Topic	What to report?	Content Reported

		emissions) identified to date for the construction and operational phases of the project include:
		• Construction:
		  ○ Energy use for site offices (i.e. grid electricity, generators)
		  ○ Fuel use by vehicles (general site, construction and heavy vehicles)
		  ○ Stationary generation (other) (i.e. diesel generators)
		  ○ Lost carbon sink from vegetation removal/clearing.
		• Operation:
		  ○ Vehicles using the road
		The prepared energy models associated with each contract package are being considered in design development, specifically considering key influencing factors of:
		• Earthworks balance
		• Ground excavations (ground condition)
		• Vegetation removal
		• Road gradient.
		Requirements are also being written into tenders for the project for contractors to assess, identify and implement energy efficiency initiatives.

Energy usage by source in mega joules		Energy usage data for the construction phase of the project has been collated and tracked as outlined below. **New Norcia Bypass (C01/15):** Vehicles (Diesel): 1,241,105.8 MJ Vehicles (Petrol): 11,867.4 MJ Generators (Diesel): 117,459.8 MJ
From fuel	Fuel usage by type and split by on-road and off-road in litres	Fuel use data for the construction phase of the project has been collated and tracked as outlined below. **New Norcia Bypass (C01/15):** General site vehicles (diesel): 3,151 L Heavy vehicles earthworks (diesel): 29, 002 L Unleaded site vehicles (petrol): 347 L Site office (generator - diesel): 1, 551 L Site camp (generator – diesel): 1, 492 L
From electricity	Total Electricity purchased from the grid in kwh	Nil.
% from renewable sources	Report the % of renewable energy mix in fuels, the kwh purchased from the grid or the amount produced from significant renewable energy installations on site and not included in total energy	Nil.

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	purchased from the grid.	
Energy saved	Report in kwh or litres of fuel the energy saved from any energy saving initiative implemented.	Nil.
Materials Usage	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement	A materials use footprint/estimate is being prepared for each construction package, developed based on the concept design level estimate and bill of quantities. The estimate is being used to provide inputs in to the IS Materials Calculator in accordance with the IS Material Calculator Guidelines. Only quantities in the estimate as applicable to the proposed end construction package are being input into the calculator. The materials footprint is then being considered in both design and construction phases, to assess opportunities for improvement. A key focus of the design phase is maximising the cut to fill balance for each contract package to minimise either material import requirements or waste generation. The materials footprint is 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. **Initiative - Use of naturally occurring gravels in Pavements** The upgrade of the highway will consist of granular pavements constructed using selected granular material. As part of our project the use of naturally occurring gravels has been investigated and proven as an alternative to the crushed rock materials commonly used. Analysis for this included both a Whole of Life (WOL) analysis on the performance and economics of using the naturally occurring gravels and an examination and analysis of past natural gravel pavement performance and rutting measured historically on the highway. In conjunction with Main Roads WA, pavement design and specifications for the construction of the pavements have been modified to allow the use of the naturally occurring gravels in both sub-base and base-course layers. In the Contracts, Contractors have the option to adopt natural gravels or price/use crushed rock.
Total materials used in tonnes	As per Main Roads WA materials reporting survey	Materials use data for the construction phase of the project has been collated and tracked as outlined below. **New Norcia Bypass (C01/15):** Gravel 8,000 tonnes (2000 tonnes from offsite, balance of 6,000 tonnes from local borrow pit).

Topic	What to report?	Content Reported
Total recycled materials used in tonnes	As per Main Roads WA materials reporting survey	Nil.
Total materials planned to be used in tonnes	Give estimates of total materials required as per the final design	Data not available at time of reporting.
Total recycled materials planned	Give estimates of total recycled materials the project is committed to using as per the final design.	**New Norcia Bypass (C01/15):** Nil to date. Recycling will be undertaken when bridge works commence. Recycled materials will be steel, timber and concrete.
Total materials disposed of.	Total materials disposed of in tonnes (as per Main Roads WA materials reporting survey); report the disposal method - recycling, landfill, on-site storage, composting, other.	**New Norcia Bypass (C01/15):** 300 L packaging waste from Crib – disposal to landfill (~ 0.03 tonnes).
Environmental	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement	The environmental importance of the project is reflected through the project objective of 'Enhance the Environment - Undertake practices to help retain and enhance the environmental values of roadsides'. Environment is an integral part of the project delivery structure. Since the commencement, the project has had a dedicated environment and heritage team working on the project. The team has been involved in driving good environmental outcomes through the following: • Close work and communication with other team disciplines, including project engineers. • Feeding into the road upgrade options assessment, including consideration of environmental elements (i.e. protected flora, significant stands of native vegetation) as part of a multi-criteria assessment for the options selection. • Development, updating and implementation of the project environmental management plan, including team briefings on environmental sensitivities prior to personnel travelling to the project site. • Consultation and engagement with traditional owners. • Development of Environmental Approval submissions (referrals under the EPBC Act and Permits to Clear Native Vegetation under Part V of the EP Act). • Development of Environmental Management Plans for construction and Environment related specifications for tender documents. A key environmental success of the project 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

Topic	What to report?	Content Reported
		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. The environmental team will continue to be an integral part of the project, including the ongoing preparation of required project approvals in accordance with legislation and also interfacing with the project landscape design team around rehabilitation initiatives and heritage promotion opportunities. Environment requirements will also continue to be reflected through project contract documentation in the procurement phase. In the construction phase, environment will also be a key consideration for management, with the team providing ongoing support to the site based Superintendent's teams. Engaged contractors to complete construction works are also required to have an Environmental Management Representative (EMR) and an Environmental Management Plan in accordance with AS/NZS ISO 14001.
Planned/actual Clearing	Estimate the amount of land that is to be cleared in Ha or give actuals	**New Norcia Bypass (Early Works and C01/15):** Native vegetation (planned total): 5.3 ha Native vegetation (actual – early works): 0.11 ha Native vegetation (actual – C01/15): 1.45 Ha Paddock (actual – C01/15): 13 Ha **Miling Straight (CN02):** Native vegetation (planned): 19 ha
Planned/actual rehabilitation	Estimate the amount of land that is only temporarily cleared and is to be rehabilitated in Ha or give actuals; report status of rehabilitation at the close of reporting period; report size and location of rehabilitation.	Landscape designs are being prepared for each contract package as aligned to detailed design progression for the project. To date the following areas are estimated/planned to be rehabilitated in association with the first two contract packages: • CN01/15 New Norcia Bypass: 23 Ha • CN02 Miling Straight: 121 ha. Rehabilitation works have not occurred on the project to date given that the project delivery has not progressed to this stage yet.
Planned/actual Offsets	The amount of environmental offsets that the project is committed to delivering in Ha or actuals; report if a third party is involved in these offsets and who the third party is and their level of expertise; report status of offset at the close of the reporting period; report size and location of offset.	**New Norcia (CN01):** Monetary Contribution to Department of Environment Regulation (DER): $157,263.00 (actual). **Miling Straight (CN02):** Monetary Contribution to DER - $98,109 (actual).

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Protected Areas and areas of high biodiversity value	Report if the project is impact either directly or in-directly protected areas or areas of high biodiversity value outside of protected areas. Report: geographic location; position of area in relation to project; Listing of protected status; the attribute of the protected area or high biodiversity value area; report nature of significant direct and indirect impacts on biodiversity ie pollution, pests, reduction of species, habitat conservation, ecological processes (salinity or changes in groundwater); species effected, extent of impacts, duration or impacts, reversibility or impacts, run-off or discharge.	The project is adjacent to the following Protected Areas: • 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. Identified under the Natural Diversity Recovery Catchment Program and has a recovery plan in place. Responsibility for achieving the Recovery Plan lies with the Department of Parks and Wildlife); and • Crown Reserves 248, 24671 and 17262 (C Class reserve managed by the Department of Water). Direct impacts to protected areas 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.

List of significant species/habitat	Give details of significant species and habitat that is directly or indirectly impacted by the project.	The following significant species and habitats will be impacted by the project:
		• Carnaby's Black Cockatoo breeding and foraging habitat;
		• Forest Red-tailed Black Cockatoo foraging habitat;
		• Priority listed flora species:
		  ○ *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); and
		  ○ *Verticordia lindleyi* subsp. *lindleyi* (P4).
		• Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community (Critically Endangered).

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Amount Spent on Environmental Offsets	linked to Planned/actual Offsets In regards to types of offsets that could result in financial payments, please see the list below: • Vegetation establishment - Planting, direct seeding or topsoil respread - Control of Weeds and Pests - Fencing (Installation/removal) - Weed Matting/mulch (installation/removal) • Purchase of Offset Land • Provision of Funds for Research • Provision of Funds for the maintenance of conservation land (including establishment of firebreaks, fencing and feral animal control) • Provision of Funds for the purchase of Land • Translocation programs of vegetation • Site preparation (ripping or mounding soil) • Funds can be used for Adaptive management • Funds can be paid to the WA Environmental Offsets Fund • Nesting boxes/ Artificial Dreys (in lieu of breeding trees) .	All offsets to date for the project are financial contributions to the WA Department of Environment Regulation. Amounts are as per those reported against planned/actual offsets.
Environmental Impact Assessment	Has the project been subject to an EIA and will there be on-going monitoring	Preliminary Environmental Impact Assessments (EIA's) have been prepared for all early work packages in planning stages of the project. Detailed EIAs are currently in preparation against progressing contract packages. 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.
Environmental Impact Assessment	Are the results of the EIA publically available? If so, where? (link)	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's website.
Economic	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can	The GNH: Muchea to Wubin Upgrade Stage 2 is funded from both the Federal and State Governments (State: $70.95m (20%) Fed: $283.6m (80%)). The New Norcia Bypass is included in the upgrade scope which received additional funding of $29.8m by Australian and State Governments. The project is being delivered by the Integrated Project Team (IPT), comprising Main Roads and industry partners Jacobs and Arup. The IPT has been responsible

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	reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	for the initial planning review and now the progression of defined contract packages to detailed design and tender. Accompanying tasks to this have also included land acquisition and an early works program of service relocations and fencing. **<u>Planning Review and Prioritisation:</u>** The focus of the planning review stage for the project was to review existing highway deficiencies, and to then optimise the road upgrade based on the funding available. The project team undertook an assessment process for a range of alignment upgrade options to identify best for corridor solutions within budget constraints. The project objectives formed the basis of the assessment process to: • Improve road safety • Increase freight efficiency • Improve network reliability • Enhance travel wellbeing • Contribute to sustainable and viable communities • Enhance the environment. Cost estimates for alignment upgrade options were also produced to determine the cost per benefit per km. This was to understand the value for money each option provided and help prioritise or choose options if funding is insufficient. **<u>Sustainable Procurement Initiative:</u>** As part of progressing the planning and design stages of the project, the IPT has been implementing the Sustainable Procurement Initiative. This is a process where local suppliers can register their services for the project via an Expression of Interest Form. These supplier details are then included in Information for Tenderers for the Major Works contracts and are aimed at increasing local and sustainable procurement for the project. This process also supports the 'Buy Local' requirements that are outlined in the project tenders, where tenderers have been asked to maximise local business and employment. If a supplier is interested in registering their services for the project, further information can be found via the project website at https://www.mainroads.wa.gov.au/BuildingRoads/Projects/Regional/Pages/GNH_Muchea_Wubin.aspx
Planned BCR and other measures of productivity		Data not available at the time of reporting.

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No. of people employed by project supply chain	No. of people have been inducted to site Total Employee wages	**Integrated Project Team:** At the time of reporting, the IPT is comprised of 54 personnel. Cumulatively over the course of project delivery to date, a total of 280 people have been engaged on the project via the IPT through either industry partners Jacobs/Arup or Main Roads Western Australia. **Early Works:** At the time of reporting it is estimated that the following numbers of personnel have been engaged via the early works program for the project: • New Norcia Bypass – 23 people • Miling Straight – 20 people. **New Norcia Bypass (C01/15):** Decmil Australia are engaged to complete the construction works for the New Norcia Bypass, with the following personnel engaged through the project to date: • Decmil staff – 7 personnel • Subcontractor staff (engaged through Decmil) – 20 personnel.
No. of businesses engaged by the project	No. of contractors awarded contracts for delivery of the project	**Planning/Design:** A total of 40 sub-contractors have been engaged through the IPT in the planning/design stages of the project to date. **Early Works:** The following contractors have been engaged in the early works stage of the project to date under Contract with Main Roads Western Australia: • Blackwell • Jostina Farming • Muchea Irrigation • All Bush. **Main Construction Contracts:** The following contractors have been engaged for the Major Works construction contracts for the project to date: • Decmil Australia.

$ spent buy local	Value of purchases or contracts awarded to business located within the regional location of the project including local employment, training, research & innovation	**Early Works:**
		To date for the project the following minor works scope/contracts have been awarded to local business:
		• Minor works for New Norcia Bypass:
		  ○ Water main relocation – Blackwell
		  ○ Pressure Sewer + Treated Effluent + AC irrigation pipe – Blackwell
		  ○ Early Works Fencing - Jostina Farming
		  ○ Water Supply to Paddocks - Muchea Irrigation
		• Minor works for Miling Straight:
		  ○ Early Works Fencing - All Bush

Topic	What to report?	Content Reported
		○ Private water relocation – Blackwell The represents a total spend of $793,462.09 with local business. **New Norcia Bypass (C01/15):** As part of works for the New Norcia Bypass contract, Decmil Australia is sourcing accommodation and food supplies from the New Norcia Benedictine Community for its staff working on site (value not known). In addition, the IPT team has arranged accommodation, a site office as well as associated services for the contract management team in the New Norcia Benedictine Community (value not reported).
$ spent aboriginal enterprise	Dollar spend on registered aboriginal enterprises http://www.abdwa.com.au/home.asp?cmd=	Nil to date.
$ spent disability enterprise	Dollar spend on registered disability enterprises http://wade.org.au/	Nil to date.
Legacy Project, 'additional' infrastructure or service supported	Is a legacy project (or additional infrastructure or services) delivered for this project? If so, describe. Include $ spent, linkage to local community needs ie is a defined goal of a local council etc, what is the extent of the impact of the project? Positives? Negatives? Were these investments commercial, in-kind or pro bono engagements.	No legacy projects have been delivered on the project to date.
Planned legacy project BCR		Not applicable.
Local workforce development	No. of FTE equivalents sourced from the Main Roads WA region that the project is taking place in. Proportion of senior project management hired from local community (WA).	Whilst the number of full time equivalents is not known at the time of reporting, to date for the GNH program 100% of the contractors (and their personnel) engaged in the early works delivery across contracts for New Norcia Bypass and Miling Straight has been from local businesses.
Workforce Development	Average hours of training per year per employee by gender, and by employee category % of employees receiving regular performance and career development reviews by gender, and by employee category	**IPT Training and 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 on the IPT have access to career development pathways and training opportunities. In addition to this, as part of delivery of the project the IPT has implemented the following development initiatives for the project team (outside any initiatives provided by the

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		relevant broader companies): • Professional development sessions for the IPT on 'managing teams' and 'influencing upwards' for senior and junior staff respectively (~ 4 hours per IPT team member) • Undertaking of first aid certification and/or 4WD defensive driving as required for personnel undertaking site based roles for the project (ongoing) – 9 personnel to date • IPT personnel attendance at the Main Roads WA Contract Representative training (ongoing) – 2 personnel to date.

Value of overall project/contract	Value of contract(s) awarded for the project	For work undertaken by the IPT, the overall value for Stage 1 (planning) of the project was $10.3 million. Stage 2 (design) of the project is still being delivered, with the value to date being approximately $18 million.
		To date the following contracts have also been awarded for the project across early works and Major Works:
		Early Works:
		• Minor works for New Norcia Bypass (total value of $396,396.09):
		  ○ Water main relocation – Blackwell
		  ○ Pressure Sewer + Treated Effluent + AC irrigation pipe – Blackwell
		  ○ Early Works Fencing - Jostina Farming
		  ○ Water Supply to Paddocks - Muchea Irrigation
		• Minor works for Miling straight (total value of $397,066.00):
		  ○ Early Works Fencing - All Bush
		  ○ Private water relocation – Blackwell.
		Major Works:
		• Decmil Australia ($14,021,000.42 (exc GST))

Average Property value before and after project (difference compared to overall property values		No information available to report to date.
Savings to freight or contribution to Gross State Product		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 in Wubin. A key driver for this project is to upgrade the highway to cater for 53.5 m vehicles travelling to the

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		outskirts of Perth at Muchea in the future. No further specific metrics or data are available on this at this stage.
Risk to Climate Change	Value of Asset at Extreme or High Risk to Climate Change Actions to adapt the asset to Climate Change	In March 2015 the IPT conducted a climate change risk assessment workshop as part of the project planning phase. The session was attended by a multi-disciplinary cross section of the IPT. A total of 26 risks were identified for the project, with three 'high' risks, 10 'medium' risks and 13 'low' risks. The assessment identified a high risk linked to climate change projections for harsher fire weather, with more frequent and/or severe fires impacting road user safety. Safety implications from harsher fire weather were identified to include smoke induced visibility reduction and accidents, vegetation falling on the highway from fire damage and personnel being caught on the highway due to fire occurrence and closures. In response to this, a number of adaptation measures are being implemented on the project, including: • Landscaping measures - clear zone strategy, fire breaks and suitable species selection • Emergency response considerations through the alignment parking bay strategy and maintenance of access to bypassed towns (i.e. New Norcia) • Already occurring broader alignment safety improvements which will assist with navigation and reducing the risk of collisions in periods of reduced visibility (i.e. audio tactile line markings, wide centreline treatment and reduced curve radii). Climate change projections for rising temperatures were also identified to present an increased risk and/or severity of bitumen surface seal flushing, with resultant consequences for road user safety (the loss of skid resistance and traction for vehicles). Given the shorter asset component design life for surface treatments (15-20 years), the resultant adaptation action was to continue to design to current standards (i.e. temperature ranges) for the project. An additional informational control was also identified to share the project risk assessment information to support any future climate change risk assessments for the corridor. A number of risks identified (across both high and medium categories) 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 the project are being sensitivity checked against potential rainfall intensity increases associated with climate change.

Topic	What to report?	Content Reported
Fines or sanctions	Value and nature of any fines or sanctions from non-compliance with laws and regulations (i.e. environmental or safety etc.).	Nil to date at time of reporting.
Diversity of entire project workforce	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	The project has been considering workforce diversity through initiatives centred on Indigenous participation and local workforce development as outlined below. **Indigenous Participation Plan** The IPT has been aligning to community issues identified through consultation by setting of Indigenous employment and business targets in construction contracts. Targets have been included in the tender for New Norcia Bypass through an incentive based scheme. The commercial model for the initiative is being further revised and refined for subsequent tenders/contracts for the project. **Yued Community Development Project** The Roads Foundation have been engaged by the IPT to provide assistance and support with the preparation and development of employment opportunities for Yued people and the support of local business development. The Roads Foundation is currently working with the local Indigenous community in Moora to identify current skill sets and business opportunities. A local Indigenous employee has been engaged on the project through the appointed fencing contractor for New Norcia Bypass early works.
% women in workforce	No. of FTE equivalent positions held by women No. of women inducted to site	At the time of reporting, the IPT is comprised of 54 personnel, working in either full time or part time capacity, of which 22 are women. This comprises a 41% representation of women as part of the main project team in the design phase of the project. **New Norcia Bypass (C01/15):** At the time of reporting, two women are engaged for on-site works for the New Norcia Bypass contract, through subcontracting companies to Decmil Australia. One member of the New Norcia Bypass site based contract management team is also female.
% women in senior positions	No. of FTE equivalent management/ senior positions held by women expressed as a percentage	The Project Joint Management Team is comprised of nine personnel from the IPT and Main Roads WA. Of the nine attendees, two representatives in the team are women. This comprises a 22% representation of women at the management level of the project.
% aboriginals in workforce	No. FTE equivalent positions held by aboriginal people No. of aboriginal people inducted to site	Through the contractor engaged to complete fencing works (Jostina Farming) as part of the New Norcia Bypass early works program, one local Indigenous employee has been engaged on the project.

Topic	What to report?	Content Reported
Safety of entire project workforce (includes sub-contractors)	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	The following Cumulative Safety Statistics were reported for the project from 01/07/15 to 30/06/16. Statistics incorporate both IPT personnel, and all sub-contractors engaged on the project: Site visits - 146 visits Total hours worked - Stage 1 = 7,703 hours; Stage 2 (Pre-construction) = 95,227 hours; Stage 2 (Construction) = 4,088 hours Number of incidents - 11 Number of near misses - 1 From the incident data to date the project has noted a low ratio of near miss reporting to realised incidents. Nonetheless a campaign to improve near miss reporting is being implemented on the project.
% of workforce represented in formal health and safety committees		A Safe System Reference Group has been established for the project. The purpose of the Group is to provide advice to Main Roads WA on the transformational changes needed to achieve a safe system for all road users.

Types of injury		Below is an overview of the types of incidents that have occurred over the past 12 months on the project:
		• First Aid
		  ○ Insect bites (bees, spiders, ticks, ants) recorded on surveys and site inspections
		  ○ Slip, trips, falls due to uneven ground, not remaining observant, running/rushing
		  ○ Hand laceration from slipping and grabbing onto fence.
		• Vehicle damage
		  ○ Minor vehicle damage from reversing into objects (pole, garage door)
		  ○ Windscreen damage due to debris thrown up while travelling past oncoming traffic.
		• Near Miss
		  ○ Debris flung up from passing traffic landed near personnel working in road reserve.
		• Environmental
		  ○ Intersect of a concrete pipe during pit excavation with potential asbestos containing material.
		The most frequent incident types were First Aid Incidents due to insect bites, and minor vehicle damage.

Lost time injury rate		There are no Lost Time Injuries (LTI's) recorded on the project to date.
Fatalities		No Fatalities recorded on the project to date.

Topic	What to report?	Content Reported
Workers with high incidence or high risk of specific diseases.		None.
Stakeholder Engagement	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	The Great Northern Highway Upgrade Project has established a program wide communication and stakeholder management strategy. This involved identification of key stakeholders, identification and 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, community meetings, targeted stakeholder meetings, etc. Summary Reports of community and stakeholder engagement are developed at the end of each key project phase. For the Planning and Assessment study for Bindoon Bypass Corridor Options, the additional community risks required development of a standalone communication strategy to ensure that all relevant stakeholders were identified and targeted for feedback during the consultation period. An example of a successful outcome for the Bindoon region was the very high proportion of potentially affected landowners that participated in one-to-one meetings within the consultation period (~110/130 within 8 weeks). The Bindoon Bypass also trialled the use of Collabmaps, a web based spatial tool to collect feedback referenced to a specific location. References: https://www.m2w.com.au https://www.collaborativemap.com/GreatNorthernHighway
Results of Value Assurance Review		Not applicable.
Effective Communication	Results of stakeholder engagement surveys	Where stakeholder surveys have been undertaken, results were collated with the intent for inclusion in summary reports, e.g. the Bindoon Bypass Corridor Assessment. Results from the Bindoon Bypass Corridor Assessment process are expected to be communicated as part of an updated Bindoon Bypass Corridors Communication Strategy once an endorsement of a preferred corridor is announced by the Minister for Transport. The surveys conducted for the Bindoon Bypass Corridor Assessment included both structured feedback collection from one-to-one meetings with landowners, and feedback forms collected from the community meetings in Bindoon.

Topic	What to report?	Content Reported
		These will also be collated and presented as part of the Bindoon Bypass Summary of Community and Stakeholder Engagement, ultimately feeding into the option assessment process for corridor selection.
Addressing community concerns	Results of stakeholder engagement surveys No of community concerns addressed. Top topics or concerns raised by community or stakeholders.	Stakeholder engagement has been undertaken across the GNH project delivery stages in both planning and design. Key communications summary reports (Stage 1, and Bindoon Bypass Corridor Assessment) and design reports document key issues raised by the community and stakeholders for consideration into design processes to minimise potential impacts that were identified. Key topics or concerns raised by the community include: • Compensation • Impact on property/business viability • Impact of severance • Impact on lifestyle due to noise and visual impacts • Impact to environment • Safety concerns • Placement of intersections and driveways • Potential impacts of reduced trade to the town of Bindoon. These concerns are common in road upgrade projects. The GNH project is currently in Stage 2 of the delivery program. Ongoing liaison continues with all stakeholders (landowners, local shires, government agencies) to ensure that individual impacts are minimised during design. Examples of this include reducing 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.
Social Impact Assessments	Was the project subject to a Social Impact Assessment?	The Bindoon Bypass component of the GNH project is currently completing a social impact assessment as input into the multi-criteria analysis to determine a preferred bypass corridor. A Social Impact Assessment was not conducted over the complete 218 km project length.
Social Impact Assessments	Are the results of the SIA publically available? If so, where?	The results are not yet completed for the Bindoon Bypass social impact assessment. Main Roads WA will determine if the results will become publically available in the future.
Indigenous rights and consultation	Details of any Indigenous consultation undertaken by the project. Detail any issues raised by indigenous communities impacted by the project.	The IPT provides regular updates to the Whadjuk and Yued Traditional Owners through South West Aboriginal Land and Sea Council (SWALSC) coordinated claimant group meetings. The project updates highlight specific indigenous considerations, as well as timing of works, future heritage studies and where monitors may be required, and future pathways for indigenous employment on the project. The topics discussed at meetings and engagement sessions reflect common issues raised by the traditional

Topic	What to report?	Content Reported
		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. At New Norcia for works associated with the New Norcia Bypass contract package, the Yued Traditional Owners are being consulted as part of the development of interpretative signage for a new look out area across the town.
Road Safety	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	**<u>Planning and Design</u>** 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 • 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 • Landscape and Urban Framework In addition to these broader strategies, specific actions have also been undertaken for each contract package with respect to progressing design. These include: • Options assessment for each package to determine the optimum alignment • Safety in Design workshops for each contract package carried through to detailed design, and at each stage of design (15%, 85% and 100%). • Constructability worships to consider constructability aspects and potential design optimisation • Road Safety Audits for each package.
Traffic Management	Details of Road Safety Initiatives for traffic through the project site	Project construction works are being managed through the requirements outlined as per the Main Roads WA Major Works (AS2124) contract structure. No additional specific initiatives have been implemented to date.
Incident Frequency	No of serious traffic incidents within project boundary compared to volume of traffic	Nil to date.

Topic	What to report?	Content Reported
Road Safety Upgrades	Detail of Road Safety initiatives implemented as part of road design or upgrades	**<u>Broad Alignment Upgrade Initiatives</u>** The following design elements have been adopted for the upgrade of the GNH road corridor from Muchea to Wubin: **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% maximum 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. **Trucks 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. **Access to properties adjacent to GNH**: formalisation of driveways and access to properties, and agreement with Main Roads WA thus improving user safety. **Stock crossings of GNH:** consideration of stock underpasses or advanced flashing warning lights. **<u>Pithara (CN04):</u>** **Pithara Town Parking Areas:** parking areas in Pithara, immediately adjacent to the Great Northern Highway have been provided for TransWA buses and in addition, to provide safe access to the local post office.
Community Amenity	Details of community amenity and facilities to improve road side areas (and in turn encourage travellers to take breaks etc) Details of any road design for crime prevention	In line with the road alignment upgrade, a landscape design is being prepared to accompany each contract package. In the planning stages of the project and Urban and Landscape Framework was developed to provide guiding landscape design principles for each detailed design scope. The key principles for landscape design are: • Connect people, communities and the environment • Journey and place making • Self-sustaining solutions • Informed by nature. Key aspects of the landscape framework aimed at improving community amenity and driver experience are

Topic	What to report?	Content Reported
		the provision of town entrance statements and strategic areas of wildflower plantings. In addition to the project wide strategy for rest areas and landscaping, the following is also being provided: • A scenic lookout along the New Norcia Bypass to provide views back to the New Norcia town and provide interpretive material on the town history. • A rest stop at Walebing (Aboriginal Reserve).
Sustainable Transport	Detail the management approach to this sustainability aspect. Give an indication if this was important to the project, any strategies/plans/policies implemented to reduce/improve the projects impact to this aspect and what the successes or failures were. If you can reference further information/content on a project website please do so. Provide a case study of an initiative or achievement.	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.
Cycling and Pedestrians	Details of any Cycling and Pedestrian facilities provided by the project	To date on the project two opportunities to provide suitable pedestrian facilities have arisen, being: • An existing pedestrian footpath in Pithara Town will be upgraded to address pedestrian safety • Pedestrian footpaths and a pedestrian crossing of GNH will be provided at Walebing Roadhouse to allow for the safe passage of pedestrians from the parking bays.
Road Based Public Transport	Details of any facilities or design features aimed at improving road based public transport or access to rail based public transport.	Parking areas in Pithara, immediately adjacent to the Great Northern Highway have been provided for TransWA buses.
Travel Smart	Details of any initiatives to encourage sustainable transport by the project team. % breakdown of trips of workforce getting to and from site: Vehicle; public transport/bus; cycling.	No initiatives have been undertaken to date for the project.