

**2020**  
SEPTEMBER

SOUTH WEST  
SUSTAINABILITY  
WASTE ALLIANCE

# A PROJECT BUSINESS CASE AND FEASIBILITY STUDY

A collaborative model for accelerating waste diversion, economic recovery, jobs, and growth in the SW of WA through the Bunbury Outer Ring Road Project

PREPARED FOR THE OFFICE OF MAJOR TRANSPORT  
INFRASTRUCTURE DELIVERY

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PROJECT  
BUSINESS CASE

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# SWA MEMBERSHIP

South West Sustainability Waste Alliance

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September 2020



Australian Government



**BUNBURY HARVEY**  
REGIONAL COUNCIL  
HARVESTING RESOURCES FROM YOUR WASTE

## Foreword from the Chair

The South West Sustainability Waste Alliance (SWA) is a unique group of industry and government stakeholders using the current Australian waste industry conditions to establish an enduring legacy of diversion, recovery and recycling. A collaborative approach toward a circular waste economy in the South West of Western Australia fortifies and extends the social licence of large infrastructure projects such as the Bunbury Outer Ring Road. Creating shared value and mitigating risk during project planning provides environmental, regulatory, economic and community stakeholders greater opportunities than a ‘business-as-usual’ model can provide in the existing context.

The SWA consists of representatives from the South West Development Commission (SWDC); Regional Development Australia – South West (RDA); Bunbury Harvey Regional Council (BHRC); SW Regional Waste Group (The Group); Noongar Chamber of Commerce and Industry (NCCI) and is chaired by Main Roads (MRWA).

Policy guiding the SWA includes the National Waste Policy and a Council of Australia Governments (COAG) covenant ceasing the export of waste materials from 2021; Western Australian policy seeking material recovery increases to 70% by 2025 and 80 percent by 2030; South West local governments seeking to minimise waste management costs, including those of potential waste levy impacts and ongoing landfill costs; Main Roads/BORR wishing to divert 100,000 tonnes of waste from landfill and meet enhanced sustainability outcomes. These drivers have developed during the Covid-19 pandemic response and WA Recovery Strategy, which has accelerated the BORR Project, with the goal of creating additional regional and Aboriginal business and employment opportunities.

SWA is committed to the Department of Transport’s *Recycle First* policy through the BORR project. Voluntary BORR project sustainability performance drivers incentivise the BORR Alliance Team to develop cost effective waste recycling and product supply solutions. The priority is to increase sustainability performance *and* reduce cost.

This report clarifies the value created, identifies priority issues and recommends actions that create additional value and circular economy outcomes for the South West of WA; the BORR Alliance; local industry and government stakeholders; State and Commonwealth policy stakeholders and the waste and roads sectors. This Project Business Case and Feasibility Study is a forerunner for a Strategic Business Case that sets out the investment case for State and industry investment in additional legacy benefits to these stakeholders after the BORR Project is completed.

SWA looks forward to an ongoing collaboration with the Office of Major Transport Infrastructure Delivery and the BORR Alliance to progress the success of this ground-breaking approach to major project delivery.

Yours sincerely,

Andonis Missikos, SWA Chair

## Executive Summary

*The South West Sustainability Waste Alliance (SWA) is a collaboration of key waste sector stakeholders important to the BORR project. SWA seeks to recover an additional 20% of waste within the wider South West, 30% additional recycled water in the Greater Bunbury region, create 50 permanent jobs and drive growth in the South West.*

The \$852m Bunbury Outer Ring Road (BORR) project is a significant part of the WA Recovery Plan for the South West. The SWA initiative enacts the Office of Major Transport Infrastructure Delivery's (OMTID) *Recycle First* commitment to the Department of Water and Environmental Regulation (DWER). The recommendation to establish the SWA Innovation Hub:

- accelerates the *Roads to Reuse* program;
- develops Australian Asphalt and Pavement Association (AAPA) / Institute of Public Works Engineering Australasia (IPWEA) recycled road product specifications; and
- implements waste supply chain policy, logistics and behaviour change initiatives to increase the quality and volume of recyclable materials incorporated into roads.

Substantial value has already been created for SWA participants through:

- establishing relationships with key stakeholders;
- creating strategies that deliver on waste, local content and 'Closing the Gap' outcomes;
- accelerating Local Government and Main Roads circular economy proposals; and
- establishing Infrastructure Sustainability categories as design rather than audit indicators.

The SWA recommendations will deliver value in the transition towards a circular economy for the BORR Alliance, South West local governments and private roads/waste sector players. Key recommendations include:

- Establishing SWA as a sub-alliance which coordinates delivery of outcomes in collaboration with the BORR Alliance;
- Enabling investments that support the Innovation Hub and program delivery.
- Embedding BORR Alliance performance management indicators driving innovation in cost-neutral or better waste diversion, recovery and recycling outcomes.
- Supporting a Strategic Business Case setting out the rationale for Commonwealth and State funding towards waste initiatives consistent with a circular economy approach in the South West, using the WA road sector as a key market to drive demand for recycled products.
- Innovative employment solutions that benefit from Aboriginal participation in the compost and non-potable water initiatives that assist in 'Closing the Gap'.

## FOGO Composting

An immediate opportunity exists for the BORR Alliance to divert a significant volume of waste by supporting the development of a larger and more efficient FOGO composting operation at BHRC's Stanley Road facility. This established business already sells compost to Main Roads and is licensed by DWER to upscale their production volumes to 50KTPA. Indicative demand estimates for compost by the BORR project is sufficient to take this volume. The established nature of the business means that local demand will be sufficient to sustain the business post-BORR. A financial and economic analysis deemed as feasible a minimum increase in scale to 35KTPA and offers substantial value for money to the BORR Alliance through using this competitively priced, Australian Standard organic product while meeting Buy Local, Aboriginal Procurement and State and Commonwealth waste diversion policy objectives.

### FOGO Processing - Financial & Economic Summary (30-year timescale)

Total Benefit	\$23,426,592
Residual Value	\$0
Total Present Value Benefit	\$23,426,592
Total Present Value Cost	\$17,988,860
Net Present Value	<b>\$5,437,732</b>
Benefit Cost Ratio	<b>1.30</b>

*It is recommended that the BORR Alliance support the \$5.5 million investment in a 35TKPA FOGO composting facility at BHRC through a combination of direct investment and offtake commitments.*

## Innovation Hub

The remaining solid waste and wastewater focus materials require further due diligence and/or market testing. An Innovation Hub has been established to fast-track the delivery of these products into the BORR Project. A three phase program has been devised to deliver these outcomes while supporting delivery and investigations that underpin development of a Strategic Business Case to establish a circular economy in the South West.



# Letters of Support





15 September 2020

To Whom it May Concern:

**SOUTH WEST SUSTAINABILITY WASTE ALLIANCE – PROJECT BUSINESS CASE**

The Bunbury Harvey Regional Council (BHRC) and Local Governments of the South West are continuing to support their ongoing commitment to the South West Sustainability Waste Alliance (SWA) through the development of the Business Plan investigating the use of recycled products in the Bunbury Outer Ring Road project. This support will continue by collaborating with SWA to create a broader Strategic Business Case addressing broader waste diversion across the South West as we progress towards a circular economy. This is to include developing other opportunities that use recycled product in infrastructure construction.

To date BHRC have provided almost \$80,000 of in-kind and financial support to the development of SWA's Business Case and Innovation Hub. This has also been added to with in-kind support of \$40,000 from the twelve Local Governments through the involvement of the South West Regional Waste Group. This has been a considerable commitment from the South West who are already committed to diverting waste from landfill and developing waste opportunities in the South West.

Through active involvement and investment with the South West Sustainability Waste Alliance, the Bunbury Harvey Regional Council and South West Local Governments seek to benefit the region through outcomes including financing the development of new compost facilities which provide wide scale community benefit and increase waste diversion as well as securing a commitment to utilising the resulting compost during construction of the Bunbury Outer Ring Road. The Bunbury Harvey Regional Council would also hope to be the disposal service provider for the road project to ensure maximum waste diversion.

Ongoing priorities for the SW Local Governments and BHRC are to develop a Strategic Business Case which illustrates regional investment opportunities based on economies of scale, circular manufacturing economy opportunities and innovation. Focus areas include the role of the Stanley Road Waste Management Facility (run by the Bunbury Harvey Regional Council), further development of the Waste Innovation Hub to advance recycling opportunities and reduce contamination levels in kerbside food organics, garden organics and recycling bins. It will also investigate material recovery options from the recycling stream. These outcomes will be supported by a regional education program including a purpose-built facility to cater for community interests with emphasis on environmental and indigenous engagement within its programs.

We look forward to working with Main Roads going forward and the development of the South West Sustainability Waste Alliance.

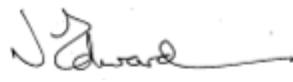
Yours Sincerely



Mr Tony Battersby  
Chief Executive Officer  
Bunbury Harvey Regional Council



Yours sincerely



Mr Nick Edwards  
South West Regional Waste  
Group



15 September 2020



Dear Sir

### **SWA Innovation Hub**

The capacity of the SWA Innovation Hub to fast-track development of the South West and broader WA waste market is seen as the most prospective means of harnessing Bunbury Outer Ring Road (BORR) Project waste diversion targets to catalyse ongoing waste diversion and reprocessing outcomes for the transport sector and local government.

This SWA Initiative will ensure that the BORR will:

- Optimise the use of recycled materials,
- Report on the types and volumes of recycled products used,
- Adopt targeted and valuable innovations in waste recovery and reuse,
- Measure and report outcomes effectively,
- Drive legacy outcomes for the South West region as a whole, and
- Provide streamlined governance and strong leadership between the SWA and the BORR Alliance.

The SWA Innovation Hub will provide technical excellence, advice and focus on using recycled materials in roads and related infrastructure. It will provide the technical basis for the development of contemporary standards and specifications as guidance to drive rapid innovation and to provide information to increase confidence in the use of recycled materials in roads. Ultimately, the goal is to facilitate and enable best practice waste management practices in the transport sector, in the South West and beyond.

The Innovation Hub will focus on building effective systems and processes that can be scaled up and applied much more widely to local government regional roads across the state and to parts of the Main Roads regional road network. It will allow the South West to become the leading region in the state in this space and a source of expertise, jobs, and trade well beyond its boundaries.

Some of the qualitative benefits that the SWA Innovative Hub offers are:

- it will provide a vehicle for the creation of new sustainable jobs in the South West region for locals including Aboriginal people
- it will be a catalyst for rapid development of new local government specifications for the whole State

- it will contribute to whole of life cost savings for road construction and maintenance
- it will encourage partnership opportunities with other businesses, transport industries and technology providers
- It will help to develop new skills and capabilities in the South West in specific areas that currently do not exist including innovative road construction and maintenance practices, recycling of rubber and other specialised products, technical innovation, etc.
- it will contribute to the recovery of an additional 20% of waste within the Greater Bunbury Region and the broader South West
- It will help to transform Kemerton into a world class innovation and technical hub attracting a substantial amount of new investment in the region
- It will help optimize use of valuable resources and minimise environmental impacts
- It will directly respond to, and help with the recovery from, the COVID-19 pandemic including providing direct assistance to fast-tracked projects, that are part of the state government stimulus package
- it will build internal capacity and attract private sector investment

Yours Sincerely



Peter Damen  
**Program Director, Innovation Hub**  
South West Sustainability Waste Alliance

August 2020



To Whom It May Concern,

**LETTER OF SUPPORT — SUSTAINABILITY WASTE ALLIANCE (SWA) FEASIBILITY STUDY AND BUSINESS CASE**

The South West Development Commission (SWDC), as a founding member of the SWA, supports the submission of a feasibility study and business case to Main Roads.

The SWDC's participation in the SWA arose primarily because of its interest in seeing opportunities from the Bunbury Outer Ring Road (BORR) project maximised in the areas of local employment and use of local materials. The SWDC has also maintained a long association with the SW Regional Waste Group, which has a strong focus on developing a coordinated regional waste management approach over the next couple of decades.

The SWDC has contributed \$50,000 as well as in kind effort and support to the development of a business case that aligns with the objectives of the SWA's Terms of Reference and the SWDC's strategic priorities. This is especially in relation to the potential creation of jobs connected to an expansion of (the scale and value of) the SW waste sector, through encouraging investment in local infrastructure for waste recovery.

In addition, the SWDC acknowledges the environmental and social performance dividends that could be delivered to the BORR project and the SW region, if SWA's recommendations are supported by Main Roads. This would achieve consistency with the *National Waste Policy Action Plan*, and State Government's *Waste Avoidance and Resource Recovery Strategy 2030*.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ashley Clements', written over a horizontal line.

ASHLEY CLEMENTS  
DIRECTOR INFRASTRUCTURE AND LANDS

28 August 2020

28<sup>th</sup> August 2020

## SW waste management

To Whom it may concern,

Regional Development Australia – South West committed to this important initiative from the very beginning. The initial challenge was to see how the region might benefit from the \$852m Bunbury Outer Ring Road (BORR) project by including waste materials in construction.

That initial aim has expanded with the important consideration of legacy. Once the BORR project has been completed – then what?

As more stakeholders came on board and value workshops were held it has become increasingly evident that the BORR will prove a genuine trigger for fundamental change. A key principle is that waste streams must be treated as a useful resource not an unwelcome liability.

At the same time the treatment of waste has entered mainstream policy frameworks. The Commonwealth introduced a rolling export ban on waste while the State Government's *Waste Avoidance and Resource Recovery Strategy 2030* acknowledged that the practice of digging holes and burying waste is no longer acceptable in any sense. Australians want more from their governments at all levels.

Work with the SW Sustainability Waste Alliance (SWA) has demonstrated that materials can be used in road construction although moving to a full production model is going to take both time and investment to develop standards and specifications. Work required in crumbed rubber-asphalt mixes is well advanced while work with plastics will take more time.

An outstanding opportunity exists in construction and demolition waste. Hundreds of thousands of tonnes of bricks and concrete lie unused and would make excellent road base were it not for some contaminants. That has taught us that progressive practices will require a change in entrenched behaviours – starting at the very source of collection.

The same principle is applicable for improving Food Organics Garden Organics (FOGO) waste streams. However, regardless of the need to screen contaminants, FOGO offers game-changing opportunities to easily remove 35,000tpa from landfill for a comparatively modest investment. The compost produced to Australian standards, can be used throughout the BORR project to rehabilitate the construction corridor and has far-reaching uses post project.

It is known that compost can enrich sandy soils, but it has also been found that FOGO compost retains water and can reduce watering needs by 5-10%. It makes us wonder if such ideas can be implemented at the macro scale to deliver breakthroughs for farmers.

This, and exciting opportunities to re-use non-potable waste water in a drying climate, has driven stakeholder interest and has led to the conclusion that what is really needed is a facility to explore and develop a whole range of pioneering solutions. Developing an Innovation Hub for the waste precinct at Stanley Road Kemerton would be the embodiment of that notion.

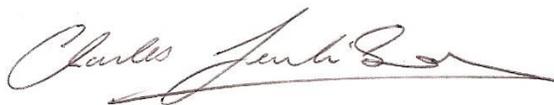
Again, the BORR project would provide the waste commercialisation catalyst and legacy benefits will follow from work at the Innovation Hub.

Looking ahead, the Innovation Hub will identify and address a broad range of waste recycling opportunities through collaboration, technological improvement, and cross-industry integration involving private and public sectors, regulators and academic research. The proposal has potential to deliver amazing outcomes not just for the South West but for Western Australia and beyond. RDA-South West has committed time, expertise and resources to the SWA. Funding workshops, providing governance, knowledge, contacts, economic modelling and financial analysis have all been contributed with the expectation that:

- ❖ The BORR project will utilise waste materials;
- ❖ There will be legacy gains for the whole South West;
- ❖ The business case for FOGO investment will gain support;
- ❖ Decision-makers and leaders will understand that the cost of doing nothing is both financial folly and goes against the grain of community expectations;
- ❖ South West regional councils will get behind the development of the waste precinct; and
- ❖ This work will make a difference.

Should anyone have any additional questions then please do not hesitate to contact me

Yours sincerely,



Charles Jenkinson  
Director of Regional Development

Mr Tim Milsom  
Executive Officer  
Noongar Chamber of Commerce and Industry  
4 Clive Street  
WEST PERTH WA 6005



August 2020

## **Letter of Support – The SWA Opportunity for Noongar People**

To Whom it May Concern,

The Noongar Chamber of Commerce and Industry (NCCI) is committed to SWA and the circular economy / recycled road product outcomes to be developed through the Innovation Hub.

The commitment demonstrated by SWA signatories to incorporate NCCI as a member of the Leadership Group is a first for Noongar People. It represents an understanding that changing the status quo to Close the Gap requires fully integrating Aboriginal People and Values from the outset. The value already created through this simple step is significant. We are engaged and actively working as a SWA partner and look forward to taking this important initiative forward through a direct relationship with the Office of Major Transport Infrastructure Delivery (OMTID) and the Bunbury Outer Ring Road (BORR) Alliance.

Closing the Gap through Aboriginal Procurement requires more than jobs and tender opportunities; it requires ongoing support to facilitate the next generation of opportunities for Noongar People. Opportunities for Noongar enterprises to earn equity in businesses developed through the FOGO and wastewater sectors represents a significant step toward full economic participation. This approach has the potential to integrate progress toward sustainability improvements aligned with Noongar Kep (water) and Boodja (country) Values with structural economic empowerment. Embedding Noongar People structurally into these outcomes is the only way to deliver this paradigm shift. We encourage OMTID and the BORR Alliance to support feasibility investigations into the merits of this approach, as part of leaving a legacy of value for money for Noongar People and the South West.

The Innovation Hub training and mentoring program is another important opportunity for Noongar People to participate in the target of 50 new jobs through an Advanced Waste Precinct in Kemerton. The opportunity for Wardandi and Binjareb People to develop capabilities through working in an industry contributing to delivering progress locally toward Noongar Values is critical to our future.

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Find Out More

Visit our website [www.ncci.com.au](http://www.ncci.com.au)

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Jacqui Warnock 0438 631 608



We commend OMTID and our SWA partners for the integrity that this approach to major transport infrastructure delivery and regional development brings to the BORR Project. We look forward to securing these outcomes for Noongar People as a program of investments and works takes shape.

Yours sincerely

Mr Tim Milsom  
Executive Officer  
Noongar Chamber of Commerce and Industry

Find Out More

Visit our website [www.ncci.com.au](http://www.ncci.com.au)

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Jacqui Warnock 0438 631 608

## Background

The overwhelming strategy towards waste management from a governmental approach supports a shift towards a circular consumption pattern within society. This can be seen in the Commonwealth National Waste Policy Action Plan 2019 (NWPAP), which outlines the incremental export ban of paper, glass, plastic and tyres starting in January 2021. Corresponding State policy frameworks on waste avoidance, diversion, and recovery align with Federal targets through the State Waste Avoidance and Resource Recovery Strategy 2030 (WARRS) and the accompanying WARRS Action Plan 2030.

Fundamental to the BORR Alliance with its stakeholder objectives is the need to create value for money to drive greater recovery of 'waste' products for manufacture or sale, preferably for use in the roads sector. Economic analysis demonstrates a sound rationale for investment and behaviour change. In a business-as-usual scenario where procurement and operations don't change, it is expected that as much as \$100m will be required to fund the building of ever more landfill cells and address existing and future environmental remediation costs in the SW of WA over the next 30 years.

The South West Sustainability Alliance (SWA) is a collaborative initiative between the South West Regional Waste Group (SWRWG), Regional Development Australia – South West (RDA), Bunbury-Harvey Regional Council (BHRC), South West Development Commission (SWDC), the Noongar Chamber of Commerce and Industry (NCCI) and Main Roads.

The SWRWG, SWDC and RDA initiated the SWA with Main Roads.

The participation of the Bunbury-Harvey Regional Council (BHRC) a central facility with the scale and delivery-focus important to an effective collaboration with a major construction project like the BORR.

South West local governments have taken important steps to progress and align waste avoidance, diversion, recovery and recycling initiatives across the South West as a contribution to this initiative.

Noongar participation in the SWA Leadership Group is a first for a major infrastructure delivery initiative. Ground-breaking proposals to create value for money outcomes for the BORR Alliance that contribute to Closing the Gap have been the result.

The BORR project will require use of the Infrastructure Sustainability Council of Australia's (ISCA) Infrastructure Sustainability (IS) tool for project design and construction. IS ratings evaluate potential environmental, social and economic impacts. BORR is the first major project in Australia to be subject to the IS Planning rating during development to embed the sustainability goals of the Region into project delivery. SWA has reframed these as lead (instead of lag) delivery indicators in the context of waste avoidance, diversion and recovery.

## Key Dates

- June 5: A stakeholder engagement forum was held with BORR proponents and South West stakeholders to understand local waste priorities and values.
- June 26: A value management forum was held with BORR proponents and South West Stakeholders to develop waste diversion scenarios for each focus material.
- July 10: The SWRWG invested in SWA through a series of initiatives to remove waste avoidance, diversion and recovery barriers across the South West. These included –
  - working with the Western Australian Local Government Association to align collection contract language and term alignment to improve bargaining power and increasing materials recovery,
  - responding effectively to the waste levy to optimise avoidance, diversion and recovery,
  - establishing a central Materials Recovery Facility with additional processing as required to produce marketable materials and effectively redeploying South West waste infrastructure in support,
  - waste education to attract investment in stakeholder engagement
- July 23: A second value management forum was held with BORR proponents and South West Stakeholders to prioritise waste diversion solutions and values.
- August 18: A presentation was made to the Waste Authority as part of a tour of the proposed South West Advanced Waste Precinct.
- September: Value Engineering Forum to develop BORR waste avoidance, diversion, recovery and recycling performance criteria.
- October: Value Management Forum #3 is proposed to prioritise a complementary suite of strategic options as part of a strategic business case for submission to Infrastructure WA.
- November: Options on waste diversion to culminate in a Strategic Business Case for presentation to Infrastructure WA.

## Resourcing

- A Regional Economic Development Grant to finance the SWA Innovation Hub was submitted on 7 July 2020, based on a co-investment by BHRC and Main Roads.
- A Groundswell Grant to finance education and training was submitted by SWA and NCCI based on a co-investment by BHRC and Main Roads.
- SWA participants have contributed financial and in-kind investments valued at approximately \$600,000 to due diligence investigations to date.

# The SWA Approach to Creating Value

## Alliancing to Create Shared Value

SWA alliancing focuses on identifying risks and opportunities so solutions add value to alliance participants and other stakeholders. A fast-track imperative to retrofit waste performance requirements during final procurement has meant running multiple processes in parallel. These include:

- A rolling co-design process to identify and enlist support from highly invested stakeholders in return for delivering outcomes of value;
- Using technical expertise to develop advice regarding waste management performance, recycled road product specifications, market development processes, economic and financial analysis, value management, value engineering and infrastructure sustainability.
- Constant stakeholder engagement to introduce the SWA approach, conduct value management and value engineering exercises and through providing ongoing updates through communiques.

## An Interdisciplinary Approach

SWA assembled an interdisciplinary team of stakeholders (set out in the table below) with the requisite skills to inform processes, build relationships and ensure integrity. These are somewhat different to the signatories to the Terms of Reference due to delegations made by some parties.

<b>Role</b>	<b>Participant</b>
<b>Major roads projects, sustainability, alliance governance and strategic relationships</b>	Main Roads and the Department of Transport, Office of Major Transport Infrastructure Delivery
<b>Project management, research and education, stakeholder mapping, waste management and resource recovery operations and project delivery.</b>	Bunbury Harvey Regional Council
<b>Road sector specifications development, materials and recyclable product technologies, research program development and industry relationships</b>	Australian Asphalt and Pavement Association
<b>Regional development, Commonwealth and South West stakeholder relations,</b>	Regional Development Australia - South West

<b>REMPLAN, economic and financial modelling, business investment</b>	
<b>Regional development, WA Government and South West stakeholder relations</b>	South West Development Commission
<b>Noongar values and relationships</b>	Noongar Chamber of Commerce and Industry
<b>South West waste sector state of play and resource recovery research, South West local government waste sector liaison</b>	City of Busselton, Bunbury Harvey Regional Council and the South West Regional Waste Group
<b>Client perspective, Gateway review processes, Infrastructure Sustainability Council advisor, alliancing, procurement, and roads / water industry relationships</b>	Menno Henneveld Consulting
<b>Value management facilitation and stakeholder relationships</b>	Estill and Associates
<b>Infrastructure Australia economic and financial modelling and major road project engineering</b>	6 Cats Consulting
<b>Waste data and environmental regulatory context</b>	Department of Water and Environmental Regulation
<b>Strategic and sustainability value proposition, facilitation and business case writing</b>	Long Front Advisory Services

### **Developing an Innovation Hub as a Catalyst**

The SWA Innovation Hub will fast-track development of the South West and broader WA waste market through harnessing Bunbury Outer Ring Road (BORR) Project waste diversion targets to achieve a step-change in waste diversion and reprocessing outcomes for the transport sector and local government. This SWA initiative ensures that the BORR will:

- Optimise the use of recycled materials,
- Report on the types and volumes of recycled products used,
- Adopt targeted and valuable innovations in waste recovery and reuse,
- Measure and report outcomes effectively,

- Drive legacy outcomes for the South West region as a whole, and
- Provide streamlined governance and strong leadership between the SWA and the BORR Alliance.

The Innovation Hub is proposed as a centre of reliable technical advice focussed on using recycled materials in roads and other infrastructure construction. It is intended to provide the technical basis for the development of contemporary standards and specifications as guidance to drive rapid innovation and to provide information to increase confidence in the use of recycled materials in roads. The goal is to facilitate and enable best practice South West and transport sector waste management practices and recycled material inputs into transport projects and beyond.

Part of the remit for the Innovation Hub is to build effective processes that are scalable and applied widely to local government regional roads across the state as well as the Main Roads regional road network. It will allow the South West to become a leader and a demonstrator in this space and a source of expertise, jobs, and trade well beyond its boundaries.

Some of the qualitative benefits that the SWA Innovative Hub offers are:

- it will provide a vehicle for the creation of new sustainable jobs in the South West region for locals including Aboriginal people
- it will be a catalyst for rapid development of new local government specifications for the whole State
- it will contribute to whole of life cost savings for road construction and maintenance
- it will encourage partnership opportunities with other businesses, transport industries and technology providers
- It will help to develop new skills and capabilities in the South West in specific areas that currently do not exist including innovative road construction and maintenance practices, recycling of rubber and other specialised products, technical innovation, etc.
- it will contribute to the recovery of an additional 20% of waste within the Greater Bunbury Region and the broader South West
- It will help to transform Kemerton into a world class innovation and technical hub attracting a substantial amount of new investment in the region
- It will help optimize use of valuable resources and minimise environmental impacts
- It will directly respond to, and help with the recovery from, the COVID-19 pandemic including providing direct assistance to fast-tracked projects, that are part of the state government stimulus package
- it will build internal capacity and attract private sector investment

## Developing a Stakeholder Mandate

A total of 130 stakeholders (in 85 organisations) were identified to provide a broad range of representation on waste and road construction in the South West. During the engagement process all stakeholders were provided the same information and given the opportunity to be a part of process through several activities, including a

- Stakeholder Workshop – with 24 highly involved stakeholders and the two consortia
- Value Management Workshop #1 – with 57 participants, who were presented a set of scenarios on the six focus materials. Workshop participants were asked to select preferred scenarios for further development
- South West Regional Waste Group, CEO Meeting – a presentation about SWA and the business case development, as well as the opportunities for the 12 Local Governments from the South West to be involved with SWA
- Value Management Workshop #2 – with 36 participants, who were presented the developed scenarios and asked to provide feedback on the six focus materials.
- Site Tour, Stanley Road Waste Management Facility – with 12 participants

Feedback from stakeholders was gathered through comments, questions, feedback sheets, scenario options and discussions. Common themes were related directly to the use of recycled products in the Bunbury Outer Ring Road and/or those with a longer-term impact were grouped according to the potential legacy they could deliver.

Comments made regarding the Bunbury Outer Ring Road:

- Focus on key materials with benefit and practicality
- Alignment with policy and programs already in place (such as RtR)
- Cross departmental inclusion
- Meaningful collaboration options
- Applied use in BORR to achieve highest possible ISCA rating
- Flow on opportunities for business across the SW
- Strong regional economic development opportunities
- Lack of supply knowledge needs to be addressed
- Specifications for recycled products
- Ensuring impacts of new initiatives do not do more harm than good to the environment
- Creating opportunity for Aboriginal business
- Competition between industry players
- Contamination of C&D material

- Supply of source separated materials
- Are there upskilling capabilities in the region to support the new jobs
- Competition with virgin materials
- What opportunities could come from these initiatives, and how long term are they

Comments made that were more strategically focused:

- Deliver legacy outcomes and widen community benefit
- Opportunity to value add
- Cost of waste and landfilling
- Transportation costs
- Include local governments as asset owners
- Look to new technology and diversification across sectors with waste
- Are there opportunities to enhance the environment
- Ensuring representation through the process
- Opportunities for involvement
- Opportunities for other local business to provide materials/waste products

The engagement process helped develop a dynamic approach to the development of the business case which will focus on the needs of the Bunbury Outer Ring Road's use of recycled products.

Further engagement activities are planned for October in the form of Value Engineering Workshops which will develop an agreed mechanism in the Resource Efficiency Action Plan and other performance management key performance indicators, incentives and targets for the BORR Alliance.

A Book of Proceedings has been maintained throughout and is attached as an appendix.

## **Delivering on Policy**

This Project Business Case sets out how the BORR Alliance can deliver a series of outcomes which deliver meaningful progress toward Commonwealth, State, and Industry objectives.

### **WA Recovery Plan**

The BORR project has been fast-tracked to play a major role in the WA Recovery Plan for the South West. The SWA initiative contributes to these outcomes through improving local and Aboriginal content and value for money, while progressing circular economy outcomes that will improve road, waste, water sector productivity.

## **National and WA Waste Policies, Roads to Reuse and Recycle First**

Construction and Demolition (C&D) waste makes up half of the WA waste stream. The WA Waste Avoidance and Recovery Strategy 2030 recovery target for C&D is 80 percent by 2030. The Roads to Reuse (R2R) program coordinated by the Waste Authority develops C&D collection, sorting and recycling processes and specifications for use in civil projects such as roads. The recent release of a crushed recycled concrete specification and approved processes provides the guidance required to reorganise construction and demolition waste industry sorting, collection and crushing processes to deliver volumes to a prescribed specification for use in the BORR main alignment, associated local government roads and future local government roads. The BORR project, working with the SWA Innovation Hub, can market test process in real time which can then be refined and replicated in future Transport projects and regional / local government C&D recovery and recycling strategies.

## **The Noongar Recognition Act and Koort Kaart Waarnginy (Six Seasons Project Development Framework)**

The Noongar Recognition Act was established to formally acknowledge the legacy and importance of Noongar custodianship to the SW. KKW built on this though aligning Noongar spiritual and cultural practices with project delivery frameworks and performance targets. SWA sought to embed Noongar considerations into decision-making through membership in the Leadership Group by the Noongar Chamber of Commerce and Industry (NCCI) and is in talks with Wardandi and Binjareb traditional owners to determine how local Noongar people can participate fully in prospective SWA projects.

## **Infrastructure Sustainability Council of Australia Sustainability Ratings**

Delivery of the BORR project will include application of the IS rating tool for the design and construction of the project. The IS rating scheme evaluates sustainability initiatives and potential environmental, social, and economic impacts and opportunities associated with infrastructure projects and assets. The IS rating tool also provides a link between project sustainability and the United Nations Sustainable Development Goals. The BORR is the first major project to apply the IS Planning rating. The SWA project has reframed IS categories as lead (as opposed to lag) indicators to inform waste avoidance, diversion and recovery solutions.

## **Buy Local**

The State Government recently updated its *Buy Local policy to improve regional outcomes* which responds to a 2017 Auditor General's report that found the existing policy was not achieving the required employment and economic benefits for WA or the regions where projects were delivered. Pricing advantages are built in to enable local suppliers to compete. The SWA Program of Works is focussed on developing waste recovery facilities that deliver jobs, growth and business

opportunities for SW locals, Wardandi, Binjareb and other Noongar people. The value for money to the BORR Alliance of these opportunities is significant.

### **Value for Money**

The BORR project as a major public work must ensure that its procurement of goods and services delivers optimal value for money. This includes cost and non-cost factors identified through stakeholder engagement and policy review processes. Non-cost factors of relevance to this project include:

- Fitness for purpose – does it deliver required performance outcomes.
- Technical and financial issues – is it feasible
- Supplier capability – does it develop sustainable new local capabilities
- Sustainability – does it help deliver the circular waste economy
- Risk exposures – time, cost, quality, community, economic and environmental
- Availability of maintenance, service and support
- Compliance with specifications – or can new specifications be developed
- Ease of inspection, communication and delivery – are waste recovery and processes transparent and auditable and do recycled road product deliver as expected.

SWA due diligence has identified solutions which deliver on many of these values and will identify more through the Innovation Hub and Strategic Business Case due diligence exercise.

### **Kemerton Strategic Industry Area**

Catalysing growth of the Kemerton Strategic Industry Area is an important State and Regional Development objective. An advanced waste recovery precinct, initially based at BHRC's Stanley Road facility, offers the potential to develop a recycling industry cluster in the SW. There is considerable scope for specialisation in waste recovery, both as part of a broader waste recovery and recycling industry development approach across Perth, Peel and the South West and to provide improved waste recovery options to the Wheatbelt and Great Southern regions.

### **Licensing and Specifications**

Department of Environment and Water Regulation Licensing timelines will influence the timing and viability of the waste recovery components identified in this paper and through the value management processes. Main Roads and AAPA/IPWEA specifications development timeliness will similarly affect these outcomes where road technologies are the focus of waste processing proposals. Targeted Innovation Hub programs have been developed to facilitate waste recovery and recycled road outcomes through policy, market testing and infrastructure investments.

## **Jobs and growth – the WA Recovery Plan**

The COVID-19 recovery effort has brought renewed focus to jobs and growth particularly in regional areas like the SW. Both State and Commonwealth funding programs require calculations setting out projections of wider economic benefits attributable to a project. These are aligned with BORR Project Infrastructure Sustainability realisable benefits targets. The case for extending these will be set out in the Strategic Business Case.

## **Closing the Gap**

Short term project jobs help to close the gap if they lead to the next opportunity for aboriginal people. Recent audits of WA major projects suggest that past approaches have largely failed to deliver these outcomes. SWA is addressing this through building Noongar participation into its structure from the outset by working with NCCI as a founding partner. The 35-50KTPA (with potential to expand to 100KTPA) compost business and the proposed wastewater ring main offers opportunities to consider a Noongar equity stake in these businesses. The embedded job and capability development opportunities may improve the benefit cost ratio for these projects, given current policy settings and the inordinate cost of existing programs that continue to fail at *Closing the Gap*.

## Value Created or Potential to Create Value Against the SWA Terms of Reference

Terms of Reference Values	Focus Material	Evidence
<b>Cost savings;</b>	FOGO	Feasibility determined / lifecycle savings / reduced LG landfill liability / BORR value for money / waste levies avoided
	C&D	Feasibility ongoing of BORR transport cost savings vs. sourcing from Perth / reduced landfill liability / waste levies avoided
	Rubber	Feasibility ongoing of reduced landfill liability / roads durability lifecycle savings / waste levies avoided
	Water	Feasibility ongoing of savings through burying a ring main as part of the BORR program vs. afterwards
<b>Optimised use of resources (e.g. energy, resource outputs, water and/or by-products);</b>	FOGO	Feasibility determined of recycling 35ktpa / feasibility ongoing into the scale agriculture benefit of FOGO compost
	C&D	Feasibility ongoing of recycling 25ktpa CRC and 25ktpa fill
	Rubber	Feasibility ongoing of recycling 4-5kt tyres into crumb
	Water	Feasibility ongoing of avoiding BORR use of 3GL Yaragadee aquifer water
<b>Minimised environmental impact (including resource outputs and pollution);</b>	FOGO	Feasibility determined of 35 ktpa greenhouse gas emissions avoidance / feasibility ongoing into the scale of the WA agriculture compost market
	C&D	Feasibility ongoing into the potential transport energy and associated carbon gas emissions avoided for the BORR vs bringing CRC from Perth / feasibility ongoing into the ongoing diversion volume of C&D waste from landfill
	Rubber	Feasibility ongoing into the potential transport energy and associated carbon emissions avoided for the BORR vs sending tyres to Perth / feasibility ongoing into the ongoing diversion volume of tyre waste from landfill

	Water	Feasibility ongoing into the potential to reduce water carting energy and carbon emissions avoided through a ring main for the BORR and Greater Bunbury
<b>Heightened reputation;</b>	FOGO	Potential reputational capital of driving the development of a 35ktpa composting facility upgrade and the potential to expand to 100ktpa capital and associated productivity and sustainability benefits
	C&D	Potential reputational capital of driving the incorporation of CRC and fill in local road construction and landfill airspace conserved / the value to industry of increased supply of C&D and improved access to the roads market and associated productivity and sustainability benefits
	Rubber	Potential reputational capital of driving the incorporation of rubber in local road construction and landfill airspace conserved / the value to industry of establishing a crumbing facility in the SW and access to the roads market / opportunity to improve the durability of local roads and associated productivity and sustainability benefits
	Water	Potential reputational capital of initiating reform leading to improved waste water recycling in the Greater Bunbury Region and the potential to develop an integrated non-potable water market and distribution network
<b>Improved integration with Local Government/s, local industry and community;</b>	FOGO	The SWA effect continues to grow – radically improved State, Local and Aboriginal stakeholder collaboration, acceleration of market testing, due diligence and policy reform
	C&D	
	Rubber	
	Water	
<b>Enhanced innovation and opportunities for</b>	FOGO	Potential to create an aboriginal compost spreading business / FOGO composting jobs
	C&D	Potential of SW CRC reforms being rolled out across WA
	Rubber	Potential SW rubber crumbing revenue and jobs and future scaling to service other markets

<b>economic growth;</b>	Water	Potential to create opportunities for non-potable water intensive industries to develop at Kemerton, Picton and Waterloo industrial estates
<b>Reduced risk (e.g. resource availability and price volatility);</b>	FOGO	Feasibility determined of reducing 35ktpa FOGO to landfill, carbon emissions avoided and future landfill construction and remediation liability deferred
	C&D	Virgin road construction material consumption reduced, future landfill construction and remediation liability deferred
	Rubber	Improved road lifecycle cost through durability / future landfill construction and remediation liability deferred
	Water	Industry development constraints removed / groundwater depletion slowed
<b>Enhanced corporate responsibility and regulatory compliance; and</b>	FOGO	BORR / SWA catalysed investments, practices and additional initiatives meet or exceed applicable standards, specifications, policies or targets, including – WA Recovery Plan, WARRS, NWPAP, ISCA, Aboriginal Procurement, Closing the Gap, Buy Local, Value for Money, R2R
	C&D	
	Rubber	
	Water	
<b>Behavioural change throughout the supply chain.</b>	FOGO	Feasibility determined improved household sorting and separation of organics across another 32,000 households
	C&D	Feasibility ongoing into interventions in the C&D supply chain, including improved sorting at construction and demolition sites, improved crushing and screening, increased road sector use of CRC and fill
	Rubber	Feasibility ongoing of redirecting tyres and conveyor belts from landfill and road sector uptake of rubber inputs to spray seal and asphalt
	Water	Feasibility ongoing of a ring main along the BORR alignment to create an integrated non-potable water market

## Key findings

### Changing BORR waste performance expectations

The BORR project is estimated to generate around 150,000 tonnes of waste. Western Australian and Commonwealth Waste Strategy targets are likely to become more stringent over the life of the project. It is therefore appropriate to consider measures that will exceed 2025 waste diversion targets when setting performance expectations for the project.

### Recommendations

- Embed the Recycle First policy into the BORR Alliance through establishing performance management indicators, targets and incentives to:
  - avoid waste generation and maximise waste diversion from landfill,
  - avoid costs for industry and local government,
  - incorporate recycled waste into road construction
  - provide broader regional resource efficiency through the opportunity to capitalise on the value of recovered and reprocessed waste.
  - maximise FOGO and C&D volumes available to the BORR as aligned South West and road sector recycling and landfill diversion priorities.
- Establish a SWA Sub-Alliance to coordinate Innovation Hub and BORR Project market testing, due diligence and delivery activities.
- Commit to publishing an ISCA sustainability report focussed on waste recycling outcomes delivered by the SWA and BORR Alliance as the BORR Project approaches completion in 2024.

### Landfill

Landfilling waste in the SW is considered a necessary but undesirable aspect of the waste management system until alternative processes and/or technologies are introduced. Construction of new landfills is constrained by escalating policy, cost and community requirements.

Economies of scale and cost considerations favour establishing an inclusive SW waste management agency that can consolidate landfilling to a small number of planned or existing best practice landfills. Bunbury Harvey Regional Council's (BHRC) Stanley Road facility is considered a logical choice, given its:

- location within the Kemerton Strategic Industrial Area and the potential this creates to collocate industry that can manufacture recycled products;
- relative proximity to large waste generating populations and industries,

- existing plans to construct new lined cells;
- potential to rebrand as the South West Regional Council (SWRC) and extend its governance structure to include other SW local governments;
- proximity to a network of large, best practice landfills in the South West; and,
- convenience to the BORR project.

Four diversion and manufacturing/processing scenarios were considered that accounted for existing capacity and sustainability of waste management practices across the region. This includes policy and community drivers that optimise waste diversion from landfill through establishing new practices, policies, services and infrastructure.

Investment scenarios at BHRC result in waste recovery improvements from 63% to 80%. The diversion rate at which these investments lift the South West's overall waste recovery rate of 30% will depend on the speed at which new BHRC waste recovery capacity replaces local landfilling by SW local governments and coordination of similarly sized landfills. In the intervening period, increasing demand for new waste recovery capacity across Perth and Peel is expected to fully support new BHRC waste recovery facilities.

The complexity of gathering data on commercial and industrial (C&I) waste collected through private contracts and sent to both public and private landfills across the region means accurate figures are difficult to obtain. The intricacies of obtaining data protected as commercial-in-confidence by private operators, means that these estimates would be un-workable, so C&I volumes are not included in these waste diversion and recovery totals.

A network approach to landfilling non-recoverable waste could include sites run by BHRC, Busselton, Collie and the private sector. This would offer a cost-effective landfill solution through the medium term, enabling funds to be redirected from planned landfill expansion for the benefit of the whole region. The next steps will likely see those local governments with small or outdated landfill sites work as part of a new South West Regional Council body and then dated landfills can be closed and converted to transfer stations with investment focused on providing the latest waste sorting infrastructure.

There is considerable urgency to begin the process of transforming waste management from landfill to a full waste recovery model. Future landfill construction and closure liabilities have been estimated to be as high as \$100m over coming decades and are accompanied by considerable environmental concerns as well as the dwindling social acceptance of landfill as a disposal solution.

The BORR project can catalyse waste recovery investments to reduce, defer or even offset these concerns by recovering value from the waste stream.

The proposed SWRC offers significant potential as a key node in a broader waste diversion and recovery strategy which could include Perth and Peel. This is recommended for consideration as part of a Strategic Business Case still to be developed that will underpin additional investment beyond that resulting from the BORR project.

## Recommendations

- Embed the *Recycle First* policy into the BORR Alliance through establishing performance management indicators, targets and incentives to:
  - avoid waste generation and maximise waste diversion from landfill,
  - avoid costs for industry and local government,
  - incorporate recycled waste into road construction
  - provide broader regional resource efficiency through the opportunity to capitalise on the value of recovered and reprocessed waste.
  - maximise FOGO and C&D volumes available to the BORR as aligned South West and road sector recycling and landfill diversion priorities.
- Establish a SWA Sub-Alliance to coordinate Innovation Hub and BORR Project market testing, due diligence and delivery activities.
- Commit to publishing an ISCA sustainability report focussed on waste recycling outcomes delivered by the SWA and BORR Alliance as the BORR Project approaches completion in 2024.
- Support the development of a Strategic Business Case by 15 November that will set out due diligence for investments and interventions required to progress toward a circular economy in the South West. This will be submitted to Infrastructure Australia for consideration by State and Commonwealth funding agencies.
- Negotiate with the Bunbury-Harvey Regional Council (BHRC) to provide waste management services to maximise BORR Project waste diversion and recovery and support ongoing local government investments in Innovation Hub waste supply chain improvements.

## Food Organic / Garden Organic (FOGO) Waste

BHRC has maximised the capacity of its 20KTPA Banksia Road FOGO facility in Dardanup. There is inadequate space to expand the facility at this site, and advantages to a consolidating all recovery and landfilling operations at Stanley Road.

Financial and economic due diligence suggest that it is feasible to replace this operation with a new facility at Stanley Road with upgraded processes, including forced aeration and tunnel-based composting practices for an initial volume of 35KTPA of FOGO material.

The existing facility manages FOGO waste from 43,500 households in the City of Bunbury and Shires of Collie, Capel, Donnybrook-Balingup, Augusta - Margaret River and Harvey. The Stanley Road facility will extend this to 76,000 households, significantly improving waste diversion and recovery. Demand for FOGO composting across the SW and Peel regions suggest capacity will be fully utilised 24 months from the start of operations.

The first 35KTPA phase has a 12 month build time and will generate 23KTPA of finished compost. This facility is readily scalable. An additional 2.7ha has been allocated in the BHRC Facility Master Plan for its Stanley Road site to facilitate expansion to 50ktpa under the current licence. Improved returns on investment are expected through economies of scale. It is proposed to explore through a Strategic Business Case the feasibility of an expansion to 100KTPA to process FOGO from the Metropolitan Region.

The compost and mulch produced at the facility will meet the AS4454 specifications and organic certification which will further reduce the already low contamination levels produced at the current facility at Banksia Road. Compost from the Banksia Road facility has been deployed in Main Roads projects in the past.

The proposed 35ktpa facility will generate 6 new and permanent FTE jobs. A \$5.4m capital investment is required and can be scaled to yield improved economies.

A limiting factor is the rate at which non-BORR market demand can be developed. The scale of the facility proposed will require a commensurate marketing strategy and funding support.

The following tables set out the financial and economic evaluation findings and parameters for FOGO processing.

<i>Evaluation start date</i>	<i>Evaluation period (yrs)</i>	<i>Evaluation end date</i>	<i>P90 Risk Premium (capital)</i>	<i>P90 Risk Premium (Opex)</i>
Jul-20	30	2050	30%	5%

			Year 1	Year 2	Year 3
Discount Rate %	7.00	Standard Discount Factor	1.00	0.93	0.87
Discount Rate (Low)%	4.00	Low Discount Factor	1.00	0.96	0.92
Discount Rate (High)%	10.00	High Discount Factor	1.00	0.91	0.83
		Year Ending	2021	2022	2023

## COSTS

		Undiscounted Total	Present Value			
Estimate (P50)	CAPEX	\$5,500,000	\$5,500,000	\$5,500,000	-	-
Estimate (P90)		-	\$7,150,000	\$7,150,000	-	-
Estimate (P50)	OPEX	\$29,517,273	\$12,488,860	-	\$1,017,837	\$1,017,837
Estimate (P90)		-	\$13,113,303	-	\$1,068,729	\$1,068,729

P90	Sensitivity	%	NPV	NPB	NPC	BCR
	<b>Discount Factor</b>	7%	\$ 17,988,860	\$ 23,426,592	\$ 20,263,303	1.16
	<b>Low Discount</b>	4%	\$ 7,113,774	\$ 32,400,103	\$ 25,286,329	1.28
	<b>High Discount</b>	10%	\$ 717,350	\$ 17,870,652	\$ 17,153,302	1.04
P50	Sensitivity	%	NPV	NPB	NPC	BCR
	<b>Discount Factor</b>	7%	\$ 5,437,732	\$ 23,426,592	\$ 17,988,860	1.30
	<b>Low Discount</b>	4%	\$ 9,627,409	\$ 32,400,103	\$ 22,772,694	1.42
	<b>High Discount</b>	10%	\$ 2,843,697	\$ 17,870,652	\$ 15,026,954	1.19

Estimate (P50)	(PVC = PVK + PVOC)	Project Present Value Cost	\$17,988,860	\$5,500,000	\$1,017,837	\$1,017,837
Estimate (P90)	(PVC = PVK + PVOC)	Project Present Value Cost	\$20,263,303	\$7,150,000	\$1,068,729	\$1,068,729

## BENEFITS

	10 Year NPB	Undiscounted Total	Present Value	Year 1	Year 2	Year 3
Landfill Saving	\$ 393,117	\$ 1,993,073	\$ 843,276	-	\$ 68,727	\$ 68,727
Compost Value	\$ 3,430,599	\$ 17,392,895	\$ 7,358,994	-	\$ 599,755	\$ 599,755
Mulch Value	\$ 519,239	\$ 2,632,504	\$ 1,113,822	-	\$ 90,776	\$ 90,776
Levy	\$ 6,578,000	\$ 33,350,000	\$ 14,110,500	-	\$ 1,150,000	\$ 1,150,000
	\$ 10,920,954	<b>Total Benefit</b>	\$23,426,592			
	<i>n/a</i>	<b>Residual Value</b>	\$0			
	(PVB)	<b>Total Present Value Benefit</b>	\$23,426,592			
	(PVC)	<b>Total Present Value Cost</b>	\$17,988,860			
	(NPV = PVB - PVC)	<b>Net Present Value</b>	\$5,437,732			
	(BCR = PVB / PVC)	<b>Benefit Cost Ratio</b>	<b>1.30</b>			
		<b>NPV/K</b>	<b>4.26</b>			

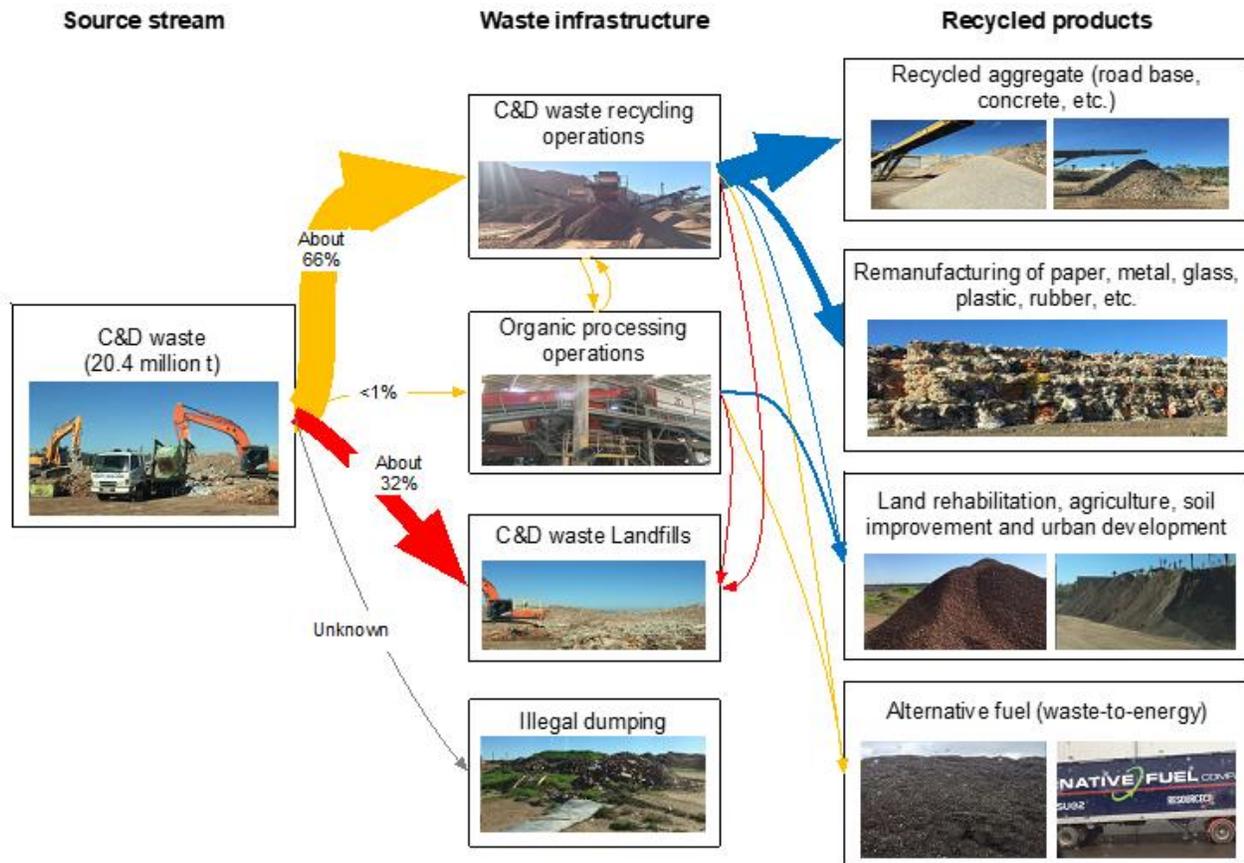
## Recommendations

- Commence discussions with BHRC about providing a combination of direct investment and offtake commitments in support of the \$5.5 million capital required to construct a 35-50KTPA FOGO composting facility with the capacity to supply the BORR project.
- Develop and fund an Organics Market Development Strategy for expanded BHRC FOGO production to:
  - facilitate rapid uptake of new compost volumes across the South West and other agricultural regions and by future infrastructure projects revegetation programs.
  - enable supply chain behaviour reforms and develop new FOGO markets.
  - Reduce compost contamination.
- Determine the merits of a Noongar Compost Spreading business

## Construction and Demolition (C&D) waste

The region's C&D sector is dominated by private contractors, with the remaining volumes received and crushed by local governments for use on their own construction projects. The sector is fragmented, and materials are comingled, making it difficult to set effective policies for C&D that achieves Roads to Reuse standards. The cost and complexity of materials means comingled C&D waste cannot be adequately screened to guarantee the removal of toxic contaminants such as asbestos. The low margins of the C&D recycling industry contribute to this barrier. The outcome has seen considerable resistance by local governments and Main Roads to make use of recycled C&D waste in road construction.

Resolving contamination issues will mean that approximately 25ktpa each of crushed recycled concrete (CRC) and recycled fill will meet Roads to Reuse specifications, thus becoming available for projects. Although this volume is far too small to meet BORR volume demands, it does represent a significant and sustainable waste diversion for the SW.



The consensus among experts is that resolving contamination issues in the C&D waste stream requires:

- improved sorting at the point of generation through employing site sorting and waste collection practices common in the Eastern States;
- collaboration with the Master Builders Association to:
  - develop an effective industry education program, and
  - provide cost incentives at tip sites through differential gate pricing for comingled vs sorted C&D waste; and
- an alliance with large C&D industry contractors to develop supply and crushing processes that result in a product that meets Roads to Reuse standards for fill and CRC at a pre-determined price.

It is proposed to prequalify a proponent for the alliance, to facilitate co-investment by industry, the local government waste sector and the roads sector. The creation of a waste-based 'Innovation

Hub' could host and govern resolution of these issues at a scale suitable to the SW operating environment. It is likely that the methods developed at this level will be replicable and scalable.

The C&D waste generated by the BORR project is considered separately. It can be sorted, collected, recycled and either returned to the project for use as road base and fill or made available to other road projects. This would deliver an effective 100% C&D recovery outcome for the BORR.

## Recommendations

Invest in Phase 2 Innovation Hub programs to:

- Develop a new specification supplement and procurement protocols for local roads incorporating recycled C&D waste
  - Determine how Roads to Reuse (R2R) and SWA can promote mechanisms in the C&D supply chain to avoid contamination at the source.
  - Identify storage and secondary processing of C&D waste that can produce a product for use on the BORR

Ensure interventions in the C&D supply chain support time critical elements of the BORR Project

## Rubber

The SW generates approximated 4ktpa of truck and mining tyres and conveyor belts with useable rubber. This is adequate to feed a 2ktpa crumb rubber plant. The BORR project requires an estimated 2kt total, based on expert projections.

The mining sector is broadly supportive of recycling its tyres and conveyors. Discussions are underway to determine the logistics of transporting these materials to BHRC, where it is proposed to locate a crumb rubber facility.

The truck and passenger tyre industry typically has commercial arrangements around waste collection. Volumes available to any proposed facility in the SW cannot be guaranteed in the absence of supply agreements between a regionally-based crumbing facility and both the mining and tyre industries. At present, almost all the region's used tyres are transported to Perth or landfilled.

As a readily transportable material used in relatively small volumes, the proximity of a crumbing facility is irrelevant in respect to where materials are blended into asphalt or spray seal. Markets throughout WA and beyond are potentially accessible.

Ongoing demand for crumb rubber is expected to be greater than supply unless policy barriers present its uptake, for example, unusually low blend levels compared to global standards. That appears unlikely.

While Main Roads guidelines are still in development, trials have been ongoing for some time to refine a specification and it is noted that the Shire of Collie has trialled crumbed rubber in its roads in partnership with Main Roads. Collie is now looking to require crumbed rubber in future road construction tenders.

A further trial is being negotiated with the City of Busselton to inform additional AAPA/IPWEA (asphalt and engineering) industry standards. This will provide examples to other local governments to evaluate the use of crumb rubber in local road projects and provide opportunities for policy to embed recycled tyre waste in infrastructure specifications.

A policy requiring the use of local recycled materials in local government roads has been used effectively in Salisbury, South Australia to ensure demand was sufficient to repay the capital investment in materials recovery. Developing a similar policy for crumb rubber across the SW would be an initiative of a proposed Innovation Hub and the SW Regional Waste Group (SWRWG).

A crumb rubber working group involving key industry and government stakeholders is proposed to drive collaboration, complete investigations in parallel and bring forward an Expressions of Interest process to establish a facility at BHRC. State and Commonwealth matching funds are currently available, creating considerable urgency to complete investigations in November when a strategic business case will be finalised.

## Recommendations

Invest in Phase 2 Innovation Hub programs to:

- Develop a new specification supplement and procurement protocols for local roads incorporating recycled rubber:
  - Commence trials and development of a specification supplement and procurement protocols for local roads incorporating recycled rubber
  - Determine the cost of processing and crumbing rubber in the South West versus transporting it to Perth.

Ensure interventions in the rubber supply chain support time critical elements of the BORR Project

## Wastewater

Climate change will adversely impact the future security of water supplies in the SW of Western Australia. Bunbury, like most Australian regional communities, will need to consider the importance of better managing the re-cycling of wastewater that is currently discharged into the ocean. The Greater Bunbury treated wastewater market is complex and not well understood and requires significant further investigation and investment before it can meet WaterCorp's 2030 target of 30% wastewater reuse. The present demand for non-potable and treated wastewater exceeds supply and continues to fall further behind. This drives potable water extraction from

groundwater sources where non-potable or treated wastewater would suffice and places an unnecessary strain on future potable water supplies. There is significant present value in deferring groundwater extraction by these means.

The SWA and the Noongar Chamber of Commerce and Industry (NCCI) as a signatory and member of the Leadership Group have developed a proposal to plan, develop, and deliver a wastewater solution of ongoing value to the Wardandi and Binjareb people. These discussions have highlighted the significance of water (Kep). The extraction of water from groundwater aquifers and local rivers and creeks is a violation of local Noongar values, particularly when alternatives exist. Also identified as critical to Closing the Gap is equity participation in any business or employment opportunities that may arise from the recycling, treatment, distribution and utilisation of non-potable water and wastewater. Value-for money and



employment outcomes for Aboriginal people have been found wanting in recent audits of major infrastructure projects. The establishment of the KEP ALLIANCE, with the Wardandi and Binjareb people as the main participants, is an opportunity to achieve these aims and objectives.

The BORR Project requires 3GL of non-potable water over the life of the Project, which can be translated to an average of 3ML/day along the proposed alignment at different stages of the project. Government and industry sources can currently supply the BORR Project with the required quantity and quality of construction water from various supply points. The SWA, as an entity yet to be determined, and by Agreement with the BORR Alliance, will market test the availability and security of supply of non-potable or treated wastewater to supply the Project. It will be essential to take a *Recycle First* approach and consider how the KEP ALLIANCE can participate in this process.

In transitioning from the immediate water requirements for the BORR Project, the KEP ALLIANCE has the opportunity to bring together the BORR Alliance participants and the Greater Bunbury wastewater industry participants through an Expressions of Interest process to determine the value for money, price and volumes available through various non-potable water supply solutions proposed by Greater Bunbury wastewater treatment plant operators. Once understood, this forms the basis of exploring value for money of a central, non-potable supply main along a section of the BORR alignment. This would require identifying a water utility partner motivated to capture the efficiency of burying pipe as part of the BORR build, thereby establishing the first stage of an

integrated, re-cycled wastewater distribution scheme. The objective would be to enable participation by future suppliers of treated wastewater in what is expected to be a growing market.

Engaging the KEP ALLIANCE to conduct an Expressions of Interest process and to gauge water industry appetite and feasibility of an integrated water solution for non-potable water supply creates options for the BORR Alliance. It can choose to take water from direct from suppliers based on availability, location and price considerations AND it can facilitate the development of a 21<sup>st</sup> century water recycling market, if assessed as feasible and investment is forthcoming. Facilitating Noongar equity participation would create additional value for money for the Project.

## Recommendations

- Work with the SWA Sub-Alliance to conduct Expressions of Interest processes for the BORR Project for non-potable water.
- Work with Local Government and the water sector to:
  - Develop the potential of SWA / the KEP Alliance to investigate, develop and deliver an integrated wastewater recycling and distribution solution for the Greater Bunbury Region.
- Conduct due diligence into Noongar equity and employment participation in this solution as a means of Closing the Gap.

## Noongar Content

SWA incorporated Noongar values from the outset through NCCI participation in the Leadership Group. This helped ensure that opportunities to develop full Noongar participation in each element of the project were considered. There is an opportunity in most focus areas to generate Noongar jobs. With respect to FOGO and Wastewater, there is an opportunity to generate ownership equity. These opportunities are addressed here and is the focus area sections. They are also set out in the Innovation Hub Recommendations sections.

## Recommendations

- Commit to Noongar participation and presence in SWA initiatives:
  - Continue to work with NCCI to ensure at least 5% of waste initiative and associated road sector jobs go to Noongar people; new Noongar businesses are created and supported, and new infrastructure regenerates traditional values in water and land.
- Conduct a heritage audit and review in 2024 after design and construction.

- Incorporate Noongar values and interpretive language into waste initiative branding and design elements.
- Determine the merits of
  - a Noongar Compost Spreading business and
  - equity participation in the proposed non-potable water distribution infrastructure.
- Establish a 3R (Regional Roads to Reuse) training and mentoring program to build the capability in skills gap areas for Aboriginal and other South West business

### Innovation Hub

To deliver the additional due diligence required in time for the BORR Alliance to invest in the build and non-build waste and recycled materials market interventions that can deliver recycled material inputs to the BORR project and leave a legacy of waste avoidance, diversion and recovery for the South West a real time, fast track market testing mechanism is required in the form of an Innovation Hub. An initial program has been developed in three phases:

1. Establishment / Pre-design
2. BORR
3. Regional Expansion

The details of these phases are set out in the Recommendations section. It will be necessary to further refine these program elements in collaboration with the BORR Alliance Team at the outset and iteratively as new information comes to light. The Innovation Hub will require governance that can maintain rapid innovation and high probity standards.

### Recommendations

- Commit resources as solutions are identified to deliver the results toward waste diversion and the circular economy – recycled products, not stockpiles.
- Commit to the following schedule of decision points and Phase 1 of the Innovation Hub program (see Innovation Hub Program in the Reference Documents Section for details):
  - ALREADY COMMITTED – Phase 1 Establishment / Pre-design phase (runs through 30 November 2020).
- By November 30<sup>th</sup>, 2020 – commit funding to Phase 2 targeted initiatives to fast-track South West waste recovery and recyclables into the BORR Project (runs through October 2021)

- By December 10<sup>th</sup>, 2020 – commit funding to Phase 3 South West Circular Economy initiatives (runs through 2024) in support of:
  - BORR focussed waste diversion, recovery and recycling initiatives,
  - South West Circular Economy waste avoidance, diversion, recovery and recycling programs funded through the Strategic Business Case (runs through January 2024)

*Note – The complete Innovation Hub program is attached in the Reference Documents section.*

### Infrastructure Sustainability

SWA applied the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability Rating Scheme as potential lead indicators to inform stakeholder value discussions and due diligence investigations. This provided a useful value for money translation for the BORR project of proposed investments to improve project and South West waste diversion and recovery outcomes. It provides similar translation benefits for proposed Innovation Hub initiatives, innovations, and structures.

The themes, categories and credits of the Infrastructure Sustainability Council of Australia (ISCA) Rating Scheme for Design and As-Built include 27 categories and 44 credits. Table 1 highlights the categories considered relevant to the development of the Waste Precinct, including regional and Aboriginal business development and job opportunities and innovation. Table 1 applies to both Design and As-Built ratings.

**Table 1: Optimising IS Rating Project Opportunities to Facilitate SWA Waste Precinct**

*Note – Not all recommendations in the original report table are set out in this table. The original infrastructure sustainability report with the original recommendations is attached in the reference material*

Category	Credit	Aim	IS Prescribed Outcome for Level 2/3	Proposed Action
Resource Efficiency	Resource Efficiency Strategy and Management	To reward the development and implementation of resource efficiency strategy and associated action plans.	Resource Efficiency Action Plan outlines actions for design which are achieved.  AND The project is designed to align with a broader regional resource efficiency (or equivalent) program and	Avoiding regional landfilling costs for industry and local government and providing broader regional resource efficiency through the opportunity to capitalise on the value of reprocessed waste.  Maximising FOGO and C&D volumes available to the

			implemented during construction.	BORR as a high priority for landfill diversion.
<b>Resource Efficiency</b>	Resource Recovery	To reward the sustainable management of resource outputs (waste).	Opportunities to beneficially re-use resource outputs internally or externally are implemented.  OR Market developed innovative solution(s) for a resource output is implemented.	The establishment of an SWA Innovation Hub at Bunbury Harvey Regional Council (BHRC), to fast-track market-testing and new specifications for products incorporating recycled waste streams into roads on BORR.
<b>Water</b>	Utilising appropriate water sources	To reward the identification and allocation of appropriate water sources	Water use demonstrates no adverse impacts to water resources or communities.	Facilitating the use of treated wastewater and other non-potable water sources for 100% of water use on the BORR project.
<b>Legacy</b>	Leaving a lasting legacy	To reward projects that will have a pronounced and long-lasting positive impact on the environment and/or society.	Initiatives to positively contribute to the environment or society for three priority issues or opportunities have been implemented.	<p><u>Priority Issue 1</u></p> <p>Establish the first stage of a long-term, common user wastewater scheme for the Bunbury-Harvey Region incorporating all wastewater sources available</p> <p><u>Priority Issue 2</u></p> <p>Developing FOGO and C&amp;D assets to meet future growth for landfill diversion.</p> <p><u>Priority Issue 3</u></p> <p>Utilising the BHRC Advanced Waste Precinct as an education hub in promoting the circular economy</p>
<b>Options Assessment Business Case</b>	Economic viability and financial affordability	To reward the application of economic and financial techniques to understand risk, resource requirements and ensure adequate	An independent review of the whole-of-life costing is undertaken.  AND An independent review of the monetised assessment is undertaken	The primary requirement of the SWA is to develop a business case that demonstrates the economic, environmental and social benefits of utilising the BORR Project to facilitate the first stages in the development of a long-term Regional Advanced Waste Facility.

		funding for the project's life.		
Heritage	Heritage Assessment and Monitoring	To reward the identification of tangible and intangible heritage values which may be impacted by the project or asset.	<p>The design outlines an enhancement to heritage assets or values.</p> <p>AND</p> <p>Interpretation strategies and thematic history have been implemented into the design</p> <p>AND</p> <p>Heritage audit or review confirms mitigation and/or enhancement activities are successful.</p> <p>AND</p> <p>A system for public collaboration is implemented.</p> <p>AND</p> <p>Interpretation strategies have been implemented</p>	<p>Noongar values and people have been “at the table” to ensure at least 5% of new jobs go to Noongar people; new Noongar businesses are created and supported, and new infrastructure regenerates traditional values in water and land.</p> <p>A heritage audit and review will be undertaken after design and construction.</p> <p>To this end, a system of public collaboration has been implemented and interpretation strategies will be incorporated in design.</p>
	Jobs and Skills	To reward the implementation of training and recruitment programs effective in building capacity in skills gap areas.	Training and recruitment strategies are effective in building capability in skills gap areas.	The Innovation Hub will undertake training programs using local resources to build the capability and skills required to advance the Innovation Hub.
Innovation	Innovation	To reward pioneering initiatives in sustainable design, process or advocacy	<p>Up to 10 innovation points available.</p> <p>Each innovation falls within one or more of the following: World (5pts), National (3pts) or State (1pt) ‘first’ innovative technology or process; market transformation; AND Initiatives meet the following criteria: address a valid sustainable development issue; be quantifiable and capable of</p>	The Innovation Hub is the enabler for the other innovations being run out by the BORR/SWA Project. It may well be the first time anywhere in the world such an arrangement has occurred. Once successfully running, it will provide significant benefits for the BORR Project, and once established will provide ongoing employment and

being assessed; be related to the design, construction and/or operation of infrastructure. AND Innovation(s) are implemented.

economic opportunities into the future.

The BORR Project and BHRC jointly funding the expansion of facilities at the Waste Precinct to maximise FOGO and C&D volumes available to the BORR. This is a high priority for landfill diversion. The project is a State first, and possibly an Australian first.

An additional 10 points may well be scored on the IS Rating Scheme in both Design and As-Built by the South West Connex/Main Roads Alliance with these sustainability initiatives.

## Recommendations

It is recommended that the Office of Major Transport Infrastructure Delivery direct the BORR Alliance to:

1. Embed the *Recycle First* policy into the BORR Alliance through establishing performance management indicators, targets and incentives to:
  - avoid waste generation and maximise waste diversion from landfill,
  - avoid costs for industry and local government,
  - incorporate recycled waste into road construction
  - provide broader regional resource efficiency through the opportunity to capitalise on the value of recovered and reprocessed waste.
  - maximise FOGO and C&D volumes available to the BORR as aligned South West and road sector recycling and landfill diversion priorities.
2. Commit resources as solutions are identified to deliver the results toward waste diversion and the circular economy – recycled products, not stockpiles.
3. Establish a SWA Sub-Alliance to coordinate Innovation Hub and BORR Project market testing, due diligence and delivery activities.
4. Commence negotiations with the Bunbury-Harvey Regional Council (BHRC) as part of the South West Regional Waste Group to provide waste management services to the BORR Project which optimise waste diversion, recovery and recycling outcomes and support ongoing local government investments in Innovation Hub waste supply chain improvements.
5. Commit to Noongar participation and presence in SWA initiatives:
  - Continue to work with NCCI to ensure at least 5% of waste initiative and associated road sector jobs go to Noongar people; new Noongar businesses are created and supported, and new infrastructure regenerates traditional values in water and land.
  - Conduct a heritage audit and review in 2024 after design and construction.
  - Incorporate Noongar values and interpretive language into waste initiative branding and design elements.
6. Commence discussions with BHRC about providing a combination of direct investment and offtake commitments in support of the \$5.5 million capital required to construct a 35-50KTPA FOGO composting facility with the capacity to supply the BORR project.
7. Support the development of a Strategic Business Case by 30 November that will set out due diligence for investments and interventions required to progress toward a circular economy in the South West. This will be submitted to Infrastructure Australia for consideration by State and Commonwealth funding agencies.

8. Commit to publishing an ISCA sustainability report focussed on waste recycling outcomes delivered by the SWA and BORR Alliance as the BORR Project approaches completion in 2024.
9. Commit to the following schedule of decision points and Phase 1 of the Innovation Hub program (see Innovation Hub Program in the Reference Documents Section for details):
  - a. ALREADY COMMITTED – Phase 1 Establishment / Pre-design phase  
(runs through 30 November 2020).
  - b. By November 30<sup>th</sup>, 2020 – commit funding to Phase 2 targeted initiatives to fast-track South West waste recovery and recyclables into the BORR Project  
(runs through October 2021)
  - c. By December 10<sup>th</sup>, 2020 – commit funding to Phase 3 South West Circular Economy initiatives (runs through 2024) in support of:
    - BORR focussed waste diversion, recovery and recycling initiatives,
    - South West Circular Economy waste avoidance, diversion, recovery and recycling programs funded through the Strategic Business Case  
(runs through January 2024)

**Please Refer to Reference Documents – PART 2**

