Dear Minister,

Re: Submission on the Tasmanian Government's Draft Waste Action Plan

Thank you for the opportunity to provide comment on your government's Draft Waste Action Plan.

Local government plays an essential role in waste management through the collection and transfer of household and business waste and recyclables to landfill and recycling facilities. Local government also provides essential education to households and businesses to improve their recycling behaviour.

Along with five councils in northern Tasmania, we have taken a leadership role by forming the Northern Tasmanian Waste Management Group (NTWMG). The NTWMG exists to improve waste management and recycling through facilitating regional collaboration and consistency in waste and recycling services and the provision of region-wide education.

As part of its role, the NTWMG has prepared a submission on behalf of its members on the Draft Waste Action Plan. At a City of Launceston Council meeting on 3 October 2019, the Launceston councillors passed a motion supporting the NTWMG's submission. In particular, they noted the importance of maintaining funding to the NTWMG and continuation of its leadership role in the future.

The NTWMG has been instrumental in helping our council improve our waste and recycling services through the regional $7.50/tonne waste levy. We strongly advocate for the continuation of funding for the NTWMG under a statewide waste levy. This will ensure the NTWMG can continue to deliver, and expand upon, its comprehensive resource recovery and education programs for the benefit of our residents and businesses. We also advocate strongly for reinvestment of a statewide waste levy back into the Tasmanian waste and recycling industry.

Given our central role in waste and recycling, we request you continue to consult with us on any legislative or regulatory mechanisms emanating from the Draft Waste Action Plan.
As noted, we are leaders in waste and recycling and can provide detailed advice and information on many items covered in your Draft Waste Action Plan.

If you have any questions, please do not hesitate to contact me or our representative at the NTWMG, Michelle Ogulin, on [contact information] or at [email address].

Yours sincerely,

Michael Stretton
GENERAL MANAGER
KEY PRINCIPLES DETERMINED TO BE RELEVANT

- Further investigation is required to confirm the final intent of the Statewide Waste Management arrangement, while also addressing affordability, community engagement and market based solutions;
- The proposed DWAP dates and targets are aspirational. The focus should be on a proper and detailed investigation of a Statewide Waste Management arrangement and the effects on ratepayers rather than with the delivery of tight timeframes.
- An investigation of the Waste Management Governance model is to include local government and key stakeholders;
- The principle of a circular economy may be aspirational. What is important is to undertake detailed investigations to understand the potential improved delivery in Tasmania of waste management practices to the waste stream hierarchy.
- The waste levy should not be used to remediate existing landfill sites; and
- Education needs to be Statewide focused.
### FOCUS AREAS AND RECOMMENDATIONS

<table>
<thead>
<tr>
<th>FOCUS AREA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Moving to a Circular Economy</td>
<td></td>
</tr>
</tbody>
</table>

**Comments**
A circular economy values resources through cycling materials for reuse and recycling rather than a linear approach of extracting, using and disposing of them. Some resources like food and garden organics, masonry, paper, cardboard and metals lend themselves to this as they have more established pathways to resource recovery through the circular economy while others like plastic bags, batteries and nappies require more cost and effort to recover.

**Considerations**

**Economic:**
10,000 tonnes of waste landfilled creates 2.8 jobs; if recovered it creates 9.2 jobs. (From: Centre for International Economics, Final report: Headline economic value for waste and materials efficiency in Australia, 27 October 2017.)

**Social:**
Moving to a circular economy model in Tasmania will develop greater expertise and experience in areas such as planning, product design, infrastructure design, project delivery, and service introduction. Better materials management improves human health—i.e. better collection and remanufacture of plastics reduces microplastics ending up in the environment / food chain.

**Environmental:**
Avoiding and reducing waste reduces environmental impacts through reduced pollution, reduced greenhouse gas emissions, reduced requirements for recycling and disposal infrastructure and reduced impact on oceans.

**What actions are missing/need more focus?**
There is limited focus on waste avoidance and minimisation through better product design, repair, reuse and sharing.
More actions around supporting and enabling changes to business practice to implement the circular economy (industrial ecology etc.).
The plan lacks focus on improvements to materials collection systems (other than Container Reuse Schemes) like standardised/optimised kerbside materials collection (bins / materials). This work falls largely to Councils and will require funds and infrastructure to improve and support a circular economy.

**Recommendation**
Council supports investigation into how a waste circular economy may benefit the Clarence municipality and Tasmania overall.
| Comments | The introduction of a waste levy will require the establishment of an administrative structure. LGAT support a combined State/Local Government model. |
| Considerations | **Economic:** A state-wide waste arrangement has the potential to drive economic activity in the waste and resource recovery sector through better coordination of service delivery, infrastructure planning etc. Also, it has the potential to deliver savings in the form of better contractual cost arrangements for delivery of waste and resource recovery services at council level.  
**Social:** More focus on the waste management and resource recovery industry may attract (and retain) more skilled and experienced people in this sector and further develop the skills base here.  
**Environmental:** The governance arrangements will support better coordination and delivery of waste and resource recovery services, infrastructure and education with a flow on reduction in environmental impact from the waste sector. |
| What actions are missing/need more focus? | The governance structure that underpins the waste levy and general waste management governance in Tasmania is critical to the success of the WAP. A model agreed by key stakeholders responsible for delivery of the WAP is desirable. |
| Recommendation | That Council supports the investigation of governance models for a State-wide Waste Management arrangement and continued discussions with local government and key stakeholders |
### FOCUS AREA

#### 3. Data, Innovation, Networks and Resource Recovery Targets

| Comments | Standardised data systems are a foundation to support WAP actions, will benchmark and track progress on WAP targets and inform planning to support the circular economy. Targets are largely form commitments outside WAP such as the National Waste Policy and commitments made at the national Meeting of Environmental Ministers (MEM). |
| Considerations | **Economic:** Expertise, systems and infrastructure will be needed to support good data capture and reporting, innovation and research and to meet the identified targets. This will stimulate the sector / provide employment. **Social:** An increasing understanding of the amount of each waste category that is generated, landfilled and recovered feeds into education programs that support the community and business to embrace the circular economy and help meet the resource recovery targets. Knowledge sharing and innovation, if focused on the waste hierarchy, can support the circular economy and broader waste and resource recovery related objectives in the WAP. **Environmental:** The targets support improved environmental outcomes including circulation of otherwise lost nutrients and organic matter as well as reduced greenhouse gas emissions from organics collection and composting. Greenhouse gas emissions are much reduced by recycling organic material through composting rather than landfilling and recovering energy from captured landfill gas. See “NSW Office of Environment and Heritage Report – Benefits of Using Compost for Migrating Climate Change (2011)” |

| What actions are missing/need more focus? | • Standardising data categories is the first step – (not covered by systems alone) and not clearly covered in this action. • Data collection from all landfills and resource recovery operations requires infrastructure, such as weighbridges, that is not currently in place and will take time, money and project management resources to implement. |
- The wording “Help to support the establishment of standardised data management systems...” in this first action does not seem to support tangible steps toward the establishment of the required infrastructure or a clear idea of who would do the work to standardise and gather the data.
- In terms of the innovation and research networks – it seems unnecessary to limit actions to these sectors; some of which are not big waste producers effort would need to be prioritised according to those sectors generating the most waste and use the waste hierarchy along with measures to support the circular economy to help realise the WAP outcomes.
- Specific targets for more waste streams may be more relevant as some waste streams easily achieve high recovery (C&D) while others are much more expensive and require more effort to recover (soft plastics / mattresses etc.).
- While the packaging targets for 2025 are a sound idea and in line with national commitments, further work is needed to ensure that recyclable and compostable packaging have a pathway to be recycled and composted through collection and transport to an appropriate facility.
- There is low emphasis on waste avoidance; specific targets relating to better design, reuse, repair and sharing of products and services are needed to support the circular economy.

**Recommendation**

<table>
<thead>
<tr>
<th>That Council supports:</th>
</tr>
</thead>
<tbody>
<tr>
<td>the establishment of standardised data management systems to capture waste data, to monitor progress against targets and facilitate business investment in resource recovery and</td>
</tr>
<tr>
<td>a detailed investigation of a State wide Waste arrangement considering the affordability and effects on ratepayers, community engagement, innovative networks and market based solutions, rather than focusing on specific targets.</td>
</tr>
<tr>
<td>Comments</td>
</tr>
</tbody>
</table>
| Considerations | **Economic:**
Infrastructure planning will stimulate the consulting and engineering fields of the economy. Additional statutory planning will stimulate the private planning business sector.

**Social:**
Good infrastructure planning requires sector knowledge and expertise that may attract skilled employees to the state seeking this work. Nimbyism can make infrastructure location planning challenging and time consuming.

**Environmental:**
Environmental impacts of infrastructure may include emissions to air, noise pollution, dust and waterways / sewerage systems. This will need to be considered in the statutory planning process including local government and EPA assessments.

<p>| What actions are missing/need more focus? | An infrastructure plan requires money to design, build and operate the infrastructure, this is not covered by the Draft Waste Action Plan. Service planning will be needed to inform the infrastructure plan, i.e. standardisation / optimisation of Council collection services. |
| Recommendation | Council supports investigation into the necessary infrastructure planning which supports the outcome of the preferred State-wide Waste Management governance model. |</p>
<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop a circular economy requires support for the resource recovery industry. The WAP commentary raises questions around the allocation of levy funds for resource recovery initiatives but does not answer them. The adoption of sustainable procurement practices across local and state government has significant potential as a support mechanism for resource recovery because it can create markets for recovered materials.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considerations</th>
</tr>
</thead>
</table>
| **Economic:** The resource recovery industry has the potential to employ an additional 6.4 full time equivalent positions for every 10,000t of resources recovered (prevented from entering landfill) over and above current employment levels in the landfill industry. The loan scheme mentioned in the WAP depending on its structure, could enable provision of previously unavailable services to the community and industry that boost the economy. **Social:** Increased employment opportunities in resource recovery could boost employment levels in Tasmania. A heightened awareness of waste management in the community, coupled with clear action on the circular economy, has the potential to increase wellbeing in the community. **Environmental:** Increased resource recovery will result in less waste material entering landfill and may also reduce waste entering the environment. This could reduce the prevalence and impact of plastics, harmful materials and toxic materials in the environment; reducing harmful effects on human and environmental health. Waste to energy (WTE) is mentioned in the WAP in the same context as biological and particularly forest residues. While waste to energy can be preferable to landfilling materials,”...WTE should be considered as one of the last options at the end of life, after reuse, refurbishing and recycling.” – *World Business Council for Sustainable Development*, [https://www.ceguide.org/Strategies-and-examples/Dispose/Waste-to-Energy](https://www.ceguide.org/Strategies-and-examples/Dispose/Waste-to-Energy). Specific reference is given to burning forest residues to create energy. Burning forest residues results in loss of organic materials and nutrients and increased carbon emissions. Energy from waste is lower on the waste
hierarchy than recycling (that includes composting) and therefore does not support the development of a circular economy because the materials are not being valued and put to their highest use.

| What actions are missing/need more focus? | The following actions that are critical to good waste and resource recovery and supporting a circular economy are missing:
|                                            | • Loans to businesses and Councils to support avoidance, reduction and reuse of wastes rather than just focusing on recycling (lower on the waste hierarchy);
|                                            | • supporting the provision of appropriate infrastructure to improve resource recovery including best practice waste transfer stations and collection points for public and business drop off of reusable and recyclable materials;
|                                            | • supporting the provision of best practice waste and resource recovery collection services to improve resource recovery and support the circular economy;
|                                            | • supporting industry to avoid and reduce waste;
|                                            | • support for businesses to engage in sustainable procurement that enables reuse of materials as well as recycling;
|                                            | • support for designers and engineers to design out waste materials from their processes. |

<p>| Recommendation                              | To align with the other investigations adopted Council supports investigation into how capacity can be developed across Government to support business development in the waste and recycling industry. |</p>
<table>
<thead>
<tr>
<th>FOCUS AREA</th>
<th>COMMENTS/ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Education and Community Engagement</td>
<td>This area of the draft Waste Action Plan relies heavily on the communications Memorandum of Understanding between the regional and waste groups. This is unrealistic given the importance of education and the limited resources available to deliver this state-wide communications plan. There are no meaningful actions or commitments focused on engagement with the community in relation the WAP.</td>
</tr>
</tbody>
</table>

### Considerations

| Economic: | The potential economic gains from a circular economy are more likely to be successfully realised if meaningful education and community engagement are included in the WAP. |
| Social: | There is now a much greater community focus on waste and resource recovery. This is indicated by the popularity of ABCs War on Waste, the proliferation of Waste on Waste Face Book pages and community concern over interruptions to recycling service provision in Victoria etc. As a result the Australian community is now better informed than it has been on waste related issues. Further education and engagement to understand business and community views on the key issues around waste management and resource recovery are required to successfully implement the WAP and a circular economy. Contamination rates for recycling, prevalence of litter and illegal dumping and poor knowledge of the waste hierarchy, particularly the avoid, reduce, reuse elements and how to apply them, indicate that more education and engagement is needed in Tasmania. |
| Environmental: | Community and business support are critical to the development of a circular economy that will lead to better environmental outcomes if planned and implemented according to the waste hierarchy priorities. |

| What actions are missing/need more focus? | There are no specific actions on community engagement leaving a critical area of the plan with no clear actions for delivery. The regional waste groups/Council have limited resources in this space and would require resources, more money/people to conduct meaningful business and community engagement and to expand their communication and education role to supporting development of the circular economy. |
Current communication and education activities paid for by regional waste groups have a part-time dedicated resource (contracted) and rely on Council resources to design and implement the programs. A better resourced communication and education program (with support for levy funds) could be more effective and free up Council resources to focus on other responsibilities.

**Recommendation**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>That a waste circular economy with market based solutions may benefit the Clarence municipality and Tasmania overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOCUS AREA</td>
<td>COMMENTS/ACTIONS</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7. State and National Policy and Regulatory settings</td>
<td>A waste levy and Container Refund Scheme are the key aspects of the WAP. Levies can drive the economy and behaviour toward circular economy and resource recovery goals, while a CRS can help build a recycling industry in Tasmania through delivery of clean recyclate for processing locally.</td>
</tr>
<tr>
<td><strong>Comments</strong></td>
<td><strong>Economic:</strong> Waste levies provide a price driver for behaviour (waste generally flows to the cheapest disposal point) to support resource recovery and the circular economy if they are set high enough in relation to the cost of resource recovery. Waste levy funds also provide a pool of money to support resource recovery and the circular economy. Waste levy funds need to be allocated according to rules that channel funds into the priority areas of the waste hierarchy in order to be truly effective in supporting a circular economy. The ground rules for the extent of funds allocated, the criteria and mechanisms for releasing funds, and to whom they can be released, are ideally established early in the process with input from stakeholders. A Container Refund Scheme (CRS) has the potential to stimulate the Tasmanian economy by improving the availability of clean recycling streams to local business for recycling to create new employment and business opportunities. <strong>Social:</strong> Introduction of a waste levy and CRS is likely to create job opportunities and improve employment in Tasmania. Product stewardship schemes in Australia tend to be less effective in rural and regional areas. Insufficient allocation of quotas for product recovered, or allocation of funds to larger population centres only, can leave regional Councils footing the bill to recycle or landfill recyclable materials. <strong>Environmental:</strong> A CRS typically results in reduced litter. A waste levy can result in increased illegal dumping of waste especially in rural and bush areas.</td>
</tr>
<tr>
<td><strong>Relevant information</strong></td>
<td></td>
</tr>
</tbody>
</table>
### What actions are missing/need more focus?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Waste tracking</strong> is missing from the WAP; there is a commitment in the draft WAP to review the <em>Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations 2010</em> but no tangible commitment to actually track the movement of controlled wastes.</td>
<td><strong>Increased capacity to regulate waste and resource recovery</strong> are not mentioned in the WAP. With changed regulatory and policy settings comes a need to ensure adequate regulation capacity. The LGAT submission to the EPA on the WAP specifically asked for some of the levy funds to be allocated to bolster EPA regulation resources to ensure the outcomes of the WAP are realised.</td>
</tr>
<tr>
<td><strong>Banning materials from landfill</strong> – this mechanism is used successfully in Europe and parts of Australia to drive behaviour and support the circular economy and resource recovery industry. It is absent from the draft WAP</td>
<td></td>
</tr>
</tbody>
</table>

### Recommendation

Council refers to its key principles above and supports continued investigation of a state/local government partnership model reliant on continued discussions with all key stakeholders.

### What is missing from the DWAP?

1. General reference to the waste hierarchy and *prioritisation according to the waste hierarchy in decision making and actions* to ensure the WAP is successful in delivering resource recovery and circular economy outcomes.
2. **Treatment** – collection and treatment of *household hazardous waste* is not mentioned and is key to human health and environmental health outcomes. This area can be very expensive to run each year if it is to be done properly.
3. **Illegal dumping** – introduction of a waste levy usually results in a need to put illegal dumping measures in place to counter this adverse outcome. Although the *Litter Act* is to be amended to increase penalties for illegal dumping, no specific action is contained in the WAP or resources allocated to regulate this.
4. The **Circular Economy** section has no specific actions; some actions throughout the other focus areas will support this but more emphasis is required on the levels of the waste hierarchy above recycling (avoid, reduce, reuse) to realise the goal of a circular economy.
5. Consideration of **operating waste and resource recovery services** and developing a circular economy on an island – how do we need to approach this differently to our mainland counterparts?
6. **Climate change and waste management** – increased natural disaster (fire, flood, storm) and sea level rise/inundation related waste management issues are not covered. Waste levy funds could be used to assist clean up and contingency planning to ensure these predictable events do not derail the WAP.
4 October 2019

Policy and Business Branch
Department of Primary Industries, Parks, Water and Environment
G P O Box 1550
HOBART  TAS  7001

TASMANIAN DRAFT WASTE ACTION PLAN


Please find attached a copy of Council’s submission endorsed at its meeting of 30 September 2019.

Yours sincerely

Ian Nelson
GENERAL MANAGER
4 October 2019

Policy and Business Branch
DPIPWE
GPO Box 1550
Hobart, Tasmania 7001

via email WAP.Enquiries@dpipwe.tas.gov.au

To Whom It May Concern:

RESPONSE TO TASMANIA’S DRAFT WASTE ACTION PLAN
SECTION 6: EDUCATION and COMMUNITY ENGAGEMENT

dirtgirlworld and Get Grubby TV rate among the top Australian shows for children and families. Independently owned and produced in regional Australia, they are screened nationally by ABC TV. With a dedicated channel, no advertising and a commitment to local content channel, the ABC’s is a trusted brand for children’s entertainment.

Our characters dirtgirl, scrapboy and Costa [Georgiadis] the Garden Gnome are beloved. From their daily television presence, the demand for live appearances became so high we created an online early years sustainability curriculum so they could be in lots of places at once.

More than 400 pre-schools and primary schools are using the program and we are onboarding new Councils each week. This article in The Sector gives an insight...

To date we have approached Councils, the main players in community waste and sustainability education, to buy the program for their pre-schools. Is it a coincidence that – according to NSW EPA WARRS statistics – eight of the top 15 councils for resource recovery in NSW in 2016 were Get Grubby Program subscribers?

From our own research, we believe the Get Grubby Program is the only comprehensive curriculum resource for kids aged 3-7 that is aligned to all the sustainability requirements of the Early Years Curriculum. Oh, and did we mention the program is lead by our characters... who are already known and loved by the families and greater community of Australia?
The program is used in many different ways. Some centres set up a letterbox and check for new snail mail with instructions from **dirtgirl**. Some have progress charts displayed in the foyer where parents collect their children, reinforcing ideas that can be taken home. Some centre have complete Get Grubby takeovers – with worms, bees, chickens and vegetable gardens leading integrated learning every day!

Key to the success of the program is that each unit is self-serve and self-explanatory, so educators who are not confident in their own knowledge on topics can ensure they are getting the messages right. From being water and energy wise; from wiggly worms to making compost, growing food and getting outside to form a relationship with the big world outside - it appeals to kids and educators alike. A key focus of the program is our recycling unit- resource education – understanding and managing the waste we create, discovering and exploring the circular economy and most importantly, leading with the story of Reduce.

We understand the importance of reporting, evaluation and collecting meaningful data. Our evaluation technique is meaningful and fun. The evaluation form is a colouring in activity sheet ... the educators colour in the units they have completed and the measures they are taking to include sustainability in their facilities. They regularly share the information with us. We collate and report the progress to our partners.

Some Council Waste Education officers use activities from the program on school visits, others have set up Get Grubby displays at libraries for the wider community. One has even built an Environment Learning Facility (ELF) including a fully-immersive installation based on Get Grubby at its waste management facility. It has picked up awards galore and, more significantly, is growing a generation of sustainable savvy citizens.

We also have a track record creating bespoke, whole-community education campaigns, video/web series and accompanying online resources.

- **Rubbish Handle with Care & Organics Handle with Care** IS a whole community education campaign on waste and recycling that was launched when the NSW Waste Levy was introduced. The campaign lifted Clarence Valley Council’s recovery rates from 41 per cent (the lowest in NSW, to levels consistently above 85 per cent.

- **Compost Rocks!** was created for NSW EPA in 2015 to support councils in helping families understand the importance of diverting organic materials to compost. It included a 10 part video series and accompanying website ‘Costa’s Compost Academy’.

- **dirtgirl’s 21 day single use plastic detox** is a drip-fed email campaign to help people break the habit of single use plastics and was first used to assist them when the major supermarkets stopped handing out single use bags.

- We recently launched a community and online program to inform visitors to a popular Northern NSW Coastal Town called ‘**Live like a Local**’ and why it’s so important to protect this beautiful town for the locals and other visitors in the future.
**dirtgirl** is popular in Tasmania. She was invited to be the keynote speaker and special guest performer at the CFC State Forum on 16 November 2018, which was supported by the Tasmanian Government Education Department.

One of the captions of the YouTube video celebrating the day says: “DIRTGIRL was amazing and ensured that she got to meet all the little and BIG kids!”

**dirtgirl**'s participation at the event was subsequently celebrated on the front page of the Sharing State Wide newsletter which goes to all CFCs and their stakeholders.

We also have a snap of the Premier taking a selfie with her at the launch of the charity Christmas Tree in Hobart during the same visit.

In addition to daily appearances on ABC Kids in Tasmanian homes, **dirtgirl** has been a fortnightly guest on ABC Radio Hobart during 2019, talking about nature play, kids getting outside and getting grubby in their own gardens.

We produce high quality, engaging and inspiring content for early childhood centres and early years of primary school, but it doesn't stop there. With children’s wishes being taken into account in family life more than ever, these concepts and behaviours engage immediate and extended families and communities, inspiring and empowering long lasting change.

We have avoided becoming a brand that produces the kind of merchandise that creates tons of plastic waste and contributes to climate change. Instead we have poured our hearts into education - helping councils and governments address and communicate the challenges we are currently facing in waste management and the circular economy. In December we will launch our first circular economy ‘dolls’ – sew them yourself and stuff them with old socks or clothes that even the op-shops won’t take!

The message on which we’ve built our business is that we protect what we love. We’re story tellers, and we believe the best way to create real change is through compelling narratives that **CONNECT** the community to the natural world so they can **UNDERSTAND** what needs to happen. Only then will they **ACT** by changing their own everyday behaviours.

As **dirtgirl** says “Little things do make a big difference.”

We would welcome the opportunity to work with the Tasmanian Government to tailor our resources and approaches to meet your needs and make meaningful, immersive and playful resources available to every young Tasmanian and the people who care for them, so that nature first can become second nature.

Yours faithfully

*Cate McQuillen*

**Cate McQuillen**

Founder and Co-Creator of dirtgirlworld
Managing Director Mememe Productions Pty Ltd
The following section could be seen as critical of the environmental education sector – which is not its intention – so we would prefer it to be withheld from publication in the consultation.

A brief review of sustainability education resources for early childhood and K-2

In her Sustainability in children’s education and care Education Lead at the Australian Children’s Education and Care Quality Authority (ACECQA) Rhonda Livingstone suggests that sustainability in early education is often tackled in outdoor activities, but needs “to be embedded in all daily routines and practices.” She continues “Services often find elements relating to sustainability under Quality Area 3 [are] challenging to meet.”

ACECQA recommends for further information is Environmental Education in Early Childhood (EEEC) who we consulted in developing the Get Grubby Program. A visit to their online shop reveals a dearth of resources for early childhood sustainability education. Similarly, the Australian Association for Environmental Education (AAEE) website has little to offer early childhood education.

Getting Started with Sustainability in Schools has no resources for Early Childhood. There are just six for the Foundation year (including a ‘Technology’ resource entitled Food Across the Asia Region, which is also included in the counts for years ONE and TWO. There are 17 for year ONE, including some on worm farming and bee keeping and six called A year on a farm. There are 19 for year TWO including five called WilderQuest Learning (WildThings) and seven about Water.

Of the 300 free resources from Cool Australia around sustainability, there are just 24 activities for early years and one of those is about dirtgirl’s involvement in Planet Ark’s National Tree Day.

Some thoughts about sustainability education in Local Government

We know from our conversations with Local Government Waste Managers and Waste Education Officers that they are under-resourced. Where time allows for work in education settings this is usually aimed at upper primary and may include visits to waste transfer facilities if the contractors are agreeable.

Although broader community education is often part of the agreement with collection contractors – this is usually limited to a booklet or information sheet delivered to households at the commencement of the contract or new service. This is inadequate. Waste educators hold stalls at community events … but this reaches a very small percentage of households.

Many council officers have expressed frustration that they spend their time dealing with contamination and fly-tipping (officers in some small rural council spend much more of their time on compliance than education) and some feel strongly that more education in families and households would help them do their job. A general consensus at Waste 2019 was that there needs to be more focus on telling the story of WHY we need to respond to current challenges in waste management and sustainability more broadly and not just the WHAT (goes in which bin and when the bins are collected) – which seems to be the extent of the community education provided by collection contractors.
I congratulate your efforts to make improvements in Tasmania’s waste management through the Draft Waste Action Plan. We need to drive change from the highest level of government to have effective adoption of a circular economy, and rather than creating a reliance on recycling the government should focus on waste reduction.

Whist there is talk of an Australian recycling crisis, the root cause of the waste is in over-consumption and an unsustainable belief that recycling corrects the problem of producing the waste in the first place. Encouraging zero waste, or minimal waste, removes the need to invest so heavily on waste management.

A Waste Levy may increase costs for households, despite the level of waste they produce, if councils were to pass their costs on to ratepayers. The cost of improving recycling and waste management services needs to be considered, however there should be incentives for those who actively try to reduce their waste. A waste levy does not encourage individuals to make change.

As mentioned in the Draft Waste Action Plan, household organic waste bins will reduce household waste by 20-30% in Tasmania. Glen Eira City Council in Victoria recently introduced the acceptance of kitchen waste into their garden waste bins, with exceptional uptake by the community. Green Waste kitchen caddies were distributed to households with clear instructions, and the mulch created was used to dress local parks. I encourage you to view the excellent resources available on their website for green waste and comingled community guidelines.

Kerbside food waste collection in the city of Glen Eira has been so well adopted, they are considering reducing general waste collection to once per fortnight. 69% of Victorians surveyed by The Age were in favour of fortnightly rubbish collection, if organic waste was collected weekly! (The Age, 2019)

All Tasmanian councils should be required to provide green waste collection. It cannot be assumed that those in regional areas have the capacity or desire to compost organic waste on their own accord.

Whilst the Draft Waste Action Plan is intended as a starting point for the transition to a circular economy, Government cannot adopt the opinion that “solutions to our waste and recycling challenges are strongly market-based”. Whilst there is certainly a groundswell among consumers to support products
that are sustainably produced or made from recycled content, business is extremely effective at green-washing and manipulating messages to confuse consumers. **Policy needs to be created and enforced, to ensure consumers are getting what they pay for.**

The national target to ensure 100% of packaging is reuseable, recyclable or compostable by 2025 is unenforceable. Almost anything can be reusable or recyclable, but without the capacity to do so, the waste becomes landfill. Polystyrene food trays are an excellent example – they can be recycled, but with the overwhelming majority of councils unable to process this material, consumers are forced to add them to landfill. **Polystyrene breaks easily into microplastics and toxic chemicals, and food trays should be banned, along with other single use plastic items.**

Waste reduction and resource recovery in the Construction and Demolition industry needs serious attention, as Tasmania is so far behind the rest of Australia. Rail Projects Victoria set sustainability criteria in their projects specifications and technical requirements, including the percentage of materials that need to be recycled content, thus creating a market for recycled materials and forcing companies to change the way they deliver infrastructure projects. There is no point in increasing the capacity to recycle, or investing in container refund schemes, if there is no purchaser of the recycled material.

The Tasmanian construction industry is still sending vast amounts of waste to landfill and continuing to use Tasmanian finite resources, when in Victoria, recycled sand and concrete is already in equal demand as virgin resources for road pavement material. **We cannot let Tasmanian industry strip quarries dry, whilst recklessly disposing of material that can be salvaged.**

The Repurpose It project provides an easy to understand website to explain to all business which materials they are able to collect, how it is processed and the resources recovered. The project will divert more than 500,000 tonnes of construction and demolition waste from landfill each year in Victoria (Infrastructure Magazine, 2019).

Business will not increase operating costs to use recycled materials, when virgin materials are so cheap and convenient. When Government work is won and lost in the tender process, the **Tasmanian Government need to demand companies achieve sustainability targets.** Contractors should address water use and capture, supply chains, energy use, environmental materials and waste in all government projects. I encourage you to consult with ISCA to create these guidelines. Alex Fraser Group have built their business around the recycling of Victorian construction waste, and a Tasmanian company would be well placed to adopt a similar model if a market for recycled materials was created by government.

We need solutions to encourage communities and business to make positive changes to their behaviour, through conscious consumption of new materials. There are many sustainable initiatives in other Australian states that help to
reduce over-consumption, bring communities together, improve community awareness and knowledge and improve accessibility to resources.

The following initiatives should be considered in Tasmania to receive state government funding;

- **Tool Library**, to promote the sharing of tools & knowledge;
- **Children's Toy Library**, because nearly every piece of plastic ever made still exists today. “Habits made today will help life tomorrow” (Australian Museum, 2010);
- **Community gardens & crop sharing projects**, to improving health, share knowledge & provide exercise. Food is Free Ballarat is an excellent example of how a simple initiative can work with local council to create a thriving community.
- **Donate surplus food to charity**, we know that over 50% of the 7.3 million tonnes of food waste in Australia occurred in primary producers and the manufacturing sector (Department of Environment and Energy, 2019). We also recognise a growing number of Tasmanian’s struggling to afford nutritious meals so there is no excuse to waste the natural resources used by the agriculture sector. Systems need to be put in place to ensure food produced is consumed (by human or animal), and not left to rot due to cosmetic differences. Education needs to be given to show produce is equally valuable regardless of appearance, and government need to create policy to ensure food is not discarded. French legislation to ensure supermarkets donate food to charities and food banks is a great starting point (The Guardian, 2016).
- **Recycling of hospital waste**, with Tasmania’s aging population the waste stream from hospitals and care facilities will only continue to increase. Government has the direct ability to make the changes needed in the public health system, to reduce landfill waste from hospitals. Whilst recycling is happening in public hospitals, it should be enforced for all (ABC News, 2019).

I appreciate the time you've taken to read through my feedback on the Draft Waste Action Plan, and I look forward to the positive changes planned for Tasmania.

Yours sincerely,

Ms. A Walker
Works Cited


7 October 2019

The Hon. Peter Gutwein, MP, Minister for Environment, Parks and Heritage
C/O Policy and Business Branch
Department of Primary Industries, Parks, Water and Environment
GPO Box 1550
HOBART TAS 7250

Dear Minister,

Re: Submission on the Tasmanian Government’s Draft Waste Action Plan

Thank you for the opportunity to provide comment on your government’s Draft Waste Action Plan.

Local government plays an essential role in waste management through the collection and transfer of household and business waste and recyclables to landfill and recycling facilities. Local government also provides essential education to households and businesses to improve their recycling behaviour.

Along with five other Councils in northern Tasmania, we have taken a leadership role by forming the Northern Tasmanian Waste Management Group (NTWMG). The NTWMG exists to improve waste management and recycling through facilitating regional collaboration and consistency in waste and recycling services and the provision of region-wide education.

As part of its role, the NTWMG has prepared a submission on behalf of its members on the Draft Waste Action Plan. Our Council supports the NTWMG’s submission.

The NTWMG has been instrumental in helping our Council improve our waste and recycling services through the regional $7.50/tonne waste levy. We strongly advocate for the continuation of funding for the NTWMG under a statewide waste levy. This will ensure the NTWMG can continue to deliver, and expand upon, its comprehensive resource recovery and education programs for the benefit of our residents and businesses. We also advocate strongly for reinvestment of the statewide waste levy back into the Tasmanian waste and recycling industry.

from the mountains to the sea
Given our central role in waste and recycling, we request you continue to consult with us and thee NTWMG on any legislative or regulatory mechanisms emanating from the Draft Waste Action Plan. As noted, we are leaders in waste and recycling and can provide detailed advice and information on many items covered in your Draft Waste Action Plan.

If you have any questions, please do not hesitate to contact me or our representative at the NTWMG, Michelle Ogulin, on [redacted] or at [redacted]@launceston.tas.gov.au.

Yours faithfully,

John Brown
GENERAL MANAGER
I wish to add my support for the proposed new Waste Action Plan, including the proposal for a waste levy. I add comments as below to the Draft Waste Action Plan.

Comment on the Executive Summary.

*The Litter Act 2007 is also being amended to provide increased penalties for illegal dumping.*

Our Council has had several incidents of reported dumped household rubbish in bush areas which contained letters, documents and in one case prescription medicine bottles with the names of the owner who presumably is the dumper. However there is little or no chance of prosecution according to Police so no action was taken. Evidently they must be seen dumping to be able to successfully prosecute. I would like to see persons unable to explain their name being on items of dumped rubbish, eg official documents, at least becoming liable for cleanup costs.

The other part of this is the value of prosecuting against the penalties applied. Police time is too valuable to allocate to investigation and prosecution for littering and dumping. The same applies for Council staff. There is always the Pub Test – “Haven’t you got something better to do?” Until this changes I feel that only a tiny fraction of dumping will ever be successfully prosecuted, and even that will not be favourable on a cost benefit analysis.

**CONTAINER REFUND SCHEME**

I am a strong supporter of a Container Refunds Scheme and firmly believe it will be very beneficial in

1. Preventing roadside litter by encouraging retention of bottles to redeem.
2. Encouraging the retention of other litter items as well – If keeping bottles for return they may as well keep the other rubbish and put it in a bin.
3. Stimulating employment, especially in regional areas. (In SA 10 years ago there were 120 collection depots employing 820 full and part time employees plus 200 casuals. Even if Tasmania had one quarter of that employment we are still talking hundreds of jobs right across the island.)
4. Sorting containers into various sources is extremely good for sorting for material processing of containers.

*P9. Container Refund Schemes (also known as Container Deposit Schemes) involve beverage suppliers paying an upfront deposit to a scheme coordinator on all eligible containers at the time of sale. Under a Container Refund Scheme, suppliers pay a deposit to the scheme coordinator, but only on redeemed eligible containers. All current schemes in Australia are container refund-based schemes.*

Restricting our CRS to a refund scheme may raise some concern. Every time someone breaks a bottle, or it becomes un-returnable the consumer who paid the 10c deposit loses their money and the manufacturer or the coordinator, depending on the scheme, is rewarded. My understanding of this in SA is that the coordinator (supercollectors) have become very wealthy on unreturned bottles.
The CRS that Tasmania introduces should specify the unreturned deposit will go to either the EPA or some not for profit coordinator and used for various waste recovery initiatives.

**P10.** It would seem that a large part of the national retail market has already adapted to having a CRS in place. This is evidenced by CocaCola Amatil’s recent commitment to doubling its use of recycled plastic packaging to 53% by the end of the year and, by 2020, seven in 10 bottles will be made from recycled PET.

I note with some scepticism that recently on ABC news it was stated that CocaCola was bringing recycled PET in from an Asian country as Australian PET was not good enough. If it is good enough for China to ban imports of recycling from Australia, why do we permit the importation of recycling from overseas?

Comments on the individual points raised in the discussion paper.

1. **Circular Economy. What are the key opportunities for reducing waste, developing our resource recovery industry and shifting to a Circular Economy?**

   Developing the resource recovery industry will be a large focus area, with 100% of items sold and imported examined to review the end-of-life plan for the product and also the packaging of the item. As an example - At a Waste Management conference just two years ago I heard that PVC can be readily recycled and re-manufactured into other goods. There are large quantities of PVC goods in use today, some imported and some made here, made of many different kinds of PVC. Unfortunately these PVC types do not mix in the recycling process. For the sake of simplicity the Tasmanian manufacturer concerned therefore used very little recycled PVC, preferring to use virgin materials. Result is waste PVC goes to landfill. I believe Tasmania should be taking steps to ensure that the PVC imported into Tasmania is able to be reprocessed here also both in terms of offcuts and waste and also end of life product. This may entail placing a higher standard on products being accepted into Tasmania. Hopefully the Australian Government would also wish to prevent entry of these products also.

   This thinking should be applied to all imports into Tasmania. How will we dispose of it at end of life?

   Recently I heard that Kingborough Council sealed a section of road with an asphalt mix containing soft plastics and using crushed glass as road base. If this is successful why would we not replicate this across Tasmania in all road sealing? It may be slightly more expensive but if there were a soft plastic or recycling incentive it could solve many problems. Of course I am a little worried that the plastic will outlast the bitumen and as the road wears so micro-plastic will work out into the environment.

   I believe Councils and State Government standards should include a certain amount of recycled materials in any project. There must be an on-island market established for Tasmanian reprocessors to service. I am against sending our waste interstate to companies like Replas and purchasing products back. Let’s make it worthwhile to have a Replas processor here.

   Another option is to engage the Cement Works at Railton to incorporate plastic into the kiln high temperature disposal for plastics. Presently used for disposing of paint and other volatile liquids, this could be a way of obtaining energy from waste plastic.

   In a different aspect of the circular economy entirely, Tip Shops, recycle shops like Vinnies and in our area The Hub Recycling Centre do a great job of keeping things out of landfill and have grown a whole business stream. The shops rely on volunteer labour, and the volunteers receive a certain
amount of satisfaction for their endeavours. However generally if donated items are not saleable they are mostly landfilled, often containing materials of value that could be recycled if dismantled. With some financial incentives from a waste levy these recycle shops could employ a person to ensure everything donated that can be recycled is recycled.

2. **Governance.** What are the primary waste management and resource recovery roles and responsibilities of governments, industry and the wider community?

I support the LGAT model of a shared State/Local Government team to develop the governance with funding shared between the two. I also support the early introduction of the proposed waste levy with hypothecation returned to develop systems and solutions for wider waste management initiatives.

3. **Data, Innovation and Targets.**

- **What are your key data and information needs on waste and resource recovery?**

*Have the lowest incidence of littering in the country by 2023!*

I believe this to be impossible for several reasons, not least it being a generational change required to fix. However the metric is all wrong too. KAB have several metrics such as number of items of litter per square metre and also number per metre of road, as well as volume of litter per area. Measurement against other states is pretty meaningless, but is also a shifting target.

- **How can we best use existing research and innovation networks, or establish new networks, to help address our waste and resource recovery challenges?**

Suggest joining Victoria who are presently moving towards CRS.

- **What are your views and suggestions on the targets presented above?**

We should be aiming to remove 100% of organic waste from landfill eventually. This will involve a FOGO or green bin collection but should also be extended to those using transfer stations for waste collection ie not on recycling kerbside collection.

- **Which waste streams would provide the best opportunities to make some early progress on the proposed targets?**

Suggest used poly pipe recycling as a start. Zetz in Wynyard is already producing poly pipes and with some incentives could perhaps recycle used poly into other products with low engineering specifications, eg thick walled culverts.

Polystyrene is not collected in Tasmania currently, just landfilled. I understand it is successfully recycled interstate so we need to either ban it from entering Tasmania or figure out how to process it here.

Crushed glass at an agreed percentage should be specified as standard for all roadbase materials. Other uses should be found if this is not sufficient to process all recycle bottle glass. Perhaps drink manufacturers should be included in this discussion. Another alternative is to direct drink manufacturers to use alternative packaging that is easily recyclable eg aluminium. I believe there is considerable goodwill from the public too and to that end consumers can be swayed to purchase drinks in containers that are more easily recycled in Tasmania.
If problematic and unnecessary plastics are to be phased out by 2030 as planned, I believe we should be writing to packaging companies now to alert them of this. Of course we would prefer they changed their packaging immediately so why not ask them to? For example the silver coloured plastic bags containing foodstuffs like biscuits, corn chips and Twisties (presently only able to be landfilled) could easily be replaced with something that Redcycle could accept now for recycling at Supermarkets in their soft plastic collections.

4. **Infrastructure Planning.** What do you consider are the highest priority infrastructure requirements for waste management and resource recovery in Tasmania?

To meet demand for sorting recycling of containers in a CRS, large processing and storage facilities will be required. On a recent trip to SA I saw a bottle recycling centre in rural SA which was around 2000 to 3000 square metres. This included a sorting area, storage area, customer waiting and dropoff area and also various machines and conveyors for compacting cans and plastic bottles into bales, and then forklifts and truck loading areas for sending to processing and remanufacturing.

For organic waste processing, this composting should ideally take place using in-vessel facilities to reduce odour and control the processes. These in-vessel facilities do not come cheaply but will be the most efficient way to do it.

For plastic re-processing I believe that companies like Redcycle should be encouraged to set up plants in Tasmania.

While not a fan of high temperature incinerators I believe there must be some way to deal with waste tyres and otherwise un-processable plastics. As stated above perhaps Cement Australia at Railton could be used.

5. **Support Resource Recovery across Industry.** How can governments, businesses and the community best support the development of the resource recovery industry in Tasmania?

There is a strong need to boost demand for products made from recycled products. Demanding a percentage of crushed glass in road base as stated previously is a possibility. Another is the use of recycled plastic in play equipment, borders for paving and gardens, outdoor beach and park side furniture and fittings etc. These things are all readily made at present but are quite expensive when compared with alternatives such as timber and even new plastic products. There should be some assistance to get prices to a competitive level, perhaps from the waste levy, which could be phased out as production increases and establishment costs are recovered.

Establishment Loans at low interest may help a variety of re-processors to set up in Tasmania.

It may also be beneficial if the Governance group established in 2 above were to set up some model financials including cash flows for businesses seeking assistance with establishment costs, eg workplace requirements, dealing with low volumes, cash flow management. This may help the potential problem in Tasmania of the low volume of both supply of some products eg polystyrene for recycling, and the demand for reprocessed goods eg Replas type products. There would need to be some Community Service Obligations to be met in order to receive assistance, eg sourcing and transporting low volume, low value goods from all over the island(s) to keep them out of landfill.

6. **Education and Community Engagement.**

As stated above I believe the problems of littering and rubbish dumping are generational problems. Our children and young people must be educated to end these practices, and encourage their parents to end them also.
Additionally, the owner of a product that has reached end of life has to be encouraged to ensure it is re-used, recycled in the best way other than landfilling. Higher fees for landfilling may be a deterrent, but encouragement via incentives should be encouraged. Best practice should be publicised. The many terrific waste management programs offered through the Cradle Coast Waste Management Group for end of life household batteries, paint, fluoro tubes and lights, etc could and should be more widely publicised with encouragement to use the programs.

7. Which policy or regulatory settings will help us achieve the targets in this Plan and help stimulate the resource recovery industry?

I would like to see an independent review of National Packaging Standards for imported goods, free of the constraints of the Packaging Covenant.

Also National end-of-life standards for imported goods that include building materials, electrical goods, motor vehicles and general domestic products.

Banning some goods from landfill may be an option, eg e-waste, paper and cardboard.

Do you have other comments on the Draft Waste Action Plan?

At present it seems an importer may bring almost anything in to this country. Some items ‘guaranteed to make your life easier’, ‘for only $69.95 or 5 regular instalments’, ‘how much would you expect to pay?’ and even ‘These come with a beautiful set of steak knives’ etc are such low quality they barely hold together in transit. A high percentage of these end up as landfill in a very short time. I would like these products to have to reach some quality standard before they are permitted to be imported. Or advertised. This could fit in with end-of-life standards.

At present several Councils in Tasmania are wrestling with introducing new FOGO bin services. These councils are trying to do the right thing and reduce greenhouse gases emitting from organic material which is landfilled. However public opposition to paying for the privilege is holding back successful implementation. I feel that all Councils will eventually introduce this service, but at present the State Government is silent in its support. Life could be much easier if support were given earlier rather than later.

Similarly various Councils are grappling with single use plastic policies. Assistance with support and consistency across the state would go a long way to helping implementation.

The Federal Government recently indicated they would ban recycled products leaving the country, which I regard as a positive step. I feel this should come with a national plan to assist state and local governments to manage the recycling of goods to make sure they do not just end up in landfill. Goods imported should all come with end-of-life plans that do not involve landfill. We must have higher standards for importation of goods.
Eat Well Tasmania Inc¹ is pleased to make a submission to the Waste Action Plan Draft consultation process. We have also contributed towards 2 other collaborative submissions focussed on the circular economy and on-farm losses. (The submissions we are referring to were submitted by the Tasmanian Food Cluster and a submission summarising the findings from the Shaping the Food and Waste Systems for the Circular Economy Forum).

Eat Well Tasmania is a not for profit funded by the Department of Health. We champion eating seasonal Tasmanian food. Our vision: in 2025 Tasmanian will have strong food culture supported by a policy environment that values eating well. We engage with everyday Tasmanians via social media, Facebook and Instagram, plus deliver collaborative projects with our industry partners. Waste anywhere in the food system is of great concern to Tasmanians and Australians. We observe that when we share content relating to waste whether it is within the food system or at home the response is often 10-fold to other social media posts. This tells us food waste is a pressing issue for Tasmanians and it is important to create solutions that are measurable, transparent and effective.

Eat Well Tasmania, adopts the general principles that there should be a whole of food system action and that the circular economy is a useful framework for minimising waste and capturing losses and nutrients for the use they are intended, human consumption. This is also the Federal Government’s approach.

“The use of circular economy approaches and the waste hierarchy to address food waste demands a more strategic and collaborative approach. This will challenge us to find solutions across the entire food system rather than continuing to operate within single, linear supply and consumption chains.”²

This submission is focussed predominantly on household level food waste and proposes that that community engagement around the issues of waste should be delivered via a local adaption of the Love Food Hate Waste Campaign to raise awareness of issue relating to food waste and communicate how to change behaviour by providing practical tools, ideas and at events at a community level.

¹ www.eatwelltas.org.au
²National Food Waste Strategy: Halving Australia’s food waste by 2030, Commonwealth of Australia 2017’
Why target food waste at the household level?

There are a variety of reasons why we waste food at home and any approach to promote behaviour change should acknowledge these.

- Confusion over ‘use-by’ and ‘best-before’ date labelling
- Over-purchasing of food that is then thrown away
- Limited knowledge of how to safely repurpose or store food leftovers
- Limited access to food waste collection systems

Figure 1 Waste hierarchy

Using education Campaigns to target waste at the household level has a high level of acceptability to community members and is recommended in the National Food Waste Strategy, see Figure 1. Audits by local government have found that food accounts for 35-40% of waste going to council landfill and household food waste costs vary from $2,200 to $3,800 per year. Targeting food waste aligns with the Sustainable Development Goals – Goal 12 Sustainable Consumption and Goal 13 Climate Change the broader agenda of sustainability and resource efficiency. Food waste generates greenhouse gases and contributes to climate change, so reducing food waste is aligned with the State Government objective to work towards achieving zero net emissions by 2050.

---

4 Ibid
5 Ibid
7 Climate Change Office - Climate Action 21 Tasmania’s Climate Change Action Plan 2017–2021
Education and community engagement - Are you aware of any existing education materials that could be adapted for the Tasmanian context?

We would recommend the Love Food Hate Waste Campaign. It targets practices and attitudes towards avoiding and reducing food waste to ensure they are adopted and sustained, changes consumer behaviour and engages workforces. It is an awareness campaign about avoidable food waste, using primarily an advertising campaign, to inform and educate, via social media and a website. The other key component is engagement with local councils through events, workshops and communications. The Campaign narrative and infographics were developed based on research and evidence. At a local level activation of communities occurred through local government and community groups that are networked and trusted leaders. The Love Food Hate Waste (LFHW) approach is based on the WRAP project out of the UK. LFHW has been delivered with good success in Victoria and NSW. In Victoria, the primary audience was identified to be: 30 to 50-year olds with school-aged children, targeting the main grocery buyer in the home. The secondary audience is those who have a strong interest in food and fresh produce. This is the same audience Eat Well Tasmania targets via our social media activity, so we have some valuable insights into these target groups and how to engage with them. Tasmanians are big social media users, with the highest % of adults having a Facebook account for any state of Australia and highest % are everyday users of social media.

In Victoria, the LFHW project had 3 objectives:
• to raise the profile of the importance of avoiding household food waste,
• to increase the number of people in the target audience identifying food wastage as an issue, and
• to increase the number of people in the target audience reporting that they have undertaken measures to reduce the level of avoidable food waste.

Insights from the Campaign evaluation in Victoria include that:
✓ Local government engagement is critical and integration of the resources into existing strategies was straightforward,
✓ Community organisations as partners amplifies the Campaign at the local level, and
✓ The target audience reach through the pilot and subsequent Campaign saw increases about their concern about food waste increase pre to post Campaign from 66% to 85%.

Surveys of the target audience found that the Campaign was effective:
• over 40 % of respondents were likely to use the hints and tips communicated within the campaign to rescue, refresh and revive food, and
• almost 30 % of respondents were motivated to take leftovers for lunch.

During the I Love Leftovers (ILL) phase of the project, the results were even more impressive with 94% of those who saw the ILL Campaign, social media, infographics and advertorials, saying they would/were taking action. Digital marketing as a Campaign tool was found to be a very cost-effective way to reach the target audience with the cost per view of digital adverts ranged between eight cents and 19 cents.

We would recommend that to increase awareness of and reduce household food waste in Tasmania that an adapted Love Food Hate Waste Campaign be delivered in Tasmania. Our experience shows that Tasmanians are concerned about food waste, are looking for solutions, that social media is a fit for purpose and cost effective medium for reaching target audiences to influence behaviour and attitudes. Eat Well Tasmania welcomes an opportunity to discuss this recommendation in more detail with the Department of Primary Industries, Parks, Water and Environment.

---

9 Sustainability Victoria 2018 Measuring our impact
Submission on the draft Waste Action Plan – Huon Valley Council

Thank you for the opportunity to provide a submission on the draft Waste Action Plan. Huon Valley Council’s comments and feedback are listed against areas of the plan in the table below.

<table>
<thead>
<tr>
<th>Focus areas and actions</th>
<th>Comments/feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving to a Circular Economy: Government Priorities and Key Sectors</td>
<td>The alignment with the National Waste Policy via the adoption of circular economy principles is welcome. It is hoped that the top elements of the waste hierarchy (Refuse/Avoid, Reuse) are considered first, as well as the broader impacts and ethics of using different resources. There is already strong support from our community to continually adapt and adopt circular economy principles. The paragraph on renewable energy on page 12 seems out of place for a waste action plan, and is detailed in comparison to any mention of specific initiatives in waste. It would seem more appropriate to replace this paragraph with more detailed plans relating to waste management. Construction and demolition (C &amp; D) waste is a noticeable omission as an area needing attention.</td>
</tr>
<tr>
<td>Governance</td>
<td>Huon Valley Council support the recommendations of the LGAT Statewide Waste Arrangement Feasibility Study, in particular: That LGAT accept a formal shared collaboration structure, co-owned by and accountable to State and Local Government, as the preferred option to deliver the statewide waste management arrangement. Waste is a technical and highly specialized area – if the EPA is to oversee this plan, it must be appropriately resourced with skilled and experienced personnel.</td>
</tr>
<tr>
<td>Data, Innovation Networks and Resource Recovery Targets</td>
<td>Standardised data management systems to capture waste data is overdue in Tasmania. This action is welcome. The basis for, and the mechanisms to achieve, the targets listed in this section are not clear. Considerably more information on how these targets will be worked towards is needed.</td>
</tr>
<tr>
<td>Infrastructure Planning</td>
<td>A focus on infrastructure planning is welcome. As well as resource processing infrastructure, many regional areas lack infrastructure such as weighbridges to collect data. Consideration should be given to the Copping Waste Management facility being brought on as a state-managed asset, as in the medium to long term it will be the only landfill option for both the community and industries in Southern Tasmania. It is hoped that regional/rural Councils will be thoroughly consulted on the development of the Tasmanian Waste and Resource Recovery Infrastructure Plan, with the tyranny of distance having significant financial, road safety and maintenance, GHG emission and airborne particulate impacts. Ideally, any major new regional infrastructure should be financed and established in a way that larger Councils are not profiting from smaller Councils.</td>
</tr>
<tr>
<td>Support Resource Recovery</td>
<td>In this section, the mention of a loan scheme for local government is</td>
</tr>
<tr>
<td>Section</td>
<td>Details</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>across Industry</td>
<td>welcome. The Container Refund Scheme (CRS) and the waste levy are listed as contributing to this focus area. The benefits of a CRS are largely in the area of litter, and the impact on recovery rates is not clear. Similarly, waste levies only operate as a lever if they are high enough to motivate change. It is important that consideration be given to ensure that supporting Energy from Waste and Bioenergy initiatives does not lead to perverse outcomes, including the creation of demand for the feedstock beyond genuine waste volumes.</td>
</tr>
<tr>
<td>Education and Community Engagement</td>
<td>This section requires significantly more detail. Education and community engagement is a crucial part of any waste management plan.</td>
</tr>
</tbody>
</table>
| State and National Policy and Regulatory settings | The introduction of a Statewide waste levy is welcome. Important considerations for establishing the levy include:  
- A high degree (if not 100%) of reinvestment of the levy in waste initiatives and projects  
- Separation between the levy reinvestment and funds that may be required for the CRS  
- What is required to drive diversion from landfill, rather than just generate levy revenue  
- What is required as a core budget to administer the levy  
- The corresponding investment in illegal dumping that will be required  
- Whether a differential levy is appropriate for rural or remote areas  
While there has been strong support for a CRS, a CRS should not necessarily take precedence over improvements to resource recovery and processing. |
7 October 2019

Policy and Business Branch
Department of Primary Industries, Parks, Water and Environment
GPO Box 1550
HOBART TAS 7001
Email: WAP.Enquiries@dpipwe.tas.gov.au

Dear Sir/Madam

Pleased find attached the King Island Council’s submission on the Government’s Draft Waste Action Plan. Also attached is a copy of the King Island Waste Management Strategy 2019-2029 prepared by Anne Prince, which included consideration of the Draft Plan.

Please note that the Mayor has also written to, and provided copies of both documents, to the Minister for Environment.

Council’s submission highlights the particular challenges and costs of resource recovery and waste management on King Island, especially poor economies of scale, diverse waste streams and significant transport costs to export recyclables and waste off-Island. The Strategy also highlights the difficulty in raising funds to improve already limited and under-funded waste services, given the Island’s low rate base for income generation and higher costs of living and doing business, which are some 20% to 30% above costs on mainland Tasmania.

The Strategy does not recommend that Council support the Government’s proposed statewide waste levy but does recommend support for the container return scheme.

The difficulty with a statewide levy is a real risk that it would effectively take funds from the limited pool Council can access for on-Island improvements recommended in the Strategy and essentially become a new tax and additional cost burden for King Islanders and Island businesses.

The Draft Waste Action Plan argues that a ‘one size fits all’ statewide levy would generate significant benefits through improved and more efficient services across the State. It is conceivable that such benefits could be generated in urban and peri-urban areas of mainland Tasmania through economies of scale and improvements serving multiple council areas. However, the Draft Plan does not address how a levy might benefit isolated, remote and rural areas, like King Island. This is not a unique problem in Tasmanian government policy and legislation.

There is an opportunity for the final Waste Action Plan to demonstrate how the specific issues faced by isolated, remote and rural areas like King Island can be directly addressed in statewide policy to the benefit of all. For example, ensuring that the statewide levy funding put in to resource recovery and waste management improvements on King Island reflects the increased cost of operations, and in all circumstances is no less than the amount levied on King Island.
Council would welcome the opportunity to work with the Minister, the Department and the Local Government Association of Tasmania to resolve a positive approach to these issues.

To this end, the Mayor has invited the Minister to visit the Island to see the situation first hand. However, should this not be possible, Council extends an invitation for Departmental staff to visit and discuss possible changes to be incorporated in the final Waste Action Plan.

In the absence of a satisfactory outcome, it is Council’s strong view that any funds collected on the Island should stay on the Island.

Yours sincerely

Greg Alomes
General Manager

Cc Local Government Association of Tasmania
Submission to
Hon Peter Gutwein MP, Minister for Environment
on the Draft Waste Action Plan

EXECUTIVE SUMMARY
The King Island Council (Council) supports the Tasmanian Government’s commitment to improve waste management and resource recovery but is concerned that the statewide waste levy proposed in the Draft Waste Action Plan (Draft Plan) will, unless modified, undermine rather than deliver improvements on King Island.

Council is committed to improving waste and resource recovery on the Island and recently commissioned the King Island Waste Management Strategy 2019-2029 to identify the nature, size and scale of improvements that may be sustainable for a small community of 1600 residents.

Council received the Strategy in September 2019 and has commenced communications with residents and businesses to evaluate, cost and prioritise recommended improvements. A copy of the Strategy is attached.

The Strategy highlights that the Island’s location half way between mainland Tasmania and Victoria presents significant transport costs and challenges to export recyclables and waste off-Island. It also makes it largely impractical to participate in potential regional, statewide and national initiatives funded by waste levies.

The Strategy also highlights that the Island’s low rate base for income generation, diverse waste streams and poor economies of scale present local challenges to raise the necessary funds to improve already limited and under-funded resource recovery and waste services on the Island.
Council understands that a statewide levy could generate significant benefits for the large urban and peri-urban areas on mainland Tasmania. However, the Draft Plan is silent on how a levy might be of benefit to remote, isolated and rural communities.

For example, it is unclear whether cost savings achieved by improved and more efficient services in these urban areas might result in a greater allocation of levy funds to remote and rural areas than might be collected in those areas.

In the absence of such a guarantee, Council’s principal concern is that a statewide waste levy might effectively take funds from the limited pool Council can access for on-Island improvements, such as those recommended in the Strategy.

This submission proposes that the Tasmanian Government’s final Waste Action Plan identify the particular challenges and costs of resource recovery and waste management on King Island (and other remote, rural communities) and modify the ‘one size fits all’ waste levy policy to ensure funds collected on the Island stay on the Island.

CONTEXT
The King Island Waste Management Strategy 2019-2029 was prepared by an independent waste management specialist after a comprehensive assessment of:

- the Draft Waste Action Plan;
- the Island’s current resource recovery and waste management services;
- a comparative analysis of services provided on other Australian islands, including Lord Howe, Kangaroo and Norfolk Islands; and
- best practice options to improve services and practices on the Island.

Council’s comments on each section of the Draft Plan below are drawn from the Strategy’s findings and Council’s experience in managing the challenges of being an isolated, remote community.

THE DRAFT WASTE ACTION PLAN AND THE CIRCULAR ECONOMY
Council shares and supports the Tasmanian Government’s commitment to a planned approach to growing resource recovery in Tasmania which embraces Circular Economy (CE) principles.

CE principles have driven development of the King Island Waste Management Strategy 2019-2029 but importantly applies them in a manner that takes account of the high freight costs to mainland Tasmania and Victoria, poor economies of scale and the Island’s limited rate base on which to recover costs.

Council submits that the final Waste Action Plan should not assume that application of CE principles statewide on mainland Tasmania will automatically apply equally and consistently in a small Island community and economy such as King Island.

Acknowledging the significant geographic, size and scale differences between mainland Tasmanian and King Island should be documented in the final Plan and form an important part of the next phase of the policy development process.
The final Plan needs to guarantee that statewide actions do not compromise or undermine the capacity of Council to implement cost effective, affordable and sustainable improvements, such as those recommended in the Strategy, on King Island.

**STATEWIDE WASTE LEVY**

The Draft Plan acknowledges that ‘absence of a landfill levy, along with transport challenges from being an island state, means that resource recovery businesses may struggle’. It states that the Tasmanian Government will introduce a statewide waste levy in 2021 to develop an effective income stream to fund waste management and resource recovery activities and provide a pricing signal to waste generators.

Council understands that the waste levy is consistent with CE principles and a way of raising revenue from residents and business without a community perception of being a new tax.

Council also acknowledges that there is strong local government and industry stakeholder support for a waste levy as it would generate a significant pool of funds to invest in statewide and regional improvements that serve and benefit multiple municipal areas with large urban and peri-urban population catchments. Such investments would create significant opportunities for businesses in these areas.

The critical question for Council is whether a statewide levy would generate comparable benefits for King Island or whether it might pose a risk to the Island’s capacity to fund recommended improvements in the King Island Waste Management Strategy 2019-2029.

The Draft Plan does not provide any information or analysis to demonstrate potential benefit/costs for remote and rural areas of Tasmania notwithstanding that there are significant differences in how resource recovery and waste management services need to operate in these areas.

The Draft Plan assumes that a ‘one size fits all’ statewide levy would be of overall benefit across the whole state without making this case by sound, evidence-based policy analysis.

Council submits that a more comprehensive analysis is required to demonstrate how a proposed levy would operate on King Island and what impact it would have on the implementation of improvements to our waste management and resource recovery activities.

The analysis should also clarify what economic and social impacts a levy might have on King Island residents and businesses, especially as the cost of living on the Island is already 20% to 30% higher than mainland Tasmania largely, due to air freight and shipping costs.

Council submits that, at the very least, the final Plan should recognise that, if a statewide levy is introduced, any funds generated on the Island should be used to directly resource King Island’s waste management and resource recovery activity. Should it be the Tasmanian Government’s intent that distribution of funds raised by the levy reflect the higher cost of operations in remote, rural areas, Council would be supportive of such an approach.

**CONTAINER REFUND SCHEME**

The King Island Waste Management Strategy 2019-2029 recommends Council embrace the proposed container refund scheme as proposed in the Draft Plan. Should the Tasmanian Government establish a scheme, Council would ask that one of the 60 collection points be made available within its existing
resource recovery facilities on King Island. This would maximise the volume of containers recovered, due to the co-location with other resource recovery activity, without the expense of establishing and operating a separate facility on the Island.

Council notes that the Policy for a Container Refund Scheme needs to reflect the needs and opportunities of rural and remote communities, such as King Island, and avoid a ‘one size fits all’ approach.

WASTE REDUCTION TARGETS AND RESOURCE RECOVERY TARGETS
Council supports the introduction of targets and is currently reviewing targets for the Island proposed in the King Island Waste Management Strategy 2019-2029. These are derived from a comparative benchmarking with other Island communities and provide a useful measure to evaluate the performance of service improvements.

Council submits that achieving these targets is unlikely to make an impact on the Tasmania wide targets documented in the Draft Plan, which further highlights the unique nature of resource recovery and waste management on the Island.

FOCUS AREAS AND ACTIONS

Moving to a Circular Economy: Government Priorities and Key Sectors
Council notes the Tasmanian Government’s intention to continue to move towards a Circular Economy but requests that the policy development process include consideration of the particular circumstances of remote and rural communities.

Council also notes the proposal to ‘provide opportunities for reducing waste and boosting related business and employment opportunities’. Council supports this connection and is committed to ensure on-Island resource recovery and waste service improvements support the Island’s established and internationally recognised brand for quality produce and environment.

The King Island Waste Management Strategy 2019-2029 recommends specific improvements to assist the Island’s major and developing industries and provide cost effective waste solutions consistent with the Island’s brand.

Governance
Council acknowledges that a governance structure would be required to oversee and administer the operation of a statewide waste levy. Council agrees with the proposal in the Draft Plan that possible models should be discussed with local government.

The Draft Plan also asks: What are the primary waste management and resource recovery roles and responsibilities of governments, industry and the wider community?

The King Island Waste Management Strategy 2019-2029 articulates the respective roles and responsibilities as they apply to its recommendations.

Data, Innovation Networks and Resource Recovery Targets
Council endorses the need for reliable data and notes that the King Island Waste Management Strategy 2019-2029 recommends actions to improve Council’s current data collection systems. Implementing new processes, and especially new infrastructure, to facilitate data collection will incur costs, and Council
requests that the Tasmanian Government consider the impact of these costs on communities with small rate bases and therefore less access to funds, such as King Island.

The Strategy recommends resource recovery targets relevant to King Island based on independent research and evaluation of information available through existing networks, as well as indicating the waste streams which will provide the best opportunities to make early progress on these targets.

Infrastructure Planning
Council notes that the Draft Plan proposes development of a statewide infrastructure plan by 2021 to guide investment decisions using waste levy funds. Until this infrastructure plan is developed it is difficult to assess whether there would be potential synergies with infrastructure plans recommended in the King Island Waste Management Strategy 2019-2029, nor gather an understanding of how those plans would specifically benefit King Island.

 Council notes that the ability for King Island to interact with mainland Tasmania on waste management and recovery systems is minimal. Its priority is to focus on infrastructure improvements which directly address our community’s needs, such as those detailed in the Strategy.

Support Resource Recovery across Industry
Council supports introducing Circular Economy frameworks provided their application to King Island take account of the particular operating environment and cost structures for industry and business on the Island.

The King Island Waste Management Strategy 2019-2029 recommends how the public sector, private businesses and the community can best support the development of resource recovery on the Island.

Education and Community Engagement
Council supports the need to continue to inform and engage residents, businesses and community groups in resource recovery and waste management as it is through their actions that targets will be achieved.

The King Island Waste Management Strategy 2019-29 includes ‘Community, engagement and capacity building’ as one of its five key strategies, noting that many of the strategies and targets will only be achieved with community support and action. Council suggests that any education and community engagement programs included in a final Waste Action Plan should address specific communities, such as King Island, and their needs, rather than a blanket statewide approach.

State and National Policy and Regulatory Settings
Council’s comments on the two policies – a statewide waste levy and a container refund scheme – are noted above. It is supportive of the intent behind these policies, on the understanding that both take into account the different context that remote, rural communities operate within.

Council agrees that any review of relevant state or national legislation should be to enhance sustainable resource recovery and waste management.
King Island
Waste Management Strategy
2019–2029
Rethinking Waste and Resource Recovery
This report was researched and prepared by

A. Prince Consulting Pty Ltd
ABN 96 077 504 226
Email: admin@aprince.com.au
Web: www.aprince.com.au
TH 4/28 West St
North Sydney NSW 2060
Phone: (02) 9907 0994

for:

Helen Thomas
Growth & Strategy Manager
King Island Council
PO Box 147
Currie King Island TAS 7256
Phone: 03 6462 9000
Email: hthomas@kingisland.tas.gov.au

Acknowledgements
A. Prince Consulting would like to thank the staff and management of the King Island Council and the many community members who assisted us with research for this project.

Document Status

<table>
<thead>
<tr>
<th>Rev. no.</th>
<th>Author</th>
<th>Editor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft 1</td>
<td>Anne Prince</td>
<td>H Cooney</td>
<td>August 2019</td>
</tr>
<tr>
<td>Final</td>
<td>Anne Prince</td>
<td>-</td>
<td>August 2019</td>
</tr>
</tbody>
</table>

© August 2019 APC

DISCLAIMER
Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith, but on the basis that APC is not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever, which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect to any representation, statement or advice referred to here.
# Table of Contents

**Executive Summary** .......................................................................................................................... 6

1. Background .......................................................................................................................................... 10

2. Guiding principles and current policy approaches .............................................................................. 11
   2.1 Guiding principles ........................................................................................................................... 11
   2.2 Current Policy Directions ............................................................................................................... 12

3. Waste Management on Other Australian Islands .............................................................................. 17
   3.1 Lord Howe Island, New South Wales ............................................................................................... 18
   3.2 Kangaroo Island, South Australia .................................................................................................... 19
   3.3 Norfolk Island .................................................................................................................................. 20
   3.4 Overview ......................................................................................................................................... 21

4. Situation Analysis ................................................................................................................................... 22
   4.1 Paper .............................................................................................................................................. 22
   4.2 Discussion Paper Opportunities ....................................................................................................... 24
   4.3 Community Consultation ................................................................................................................ 26
   4.4 Future challenges ............................................................................................................................ 27
   4.5 Future opportunities ....................................................................................................................... 29
   4.6 Future impacts ............................................................................................................................... 29

5. The Way Forward ................................................................................................................................... 30
   5.1 Current Waste Infrastructure .......................................................................................................... 30
   5.2 New opportunities .......................................................................................................................... 39
   5.3 Implementation ............................................................................................................................... 56
   5.4 Administrative support ..................................................................................................................... 58
   5.5 Financial management ..................................................................................................................... 59

6. Strategic Framework ............................................................................................................................. 63

7. Implementation Budget .......................................................................................................................... 69
   7.1 Capital expenditure .......................................................................................................................... 69
   7.2 Operational budget .......................................................................................................................... 70

8. Conclusion .............................................................................................................................................. 72
INDEX OF TABLES

Table 1 Discussion paper summary .................................................................................................................. 23
Table 2 Discussion paper opportunities ............................................................................................................ 24
Table 3 Community consultation key findings ................................................................................................ 26
Table 4 2019–20 Charles Street Depot fees and charges .................................................................................. 32
Table 5 Costs of equipment to support glass pulveriser ..................................................................................... 54
Table 6 Variable bin charging examples .......................................................................................................... 60
Table 7 Priority issues – immediate .................................................................................................................. 65
Table 8 Urgent priority issues – within one year ............................................................................................... 65
Table 9 Very high priority issues – within two years ......................................................................................... 67
Table 10 High-priority issues – within three years ............................................................................................ 68
Table 11 Medium-priority issues – within four years ....................................................................................... 68
Table 12 Ongoing issues ..................................................................................................................................... 68
Table 13 Capital budget ..................................................................................................................................... 69

INDEX OF FIGURES

Figure 1 Waste Hierarchy ................................................................................................................................. 11
Figure 2 NSW EPA concept drawing ............................................................................................................... 41
Figure 3 Example of standard signage ........................................................................................................... 41
Figure 4 The HotRot System ........................................................................................................................... 46
Figure 5 Food waste receptacles – aerated kitchen bench-top bins ................................................................. 48
Figure 6 Lord Howe Island mini-sorting line and baler .................................................................................... 51
Figure 7 Proposed MRF layout ......................................................................................................................... 52
Figure 8 Glass pulveriser relocated outside shed ............................................................................................ 54

INDEX OF IMAGES

Image 1 New site access to the new disposal point at Charles Street waste depot ............................................ 34
Image 2 Four key materials deposited at landfill – cardboard, concrete, metal, garden waste ........ 34
Image 3 Manually loading the pulveriser ........................................................................................................... 53
Image 4 Suggested glass sizes ........................................................................................................................... 55
## List of acronyms used

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APC</td>
<td>A. Prince Consulting</td>
</tr>
<tr>
<td>CCWMG</td>
<td>Cradle Coast Waste Management Group</td>
</tr>
<tr>
<td>CRS</td>
<td>Container Refund Scheme</td>
</tr>
<tr>
<td>EPA</td>
<td>Environment Protection Authority</td>
</tr>
<tr>
<td>EPR</td>
<td>Extended Producer Responsibility</td>
</tr>
<tr>
<td>ESD</td>
<td>Ecological Sustainable Development</td>
</tr>
<tr>
<td>IBC</td>
<td>Intermediate bulk container</td>
</tr>
<tr>
<td>KI</td>
<td>King Island</td>
</tr>
<tr>
<td>KIC</td>
<td>King Island Council</td>
</tr>
<tr>
<td>MRF</td>
<td>Material Recovery Facility</td>
</tr>
<tr>
<td>PSA</td>
<td>Product Stewardship Australia</td>
</tr>
<tr>
<td>STP</td>
<td>Sewerage Treatment Plant</td>
</tr>
<tr>
<td>TV</td>
<td>Television</td>
</tr>
<tr>
<td>WAC</td>
<td>Waste Advisory Committee</td>
</tr>
<tr>
<td>WHS</td>
<td>Worker Health and Safety</td>
</tr>
<tr>
<td>WMC</td>
<td>Waste Management Centre</td>
</tr>
<tr>
<td>WMP</td>
<td>Waste Management Plan</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

King Island Council currently manages three waste facilities: two active landfills – the Charles St Depot, with an inert landfill where residents can self-haul non-putrescible waste for disposal, and Parenna landfill, which receives an estimated 750 tonnes of waste collected from both residential and commercial premises by Council. A third landfill site, adjacent to the Charles St Depot, has been closed for some years but has not yet been formally capped and rehabilitated.

Bringing operations into compliance with EPA requirements is an essential first step for Council and must be given first priority.

Beyond simple compliance, the waste hierarchy mantra of reduce, reuse and recycle is equally or more valid in remote locations given the low rate base for income generation, diverse waste streams, poor economies of scale and high freight costs to export materials offshore. Other remote islands have proved that, despite these additional challenges, it is possible to transition to more sustainable practices. For example, Lord Howe Island currently diverts more than 80% of all waste from its landfill, and Kangaroo Island diverts around 75%.

On King Island, recycling is currently very limited. The local Lions Club segregate and export used lead-acid batteries, aluminium cans and scrap metals (aluminium, stainless steel, brass and copper), with the proceeds from these benefitting the community. The Swimming Association of King Island take waste oil collected at the Charles St Depot and use it to heat the pool at Grassy. And, Council coordinates the recycling of used chemical containers off-island through the DrumMuster program.

Some materials, including garden waste, treated and un-treated timber, and tyres, are stockpiled at Charles St Depot for later burial in the inert landfill. Bulk bins were provided for residents to deposit cardboard, plastic packaging and glass, but were removed in 2018 as these materials are not currently recovered or reprocessed. Community consultation conducted in the development of this Strategy revealed a strong desire and willingness to do more to achieve greater source separation to facilitate resource recovery. Over 70% of the community were also willing to pay for improved waste-management outcomes. A significant portion of the community – 93% expressed support for the establishment of a tip shop to promote and facilitate reuse by both donation and purchase.

There are a number of actions Council can take to satisfy the community’s desire for improved waste-management outcomes. In its Draft Waste Action Plan the Tasmanian government has proposed the introduction of a Container Refund Scheme (CRS) by 2021. Under this scheme, a refund would be paid to individuals on eligible beverage containers, redeemed at up to 60 collection depots around the state. It is imperative that Council lobby to ensure such a collection point is provided on King Island for the community to use.

Transitioning the Charles St Depot to a dedicated waste transfer station will reduce the volumes of waste sent to landfill and consolidate all such waste at the Parenna landfill site. To enable staff to deal efficiently with the range of used packaging materials, the installation of a mini materials recovery facility (MRF) and multi-purpose baler to aggregate recyclables for storage prior to export is highly desirable, and could be accommodated in the existing structure at Charles St Depot. A simple sorting
A new line installed as part of the MRF will greatly expedite sorting and processing, allowing for recyclables to be either separated at source by residents or comingled, with all recyclables delivered together and separated by staff working in the MRF.

Kerbside collection of general domestic waste is currently conducted weekly, and general commercial waste is collected by arrangement three days per week. Council should consider the introduction of variable bin sizes for domestic users with collections priced accordingly. Reducing general waste collection to a fortnightly service would enable the kerbside collection of comingled recyclables on the alternate weeks, should Council decide to process comingled recyclables rather than source separated. Ideally, Council would coincide the expansion of recycling opportunities with the introduction of the CRS. Co-locating the CRS collection depot and the MRF aligns both of these activities, as materials redeemed under the CRS will need to be consolidated for export or processed locally for reuse – all redeemed containers must be diverted away from landfill. Productivity at Charles St Depot would be greatly improved with the integration of the existing glass pulverizer into the MRF, relocating this machine outside the shed, fed by a small conveyor and loaded by a bin lifter.

A key barrier in the development of this Strategy is the lack of reliable data on both waste generation and composition. A waste audit will inform a detailed plan for what can be achieved. For example, there are opportunities to work with the Island’s abattoirs in the development of a composting facility, enabling commercial food waste and community garden and cardboard waste to be diverted from landfill creating an end product for reuse by the community. Council should conduct a feasibility study into the establishment of such a facility. If it is decided that such a facility will go ahead, the currently unused tyre / cardboard shredder can be incorporated into the MRF for the processing of cardboard and paper waste as an important ingredient in any compost mix.

The end-of-life management of other materials can be addressed with new policy approaches. Inviting the community to identify quantities of cars, trucks, whitegoods and other scrap metals could inform a whole-of-Island tender for the removal of this waste by a third party using a baler and/or car crusher, subject to the amount and nature of the materials identified and the ability to use the Tasmanian Freight Equalisation Subsidy.

Other remote islands, particularly those with strong tourism markets, have shared the financial burden of waste management on their communities with visitors and tourists through the introduction of an environmental levy, a bed tax, or a departure tax. Support for this approach was demonstrated in the household survey issued as part of the community consultation, although not as strongly supported by businesses operating in the tourism sector. Whether or not to introduce such levies, and at what level, should be considered by Council as a priority.

Community engagement and support will underpin Council’s ability to achieve any improvement in its waste management. It is therefore recommended that a Waste Advisory Committee be established with broad community representation to help share the load and facilitate community outreach. This group would benefit from the support of resources available through membership of the Cradle Coast Waste Management Group (CCWMG) and third-party technical assistance in guiding the implementation of this Strategy. A review of this Strategy mid-way through its life will allow for a stocktake of progress and to reprioritise the next wave of improvements.
It is recommended that King Island Council adopt the following vision for waste management:

**Vision:** 'Improve waste management practices to enable greater resource recovery and circular-economy outcomes for a sustainable future.'

**Mission:** To maximise resource recovery and minimise waste generation in accordance with the principles of the waste management hierarchy, the need for continuous improvement and social equity.

**Key performance indicators:** These reflect and complement both the State Waste Action Plan and National Waste Policy, seeking to both reduce waste generation and increase diversion from landfill:

- Increase recovery of glass, cans, plastics by 50% by 2023;
- Reduce organics waste (food/cardboard/garden/timber) to landfill by 50% by 2024;
- Increase average recovery rate from all waste streams by 50% by 2025 and 80% by 2030;
- Reduce overall waste generation by 10% by 2029.

In order to achieve these KPIs, 62 recommendations have been identified based on desktop research, scoping visits, stakeholder engagement and community consultation coupled with industry knowledge. These recommendations have been divided into five timeframes to provide a forward works program for management and staff having due respect for councils limited finances and resources. The key actions have been grouped into five key themes:

1. **Compliance**
   - Cap and close old Charles Street Landfill
   - Convert the current Charles Street landfill to a transfer station
   - Adhere to the Environmental Management Plan and Operation Manuals for all waste sites
   - KIC seek to increase the license threshold from the EPA at Parena landfill

2. **Charles St Resource Recovery Centre**
   - The current Charles Street Depot should be renamed the Resource Recovery Centre, with improved site layout and signage
   - Consider modifying the operating hours to meet needs of businesses and tradies
   - Establish a reuse shed or tip shop to encourage and support reuse
   - Provide new infrastructure and signage to separate, store and manage problem and household hazardous wastes including: used chemicals, paints, fluorescent bulbs, smoke detectors and e-waste (TVs, computers, printers and peripherals)
   - Provide a dedicated area for the separation and storage of scrap metal
   - Establish a program to collect and recycle plastic film, silage wrap and some hard plastics with Envorinex in Tasmania
   - Consider providing 24 hr drop facility on a trial basis when recycling options are available
   - Undertake a budget review to determine if current fees and charges are adequate to meet operating costs associated with all waste management activities and specific materials
   - Introduce differential fees to encourage source separation of waste streams at the facility
   - Ensure regular chipping of timber and garden waste is undertaken by Councils own plant or hired plant to reduce the risk of fire in the stockpile and provide a saleable commodity to the public
• The glass pulveriser should be relocated outside the building to reduce dust and noise and feed by a conveyor belt and bin lifter contingent on KIC making a commitment to use crushed glass-sand and/or to sell it to the public to use as an aggregate replacement in various applications

3. Waste collection
• Support the proposed state-based container refund scheme and increase recovery of used packaging and ensure KIC are included as a collection point with the beverage industry responsible for export of collected containers off the island
• Introduce differential service options by bin size for both commercial and residential customers, with options of 140 litres, 240 litres or 360 litres bin sizes
• Lease new collection vehicle to service multiple bin sizes ranging from 140 – 360 litres

4. Recycling and processing options and opportunities
• Conduct a waste audit to develop baseline data and to inform strategy implementation and targets setting
• Conduct a feasibility study to determine feedstock, siting, operation and technology-option assessment to determine the viability of a centralised composting plant to service the entire island in collaboration with the existing multi-species abattoir and the proposed new abattoir. Such study should include a market outputs study based on producing Australian Standard quality products. Council has access to garden waste, timber and cardboard – and almost half of the business community indicated a preparedness to separate food waste for processing. These are all vital ingredients for any compost operation to provide a carbon–nitrogen ratio
• If the above is unviable or developments do not proceed in a timely manner consider supplementing the Kelp Factory furnace with an alternative fuel which will also require further study
• Utilise the Freight Equalisation Program for shipments of specific materials to reduce costs

5. Communication, engagement and capacity building
• Any program requiring behavioural change requires extensive community engagement
• An education and outreach program should be designed, funded and delivered to bring the community on the journey to greater resource recovery
• Establish a Waste Advisory Committee (WAC) with broad community representation to help share the load and enable community outreach to guide the implementation of this strategy
• KIC should consider re-joining Cradle Coast Waste Management Group (CCWMG) to keep abreast of developments and to network with peers and colleagues facing similar challenges
• CCWMG has an extensive library of resources that KIC could assess
• KIC should seek external support for technical assistance to help guide the implementation. if and as needed

This report provides a framework for improved waste management and the extent of the implementation and the timing will depend upon the availability of capital and recurrent funding. We have prepared what we consider to be the most politically acceptable, socially responsible, economically viable and environmentally sustainable outcome for the current and future generations of residents and visitors to the Island.
1. BACKGROUND

Waste is produced by every person, every day. As a society we need to consider what we buy, how we use it and when and what we do when we discard items we no longer want or need. Councils can influence the decisions communities make about waste by providing services which are convenient, easy to use and well understood by the community. The success of any waste program requires the community to be engaged and educated, and this can be achieved through comprehensive and consistent messaging.

By reducing, reusing, recycling and re-manufacturing items, societies save raw materials, energy, water and greenhouse gas that is used to manufacture items we use on a daily basis. By composting garden and food waste we return nutrients to the soil that have been extracted in the growing of crops, pasture, food and plants. Organic materials including paper, cardboard, garden waste, food and timber break down in landfill to create methane, which is 23-times more potent a greenhouse gas than carbon dioxide. These gases are contributors to greenhouse gas associated with climate change.

King Island is located in the Bass Strait, midway between Victoria and Tasmania. The island covers more than 1,098 square kilometres, with a permanent population of approximately 1,600 residents. The island boasts an exceptionally clean and green image, primarily based around agriculture, including fish, meat and a dairy brand that is the envy of many. The island has invested in clean renewable power with both wind and solar.

King Island Council (KIC) is responsible for waste management on the island and undertook a Waste Management Review in 2014 and 2016. KIC is aware that many of the current practices on the island are not in line with best practice, and in some instances, not fully compliant with current legislation.

In 2017, Council decided to develop a Waste Management Strategy to guide the development of the island’s waste management programs for the next decade (2019–2029). Council expressly requested ‘on island’ solutions to be explored as much as possible, given the high freight costs to the mainland and limited rate base on which to recover costs. Council is seeking a clear set of actions with priorities to move the council, and the community it serves, to improved waste management outcomes that are politically acceptable, socially responsible, economically viable and environmentally sustainable.

The following process was undertaken in preparing this waste strategy:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Site visit and scoping visit</td>
</tr>
<tr>
<td>Stage 2</td>
<td>Discussion Paper and presentation to council</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Community consultation &amp; stakeholder engagement</td>
</tr>
<tr>
<td>Stage 4</td>
<td>Community consultation report &amp; presentation to council</td>
</tr>
<tr>
<td>Stage 5</td>
<td>Develop draft waste strategy</td>
</tr>
<tr>
<td>Stage 6</td>
<td>Submit final Waste Strategy 2019-2029</td>
</tr>
</tbody>
</table>
2. GUIDING PRINCIPLES AND CURRENT POLICY APPROACHES

Different communities have different motivators and issues, and therefore require different waste solutions. However, the main overarching principles behind any waste strategy should be based on the Principles of Ecologically Sustainable Development (ESD) and the waste hierarchy. The international, national, state and regional context should also be considered, while recognising the need for local, fit-for-purpose solutions. These principles are summarised in the following section.

2.1 Guiding principles

In making the recommendations contained in this section, we are mindful of the following principles:

**Ecologically Sustainable Development (ESD)** – the effects of decisions that we make today have far-reaching impacts on future generations and the environment. Waste management decisions should be based on responsible management of materials and resources to retain and conserve their value for secondary uses. This results in the conservation of natural resources for current and future generations.

These four principles aim to govern waste management by ensuring that:

- Waste does not cause negative or unintended consequences to the wider environment
- Waste does not affect biodiversity and ecological integrity
- Waste is the burden of the current generation and not shifted onto the future
- The generator of the waste bears the full cost of the treatment and management

**Compliance with the Waste Management Hierarchy** – the waste management hierarchy is a nationally and internationally accepted philosophy for prioritising and guiding efforts to manage waste. The waste hierarchy sets out the most-to-least preferred methods for waste management globally. The hierarchy has evolved over the past four decades and now includes six steps, as depicted in the diagram below:

![Figure 1 Waste Hierarchy](image-url)
Low-risk options – government is typically risk-averse and does not operate on a commercial basis motivated by profit, but rather to provide value-for-money services to the communities they serve. Remote locations are not suitable places to pilot new and innovative practices. Proven approaches with minimal operational constraints and sophistication minimise risk.

Social equity – there are community and societal expectations for basic waste services to be delivered, irrespective of where people reside.

Best practice – significant research has been undertaken to determine methods that are appropriate and fit for purpose to achieve optimum outcomes in relation to resource recovery. Communities need to aim for continuous improvement as they move to best-practice outcomes.

Demonstrate leadership – government needs to lead the community by setting good examples and providing services and infrastructure that will enable the community to actively participate in meeting strategic outcomes.

Council and community principles -- It is expected that KIC and the community will:

2.2 Current policy directions

Any local strategy needs to consider the agenda and policy directions of other tiers of government and the international arena.

2.2.1 International

Australia has for many years relied on overseas markets, particularly China and South East Asia, to receive post-consumer used packaging materials, principally cardboard and plastics. In 2017 China announced restrictions on the import of 24 types of waste, including paper and plastics. These restrictions became effective in January 2018 and included increasing the quality standards to levels that are unachievable when using the current sorting methods available at material recycling facilities (MRFs) in most western countries. Other countries, including Thailand, Vietnam, Malaysia, Philippines, Indonesia and India, have subsequently announced bans or impending bans, or are introducing similar quality standards, effectively closing their borders to foreign recyclables.

This has had a dramatic impact on the Australian recycling sector, which has not grown local end-processing capacity. Headlines reporting the redirection of recycling to landfill are a direct result of Australia’s reliance on international markets over which it has limited, if any, control. Where commodities continue to be exported, there has been a substantial decrease in prices paid, further affecting recycling viability.

As a consequence of the international situation, King Island must carefully consider its needs to ensure outlets and markets are available and that quality specifications can be achieved for materials requiring export, regardless of whether this is to Tasmania, the mainland or an overseas market for reprocessing.
2.2.2 National Waste Policy

Australia produces a staggering 64 million of tonnes of waste each year, which equates to 3 tonnes per person per year. We recover 58% of our waste through recycling and the generation of energy from waste.

In late 2018, the Federal Government released an updated National Waste Policy with key aspirational targets to be achieved by 2030, including:

- To reduce the total waste generated by every Australian by 10%
- To divert 80% of waste from landfill by 2030
- Achieve a 50% reduction in organic waste
- That all packaging contain 30% recycled content
- Provide fit-for-purpose and timely data
- Phase out problematic and unnecessary plastic

The Commonwealth Government also developed the *National Environment Protection Measures* (NEPMs). These set out agreed national objectives for protecting or managing aspects of the environment and are enforced through state legislation. Waste-related NEPMs currently in place address used packaging materials and the movement of hazardous waste between states and territories.

National product stewardship schemes between government and industry are in place for a number of problematic items, including e-waste (televisions and computers), end-of-life tyres, waste oil, paint, batteries and mobile phones. There are also some products that have voluntary schemes, such as mattress recycling (often supported through social enterprise or not-for-profit organisations).

At its August 2019 meeting, the communiqué from the Council of Australian Governments (COAG) stated that agreement had been reached \(^1\) that Australia should establish a timetable to ban the export of waste plastic, paper, glass and tyres, while building Australia’s capacity to generate high-value recycled commodities and associated demand. They tasked environment ministers to advise on a proposed timetable and response strategy following consultation with industry and other stakeholders. Leaders agreed the strategy must seek to reduce waste, especially plastics, decrease the amount of waste going to landfill and maximise the capability of our waste management and recycling sector to collect, recycle, reuse, convert and recover waste. Leaders agreed the strategy should draw on the best science, research and commercial experience, including that of agencies like the CSIRO and the work of cooperative research centres.

Leaders also agreed to establish a Regional Ministers’ Forum to identify and explore opportunities to deliver better economic and social outcomes. Targeted investment, tailored to the needs of individual

---

regions, and developed in collaboration across all levels of government and local communities, is key to ensuring regional Australia’s ongoing success.

A consequence of this announcement is a recognition that we cannot continue to export our waste to the world. We need to build local capacity. Recycling can create new economic development opportunities and new funding programs should be available to support local and regional development around resource recovery.

2.2.3 State – Tasmania
The Environment Protection Authority (EPA) is responsible for managing waste in Tasmania through three key regulatory mechanisms which set out the framework for regulating waste and recycling facilities, tracking of controlled waste and other waste-related regulatory requirements, as follows:

- Environmental Management and Pollution Control Act 1994;
- Environmental Management and Pollution Control (Waste Management) Regs 2010;
- Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations 2010).

The Local Government Association of Tasmania (LGAT) developed a Waste and Resource Management Strategy (2017) to inform statewide initiatives to be considered in the proposed new strategic action plan being prepared by the EPA.

During the development of this King Island Waste Strategy the previous Tasmanian Waste and Resource Management Strategy 2009 has been updated with the release, in late June 2019, of the draft Tasmanian Waste Action Plan for public consultation. The Plan is based on the principal of shared responsibility between all levels of government, the private sector and the community, and includes the following key state government commitments:

- Introduce a legislated statewide landfill levy with funds raised to be reinvested in waste and recycling infrastructure and programs;
- Introduction of a container deposit scheme. State government announced the scheme would be introduced during 2022 with 60 refund points established. The aim of the scheme is to achieve a redemption rate of 80% for eligible used beverage containers;
- Targets for waste management, litter and recycling aligned with national waste targets;
- Packaging must be reusable, recyclable or compostable by 2025;
- Reduction in overall waste generation by 5% per person by 2025 and 10% by 2030;
- Reduction in the volume of organic waste sent to landfill by 25% by 2025 and 50% by 2030;
- Achieve a 40% average recovery rate from all waste streams by 2025 and 80% by 2030;
- Work at the national level and with local government and businesses in Tasmania to phase out problematic and unnecessary plastics by 2030;
- Establish a resource-recovery management body to oversee the reforms.

The timing of the release of the Tasmanian Waste Action Plan provides clear direction to King Island Council as to the direction its own strategy must take to align with both State and Commonwealth aspirations. All written submissions on the draft Tasmanian Waste Action Plan close on 7 October 2019.
2.2.4 Regional
Cradle Coast Waste Management Group (CCWMG) is a voluntary organisation of seven mainland councils. The group has developed the second, five-year strategy 2017–2022. The full strategy can be found at http://rethinkwaste.com.au/download/ccwmg-strategic-plan-201722/. The key performance indicators that will determine the success of this strategic plan are:

- by 2022, divert 50% of all MSW from local government landfill facilities across the region;
- by 2022, increase the proportion of recycling bins receiving a pass mark as part of recycling bin assessments to 90% across the region (based on the 2015–16 assessment pass rate of 81%);
- by 2022, reduce incidents of illegal dumping at hotspot sites by 25% across the region (after first establishing baseline data from council reports);
- by 2022, all member councils to be collecting and reporting a standardised set (for material types, units, etc.) of data in relation to waste and resource recovery activities.

Previously, KIC was part of CCWMG, who has indicated that it would welcome discussions around collaboration with KIC or working together on specific projects and initiatives of interest.
2.2.5 Local – King Island Strategic Plan 2016–2020

This overarching document provides a framework to guide KIC in delivering its services to the community. Several objectives and strategies are specifically relevant to waste management, including:

<table>
<thead>
<tr>
<th>Infrastructure and Facilities</th>
<th>Strategy 2.1.2</th>
<th>Financial</th>
<th>Strategy 6.3.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review and develop plans and processes with relevant stakeholders</td>
<td>• Revise strategies and activities for waste management including collection, recycling and landfill management</td>
<td>• Provide long-term financial viability planning</td>
<td>• Examine and review the costs associated with the provision of facilities and where necessary provide cogent information in which Council can make informed decisions about community services/service obligations</td>
</tr>
</tbody>
</table>

### 2.2.5.1 King Island Destination Plan 2016 to 2020

This plan articulates the tourism objectives as:

- Increase visitor numbers
- Increase visitors’ length of stay
- Increase visitor expenditure
- To increase dispersal both geographic and seasonal

Tourism will play an increasing role in the economy of the island. Visitors do not, however, pay rates but use council facilities and assets. Council has limited opportunities to extract financial return from these visitors.

### 2.2.5.2 King Island Annual Plan 2019–2020

The action plan identifies the key focus areas for council activities for the next year. Waste is referred to in the following area:

**Infrastructure and Facilities – Strategy:** revise strategies and activities for waste management, collection, recycling and landfill management. Performance measures include:

- By June 2019 – adopt KI waste management strategy;
- By July 2019 – waste management compliance and operational review completed;
- By June 2020 – determine the waste profile, options for composting program investigated, and user experience at Charles Street waste depot to be improved.
3. WASTE MANAGEMENT ON OTHER AUSTRALIAN ISLANDS

This section provides a short summary of some key actions and achievements of other island communities to provide context to the recommendations contained in this strategy. Each island is unique, however there are many common characteristics and themes, as well as numerous barriers and constraints to overcome in order to implement improved waste management. Some that are applicable to King Island include:

- APC has developed and implemented waste management and resource recovery plans and strategies on a number of iconic Australian islands with resident populations ranging from 50 to 4,000 and annual visitor numbers ranging from 200 to 500,000. All these islands have received external financial assistance from federal and/or state administration to assist in the capital works required to establish systems with the ongoing operational costs funded locally.

Kangaroo and Norfolk islands, with a predominantly agricultural base and an established tourist sector, are probably the most similar to King Island. Both have undertaken substantial transformations.

A summary of the four island waste programs is provided below:
3.1 Lord Howe Island, New South Wales

Lord Howe Island is located 550 kilometres off the NSW coast. It is home to 350 residents, welcomes more than 15,000 visitors each year and was listed as a world heritage site the same year as the Great Barrier Reef. The Island moved from a burn-and-bury mentality before the year 2000 to become a leading world-best-practice community through a comprehensive range of measures. The waste strategy set a waste diversion target of 84% reduction, which has been achieved on consecutive years after a decade of sustained effort. The only landfill ceased to operate in 2000, with all waste and recycling shipped to the mainland. The waste program was multi-faceted and included:

- A local waste management advisory group established to oversee the implementation. The group provided local advice and guidance, with APC providing technical support as external consultants.
- The cornerstone of this waste program was to target the organic fraction, which represented 55% of the island’s waste stream. It established an enclosed composting system (VCU) to process shredded cardboard/paper, all food, and chipped garden waste. The matured compost was used in revegetation projects across the island. After 18 years of operation, the VCU has just been replaced with a HotRot in-vessel system.
- A source-separated waste stream was implemented for the following materials: glass, aluminium cans, steel cans, mixed plastics, EPS foam, metals, paints (water and oil-based), oils (cooking and motor), fluorescent and CFL light bulbs, toner cartridges, magazines, batteries (lead acid/nicad), textiles/clothing/bric-a-brac, e-waste/TVs and scrap metal/white goods.
- A mini MRF was established, including a glass crusher and a magnetic head to extract metals, to enable separation of materials.
- Glass is crushed and used as an aggregate in reed beds as part of the wastewater treatment strategy and as an aggregate replacement in road-making.
- All other recycling is baled and backloaded to the mainland for reprocessing.
- All remaining general waste, including nappies, tyres and builders’ waste, is backloaded to the mainland for landfilling.
- A reuse centre provides an avenue for recycling of furniture, building material, bric-a-brac and books.
- A bulk food co-operative provided both visitors and residents with packaging-free options.
- An extensive community, school and visitor education, communication and engagement program was developed and implemented, including in-flight information.
- A range of policies, including motor vehicle ‘one car on, one car off’ policy is actively policed by the Lord Howe Island Board (LHIB). All vehicle imports and any vehicle transfers must be approved by the LHIB and as a result there are no end-of-life vehicles on the island.
3.2 Kangaroo Island, South Australia

Kangaroo Island is also similar to King Island in that it has an agricultural and tourism economic base. The island is 4,400 square kilometres with a permanent population of 4,292 and 160,000 tourists visiting annually, of which approximately one-third are international tourists. At the time of APC’s involvement, the landfill had three months’ capacity remaining. A transfer station was built, and an extensive education program was introduced to support a user-pays charging regime to recover costs associated with shipping all waste off the island for disposal, recycling or reprocessing on the mainland. A new kerbside recycling program was introduced, two smaller transfer stations closed, and a bulky waste service was introduced. Further, a tip shop, composting facility and a drop-off centre at the transfer station were promoted and a comprehensive separation program for timber, metals, tyres, paints, chemicals, oils, glass, plastics, and cardboard/paper introduced. As a result of these comprehensive measures, Kangaroo Island is diverting between 60 to 70% of all waste from landfill via recycling, reuse and composting initiatives.

A chronological order of waste-management developments is outlined below to provide the reader with an understanding of the transition and step changes that occurred.

**December 2004**

Report presented to the Special Council Meeting on 15 December 2004, where Council made the following decisions:

- All residents to receive a garbage and recyclables kerbside collection service by July 2006.
- Waste to be transported to the mainland for either landfill or recycling.
- A detailed waste management plan to be developed.
- Education of the community to occur.
- Waste service charge to be introduced on rates.

**1 July 2005**

- Waste service charge introduced.

**22 September 2005**

- Waste transfer facility completed.
- The transportation of landfill waste to mainland landfill became fully operational.

**16 November 2005**


**3 July 2006**

- Kingscote Landfill became the Kangaroo Island Resource Recovery Centre.
- The garbage and recyclables kerbside collection service commenced.
- Two transfer stations closed.
- Bulky waste program commenced at four island locations.

**1 April 2007**

- Reuse shed leased to a third party.

**1 July 2007**

- Sale of compost commenced.
• Construction of the bio-solids receiveal facility completed.
• Bulky Waste Program expanded to monthly.

1 February 2009
• Kangaroo Island Council joined the Fleurieu Regional Waste Authority.

3.3 Norfolk Island
Norfolk Island is located 1500 kilometres off the coast of Australia. It has a resident population of approximately 1,800 and its economic base is founded on international tourism. The island accommodates approximately 940 visitors at any one time and has a total annual visitation of around 25,000 per year. Tourism visitation reached a peak of 40,000 per year in 2002 and has been declining since. The Administration of Norfolk Island (ANI) was responsible for waste management on the island and many of the practices were neither compliant with Australian or international law nor acceptable to current residents.

The government undertook an extensive number of studies and consultancies to review waste management systems and to explore options for the improved management of waste. Historically, all household waste was delivered to a cliff top cage for burning prior to ocean dumping. Bulky waste was delivered to an inland pit for burning. Aluminium cans and lead-acid battery recycling occurred as a private activity and was subject to commodity price fluctuations.

In 2000, ANI started implementing a range of recommendations from the Waste Management and Audit and Options Study, including:
• Established a Waste Management Centre (WMC) in 2003
• Equipment at the WMC enabled processing
  o crushing and baling of aluminium for export and recycling;
  o crushing glass for re-use in road construction.
• Various materials are stockpiled for periodic export including:
  o asbestos;
  o aluminium cans;
  o dry-cell batteries;
  o printer cartridges;
  o smoke detectors;
  o chemicals;
  o Oils – motor mixed with fuel;
  o Paints;
  o Fire extinguishers.
• Establishment of a ‘revolve/reuse centre’ at the WMC.
• Large-scale commercial burning pits at dispersed sites around the island were closed, and together with the former ‘Top Tip’ burning pit, rehabilitated.
• Residual waste, for which there was no alternatives, was burned in the open by WMC staff, subject to prevailing wind direction.
• In 2004, waste management legislation was introduced to include levies to fund waste management.
- Installation of a dedicated high-temperature incinerator for disposal of medical and quarantine waste located next to the sewage treatment plant (STP).
- In 2008, a chemical collection clean-out and audit was undertaken.
- Investigations into installation of an air curtain incinerator was not accepted by the community.

The *Norfolk Island Act 1979* was amended to allow the Commonwealth to assume responsibility for funding and delivering national and state level services. The Australian government sought to integrate Norfolk Island into the mainland tax, social security, immigration, customs and quarantine services and the Norfolk Island Assembly transitioned to a regional council effective from 1 July 2016. A further Waste Management Strategic Plan was developed in 2015 leading to an enclosed composting operation, a mini MRF being established for separation and baling of recyclables and in 2019 the first export of baled residual waste to Australia by air began.

### 3.4 Overview

Considering the issues and options explored by other Australian islands, it is apparent that while much progress has been made in many areas, waste in some localities is still poorly managed. Island communities, like their mainland counterparts, have undertaken a journey to transition from poor waste practices to current improved resource-recovery outcomes in keeping with community expectations, statutory obligations and compliance requirements.

King Island Council and the community it serves are on such a journey.
4. SITUATION ANALYSIS

APC prepared two separate reports as background to the preparation of this strategy.

4.1 Paper

This report identified key issues and opportunities as a result of the scoping visit. The findings are summarised below:
### Table 1 Discussion paper summary

<table>
<thead>
<tr>
<th>Location</th>
<th>Issue</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Former Charles landfill</td>
<td>A risk assessment and rehabilitation plan are overdue, and site works to be completed are a priority. A plan and budget estimate are required.</td>
<td>KIC have engaged consultants to prepare</td>
</tr>
<tr>
<td>Charles Street current depot operations</td>
<td>Environmental Management Plan (EMP) is overdue. A review of the EMP operations and preparation of plans and costings for implementing a range of operational improvements at the Charles Street depot is a matter of urgency.</td>
<td>KIC have engaged consultants to prepare</td>
</tr>
<tr>
<td></td>
<td>Signage regarding children remaining in vehicles at all times is difficult to read. Requires immediate replacement.</td>
<td>Signage replaced</td>
</tr>
<tr>
<td>Parenna landfill</td>
<td>Prepare and submit revised <em>operations manual and sub-plans</em> by 30 June 2019 to EPA</td>
<td>KIC have engaged consultants to prepare</td>
</tr>
<tr>
<td></td>
<td>Apply to the EPA to increase permissible use to 2,499 tonnes per annum at Parenna landfill from current 1500 tonnes</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Apply to the EPA to construct an unlined landfill cell for asbestos disposal at the Parenna landfill</td>
<td>New cell dug at Charles street – to be part of site ops plan</td>
</tr>
<tr>
<td></td>
<td>Undertake broad community education about correct handling and disposal methods</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Financial management</td>
<td>Undertake a full review of income/expenditure to determine if current fees/charges reflect true operating costs</td>
<td>Refer strategy</td>
</tr>
<tr>
<td></td>
<td>Canvass tourists’ willingness to pay an environmental levy for waste management</td>
<td>Refer Consultation report</td>
</tr>
<tr>
<td></td>
<td>Canvass community willingness to pay, including how to best manage the costs of problematic waste at end of life, e.g. cars, tyres and mattresses</td>
<td>Refer Consultation report</td>
</tr>
<tr>
<td>Glass processing using Andela pulveriser</td>
<td>Determine end use for glass sand and investigate options for improving operational efficiencies</td>
<td>Refer strategy</td>
</tr>
<tr>
<td></td>
<td>Prepare costings for installation of dust extraction and a conveyor feed</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Garden waste</td>
<td>Investigate opportunities to hire/purchase a shredder/tub grinder to chip/process green waste</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Commercial waste collection</td>
<td>Investigate servicing commercial 240 litre bins as part of kerbside run and outsource larger bulk bins to the private sector</td>
<td>Refer strategy</td>
</tr>
<tr>
<td></td>
<td>Commercial waste services suspended until missing/damaged bin lids/wheels are replaced/repaired</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Waste data</td>
<td>Undertake a waste audit of kerbside, commercial and self-hauled loads to determine the waste profile and provide accurate data for waste planning and technology options</td>
<td>Refer strategy</td>
</tr>
</tbody>
</table>
4.2 Discussion paper opportunities

Increasing the recovery, reuse and recycling of materials on King Island will have the following benefits:

<table>
<thead>
<tr>
<th>Economic benefits</th>
<th>Social benefits</th>
<th>Environmental benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Extend landfill life, prolongs need for new landfill cell</td>
<td>• Promotes the ethos of refuse, reduce, reuse, recycle, return</td>
<td>• Increases reuse of materials with imbedded resources, and energy</td>
</tr>
<tr>
<td>• Reuse of materials on island reduces need to export to mainland and overseas markets, saving freight costs</td>
<td>• Builds local capacity with new skills and training in new areas</td>
<td>• Reduced landfill gas emissions</td>
</tr>
<tr>
<td>• Local reuse and recycling reduces exposure to fluctuations in global commodity markets</td>
<td>• Opportunity for skilled jobs</td>
<td>• Avoid use of virgin timber as fuel, protecting natural environment and habitats</td>
</tr>
<tr>
<td>• Localising alternative sources of fuel from waste materials</td>
<td>• Helps to retain locals on island with new work opportunities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Promotes new skills and updating of technical skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improved waste site safety through better waste management</td>
<td></td>
</tr>
</tbody>
</table>

APC has identified the following initial opportunities for improved recovery, reuse and recycling on the island. Each new opportunity is summarised below, in no specific order or priority.

**Table 2 Discussion paper opportunities**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Activity</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composting</td>
<td>Investigate options for a composting program using wood waste, garden waste and cardboard</td>
<td>Refer strategy</td>
</tr>
<tr>
<td></td>
<td>Investigate a commercial-scale composting operation with the abattoir</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Fuel substitute for kelp factory</td>
<td>Investigate alternative fuel replacement options to reduce or replace the use of timber as the primary source of fuel</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Tyres</td>
<td>Investigate if tyre recycling is still taking place at Searoad</td>
<td>Apparently not</td>
</tr>
<tr>
<td></td>
<td>Quantify the amount of tyres and discuss as a possible fuel source with HRL and/or burial with EPA</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Tip shop</td>
<td>Investigate the level of community support for a tip shop</td>
<td>Refer consultation report</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td></td>
<td>If the response is positive, engage experts to provide independent advice</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Plastic film</td>
<td>Investigate the methods and the level of support that can be provided to enable plastic shrink-wrap, film and silage wrap to be collected, aggregated and exported for recycling</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>E-waste recovery</td>
<td>Seek for King Island to be a collection point under EPR program</td>
<td>Refer strategy</td>
</tr>
<tr>
<td>Container deposit scheme (CDS)</td>
<td>Continue to monitor developments in relation to the introduction of a CDS in Tasmania</td>
<td>Announced 2022 introduction</td>
</tr>
<tr>
<td></td>
<td>Make representations to the Minister supporting such a scheme on KI, whereby industry takes responsibility for the return of used beverage containers.</td>
<td>Refer strategy</td>
</tr>
</tbody>
</table>
4.3 Community consultation

Community and stakeholder engagement and consultation was undertaken to gather views and opinions using a variety of methods in a quest to engage with as many of the island community as possible. Consultation included the following activities:

- Face-to-face meetings
- Workshops
- Drop-in sessions
- Community survey
- Commercial operators survey

In total, 123 responses to the community survey and 31 commercial waste and visitor accommodation surveys, representing 78% of respondents and representing 77 tourist beds, were completed and analysed. In addition, 29 face-to-face interviews were conducted at the Charles Street depot by the consultants.

The key findings of the consultation activities are summarised below.

<table>
<thead>
<tr>
<th>Table 3 Community consultation key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Satisfaction with waste collection</strong></td>
</tr>
<tr>
<td>• Most householders (66%) and businesses (42%) are satisfied or very satisfied in relation to Council’s waste collection service</td>
</tr>
<tr>
<td>• Dissatisfaction by businesses related to costs and lack of recycling</td>
</tr>
<tr>
<td>• Dissatisfaction by residents is related to a desire to reduce collection frequency from weekly to fortnightly for a reduced cost, and a desire for a recycling service</td>
</tr>
<tr>
<td><strong>People want to recycle</strong></td>
</tr>
<tr>
<td>• 48% residents want a recycling service</td>
</tr>
<tr>
<td>• Strong desire across the community for more recycling options but they don’t always want to pay extra for recycling</td>
</tr>
<tr>
<td>• Residents and businesses are conscious of the cost of exporting recyclables</td>
</tr>
<tr>
<td><strong>Willingness to pay for waste improvements</strong></td>
</tr>
<tr>
<td>• 73% of respondents were willing to pay more under certain circumstances</td>
</tr>
<tr>
<td>• 27% if at point of service, 47% up to $50 p.a. and 19% up to $100 p.a.</td>
</tr>
<tr>
<td><strong>Food waste is well managed</strong></td>
</tr>
<tr>
<td>• Residents (75%) and businesses (44%) are proactively recycling food waste through composting, chickens, pets and worm farms or a combination of these</td>
</tr>
<tr>
<td>• Almost half (48%) of businesses said their business would separate food waste to facilitate Council using it in compost</td>
</tr>
<tr>
<td><strong>Infrastructure and capacity</strong></td>
</tr>
<tr>
<td>• People are concerned about lack of landfill capacity and increasing waste volumes</td>
</tr>
<tr>
<td>• People are aware that Council’s infrastructure (e.g. baler, shredder) have been unsuccessful and there is concern about litter from the Parena site</td>
</tr>
</tbody>
</table>
Stakeholders nominated the following as key challenges and opportunities for waste management on King Island:

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Waste generation</td>
<td>• Waste reduction</td>
</tr>
<tr>
<td>• Lack of recycling</td>
<td>• More recycling</td>
</tr>
<tr>
<td>• Facilities and infrastructure</td>
<td>• Reduce domestic waste collection frequency</td>
</tr>
<tr>
<td>• Cost</td>
<td>• Improved facilities and infrastructure</td>
</tr>
<tr>
<td>• Management</td>
<td>• Differentiated costs and incentives</td>
</tr>
<tr>
<td>• Education and behaviour</td>
<td></td>
</tr>
</tbody>
</table>

It is the aim of this strategic plan to address both the opportunities and the challenges presented to both KIC and the community it serves in order to meet the expectations and future directions of King Island toward improved outcomes for waste management and resource recovery.

### 4.4 Future challenges

Current and future challenges in both developing and implementing this waste strategy include:

- KIC has limited financial capacity given the diversity of issues is oversees, with a small rate base and reliance on external financial support;
- Legacy compliance issues at all three waste disposal sites with two active landfills and one requiring formal closure and remediation;
- Lack of real data on waste generation and composition to inform infrastructure, equipment, service options and targets;
• Aging waste collection vehicles and landfill traxcavator, resulting in more frequent breakdowns, increasing maintenance costs and no alternative back-up equipment as each piece performs a distinct function;
• Lack of motivation by staff due to waste management perceived to have a low priority within council operations, with lack of funds and equipment to undertake routine activities;
• At the current Charles Street waste depot, there is a lack of signage regarding both traffic flow and waste segregation;
• Diversity of waste streams with poor economies of scale;
• KI has excellent port facilities with shipping to Tasmania and Victoria, however freight costs are exorbitant. Freight equalisation applies to waste materials and only to Victoria;
• No effective management of some problematic and hazardous materials including chemicals, paints and smoke detectors;
• Lack of a plan or budget to process garden waste and timber. As a consequence, both materials are stockpiled and considered a potential fire risk;
• No separation of inert building waste and scrap metal, both of which are taking up landfill space;
• Lack of enforcement by Charles Street staff on patrons unloading materials in the wrong areas;
• Council relies on Currie Lions Club to collect, treat and consolidate used lead-acid batteries, gas cylinders and ferrous scrap metal for shipment to Melbourne;
• Council lacks data and information on the nature, volume and composition of waste collected and disposed at either of the active landfill sites;
• The island has limited local and viable end markets for recovered materials;
• Concern by the public about the costs of services;
• The state government has indicated a policy position to introduce a statewide:
  o landfill levy which will increase fees and charges as council is forced to collect and report on all waste disposal activities, and
  o container refund scheme for used beverage containers impacting on any future kerbside service;
• Division within the community in relation to the weekly or fortnightly kerbside waste collection service frequency;
• Lack of detailed understanding in relation to true operating costs and revenue recovery from waste management;
• Lack of reserve fund to pay for current and future compliance obligations in relation to waste facilities;
• Anticipating new and emerging waste streams, government policies and programs for the next decade.
4.5 Future opportunities

In addition to the opportunities identified in section 4.2, the timing of this strategy’s development after the release of the draft Tasmanian Waste Action Plan provides an opportunity for alignment with the current national, state, regional and local government waste strategies.

The announcement by the Tasmanian government to introduce a container refund scheme sets a direction for future considerations as it has implications for the introduction of a kerbside service. In NSW, the introduction of a deposit scheme has seen a reduction in the amount of eligible beverage containers left in the kerbside bin as households seek to redeem containers at collection points. The details of the scheme are not fully known but it does provide a goalpost that will impact the direction and timing of council endeavours in relation to the introduction of a kerbside service and local sorting and processing facility.

4.6 Future impacts

While the resident population may have declined over recent years, the development of two world-class 18-hole golf courses has witnessed significant growth in both national and international tourism. This recent tourism spike is likely to escalate, given the recent approval of another 18-hole golf course, convention centre and 300-bed accommodation development at Cape Wickham. Experience shows that increasing affluence leads to greater consumption and waste generation. The island community and council must plan for this on King Island now.

Further, the approval of the new abattoir, set to be operational by the third quarter of 2020, brings new workers and families to the island, with an anticipated 70 to 80 staff required. New accommodation for 65 people is planned for Currie to accommodate staff and contractors during both construction and operational phases. Discussions have been held with the abattoir proponent regarding waste generation and it has detailed plans to treat and further process by-products into other saleable commodities. Producing meat and bone meal as well as a biofuel from tallow will reduce waste and increase revenue for the abattoir. The remaining waste will be composted on site to produce a compost to meet Australian Standards AS4454 for use in agricultural land applications.

With these new developments, and others that may follow – including the proposed works at the district hospital and the possible future re-opening of the Grassy Scheelite Mine site – will bring economic opportunities as well as impacts on the island’s population and waste profile. These developments present both opportunity and challenge to manage the predicted increased waste volumes and often more diverse waste types both during construction, commissioning and operational phases.

The proponents of these developments will expect KIC to be responsible for the collection, treatment and disposal of many waste streams – some will be new, and others will be at increased volumes than previously experienced. Every item arriving on the island will be packaged in some way to protect it in transit. This packaging, including cardboard, plastic film, metal strapping, polystyrene, timber crates and pallets, and steel and timber offcuts from construction will require island management.

Tourism is a highly competitive market and premises frequently update and refurbish their properties resulting in additional waste materials being generated, and more frequently turned over, for example mattresses and furnishings in accommodation. More cars and modes of transport will also be required.
5. THE WAY FORWARD

There is a strong community desire for more recycling options, based on the community consultation results, with 73% of respondents willing to pay more for improved outcomes, 96% supporting a tip shop, 54% seeking extended weekend opening hours at Charles St and 48% already separating food waste. The majority (66%) of the commercial sector are willing to pay differential charges based on costs associated with managing specific waste streams. Council must now take the community on a journey to transition from the current situation to improved waste practices and greater resource recovery, particularly when such measures can deliver improved economic, social and environmental benefits for all.

This section discusses the issues and opportunities available to KIC based on industry trends in the waste and recycling sector, community consultation and stakeholder engagement. The strategies outlined in this section assume that King Island will introduce a four-stream source-separated waste-management program based on the following key waste streams:

1. Reusable – furniture, building materials, bric-a-brac at the tip shop;
2. Compostable – food, paper/cardboard and garden waste;
3. Recyclable
   - on island – glass, used motor oil;
   - off island – lead-acid batteries, DrumMuster chemical containers, aluminium cans, brass/copper/aluminium/stainless steel, paints, fluorescent globes, chemicals, smoke detectors;
4. Disposal of residual waste
   - on island – household and commercial waste.

5.1 Current Waste Infrastructure

Local waste infrastructure plays an important role in providing the community with options to manage waste generated as a result of their activities, from bin size and service frequency, to opening hours and separation options at disposal facilities.

Infrastructure managed by KIC includes waste collection, two active and one closed landfill.

Each are discussed further below.

5.1.1 Collection

Previously, KIC provided a weekly service to all residential properties in a rear-loader compactor. As part of a cost-cutting measure, the service was reduced to fortnightly with little consultation and no new or alternative services being offered. Due to a number of issues including resident backlash about lack of bin capacity, loose material being placed alongside bins which later became litter, and worker
health and safety issues, KIC purchased a one-man operated second-hand side-loader truck and reverted to a weekly service.

All residential bins are 240 litres in size and no recycling kerbside service is provided.

The community consultation has identified that residents want more service options and a recycling service. Some households do not need a weekly service, nor do they require a 240 litre bin, as single households and those households with older residents generate less waste.

Today, many mainland councils offer variable bin sizes, with cheaper, smaller bins as reward for waste minimisation. Since a garbage truck has to travel all streets and roads regardless, an option is to offer variable bin sizes instead of offering weekly or fortnightly services. These can be collected by the same sidearm truck. The most common option is to offer a 140 or 240 litre bin, with households permitted to change bin size preference once per year.

Council currently operates two waste collection vehicles:
1. a side-loader for residential collection to empty 240 litre bins from 750 to 850 properties subject to set-out rates;
2. a rear-loader for commercial properties, servicing both 240 litre and 660 litre bin configurations from a total of 71 premises up to three times per week and servicing up to 35 premises/day.

Both vehicles were purchased second hand and are ageing. If the rear-loader breaks down, there is no alternative option to service 660 litre bins. The rear-loader has had a number of recent significant mechanical issues resulting in some clients having no service. To assist commercial clients to manage their waste in these circumstances, KIC has allowed free tipping at the Charles Street waste depot.

Possible alternatives that should be considered include:

- Council sell both vehicles and lease a new side-loader, saving labour costs and maintenance issues;
- The new side-loader should be capable of emptying both 140 litre, 240 litre and 360 litre bins;
- Council seek all commercial businesses to undertake greater source separation with a four-bin system:
  1. Food – for future composting;
  2. Paper/cardboard – for future recycling and/or composting;
  3. Recyclable containers – glass, plastics and cans for recycling;
- Council advise commercial clients that 660 litre bins will be eliminated and replaced with either multiple 240 litre or 360 litre bins (or more frequent collections);
- Commercial businesses requiring larger bins than 360 litres can enter into a commercial arrangement with the local skip hire business.

Current commercial collection fees are $11 for each 240 litre bin and $29 for each 660 litre. The majority of commercial premises (66%) support the introduction of differential charging based on different types of waste or recyclables requiring disposal. An on-call waste collection service is also provided, where KI Dairy and other enterprises are able to organise special services by arrangement.
The amount of waste collected per year from residential bins is approximately 440 tonnes and a further 316 tonnes per year from businesses. Council is collecting approximately 750 tonnes per year or 14.5 tonnes per week. The composition of the waste collected is not known.

**Recommendations**

1. **Council offer the community variable bin sizes, 140 litre and 240 litre, to encourage source separation for recycling to reflect differing household needs in relation to waste generation.**

2. **Differential fees are introduced for variable bin sizes to reward waste minimisation.**

3. **Council offer commercial customers the choice of 240 litre or 360 litre bin options.**

4. **Commercial premises be encouraged to separate waste into four streams – food, paper/cardboard, recyclable containers and general waste, with differential fees based on costs to manage each waste stream.**

5. **Council trade in or sell both current collection vehicles and investigate leasing a new collection vehicle that can service both residential and commercial premises and a range of bin sizes from 140 to 360 litres.**

6. **Council investigate introducing a kerbside recycling service to coincide with investment in a mini sorting facility.**

5.1.2 **Charles Street Depot**

This site is currently open to the public from 8am–12pm Tuesday and Thursday and 10am–2pm Sunday. The community consultation indicated 34% of residents were seeking a change to the opening hours and 63% of businesses seeking longer opening hours. Specifically, 54% sought increased opening hours on the weekends and 22% on weekdays. Tradespeople sought earlier opening and closing times midweek to allow for drop-off before or after work. The opening hours should also reflect waste activities, so once the waste is delivered it can be processed each day without additional deliveries and disruptions. This is important when the recycling, sorting and composting operations are active.

In order to promote landfill diversion and resource recovery, a number of materials are accepted at Charles Street Depot free of charge and others have variable fees as shown below:

<table>
<thead>
<tr>
<th>Material</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil, batteries, cans (aluminium/steel), PET bottles, cardboard, chemical drums, glass</td>
<td>FREE</td>
</tr>
<tr>
<td>50 litre bag general waste</td>
<td>$3.00</td>
</tr>
<tr>
<td>Car/station wagon/wheelie bin</td>
<td>$9.00</td>
</tr>
<tr>
<td>Ute or trailer</td>
<td>$13.00</td>
</tr>
<tr>
<td>Kelp trailer</td>
<td>$21.00</td>
</tr>
<tr>
<td>Green waste</td>
<td>$12/m³</td>
</tr>
<tr>
<td>Commercial waste</td>
<td>$35/m³</td>
</tr>
<tr>
<td>White goods</td>
<td>$11</td>
</tr>
<tr>
<td>Material</td>
<td>Cost</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Asbestos</td>
<td>$129/m³</td>
</tr>
<tr>
<td>Cars</td>
<td>$166</td>
</tr>
<tr>
<td>Tyres – car/bike</td>
<td>$7</td>
</tr>
<tr>
<td>Tyres – light truck</td>
<td>$14</td>
</tr>
<tr>
<td>Tyres – truck</td>
<td>$19</td>
</tr>
<tr>
<td>Tyres – tractor</td>
<td>$22</td>
</tr>
</tbody>
</table>

The following source-separation system exists:

- DrumMuster compound – stored and exported to mainland Tasmania;
- Motor oil – placed in existing tanks for transfer to Grassy pool for heating;
- Aluminium cans – stockpiled for Lions Club;
- Lead-acid batteries – stockpiled for Lions Club;
- Scrap metal – brass, copper and stainless – stockpiled for Lions Club;
- Tyres – stockpiled and used around site or buried;
- Timber, treated – stockpiled;
- Timber, untreated – stockpiled;
- Garden and wood waste – stockpiled.

New and improved signage and storage facilities are required for all materials.

While some items are accepted free of charge to encourage source separation, currently only cans, non-ferrous metals and used lead-batteries are exported for recycling. This is done by the Lions Club, which generates in excess of $10,000 per annum to re-invest in the community. The used waste oil receptacle holds approximately 8,000 litres and is emptied approximately every two months, with waste oil reused to heat the Grassy swimming pool. A workplace injury had occurred at this area due to a faulty lid-opening device. Staff reported no remediation of the issue had occurred and the risk of another injury remains.

The DrumMuster compound is securely fenced and locked. However, a recent dispatch of containers was not triple-rinsed, resulting in the waste collection company imposing a surcharge on KIC in lieu of returning the drums to the island.

Glass and plastic containers were separated until recently, when staff removed the receptacles for these materials as they were not being recovered for recycling or reuse. Cardboard has never been recycled.

There is no pricing sign at the site. All transactions are receipted and a copy provided to the user. A copy remains in a duplicate receipt book. Transactions are summarised on a report for administration. It would appear the fees do not relate to the costs of managing these specific items nor do the fees cover the operational costs of the facility including staff, plant, equipment and contractors engaged.

The current shed provides an excellent undercover drop-off area for the public to use, with bulk bins provided at a lower level and ample workspace. However, the baler (not operational), baler wrapper, cardboard shredder and the Andela glass pulveriser (to make glass-sand) are not used. Staff have
refused to use the glass crusher due to concerns about dust and operating the equipment alone where there is a risk of serious injury in case of an accident.

When staff are operating equipment within the site shed, they have no visible contact with the public activity at the site. Children were witnessed playing in the landfill area in a high-risk area for injury. A sign stating ‘children should remain in a vehicle at all times’ was barely legible.

The remainder of the site has poor overall management, with improvements needed in traffic management, layout, site signage, infrastructure and day-to-day operation. At the site visit in June 2019, a new road had been constructed and the landfill cell was now being filled from the top of the hill rather than the bottom of the hillside with tyres used to define the access.

Image 1 New site access to the new disposal point at Charles Street waste depot

This landfill is inert, meaning no putrescible matter can be deposited but four key materials account for the majority of the deliveries: cardboard, concrete, garden waste and metal. All should be diverted.

Image 2 Four key materials deposited at landfill – cardboard, concrete, metal, garden waste
These materials should not be buried as they are consuming precious airspace and can be recovered for recycling. Currently there is no scrap metal diversion other than brass, copper and aluminium for the Lions Club. Almost all waste facilities across Australia divert scrap metal because its value is linked to the commodity value.

A cell has also been recently excavated for burial of wrapped and taped asbestos. In APC’s opinion, this landfill cell should be closed, and the site transformed to a resource-recovery area for separation and recovery of multiple materials. Any remaining general waste could be transferred to Paremma Landfill for disposal. Skips could be used for this and the transfer operations contracted out.

Dedicated areas should be set up with clear signage for the existing material separation, including:

- DrumMuster compound – stored and exported to off-Island processor;
- Motor oil – placed in existing tanks for transfer to Grassy pool for heating;
- Aluminium cans – stockpiled for Lions Club;
- Lead-acid batteries – stockpiled for Lions Club;
- Scrap metal – brass, copper and stainless – stockpiled for Lions Club;
- Tyres – stockpiled and used around site or buried;
- Timber, treated – stockpiled transferred to Paremma Landfill;
- Timber, untreated – stockpiled;
- Garden and wood waste – chipped for mulch or compost;
- Glass – crushed and used locally by KIC or sold.

**New materials**
- Scrap metal – white goods/end-of-life cars – stockpiled for removal by external contractor.


**Figure 23: Examples of standard signage**

To comply with standard environment protection and WHS regulations, all drums containing liquid and non-drained lead-acid batteries should be stored in a bunded area or on spill containment pallets. This and other relevant information will be outlined in the site-specific operational manuals recently developed for the site.

The shed at this site, measuring 31 metres by 15 metres, is under-utilised and would be ideal for the development of a mini recycling sorting plant, which is discussed in section 5.2.7.
Flinders Island is currently being supported by Hydro, which is paying to export all plastic shrink-wrap and silage wrap from the island in bulka bags. This is recycled by Envorinex in Tasmania into a range of durable products. Envorinex indicated that some hard plastics like PVC could also be processed. KIC should continue to explore if such a program can be extended to KIC for recovery of plastic, silage wrap and hard plastic. KIC should also provide an undertaking to purchase recycled content products to close the loop on recycling where products are competitive in price and quality.

Hydro was proposing to import a cardboard baler for its own use at Currie. KIC could seek to ascertain if the baler has been installed and whether it could be donated to the Charles Street depot as a community resource.

The Cradle Coast Waste Management Group (CCWMG) developed a Resource Recovery Centre and Transfer Station Best Practice Guideline that includes requirements for councils to operate resource recovery centres/transfer stations at a level that ensures environmental protection and reduces the risks to human health. It is strongly suggested that this site be upgraded and operated in accordance with this guideline.

The CWMG also undertook a review of data collection procedures and reporting from landfills and transfer stations. This led to the development of a centralised data collection portal for member councils to record waste data in a regionally consistent manner. It is suggested that KIC report its data in the same format for regional consistency and to enable future joint funding approaches.

**Recommendations**

1. **Charles Street Depot be renamed the Charles Street Resource Recovery Centre**;

2. **KIC undertake site works in accordance with the Environmental Management Plan and licence conditions**;

3. **Opening hours be extended or modified to accommodate business, tradespeople and the public with earlier opening and/or later closing**;

4. **A 24-hour recycling drop-off area be established along the front fence and trialled for three months to determine use for depositing key recyclables in clearly identifiable containers that are well signed (excluding general waste)**;

5. **All scavenging by the public cease to reduce liability and site risks**;

6. **A reuse centre or tip shop be established as an avenue for reuse of furniture, building material, bric-a-brac, with the operation outsourced to a private operator or Council**;

7. **That improved operations, including site layout and traffic management, be introduced based on the CCWMG Resource Recovery Centre and Transfer Station Best Practice Guideline**;

8. **Improved source-separation opportunities be established for a broader range of materials, with the public encouraged to participate through both improved site layout, signage, communication and pricing mechanisms**;
9. **Differential fees should be introduced at the waste facility to encourage source separation, relating to the destination of each product;**

10. **A chipper should be purchased to chip all garden waste while still green and to store for resale as mulch, or stockpile as feedstock for the composting program when a definite timeframe is known;**

11. **That KIC confirms that Envorinex in Tasmania can recycle all plastic shrink-wrap and silage wrap, and some hard plastic from the island. Seek support from Hydro to financially underpin the project, as they do on Flinders Island.**

12. **That plans be considered to close the active landfill cell and create a transfer station facility with non-segregated waste transported to Parenna Landfill by an external provider, to help reduce current and future compliance issues;**

13. **KIC should collect and report data in a manner consistent with CWMG for regional consistency.**

5.1.3 **Parenna Landfill**

This landfill is located adjacent to Sustainable Timber Tasmania land. It is fully fenced and currently comprises three filled cells and one active cell currently receiving waste. Both residential and commercial Council vehicles deliver directly to the cell. The current cell was constructed in 2017 to EPA standards, including lining to prevent any leakage to the environment, at a cost of approximately $380,000. Leachate and stormwater ponds are provided at the site, however the Tasmanian EPA reports breaches of both ponds during winter wet weather to the nearby creek. The Tasmanian EPA advised that a landfill plan and operational manual was due for submission, with an extension granted to 31 December 2019. The regulator also advised that there are currently six major non-compliances in relation to the operation of the landfill which are to be addressed.

The EPA license regulates what wastes can be deposited, including asbestos, sewerage sludge, tyres and treated timber. The site cannot accept green waste, white goods or cars. The landfill has an annual license capacity of 1,500 tonnes, with KIC waste data indicating that the current 1,500 terapascal (tPA) limit has been exceeded in the previous two years. However, based on the data gained from the public weighbridge during the development of this strategy, it would appear that around 750 tonnes are delivered to the landfill from Council waste collections.

It seems highly unlikely that with the additional deliveries the current licence condition of 1,500 tonnes is being exceeded and accordingly it appears the reporting may be inaccurate. The Tasmanian EPA have suggested that Council request a permanent increase to 2,499 tonnes (with no change to the value of Annual Permit Fees charged by the EPA) so as to ensure no risk of non-compliance. Based on the expected increased volumes of materials due to the development forecast on the island, it is suggested that KIC formally seek to increase the regulatory limit.

**Recommendations**

1. **KIC seeks to apply to the EPA to increase the licence limit at Parenna Landfill from 1500 tonnes to 2499 tonnes per annum;**
2. **KIC undertake site works at Parenna Landfill in accordance with the Operations Manual and license conditions.**

5.1.4 Former Charles Street Landfill
The Tasmanian EPA has advised that a risk assessment and rehabilitation plan for this site is overdue. The site requires temporary capping prior to formally closing to ensure all waste is encapsulated and will not leak into the surrounding environment. Given that this site still has some life expectancy it is desirable not to formally close the landfill as in the event of a disaster at the Parenna landfill this landfill site can be used for disposing of putrescible waste. A detailed plan and budget estimate have been provided to Council by another consultancy for works to be undertaken as a matter of priority to the satisfaction of the EPA.

Recommendation

1. **KIC as a priority undertakes site works to temporarily cap the former Charles Street Landfill site to the satisfaction of the EPA.**

5.1.5 Legacy Waste
Scattered around the island are substantial amounts of scrap metal, used cars, trucks and farming equipment rusting away in paddocks. This scrap has a value for recycling and should be removed off the island.

There is also a substantial amount of garden and wood waste stockpiled at the current Charles Street Depot which, if left unattended, will present a fire risk that could threaten homes and the township of Currie. Previously, a chipper was hired annually for approximately $20,000. Given the size of the stockpile, the age of the garden waste and the diameter of some trees, the scope of works may now be beyond the chipper. Further, because no burning is allowed at the site, a tub grinder may be required to resolve this issue.

Council needs to undertake a cost-benefit analysis to determine the costs of purchasing/leasing a chipper for regular work versus hiring a chipper and operator already on the island on a regular basis. Garden waste ideally should be chipped when green. The chip can be sold as mulch product or stockpiled for use in the composting program.

Recommendations

1. **To manage legacy scrap metal waste, KIC should seek to identify landowners with substantial amounts of scrap metal requiring removal and quantify the number of cars, trucks, white goods and amounts of metal;**

2. **KIC prepare a tender for the removal of all scrap metal from the island as a legacy clean-up using a baler and/or car crusher subject to the amount and nature of the materials identified. Use the freight equalisation policy to assist in reducing freight costs;**

3. **To manage legacy garden waste, KIC should seek a quotation from a local operator to process all garden waste and timber offcuts, or if the scale is too large, seek a tender for a tub grinder to process the stockpile.**
5.2 New opportunities

Data is essential to inform good decision making. Unfortunately, there is extremely limited data available in the preparation of this strategy. The only available data is from one week of public weighbridge weights, which estimates that approximately 750 tonnes of waste is collected per annum from both households and commercial premises. Typically, a detailed waste audit is conducted to determine waste generation and composition. From this, targets and recommendations about performance improvements are made, equipment selected and cost estimates determined. In this case, given the unknowns, general directions are provided to increase landfill diversion and improve resource recovery. Island-of-origin solutions are favoured where possible to reduce high freight costs.

Increasing the recovery, reuse and recycling of materials on King Island will have the following benefits:

<table>
<thead>
<tr>
<th>Economic benefits</th>
<th>Social benefits</th>
<th>Environmental benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Extend landfill life, prolongs need for new landfill cell</td>
<td>• Promotes the ethos of refuse, reduce, reuse, recycle, return</td>
<td>• Increases reuse of materials with imbedded resources, and energy</td>
</tr>
<tr>
<td>• Reuse of materials on island reduces need to export to mainland and overseas markets, saving freight costs</td>
<td>• Builds local capacity with new skills and training in new areas</td>
<td>• Reduced landfill gas emissions</td>
</tr>
<tr>
<td>• Local reuse and recycling reduces exposure to fluctuations in global commodity markets</td>
<td>• Opportunity for skilled jobs</td>
<td>• Avoid use of virgin timber as fuel, protecting natural environment and habitats</td>
</tr>
<tr>
<td>• Localising alternative sources of fuel from waste materials</td>
<td>• Helps to retain locals on island with new work opportunities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Promotes new skills and updating of technical skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improved waste site safety through better waste management</td>
<td></td>
</tr>
</tbody>
</table>

APC has identified the following initial opportunities for improved recovery, reuse and recycling on the island:

- Using shredded cardboard, food and woodchip in composting
- Partnering with the new abattoir in establishing a composting facility
- Using materials as fuel substitute for timber at the kelp factory
- Silage wrap recycling
- Tip shop
- Container refund scheme
Recommendation

1. **Given the lack of any data on current waste generation and composition, it is imperative that a waste audit be undertaken on household, commercial premises and self-haul waste to Charles Street Depot to enable accurate design and development of infrastructure that is both scaled appropriately and fit for purpose.**

5.2.1 Reuse shed or tip shop
There is an ad hoc system currently in use where unwanted materials are deposited inside the drive-through door for the community to scavenge and take at will. This informal scavenging is taking place at the Charles Street landfill. However, the risks and liability presented to Council for this activity are potentially significant. These risks can be eliminated by establishing a ‘reuse centre’ or ‘tip shop’.

Tip shops are widespread throughout mainland Australia and Tasmania and are very successful. The concept is ideally suited to island communities given the scarcity of materials and the delay and cost of bringing new or replacement items. Useable and functional goods that are no longer needed can be made available to other members of the community or used as replacement parts.

The community consultation survey revealed 96 per cent support for the concept. MD Recovery (Tas) Pty Ltd is a successful operator of numerous tip shops in Tasmania and has offered its many years of experience to the KI community on a fee-for-service basis.

These retail outlets are typically located in areas before entry to the actual waste site where patrons can off-load items that have a potential reuse value and benefit from reduced waste disposal fees as a financial incentive to support the concept. It is imperative that this area is undercover to protect and preserve items of furniture and materials, and a formal shelving or raking system be used to display items until they are removed. It also should provide parking so as to not impede the traffic flow.

These facilities have the ability to divert a considerable amount of material from disposal if adequately supported by the community, who both donate and reuse items.

Recommendation

1. **KIC support the establishment of a tip shop and seek external assistance in relation to the key measures of success and contracting arrangements.**

5.2.2 Household Hazardous Materials
Many properties, domestic garages and sheds contain out-of-date chemicals, including unwanted and often unknown pots and bottles of herbicides, pesticides and other substances. The list can include used oils, lead-acid batteries, nicad batteries, paints, toner cartridges, smoke detectors and gas cylinders. These are termed ‘household hazardous materials’ and all have a potentially detrimental impact on the environment if not properly controlled and disposed of correctly. These waste streams present significant risk in terms of fire, public and worker safety, and have the potential to create a significant environmental incident.

Charles Street Depot is the obvious point of disposal, however there is a lack of appropriate infrastructure to receive or store materials at this time. Staff members lack the knowledge and skills
regarding the correct handling of household hazardous materials. Australian Standard AS1940/2004 recommends the correct method for storage and handling of flammable and combustible liquids.

The shed should accommodate a household hazardous drop-off area along the wall between the office and driveway for common household problems wastes including fluorescent lights, smoke detectors, paint, gas bottles, fire extinguishers and batteries, if space permits. The diagram below is one suggested layout by NSW EPA (with standard signage).

Figure 2 NSW EPA concept drawing

![NSW EPA concept drawing](image)

Figure 3 Example of standard signage

<table>
<thead>
<tr>
<th>Paint</th>
<th>Motor oils</th>
<th>Household batteries</th>
<th>Fluoro globes and tubes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car batteries</td>
<td>Gas bottles</td>
<td>Smoke detectors</td>
<td>Fire extinguishers</td>
</tr>
</tbody>
</table>
New household hazardous separation and destination recommendations are:

- **Paints** – decanted into drums or IBCs on bunded pallets and shipped for disposal at an appropriately licensed liquid waste treatment facility, or small quantities placed in bunded area for evaporation;
- **Fluorescent and CFL light bulbs** – stockpiled for export in one-way shipping containers used to reduce breakage;
- **Toner cartridges** – stored separately and exported for recycling and/or reuse or delivered to the post office for export;
- **E-waste/TVs** – stockpiled in shipping container and exported for reprocessing;
- **Smoke detectors** – bin provided and exported;
- **Chemicals** – stored in an approved cabinet to prevent unauthorised access at an appropriate distance from all ignition sources, including smoking areas;
- **Gas bottles and fire extinguishers** – stored and exported to mainland for recycling or reuse.

The following management methods are recommended for a range of problematic materials:

### 5.2.2.1 Chemicals

ChemClear is a national program for collection and disposal of unwanted rural chemicals. From APC’s enquiries, it appears King Island is eligible for assistance. An inventory is required but it is not onerous to compile. The information required typically includes the details of the label or any identifiable features; the manufacturer; product name; the expiry date; the size of the container; the quantity of the chemical remaining in the container, and an assessment of the container integrity. This is then sent to ChemClear for scheduling. ChemClear contacts all waste holders to determine a date and schedule an appointment time.

Chemicals are classified in two groups:

- **Group One** – chemicals that are currently registered. Rural chemicals manufactured by participating members are collected free of charge.
- **Group Two** – chemicals that are de-registered, schedules are unknown, out-of-date chemicals or chemical products of non-participating manufacturers. These attract a fee ranging from 10 cents to 80 cents per litre subject to the nature of the material.

The WMC needs to establish a dedicated area where the community can safely dispose of selected common household problem wastes. The interface should allow for easy and convenient use to dispose of materials. A designated undercover area must be provided with correct receptacles and signage. We propose that the area to the left of the shed entry, beside the office wall, be considered as the most suitable area for a dedicated problematic wastes area.

For dangerous goods, a permanent, purpose-built, fully enclosed and ventilated secure facility should be purchased to store chemicals. It must comply with the Dangerous Goods code.

A number of training courses are offered to equip council staff with the knowledge and expertise to correctly manage dangerous goods.
5.2.2.2 Fluorescent bulbs and tubes
Mercury-containing lamps (including fluorescents, compact fluorescent lamps (CFLs), and high-intensity discharge (HID) lamps) contain small amounts of mercury and are the largest single consumer product generating mercury waste to landfill in Australia. FluoroCycle is a voluntary partnership between government and industry to increase the recycling of mercury-containing lamps. The overall aim of this scheme is to reduce the amount of mercury-containing waste being disposed through increased recycling. A small number of companies specialise in recycling these products in Australia, including Chemsal and CMA Ecocycle. There are a number of options to both store and transport used lighting in purpose-built and designed cardboard or corflute boxes, which typically hold 100 x 4-inch globes and weigh approximately 20 kilograms. The disposal rate includes a fee per box plus recycling fee.

5.2.2.3 E-waste
Television, computers and printers are products that are part of a national TV and computer recycling scheme where the industry is required to pay for the recovery of these items at the end of their useful life. Each state government has had to enact regulations to support voluntary industry extended producer responsibility (EPR) programs. The Administration needs to ensure it is part of the scheme and that suitable storage facilities are established to store these products in an environmentally responsible manner prior to export. Product Stewardship Australia (PSA), Australia and New Zealand Recycling Platform (ANZRP) and Tech Collect are licensed to operate under the scheme. KIC should seek to be a designated collection point or to conduct a one-off clean-up of legacy e-waste on the island.

5.2.2.4 Toner cartridge recycling
The Cartridges 4 Planet Ark program was established to stop printer cartridges from ending up in landfill. Almost 60% of cartridges collected are returned to the original manufacturers for reuse, while the remaining cartridges are recycled with zero waste going to landfill. Australia Post supports the program by providing a cartridge collection point. Any site can register (1800 24 24 73) to receive collection box. Once the bag inside your box is full, return the bag of cartridges through Australia Post using the reply-paid sticker affixed to the bag.

5.2.2.5 Batteries
The Australian Battery Recycling Initiative (ABRI) has set up Batteryback Australia as an initiative to collect and recycle used alkaline lithium and reusable batteries containing toxic materials that should not go to landfill nor be burned. The establishment of battery banks has now become increasingly common, whereby old discarded batteries can be placed in attractive, clear containers enabling viewing of contents and provided at the point of sale for new batteries. A number of collection points could be established within the community where batteries are sold and a larger unit at the Charles Street for aggregation.

Recommendations

1. KIC provide a new community interface to allow for easy and convenient drop-off of household hazardous material;
2. **Contact ChemClear regarding the opportunity for the island to hold a used chemical clean-up and collection, if not previously held;**

3. **Community education be undertaken to encourage the community to clean out unwanted household and farm chemicals and hazardous items;**

4. **That an accredited trainer from Ag Safe or ChemClear undertake staff training on the correct storage and handling of chemicals;**

5. **The services of ChemClear should be engaged to assess, pack and remove all chemical wastes accumulated annually or at other regular intervals determined, subject to the amount of chemicals accumulated;**

6. **That bunded pallets be purchased and used to ensure any spill or leak is wholly contained;**

7. **Consult the sector in relation to a chemical storage cabinet and training for staff to handle chemical waste at Charles Street;**

8. **Contact PSA, Australia and New Zealand Recycling Platform (ANZRP) or Tech Collect seeking to establish an ongoing collection point or clean-up of used e-waste on the island;**

9. **Contact Australian Battery Recycling Initiative in relation to battery recycling;**

10. **KIC should register as a toner cartridge collection point with Cartridges 4 Planet Ark program;**

11. **KIC should register with FluoroCycle as a collection point.**

5.2.3 **Container refund scheme for used beverage containers**

The Tasmanian state government announced that a Container Refund Scheme (CRS), aimed at both reducing litter and improving resource recovery, will be in effect from 2021 and will complement schemes in SA, NT, NSW, ACT, Queensland and WA from 2020.

The scheme places a value on an eligible beverage container packaged in glass, plastic, aluminium, steel or liquid paperboard between 150 millilitres and 3 litres in volume and contain alcoholic drinks (except wine and spirits) and non-alcoholic drinks (except pure juice and milk bottles over 1 litre).

The eligible container is returned to an approved collection depot and is eligible for a 10-cent refund. A network of 60 depots will operate across the state, with the operator receiving a handling fee to administer the program locally based on each container redeemed. The handling fee varies by state, location and volume of material processed, with the beverage industry taking full responsibility for all reverse logistics.

This scheme could be managed locally by any organisation with the capacity but has synergies with the tip shop. Ideally, it could be co-located at Charles Street Depot, although a more central location with adequate storage would be preferable, if available. In some communities, a mobile redemption service is offered to outlying areas via a trailer to collect and store containers.
It is important that KIC continue to monitor development and ensure that King Island is included as an approved collection depot in the statewide network.

**Recommendation**

1. **KIC to advocate to ensure that an approved collection depot is provided on KI for residents and visitors to use, with responsibility for the export of the containers falling to the beverage industry.**

**5.2.4 Organic management – commercial composting**

Council currently has at its disposal large quantities of green waste, timber and cardboard. In addition, 48 per cent of businesses in the community consultation survey indicated a willingness to separate food waste. These raw materials can be used to manufacture compost and substitute imported mulches. Composting requires a combination of carbon and nitrogen with aeration to create heat to breakdown material.

In addition, the proposed new abattoir will be generating by-products suitable for composting and is proposing to initiate a composting process at their site. It makes sense to rationalise a composting activity in one location on the island, supplied with materials from both sources. The current multi-species abattoir has also indicated that they will be seeking to upgrade their operation and a requirement will be to compost waste. A composting program to process all organic waste is a cornerstone to waste diversion but requires appropriate infrastructure and a system that will process all organic wastes with minimal risk of odour or leachate production.

Unfortunately, no data is available on the amount of garden waste and untreated timber delivered to Charles Street Depot. A previous study conducted by the CSIRO for the kelp factory indicated that an estimated 400 tonnes of cardboard may be available. The amount to waste from the proposed abattoir is estimated at 8 tonnes per day when fully operational. This will be in approximately three years from commissioning, which is anticipated to begin in the third quarter of 2020.

To displace artificial fertilisers, a composting system must be able to deliver quality, reliable outputs to the proposed end market of local farmers. With the addition of food, which can create odour, and given the cold, high-rainfall climate, an open windrow compost system is not considered appropriate. This is because this system typically occupies a large surface-area-to-volume ratio making it more prone to drying out in hot weather and becoming flooded during rain; both factors which can significantly affect process control (which subsequently affects product quality, odour potential, re-work and production costs).

A number of composting systems are on the market. An options assessment with a scoring matrix should be developed against which all technologies are assessed for a comparative analysis. EPA’s greatest concern will be odour and leachate. Real data on feedstock is required to calculate the size of the unit. The addition of food and abattoir waste facilitates the need for in-vessel composting systems similar to those on Lord Howe Island and Norfolk Island. Both islands have HotRot systems in place.

**HotRot** is a fully enclosed and insulated modular system that is designed to convert a variety of organic wastes into a quality product. Waste feedstock enters one end via a bin tipper or feed hopper. A
rotating tine-bearing shaft runs the length of the unit, turning intermittently, in both forward and reverse directions, to ensure the mix is uniform and moisture and heat is evenly distributed. Air is injected along the length of the cylinder ensuring the material is maintained in an aerobic state and the composting process proceeds at an optimum rate. This occurs without the emission of nuisance odour. As the shaft rotates, it releases excess heat, moisture and carbon dioxide, which are extracted by a fan and passed through a bio-filter.

Material is automatically discharged from the HotRot unit via a combination of shaft rotation and displacement down the unit, caused by waste additions at the opposite feed end of the unit. Material takes approximately 10 to 12 days to pass down the length of the vessel. Composted product is highly stable and mature on discharge (a maturity equivalent to that of windrow-composted material after six to nine months); the product is largely odour free. At this point, the compost conforms to recognised compost standards. APC recommends however, it is temporarily windrowed for two to four weeks to allow nitrogen-fixing to complete. This also allows for sampling and quality assessment.

![Figure 4 The HotRot System](source: HotRot website)

Each HotRot unit is equipped with monitoring equipment that provides on-line diagnostic facilities and an auditable record demonstrating compliance with international regulatory guidelines and standards.

HotRot units can operate effectively in a range of conditions with no artificial heat or microbes added to the process. Key parameters below:

1) **Odour:** HotRot is the only commercial composting plant manufacturer that provides a contractual odour-free guarantee.
2) **Leachate:** The HotRot system does not produce leachate.
3) **Grease-trap waste:** HotRot do not anticipate problems with trap waste, provided they are not in excessive proportion to the total and bulked-up appropriately.
4) **Sewage sludge:** Sewage sludge is an excellent addition to the HotRot feedstock. Appropriately bulked sludge heats extremely rapidly within the units and will help to offset low pH problems that can occur with food wastes. HotRot has previously treated sludge with very good results.
5) **Power availability:** Expected power draw is 19kW. However, this is intermittent and there may be opportunities to program the unit to more evenly spread this load if required.

6) **Transport to KI:** Meeting the weight restrictions of the island may be a little problematic. HotRot can certainly undertake more on-site assembly than typical, but the stripped down 1811 hull will weigh over 4 tonnes (but less than 5 tonnes). If necessary, HotRot can redesign the system to breakdown further, but would prefer to examine the need for weight reduction in more detail first.

7) **Manual handling:** There will be no need for manual mixing with HotRot technology as the vessel is mixed every hour or so as part of normal operation.

8) **Monitoring of the system:** HotRot units are generally connected to the internet to enable remote support (provided this is available on site). If support staff are needed, on-site flights to the island are probably the limiting factor as HotRot can readily get to main Australian airports from NZ.

9) **Vermin control:** Even in the most extreme of process failures, HotRot have not seen the product attract vermin (other than flies, which may be attracted to moisture and warm temperature). The HotRot should be entirely compatible with rodent control. Furthermore, using a feed hopper would ensure untreated food waste could be contained.

10) **Ongoing costs:** The major operational cost for the system is the electricity consumption. The HotRot unit may require an operator for about one or two hours per day to load waste and remove finished product.

11) **Maintenance:** There are grease nipples on each machine that need periodic greasing. The gearbox oil should also be replaced at least every 12 months. It is recommended that the tines and bearings be visually inspected annually. HotRot and its agents offer preventative maintenance and support contracts, however, generally maintenance can be performed by any competent operator.

12) **Operator training:** Operator training is provided as part of the installation and commissioning process. HotRot can also provide additional training and refresher courses as needed.

KIC should conduct a feasibility study to:

a. Determine feedstock by quantifying the current amount of:
   - food waste available from the commercial sector;
   - garden organics delivered to the Charles Street depot to feed into the plant specifications;
   - cardboard generated households and commercial.

b. Determine current and future abattoir waste streams;

c. Investigate opportunities to include biosolids from the sewage treatment plant;

d. Determine outputs based on feedstock identified above;

e. Undertake market research with island farmers regarding the use of local certified compost to determine end markets and willingness to pay to establish the business case;

f. Enter into commercial discussions with the current and proposed abattoirs about contributing financial support to a single compost operation;

g. Consider siting options;

h. Consider technology options;

i. Consider operational aspects;

j. Consider market development;

k. Consider funding options and external grants.
5.2.5 Food waste

The community survey found that 75 per cent of residents and 44 per cent of businesses are proactively recycling food waste through composting, chickens, pets and worm farms or a combination of these. However, almost half (48%) of businesses said they would separate food waste to facilitate Council using it in compost. In mainland cities, dedicated ‘wet’ runs to collect separated food waste is becoming more mainstream as various new technologies are commissioned. Provision of 20 litre buckets with close fitting lids are often provided in commercial kitchens whereas emptied into wheelie bins for collection.

Many households try to separate food, but the most objections are that sealed units smell, vinegar flies proliferate and the washing out of the container is unpleasant. To overcome these issues, a number of purpose-designed and manufactured kitchen tidies are now on the market aimed at assisting councils to encourage their communities to separate food scraps in the kitchen. Bio-baskets are the most common in the marketplace and are designed to allow air movement to prevent odours being generated. The bio-baskets are lined with a corn starch bag that, when full, is placed into another receptacle (i.e. 20 litre food bucket) for composting commercially or placed in a home compost or worm farm.

Figure 5 Food waste receptacles – aerated kitchen bench-top bins

It is strongly suggested that bins stickers, small poster/flyers and fridge magnets be printed to encourage correct household use. Wall posters for restaurants are also effective.

Recommendations

1. **Undertake a feasibility assessment to determine the viability of an island composting facility to process organic waste into an Australian Standard (AS4454) compliant compost or soil conditioner for use on the island to reduce the reliance on artificial fertilisers**;

2. **Encourage greater organic waste separation for residents by providing subsidised worm farms and/or compost bins**;

3. **Promote organic management training in partnership with the King Island Natural Resource Management Group at the Phoenix community garden**.
5.2.6 Fuel substitute for kelp factory

The kelp factory gasifier currently operating at the King Island kelp factory is consuming approximately 1,200 square metres of timber per annum. A solution to this current operating practice is to look for alternative fuel replacement options available on King Island which could reduce or replace the use of timber as the primary source of fuel.

Management was keen to explore more sustainable alternatives. Ten years ago, it engaged the CSIRO to undertake a feasibility study on the use of cardboard as a potential fuel substitute. The research concluded that briquetting cardboard provided a viable alternative fuel source but this was not economically favourable at the time. In order to determine whether materials currently going to landfill are suitable as an alternative fuel at the kelp factory’s gasification system, several steps are required, including:

- Conduct discussions with Tasmania EPA or Council regarding the impacts from combustion of these alternative fuels and ensure that all environmental impacts from a change of fuel are considered as part of this process
- Determine the types and volumes of waste materials present on the island and whether these could be considered as alternative fuels
- Review the operations of the kelp factory gasifier and understand the limitations of the fuels that it can accept without damaging the gasifier. This would involve having HRL Combustion and Materials experts provide advice on this topic
- Characterise the materials identified as potential alternative fuels and evaluate/assess whether there may be any negative impacts from the use of these materials in the kelp factory gasifier
- Assess the potential alternative fuels for major and minor elements in both the ash and the "as received" materials to ensure that no additional environmental issues may occur from the gasification of these potential alternative fuels including air and land emissions
- Assess the general combustion characteristics of the alternative fuels and compare this data against the characteristics of the current timber fuel. This would also include assessing whether the characteristics of the fuel are suitable as a replacement to timber

Indicative costs to undertake the above (excluding item 2) would cost approximately $40,000, subject to the number of materials selected for characterisation and a time frame of eight weeks.
Recommendations

1. If the compost facility fails to justify the investment, conduct a feasibility study to determine appropriate alternative fuels for the kelp factory furnace and combustion characteristics of such fuels.

5.2.7 Recycling

It is evident from the community consultation there is a strong desire by the community to recycle more. To offer the community more recycling opportunities, materials actually need to be recycled or stockpiled until sufficient quantities are generated for recycling. If the community separates materials and then finds that KIC are landfilling, community confidence is breached. Most reprocessing of materials occurs on the mainland, which requires aggregation by material type and densification to consolidate materials into the smallest amount of space possible to reduce freight costs.

Paper and cardboard, plastics and metals are eligible for the freight equalisation program, which applies to Victoria to reduce freight costs.

Most Australian councils offer a kerbside service and collect used packaging materials including steel and aluminium, plastics, glass, liquid paperboard, paper and cardboard on alternate weeks to the weekly garbage service in wheelie bins. This material is delivered to a facility for sorting into separate materials called a materials recovery facility (MRF). An MRF consists of a series of conveyors, with bunkers or bags to contain materials for later baling. All materials require some form of pre-processing for use either on the island or to be exported.

Even without the kerbside collection, there are two ways the community can deliver an expanded range of materials for recycling:

1. Depositing items in separate containers by material type;
2. Delivering all materials unsorted (termed commingled) and then KIC staff sort the materials.

There are a number of current and emerging issues which will impact on any future recycling service including:

- The state government of Tasmania announcing the establishment of a container refund scheme;
- The limited access to offshore markets as a result of China Sword. The closure of many Asian markets coupled with increased quality specifications making it virtually impossible for Australia to achieve the standard.

5.2.7.1 Container refund scheme

It is not known if King Island will be included or excluded from the scheme and whether a collection depot will be established on the island. This level of detail about the scheme is not known at this time. Five other Australian states have functioning deposit/refunds schemes in place for used beverage containers. It is assumed a Tasmanian scheme would include the same materials – water, juice, soft drink, flavoured milk and beer between 150 millilitres and 3 litre packaged in glass, plastics, aluminium, steel and liquid paperboard and excluding milk, juice larger than 1 litre, flavoured milk larger than 1 litre, wine and spirits. In different states, different levels of responsibility are accepted by the beverage
industry for the transport logistics and payment of fees to oversee the collection. What is common is that all materials recovered must be recycled and a refund is paid on deposit.

King Island could negotiate a processing fee for glass crushing on the island and bale all aluminium cans and plastics for export. A handling fee is paid by the beverage industry to the operator of the collection point.

5.2.7.2 Market access
Australia has for many years relied on overseas markets to process cardboard and plastics. In 2017, China announced restrictions on the import of 24 types of waste (effective in January 2018) and included increasing the quality standards. This has had a dramatic impact on the Australian recycling sector and on recycling viability. A consequence for King Island is that careful consideration is needed to ensure outlets and markets are available and quality specifications can be achieved for materials which require export, regardless of whether this is to Tasmania, the mainland or an overseas market for reprocessing.

As a result, securing new end markets at this time is challenging, with one of Victoria’s largest processors closing down and, as a result, up to 60 councils and 400,000 tonnes of material now homeless. Given these market conditions, it is not appropriate for KIC to enter the market for materials that will require export. However, Council has invested in equipment worth $120,000 which is yet to be used, but could provide on-island solutions. These include local processing of glass and cardboard and export of plastic film to Tasmania, where a vibrant recycling plant for plastic film and some rigid plastics is operating.

5.2.7.3 Sorting recyclables
An alternative to delivering each material individually (i.e. plastics, steel cans, aluminium cans) is to combine these and deliver a commingled stream, which has become the norm in Australia and New Zealand. Sorting post-collection is then undertaken. This mixed recycling stream must then be separated by installing a single mini-sorting system for manual sorting of recyclables. Target material would be mixed plastics, steel and aluminium cans. Glass would pass through the system into a bunker for crushing.

A typical equipment package includes a loading conveyor, incline conveyor, sorting conveyor, sorting platform, installation and control system. This is very similar to the system in place at Lord Howe Island where staff undertake a positive sort of the selected material.

Figure 6 Lord Howe Island mini-sorting line and bale
Bin lifter and hopper

Elevated conveyor belt and sort chutes

Horizontal baler at Lord Howe

Baled mixed plastics awaiting export

The supply of a turnkey system is approximately $125,000. A new high-density baler will bale all materials to produce maximised payload weights for transport and handling-logistics efficiency.

Figure 7  Proposed MRF layout
5.2.7.4 Cardboard and tyre shredder
This unit appears to have been purchased with the intent of providing feedstock for briquettes made from cardboard as an alternative fuel source for the factory furnace to the kelp factory. The equipment has not been used but is ideal to shred cardboard for composting. This machine should be fed continuously by a conveyor belt integrated into the design (above) at a steady pace and elevated to allow discharge of the material into bulk bins.

5.2.7.5 Glass
Glass pulverisers are well suited for remote areas where recycling glass back into bottles is not economical. Glass can be crushed into gravel or sand-size pieces so that the material can be used in construction projects with no sharp edges. A variety of pulverisers and mills are available but glass is very abrasive and any machinery requires high levels of maintenance. Care should be taken when calculating wear during glass processing on a tonnage basis, as wear tends to occur on a time basis rather than a volume basis.

The Andela Glass Pulveriser purchased by KIC is specifically designed to deal with post-consumer glass products and screens out steel and plastic caps, straws and labels, producing a clean glass stream. The unit accepts all kinds of glass and pulverises it into an aggregate with the consistency of sand and fine gravel. The current unit is labour-intensive as each bottle is manually loaded.

Image 3 Manually loading the pulveriser

These units have been designed to be installed at the end of MRF conveyors, with the glass remaining on the belt and top-fed. Staff have expressed concerns about glass dust, as the unit is inside the shed when typically they are located outside to minimise the abrasive nature of the dust. As a result of safety concerns and no plan to use the material, staff have ceased using the machine.
A quote has been received from Waste Initiatives to install and conveyor inside the shed the load the glass onto via a 240 litre bin lifter that will convey the glass to the pulveriser which should be located outside the shed and mounted on a stand and the glass is feed from the inside of the building. Indicative costs to the Port of Melbourne are shown below.

**Table 5 Costs of equipment to support glass pulveriser**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Costs ext GST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand for the pulveriser including waste chute</td>
<td>$2,375.00</td>
</tr>
<tr>
<td>Bin for under pulveriser</td>
<td>$1,500.00</td>
</tr>
<tr>
<td>Conveyor including hopper</td>
<td>$20,300.00</td>
</tr>
<tr>
<td>Binlifter</td>
<td>$11,850.00</td>
</tr>
<tr>
<td>Installation and commissioning</td>
<td>$3,500.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$39,525.00</strong></td>
</tr>
</tbody>
</table>

The unit when modified would look something like the below drawing which is the system is in use at Cocos Keeling Islands. (Ignore the wheelbarrow as this would be replaced with a wheelie bin).

**Figure 8 Glass pulveriser relocated outside shed**

It is important to feed the machine at a consistent and fast rate and to get maximum life from the wear parts. Operating costs to produce a 6 mm aggregate maximum are $12 per tonne, not including capital or site costs. Consumables and maintenance of the hammer and liners are $2,000 each and need to be replaced at every 80 tonne through-put. The projected cost of consumables is about $10 per hour, however, based on the very small quantities of glass being processed, it is likely to be substantially more as the machines work best with higher feed.

A key feature of the Andela is its capacity to process 1 tonne per hour without jamming, blocking or bridging. It is important to have an immediate use for crushed glass, as its storage in open stockpiles can cause issues with runoff. Storage of processed glass is possible in ‘bulka’ bags.

The unit is lined with replaceable liners and the product is discharged directly through a trommel at the end for size separation. Typically, the trommel screen sizes are 0–3 millimetres or 3–10 millimetres.
The intent was to use glass sand in road-making, however this has not occurred. Given the price of aggregate and sand, crushed glass has a number of secondary uses and application for use on the island in a variety of applications, including water filtration medium and driveways. The Recycled Glass Sand Specification was developed for use by local and state authorities and others responsible for the procurement of materials, and the construction of paving and roads and provides a common standard for use in Australia. For drainage applications such as retaining wall backfill and drains, the permeability of -7 mm cullet material is about the same as that of natural sand and the permeability of the -20 mm cullet material is about the same as that of natural gravel. Therefore, fill material made of 100 per cent cullet could be used for the construction of drainage facilities and to displace virgin aggregates in these applications. Crushed glass can be used extensively by the community as an aggregate replacement for driveways and drainage – this is a common practice on Norfolk Island. Crushed glass is used extensively for reed beds as part of a waste-water treatment strategy at Lord Howe Island. We suggest the following actions should be considered:

- Council’s engineering and road-making staff should be encouraged to use this product or it can be sold to the public as drainage medium or decorative landscaping.
- If a market or end use is not identified, crushing should cease and the crusher be sold.
- If the pulveriser is to be used it should be fitted with an exhaust to extract dust outside the building or locate outside in an enclosure.
- An alternative method of extracting the glass should be investigated to again reduce manual handling and potential worker injuries.
- To reduce the manual handling component (as currently each bottle is hand-fed into the crusher), the installation of a mini-conveyor should be installed to load the glass into the crusher.
Recommendations

1. **As a priority a budget allocation of $40,000 be made to relocate the glass pulveriser outside the shed and fed by a mini conveyor with the crushed glass-sand used or sold as an aggregate replacement;**

2. **KIC awaits more details on the implementation of the CRS scheme prior to introducing new recycling initiatives;**

3. **KIC considers locating the collection refund point at Charles Street Depot to centralise all activities;**

4. **KIC continue to monitor market conditions for commodities and seek secure markets prior to establishing new recycling programs;**

5. **When markets recover, a mini material recovery facility (MRF) be installed within the existing shed to enable efficient separation of materials with conveyor belts, magnetic head and baler. The existing glass crusher and paper shredder should be incorporated into the MRF design.**

5.3 Implementation

5.3.1 Waste Advisory Committee

It is recommended that a Waste Advisory Committee (WAC) be formed, drawing representation from a cross-section of the community, in order to move the implementation of this strategy forward and foster strong community ownership of waste solutions. This approach has been highly successful on a number of projects as each committee member reports back to their networks on progress. It is suggested, at a minimum, the following sectors and specific interest groups be represented:

- Council (elected and staff member);
- Tourism;
- Retail;
- Education;
- Media;
- Community representative;
- Technical adviser.

This committee should meet monthly, or as and when required, to oversee and guide the implementation. Some internal secretarial support will be required by the Waste Advisory Committee. In addition to the main committee, a number of sub-committees should be established, focusing on specific aspects including community education and engagement. These groups will report back to the main committee on specific progress.

Those communities which have achieved their strategic outcomes within a reasonable time frame, as outlined in their respective waste strategies, are those where an external provider was engaged to oversee the project implementation. All island and remote locations have limited staff, limited resources and generally lack the expertise to focus on waste programs, which are often multi-faceted and rely heavily on the engagement and support of every household, business and individual. A budget allocation should be provided for external technical support to oversee the implementation program,
given the limited resources within Council. WAC meetings should coincide with availability of the technical adviser by phone, video conference or in person. We have suggested an external technical adviser be appointed. It is suggested that two days a month be allocated for 24 months to drive the project, with fees included under project management.

Recommendations

1. **A Waste Advisory Committee (WAC) be formed drawing representation from a cross-section of the community**;

2. **A technical advisor be engaged to oversee and guide the implementation of the strategy, including the preparation of a detailed waste management plan, budget and timeline, subject to budget approvals and agreed priorities.**

5.3.2 **Education and community engagement**

Council needs to rebuild community confidence that waste is being managed in accordance with acceptable standards. Council also needs to establish an extensive community consultation and education program to clearly articulate what is happening currently and what will be undertaken in the future, including indicative timelines. Education and information are critical first steps to empowering the community to alter current behaviour and to interact with a new waste-management framework.

Every day, every household, business, and activity generates waste. Any education and community engagement program must be multi-faceted in order to reach all sections of the community. It is essential that any waste system is easy to understand – complicated systems lose participants. People incorrectly interact with waste systems due to apathy, arrogance or ignorance. The role of education and community engagement cannot be underestimated.

Implementing an education campaign produces good results initially but sustained behaviour change is required. Ongoing actions and activities are needed to maintain the focus of the community.

Contamination levels and the amount of separation of materials are a reflection of the success or failure of an education program. Any education program will be multi-pronged and ongoing, targeting residents, staff and visitors.

The formation of a formal or informal waste education working group can assist, with the branding, bin signage, bin stickers, and posters activities aimed at the all or specific segments of the community carefully considered.

A budget allocation needs to be made every year for community education and engagement. The basic tools for effective waste education include:

- Website and social media – a dedicated waste page with links to other sites;
- Brochures and information based on the principle of ‘Less is More’. Clear, simple text; generic, consistent, appropriate images; and consistency;
- Personal engagement;
- Interactive activities to build capacity and understanding.
CCWMG have excellent existing resources, website and fact sheets which KIC could assess if membership was renewed.

Once Council has made a commitment to implement this strategy, and a timeline agreed, a part-time waste education officer should be employed to engage, educate and motivate all sections of the community in the quest to improve waste management on King Island. This person should be part of the WAC.

Other islands have used ‘train the trainer’ workshops and programs, and a ‘behind the scenes’ tour of waste facilities when fully commissioned for the community and visitors. This will assist the community’s understanding and appreciation of why certain actions are requested. Tours were offered on days when the depots were closed to the public due to OH&S concerns and staff availability.

**Recommendations**

1. **A Waste Education Working Group be established to develop a education strategy;**

2. **Design, develop and implement an extensive community, school and visitor education, communication and engagement program highlighting the need to reduce waste and improve resource recovery;**

3. **Consideration be given to appointing a part-time waste education officer to engage, educate and motivate all sections of the community in the quest to improve waste management outcomes.**

**5.4 Administrative support**

KIC was a member of CCWMG, however membership has lapsed. Cradle Coast Waste Management Group (CCWMG) was established by its local member councils to coordinate waste management services, develop and implement waste management and recycling projects, and raise awareness of best-practice waste and recycling. The group is supported by member-council contributions and/or funds raised through a voluntary waste levy on all waste disposed to landfill in their respective councils. Current members of CCWMG are seven northwest Tasmanian Councils. They are:

- Burnie City Council
- Central Coast Council
- Circular Head Council
- Devonport City Council
- Kentish Council
- Latrobe Council
- Waratah-Wynyard Council

Dulverton Waste Management provides project management, administration, financial and communications support and manages the delivery of initiatives funded by the regional voluntary waste levy on landfill by each council.

CCWMG has indicated that they would welcome discussions around collaboration with KIC or working together on specific projects and initiatives of interest. Given the range of issues KIC are facing transitioning their waste management practices, and the lack of technical staff and resources, re-joining
CCWMG provides direct access to this group and its considerable knowledge and resources, and is therefore highly recommended. KIC would then have access to use all the education materials captured under the [http://rethinkwaste.com.au](http://rethinkwaste.com.au) website and the regional waste managers can provide a source of ongoing technical support and guidance to King Island staff.

‘Should King Island wish to become a member of the CCWMG there would be a cost associated with this. Currently the CCWMG is funded by the voluntary waste levy of $5/t of waste disposed of with each council area. However, CCWMG management are willing to look at other funding options and to discuss costs based on what activities and how KIC seek to participate with the group. Given the stretched council resources joining the group and sharing initially waste education and communications resources (rethink waste website [http://rethinkwaste.com.au](http://rethinkwaste.com.au) and facebook page) could be of great resources if the messaging is aligned. Should KIC wish to participate in specific activities then specific fees can be looked at.’ Mel Pearce, Project Officer, Dulverton Waste Management

Based on 750 tonnes to landfill, the annual fee would be $3,750.

**Recommendation**

1. **KIC should seek to re-join CCWMG to provide both ongoing technical support, advice, direction and networking opportunities with possible collaboration on specific projects and/or initiatives of interest.**

5.5 **Financial management**

Waste collection is the one service Council provides to every household and a selection of commercial premises every week. The cost of running the entire waste management program, including both Charles Street Depot and Parenna landfill, was reported as $684,000 as at 30 June 2018. The income to offset this expenditure was reported as $601,000, providing a net operating loss of $83,000.

Income is derived from rates, user fees charged to commercial customers for waste collections and tip fees recovered at Charles Street Depot. The Waste Management Review 2016 indicated that at that time the cost to run the various services and facilities was:

- **Kerbside waste collection**
  - cost $155,000 per year
  - income approx. $190,000 per year.
  - this service was cross-subsidising the commercial service

- **Charles St depot**
  - cost $250,000
  - income of between $7,000–$31,000 per year

- **Parenna landfill**
  - cost $70,000 per year
  - no income
With compliance costs increasing and projected waste volumes likely to increase, Council must ensure waste services are operating as efficiently as possible to contain escalating costs. Operating two landfills increases Council’s future costs and liability. Council also needs to ensure that the waste management budget is operating on a cash-positive basis, as reserve funds will be required to cap, close and remediate both sites at their end of life. The costs to cap, close and remediate the former Charles Street site, and undertake activities to meet compliance at both Parenna and Charles Street landfill, is estimated at $500,000.

Further, future new landfill cells will be required over time, with the current cell costing around $380,000. Future cells could be double this amount. In addition, investment in new technology to aid resource recovery as specified in this strategy will be required. These funds cannot be raised in one year alone.

While some funding for new approaches may be available as stimulus packages to aid the circular economy and greater resource recovery, these typically require matched funding. In NSW, a Domestic Waste Management Charge (DWMC) is identified on all rate notices and is a charge levied specifically for the purposes of cost recovery for waste management activities. This charge cannot be hypothecated to other activities. It can, however, be used to build a reserve fund for future capital works.

The amount charged by local councils nationally varies considerably from $280 to more than $500 per property based on the level of service provided, location and asset management. Typically, the charge includes the cost for or access to a waste management system, which in urban communities is a kerbside collection of garbage, recycling and garden organics or in rural areas is access to a transfer station or landfill to self-haul materials. Costs associated with street sweeping, litter management, street litter bins, community education, waste management centre and/or landfill operations, facility licensing, compliance and reporting to statutory authorities are also included. In addition, most councils throughout NSW and indeed Australia also incorporate a component for future funding to cap and close landfills, upgrade waste facilities and invest in new technologies that do not occur in a linear manner.

5.5.1 Variable bin sizes and differential charging
Where a kerbside service is provided and differential bin sizes are offered, councils tend to charge significantly more for bigger bins because a larger amount of waste is produced and the fee acts as a disincentive and therefore to promote waste minimisation. The table below indicates how a number of NSW councils have introduced variable bin pricing to provide a financial incentive to householders to downsize the standard waste bin and act as a disincentive to have larger bins which accommodate more waste.

<table>
<thead>
<tr>
<th>Council</th>
<th>Mosman Cost/yr</th>
<th>Wollongong Cost/yr</th>
<th>Hunters Hill Cost/yr</th>
<th>Leichhardt Cost/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bin size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80L</td>
<td>$288</td>
<td>$283</td>
<td>$271</td>
<td>$388</td>
</tr>
<tr>
<td>120L</td>
<td>$469</td>
<td>$370</td>
<td>$387</td>
<td>$461</td>
</tr>
<tr>
<td>240L</td>
<td>$980</td>
<td>$605</td>
<td>$523</td>
<td>Not available</td>
</tr>
</tbody>
</table>

To establish the amount of income required, an annual operating budget for current and projected waste management activities is required, which is then divided by each occupied portion. Typically, unoccupied vacant land pays a minimal fee.
5.5.2 End-of-life vehicle management
KIC is also faced with the responsibility for the end-of-life management of all products. Other jurisdictions are faced with the same issues and have taken various approaches in respect to the disposal of motor vehicles. For more than 25 years, Lord Howe Island has implemented a strictly enforced ‘one car on, one car off’ policy. Car ownership limits apply and approval from the LHI Board is required for every car imported. For any car brought onto the island, the existing vehicle must be removed at the owner’s expense on the same voyage. The cost of removing cars is not borne by the Council.

We see King Islands’ administration has two options to manage future end of life motor vehicles:
1. Adopt the ‘one car on, one car off’ approach, which is strictly enforced and places responsibility for end-of-life management with the last registered owner; or
2. An advance disposal fees (ADF) on imports of problematic items including motor vehicles and farm machinery, collected at the point of importation. Such funds must be quarantined for this purpose.

Close collaboration with the freight services companies and declaration by owners/importers will be required. All vehicle imports and any vehicle transfers need to be recorded to reduce end-of-life vehicles on the island.

5.5.3 Tasmanian Freight Equalisation Scheme
The Tasmanian Freight Equalisation Scheme (Schedule 1) lists a range of eligible products to which the scheme applies, including a number of waste and scrap materials:
- E-waste 39960
- Metal waste and scrap 39300
- Miscellaneous textile wastes 39210
- Recycled glass 39290
- Used tyres 39260
- Waste organic solvents, such as oil 39940
- Waste, scrap paper or paperboard 39240
- Waste, scrap of plastics 39270

5.5.4 Visitor and tourists’ contribution
The community consultation strategy sought to explore ways by which visitors to the island can contribute to the cost of providing effective waste services given the small rate base. The options presented were:

- Environmental levy on air tickets
- Bed tax based on occupancy
- Departure tax charged at airport

Having an environmental levy on air tickets gained the most first preferences, closely followed by a bed tax based on occupancy. A departure tax was less popular.
Recommendations

1. **KIC should undertake a full review of income and expenditure to determine if current fees and charges reflect true operating costs of both disposal facilities and waste collection;**

2. **The waste management fee should be identified on the rates notice and ring-fenced for waste-related activities only;**

3. **All fees should relate to the actual costs of managing various waste streams. This will require greater day-to-day data collection on deliveries to confirm quantities;**

4. **KIC needs to consider financial mechanisms to create a reserve fund to assist with end-of-life management costs of specific problematic waste streams that must be exported;**

5. **KIC should monitor new funding opportunities from both state and federal governments to build local processing capacity for improved resource-recovery outcomes;**

6. **Establish a reserve fund to ensure adequate funds are available to undertake routine maintenance at the landfill and to ensure ongoing compliance with the Tasmanian EPA. Funds would also need to be adequate to fund landfill licence conditions and to cap and close landfill cells and build new cells as and when required;**

7. **KIC should utilise the Freight Equalisation Program to return appropriate materials for recycling to Victoria, including scrap metal, e-waste, glass, tyres, oil, cardboard and plastics;**

8. **Explore the option of establishing an environmental levy on air tickets or a bed tax based on occupancy to capture a new revenue stream to assist with cost recovery of waste management from the visitor/tourism market.**
6. **STRATEGIC FRAMEWORK**

This strategy seeks to provide guidance on the steps and actions required to successfully make the transition to a more resourceful island community. With any small island with a limited rate base, change needs to happen over time unless external funds can be secured. This strategy provides a roadmap of what needs to happen, with priorities assigned.

Council must engage with the community to ensure sustainable waste management becomes a normal, embedded behaviour. Providing new and enhanced opportunities, equipment, resources, policies, knowledge and information for the community, Council and its staff can make informed decisions to improve waste management outcomes.

To achieve any strategy there is a need to develop measurable and achievable key performance indicators (KPIs). Currently, there is a lack of quantifiable data relating to waste management generation or composition. While targets have been set in the national, state and regional waste strategies for waste management, including litter and recycling, these are not appropriate for King Island, which is at a far lower level of activity than mainland and regional counterparts, where councils have been actively involved in resource recovery and recycling for more than two decades.

We therefore recommend the KPIs and targets be revised after the waste audit is conducted. The audit will quantify the magnitude of the opportunities available. The waste audit should seek to quantify the present baseline. In this way, targets are not subjective nor aspirational but real, relevant and quantifiable over time using the same or similar methods to measure.

Further, given the pace of change in the waste sector and implication of federal and state actions and policies, including the rapid change in societal expectations, it is appropriate to undertake a five-year review. This will allow an assessment of what has occurred, what has been achieved, what has worked and what has failed, as well as other emerging options not available at the time of writing this strategy.

King Island is significantly affected by changes in political decisions at state and federal levels. Examples of this include the announcements in June 2019 regarding the introduction of the statewide landfill levy and container deposit legislation. Further, in the next 12 months, significant new information will be known about the proposed statewide landfill levy, its applicability or not to King Island, how it will be administered, the quantum of the levy, its measurability in remote locations without weigh-bridges and where the funds raised will be directed. Likewise, details regarding the introduction of a CDS, which aims to recover 80 per cent for eligible used beverage containers at 60 refund points, will be a significant game-changer that hopefully will benefit remote and isolated councils such as KIC.

There is a number of possible options that have been considered with the overall objective to increase resource recovery and in so doing improve the current environmental performance of King Island’s waste management system. Each of the options has been considered in relation to the economic, social and environmental benefits achieved by its implementation.

Research, situational analysis, community consultation and stakeholder engagement have all contributed to developing the most appropriate integrated waste-management system for King Island,
based on known facts and information at this time and having due regard to the unique characteristics of this remote locality.

It is recommended that King Island Council adopt the following vision for waste management:

**Vision:** ‘**Improve waste management practices to enable greater resource recovery and circular-economy outcomes for a sustainable future.**’

**Mission:** To maximise resource recovery and minimise waste generation in accordance with the principles of the waste management hierarchy, the need for continuous improvement and social equity.

**Key performance indicators:** These reflect both the State Action Plan and National Waste Policy, seeking to both reduce waste generation and increase diversion, with a local focus on organic diversion:

- Increase recovery of glass, cans, plastics by 50% by 2023;
- Reduce organics waste (food, cardboard and garden waste) to landfill by 50% by 2024;
- Average recovery rate from all waste streams by 2025 and 80% by 2030;
- Reduce overall waste generation by 10% by 2029.

**Key actions and timeline by priority**

The following are key actions grouped by priority and time frame:

- KIC undertakes site works to temporarily cap the former Charles Street Landfill site to the satisfaction of the EPA by 2020.
- Conduct a waste audit to develop baseline data and to inform strategy implementation and targets setting by 2020;
- Establish a reuse shed or tip ship by 2021;
- Establish a program to collect and recycle plastic film and silage wrap by 2021;
- Introduce differential service options by bin size for both commercial and residential customers, with options of 140, 240 or 360 litres by 2021;
- Lease new collection vehicles to service multiple bin sizes ranging from 140–360 litres by 2021;
- Establish source-separation programs for hazardous and problem household wastes by 2021;
- Address legacy scrap metal, garden and wood waste by 2021;
- Upgrade and close Charles Street Landfill and convert to a transfer station by 2022;
- Establish an compost facility by 2022;
- Reduce organics waste (food, cardboard and garden waste) to landfill by 50% by 2022;
- Participate in the state-based container refund scheme and increase recovery of used packaging by 50% by 2023;
- Review impact of CRS and establish new and improved recycling opportunities by 2023;
- Reduce overall waste generation by 10% by 2029;
- Review strategy progress 2024.

In order to achieve these key performance indicators and the range of opportunities, 62 recommendations have been identified. The following tables set out the recommendations collated from this report, grouped by priority and time frame.
The consultant has determined the following priority rankings:

- Immediate
- Urgent – within 1 year
- Very High – within 2 years
- High – within 3 years
- Medium – within 4 years

### Table 7 Priority issues – immediate

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>All scavenging by the public cease to reduce liability and site risks</td>
</tr>
<tr>
<td>2.</td>
<td>Opening hours be extended or modified to accommodate business, tradespeople and the public with earlier opening and/or later closing.</td>
</tr>
<tr>
<td>3.</td>
<td>KIC undertake site works at Parenna Landfill in accordance with the Operations Manual and licence conditions</td>
</tr>
<tr>
<td>4.</td>
<td>KIC undertake site works at Charles St in accordance with the Environmental Management Plan and licence conditions.</td>
</tr>
<tr>
<td>5.</td>
<td>That bunded pallets be purchased and used to ensure any spill or leak is wholly contained.</td>
</tr>
<tr>
<td>6.</td>
<td>KIC support the establishment of a tip shop and seek external assistance in relation to the key measures of success and contracting arrangements.</td>
</tr>
<tr>
<td>7.</td>
<td>That KIC should seek to rejoin CCWMG to provide both ongoing technical support, advice and direction as well as networking opportunities with possible collaboration on specific projects and/or initiatives of interest</td>
</tr>
<tr>
<td>8.</td>
<td>KIC should utilise the Freight Equalisation Program to return appropriate materials for recycling to Victoria including scrap metal, E waste, glass, tyre, oil, cardboard and plastics</td>
</tr>
<tr>
<td>9.</td>
<td>That KIC confirms that Envorinex in Tasmania can recycle all plastic shrink wrap and silage wrap and some hard plastic from the island and seek support from Hydro to financially underpin the project as it does on Flinders Island</td>
</tr>
<tr>
<td>10.</td>
<td>KIC should undertake a full review of income and expenditure to determine if current fees and charges reflect true operating costs of both disposal facilities and waste collection.</td>
</tr>
<tr>
<td>11.</td>
<td>All fees should relate to the actual costs of managing various waste streams. This will require greater day-to-day data collection on deliveries to confirm quantities</td>
</tr>
</tbody>
</table>

### Table 8 Urgent priority issues – within one year

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>Charles Street Depot be renamed the Charles Street Resource Recovery Centre</td>
</tr>
<tr>
<td>13.</td>
<td>KIC as a priority undertake site works to temporarily cap the former Charles Street landfill site to the satisfaction of the EPA</td>
</tr>
<tr>
<td>14.</td>
<td>Given the lack of any data on current waste generation and composition it is imperative that a waste audit be undertaken on household, commercial premises and self-haul to Charles Street Depot to enable accurate design and development of infrastructure that is both scaled appropriately and fit for purpose.</td>
</tr>
<tr>
<td>15.</td>
<td>A Waste Advisory Committee (WAC) be formed, drawing representation from a cross-section of the community</td>
</tr>
<tr>
<td>16.</td>
<td>Establish a reserve fund to ensure adequate funds are available to undertake routine maintenance at the landfill and ensure ongoing compliance with the Tasmanian EPA. Funds should be available to cover landfill licence conditions and to cap and close landfill cells and build new cells as and when required</td>
</tr>
</tbody>
</table>
17. Engage a technical advisor to oversee and guide the implementation of the strategy, including the preparation of a detailed Waste Management Plan, budget and time-line subject to budget approvals and agreed priorities.

18. Council offer the community variable bin sizes – 140 litre and 240 litre – to encourage source separation for recycling to reflect differing household needs in relation to waste generation.

19. Differential fees are introduced for variable bin sizes to reward waste minimisation.

20. Council offer commercial customers the choice of 240 or 360 litre bin options.

21. Commercial premises be encouraged to separate waste into four streams – food, paper/cardboard, recyclable containers and general waste with differential fees based on costs to manage each waste stream.

22. Council trade in or sell both current collection vehicles and investigate leasing a new collection vehicle that can service both residential and commercial premises and a range of bin sizes from 140 to 360 litres.

23. A reuse centre or tip shop be established as an avenue for reuse of furniture, building material, bric a brac with the operation outsourced to a private operator or council.

24. That improved operations including site layout and traffic management be introduced based on the CCWMG Resource Recovery Centre and Transfer Station Best Practice Guideline.

25. Improved source-separation opportunities be established for a broader range of materials and the public encouraged to participate through both improved site layout, signage, communication and pricing mechanisms.

26. Differential fees should be introduced at the waste facility to encourage source separation that relate to destination of each product.

27. A budget allocation of $40,000 be made to relocate the glass pulveriser outside the shed and feed by a mini conveyor with the crushed glass-sand used or sold as an aggregate replacement.

28. KIC should collect and report data in a manner consistent with CWMG for regional consistency.

29. KIC seek to apply to the EPA to increase the licence limit at Parenna landfill from 1500 tonnes to 2499 tonnes per annum.

30. Undertake a feasibility assessment to the establishment of an island composting facility to process organic waste into an Australian Standard (AS4454) compliant compost or soil conditioner and liquid fertiliser for use of the island to reduce the reliance on artificial fertilisers.

31. To manage legacy garden waste, seek quotation from a local operator to process all garden waste and timber offcuts or, if the scale is too large, seek a tender for a tub grinder to process the stockpile.

32. KIC provide a new community interface to allow for easy and convenient drop-off of household hazardous material.

33. Contact ChemClear regarding the opportunity for the island to hold a used chemical clean-up and collection if not previously held.

34. Community education be undertaken to encourage the community to clean out unwanted household and farm chemicals and hazardous items.

35. An accredited trainer from AgSafe or ChemClear undertake staff training on the correct storage and handling of chemicals.

36. The services of ChemClear should be engaged to assess, pack and remove all chemical wastes annually accumulated or at other regular intervals determined subject to the amount of chemicals accumulated.

37. Consult the sector in relation to a chemical storage cabinet and training for staff to handle chemical waste at Charles Street.

38. Contact PSA, Australia and New Zealand Recycling Platform (ANZRP) or Tech Collect seeking to establish an ongoing collection point or clean-up of used E waste on the island.
<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.</td>
<td>Contact Australian Battery Recycling Initiative in relation to battery recycling</td>
</tr>
<tr>
<td>40.</td>
<td>KIC should register as a toner cartridge collection point with Cartridges 4 Planet Ark program</td>
</tr>
<tr>
<td>41.</td>
<td>KIC should register with FluoroCycle as a collection point</td>
</tr>
<tr>
<td>42.</td>
<td>KIC to advocate to ensure that an approved collection depot is provided on KI for residents and visitors to use, with responsibility for the export of the containers the responsibility of the beverage industry</td>
</tr>
<tr>
<td>43.</td>
<td>The waste management fee should be identified on the rates notice and ring-fenced for waste-related activities only</td>
</tr>
<tr>
<td>44.</td>
<td>KIC need to consider financial mechanisms to create a reserve fund to assist with end-of-life management costs of specific problematic waste streams that must be exported</td>
</tr>
<tr>
<td>45.</td>
<td>Explore the option of establishing an environmental levy on air tickets or a bed tax based on occupancy to capture a new revenue stream to assist with cost recovery of waste management from visitor/tourism market</td>
</tr>
</tbody>
</table>

Table 9 Very high priority issues – within two years

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.</td>
<td>A 24-hour recycling drop-off area be established along the front fence and trialled for three months to determine use for depositing key recyclables in clearly identifiable containers that are well signed excluding general waste.</td>
</tr>
<tr>
<td>47.</td>
<td>KIC consider locating the container collection refund point at Charles Street to centralise all activities</td>
</tr>
<tr>
<td>48.</td>
<td>A chipper should be purchased to chip all garden waste while green and to store for resale as mulch or stockpile as feedstock for the composting program when a definite timeframe is known</td>
</tr>
<tr>
<td>49.</td>
<td>Plans be considered to close the active landfill cell and create a transfer station facility with non-segregated waste transported to Parenna Landfill by external provider in a quest to reduce current and future compliance issues</td>
</tr>
<tr>
<td>50.</td>
<td>KIC should manage legacy scrap metal waste to identify landowners with substantial amounts of scrap metal requiring removal and quantify the number of cars, trucks, white goods and amounts of metal</td>
</tr>
<tr>
<td>51.</td>
<td>KIC prepare a tender for the removal of all scrap metal from the island as a legacy clean-up using a baler and/or car crusher subject to the amount and nature of the materials identified and use the freight equalisation policy to assist in reducing freight costs</td>
</tr>
<tr>
<td>52.</td>
<td>Establish a Waste Education Working Group to develop an education strategy</td>
</tr>
<tr>
<td>53.</td>
<td>Design, develop and implement an extensive community, school and visitor education, communication and engagement program highlighting the need to reduce waste and improve resource recovery</td>
</tr>
<tr>
<td>54.</td>
<td>Consider appointing a part-time waste education officer to engage, educate and motivate all sections of the community in the quest to improve waste management outcomes</td>
</tr>
</tbody>
</table>
### Table 10  High-priority issues – within three years

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>55.</td>
<td>KIC await more details on the implementation of the CRS scheme prior to introducing new recycling initiatives</td>
</tr>
<tr>
<td>56.</td>
<td>When markets recover, a mini material recovery facility (MRF) be installed within the existing shed to enable efficient separation of materials with conveyor belts, magnetic head and baler. The existing glass crusher and paper shredder be incorporated into the MRF design</td>
</tr>
<tr>
<td>57.</td>
<td>Encourage greater organic waste separation for residents by providing subsided worm farms and/or compost bins</td>
</tr>
<tr>
<td>58.</td>
<td>Promote organic management training in partnership with the King Island Natural Resource Management Group at the Phoenix community garden</td>
</tr>
</tbody>
</table>

### Table 11  Medium-priority issues – within four years

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>59.</td>
<td>Council investigate introducing a kerbside recycling service to coincide with investment in a mini sorting facility</td>
</tr>
<tr>
<td>60.</td>
<td>Conduct a feasibility study to determine alternative fuels and combustion characteristics</td>
</tr>
</tbody>
</table>

### Table 12  Ongoing issues

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.</td>
<td>KIC continue to monitor market conditions for commodities and seek secure markets prior to establishing new recycling programs</td>
</tr>
<tr>
<td>62.</td>
<td>KIC should monitor new funding opportunities from both state and federal governments to build local processing capacity for improved resource-recovery outcomes</td>
</tr>
</tbody>
</table>
7. **IMPLEMENTATION BUDGET**

While it is acknowledged that current waste management on King Island is operated on very low budgets, any improvement in standards will require a commitment for higher levels of operational and capital funding to ensure that adequate equipment, maintenance and staffing can be provided and maintained to support the new waste management regime. An implementation budget should include:

- capital expenditure
- operational costs
- implementation costs
- replacement costs

A more detailed Waste Management Plan of the preferred options is needed after the acceptance of this strategy.

7.1 **Capital expenditure**

This strategy provides a framework for moving forward but does not provide a full budget. There are many unknown factors that need to be considered and incorporated, including staff time and equipment costs. The following is an indicative-only, first-year budget with significant gaps due to lack of information about a range of current and future costs. A more detailed budget would be prepared in a Waste Management Plan once general agreement is reached on overall direction.

This table provides indicative costs only. More precise costs will be required when specific information and timing of the implementation is agreed. A more detailed budget will be required prior to proceeding with each component. It would appear the indicative costs for implementation are around $1.5 million. Some of these costs to facilitate upgrade and new technology may be able to be co-funded with grants from either the state or federal government.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Item</th>
<th>Indicative Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>Cap, close and remediate old Charles Street Landfill</td>
<td>$352,877</td>
</tr>
<tr>
<td></td>
<td>Compliant activities at Parenna Landfill</td>
<td>$106,038</td>
</tr>
<tr>
<td></td>
<td>Upgrade Charles Street Depot</td>
<td>$35,000</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total</strong></td>
<td><strong>$494,159</strong></td>
</tr>
<tr>
<td>Waste Advisory Committee</td>
<td>Establish local waste advisory committee</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td>Develop and deliver waste education and communication strategy utilise CCWMG where possible</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total</strong></td>
<td><strong>TBD</strong></td>
</tr>
<tr>
<td>Project management</td>
<td>Technical adviser – oversee project implementation up to 2 days per month for 24 months</td>
<td>$50,000</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total</strong></td>
<td><strong>$50,000</strong></td>
</tr>
<tr>
<td>Waste audit</td>
<td>Audit of household, commercial and landfill over 7 days</td>
<td>$45,000</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total</strong></td>
<td><strong>$45,000</strong></td>
</tr>
<tr>
<td>Revolve shed</td>
<td>Provide hard-stand shed with awning, shelves and racking</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total</strong></td>
<td><strong>TBD</strong></td>
</tr>
<tr>
<td>Green waste processing</td>
<td>Chipping service of stockpile per year</td>
<td>$25,000</td>
</tr>
<tr>
<td></td>
<td><strong>Sub total</strong></td>
<td><strong>$25,000</strong></td>
</tr>
</tbody>
</table>
Provide new interface hazardous streams – signage, IBCs, drums, bunded pallets, fluorescent globes shippers, battery containers $8,000
Hazardous storage cabinet $6,000
Provide bunded pallets $1,500
Chemical training course $5,000
Sub total $20,000

Mini conveyor to pulveriser, stand and glass receival hopper $40,000
Sub total $40,000

Feasibility study and options assessment $50,000
Site works and installation of in-vessel system $500,000
Sub total $550,000

Mini sorting line – commingled with magnetic head $110,000
Design and drafting detail $10,000
Installation and commissioning $30,000
Baler – subject to size and materials to be processed TBD
Sub total $150,000

7.2 Operational budget

The preparation of a detailed budget was beyond the scope of this brief and budget.

- **Labour** – The amount of time to undertake the existing activities is not known in respect of the amount of labour and time taken for various current and future tasks. Therefore, it is not possible to predict with accuracy how long it will take and how many staff will be required to undertake the new program. It is suggested the program will be staged based on funding and approvals required. However, it is expected that the proposed program will involve more labour and higher skill levels than the current practices.

- **Freight** – No provision has been made for the freighting of materials and equipment to the island by suppliers nor for shipping any material back to the mainland given the lack of knowledge about quantities and end markets. The application of the freight equalisation to export of waste products has been determined. In addition to sea freight, local transport and wharfage fees are required.

- **Disposal or processing costs** – the disposal and processing costs for the full range of materials is unknown.

- **Training** – Staff training is required on all new practices and commissioning of any new equipment. Specific training will be provided by the various equipment suppliers in the products they provide. Specific training in the storage and handling of chemicals is imperative. Certificate-level courses in Asset Maintenance (Waste Management) are available. These can be conducted in the workplace. There are a number of avenues available to obtain funding to assist with the training.

- **Maintenance** – ongoing maintenance of all equipment is required. Manufacturers were generally not very forthcoming with costs pertaining to maintenance practices, so actual costs should be recorded.
• **Replacement costs** – Inevitably equipment will reach the end of its lifespan and will require replacement. This should be provided for by way of a sinking or reserve fund. It is considered that 15 per cent of the replacement cost should be put aside each year to provide for new equipment. In addition, new bins are likely to be needed each year due to breakages, loss or damage. It is expected that 5 to 10 per cent of the bin infrastructure equipment will need to be replaced each year. We assume that replacement bin parts are included in the fees and charges. The ownership of the residential bins is unknown.
8. CONCLUSION

Waste management on King Island has traditionally been disadvantaged by both geography, isolation and financial constraints. The community has, however, expressed a strong desire for greater recycling and a preparedness to pay.

Waste management must be considered as an essential service similar to water, power and sewerage treatment, with significant public health consequences if inadequately resourced. Adequate capital and recurrent funding must be provided for all essential services as King Island relies on this fundamental infrastructure to function.

The waste hierarchy provides an internationally recognised order to improve management practices, focusing on opportunities to reduce, reuse, reprocess (recycle/composting) before disposal. Waste segregation by the entire community is a key factor in this waste strategy, along with adequate resourcing, both financial and human, to invest in new equipment, processes, systems and policies. Waste management and resource recovery is a shared responsibility between Council and the community.

This report provides a framework for improved waste management. The implementation and timing of such will depend upon the availability of capital and recurrent funding. The information contained in this report provides a guide to those steps and suggests priorities for moving forward. However, with a lack of waste data and detailed planning, budgeting and targets are challenging to provide.

This strategy is deemed to be the most politically acceptable, socially responsible and environmentally sustainable outcome for the current and future residents and visitors to King Island, given the low base and constraints faced by KIC. However, the island community, as well as a range of external stakeholders and government agencies, will determine its appropriateness.

Many other Australian islands have transitioned from a waste disposal focus to a resource-recovery focus. The approach recommended in this strategy supports the mantra of continuous improvement and moves this community to be more in line with other Australian offshore islands.
Public Health Services – Submission on the Draft Waste Action Plan

Introduction

Thank you for the opportunity to respond to the Draft Waste Action Plan Consultation draft (WAP). This submission on behalf of Public Health Services (PHS), within the Department of Health is provided for your consideration and has been predominantly informed through two lenses within PHS: our role as expert advisors in public health nutrition, and our regulatory role in providing expert advice on the public health risks associated with waste management.

Environmental Health and Regulatory Issues

From a regulatory perspective, the general policy position presented in the WAP is supported. Public Health considerations are noted in page 11 and the diagram on page 12 of the WAP. PHS notes the WAP reference to the ongoing public health role in matters concerning the handling and storage of controlled wastes, such as the detail provided in the EPA’s Approved Management Method for Clinical and Related Wastes 2007. It may be necessary to explicitly state in the WAP that public health considerations are an important aspect of any waste reuse schemes – particularly in relation to the bioeconomy - and that in all matters that may have a public health risk, national best practice control measures are implemented.

Working Together: the Tasmania Statement

Public Health Services are committed to the Tasmania Statement, Working Together for the Health and Wellbeing of Tasmanians' which was signed by the Premier in August 2019. This submission aligns with the Statement’s commitment to working together across government on shared priorities and making decisions that benefit Tasmanians now and in the future. Developing and delivering on the WAP is an opportunity to work across government to act together, recognising that the health and wellbeing of all Tasmanians is enhanced by our natural open spaces, fresh food and clean air and water, and the importance of planning...
and acting in a way that creates healthy, liveable and connected spaces for current and future generations of Tasmanians.

**Food and environment are deeply interconnected**

The health of the population and the environment are strongly interconnected through the food system. Food has a two-fold impact on the environment and waste. Food productions draws from the natural environment at a great rate with waste generated at multiple stages before market. Further, waste is generated at the retail, food service and household settings. The process required for mass food production and the associated waste go on to further impact the health of the soil, air, water and these influence future food production.

**A lot of waste is food waste**

Waste generated throughout the food system is a clear and major contributor to overall waste. With organic food waste comprising a large proportion of landfill and global food production being responsible for close to one third of emissions\(^i\), food must be central to considerations of waste and how to reduce both its volume and impact. The National Food Waste Strategy\(^ii\) provides a detailed overview of Australia’s Food Waste issues and would be relevant to consider in the development of Tasmania’s Waste Action Plan.

**Food for healthy people and planet**

A healthy diet in line with evidence-based recommendations is also largely a sustainable diet\(^iv\). This emphasises the importance and efficiencies of working together across sectors to address the shared drivers and solutions to food waste. The Australian Dietary Guidelines recommend eating nutrient dense foods and limiting consumption of discretionary choices that are high in saturated fats, sodium and sugar\(^v\). In practice this means eating plenty of vegetables, fruit, grains, lean meats and dairy while limiting intake of food containing saturated fat (biscuits, cakes, pies, fried foods), added salt, added sugars (confectionery, sweetened beverages) and alcohol. The *Food, nutrition and environmental sustainability* appendix to the Australian Dietary Guidelines are relevant to this discussion and may be useful in development of the WAP. A copy is included as an attachment to this submission.

**Overconsumption is wasteful**

One aspect of food that is fundamental to consideration of waste, but often not highlighted, is the wasteful aspect of overconsumption of food, shown through the high levels of overweight and obesity in the Australian population. Any level of food consumption in excess of a person’s requirements represents an avoidable drain on the natural environment through emissions, use of land, soil, water, packaging, transport and waste. It is worth focusing on consumption of discretionary food choices (highly processed, energy dense nutrient poor foods and beverages), as these foods are not necessary for human health and place a substantial burden on the environment throughout the product life cycle which often entail excessive processing, packaging, transportation and waste. Both forms of overconsumption create increased impacts on CO\(_2\) emissions and impact climate and environment with further flow on effects to future food production. It is also important to note that this overconsumption occurs at the same time as overconsumption at both a global and local scale. This situation represents a problematic food system that must change for the health of the planet and its population.
Working together on shared priorities

These synergies mean that effectively addressing overconsumption, undernutrition, food waste and climate change warrant looking at common drivers and solutions needed for transformative food system change vi. Developing the WAP provides an opportunity to work together across government on joint policy and programs that could address our common goals of reducing food waste and the impacts of food production on the environment while also protecting and promoting the health of Tasmanians. Public Health Services value the chance to work together on these shared priorities.

Please contact Scott Burton, Senior Environmental Health Officer, on or scott.burton@health.tas.gov.au or Holley Jones, Senior Public Health Nutritionist, on or holly-anne.jones@health.tas.gov.au if you would like to discuss any aspect of this submission.

Yours sincerely

Paul Hunt
State Manager Environmental Health Services

7 October 2019

Attachment: Australian Dietary Guidelines Appendix G: Food, nutrition and environmental sustainability

References

---

i Department of Premier and Cabinet Tasmania Statement August 2019


v National Health and Medical Research Council 2013 Australian Dietary Guidelines.

Appendix G  Food, nutrition and environmental sustainability

G1  Key messages

Overconsumption is unsustainable

• Avoid overconsumption—Overconsumption of foods and drinks involves greater use of natural resources and puts more pressure on the environment, including increased disposal of waste food and packaging.  

• Maintain a healthy weight—It is estimated that an overweight population has a greater environmental impact than a normal weight population because they have a higher food (energy) intake – 19% more food energy is required for a population with an obesity prevalence of 40% than for a population with an obesity prevalence of 3%.  

• Choose foods for health and sustainability—Dietary patterns in line with the recommendations in these Guidelines – eating nutrient-dense foods and limiting consumption of discretionary foods high in saturated fat, added sugars and added salt – provide health benefits and reduce the environmental impact associated with foods.  

• Plan meals and shopping—Planning meals and food purchases and moderating the size of food portions can assist with avoiding overconsumption. Pre-shop planning, including checking cupboards, refrigerators and freezers before shopping is economical and reduces food waste from spoilage.  

• Conserve water and energy—If individuals seek further advice on sustainable food preparation, health professionals may encourage conserving water and the appropriate use and maintenance of energy-efficient appliances, and provide practical tips on reducing the use of natural resources when preparing foods (e.g. only using the oven when more than one item requires this cooking method).  

Food wastage and food safety

Store foods appropriately—Decreasing food waste can substantially reduce the environmental impact of food and has financial benefits for households. Food wastage (not including packaging) accounts for about 10% of food purchased. The appropriate storage of foods avoids the unnecessary use and degradation of natural resources.

Dispose of food waste appropriately—Most household food waste that enters landfills can be composted or mulched. The use of composting bins, worm farms or chicken runs promotes the recycling of nutrients back into the home garden.

Keep food safely—Correct handling of food during all stages of its preparation and storage, including temperature control, is critical in ensuring food safety and preventing wastage. Most bacteria can multiply at temperatures between 5°C and 60°C but a few pathogenic bacteria multiply at temperatures at or below 5°C. Date marking provides a guide on the shelf life of food in terms of quality and safety.

• use-by date indicates how long a food can be expected to remain safe, provided it has been stored according to any stated storage conditions and the package is unopened

• best-before date indicates the length of time a food should keep before perceptible changes in quality occur.

Select foods with appropriate packaging and recycle—Appropriate packaging protects food products through transit and storage, thereby reducing food waste. Packaging that is more than is required to preserve food and ensure food safety places higher demands on natural resources. Drinking tap water rather than bottled water decreases production and disposal of plastic bottles. Choosing biodegradable or recyclable packaging reduces the amount of waste entering landfill.

Eating seasonally

Eat fruit and vegetables that are currently growing in the given climate—This can assist with lessening pressure on the food supply by potentially reducing processing, distribution and storage. However, consumers may require advice from health professionals as to which fruits or vegetables are in season and also the challenges associated with avoiding “year-round” produce.

Focus on nutritional value—Some fruit and vegetables may look imperfect but are still nutritionally valuable.
G2 Background

These Guidelines have a firm evidence base and a primary focus on meeting population nutritional requirements, this appendix may assist health professionals to discuss the complex issue of food, nutrition and environmental sustainability with interested individuals. The aim would be to encourage people to review their dietary patterns with a primary focus on improving their health, while allowing them to consider ways to reduce environmental consequences.

The production and consumption of food has a range of environmental consequences. The food system includes interdependent components that provide food for local consumption or export. It is a subset of the natural environment, and depends on and impacts on biodiversity – in Australia and globally. The food system encompasses numerous environmental inputs such as land, water and energy during the many stages from ‘paddock to plate’. The resultant outputs may include greenhouse gases, waste water, land deterioration, packaging and food waste. Figure G1 gives examples of environmental consequences within the food system.

The concept of food consumption habits with lower environmental impact is not new but it is complex. In 2003, the joint Expert Panel of the World Health Organisation and the Food and Agricultural Organisation outlined basic recommendations for dietary patterns that are ‘not only healthier but more favourable to the environment and sustainable development’. This integration of environment and health was also noted in the 2003 edition of the Dietary Guidelines for Australian Adults. Since then, the body of evidence relating to the multifaceted relationship between food systems, sustainability and health has increased but there are still many gaps in our understanding of what this means within the Australian context.

In Australia, the Prime Minister’s Science, Engineering and Innovation Council’s 2010 report into food security emphasised the need to balance the imperative of feeding a growing population with maintaining environmental integrity. However, in easing the pressure on the food system, it is also important to balance nutritional requirements for health and the prevention of chronic disease. This highlights the complex challenge faced by health professionals, where recommended dietary patterns that meet nutritional needs must also be sustainable — that is, equitable, affordable and considerate of environmental factors.

Fostering a sustainable, globally competitive, resilient food supply that supports access to nutritious and affordable food is the primary aim of the National Food Plan. Appropriately, health should be considered in sustainable food systems, where the nutritional requirements of the population can be met without placing pressure on natural resources. A range of concurrent approaches are required to achieve this, relating primarily to food production and food consumption.