COOK SHIRE COUNCIL

WASTE REDUCTION & RECYCLING PLAN

2018 – 2028

RECYCLE
REDUCE
REUSE

"Striving to implement sustainable waste management solutions tailored to our region by 2028"

Contents

List of Acronyms

C&D *Construction & Demolition*	**C&I** *Commercial and Industrial*
CRS *Container Refund Scheme*	**DES** *Department of Environment and Science*
EA *Environmental Authority*	**LAWMAC** *Local Authority Waste Management Advisory Committee*
MRF *Materials Recovery Facility*	**MSW** *Municipal Solid Waste*
WHS *Workplace Health and Safety*	**WRRA** *Waste Reduction and Recycling Act*
WTS *Waste Transfer Station*	

Cover photo supplied courtesy of Teila Winton. Not to be copied or reproduced for any purpose other than this document.

Document Delivery

AECOM Services Pty Limited (AECOM) provides this document in either printed format, electronic format or both. AECOM considers the printed version to be binding. The electronic format is provided for the client's convenience and AECOM requests that the client ensures the integrity of this electronic information is maintained. Storage of this electronic information should at a minimum comply with the requirements of the Electronic Transactions Act 2002.

Executive Summary

Since the development of the 2004 Waste Management Strategy, Cook Shire Council has made significant inroads into improving waste management practices and services provided within the Shire. The closure of aging landfills and their replacement with a network of waste transfer stations, in addition to implementation of a kerbside residual collection service is commendable. Furthermore, the use of community based recycling trailers and the provision of facilities at each waste site for the diversion of recoverable and recyclable materials is contributing to the diversion of approximately 29% of the incoming waste stream from landfill, with the majority of the remaining waste being transported to an external landfill out of the Shire. However, the provision of these services comes at an unsustainable cost to Council, and critical infrastructure such as the Cooktown Waste Transfer Station is not fit for purpose for the long term horizon.

Cook Shire Council is striving to implement sustainable waste management solutions, tailored to the region, by 2028. To do so, a new waste strategy, the *Cook Shire Council Waste Reduction and Recycling Plan 2018-2028* (WRRP) has been prepared. In developing the WRRP, Council undertook an assessment of six opportunities which were identified that were considered able to address key challenges and strategic drivers currently influencing their waste activities.

The assessment process highlighted that the construction of a new landfill, a new waste transfer station, or implementation of an incinerator all scored higher across multiple criteria than the current base case situation, and thus warrant further more detailed investigation. The WRRP further suggests that regardless of investment in any other waste management opportunity, construction of a new master planned WTS in Cooktown is considered to be a necessary and worth- while long term investment.

These and other actions have been formulated into a 10 Year Action Plan, which will guide implementation of the WRRP, and see Cook Shire continue to make progress towards achieving their vision of implementing sustainable, regional specific, waste management solutions by 2028.

Foreword

Cook Shire, described as the gateway to Cape York, is home to approximately 4,424 people spread over an area of over 106,000 square kilometres[1]. The resulting low population density and vast geographic area, coupled with intense wet seasons, long stretches of unsealed roads, and the influx of tens of thousands of tourist visitors per annum, make the provision of cost effective waste management solutions challenging.

The Queensland *Waste Reduction and Recycling Act 2011* (WRRA) requires local governments to plan for waste management activities via the development and implementation of a Waste Reduction and Recycling Plan. Cook Shire has an existing waste strategy which was developed in 2004. This strategy requires updating to reflect the requirements of the WRRA, and the policy setting currently influencing the waste industry in Queensland.

Furthermore, in 2014, the Queensland Government released the "Queensland Waste Avoidance and Productivity Strategy 2014 – 2024". Whilst this document was under review at the time of compiling this plan, it seems clear that a new comprehensive waste management strategy will be introduced that will be underpinned by the reintroduction of the Queensland waste levy. The levy aims to increase recycling and recovery, create new jobs, and provide a disincentive to the practice of long-distance transport of waste to Queensland for disposal. Furthermore, the state strategy will provide the waste and resource recovery sector with the policy certainty that it has been lacking, and will provide a much needed source of funding for programs to support the development of new markets and products. The key principles underpinning Queensland's new waste management strategy are that it will[2]:

- Attract industry investment and innovation
- Create new jobs for communities
- Have no direct impact on Queensland households
- Deliver long-term value to the environment
- Move Queensland towards a circular economy

Source: Tourism Cape York, 2018

In addition to the revised Queensland Waste Strategy, the state government has, or is considering the implementation of landfill bans on sorted concrete, tyres, and municipal green waste; a plastic bag ban; the introduction of a Container Refund Scheme in November 2018; and has made a commitment to work with councils and industry on a zero waste future.

Cook Shire Council has considered the above drivers in light of their specific circumstances and has drafted a 10 year Cook Shire Council

[1] ABS (2016) *Australian Bureau of Statistics – Regional Summary, www.stat.abs.gov.au Accessed 26 April 2018*

[2] Queensland Government 2018 *Transforming Queensland's Recycling and Waste Industry, Discussion Paper* Department of Environment & Science

Waste Reduction and Recycling Plan 2018 – 2028 (CSC WRRP 2018-2028) to enable them to fulfil their waste management vision:- *"Striving to implement sustainable waste management solutions tailored to our region by 2028".*

Waste Management in 2018

Challenges to Waste Management

Cook Shire, covering an area of 106,000 square kilometres from the Bloomfield River in the south, to the Jardine River in the north, covers the largest geographic area of any Queensland council. It is home to approximately 4,424 residents, 60 percent of which reside in the largest township of Cooktown. The majority of the remaining residents live in the smaller townships of Lakeland, Laura, Coen, Ayton, Rossville, Portland Roads and Marton.

Cooktown is a service centre for the district, including the Aboriginal communities of Hopevale and Wujal Wujal, and is also the gateway to Cape York Peninsula. It is estimated that approximately 75 to 80% of tourist visitors who pass through Cooktown are on their way to 'the Tip'[3].

Cooktown has a tropical savanna climate, marked by a distinct wet (December to April), and dry (May – November) season. The average annual rainfall of 1,809mm, makes unsealed road unpassable during the wet season, and isolates remotes communities.

These factors combine to provide an insight into why the delivery of cost effective waste management solutions within Cook Shire is challenging.

[3] Cook Shire Visitor Information Centre, *pers com* 31/05/2018

Strategic Drivers – Regulatory and Policy

The *Waste Reduction and Recycling Act 2011* (WRRA) sets out a framework for prioritising waste management practices in Queensland in order to modernise waste management and achieve the best environmental outcome. One of the key provisions of the WRRA is the requirement for Queensland government agencies and local governments to prepare waste management plans, which must address the following as a minimum:

- Waste reduction and recycling targets,
- Actions to be taken to improve waste reduction and recycling rates,
- Details of current and proposed waste infrastructure,
- The management and monitoring of the local government's performance under the plan,
- Information about achieving continuous improvement in waste management.

Cook Shire has developed this WRRP to satisfy, as far as practicable, the above requirements.

The WRRA also requires the State government to develop a strategy to help in achieving the objectives of the Act. The *Queensland Waste Avoidance and Resource Productivity Strategy (2014-2024)* provides high level direction for waste management and resource recovery in Queensland over the 10 year period covered by the plan, and establishes guiding principles and targets for improving resource recovery and recycling rates. Whist as mentioned this strategy was under review at the time of compiling this WRRP, the guiding principles still apply and should be reflected in the development of the WRRP.

Underpinning the strategy is the Waste and Resource Management Hierarchy, which establishes an order of preference for options

for managing waste, with avoidance or reuse being most preferable, and disposable being least preferable.

Figure 1 - Waste and Resource Management Hierarch

The strategy recognises that there are challenges associated with waste management in regional areas, and acknowledges that wastes which can reasonably considered 'recyclable' differ across the state.

The Queensland Government has also committed to the introduction of a Container Refund Scheme (CRS) in November 2018. Under the scheme, a 10 cent refund will be provided for eligible, empty beverage containers between 150mL and 3L in size that are returned to a participating container refund point. The state wide scheme will provide regional and remote area benefits by creating new jobs and recycling opportunities, and will assist in reducing beverage container litter.

In addition to the above, the Queensland Government is also considering:

- Introducing landfill bans (sorted concrete, tyres, municipal green waste),
- Reintroducing the waste levy,
- A commitment towards a zero waste future.

The effect of the potential landfill bans has not been considered in detail in this WRRP as CSC already divert the targeted products from the waste stream.

The above legislation and policy commitments are a step in the right direction towards reducing waste to landfill, and viewing waste as a resource rather than an end of life object. However, these initiatives may or may not come to the fore, and CSC needs to continue with the provision of a fundamentally sound waste management system for their community, whilst keeping the policy setting in their peripheral vision.

Furthermore, the applicability of any proposed measures to rural and regional centres such as CSC needs to be considered on a case by case basis, as a blanket state wide approach may not suit each individual community.

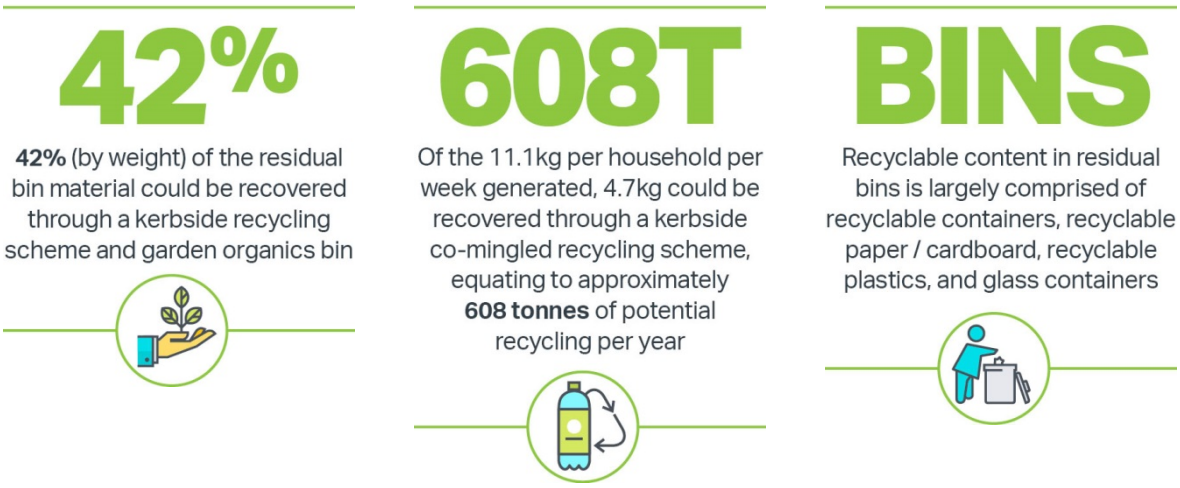
The full implementation of any new scheme will also take time. In the interim, council's such as Cook Shire need to stay abreast of industry drivers at the same time as continuing to plan for and implement effective waste management solutions which address the needs of their communities.

Strategic Drivers - Previous Reports

In 2016 the Far North Queensland Regional Organisation of Councils (FNQROC), of which Cook Shire is a part, commissioned a two stage project to assist the member councils to make informed decisions regarding the future development and improvement of the region's waste and resource recovery sector. The Situational Analysis Report (Stage 1) provides FNQROC members with a snapshot of the current conditions of the waste industry in the region. The report suggests that CSC has invested firmly to improve its waste management, in particular recycling, to divert more material from landfill. It further suggests that investing in recycling opportunities will have a dramatic effect on the amount waste disposed to the landfill, consequently reducing the high transport costs[4].

Cook Shire Council also conducted two domestic kerbside waste audits at six monthly intervals in April 2016 and October 2016. Key findings of the audits are outlined below [5].

Figure 2 - Key statistics from Kerbside Waste Audit 2016

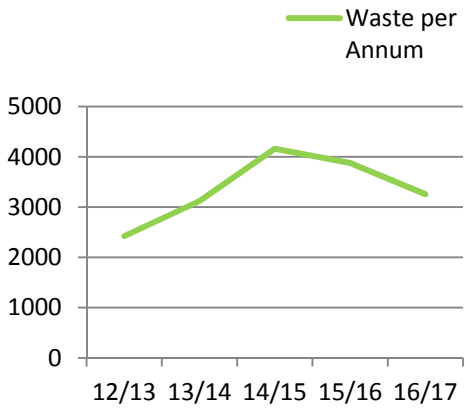


[4] ARCADIS 2016 *FNQROC-Regional Waste Situational Analysis* Arcadis Brisbane
[5] APC 2016 *CSC October 2016 Kerbside Waste Audit Report* APC Waste Consultants Sydney

Waste Generation

In 2016/2017, a total of 3,255 tonnes of waste was recorded as being generated in Cook Shire. This has reduced significantly compared to 2014/2015 (4159t) and 2015/2016 (3877t). The occurrence of natural disasters such as Tropical Cyclone Ita in April 2014 and Tropical Cyclone Nathan in March 2015 can have a profound effect on waste generated within a community, sometimes contributing up to a full year's worth of waste from one event.

Figure 3 - CSC Waste Tonnes Per Annum (5 years)

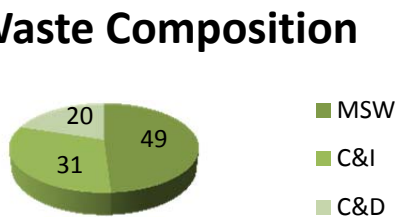


Waste Composition

Of the waste recorded in 2016/2017, just over one quarter (25.4%) was comprised of waste collected via the provision of a kerbside residual waste collection service. Construction and demolition waste (20.2%), self-hauled commercial and industrial waste (17.3%), and self-hauled recyclables (14.75%) were other significant contributors to the overall volume of waste recorded.

Of the waste received, 49% is comprised of municipal solid waste, 31% is commercial and industrial waste, and 20% is made up of construction and demolition waste.

Figure 4 - CSC Waste Composition by Stream 2016/2017



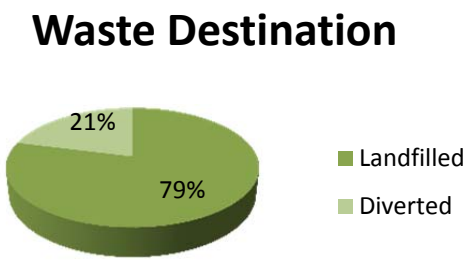
The composition of Cook Shire waste is notably different to that generated by the rest of Queensland, with the state average waste stream comprising 28% MSW, 31% C&I, and 41% C&D in the 2015/2016 year. Contributing reasons for this include:

- CSC may classify and record data under different waste stream types,
- CSC has gone through a period of having reduced building approvals, which results directly in reduced quantities of C&D waste,
- Due to the size of the community and relatively remote location, commercial activity is generally reduced in Cook Shire compared with more major metropolitan centres.

Waste Diversion and Recycling

Of the waste received in 2016/2017, 71% was landfilled, with the remaining 29% being recovered for recycling and / or reprocessing. Of the landfilled waste, 91 tonnes was managed within the Cook Shire, and in excess of 2,000 tonnes were transported to Mareeba for disposal at an external landfill. Waste diversion figures indicate that approximately 36% of MSW is diverted from landfill, in comparison to the State Waste Strategy baseline of 30% for regional areas, thus suggesting CSC is doing a sound job of diverting waste from landfill despite the challenges faced.

Figure 5 - CSC Waste Destination 2016/2017



Of the diverted product, the top four commodity groups include:

- Commercial paper and packaging (32%),
- Municipal green waste (20%),
- Biosolids (15%),
- Municipal paper and packaging (15%).

Cook Shire Council waste facilities provide for the separation of self- hauled commodities for stockpiling and / or reprocessing. Mixed recyclables are also segregated from the residual waste stream via the provision of community based recycling trailers. In 2016/2017, these efforts resulted in the diversion of the following products / tonnages from landfill.

Table 1 - CSC Diverted Product 2016/2017

Processed Recyclables	Tonnes (16/17)
Clean paper/packaging	210
Mixed paper/cardboard	270
Green waste	313
Lead acid batteries	16
eWaste	19
Ferrous metal	578
Concrete	111
Mineral oil	48
Chemicals	0.5

Data indicates that the per capita generation of waste in Cook Shire (0.77t per person per annum) is well below the State average of 1.9 tonnes per person per year. This may be due to the following reasons:

1. Data - Either all waste loads are not being recorded as they enter waste facilities, or the deeming of weight on volumetric loads in the absence of a weighbridge may contribute to some data inaccuracy.
2. Consumer behaviour – Cook Shire residents have reduced access to shops to purchase consumer goods such as electronics, toys, household furniture etc. As such, they buy fewer products, and are more likely to use them until the end of their life.
3. Illegal dumping – Given the remote and vast nature of the Shire, it is possible and somewhat likely that more illegal dumping occurs than is recorded.
4. At home waste disposal – Similar to the above, it is likely that some residents, particularly on larger properties, manage the disposal of some of their waste streams at home. It was noted that some people incinerate green waste and paper/cardboard in their homes, thus these tonnages are not recorded in the mass balance.

Population Profile and Waste Projections

Australian Bureau of Statistics Estimated Resident Population (ERP) data indicates the population of Cook Shire increased by 105 persons from 2015 to 2016, with the 2016 ERP of the shire being 4,424.

Historically, over the past 10 years, the only significant and consistent trend in population growth occurred from 2006 to 2011, and since this time, there has not been a linear trend. In the absence of other growth projections, an estimated growth of 3.4% per annum has been assumed, being the average of the prior two years growth figures. The resulting impact on waste generation is presented below and assumes no increase in the currently recycling rate. These figures indicate that Cook Shire

will need to manage almost 5000 tonnes of waste per annum by 2028 based upon today's baseline situation.

Table 2 - CSC Population and Waste Projections

Year	Population	Waste (tonnes p.a.)
2017	4424	3255
2018	4574	3366
2019	4730	3480
2020	4891	3598
2021	5057	3721
2022	5229	3847
2023	5407	3978
2024	5591	4113
2025	5781	4253
2026	5977	4398
2027	6180	4547
2028	6391	4702

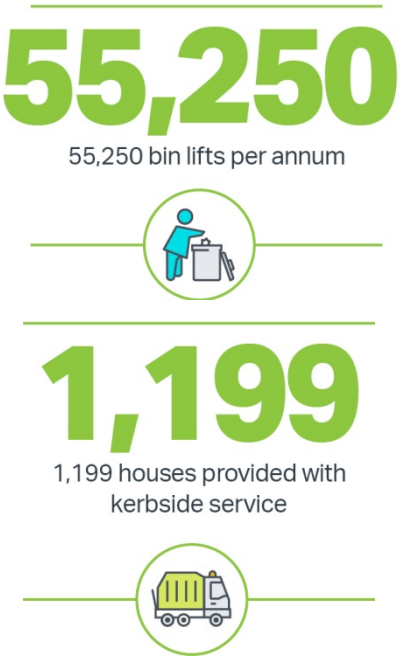
Current Services

Cook Shire Council's kerbside collection contractors lift approximately 55,250 bins per annum arising from 1,199 properties across the shire which are provided with a weekly or fortnightly kerbside residual collection service.

Residents have access to either 120L or 240L wheelie bins, with the differential fee structure encouraging the uptake of the smaller bin size, and the voluntary participation in self-haul recycling activities. The fees charged for the bin size options during the 2016/2017 year were $200 per annum for a weekly 120L bin, and $460 per annum for a weekly 240L bin collection.

There are additional properties within the Cook Shire which are outside of the designated collection area and do not receive a kerbside service. These residents have access to the waste facilities available throughout the shire.

Figure 6 - Key Kerbside Collection Metrics



Current Facilities

Since the development of the previous 2004 Waste Strategy, Council has made considerable progress with respect to rationalising waste facilities within the Shire. These actions have resulted in closure of the Cooktown, Laura, and Ayton landfills, and the subsequent development of a waste transfer station on each site.

These landfill sites will remain licensed, and will require rehabilitation and ongoing maintenance and monitoring for a period of up to 30 years in line with regulatory requirements. As such, they will have significant ongoing financial and resource implications for Council.

The only remaining active, licensed landfill within the Cook Shire is located at Coen. This landfill is necessary due to this township being approximately 400 km from Cooktown, and road conditions being such that the community may be cut off by road during the wet season.

A summary of the waste facilities operated by CSC is provided in Appendix 1. In addition to these facilities, CSC also provides bins for waste disposal at:

- Port Stewart,
- Annie River boat ramp,
- Marina Plains.

A waste pit is provided on the main road (Telegraph Road) in the vicinity of Batavia Downs. The Portland Roads Community also has a waste facility.

Furthermore, the following privately operated waste pits exist within the Cook Shire. These facilities accept primarily domestic waste from motorists and limited commercial waste from the roadhouses. Poor road conditions and the remote location prohibit CSC from operating a collection service to these facilities:

- Hann River Roadhouse,
- Musgrave Roadhouse,
- Bramwell Junction Roadhouse.

Figure 7 - Cooktown WTS

There may be some opportunity for the establishment of small transfer station facilities at Hann River, Musgrave, and Archer River; however road conditions during the wet season limit access to these sites. This is of less concern given the tourist season (April – September) produces the bulk of the waste received at these locations, and this occurs during the dry season when access is possible. Furthermore, the continued upgrade of the Peninsula Development Road under the jointly funded Cape York Region Package will see sealing of further sections of the road hence access problems will reduce over the coming years. This opportunity should be kept in Council's peripheral vision and re-evaluated upon update of this WRRP.

Waste arising from the Jardine River Ferry area is managed by Injinoo Council.

There are no weighbridges at CSC waste facilities. Waste is recorded volumetrically either at the facility, or upon transfer to the Cooktown Transfer Station. Volumetric measurements are converted to mass using deemed weights. Transfer trailers containing waste and / or recyclables are weighed upon entry to either the Cairns Materials Recovery Facility (MRF) or Springmount Landfill in Mareeba.

Wastes Requiring Special Consideration

The following sources of waste generated within Cook Shire arise largely from commercial activities or the provision of non-Council related services, and as such require special consideration both from a responsibility and a cost perspective:

- Event based waste,
- Waste arising from National Parks.

As part of the actions arising from implementation of the WRRP, CSC will be developing procedures for the management of these waste types. In the interim however, the following general principles should apply:

- The organiser / waste generator will be responsible organising and managing their waste streams,

- Responsibility for management of these wastes will not become a financial cost to Cook Shire Council.

Litter and Illegal Dumping

Cook Shire Council has spent an average of approximately $90,000 per annum over the last five years on the management of litter and illegal dumping.

Queensland Parks and Wildlife Service have adopted a 'no dumping in the park' philosophy for the management of waste in national parks across Cape York Peninsula. As such, it is up to tourist visitors to carry their own waste for subsequent disposal at formal waste facilities. Whilst understandable from a logistics point of view due to difficulties associated with servicing waste facilities in the national parks, this policy results in increased amounts of 'fly tipping' across the Cape which becomes the responsibility of local governments and Aboriginal councils to manage.

Furthermore, tourist websites direct visitors to facilities including the Cooktown, Ayton, Lakeland and Laura WTS, all of which are only open during restricted hours. This may also contribute to the occurrence of litter and illegal dumping within the Shire when tourists arrive at a facility after hours.

Council Generated Waste

CSC does not separately track the quantity of waste generated by their activities. They do however encourage responsible waste management and provides facilities within Council offices for collection of mixed recyclables including paper, plastics and cardboard. CSC also divert the following materials from the waste stream prior to disposal:

- Electronic wastes,
- Motor oils and filters,
- Tyres.

CSC will continue to act responsibly in the management of their waste streams, and will seek additional opportunities to divert and recycle materials if and when they arise.

Furthermore, departments within Council need to consider aligning to support the reuse of products within Council activities. Such products may include:

- Green waste for use on parks and gardens
- Glass and/or crushed concrete for use in internal construction projects

Waste Education

Whilst not formalised into a documented community education program; CSC actively run targeted campaigns on an as needs basis in response to external drivers.

Dissemination of the information takes multiple forms, and includes the use of Council's website; Facebook; Council newsletters; flyers at key locations including waste facilities, shopping centres, and CSC Customer Service Centre; and external websites such as Cape York Tourism.

Furthermore, CSC is a member of the Local Authority Waste Management Advisory Committee (LAWMAC) which will provide Council with contacts and resources to assist in establishing a comprehensive waste education program.

Source: Department of Environment and Heritage Protection, 2018

CSC may also wish to utilise resources provided by the Department of Environment and Science (DES) including their interactive map of Queensland waste facilities, and recycling / disposal artwork, which is free to download from the department's website.

Source: Tourism Cape York, 2018

Financial Implications of Waste Management

Waste management activities within Cook Shire represent a significant cost to Council, with expenses exceeding income, resulting in an ongoing budget deficit.

The total waste management cost for Cook Shire waste operations is $1.8m and the total waste revenue is approximately $900,000.

Capital works required to develop waste infrastructure are primarily funded through the application of an Environmental Levy on rateable properties, and via grants from external sources.

Waste Management 2018 – 2028

Waste Management Vision

As part of the development of the WRRP, key members of the CSC waste team were engaged in an Aspirations and Objectives Workshop in order to understand details of the current situation as it relates to waste management, and the desired future.

Participants indicated the key drivers for consideration in developing the new WRRP included:

- The need for clear direction for the management of waste going forward. Activities need to be well planned out, and communicated more clearly to the community,
- Cost is a key driver – the current operating deficit is unsustainable,
- A plan is required to provide direction for infrastructure upgrades, to inform Council's capital budget.

Key participants were asked what their five year vision for waste management in the Shire would entail, with responses including:

- Increase the recycling rate within the Shire (within in the means of the Council to implement the measures),
- Reduction in the cost of waste management activities,
- Have a plan for implementation of required infrastructure upgrades,
- Achieve regulatory compliance for waste facilities.

On this basis, a vision to guide the strategy was developed.

CSC WRRP Vision - "Striving to implement sustainable waste management solutions, tailored to our region, by 2028"

Key Priority Areas

The output from the Aspirations and Objectives workshop was considered, and five key priority areas were agreed upon:

1. Financial Sustainability and Governance
2. Waste Reduction and Recycling
3. Infrastructure Planning and Management
4. Waste Operations and Compliance
5. Community Engagement and Awareness

The Key Priority Areas form part of the CSC WRRP document structure, and have formed the foundation for the development of objectives and targets, and the subsequent implementation of an action plan.

Community Input

During the development of the WRRP, CSC engaged with the community to ascertain their satisfaction with the current waste management services and facilities, current level of education regarding waste and recycling, and their willingness to pay for additional services. A summary of the responses received follows.

A total of 71 responses were received in response to the release of a short survey.

Figure 8 - Summary of Community Engagement Responses

70% of respondents were dissatisfied with current waste management **services**. Reasons for dissatisfaction included:

- Desired more access to recycling facilities
- Support for introduction of kerbside recycling scheme
- Current facility opening hours insufficient
- Tip shop should be reintroduced
- Inequality in the way waste is charged
- Cost paid isn't on par with services provided

56% of residents were dissatisfied with waste **facilities**. Commonly cited reasons included:

- Opening hours too restricted
- Cost to dispose of waste is too high
- Facilities are messy and disorganised
- Request for annual kerbside collection service

90% of residents currently recycle some of their waste due to force of habit, or desire to be environmentally responsible. 41% of respondents indicated they would be willing to pay between $50 and $150 extra per annum to receive additional recycling services.

General Comments:

- Significant support for reopening of the Cooktown Tip Shop
- Rural area litter and illegal dumping needs to be addressed
- Be practical and accept Cooktown is a small town with limited resources
- CSC needs to function more autonomously locally, to allow industry to grow for re-use of recyclables
- Some scepticism that diverted product does get recycled

Objectives and Targets

Feedback received from council staff during the Aspirations and Objectives workshop and from the community via the engagement activities has been formulated into over-arching strategic outcomes relating to each of the Key Priority Areas. The strategic outcomes are outlined below, and have been utilised in the development of objectives, targets, and actions as represented in the CSC WRRP 2018 – 2028 Action Plan provided in Appendix 2.

Table 3 - Strategic Objectives associated with Key Priority Areas

KPA1 – Financial Sustainability and Governance
Develop and implement a financial model and pricing regime which accounts for all known future liabilities, is commensurate with the level of service provided, and which is cognisant of the user pays principle.
KPA2 – Waste Diversion and Recycling
Keep a watching brief on external waste industry drivers in order to inform the introduction of additional diversion and recycling measures specific to Cook Shire's resources and geography, if and when the market permits.
KPA 3 – Infrastructure Planning and Management
Develop and implement a plan which accounts for new infrastructure as required, and the management of future liabilities arising from existing infrastructure, in order to improve the financial sustainability of waste operations and maintain or improve the current level of service to the community.
KPA 4 – Waste Operations and Compliance
Operate waste facilities with the needs of all parties in mind, including patrons, council staff, and regulating bodies. Aim to improve waste operations to achieve compliance with Environmental Authority conditions, with consideration to aligning this outcome with the strategic objectives of KPA1 and KPA3.
KPA 5 – Community Engagement and Awareness
Increase awareness amongst the community on best practice waste management. Encourage the associated behaviour via the development of awareness and education activities which are tailored to the specific outcomes CSC are aiming to achieve.

Figure 9- Relationship between WRRP and CSC Corporate Documents

Opportunities and Constraints

With the CSC Waste Management Vision and key priority areas in mind, a list of opportunities were identified which were considered able to address the strategic objectives desired to be achieved via the development of the WRRP, and which would add value to the CSC waste management system.

The opportunities have been categorised into Infrastructure based opportunities, and Waste Diversion and Recycling based opportunities.

Infrastructure based opportunities require capital expenditure in order to either construct new, or update existing waste infrastructure within the Shire. Some of these opportunities can be implemented in isolation, (e.g. transfer station or landfill); or can be combined with added pre-processing technologies (e.g. shredders) in order to add value.

Waste diversion and recycling based opportunities do not necessarily require significant capital outlay, but may instead incur an added ongoing operational cost.

Opportunities Identified

The resulting opportunity list is as follows.

Infrastructure Based:

1. Development of a new landfill within Cook Shire
2. Development of a new waste transfer station within Cook Shire
3. Development of a compost operation within Cook Shire
4. Development of an incinerator within Cook Shire

Waste Diversion and Recycling Based:

5. Introduction of a kerbside recycling scheme
6. Industry driven option – Container Refund Scheme + Bale Cardboard

Description of Opportunities

Each opportunity was evaluated using a semi-quantitative strengths-weaknesses-opportunities-threats (SWOT) analysis. The ability to address the key drivers of reducing the operational deficit, and improving waste diversion were also noted. A summary of key points from the SWOT analysis is below.

Development of a new landfill

Description

- New landfill, to accept MSW, C&I, C&D and mixed regulated waste
- Situate within 15km of Cooktown to avoid the need for development of a transfer station to bulk up waste prior to transport

SWOT

Strengths

Reduced reliance on external, non-CSC facilities.
Reduced waste transport costs.
Improved ability to manage disaster waste.

Weaknesses

Requires extensive landfill siting process, stakeholder consultation, and approvals process.
Regulatory burden for compliance lies with CSC.
May also require new transfer station dependent upon location.

Opportunities

Ability to raise revenue from receipt of external waste sources.
Ability to master-plan a new integrated solid waste facility, including resource recovery areas, to maximise waste diversion.

Threats

Siting a landfill is a lengthy process and drivers for the project may change throughout.

Key Drivers Addressed

Development of a new landfill (without a new transfer station) may be marginally less expensive than the current base case.
A new landfill may not encourage waste diversion and recycling as landfilling locally will be cheaper than diverting and transporting to external markets.

Development of a new transfer station (WTS)

Description

- Design and build a new WTS on Council owned land within proximity to Cooktown centre
- Master-planned facility
- Design to be cognisant of improving transport efficiencies
- Transport to external facility for disposal required

SWOT

Strengths

Replaces current aging / unfit infrastructure (Cooktown WTS).
Master-planned facility to promote additional resource recovery.
Potentially suitable Council owned land currently available.
Allows for less operational constraints during rehabilitation of Cooktown Landfill.

Weaknesses

Option still relies upon external landfill / waste facility for final treatment or disposal.
Ongoing transport costs will be incurred.
Construction requires significant capital outlay.

Opportunities

Potential reduction in operational cost if current double handling situation is removed.
Potential reduction in transport costs arising from improved waste diversion and transport efficiencies gained via adding either shredding, compaction, or reduced water in waste mass.

Threats

Could be viewed by residents as a waste of money given current Cooktown WTS is relatively functional.

Key Drivers Addressed

Capital cost and ongoing transport costs mean an overall increase in cost compared to current base case situation (small operational savings outweighed by capital costs).
May promote a small improvement in the ability to divert recyclable and recoverable material.

Development of a compost operation

Description

- Operate a low technology (windrow, in-vessel) compost operation on Council owned land in proximity to Cooktown centre

SWOT

Strengths

Addresses a solution for municipal green waste in light of pending landfill ban.
Reduces carbon liability should a Carbon Tax be reintroduced.
Technology can be scaled to CSC tonnages.
Allows for implementation of Proximity Principle (local use) to the management of waste.
Can accommodate multiple waste streams (e.g. green waste, biosolids, paper, cardboard, food organics)

Weaknesses

Existing compost operations already exist in CSC. Market for higher quality compost product likely to already be saturated.
Transport out of Shire unlikely to be viable from a cost perspective.
Added capital and operational cost required.
Siting a facility challenging (odour issues to be considered).
Requires an Environmental Approval process.
Significant footprint required for windrow compost operation.

Opportunities

Ability to offset cost if a market for end product is available.
Ability to utilise product in Council operations (e.g. parks and landfill rehabilitation).

Threats

Economic feasibility of operation is highly dependent upon securing an end market.

Key Drivers Addressed

There is some potential to decrease current operational costs, via removing the requirement to contract out biosolids management as is the present situation.
Will not contribute to improved diversion however may provide a higher use for treated diverted product than the current situation of using mulch on landfill batters.

Development of an Incinerator

Description

- Purchase and operation of an incinerator unit at the Cooktown WTS
- Minor additional capital upgrades allowed for (e.g. slab + covered waste storage area)
- Residual ash transported to external landfill facility

SWOT

Strengths

Drastically reduces the volume of the input waste (10% residual volume as ash).

Largely reduces the requirement for transport of waste, with the exception of residual ash and incompatible items.

Technology can be scaled.

Weaknesses

Waste ash will still be produced, requiring landfilling.

Moderate initial capital investment required.

Requires Environmental Approval.

Higher ongoing operational and maintenance costs compared to current situation.

Opportunities

Useable by products (e.g. heat /power) can be produced.

Employment of a technology higher up the waste hierarchy than disposal.

Can utilise waste oil as a fuel source.

Threats

If the benefits are not clearly communicated, the public may perceive an incinerator to be 'dirty' polluting technology.

Reliability of technology and the ability to service it locally will affect the success of the option.

Key Drivers Addressed

The purchase and operation of an incineration unit (without the construction of a new transfer station to house the equipment) may result in a reduction in cost compared with the current base case situation.

Operation of an incinerator, similar to a new landfill, may discourage waste diversion if incinerating diverted product is cheaper than transporting it to an external end market.

Introduction of Kerbside Recycling

Description

- Introduction of a fortnightly kerbside recycling service in addition to current residual bin collection
- Existing defined collection service area to be covered
- 240L recycle bin as standard option

SWOT

Strengths

Diversion of MSW from landfill should be maximised.

Aligns with expectations of some CSC residents, as evidenced by survey results.

Provides CSC the ability to offer additional bin size configurations, with associated variable pricing regime.

Opportunity to remove community based recycling trailers.

Weaknesses

Additional administrative expenses associated with managing contract.

Requires ongoing education component to reduce contamination levels.

Opportunities

Some opportunity to reduce frequency of collection of residual waste bin to offset cost of recycling collection.

Opportunity to constrain the size of the residual waste bin to 120L as a standard to encourage behaviour change.

Threats

Viability of solution is highly dependent upon external drivers such as the state of the Australian recycling industry, and the willingness of Materials Recovery Facility operators to accept diverted product.

The viability of a kerbside scheme may be affected by the introduction of the Container Refund Scheme.

Key Drivers Addressed

Introduction of an additional fortnightly recycle service whilst maintaining a weekly waste service will increase the current operating costs. Costs may be offset if residual waste collection is reduced to fortnightly.

Will improve the diversion of MSW to levels above State strategy targets.

Await introduction of CRS + Bale Cardboard

Description

- Participation by Cook Shire residents in the CRS will require no input from CSC. The scheme is externally facilitated.
- Continue with contract arrangements with Orora Recycling for the management of diverted cardboard to maximise the spectrum of products diverted.

SWOT

Strengths

CRS provides an incentivised way of increasing recycling of select product streams, at zero or low cost to CSC.

Baler provides a means to efficiently store and transport diverted cardboard.

Weaknesses

Introduction of CRS isn't driven by CSC. As such, it may be viewed by residents as Council taking the easy way out in lieu of introducing a kerbside recycling scheme.

CSC has little control over whether diverted product ends up in a recycling market.

Diversion and baling of cardboard requires improvements to storage of diverted product, and has ongoing associated transport costs.

Opportunities

Decreased in operational transport cost currently associated with transport of recyclables to Cairns MRF.

Reduced gate fees paid to MRF due to reduced volumes of mixed recyclables.

Dependent upon utilisation of CRS by residents, there may be some opportunity to remove the community based recycling trailers. Some revenue may be gained via the sale of diverted product, depending upon market commodity prices.

Threats

Success of the scheme in a regional area will depend upon local operators establishing themselves as scheme participants.

Key Drivers Addressed

The introduction of the CRS and management of cardboard via the existing contract arrangements should result in a small cost decrease compared to base case.

Improvements in the diversion of product from landfill should be realised by this option.

Opportunities Not Considered

In addition to the above options which have been evaluated as potentially viable for consideration in managing the waste streams generated by Cook Shire, the following options were identified but not considered in any detail.

Anaerobic Digestion

Anaerobic digestion (AD) is a process whereby microorganisms break down biodegradable material in the absence of oxygen. It was not considered as an option suitable for further evaluation for the following reasons:

- AD would require a dedicated collection system for diverted organics. Whilst the 2016 Kerbside Waste Audit Report indicates food/kitchen waste comprises 11% of the bin weight (equating to 1.4kg per household per week), it was considered that a dedicated kerbside collection service for this limited amount of feedstock is not economically viable.
- CSC encourages at home composting, providing subsidised compost bins and worm farms for sale through the customer service centre. A 'typical' Australian household garbage bin may contain up to 35% food organics compared to 11% in Cook Shire, suggesting a good level of uptake by residents in participating in at home composting activities.

Constraining Residual Bin Size

In order to encourage waste diversion, CSC may consider a mandatory reduction in the size of the kerbside residual bin. At present, residents have the choice of either a 120L or 240L bin, with a cost incentive provided to adopt the smaller bin size. Introduction of a mandatory 120L bin option, in the absence of

introducing any other opportunities, was not considered viable for the following reasons:

- The CSC Waste Audit Report indicates residents are already using a large proportion of their waste bins. Average utilisation was 77%, and the median was 90%. Furthermore, 29% of bins were either full or overflowing, compared to 21% that are less than half full. Without the addition of an extra recycling or organics bin collection, constraining the residual bin size is not considered likely to provide residents with an effective waste management solution.
- Encouraging waste diversion is more appropriate in regions where there are cost effective, viable solutions for the management of diverted product. The remote location of Cook Shire and the resulting cost of transportation to markets may add to the already high operational waste management costs.
- Feedback received during the community engagement undertaken indicates some residents who have adopted the smaller bin size may utilise pubic place bins to supplement their reduced bin capacity. This option may therefore further encourage the use of public place bins for disposal, or may result in increased incidences of litter and illegal dumping.

Educational Campaigns

Educational campaigns such as 'Rub out Rubbish' (Townsville and Hinchinbrook), or 'Love Food Hate Waste' (U.K.) provide a generally low cost method to encourage more sustainable waste management practices and increase a Council's ability to meet waste diversion targets. At the same time, key messages in some campaigns highlight the ability for residents to save large amounts of money by thinking more sustainably and reducing waste generation. This is of greater importance in remote areas where the cost of purchasing everyday products such as food is exacerbated by distance away from supply hubs.

Assessment of enhanced educational campaigns was not considered as an opportunity for evaluation as it is considered to be an integral component of an effective waste management system, not an added extra.

Summary of Opportunities

Six opportunities were considered as a means to address key drivers for changing waste management practices including:

- Reducing the current waste management operating deficit,
- Increasing diversion of waste from landfill,
- Ability to inform the development of a waste infrastructure strategy.

The SWOT evaluation suggested that the opportunities which may provide CSC the ability to reduce the current waste management operating deficit include:

- Development of a new landfill,
- Development of a compost operation,
- Utilisation of an incinerator,
- Await CRS + bale cardboard.

Furthermore, the introduction of a fortnightly kerbside recycle bin service (with subsequent reduction of residual bin service to fortnightly) may be roughly cost neutral to council.

CSC subsequently undertook a multi-criteria assessment (MCA) on the opportunities identified. The MCA process and outcomes of the evaluation are discussed in the subsequent section.

Evaluation of Opportunities

The six opportunities identified were evaluated using a weighted multi-criteria assessment. Criteria were developed with consideration to being able to evaluate the opportunities against key waste management drivers as identified in the Aspirations and Objectives Workshop. The list of evaluation criteria and a brief description of each is contained below.

Criteria 1 - Financial Sustainability and Governance

This criterion considered the overall ability of the opportunity to reduce the current operating deficit. In doing so, the magnitude of capital, operational, and maintenance costs were considered. The sensitivity of the option to external drivers and changing policy position were also factored into the evaluation, as well as the alignment of the option with the CSC Corporate Plan. The suitability of the option for the remote location of the Shire was included in this criterion, as was the ongoing regulatory compliance implications likely to arise.

Criteria 2 – Net Environmental Benefit

Examples of factors which this criterion includes are the environmental effects associated with transport emissions, whether any vegetation clearing would be required to facilitate construction, potential effects on groundwater / surface water, and the ability to close the loop on other waste streams.

Criteria 3 – Implementation, operability, and alignment with current system

This criterion covered off on factors such as the ease of the approvals process, the ease of operation by existing staff, the WHS risks associated with the option, the sensitivity of the option to input stream and quality/quantity, the ability to integrate the option with existing systems, (i.e. staff, equipment, contracts, facilities), the availability of skilled staff / contractors to operate and maintain the option, and the requirement for any additional staff training.

Criteria 4 – Waste Recovery and Recycling

This criterion considered how well the option adhered to the waste and resource management hierarchy, and took into account the following factors:- ability for the option to increase diversion from landfill, the full lifecycle management of resources, and the ability for the option to divert product which can be fed into a sustainable and cost effective recycling solution.

Criteria 5 – Community and Cultural Change

This criterion considered the feedback gained during the community survey and the likely resulting acceptance by the community for the option. It also considered whether implementation of the option will drive cultural change towards seeing waste as a resource and an opportunity, rather than an end of life object with no value.

CSC Waste Committee members were asked to score each criterion in order of importance on a 1 (least important) to 5 (most important) scale. Criteria scores were aggregated and converted into an overall criteria weighting, with the following results:

1. Financial Sustainability and Governance 30%
2. Net Environmental Benefit 15%
3. Implementation, Operability, and Alignment with Current System 20%
4. Waste Recovery and Recycling 25%
5. Community and Cultural Change 10%

Each opportunity was scored by AECOM against the base case situation (i.e. present waste management system) using the evaluation criteria. Following the scoring by AECOM, a facilitated discussion was undertaken with available CSC Waste Committee members to determine points of difference in the scoring. The resulting raw opportunity scores were then subject to the criteria weightings to develop a ranked, weighted opportunity score. The application

of the criteria weightings made no difference to the ranking of the opportunities, with both raw scores and weighted scores indicating the following results:

Rank	Opportunity
1	CRS + Baler
2	Kerbside Recycling
3	Incinerator
4	Waste Transfer Station
5	New Landfill
6	Base Case
7	Composting

Discussion of MCA Results

The current base case situation was initially scored using the evaluation criteria, and each opportunity was subsequently scored in isolation (i.e. opportunities were not aggregated where synergies exist) however in comparison to the base case scenario. A discussion of the scoring of each opportunity is provided below.

Rank 1 – CRS + Baler

This opportunity represents an industry driven scenario. CSC is presently entering into a contract with Orora Recycling for the supply of a baler to manage diverted cardboard. At the time of writing this WRRP, the contract arrangements were being finalised, and as such it is not considered a new activity to be implemented as part of the WRRP. This contract, combined with the introduction of the Container Refund Scheme by an external body, should result in improved diversion of product from landfill with no or limited cost or resource implications for Cook Shire.

As a result, this opportunity scored higher than the base case for the criteria of Financial Sustainability and Governance as the CRS is likely to reduce the quantity of recyclable material currently captured by CSC in the community based recycle trailers. At present, this material is transported by Cook Shire to the Cairns MRF, where a gate fee is incurred. The CRS may therefore reduce the costs associated with transport and MRF gate fees for recyclables collected under the scheme. Furthermore, under the cardboard contract, CSC has the potential to raise revenue via the sale of the recovered cardboard when market prices allow, with any revenue gained helping to offset the cost of transport to the recycling facility.

This opportunity also scored higher than the base case for the criteria of Net Environmental Benefit as diverted cardboard which ends up recycled in an end market is considered a higher use for the product than the present situation, whereby it is mulched and used for erosion control on the Cooktown Landfill.

For the criteria of Implementation, Operability and Alignment with Current Systems, the introduction of a CRS and Baler scored slightly lower than the present base case due to the need for increased pre-processing / clean-up of the cardboard and the requirement to bale and transport the product to the recycling contractor.

This opportunity did however score higher than the present base case for the criteria of Waste Recovery and Recycling as an incentivised system such as the CRS should result in higher levels of voluntary participation than currently experienced via the provision of the community based recycle trailers.

For the same reasons, this opportunity scored higher than the base case for the criteria of Community and Cultural Change, with the CRS providing a monetary incentive for the diversion of eligible beverage containers.

Rank 2 – Kerbside Recycling Scheme

At the time of compiling this WRRP, the Australian recycling industry was impacted by the introduction by China of the National Sword Policy. This policy saw the introduction of stringent restrictions on the importation of recycled materials from foreign markets, including Australia. The waste industry in Australia is seeking to understand the extent of the impact of China's National Sword Policy to inform the development of short, medium and long-term solutions in response to the problem. Until these solutions are developed and implemented, the viability of the recycling industry in Australia is questionable and diverted product is, in many cases, are being transported over vast distances only to end up in landfill.

Furthermore, even prior to the introduction of the National Sword Policy, it may be argued that in regional and remote areas such as Cook Shire, the environmental benefits gained via diverting recyclable product for subsequent transport to a recycling market are outweighed by the carbon emissions associated with transport of the material over long distances to end markets.

The introduction of a kerbside recycling scheme in Cook Shire also needs to consider the effect that the introduction of the CRS will have on available feedstock. The 2016 Kerbside Waste Audit indicated that 34% of the recyclable content within the kerbside residual bin was comprised of recyclable containers. The CRS will compete for at least some of this feedstock, and hence will reduce the viability of a kerbside recycling scheme further. CSC are planning to undertake an additional kerbside waste bin audit 12 to 18 months following the introduction of the CRS to assess the efficacy of the scheme in reducing recyclable content in the residual bin. Once this is understood, and the effect of the National Sword Policy over the short, medium and long term is determined, CSC may be better positioned to make an informed decision on the introduction of a kerbside recycling scheme.

Despite this, the assessment of this opportunity was undertaken using an optimistic outlook, and assumed that the current issues with the Australian recycling industry would not affect the viability of introducing the service.

On that assumption, this opportunity scored marginally higher than the current base case for the criteria of Financial Sustainability and Governance. This is largely attributed to the ability for CSC to remove the costly community based recycle trailers from service upon the introduction of a kerbside scheme. Any contract collection costs associated with a kerbside recycling scheme may also be offset via providing residual and recycling service on alternative weeks, if this is considered acceptable to residents of the Shire. The possible reintroduction of a levy on waste being sent to landfill will also add to the financial viability of a kerbside recycling scheme.

For the criteria of Net Environmental Benefit, provision of a kerbside recycling scheme scored marginally higher than the base case on the basis that it would increase diversion of waste from landfill, and diverted product would end up in a domestic recycling market.

Introduction of a kerbside recycling scheme scored lower than the base case for the criterion of Implementation, Operability and Alignment with Current Systems largely due to the requirement to add additional kerbside collection services into the waste management system.

However, for the criteria of Waste Recovery and Recycling and Community and Cultural Change, introduction of a kerbside recycling scheme scored higher than the base case due to its potential to increase the diversion of recyclable content from the residual bin, and the ability for the scheme to drive the necessary behaviour change required for successful implementation of a kerbside scheme.

Rank 3 – Incinerator

Utilisation of an incinerator was considered to score higher than the base case for the criterion of Financial Sustainability and Governance due to the likely reduction in volume by approximately 90%. This corresponds to an equivalent reduction in the contract costs paid by CSC for the transport of waste to Mareeba for disposal, and the same reduction in the magnitude of the gate fee paid. The reduction in gate fee will be exacerbated further upon the possible reintroduction of a waste levy in Queensland. It is however acknowledged, that should this opportunity be implemented alongside the construction of a new WTS as is the ultimate scenario, then the abovementioned cost savings will be reduced via the increased capital outlay required.

For the criterion of Net Environmental Benefit, the introduction of an incinerator scored significantly higher than the base case situation. An environmentally compliant incinerator is clean technology, and as mentioned, via the resulting volume reduction achieved, will result in a significant reduction in the emissions associated with the transport of waste to an external landfill.

This opportunity did however score lower than the base case situation for Implementation, Operability and Alignment with Current Systems. This is largely due to the probable requirement to provide a dedicated resource to feed, operate, and unload the ash from the incineration unit. Furthermore, the skills set required to operate and maintain an incineration unit may not be fully compatible with the current staff available without undertaking additional training.

For the criterion of Waste Recovery and Recycling, the incinerator scored marginally higher than the base case due to the manner in which operation of the unit is likely to encourage additional pre-sorting of the waste stream prior to loading.

This opportunity was not however considered to provide any additional value to the waste management system compared to the base case situation for the criterion of Community and Cultural Change, as to the public eye, it is akin to another method of disposal in line with landfilling.

Rank 4 – New Waste Transfer Station

Construction of a new WTS was considered to score higher than the base case situation for the criterion of Financial Sustainability and Governance largely due to providing the community with a more appropriate facility to access in order to fulfil the basic public health need of providing an outlet for the waste collected. Furthermore, if constructed so as to minimise the present need to double handle wastes, and if some level of pre-compaction ability is included, operational and transport efficiencies may be achieved which may result in a reduction in the cost of waste transport to an external landfill.

For the criterion of Net Environmental Benefit, this opportunity scored slightly higher than the base case situation, as a master planned facility which provides clear direction and easy access to drop off facilities will encourage greater levels of waste separation

and thus diversion. Furthermore, there exists the opportunity to consider co-locating a Tip Shop at the facility if it can be accommodated and operated in such a manner so as to not represent an additional operational cost.

Construction of a new WTS scored slightly lower than the base case situation for the criterion of Implementation, Operability, and Alignment with Current System on the grounds that a new facility may result in a different transport configuration than is presently utilised.

However, for the criteria of Waste Recovery and Recycling, and Community and Cultural Change, implementation of this opportunity scored slightly higher than the base case situation due to being able to provide patrons with access to a master planned, signed, and logical facility which encourages the separation of recyclables from the waste stream prior to final disposal.

Rank 5 - New Landfill

Construction of a new landfill scored higher than base case for the criteria of Financial Sustainability and Governance as, despite the capital outlay required, there is some potential for ongoing cost reduction due to removing the requirement to transport waste to an external landfill and pay the facility gate fee.

The Net Environmental Benefit associated with operating a well-run, regulatory compliant landfill within Cook Shire was also considered to be preferable to the base case situation due to avoiding the carbon miles associated with the long-haul transportation of waste to an external landfill.

For the criteria of Implementation, Operability and Alignment with Current Systems, construction and operation of a new landfill within Cook Shire scored lower than the base case, largely due to the lengthy and often difficult approvals process associated with appropriately siting a new landfill facility.

Operating a new landfill within CSC was considered to have no measurable benefit compared with the base case for the criteria of Waste Recovery and Recycling, and may potentially discourage recycling where there is a cost associated with doing so and the ability to landfill locally is cheaper.

For similar reasons, for the criteria of Community and Cultural Change, it was also considered that operating a new landfill scores slightly lower than the base case scenario. Whilst the amenity of a new master planned facility may be an improvement for patrons, a new landfill is unlikely to provide significant additional facilities for increasing waste diversion in comparison to the current base case. It would however present the opportunity to consider the reintroduction of a full time Tip Shop if it can be operated using existing resources.

Rank 6 – Base Case

Whilst the current base case did not score well during the MCA process, it is by no means an inadequate waste management system. As aforementioned, CSC has made significant in-roads since the 2004 Waste Strategy with respect to the closure of landfill sites, and their replacement with a network of waste transfer stations. Notably, the transfer stations at Lakeland, Laura, and Ayton have recently undergone further upgrades to add gatehouses, amenities, and improved facilities for the recovery of oils, batteries and chemicals. These facilities are manned at all times whilst open, are well signed, and well organised to encourage waste separation and diversion.

In comparison, the more significant site, the Cooktown Waste Transfer Station, is rudimentary in nature and the layout is constrained due to its location on the crest of the non-operational Cooktown Landfill. Regardless of the outcome of the MCA process, it is suggested that serious consideration needs to be given to the construction of a new, master-planned WTS to service Cooktown primarily; and secondly to receive waste from the satellite facilities without the current need for double handling. It is considered that the need for a new WTS exists regardless of the implementation of any other opportunity due to the following reasons:

- The WTS is located on the Cooktown Landfill which is yet to be rehabilitated. The continued operation of the WTS will conflict with rehabilitation activities when they occur.
- The infrastructure located on the Cooktown WTS, including the gatehouse, large storage shed (Tipanny's Shed), and bin bay retaining wall is aging, rudimentary, and not entirely fit for purpose. Furthermore, it will require significant ongoing maintenance to ensure it remains safe for use.
- The Cooktown WTS tipping floor is not covered and there is no ability to limit the infiltration of water into the waste mass. Transporting wet waste decreases the efficiency of haulage to some extent.
- The Cooktown WTS experiences high wind levels, resulting in ongoing litter management issues.

Rank 7 - Composting

Implementation of a compost operation scored slightly higher than the base case for the criterial of Financial Sustainability and Governance despite the capital outlay required. The basis of this scoring is that a composting activity may result in a higher quality end product which has more uses than the current situation, whereby mulch is too contaminated to be used for any purpose other than placing it on landfill batters. The success of a compost operation is however entirely dependent upon there being a local end market. At this point in time, the best option for use of compost produced would be for CSC to stockpile the material for use in rehabilitating the CSC landfill, to assist in offsetting the cost of importing material.

The Net Environmental Benefit of operating a compost activity is considered to be equivalent to the base case scenario, as it is unlikely that additional feedstock will be diverted from landfill without the provision of a dedicated organics collection system, which will not be economical to implement.

For the criteria of Implementation, Operability, and Alignment with current systems, operating a compost operation scored considerably lower than the base case scenario as it is likely to absorb labour and plant resources which are required to run the existing critical operations. Furthermore, composting will require an Environmental Approval, and requires consideration to the management of runoff, (i.e. leachate) which adds an extra operational burden, especially during wet conditions.

For the criteria of Waste Recovery and Recycling, and Community and Cultural Change, the composting score was in line with that for the base case, on the basis that additional feedstock is unlikely to be diverted from landfill without the provision of a dedicated collection service, and as such it will not significantly drive changes in community behaviour.

On the above basis, composting was not considered to be an opportunity which will

add significant value to the waste management system, and as such is not being considered further for implementation at the present time. This is particularly prudent given the presence of an already well-established privately operated compost operation in the region. With regards to the management of green waste in light of the future potential landfill ban on the product, CSC already divert green waste from landfill, so the effect of a potential future landfill ban on municipal green waste will not be significant. CSC may however consider implementing means to reduce contamination levels in the green waste accepted at their facilities in order to broaden the options available for reuse of the material.

Opportunities into Actions

The MCA process demonstrates that, in the absence of implementing any additional measures, the introduction of the CRS and the continued implementation of a cardboard baling contract presents an opportunity to improve waste diversion rates at no cost to Council.

CSC will continue to monitor the state of the Australian recycling industry, the success of the introduction of the CRS, and the possible reintroduction of the Queensland Waste Levy in order to determine whether the implementation of a kerbside recycling scheme in the shire is viable.

Furthermore, the construction of a new landfill, a new WTS, or implementation of an incinerator all scored higher than the base case situation and as such warrant further, more detailed investigation. Regardless of investment in any other waste management opportunity, construction of a new master planned Waste Transfer Station in Cooktown is considered to be a necessary and worth-while long term investment. CSC need to review the existing Waste Disposal Infrastructure Review – Feasibility Study[6], and update it to reflect the new proposed levy rate, increases in landfill gate fees, and reflect the actual costs associated with transport of waste to an external landfill. Furthermore, the feasibility of an incinerator needs to be considered in the study. The objective of the feasibility study is to ascertain whether a new transfer station is a stand-alone facility which supports ongoing, long haul transport to an external landfill; or is supporting development of a new landfill or implementation of the use of an incinerator. As such, once the outcome of this study is understood, CSC will be able to make an informed decision on whether the construction of a new WTS will:

- Occur in isolation to facilitate ongoing bulk transport of waste to an external landfill,
- Be constructed as a front end to a landfill located within the Cook Shire but at a distance from the town centre so as to warrant bulked up transport, or
- Be constructed in association with the implementation of an incineration unit.

Investigation into these scenarios has been included in the Action Plan provided in Appendix 2.

Options for Implementation of the Circular Economy

In addition to the more fundamental opportunities identified above, CSC needs to stay abreast of opportunities to move toward a circular economy via investigating the implementation of 'value add' peripheral activities.

At present, the waste streams generated within Cook Shire are managed in a predominantly linear manner, where raw

[6] LGIS, *Waste Disposal Infrastructure Review*, 2010

materials are consumed, and then largely disposed of in landfill at the end of their life. A circular economy, however, aims to keep resources and materials circulating within the economy for as long as possible via implementation of reuse, recycling, and reprocessing activities. Making progress towards implementing a circular economy may assist in improving resource recovery figures, and also promote opportunities to grow the recycling sector industry and create jobs on a local scale.

A simplistic form of implementing the circular economy within Cook Shire may involve the processing and reuse of the following products in local construction projects:

- Recycled crushed glass
- Crushed concrete

Implementation and Continuous Improvement

The CSC WRRP 2018 – 2028 will be implemented utilising the Action Plan provided in Appendix 2.

The Action Plan has been developed to address the Key Priority Areas and strategic drivers identified during the process of preparing the WRRP.

Following adoption by Council, CSC will commence the implementation process, and will review Council's progress in implementing the plan after three (3) years as required under the WRRA.

The timeframes proposed for implementation of the action plan tasks are indicative only. Actual implementation of the action plan will occur in line with the availability of resources, both staff and funding, which are needed to complete each task.

Whilst the WRRP has been written to address the current and anticipated changes occurring across the regulatory and policy setting driving waste management in Queensland, CSC Waste Committee members should continue to take part in industry forums such as LAWMAC, and continue to hold memberships with bodies such as the Waste Management Association of Australia in order to stay abreast of the latest industry trends which may affect their waste operations.

Furthermore, CSC Waste Committee Members and more broadly CSC residents as a whole need to continue to recognise that some initiatives introduced for metropolitan and regional areas may not be applicable to rural and remote centres such as Cook Shire.

Summary

Cook Shire Council has made significant inroads into improving waste management practices and services provided within Cook Shire through implementation of the 2004 Waste Strategy. The closure of aging and potentially non-compliant landfills and their replacement with a network of waste transfer stations, in addition to implementation of a kerbside residual collection service is commendable.

Furthermore, the use of community based recycling trailers and provision of facilities at each waste facility for the diversion of recoverable and recyclable material is contributing to the diversion of approximately 29% of the waste stream from landfill. These efforts are commendable under any scenario, and are especially noteworthy in light of the geographic and economic constraints faced by the Council.

However, the provision of these services does come at an unsustainable cost to Council, and CSC need to closely consider whether the

environmental and community benefit gained via providing ancillary services such as recycling outweighs the associated economic costs. CSC needs to understand that managing waste in a remote area is a challenging task, and there is no single solution which will address the needs of all parties. CSC may however start by having an in depth look at the cost of running the waste management services to determine if and where efficiencies can be made, and where additional revenue can be gained. In doing so, and in implementing the actions contained within this WRRP, CSC will be realising their waste management vision:-

"Striving to implement sustainable waste management solutions tailored to our region by 2028".

APPENDIX 1

SUMMARY OF CSC WASTE FACILITIES

"Striving to implement sustainable waste management solutions tailored to our region by 2028"

Appendix 1 – Summary of CSC Waste Facilities

Facility Details	Waste Types Accepted	Additional Information regarding Facility
Cooktown Waste Transfer Station Macmillan Street, Cooktown Tuesday and Friday 7am-4pm Wednesday and Thursday 7am-9am; 3pm-5pm Sunday 8am-12pm; 12:30pm-4:30pm Closed Monday and Saturday	• MSW • C&I • C&D • Limited Regulated including asbestos + bio-solids • Segregated recyclables including oils, gas bottles, green waste, cardboard, agricultural drums, chemicals, paints, mattresses, batteries, car bodies, eWaste	• Transfer station is located on landfill footprint. Suitability and structural integrity of transfer station requires further investigation • Transfer station arrangement requires waste and recyclables to be double handled. Waste is deposited onto a push floor instead of directly into a transfer trailer • An average of approximately 20t of general self-haul refuse is transported on a weekly basis from Cooktown to Springmount Landfill in 60m3 transfer trailer • Domestic kerbside waste is also on occasions transported directly in collection vehicle to Springmount Landfill • Recyclable materials from collection trailers / RORO's are bulked up at Cooktown WTS prior to transport to Cairns MRF
Ayton Transfer Station Rossville-Bloomfield Road, Ayton Wednesday 2pm-4pm Saturday 11am-1pm Closed at all other times.	• MSW • Segregated recyclables including oils, gas bottles, green waste, cardboard, chemicals, paints, mattresses, batteries, car bodies, eWaste	• Waste is received at Ayton from outside the Shire (Wujal Wujal and Degarra) • Closed landfill is located on the transfer station footprint. Landfill has not undergone final rehabilitation. • $10m^3$ RORO utilized for transport of mixed recyclables to Cooktown

Facility Details	Waste Types Accepted	Additional Information regarding Facility
Laura Transfer Station Peninsula Development Road, Laura Monday and Friday 1pm-4pm Sunday 2pm-4pm Closed at all other times.	• MSW • Segregated recyclables including oils, gas bottles, green waste, cardboard, chemicals, paints, mattresses, batteries, car bodies, eWaste	• Higher usage by tourists during the dry season due to location at the entry/exit to Lakefield National Park • Waste recorded as being received at the Laura Transfer Station during 2016/2017 includes: ▪ MSW 19.98t ▪ Mixed recycling 15t ▪ Scrap metal 31t
Lakeland Transfer Station Honey Dam Road, Lakeland Tuesday and Sunday 8am-12pm	• MSW • Commercial (agricultural) • DrumMuster compound for agricultural chemical containers • Segregated recyclables including oils, gas bottles, green waste, cardboard, agricultural drums, chemicals, paints, mattresses, batteries, car bodies, eWaste	• A baler is available at the Lakeland facility • $10m^3$ RORO for comingled recyclables is transferred to Cooktown on a fortnightly basis • Waste recorded as being received at the Lakeland Transfer Station during 2016/2017 includes: ▪ MSW 12.45t ▪ Mixed recycling 21.25t ▪ Scrap metal 81.6t
Coen Landfill Oscar Creek Road, Coen No restrictions on opening hours apply	• MSW • Commercial • Segregated recyclables including oils, gas bottles, green waste, cardboard, agricultural drums, chemicals, paints, mattresses, batteries, car bodies, eWaste	• Long distance to Cooktown over primarily dirt roads. Access from Cooktown is limited during the wet season. A transfer station would not be a viable option at this location due to transport constraints.
Archer River Roadhouse Landfill	• MSW • Limited commercial from roadhouse	• Caged pit operation • Proximity to Coen (66km N) may make transport viable during favourable weather conditions however the landfill pit would still be required during the wet season due to access restrictions.

Facility Details	Waste Types Accepted	Additional Information regarding Facility
Moreton Telegraph Roadhouse	• MSW • Limited commercial from roadhouse	• Existing pit has been backfilled. Council is currently negotiating the terms of land ownership with TAIHS for the operation of a new landfill pit.
Portland Roads Waste Facility	• MSW • Limited commercial	• Pit is managed by a local contractor • Proximity of pit to Iron Range National Park may inflate usage of the facility by tourists • Some separation of metals occurs • Some waste received from Lockhart River Aboriginal community

APPENDIX 2

CSC WRRP ACTION PLAN

2018 – 2028

"Striving to implement sustainable waste management solutions tailored to our region by 2028"

Appendix 2 – CSC WRRP Action 2018 – 2028

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
Key Priority Area 1 – Financial Sustainability and Governance						
1.1	Reduce subsequent financial years' operating deficit	Understand the key areas which may bring about change.	Review fees and charges and consider implementation of a fee on commercial green waste + commercial cardboard.	Waste Management Coordinator	2018/2019	Internal
			Undertake a detailed feasibility study on the implementation of an incinerator and construction of a new landfill, in conjunction with construction of a new WTS, to inform the development of a business case for subsequent implementation. Include budget for implementation in 10 Year Capital Plan.	Manager Parks and Waste Operations	2018/2019	$60,000
			Develop a whole of life financial infrastructure plan to further understand, document, and budget for expected financial liability arising from existing infrastructure.	Manager Parks and Waste Operations	2019/2020	Internal
			Develop full cost pricing model for waste operations and review and adjust fees and charges accordingly where appropriate.	Manager Parks and Waste Operations	Review annually. Cost Model 2020/2021	$30,000
1.2	Ensure waste management considerations for community events are well documented and understood	Waste management arising from non-council operated evens is the sole responsibility of event operators.	Develop a Waste Management Events policy / procedure to outline minimum requirements for waste management to guide event managers.	Waste Management Coordinator in association with Tourism and Events Coordinator	2018/2019	Internal

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
1.3	Understand and document future liability arising from management of waste infrastructure (landfill and waste transfer station)	Liabilities are understood and are reflected in full cost pricing model developed in Objective 1.1 so as they can be reflected in fees and charges.	Enhance the current 10 Year Capital Plan to forecast, document, and estimate required infrastructure upgrades to better position CSC to budget for upgrades, and to apply for funding grants as they become available. Planning for projects is to be staged to align with CSC resources to deliver the work.	Manager Parks and Waste Operations	2019 – 2021	Internal
1.4	Develop a Memorandum of Understanding and secure funding contribution from external sources to assist in the management of non-Cook Shire waste streams such as waste arising from tourism activities and non-designated aboriginal communities	Waste levy to be agreed upon and implemented, commensurate with CSC Transfer Station Fees and Charges.	Contact Department of National Parks, Sport and Racing to open discussion regarding funding contribution to the management of National Park waste. Develop and enter into a Memorandum of Understanding or other agreement with the department to receive a levy, charged by CSC per visitor, to assist in the management of their waste. Review arrangements for the management of waste arising from non-designated aboriginal communities and consider a request for funding assistance.	Waste Management Coordinator	2018 – 2023	Internal
1.5	Achieve economies of scale and cost efficiencies through the development and implementation of regional contracts for waste management activities where appropriate	Continue with, or develop additional regional contracts for appropriate wastes, including scrap metal as opportunities for aggregation arise within FNQROC	Continue participation in FNQROC including discussions on regional contracts for problematic waste streams including scrap steel, green waste, used oils and e-Waste	Waste Management Coordinator	Ongoing	Internal

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
1.6	Investigate and engage in opportunities to share resources with regional neighbours, where available, to achieve cost reduction or transport efficiencies from available pre-processing activities.	Understand type, capacity, and availability of regionally based waste infrastructure by target completion date.	Engage with adjoining Councils and consider utilisation of waste infrastructure for the management of problem wastes, where applicable.	Waste Management Coordinator	Ongoing	Internal
1.7	Understand waste facility utilisation with a view to adjusting opening hours to match utilisation.	Facility opening hours align with utilisation to avoid unnecessary operational expenditure.	Review waste patronage data in comparison to opening hours and seek to understand if hours can be reduced. If possible, compile report for presentation to Council for adoption of revised hours.	Waste Management Coordinator	2019/2020	Internal
Key Priority Area 2 – Waste Diversion and Recycling						
2.1	Increase diversion of municipal solid waste and commercial and industrial waste.	Increase diversion as far as reasonably practicable for both waste streams in ongoing manner.	Undertake detailed feasibility study on the implementation of a kerbside recycling scheme, including consideration to incorporating variable bin size options. The Feasibility Study is to be cognisant of the effect of the introduction of the CRS on available material, and the state of the Australian recycling industry. (Linkages with Objective 2.6)	Manager Parks and Waste Operations	In line with Australian recycling industry	$20,000
2.2	Maintain or increase diversion of e-Waste from CSC	Reduce proportion of e-waste in kerbside residual bins below 2016 levels	Continue to promote free e-waste drop off at Cooktown, Ayton and Lakeland Waste Transfer Station. E-waste drop off locations to be include in community education program. (Linkages to Objective 5.1)	Waste Management Coordinator	Ongoing	Internal

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
2.3	Understand potential for additional resource recovery arising from self-haul MSW stream	Determine and document the quantity of self-haul residual waste which may be able to be incorporated into a kerbside recycling scheme.	Undertake regular surveillance or conduct an audit of incoming self-haul MSW loads to ascertain proportion and type of recyclable content still being landfilled. Results of this audit should be included in any feasibility studies conducted on the introduction of a kerbside recycling scheme. (Linkages to Objective 2.1)	Waste Management Coordinator	Ongoing	Internal
2.4	Encourage diversion of peripheral waste streams for which there are organised programs in place.	Provide in kind support to Drum Muster program at all CSC waste facilities where program operates.	Continue to provide in-kind support to external parties such as Drum Muster. Ensure staff and contractors are trained to identify appropriate drums within the incoming waste stream to maximise diversion.	Waste Management Coordinator	Ongoing	Internal
2.5	Understand the effect that the introduction of the Container Refund Scheme has on the feasibility of implementing a kerbside recycling scheme	Effect of the introduction of CRS on residual bin recyclable content is quantified, compared to 2016 Kerbside Audit, and is utilised to inform Kerbside Recycling Feasibility Study.	Undertake a kerbside residual bin audit approximately 12 to 18 months following implementation of the Container Refund Scheme. Compare results to 2016 audit and also liaise with Container Refund Point Operator to gather statistics regarding scheme participation to inform the development of a feasibility study on the implementation of kerbside recycling.	Waste Management Coordinator	2020/2021	$25,000
Key Priority Area 3 – Infrastructure Planning and Management						
3.1	Document the plan for the management of disaster related wastes.	Waste management chapter within CSC Disaster Plan to be developed and approved during 2018/2019.	Establish and document a waste chapter in CSC Disaster Management Plan to address accessible disaster lay down areas for waste streams including green waste, building debris, (including asbestos) and animal carcases. Seek approval from DES for implementation post disaster.	Disaster Management Plan Coordinator in conjunction with Waste Management Coordinator	2018/2019	Internal

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
3.2	Implement Year 1 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2018/2019 component of the 10 Year Capital Plan	Ayton site rehabilitation and stormwater management	Manager Parks and Waste Operations	2018/2019	$40,000
			Cooktown Waste Transfer Station Stormwater Management Upgrades			$20,000
			Construct fencing around old Rossville Landfill + upgrade signage			$10,000
			Develop a Site Development Plan for Coen Landfill to inform life of site calculations and required infrastructure			$20,000
3.3	Implement Year 2 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2019/2020 component of the 10 Year Capital Plan	Implement Coen Site Development Plan (Year 1 Plan Preparation / Design)	Manager Parks and Waste Operations	2019 - 2021 TBC following development of SDP.	$30,000 TBC following development of SDP.
			Implement WRRP Infrastructure (Landfill, WTS, or Incinerator) (Year 1 Planning)			$25,000
3.4	Implement Year 3 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2020/2021 component of the 10 Year Capital Plan	Implement Coen Site Development Plan (Year 2 Construction + Finalisation)	Manager Parks and Waste Operations	2020/2021. TBC following development of SDP.	$100,000 TBC following development of SDP.
			Implement WRRP Infrastructure (Landfill, WTS, or Incinerator) (Year 2 Design)			$60,000

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
3.5	Implement Year 4 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2021/2022 component of the 10 Year Capital Plan	Implement WRRP Infrastructure (Landfill, WTS, or Incinerator) (Year 3 Construction)	Manager Parks and Waste Operations	2021/2022	$2,000,000 Remainder from funding application.
3.6	Implement Year 5 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2022/2023 component of the 10 Year Capital Plan	Implement WRRP Infrastructure (Landfill, WTS, or Incinerator) (Year 4 Finalisation)	Manager Parks and Waste Operations	2022/2023	$30,000
3.7	Implement Year 6 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2023/2024 component of the 10 Year Capital Plan	Cooktown Landfill Rehabilitation (Year 1 Planning / Design)	Manager Parks and Waste Operations	2023/2024	$100,000
3.8	Implement Year 7 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2024/2025 component of the 10 Year Capital Plan	Cooktown Landfill Rehabilitation (Year 2 Construction Year 1)	Manager Parks and Waste Operations	2024/2025	$840,000
3.9	Implement Year 7 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2024/2025 component of the 10 Year Capital Plan	Cooktown Landfill Rehabilitation (Year 3 Construction Year 2)	Manager Parks and Waste Operations	2025/2026	$2,510,000
3.10	Implement Year 9 of Waste 10 Year Plan	Implement upgrades as per timeframe, scope and budget allocated within the 2024/2025 component of the 10 Year Capital Plan	Cooktown Landfill Rehabilitation (Year 4 Finalisation)	Manager Parks and Waste Operations	2026/2027	$50,000

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
Key Priority Area 4 – Operations and Compliance						
4.1	Achieve compliance with conditions of Environmental Authority for licensed facilities	Progressively implement improvements at licensed facilities to work towards achieving zero non-compliances arising from DES Inspections	Undertake periodic inspections of facilities and report upon progress to CSC Management Team. Implement 10 Year Capital Plan to deliver facility upgrades as scheduled. (Linkages to Objective 3.2)	Waste Management Coordinator	2018/2019 + Ongoing	Internal + Funded in 10 Year Capital Plan
4.2	Gain clarity on the requirements of all parties for the management of animal carcases and develop a solution which will address the requirements of all involved.	Reduction in WHS risk and operational constraints associated with the handling of problem wastes such as large animal carcases	Document a policy / procedure for the management of animal waste. Consideration to be given to implementation of scheduled drop off days where possible, to align with scheduled waste transport events. Management strategies to be cognisant of outcomes of feasibility study undertaken in Objective 1.1	Waste Management Coordinator in consultation with Local Laws Officers	2018/2019	Internal
4.3	Gain improvement in the amenity and ease of use of all CSC waste facilities for domestic and commercial patrons	Provision of facilities which are fit for purpose, reduce WHS risks for patrons, and encourage waste separation prior to disposal.	Undertake a review of site signage and information provided on CSC website to better inform patrons in correct use of the facility.	Waste Management Coordinator	Ongoing	$5,000
4.4	Further investigate and understand the requirements for remote area waste management and review / implement an appropriate waste management solution.	Implementation of a cost effective and appropriate solution, tailored to the needs of the area at no additional cost compared to 2016/2017 baseline.	Review current arrangements, including costs, with a view to determining if efficiencies can be gained. Plan for implementation via inclusion in operational budget and 10 Year Capital Plan. (Linkages to Objective 3.2)	Waste Management Coordinator	2019/2020	Internal
4.5	Improve accuracy of waste data captured at all CSC waste facilities.	Data captured is of sufficient accuracy and granularity to inform DES reporting requirements, and enable CSC to make informed strategic waste decisions with confidence.	Undertake a review of Mandalay set up and amend where required. Implement a staff training package and undertake periodic audits to maintain accuracy. Install cameras at gatehouse to scrutinise incoming loads.	Waste Management Coordinator	2018/2019 + Ongoing	Internal + $10,000

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
Key Priority Area 5 – Community Engagement and Awareness						
5.1	Increase awareness amongst community on best practice waste management and waste diversion, as is appropriate for the geographic location and resources available within Cook Shire.	Continue to implement a targeted education program on a periodic basis every year.	Continue to deliver a community education program targeted to wastes able to diverted within Cook Shire, publication of waste facilities or disposal options, and other relevant waste management updates throughout the year.	Waste Management Coordinator	Ongoing	Internal
5.2	Encourage correct use of waste facilities by CSC patrons in order to improve operational efficiencies and to maximise waste diversion		Linkages with actions arising from Objectives 4.4 and 5.1.	Waste Management Coordinator	Ongoing	Internal
5.3	Reduce the occurrence of, and expense associated with the management of litter and illegal dumping within Cook Shire		Review content relating to waste management facilities within Cook Shire on Council's website, as well as tourist and industry websites to improve promotion of waste facilities available.	Waste Management Coordinator	2018/2019	Internal
			Engage with Cape York facilities including roadhouses and accommodation venues to provide handouts and information relating to correct waste management practices		2019/2020	
			Engage with the Department of Transport and Main Roads and the Department of National Parks, Sport and Racing to improve signage within Cape York tourist hot spots (Linkages to Objective 1.5)		2019/2020	

Reference	Objective	Target	Action	Responsibility	Indicative Timeframe	Resources
5.4	Consider inclusion of Tip Shop at new Cooktown Waste Facility during design process	Include Tip Shop in design of future Cooktown waste facility where it can be operated at no additional cost to CSC	Include the requirement to allow for a Tip Shop in Year 1 (Planning) and Year 2 (Design) phases of Implementing the WRRP Infrastructure (Linkages with Objectives 3.3 and 3.4)	Manager Parks and Waste Operations	2019/2020 + 2020/2021	Internal
TOTAL ESTIMATE						**$5,989,000**