

Waste Management Strategy 2016-21





“Willful waste brings woeful want;” so said Thomas Fuller, the British clergyman and author who lived from 1608 to 1661. Waste has been a problem throughout human history, and managing it does not grow easier with time.

This Whitsunday Regional Waste Management Strategy aims to demonstrate to the Whitsunday community the importance which Council places on its essential waste management services. As well as thinking about waste as a **service** to our communities, we should be viewing waste as a **resource**, not simply something we throw away, and we should be striving to treat waste services with a higher **priority**.

This strategy looks at the current state of play with all of the Council’s waste services, where they fit in to Council’s overall strategic vision and, in the context of a growing Whitsunday Region, considers what actions we should be taking over the next five years to manage responsibly and sustainably the ever growing volume of waste which we face.

This strategy takes a truly Regional approach; where possible, figures are presented on a Region-wide basis, with more detailed breakdown by area where appropriate.

I am proud to endorse this strategy.

Andrew Wilcox
Mayor, Whitsunday Regional Council
January 2017

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1. Executive Summary

Whitsunday Regional Council considers its waste management function to be an important service to its communities. Council's current Waste Management Plan has been in operation from 2011 to 2016. The Whitsunday Regional Waste Management Strategy 2016-2021 will be its replacement.

In the intervening five years many significant changes have taken place, including

- Publication of two State Government waste strategies with a third being drawn up;
- The enactment of a State "Waste Levy" in 2011, followed by its repeal after only seven months;
- A Federal Carbon Tax which was introduced and later repealed;
- Improvement in quality of waste data being captured;
- Creation of the Whitsunday Water & Waste entity within Council's organisational structure;
- Newly upgraded Sewage Treatment Plants producing more Biosolids, and
- Continued regional population growth.

Waste has increased since 2011 and is estimated to increase by a further 18% to more than 60,000 tonnes in the Region by 2026. Although improving waste data has been identified as a strength, historical data has been shown to be a weakness due to problems reconciling data which has been partly expressed in tonnes and partly in cubic metres. A key opportunity is the newly constructed weighbridge at Bowen Landfill which will eliminate this problem.

Despite Council's actions to date, the amount of waste being diverted from landfill remains at about 20%. The increases in waste arising in the Region due to population growth, improved data capture and improved sewage treatment plants mean that this diversion rate will have to increase significantly. This strategy therefore looks again at kerbside recycling collections and diverting more organic waste from landfill.

Insufficient capacity for project management and contract management has been identified as a weakness. More support for internal processes and governance, future infrastructure planning and engagement with the community is needed.

This strategy proposes three aspirations for Council: Waste as a **Service**, Waste as a **Resource** and Waste as a **Priority**, and an Action Plan lists the actions identified to support these aspirations.

An Action Plan has been developed as part of the Strategy.

The **Six Priority Actions** are:

- Addressing rural waste infrastructure provision services,
- Simplifying waste management rates, fees & charges structure,
- Providing kerbside recycling services,
- Reducing organic material in our landfills,
- Developing engineered landfill cells, and progressive rehabilitation that meets industry best practice,
- Improving Data Management and Reporting.

2. Introduction

This Waste Management Strategy has been developed with reference to the overall vision, mission and values of Whitsunday Regional Council.

Council's **Vision** of "Natural Beauty, global attraction. We have it all" is supported by its **Mission** statement: "We are committed to providing the Whitsunday Region with strong and responsive local government and achieving an innovative, efficient and sustainable organisation".

Council's culture is driven through the following **Values**:

- **Accountability**
- **Unity**
- **Trust**
- **Community**
- **Continuous Improvement**

2.1 The need for a waste strategy

Waste management is a vital public health and environmental service that affects each and every member of our community.

In the Whitsunday Region, Waste Management services:

- Are responsible for approximately \$5.25M¹ of revenue out of Council's annual \$104M total operating revenue (approximately 5%),
- Provide regular employment for approximately 20 people in 6 organisations including Council,
- Visit nearly every resident each week and carry out more than 750,000 transactions each year,
- Interact with the natural environment in a sensitive World Heritage area,
- Carry significant asset and risk implications for Council.

It is clear that this is a group of services which plays a significant role in Council's mission to be an innovative, efficient and sustainable organisation. To be transparent, have a clear direction and integrate with other key Council services, a waste strategy will progress the strategic achievements in waste management to date, and establish the framework for the next five years.

2.2 Strategy purpose and scope

The purpose of this strategy is to communicate to our community:

- Current levels of service with regards to waste management,
- Council's plan for delivering increased levels of service for waste management services,
- Methods to be used to deliver the strategy's objectives.

We envisage this strategy as a cyclic process – our **strategic aim**, which is linked to the broader Council corporate planning framework, guides our **aspirations**. Our **actions** are the tangible implementation of our aspirations, grouped into focus areas, and we will evaluate

¹ Whitsunday Regional Council Annual Report 2014-15

our progress against those actions. As we conduct continual evaluation, this will influence our strategic aim and future aspirations for sustainable waste management in the Region.

Waste management in the Whitsunday Region refers to Council's waste collection services, its bin, transfer and disposal sites, the rates and charges framework, and the supporting processes and systems. This strategy addresses those elements in the context of our strategic aim. The outline of the strategy is provided in **Figure 1**.

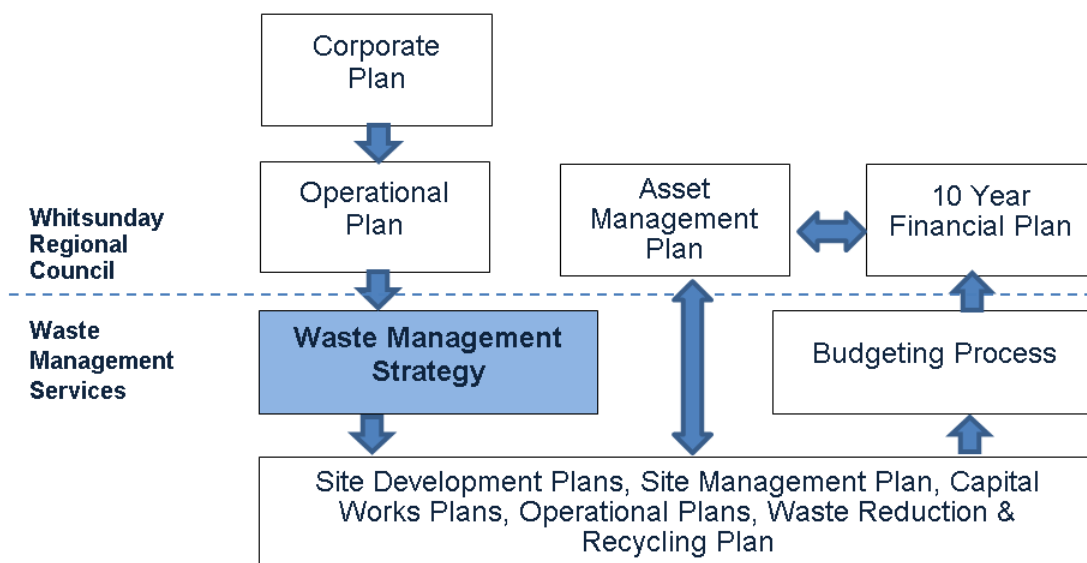
Figure 1 Strategy outline



2.3 Strategic context and alignment

This Waste Management Strategy is intended to align to the overall ecology of Council management and governance, specifically the Corporate Plan, Operational Plan and 10 Year Financial Plan. The Strategy will support Site Development Plans and other operational waste plans, which in turn informs waste budgetary processes. This ecology is illustrated in Figure 2.

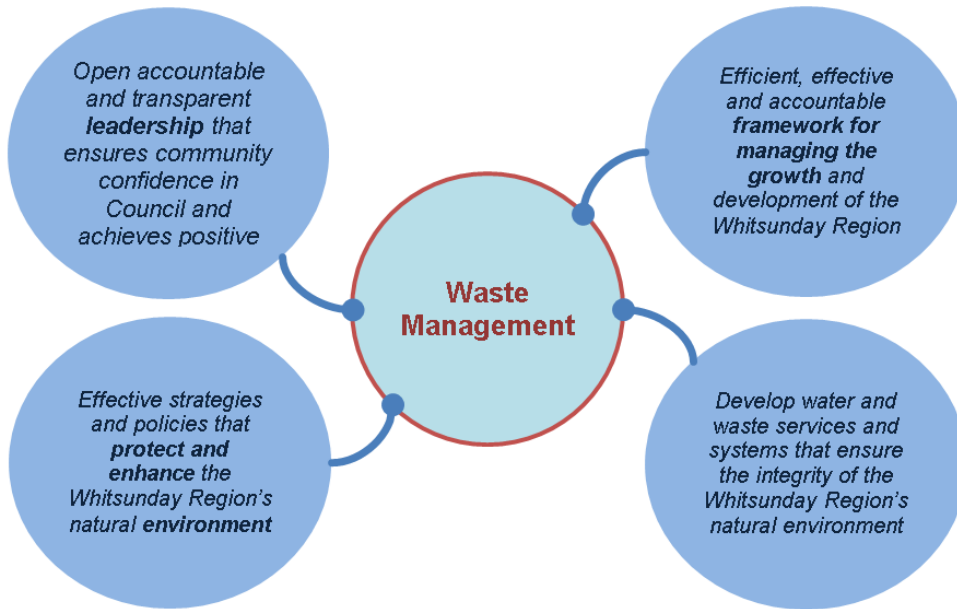
Figure 2 Waste Management Strategy – position with the ecology of Council Management and Strategy



2.3.1 Council’s Corporate Plan – Whitsunday 2020

While there is no specific requirement for a Waste Management Strategy within Council’s Corporate Plan or most recent Operational Plan (2014-15), the development of a Waste Management Strategy contributes to the following Strategies within the Corporate Plan, and as shown in Figure 3.

Figure 3 Waste Management Strategic Context



Council Corporate Plan Whitsunday 2020 - 1.1.1 Provide Open accountable and transparent leadership that ensures community confidence in Council and achieves positive outcomes for the Whitsunday Region.

A strategic approach to waste management gives the community confidence that Council is making the right decisions for the long term, and shows that Council accords a high degree of importance to its waste management activities.

Council Corporate Plan Whitsunday 2020 - 3.1.1 Develop and implement an efficient, effective and accountable framework for managing the growth and development of the Whitsunday Region.

Regional growth is one of the Region’s key underpinnings of its 2020 Corporate Plan, increasing population alongside development of the built environment. Intuitively waste will increase over time, and a waste strategy forms an important part of Council’s framework to plan for this growth.

Council Corporate Plan Whitsunday 2020 - 3.2.1 Develop and implement effective strategies and policies that protect and enhance the Whitsunday Region’s natural environment.

A vital role of a Waste Strategy is ensuring that waste is managed in a way that protects the environment

Council Corporate Plan Whitsunday 2020 - 3.2.2 Develop water and waste services and systems that ensure the integrity of the Whitsunday Region’s natural environment.

A Waste Strategy provides a basis for waste services and systems that ensure the integrity of the natural environment.

2.3.2 State Government Legislation

Although there is a statutory requirement for Council to develop one or more Waste Reduction and Recycling Plan(s) under s. 123 (1) of the Waste Reduction & Recycling Act 2011(WRRA), there is no such requirement for a Waste Management Strategy under this legislation. So why do we need one?

The Environmental Protection (Waste Management) Policy 2000 (s. 25) states that local governments need to prepare and implement plans for managing their waste in ways that achieve the objects of the Environmental Protection Act. The Waste Plan must include:

- Population information,
- Waste generation types and amounts,
- Relevant services, markets and facilities; and it must
- Reflect waste management hierarchy and principles.

The Waste Policy states that the proposed Waste Plan can be amended and must be reviewed within 5 years. The policy also requires local governments to undertake public consultation in developing the Plan and prior to its adoption, although this has been repealed by the WRRA 2011. Nevertheless the above features would seem to represent essential prerequisites when planning for future waste management services in the Region.

2.3.3 State Government Waste Strategies

The Vision of the State Government's Draft Waste Avoidance and Resource Productivity Strategy (2014-2024) is:

Queensland will become a national leader in avoiding unnecessary consumption and waste generation, adopting innovative resource recovery approaches, and managing all products and materials as valuable and finite resources.

The strategy is underpinned by five guiding principles:

1. Protecting human health and the environment to secure our future prosperity.
2. Sharing responsibility for avoiding unnecessary consumption and improving resource management.
3. Recognising the economic, environmental and social costs of waste generation and disposal.
4. Recognising Regional differences and opportunities.
5. Full lifecycle management of resources.

The strategy is also informed by the waste and resource management hierarchy, which sets out an order of preference for options for managing waste — from avoiding, to re-using, recovering, treating and disposing of waste. Taken together, the principles and hierarchy help shape the objectives and priorities and in turn inform the development of plans for implementing the strategy.

The strategy has **four objectives:**

Objective 1—Driving cultural change:

All stakeholders recognise their role in meeting the vision of the waste strategy, and are informed and empowered to participate in achieving its goals and objectives.

Objective 2—Avoidance and minimisation:

Queensland will realise all opportunities (environmental, economic and social) from maximising sustainable consumption and production.

Objective 3—Reuse, recovery and recycling:

Queensland will optimise economic benefits from reuse, recovery and recycling.

Objective 4—Management, treatment and disposal:

Queensland will reduce the impact of waste on human health and the environment through improved waste management practices.

The State Government strategy lays down targets for the state as a whole. Although it is not incumbent on Whitsunday Regional Council to meet these targets, it would nevertheless be prudent to demonstrate that Council has given consideration to state targets at a strategic level.

2.3.4 Strategies of other North Queensland Councils

Whitsunday Regional Council is a member of LAWMAC (Local Authority Waste Management Advisory Committee) along with other North Queensland Councils. Many of the other members Councils have developed waste strategies (e.g. Mackay, Cassowary Coast, Cairns) and others have collaborated to produce joint strategic waste plans e.g. the NQ Waste Reduction & Recycling Plan, prepared jointly by Townsville, Burdekin, Hinchinbrook and Charters Towers Councils.

2.4 Document Structure

This strategy is centred on three key aspirational objectives – Waste as a Service, Waste as a Resource, and Waste as a Priority. These aspirations are addressed as demonstrated in Figure 4.

The strategy is intended to establish the current context in Section 4 and provide a future direction based on our strategic aspirations in Section 5. Action plans and evaluation indicators are provided in Sections 5.7 and 5.8.

Figure 4 Document Structure



3. Background

3.1 Previous Strategies

3.1.1 Bowen/Whitsunday Strategy – 2005

In 2005 the former Bowen and Whitsunday Shire Councils collaborated on a *Bowen Whitsunday Regional Waste Study Strategy Paper*, produced by Maunsell (AECOM) and completed in April 2006. The study took a strategic overview of the two Councils' Waste Management activities. Its main areas of focus were:

- Investigating a single regional landfill facility for both Councils
- Rationalisation of satellite stations / transfer stations
- Investigation of recycling options
- Cost recovery from fees & charges
- Composting
- Waste education; and
- Industry and Council cleaner production.

Work was carried out by both Councils and by Whitsunday Regional Council on the first four of these areas. Only limited progress has been made on the final three.

3.1.2 Whitsunday Regional Council Waste Management Plan 2011-2016

Following amalgamation of Bowen and Whitsunday Shire Councils in March 2008, a Regional Waste Management Strategy was drafted, the *Whitsunday Regional Council Waste Management Plan 2011-2016*.

Progress on projects which were identified within the 2011 Waste Management Plan is shown in Table 1. Some of these actions have been adopted into this strategy, to allow for continued progress.

Table 1 Progress from 2011 to 2015

Task	Title	Timing	Progress
A	Investigation of land disposal of municipal biosolids.	2010 -11	Partial progress made but needs to be ongoing
B	Investigate the feasibility of implementing weighbridges at the Bowen and Kelsey Creek Landfills.	2010 -11	Completed
C	Increasing community recycling via schools and public places.	2010 -11	Partial progress – schools. Problems with public place recycling
D	Implementation of Whitsunday Regional Council litter Management Strategy.	2010 -11	Completed
E	Feasibility study into the production of compost at the Bowen and Kelsey Creek Landfills.	2011 -12	Nil
F	Review the feasibility of implementing a resource recovery facility at the Kelsey Creek Landfill.	2010 -11	Completed
G	Develop a new Integrated Environmental Management system plan for the Council.	2010 -11	Work has started
H	Developing a landfill capping program for the landfills.	2010 -11	Completed
I	Feasibility of continuing with the bulk fill disposal area at the Bowen Landfill.	2010 -11	Filling ceased

Task	Title	Timing	Progress
J	Development of a long term development plan for the Kelsey Creek Landfill – to 2030.	2010 -11	Completed
K	Development of a long term development plan for Bowen Landfill – to 2030.	2010 -11	Completed
L	Review of Council's waste management contracts – rationalisation and future contract planning.	2010 -11	Completed
M	Landfill Management contract for Kelsey Creek Landfill.	2011 -12	Completed
N	Investigate leachate management system for Kelsey Creek Landfill because of the new Proserpine Sewerage Treatment Plant.	2011 -12	Completed
O	Review the economic, social and environmental feasibility of kerbside recycling for WRC.	2012 - 13	Completed
P	Investigation of the economics and social value of the Region's Satellite Stations.	2012 - 13	Partial
Q	Investigation of increasing the wheelie bin collection areas.	2012 - 13	Partial
R	Feasibility of developing a Waste Transfer Station for the township of Bowen.	2012 - 13	Nil
S	Cleaner Production Strategy to reduce the production of waste from its activities.	2013 - 14	Increased office recycling implemented

3.1.3 Impact of the Waste Reduction & Recycling Act 2011

The 2011 Plan was not fully able to take account of the government's Waste Strategy and legislation, including legislation which introduced new waste data reporting requirements, requirement for weighbridges to be installed at landfills, and the waste levy on landfilling of commercial waste. The 2011 Plan was finalised in April 2011 but the government's strategy and legislation were not released until December 2011.

There was therefore a need for major changes to waste management operations in 2011 and 2012 which had not been planned for by Council. Although the State's 2011 legislation and waste levy were repealed in June 2012, considerable resources were expended on implementing the 2011 requirements, only to have to dismantle most of them or change to the new regime in 2012, diverting the available waste management resources away from other waste management projects. The main projects and activities are included in Table 2.

Table 2 Status of 2011-2012 projects in response to enactment and repeal of 2011 Legislation

Action	Status
Funding application for Kelsey Creek weighbridge (approved)	Implemented
Weighbridge project acquittal	Completed
Funding application for Bowen weighbridge (rejected)	Implemented
Need to re-design the entry route and layout at Kelsey Creek Landfill to accommodate the weighbridge	Implemented
Tender for construction of layout as "Kelsey Creek Landfill Resource Recovery Area Phase 1"	Completed
Managing construction phase (\$1M plus)	Completed
Construction of new site mess room facilities	Completed
Deployment of IT to all four sites	Completed
IT project acquittal	Completed
Setting up of data in Mandalay software system	Implemented

Action	Status
Staff Training on Mandalay (internal and external)	Implemented
Establishing manual back-up systems (Mandalay unable to deploy until March 2012)	Completed
Establishing manual invoicing and State Government data reporting systems (Mandalay unable to deploy until March 2012)	Completed
Community management of expectations around waste levy requirements	Ongoing
Incorporating the waste levy to fees & charges (per tonne and per m3)	Repealed

Although there are no known plans to reintroduce a waste levy or similar instrument, Council acknowledges that this remains a possibility in the future.

3.2 Reference Documents

Whitsunday Regional Council has developed a number of waste management documents including:

- Waste Management Plan 2011-2016, April 2011
- Review into Rural Waste Services (Draft), April 2014
- Customer Service Standards, Whitsunday Regional Water and Waste, 2015
- The Possibility of Introducing Kerbside Recycling in the Whitsundays, October 2012
- The possible introduction of kerbside recycling to the Whitsunday Regional Council area, June 2009
- Kerbside Recycling Implementation Plan (Draft), March 2013
- Say No to Plastic Bags, January 2013
- 20 Year Development Plan for Bowen Landfill, July 2010
- 20 Year Development Plan for Kelsey Creek Landfill, July 2010
- Action Plan to Improve Bowen Landfill, September 2012
- Bowen Landfill Operational Plan, November 2009
- Bowen Landfill Fire Plan, November 2010
- Kelsey Creek Landfill Resource Recovery Facility Phase 1, September 2011
- Waste Management Asset Plan, October 2011
- Litter Management Strategy, May 2011
- Waste Reduction & Recycling Plan, June 2016-19 (draft)
- Landfill Development Options Assessment Bowen Landfill, August 2016 (Golders)

3.3 Significant changes in at National, State and Local Level

Whitsunday Regional Council agreed its Waste Management Strategy 2011-2016 in April 2011. During the life of that Plan however several important changes have occurred, including:

- The Queensland State Government has published two Waste Management Strategies and a third is in draft. The Bligh Government published its *Waste Reduction and Recycling Strategy 2010-2020* in 2011, and the Newman Government commenced a review on this Strategy, leading to a new draft strategy in late 2014 entitled *Waste – Everyone's Responsibility*. The Palaszczuk government has a draft strategy
- A State Government Waste Levy was enacted by legislation on 1 December 2011 and then repealed on 30 June 2012.

- At Federal Government level, the Carbon Tax was introduced and later repealed within the life of Council's 2011- 2016 Waste Management Plan
- The process of unifying the two former Shire Councils' waste management arrangements following 2008 amalgamation has been completed
- The quality of waste data available to Council has improved greatly since early 2012
- Whitsunday Regional Council's Organisational Structure has changed considerably, with Waste Management now forming part of a newly-formed separate business unit – Whitsunday Water and Waste; and
- The population of the Whitsunday Region has continued to grow.

3.4 Population growth and demographics

Both Council's Corporate Plan 2014-2019 – Whitsunday 2020 - and the draft Whitsunday Regional Council Planning Scheme 2015 were put together with growth in mind. The Whitsunday Region is the ninth fastest² growing Local Government Area in Regional Queensland, and its population is expected to grow from its current 34,000 to 44,000³ by the year 2031. This presents us with both opportunities and challenges, particularly in relation to waste management.

The draft Planning Scheme was informed by a *Whitsunday Region Economic Analysis: Economic & Population Study*, carried out by Norling Consulting Pty Ltd in November 2013. The study proposed a total of seven different scenarios for potential rates of population growth, from "base" to "high growth". Council at its Ordinary Meeting on 11 September 2013 resolved:

That Council adopt the 'modest growth scenario' as the preferred growth scenario for the purpose of undertaking population and employment forecasting for Stage 2 of the Economic and Population Study currently under preparation by Norling Consulting.

This waste management strategy draws on the "modest growth scenario" findings of the Norling study as its source for growth projections.

The projected growth in Whitsunday Region is summarised in **Table 3** below.

Table 3 Regional Population Growth 2006 to 2016

Suburb	Year						
	2006	2011	2013	2016	2021	2026	2016 to 26
Proserpine	3,432	3,498	3,560	3,650	3,780	3,910	260
Cannonvale / Airlie	5,499	6,494	6,790	7,280	8,560	9,980	2,700
Jubilee Pocket / Shute Harbour	1,987	2,264	2,330	2,610	3,240	3,920	1,310
Whitsunday Islands	1,893	1,807	1,800	1,840	1,850	1,860	20
Balance former Whitsunday Shire	4,771	5,128	5,190	5,360	5,660	6,000	640
Bowen North	7,765	8,192	8,220	8,270	8,390	8,580	310
Bowen South	640	885	1,000	1,120	1,530	1,990	870
Abbott Point	809	835	840	860	900	900	40

² *Population growth highlights and trends, Queensland regions, 2015 edition*, Queensland Government Statistician's Office, Queensland Treasury.

³ *Norling Consulting - Economic and Population Study for the Whitsunday Regional Council Local Government Area*

Suburb	Year						
	2006	2011	2013	2016	2021	2026	2016 to 26
Collinsville	2,034	1,892	1,930	1,960	2,040	2,130	170
Balance Former Bowen Shire	1,426	1,420	1,410	1,430	1,430	1,410	- 20
WHITSUNDAY REGION	30,256	32,415	33,070	34,380	37,380	40,680	6,300

Population is projected to increase by 18% in the ten years between 2016 and 2026 however growth in population will be strongest in Bowen South, Jubilee Pocket / Shute Harbour and Cannonvale / Airlie Beach.

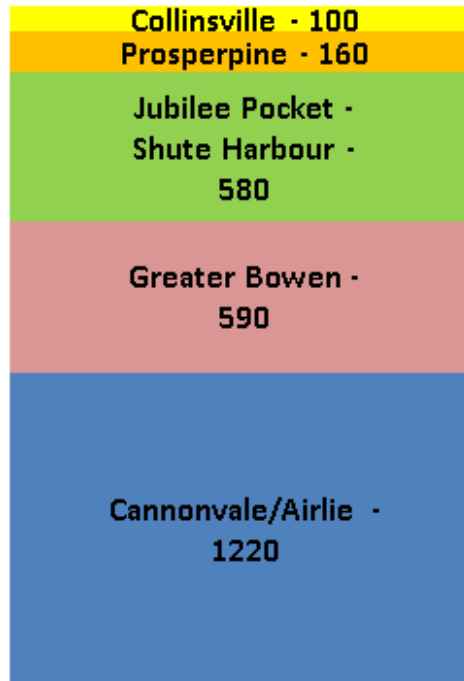
When planning waste management services it is more appropriate to consider numbers of dwellings or households. National statistics are usually concerned with waste production per household; waste collection rounds are designed around the number of bins collected, derived from the number of properties. Table 4 shows the projected growth in dwellings.

Table 4 Regional Growth in dwellings 2006 to 2016

Suburb	Year						
	2006	2011	2013	2016	2021	2026	2016 to 26
Proserpine	1,384	1,445	1,470	1,520	1,600	1,680	160
Cannonvale / Airlie	2,381	2,799	2,900	3,140	3,720	4,360	1,220
Jubilee Pocket / Shute Harbour	828	972	990	1,110	1,390	1,690	580
Whitsunday Islands	809	810	810	820	830	840	20
Balance from Whitsunday Shire	1,714	1,885	1,900	1,950	2,070	2,210	260
Bowen North	3,235	3,442	3,470	3,520	3,600	3,700	180
Bowen South	258	322	370	480	660	860	380
Abbott Point	290	303	310	320	340	350	30
Collinsville	858	864	880	910	960	1,010	100
Balance From Bowen Shire	594	546	550	560	570	580	20
WHITSUNDAY REGION	12,351	13,388	13,650	14,330	15,740	17,280	2,950

The number of dwellings in the Region is expected to grow by 21%, which is one sixth faster than the rate of population growth, reflecting the reduction in family size and increase in numbers of multi occupancy properties e.g. apartments.

Figure 5 Regional growth, dwellings, 2016 to 2026



3.5 Container Deposit Legislation

The Queensland Government announced in July 2016 that a Container Deposit Scheme would be introduced in 2018 throughout Queensland. The scheme is planned to operate in parallel with a similar scheme which is being introduced in New South Wales in July 2017. Both schemes are intended to operate broadly in the same manner as that introduced in South Australia in 1977, whereby drinks containers are subject to a 10 cent deposit at the point of retail sale, with the 10c deposit being redeemed when the container is handed in for recycling.

The South Australian scheme is seen as a successful anti-litter measure, designed to discourage people from discarding the drinks containers. In the NSW and Queensland models the focus is on recycling and litter prevention. Details of how the scheme will interact with kerbside recycling services are not yet known; at the time of writing the Queensland scheme is still subject to public consultation. It is understood however that the 10c deposit may be partially payable to local governments which recycle containers through Materials Recycling Facilities.

4. Current Waste Management

4.1 SWOT Analysis

Strengths	Weaknesses
National contractors established locally	Waste services not viewed as a priority
Landfill availability	Lack of continuity - handover from Planning & Community to Whitsunday Water & Waste
Few complaints	Historical Data – measuring tonnes and m ³
Reliable service	Reputation - No Recycling Kerbside Collection
Improving waste data	Project Management capacity
Competition between contractors	Contract Management capacity
Opportunities	Threats
New Whitsunday Water & Waste organisation & increased staffing	Pressure on infrastructure from increased population
Bowen Weighbridge	Fluid State Government policy position
Growing rates base	Reintroduction of Carbon Tax
Fees & Charges	Reintroduction of Waste Levy
E services	Capital Budget vulnerable to financial shock
Composting	Improved STPs mean more Biosolids
Container Deposit Legislation	Container Deposit Legislation

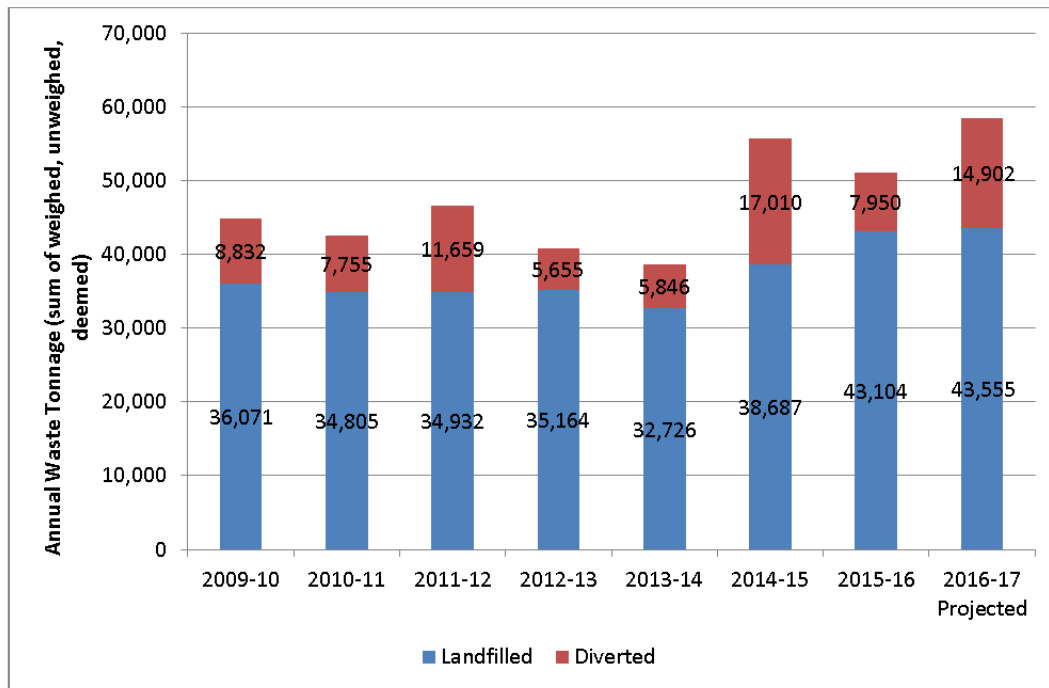
4.2 Waste Generated and Recovered

Our waste is increasing, as our population increases and our consumption generally grows.

The quantities, types and projections of wastes in our Region are vital to understand, so that management decisions and planning can be done. Our Region produced over 51,000 tonnes of waste and recoverable materials in 2015-16. Allowing for a spike in 2014-15, this indicates an increase of approximately 10% from 2011-12 figures, which was the first year of operation of Kelsey Creek Landfill’s weighbridge. These tonnages represent domestic kerbside collected waste and self-hauled to sites, commercial and industrial wastes, construction and demolition wastes, green waste from all sources and biosolids from wastewater treatment plants. The trend in waste generation over the last seven years is shown in Figure 6.

Waste data in the Region is collected through the use of Mandalay software, which is installed at the four main waste infrastructure sites. Operators are required to select the correct products and product categories for each transaction, which is measured either by mass on a weighbridge or by volume based on vehicle type. For some product types, the Department of Environmental and Heritage Protection publishes “deemed factors” which are specified densities for different waste types. In this way, some volumes are automatically converted by Mandalay into waste masses (in tonnes).

Figure 6 Waste generation across the Region



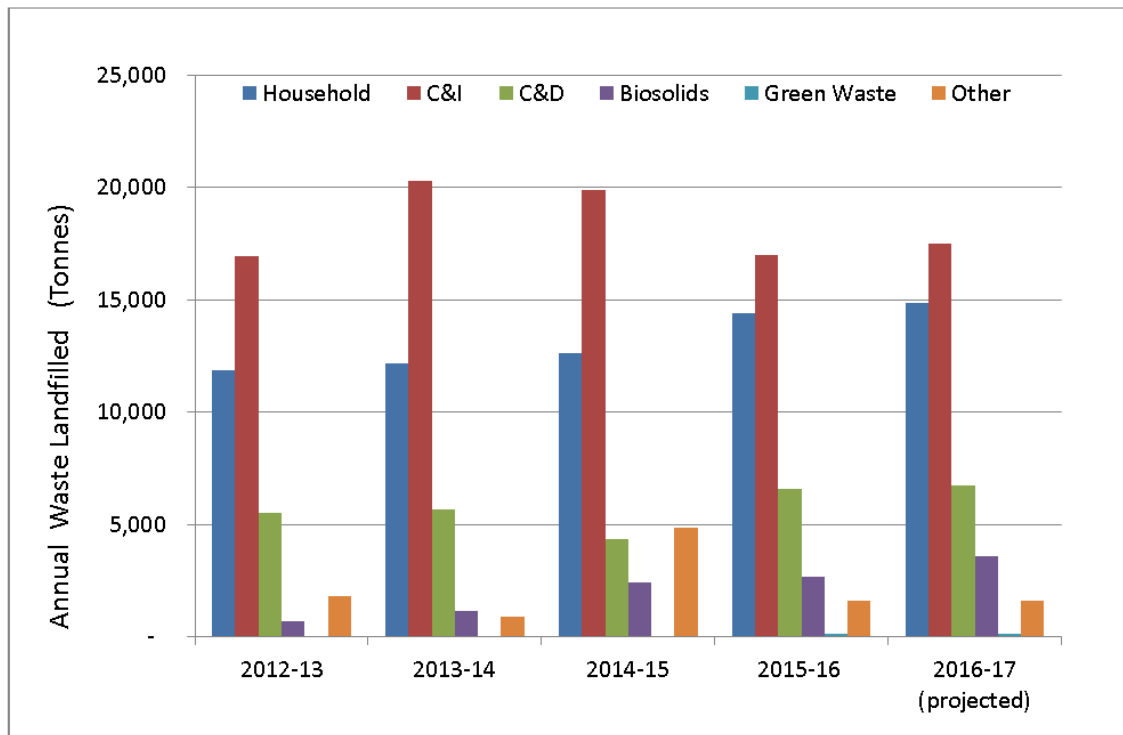
Of the waste and materials generated in the Region, in 2015-16 Council achieved a diversion and recovery rate of approximately 16% and the projection for 2016-17 is 20%. Whitsunday Region performs very strongly with the diversion of green waste from landfill – at almost 100%. Domestic and commercial wastes however had recovery rates of 13% and 12% respectively. Our Regional waste generation is broken down by waste type in Table 5.

Table 5 Waste generated, landfilled and diverted across the Region by category by mass (2015-16 data)

Waste Type	Landfilled	Diverted	Total	Diversion rate
MSW	14,574	2,230	16,804	13%
C&I	17,674	2,462	20,135	12%
C&D	3,573	2,668	6,241	43%
Contaminated Soil	2,972	31	3,003	1%
Green Waste	1	538	539	100%
Regulated	1,920	17	1,937	1%
Biosolids	2,390	0	2,390	0%
Total	43,104	7,950	51,055	16%

The growth in different waste types across the preceding four years is shown in Figure 7. This figure demonstrates that the largest contributions to waste generated in the Region are domestic (municipal solid waste - MSW) with 34% of the landfilled total and Commercial & Industrial waste (C&I) at 41%. The remaining percentages are classified as Construction & Demolition (C&D) and Biosolids with 8% and 6% of landfilled waste respectively. Over 99% of green waste is diverted from landfill.

Figure 7 Total mass by waste type



One waste type to highlight is biosolids, which is the main by-product of the wastewater treatment process. Although when treated and managed appropriately they can be beneficially used⁴ for a number of purposes, currently 100% of the biosolids that come to Council waste infrastructure facilities is landfilled. In 2015-16, approximately 2,600 tonnes were deposited at Regional landfills, with an increased figure of 3,500 tonnes anticipated in 2016-17.

This has grown almost five-fold since 2012-13, since the upgrade of wastewater treatment plants at Cannonvale and Proserpine. In approximate terms, this represents 7.5% of the airspace consumption across the Region, a figure that is likely to grow further with increasing population and also because of a new wastewater treatment plant due to be commissioned at Bowen.

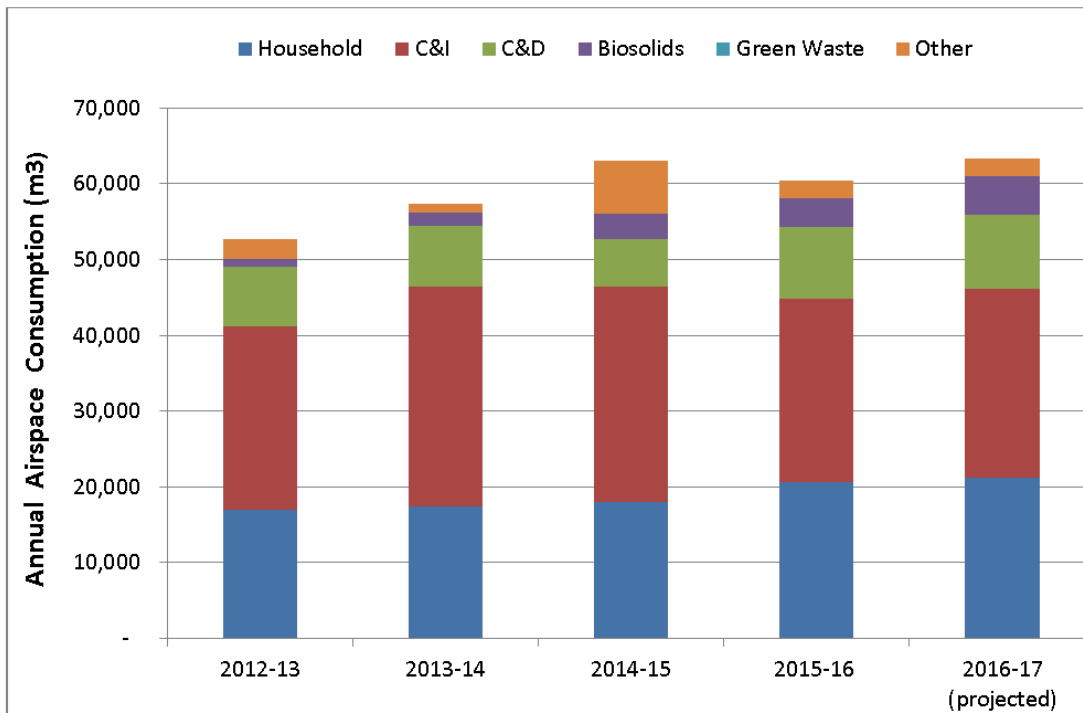
Biosolids are difficult to manage at the landfills. They contribute significantly to methane and leachate generation, they present a health risk to workers, and they restrict access across the landfill face which can impede operators' ability to manage other landfill risks. Importantly, biosolids are also a resource that can be used more beneficially than disposed of to landfill – they are high in nutrients valuable to agricultural production, such as carbon, nitrogen, phosphorous and potassium.

Airspace Consumption

The total airspace consumption across the Region has averaged approximately 60,000 m³ over recent years, although regular volumetric surveys have not been undertaken since 2013 to verify true consumption rates. Again, the majority of that consumption was domestic and commercial wastes, as shown in Figure 8.

⁴ The Australia & New Zealand Biosolids Partnership

Figure 8 Airspace consumption by year and waste type



It is essential that regular volumetric surveys are undertaken in order to monitor the performance of Council's landfills and to monitor availability of future airspace in order to plan effectively for future landfill cells.

Waste Growth

Using the growth rates in the 2013 Norling study, waste tonnages for future years can be predicted – over the ten year period 2016 to 2026, the rate of growth in waste tonnage could be as high as 34% for Kelsey Creek and 13% for Bowen, and approximately 18% overall for the Region.

This quantity will be managed across the two landfills in the Whitsunday Region – Kelsey Creek and Bowen. In the future, the entire quantity of landfilled waste would be more than 50,000 tonnes by 2026. Because of the uncertainties over some historical data however, caution should be exercised when predicting waste tonnages as far into the future as this. Moreover, whilst forecasting growth in household waste in line with increased population should be reliable, predicting commercial and industrial waste growth is not. It is also noted that the capture and analysis of accurate waste data is difficult in the Region, due to a number of factors:

- Presence of a weighbridge at some sites and not others means that a combination of data tracking is used – some by mass (tonnes) and some by volume (m³). An accurate way of converting the two is not straightforward which has meant in some situations waste generation totals have been underreported.
- The fees and charging regime creates a large number of data attributes for each load that enters any site, which are then further categorised in the data capture system into a complicated chain of classification. Deciphering this chain can be time-consuming.
- The categorisation of different waste types has changed in the preceding 5 years – including, for example, a change from domestic to general waste, and separating

biosolids from regulated waste, hence the “other” category in figures 6 to 8 above. This creates gaps in comparing data across timescales.

- An analysis of transaction trends at Council’s landfills and transfer stations shows that total numbers of transactions at all sites have increased dramatically over the years, as Council staff have simplified the operation of the data system and site operators have become more skilled. This will also have led to underreporting of some wastes in the past.

4.3 Waste Composition

In the Whitsunday Region, we produce domestic, commercial and industrial, and construction and demolition wastes, however accurate composition data for those wastes is not available.

To plan accurately for the management of various wastes, it is essential to know what types of materials are present in the waste and in what proportions. This is often worked out by carrying out a waste compositional analysis. This typically involves collecting a sample(s) of waste separately from the normal collection run, measuring its uncompacted volume, and manually separating out the contents before recording the weights of each element within it, broken down into such components as paper, steel cans, aluminium cans, plastics, vegetable & putrescibles, glass, fines, etc. More sophisticated analyses introduce some market segmentation into the exercise, to take into account different shopping and therefore waste producing habits between socio-economic groups or geographical areas.

No such analysis has been carried out in the Whitsunday Region and so it is not possible to determine accurately what proportion of kerbside bin waste could be recycled via a MRF for example. Any projections in saved landfill airspace, or projections for waste being recycled, have been determined by a desk top approach.

Table 6 Comparison of Municipal Solid Waste (MSW) composition data

Waste Material	Location								
	Burdekin ¹	Townsville ¹	Mackay ²	Central Highlands ³	OECD Countries	World Bank, Global	Australia ⁴ , 2010	UK ⁵ , 2006/7	WRAP ⁶ UK 2002
Food	48	24	43.2	37	27	46	35	18	17
Garden	2	14		37	27	46	17	16	20
Paper	14	16		22	32	17	13	23	18
Textiles	3	11		-	-	-	2	3	3
Plastics	10	11	22.2	17	11	10	-	10	4
Glass	6	8		5	7	5	10	6	7
Metal	-	-		6	6	4	-	4	3
Other	17	28	34.6	13	17	18	-	20	28

¹ North Queensland Regional Waste Reduction & Recycling Plan 2014 – 2024

² Mackay Regional Council Waste Management Strategic Plan, 2014-18

³ Oct 2013 waste composition analysis for Central Highlands Waste Reduction & Recycling Plan 2016

⁴ Commonwealth Government National Waste Policy – Less Waste, More Resources

⁵ UK Department of Environment (DEFRA) report: Municipal Waste Composition: A Review of Municipal Waste Component Analyses

⁶ Dr Julian Parfitt, WRAP. Analysis for 'Waste not, Want not' 2002

Numerous studies have however been carried out around the world, and some of these are reproduced below. There is considerable diversity between different studies, however there is a degree of confidence that domestic waste collected in the Whitsunday Region could comprise 13% to 22% paper, 10% to 17% recyclable plastics, 5% to 8% recyclable glass, and 3% to 6% recyclable metals. A total of between 31% and 53% of kerbside bin waste is therefore potentially recyclable. The 2012 kerbside recycling report included an assumption that 20% of kerbside bin waste would be diverted via a kerbside recycling collection service, rising to 30% over time. The figures in table 6 would suggest that these are conservative estimates.

Commercial and Industrial waste tends to have higher paper and cardboard and higher organic food waste proportions

4.4 Waste Collection Services

Council provides kerbside domestic waste collection services to approximately 89% of the population. In addition, we collect bulk domestic waste from 12 satellite bin stations in the Region. We currently do not provide recycling services and commercial and industrial collection services are generally provided by the private sector.

Domestic Kerbside Collection

Domestic waste is collected via 240L wheelie bins which are collected weekly in most urban areas, and from large bulk skip bins positioned as Satellite Stations in some rural areas. In multi-occupancy properties the bin size for the collections can vary from 120 L to 1100 L but the commonest sizes are 240 L and 660 L. No kerbside recycling services are currently undertaken in the Region.

Currently 15,325 wheelie bins (240 Litre capacity) are collected weekly from 13,827 residential properties at the kerbside, with about 10% of properties paying for a second service at their request. Each property receives 52 collections per year with no exceptions for public holidays. Wheelie bins are owned and maintained by Council

The domestic waste collection service extends only to those properties within the Council's declared service area. Maps shown in Appendix 1 show the extent of the current area. In general, all properties within the main townships of Airlie Beach, Bowen, Cannonvale, Collinsville / Scottville and Proserpine, as well as many of the smaller settlements e.g. Mount Julian, Merinda, Brisk Bay, Shute Haven. Some rural areas also receive collections such as Delta, Crystlebrook.

Collections are provided via two contracts, one in the Northern area, currently undertaken by Transpacific Cleanaway, and one in the Southern area, currently undertaken by JJ Richards & Sons.

These contracts were awarded by Council in 2013 following a tendering exercise. The approach which had been agreed by Council in December 2012 consisted of:

- Using extensions to the old Bowen and Whitsunday contracts to synchronise their end dates;
- Taking the best features from both of the old contracts and incorporating them into the specification for the new contract;
- Addressing anomalies such as different bin ownership arrangements;
- Creating the opportunity either to continue with separate northern and southern contracts, or to package the work into a single Region-wide contract if that were found to be more economically advantageous;

- Deciding whether to include kerbside recycling within the new contract(s) once awarded; and
- Assimilating the contract for haulage of waste from Collinsville Transfer Station into the waste collection contract.

Kerbside Recycling Services

Whitsunday Regional Council does not currently provide a kerbside collection for recyclable household waste. The former Bowen and Whitsunday Shire Councils both operated kerbside recycling but both of them ceased their respective services independently some time before amalgamation in 2008. Bowen Shire's kerbside recycling service featured a split bin system which suffered from cross-contamination and operated from 1997 to 2002. Whitsunday Shire Council's bag recycling scheme operated during the late 1990s but ceased in 2000 due to low participation rates and high costs.

Over the past few years there have been three reports presented to Council regarding the possibility of reintroducing the service. These were prepared in 2006 (Whitsunday Shire Council), 2009 and 2012.

The 2006 and 2009 reports both took an approach of examining the "Triple Bottom Line" which looked at the social and environmental aspects as well as economic. The reports concluded that providing the service would result in a cost to ratepayers. Some work was done on establishing residents' willingness to pay that cost, but overall the question of cost had many uncertainties.

The 2012 report looked at benchmarking with other Councils and looked at the cost factors in more detail, concluding that the exact cost could not be determined until the waste collection contracts had been awarded. A range of probable costs was however calculated with reasonable certainty and more thorough consultation was carried out, including a web-based survey and a telephone survey. These two surveys together canvassed the views of 1,026 people. Residents were asked whether they would be willing to pay \$120 per year and \$160 per year. Approximately 60% said that they were prepared to pay \$120 but only 52% in the phone survey and 33% on the web survey were prepared to pay \$160.

Once the waste collection service had been tendered in late 2012 and the contracts awarded in early 2013, the contractors' prices were factored-in to the earlier cost calculations. This showed that the cost which Council would have had to recover via the rates charges would have been \$140 per year per property.

Unfortunately this took place at the same time that the Council's position with regard to the 2009 and 2010 National Disaster Relief & Recovery Arrangements (NDRRA) became known. One of the measures introduced by Council to combat the financial difficulties associated with the NDRRA was the introduction of a \$140 infrastructure levy on each rateable property for the 2013-14 and 2014-15 financial years. It would not have been possible to impose a further \$140 levy on ratepayers for kerbside recycling at that time.

The public consultation exercise carried out as part of the preparation of this 2016 Waste Management Strategy concluded that broadly the community still supports kerbside recycling as a priority for Council and is still prepared to pay the cost of the service. Section 6 below provides more detail of this.

The 2012 report included an assumption that 20% of kerbside bin waste would be diverted via a kerbside recycling collection service, rising to 30% over time. The figures in 4.3 above would suggest that these are conservative estimates. This would suggest that the estimated 14% saving in landfill airspace might also be low and that a realistic figure might be closer to 20%.

A practical problem with the disposal route for recyclables was identified in the 2009 report: the reception hopper at the MRF in Mackay was able to accommodate loads tipped from side-loading tipper trucks, but not from 30m³ skips. This would have prevented Whitsunday Regional Council from tipping there without modifications being made. Since then however the operators of the MRF have re-designed the hopper area as part of a major upgrade, and so this issue is now resolved.

There is anecdotal evidence that residents will make use of some of the space which becomes available once recyclables are removed, by disposing of other wastes i.e. green waste to use up this extra capacity in their wheelie bin. The risk of this happening would have to be monitored if kerbside recycling were to be introduced, and consideration of how to restrict this additional waste would have to be taken, perhaps by phasing in smaller bins for the landfill waste.

On the environmental front, some convincing arguments were presented in the 2009 report that any environmental benefits arising from recycling would be negated by carbon emissions from transport and processing. None of these arguments was challenged in the 2012 report. The 2012 report found that the saving in landfill airspace was less significant than previously assumed. Infrequent enquiries from residents and tourists regarding lack of kerbside recycling have been easily answered by pointing out these facts. An online petition campaign drew local and worldwide support in 2012, but Council was able to deal with the criticism.

Nevertheless, in 2016 Whitsunday Regional Council finds itself alone among North Queensland Councils of similar size in not providing a kerbside recycling service.

Council's Community Plan 2011- 2021 noted that the Community stated that Council should "provide the community with a kerbside domestic recycling service," and that Council intends to deliver this vision by "reviewing waste management practices, including recycling, to ensure that they are cost effective and sustainable."

Public Bin Collection

Emptying of Litter Bins in the main towns is provided as part of the Waste Collection contracts, although bins in some CBD areas are emptied by Parks & Gardens staff.

Litter bins in high-use areas within CBDs are emptied daily and bins with lower usage are emptied less frequently. Contract costs for this service are approximately \$230,000 per year.

Some areas, in particular Airlie Beach Main Street, are serviced by recycling litter bins which enable visitors and residents to place recyclable litter such as aluminium cans and plastic bottles in a separate compartment for recycling.

The Council's contractors collect this material and send it to the MRF along with the co-mingled recyclable waste collected at Cannonvale Transfer Station. The bins are however vulnerable to contamination from food and other waste and when this occurs the only option for the waste is for it to be collected along with the landfill litter.

Prior to 2013, power washing of litter bins was carried out as a separate contract in the north area only. In the south area this was carried out as part of the waste collection contract at a cost of around \$135,000 per year.

In 2012 it was decided that a more cost-effective option would be to carry out the bin cleaning as a separate Region-wide contract.

The total cost for the whole Region is approximately \$30,000 per year.

In the past there has been some crossover between different departments in terms of budget holders and decision making on locations and designs of new street bins, however this is now seen as a function of the Waste Management Service. Some legacies of the previous arrangements include the variety of bin types which remain in use, and a lack of consistent

budget for bin replacement and maintenance, which should be addressed in this strategy's lifetime.

4.5 Waste Infrastructure

Council manages two landfills, two urban and two rural transfer stations, and 12 satellite bin stations across the Region. We know that we have significant potential landfill airspace into the future however currently constructed cells are due to expire in the next three years. We know, based on population growth centres that the Cannonvale Transfer Station will continue to be the most publically visited waste infrastructure site in the Region. We also know that our satellite stations are costing Council money and providing a service that could potentially be better serviced by kerbside collections.

Table 7 shows which types of material are accepted at the landfills and transfer stations.

Table 7 Waste types accepted at landfills and transfer stations

Waste Type	Facility				
	Kelsey Creek Landfill	Bowen Landfill	Cannonvale Transfer Station	Collinsville Transfer Station	Mount Coolon Landfill
Kerbside Wheelie Bin Waste	✓	✓	✗	✗	✗
Self-Haul Domestic Waste	✓	✓	✓	✓	✓
Commercial Waste (Waste Contractors)	✓	✓	✗	✗	✗
Self-Haul commercial waste	✓	✓	✓	✓	✓
Construction & Demolition Waste	✓	✓	✗	✗	✗
Concrete for recycling	✓	✓	✗	✗	✗
Green Waste	✓	✓	✓	✓	✗
Scrap Metal	✓	✓	✓	✓	✗
Biosolids	✓	✓	✗	✗	✗
Regulated Waste	✓	✓	✗	✗	✗
Clean soil	✓	✓	✗	✗	✓
Contaminated soil	✓	✓	✗	✗	✗
Cardboard	✓	✓	✓	✓	✗
Dry Recyclables	✓	✓	✓	✓	✗
Car Batteries	✓	✓	✓	✓	✗
Engine Oil	✓	✓	✓	✓	✗
Tyres	✓	✓	✓	✓	✗
Paint	✓	✓	✓	✓	✗
Gas Bottles	✓	✓	✓	✓	✗
E-Waste	✓	✓	✓	✓	✗
Fertiliser bags	✓	✓	✗	✗	✗
Trickle tape	✓	✓	✗	✗	✗

Most waste in the Whitsundays is disposed of at the two major landfills - Kelsey Creek and Bowen. Domestic kerbside bin waste, Commercial waste (collected by contractors and self-hauled), Transfer Station skips waste, Regulated waste, bio-solids, and waste from the Whitsunday Islands are all disposed of by landfilling at these two sites. Much of the Council's recycling activities take place on these two sites.

Small amounts of waste are also disposed of at Mount Coolon Landfill, while some material is managed at Council Transfer Stations (Green waste being turned into mulch) and Material Recycling facilities in Mackay and other Regions.

4.5.1 Landfills

Kelsey Creek Landfill

Kelsey Creek Landfill is situated at 139 Kelsey Creek Road Proserpine. The site has a weighbridge on entry which collects data, a resource recovery area and a landfilling area. The current landfill cells are engineered and lined. The site is managed by North West Services under a five year contract which runs from 18 November 2012 to 17 November 2017. The contract may be extended until 31 January 2018, which would align with the Bowen Landfill Management contract. The site is open to the public on each day of the year except Christmas Day and New Year Day but remains open for the Council's Waste Collection contractor on these days if required.

Since 01 December 2011 waste at the landfill has been recorded in tonnes, in accordance with the WRRRA. Council's weighbridge was not fully commissioned until late March 2012 and so manual records were kept which converted volumes to weight via a "deeming table" prescribed by the WRRRA and Regulations. Unfortunately it is not possible accurately to compare waste recorded in m³ with that recorded in tonnes over the 8 years or so during which waste data exists. Waste tonnages have however been increasing since Dec 2011.

The Kelsey Creek Landfill has incorporated engineered lined cells since 2005 each with a geosynthetic clay liner intended to comply with the clauses of the site licence. Cell 4 is currently being filled. Adjacent to Cells 1 and 2 is the old landfill, which is unlined but has been progressively capped. Batter slopes of Cells 1 and 2 have been capped, with progressive capping to be undertaken to the plateau and other cells in the future.

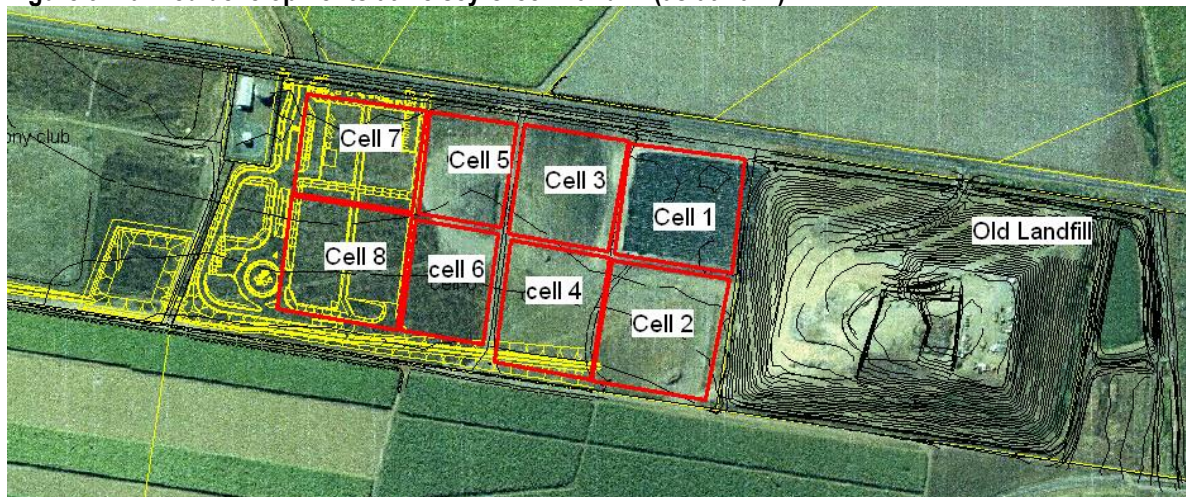
Arising from the actions detailed in the 2011 Waste Strategy, a 20 year Development Plan for Kelsey Creek Landfill was drawn up. This development plan maps out the future development of lined landfill cells from 2011 to 2030, using waste projections based on known waste quantities being landfilled at that time. As outlined in 2.1.3 above, the 2011 plan pre-dated the WRRRA and the site's weighbridge, and therefore Cells 7 and 8 will either have to be re-designed with smaller footprints or integrated with larger cells 5 and 6. Whilst the plan needs to be reviewed and further developed for this 2016 Waste Strategy, the opportunity should also be taken to use the plan to map out other future infrastructure requirements on the site, e.g. leachate management.

The development Plan should form an important part of the Corporate and Financial Planning process outlined in 1.3 above.

Table 8 Kelsey Creek Landfill constructed and planned airspace (as 2011)

Cell	Year Constructed	Design Airspace	Cumulative Airspace
Cell 1	2005	75,000	75,000
Cell 2	2007	92,000	167,000
Cell 3	2009	122,000	289,000
Cell 4	2014	110,000	399,000
Cell 5	2018	102,000	501,000
Cell 6	2022 (estimated)	99,000	600,000
Cell 7	2026 (estimated)	100,000	700,000
Cell 8	2030 (estimated)	115,000	815,000

Figure 9 Planned developments at Kelsey Creek Landfill (as at 2011)



Bowen Landfill

Bowen Landfill is situated at 908 Bowen Developmental Road. The site occupies about 16 ha of Lot 225 on SP106414 which extends to a total area of 46 ha, part of which comprises a quarry to the south of the landfill and other areas leased to a mulching operation and a farmer. A new weighbridge was installed at Bowen Landfill in 2016.

The site is managed by Pacific Landfill Services under a seven year contract which runs from 01 February 2010 to 31 January 2017, with a possible extension to 31 January 2018, which would align with the Kelsey Creek Landfill Management contract.

The site is open to the public on each day of the year except Christmas Day and New Year Day but remains open for the Council’s Waste Collection contractor on these days if required.

The WRRAs introduction in December 2011 introduced stricter waste data recording requirements, and initially these were recorded via the “deeming” provisions as with Kelsey Creek. The introduction of computerised recording was delayed until July 2012 and manual systems continued in the interim.

As with Kelsey Creek there exists a difficulty with reconciling data over time when some of the data is expressed in tonnes and some in cubic metres.

Furthermore the accuracy of Bowen Landfill tonnage figures cannot be guaranteed because tonnages have been “deemed” from estimated volumes. Tonnages recorded since the repeal of the waste levy in July 2012 are likely to be more realistic than those for 2011-12 because the Mandalay system allows tonnage equivalents to be programmed in by Council for various waste types, whereas in 2011-12 the State Government’s “deeming table” dictated the densities of waste and therefore the calculated tonnages, and there was no provision for partly loaded vehicles.

There can only be confidence in the certainty of Bowen Landfill waste data after its weighbridge was installed in April 2016, and so meaningful trends expressed in tonnes will only be possible during this strategy’s lifetime.

All current cells within the Bowen Landfill are unlined and non-engineered. Lower than anticipated waste growth during the 10 years since 2006, when an earlier concept plan was drawn up, has meant that the unlined cell has not been filled as quickly as had been anticipated. In the interim, revised regulatory guidelines for landfill design, improved understanding of the performance of different types of landfill liners and rises in groundwater levels have all created an opportunity to re-consider design of future cells and associated infrastructure. A new outline plan has recently been prepared by Golder Associates. A concept plan showing future stages is shown in Figure 10 below, and the estimated airspace in each cell is shown in Table 9.

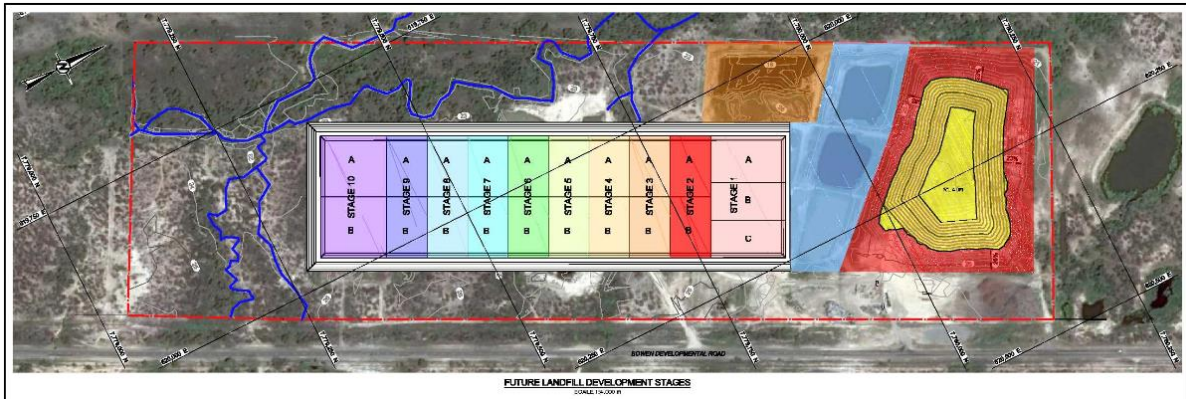
The Bowen Landfill has not been subjected to any capping activities beyond interim capping, and will require capping in the future according to the site licence.

Bowen Landfill also has a 20 Year Development Plan which should also be updated and form part of the Corporate and Financial Planning process.

Table 9 Bowen Landfill planned airspace (2016 concept plan, Option 2, Golders Associates)

Cell	Year Constructed (approx..)	Design Airspace	Cumulative Airspace
Stage 1 - Cell 1 A	2017	28,000	28,000
Stage 1 - Cell 1 B	2020	40,500	68,500
Stage 1 - Cell 1 C	2021	36,500	105,000
Stage 2 - Cell 2 A	2023	29,000	134,000
Stage 2 - Cell 2 B	2025	71,500	205,500
Stage 3	2028	100,000	305,500
Stage 4	2033	100,000	405,500
Stage 5	2038	100,000	505,500
Stage 6	2042	100,000	605,500
Stage 7	2047	100,000	705,500
Stage 8	2052	100,000	805,500
Stage 9	2057	100,000	905,500
Stage 10	2062	45,000	950,500

Figure 10 Planned development at Bowen Landfill (2016 Concept Plan)



Cost of Landfill Management

In 2016 – 17 the operational expenditure at Kelsey Creek is budgeted at \$896k and at Bowen the budget is \$564k. The major operational expenditure cost associated with both of the waste disposal sites is payments to contractors, amounting to 64% at Kelsey Creek and 86% for Bowen.

There are some fundamental differences with the site and management arrangements which explain the higher proportion of non-contractor expenditure at Kelsey Creek. These include the fact that there is no leachate management cost at Bowen (because Bowen’s cell is unlined) and Kelsey Creek has a higher reliance on imported day cover than Bowen.

Also the Bowen Landfill contractor’s contract specification includes many of the costs which are categorised as “materials” at Kelsey Creek.

Expenditure on capital works projects, for example new landfill cells and upgrades to site infrastructure, is not covered in these operational expenditure figures. The current budget for the next engineered and lined cell at Bowen Landfill is in the order of \$2 million.

4.5.2 Transfer Stations

Cannonvale Transfer Station

Cannonvale Transfer Station is the most publically visited (48% of visits to all waste sites in 2015-16 were to Cannonvale) waste management site in the Region and is located in an area which will see more than two thirds of the population growth in the Region over the next 10 years. This is a vital piece of infrastructure for Council.

Cannonvale Transfer Station is situated at 37-49 Carlo Drive Cannonvale and occupies Lot 62 on SP220408. The site is managed by JJ Richards as part of the waste collection (southern area) contract which expires on 30 June 2021. It is open from 6.00 am to 6.00 pm every day, with closure or reduced hours on some public holidays.

The Cannonvale Transfer Station manages approximately 1,950 tonnes of the Region’s waste (mixed municipal and commercial) and 160 tonnes of scrap metal each year. This is transferred in 30 m³ skips (also provided under the waste collection contract) to Kelsey Creek Landfill. A further 860 tonnes of recyclables are taken to Material Recovery Facilities (MRFs) in Mackay. This material includes waste deposited directly by residents at the Cannonvale Transfer Station, waste deposited by residents in the recycling skips at Kelsey Creek Landfill and then transferred to Cannonvale, and) commercial waste recycling

collected from JJ Richards' commercial customers. Finally, approximately 18,000 m³ of green waste is processed and turned into mulch each year.

There are some problems which are not currently of major concern but which will become more significant in the future with increased population and therefore usage at Cannonvale Transfer Station. The site's current layout does not allow site staff easily to see what customers are placing in the skip bins which can result in cross contamination. The layout, with the site office situated at the gate, can result in queuing traffic on Carlo Drive which can be hazardous. The site staff (usually only one staff member at any time) often struggle to cope with recording waste movements as well as carrying out other duties at busy times. This may mean that a review of the site's capacity and layout will be required during this strategy's life.

Collinsville Transfer Station

This Transfer Station is situated at 155 Scottville Road Collinsville and occupies Lot 27 on SP 106412. The site is managed by JL Slashing under a three year contract which commenced on 12 October 2016. The site opens from 7.00am to 6.00 pm Friday to Monday, and on Wednesdays.

The Collinsville Transfer Station manages approximately 300 tonnes of waste (mixed municipal and commercial) each year, which is transferred in 30 m³ skips (under the waste collection northern area contract) to Bowen Landfill for disposal. Some resource recovery is undertaken at the site, notably scrap metal and green waste.

Dingo Beach and Wilson Beach Transfer Stations

The smaller transfer stations at Wilson Beach and Dingo Beach are serviced with 30m³ skips and are used by residents ostensibly as large satellite stations. Bins are removed from these sites every 3 to 4 days. Emptying of 30m³ skips at Dingo Beach and Wilson Beach costs \$46k and \$26k respectively per year.

Bowen

Bowen does not currently have a transfer station. Whilst the 2011 Waste Plan (see 2.1.2 above) proposed investigation into such a site, little work has been done on this. Few complaints are received about this however. As with Cannonvale, population growth may dictate that this question be re-visited.

4.5.3 Satellite Stations

Satellite Stations are provided in some rural areas to enable residents living outside the wheelie bin collection area to dispose of household waste conveniently without having to visit a landfill or transfer station. Satellite stations are located at Preston, Maloney Road, Lethebrook, Gunyara, Kelsey Creek / Dittmer, Up River, Gregory River, East Euri, Normanby, Guthalungra, Gumlu and Molongle Creek.

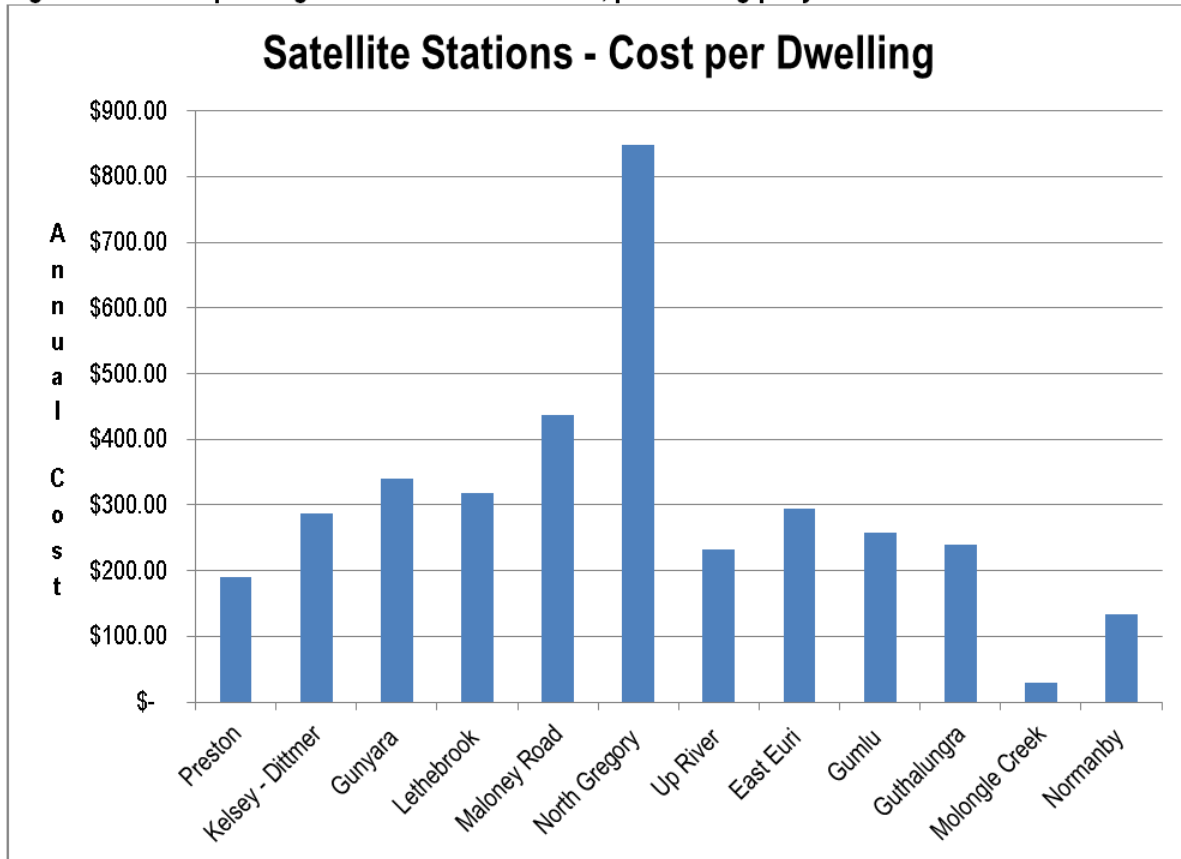
These are all serviced with 2m³ or 3 m³ front-end-lift skip bins in varying numbers and emptied at varying frequencies. Brisk Bay / Heronvale also has a transfer station which accepts green waste only.

The costs associated with managing these satellite stations varies considerably compared to number of residents serviced and specific location, as shown in Figure 11. Contributing factors to costs include extra-ordinary clean-up and maintenance, fencing, CCTV and additional bin pickups. Many of the satellite stations are known illegal dumping hotspots.

Table 10 Summary of Satellite Stations

Facility Name	Address	Locality	Land Type
Preston	Saltwater Creek Road	Palm Grove	Reserve
Kelsey Creek/Dittmer	Kelsey Creek Road	Kelsey Creek	Road Reserve
Gunyara	Gunyara Road	Gunyara	Road Reserve
Lethebrook	Magee Road	Lethebrook	Road Reserve
Maloney Road	Maloney road	Thoopara	Road Reserve
North Gregory	Gregory River Road	North Gregory	Road Reserve
Up River	Up River Road	Foxdale	Road Reserve
East Euri	East Euri Road	Merinda	Road Reserve
Gumlu	Days Road	Gumlu	Road Reserve
Guthalungra	Coventry Road	Guthalungra	Reserve
Molongle Creek	Molongle Creek Boat Ramp	Gumlu	Reserve
Normanby	Normanby Road	Bogie River	Road Reserve
Brisk Bay Green Waste Transfer Station	Pitcairn Avenue	Heronvale	Reserve

Figure 11 Operating costs of Satellite Stations, per dwelling per year



4.6 Legacy Waste Sites

Council potentially has liabilities with legacy landfill sites. These should be viewed as either medium to high risk (sites currently subject to EHP license or sites with the potential to cause environmental harm in contravention with Council’s environmental duty under the Environmental Protection Act) or low risk (older sites no longer under EHP licensing or with limited potential to cause environmental harm).

The Queensland Government formerly had a Landfill Remediation Assessment Program which provided funding for the assessment and rehabilitation of legacy landfill sites. The former Bowen Shire Council engaged Golder Associates in 2000-2004 to assess the legacy landfill sites within that Region, while a small number of reports exist assessing the status of legacy sites in the former Whitsunday Shire Council Region. To different degrees of complexity, all of these reports assessed the risk posed by the landfill site and described works required to reduce these risks. The extent to which these works have been undertaken is unknown based on the information provided.

A summary of the findings from site investigations at legacy landfill sites is provided in Table 11. It is noted that no additional risk assessment was carried out as part of this strategy.

Table 11 Summary of Findings from site investigations at legacy landfill sites

Landfill	Address	Description	Post Closure	Rated Risk Level (previous assessment)
Corduroy Creek Rd, Scottville (Golder Associates, 2002)	Corduroy Creek Rd Lot 4/AP13636 586042.00 m E, 7725218.00 m S	Landfilling from 1980 to 1989 (approx.) Accepted mixed domestic waste.	Undeveloped site	Moderate – uncovered materials and intrusive works
Dingo Beach (Woodward-Clyde, 1999)	Dingo Beach Rd Lot 1/AP13184 657355.00 m E, 7776172.00 m S	Landfilling from 1987 (approx.) until closure in 2000. Post Closure Plan exists	Transfer station developed on site	Unknown
Gumlu (Golder Associates, 2000)	Off Days Rd Lot 53/SB577 571951.00 m E, 7803544.00 m S	Landfilling from unknown to 1986 (not expected to be a long period). Burning may have been common, most waste remaining is metal. Very small extent	Undeveloped site	Low for gas, moderate - uncovered waste and intrusive works.
Guthalungra (Golder Associates, 2002)	Riverbank on junction of Elliot River Rd and Bruce Highway 588796.00 m E, 7796704.00 m S	Landfilling from 1948 to 1986. Accepted mixed domestic waste.	Undeveloped site	Low for gas, moderate - uncovered waste and intrusive works.
Hay Street Bowen (Golder Associates, 2000)	Hay St Lot 210/SP143899 630896.00 m E, 7787027.00 m S	Landfilling from unknown to 1986 (potentially 10 years).	Sports fields development	Possibly offsite migration of leachate through seepage to creek. Low for gas, moderate – to uncovered waste, intrusive works and marine ecosystems.

Landfill	Address	Description	Post Closure	Rated Risk Level (previous assessment)
Heronvale (Golder Associates, 2000)	Pitcairn Avenue Lot 70/HR1734 635550.00 m E, 7775854.00 m S	Landfilling from unknown to 1986 (not expected to be a long period). Burning may have been common, most waste remaining is metal.	Undeveloped site	Low for gas, moderate – to uncovered waste, intrusive works and marine ecosystems. High degree of risk for erosion
Jubilee Pocket (AGE, 2002)	Shute Harbour Rd Lot 105/CP894264 680434.00 m E, 7756924.00 m S	Unknown	Sports fields development	Limited risk assessment completed Apparent low risk of leachate impact on marine ecosystems though leachate was found to be discharging to Boat Haven Bay in 2001.
Merinda (Golder Associates, 2000)	Alligator Creek Rd Lot155/SP224847 622292.00 m E, 7787848.00 m S	Landfilling from unknown date to 1981 (potentially more than 15 years). Accepted general domestic waste, a number of illegally dumped car wrecks at sight.	Undeveloped site	Low for gas, moderate – to uncovered waste, intrusive works, marine ecosystems and subsidence and openings in landfill.
Walker St Collinsville (Golder Associates, 2004)	Walker St Lot 88/SP106415 586582.42 m E, 7727159.19 m S	Landfilling from 1986 to 2003. Accepted mainly general wastes.	Undeveloped site	Low for gas, moderate – intrusive works, freshwater ecosystems and exposure of waste due to erosion.
Wilson Beach (AGE, 2000)	Wilsons Beach Rd Lot 340/HR1254 680376.55 m E, 7735333.94 m S	Landfilling from late 1970s to 1995 (approx.) Accepted general waste and expected to be at maximum depth of 6m below ground	Transfer station developed on site	Slight risk of ammonia exposure to mangrove swamp.

4.7 Alternative Waste Treatments

Council is aware of various Alternative Waste Treatments (AWT) which exist throughout the developed world. AWT technologies include Energy from Waste (EfW), Mechanical Biological Treatment (MBT), anaerobic digestion, pyrolysis and gasification. Whilst many of these technologies offer clean, effective and sustainable alternatives to landfill, the cost (compared to that of landfill) and scale involved in such technologies place them out of the reach of a Council of Whitsunday Region’s size. Technologies such as EfW are successful in Europe where landfill taxes are high enough to render landfill more expensive than EfW, where catchment areas for the large infrastructure have populations typically in the hundreds of thousands or millions, and where there are established markets for the products (heat, electricity, etc). Meanwhile many of these technologies are either untested anywhere in Australia, or their development has not been without problems. Whitsunday Regional

Council will continue to keep abreast of such technologies and will explore those where there is a reasonable chance of viability, for example landfill gas recovery.

4.8 Litter and Illegal Dumping

Litter – the thoughtless discard of waste material in our public places, and illegal dumping of waste quantities greater than 200L or greater in volume are issues facing the Whitsunday Region. They are the most visible form of pollution and their impact is particularly of concern considering our Region’s natural attractions.

Litter sources in the Whitsundays include:

- from cars (thrown out of windows)
- unsecured loads
- blown out of litter bins by winds
- carelessly dropped
- items left behind by beach and lagoon goers and park visitors (‘tourist trash’ & ‘residents’ rubbish’)
- litter from building sites
- land litter washed into waterways and beaches—litter on the Whitsunday Island beaches can even originate from the Proserpine River and Airlie Creek
- maritime litter from coastal and inshore shipping, fisheries and charter boats
- oceanic litter from beyond these areas

Council manages litter and illegal dumping through community reporting, officer inspections, maintenance and clean-up works, and awareness and education programs to tackle the issue. Since 2012, Council has collected over 320 tonnes of litter and illegal dumping and more than 120 illegally dumped tyres from sites around the Region. Council dedicates on average more than 60 unscheduled clean-up activities every year, costing the Council and in turn ratepayers to manage that waste. In addition, community groups have, through volunteer based clean-up activities, removed over 140 tonnes of litter since 2009 from our beaches, creeks and roadways.

Council provides rural waste services in the form of satellite bin stations and these often become targets for litter and illegal dumping due to their relative isolation, good vehicle access and a perceived lack of observation. At some identified hotspots, Council has installed CCTV to combat this perception and identify repeat offenders. The identification of other hotspots around the Region is difficult as Council’s focus has traditionally been on addressing the problem through clean-up activities rather than monitoring and recording data on hotspots.

The Queensland State Government released their Litter and Illegal Dumping Action Plan in October 2013 to address a state-wide issue. The proposed approach included to **increase the effort, increase the risk, reduce the rewards, reduce provocations and remove excuses**. The State Government manages a Littering and Illegal Dumping Online Reporting System where any member of the community can report a littering or dumping incident, or an illegal dumpsite. The State also has the power to issue Penalty Infringement Notices for those caught, with fines starting at \$235.

4.9 Waste in our Community

While Waste Management is an important aspect of Council’s interaction with the community, communication and engagement with our community members is considered to

be lacking. There is good work currently being done around singular events and engagements, such as Recycling Week activities and school visits; however the number of these activities is currently limited due to the lack of available resources.

Waste Management functions present many opportunities for Council to engage positively with its communities through media releases and more up to date communication channels such as its website, Facebook etc. These media can provide platforms for waste education, which would form an essential component of any kerbside recycling service for example, but resources limit how much is currently being done.

In the Region there are several Community Based Organisations (CBOs) which work with litter, waste and environmental outcomes. Some of those are discussed in Section 4.7. In addition, the Region is somewhat unique from a waste management perspective in that some of our key Regional attractions, namely the Whitsunday Island resorts, must overcome the logistical exercise of managing wastes in a highly constrained setting. Canegrowers is another organisation with significant opportunity to influence waste generation rates within our community, through leading by example and encouraging farmers and agricultural producers to address waste generation activities at the point of generation on farms.

Limited interaction is currently possible with these community groups due to the lack of available resources and time within the Waste Management team.

4.10 Whitsunday in the Waste Community of North Queensland

Whitsunday Regional Council has been an active participant in the North Queensland Local Authority Waste Management Advisory Committee (LAWMAC) for many years. LAWMAC meets 4 times per year and brings together Councillors and waste officers from all Queensland Councils north of Rockhampton and inland to Mt Isa, although some of the smaller and more remote Councils hold corresponding membership and do not usually attend meetings. Whitsunday Regional Council pays a small membership levy to retain membership.

Meetings are usually accompanied by workshops or site visits and are often addressed by guest presenters. The meetings are seen as an opportunity to learn what other Councils and the State Government are doing to address waste matters in their areas, learn about new developments in waste management, and discuss shared solutions to problems. Some projects have involved cross-boundary working and there is potential for the LAWMAC partnership to lead to some shared contracts or working arrangements. At the very least, LAWMAC is seen as a forum to share best practice and keep abreast of new developments in the waste field.

4.11 Waste Management Administration

Waste Management project management capacity and organisational capacity were previously under resourced. The majority of Council's Waste Management functions were until recently administered by a single person in the role of Waste Management Officer. This position is supported by Council's finance, communications, Local Laws, environmental health, customer contact and ICT teams. The role is part of the wider Whitsunday Water, Wastewater and Waste business unit of the Engineering Department, and is based at the Proserpine Water Treatment Plant.

As a single position, the Waste Management Officer had to perform all contractual management for waste collection service delivery and facility management, customer service, project management of capital works projects and infrastructure upgrades, data management and reporting, compliance activities, coordination of extraordinary waste management events such as fires, keeping abreast of best practice in the waste industry and all community awareness and education activities.

Since the service became part of the Whitsunday Water & Waste team this role is now supported by a Manager Waste Services and a dedicated admin support officer who assists with activities like reconciling monthly contractors’ invoices, purchase ordering, processing new bin requests, registering correspondence in Council’s Records Management system.

If the service is to develop and improve it is essential that these resources are maintained in the future.

4.12 Rates, Fees and Charges

Currently, our rates, fees and charges framework is overly complex, with a perceived lack of rigour in setting dollar amounts that are tied to the true cost of service and facility management.

Although the consultation exercise undertaken as part of this waste management strategy (see Section 6 below) did not view the simplifying of fees & charges as a high priority for the community, nevertheless there was almost universal support for the policy of “user pays” when it comes to paying for waste management services and infrastructure.

Waste Management recovers costs in two separate ways:

- Through Council Rates, specifically the Domestic Refuse / Garbage Collection Charge and the Refuse Facility Charge
- Through facility fees and charges, charged at the gate of landfills and transfer stations for commercial and domestic users who wish to deposit wastes at the site.

The two aspects are discussed here, as well as benchmarking with other Councils in Table 13.

Rates and Utilities

The Domestic Refuse / Garbage Collection Charge is designed to recover the full cost of Council’s waste management services, in conjunction with a Whitsunday Refuse Facility Charge for properties which are located outside the designated collection area. The current system is a hybrid of the former BSC and WSC systems see Table 12 below.

Table 12 Rates and charges in former and current Councils

Area	Within Collection Area	Outside Collection Area
Former Bowen Shire	Garbage Collection Charge	Nil
Former Whitsunday Shire	Garbage Collection Charge plus Waste Disposal Charge	Waste Disposal Charge only
Whitsunday Region	Domestic Garbage/Refuse Collection Charge only	Whitsunday Refuse Facility Charge only

The differing natures of the two former Shires influenced their methodologies, for example Bowen town residents lived more than 10 km from the landfill site with no local transfer station, and most of Bowen’s rural residents do not have any waste disposal or collection service available to them. The former WSC was geographically more compact and nearly all residents had relatively easy access to a landfill, transfer station or satellite station and so it would have been more equitable for all residents to have paid an identifiable amount towards waste infrastructure via a waste disposal levy.

The current system did not see the introduction of the Whitsunday Refuse Facility Charge until 2013. From 2009 until then, rural residents living outside the domestic waste collection area paid no contribution to waste disposal facilities. The Region-wide introduction of this charge saw former BSC residents paying for disposal costs for the first time in an attempt to ensure Region-wide equality.

For each residential property in the Whitsunday Region **outside** the declared serviced area map “Whitsunday Area Garbage Collection Areas 2015/16” a Refuse Facility charge is levied to help fund the provision of Council’s refuse facilities. This charge currently applies to 2,300 properties. Residents in the most remote areas can apply to have this charge waived if they can produce evidence that they do not make use of any Council waste facilities.

For each designated residential property in the Whitsunday Region **inside** the declared serviced area map “Whitsunday Area Garbage Collection Areas 2015/16” a Domestic Garbage/Refuse Collection charge is levied to cover the costs for collection, removal, and disposal of garbage refuse from designated properties. This charge includes a share in the provision of Council’s refuse facilities.

Fees and Charges

Fees and Charges for accessing and using waste management facilities in the Region are published on the Council website and updated annually. In general, fees and charges are designed on a “user pays” basis, but nearly all waste arising from domestic sources can be disposed of for free at the point of disposal.

The fees and charges differentiate by site, and by waste measured by weighbridge (tonne) or measured by volume (m³) or per item. Currently, there are 108 separate fees and charges for different waste types and each of those 108 are separately defined according to the facility (Kelsey Creek Landfill, Bowen Landfill, Cannonvale Transfer Station or Collinsville Transfer Station). In comparison, Townsville City Council publishes 52 fees and charges while Mackay Regional Council publishes 37 fees and charges.

The basis for having this high number of fees and charges is in part due to the amalgamation of two separate shires with differing charging regimes, differing costs (eg no leachate management at Bowen), the introduction and repeal of the waste levy, and the variation in unit of measurement (tonnes versus m³) amongst the sites. The effect of having such a high number of separately defined fees and charges is confusion for the community and the operator at the waste infrastructure site, added complexity introduced into managing the data captured, and higher potential for error in charging at the gate. The opportunity is now to reduce that complexity while continuing to provide waste disposal services to our community.

Table 13 Benchmarking rates, fees and charges with other North Queensland Councils

Council	Refuse Collection Levy	Waste Facilities Levy	Total Levy (properties with Bin collection)	Kerbside Recycling	% of Domestic kerbside Waste Recycled	Number of Fees and Charges Published
Whitsunday	\$226	\$104	\$226	✘	0%	108 x 4
Burdekin ¹	\$399 to ² \$559	\$16	\$399 to \$559	✓	49%	41
Townsville	\$223		\$223	✓	27%	52
Hinchinbrook ³	\$229.50 to \$375.50	\$146	\$375.50 to \$521.50	✓	35%	30
Cairns	\$357.62		\$357.62	✓	60%	50
Charters Towers ⁴	\$165 to \$219	\$25	\$190 to \$244	✘	0%	42
Cassowary Coast	\$190.50	Incl.	\$190.50	✘	0%	53

1* Three bin system for most of Shire.
 2* Options are available e.g. 140 or 240 Litre bins.
 3* Rateable Land and Non Rateable Land
 4* Different charge for different locations

5 Waste Strategy

5.11 Strategic Aim

Council’s four Corporate Plan themes underpin the overarching strategic aim of this strategy, which is

To provide governance and leadership in waste management to serve our people, protect our places, and support our ongoing prosperity.

This strategic aim is supported by three key aspirations.

5.12 Waste as a Service

Whitsunday Regional Council aspires to redefine the waste function within Council as a Service. As a Service, the focus is on the customer, our ratepayers, and our actions are centred on our engagement with our community.

Waste as a Service means the services provided by Council are sustainable, appropriate to the population catchment, financially supported and appropriately planned.

With Waste as a Service, many of our current activities continue as usual, with additional emphasis on service levels, customer engagement and expanded service offerings in accordance with Regional growth strategies.

Where are we now?	Where do we want to be?	Action Plan Reference
Cannonvale Transfer Station is Council’s most visited site, and it lies in the area which will experience more than two thirds of the Region’s growth in the next 10 years.	To expand the Transfer Station’s capacity to manage the increase in waste from population growth	1.2.1
Satellite stations are costing Council money which is potentially not being recovered, and they are known illegal dumping hotspots	To offer a better service by progressively closing satellite stations and replacing them with wheelie bin collections	1.2.1
Fees & Charges are too complex, contributing to the gaps and inconsistencies with capturing data, and increasing the likelihood of errors	To have a simplified fees & charges schedule with significantly fewer fees.	1.5.1
Utility charges do not appear to be linked to costs of service	Utility charges which reflect the true operational costs of the service and future capital costs	2.5.1

5.13 Waste as a Resource

Whitsunday Regional Council aspires to redefine waste as a Resource, not simply something that requires disposal. As a Resource, our actions are centred on landfill diversion, resource recovery, and alternative waste treatment technologies.

Where are we now?	Where do we want to be?	Action Reference	Plan
Waste is increasing, due to increasing population, additional waste streams and better data capture	Waste growth which is lower than population growth	2.6.1	
Landfilled Waste appears to be increasing (by as much as 30% since 2011)	More organic waste and recyclable waste being diverted from landfill	2.1.1	
Continued Community appetite for recycling	Kerbside recycling	2.1.2	

Where are we now?	Where do we want to be?	Action Reference	Plan
Our Region has substantial future landfill airspace to manage our wastes, however immediate capacity will expire in less than three years	A clear plan for future landfill development and expansion, including A new, engineered and industry compliant landfill cell at Bowen Landfill in 2017/18 A new, engineered and industry compliant landfill cell at Kelsey Creek Landfill in 2018/19	2.2.2, 2.2.3, 2.2.4, 3.5.2	

5.14 Waste as a Priority

Whitsunday Regional Council aspires to redefine waste as a Priority. As a Priority, Council will dedicate the required resources to waste management activities, and will target improved internal processes and planning to facilitate continual improvement. As a Region we will continue to collaborate with key Regional working groups to ensure we are up to date with waste management industry best practice.

As a Priority, waste management functions will have a clearly defined direction that will be reflected in ongoing Council budgetary planning, capital works programs and broader Council strategic frameworks.

Where are we now?	Where do we want to be?	Action Reference	Plan
Waste Management Strategy not currently an explicit strategic level outcome of Corporate Plan	Future Corporate Plans should include Waste Management Strategies as required outcomes	3.4.4	
Waste Management project management capacity and organisational capacity are under resourced	A well-resourced department to manage operations, projects and strategic direction of Waste Management in our Region	3.1.2	
We have a system to capture and manage waste data across the Region, however there are gaps and inconsistencies within that data	Consistent, reliable and accessible data on which to base operational and strategic decisions going forward	3.2.1 3.3.1	
Council has liabilities with legacy landfill sites	Minimise risk and liability from Council sites	3.2.2, 3.4.1	
Waste Management has recently become part of Whitsunday Regional Water & Waste	To maximise opportunities for collaboration, support and synergies	3.1.1, 3.1.2, 2.1.1, 2.3.1	
Our community is not engaged with the waste management service	To have a well-informed community which receives regular communications	3.6.1, 3.6.2, 2.6.1, 2.6.2 1.6.1	

5.15 Priority Actions

Waste as a Service	<ul style="list-style-type: none"> • Address rural infrastructure provision services • Simplify waste management rates and charges structure
Waste as a Resource	<ul style="list-style-type: none"> • Provide kerbside recycling services • Reduce organic material in our landfills
Waste as a Priority	<ul style="list-style-type: none"> • Develop engineering landfill expansion and progressive rehabilitation that meets industry best practice • Data Management + Reporting

1. Rationalising the collection services provided in the Region by increasing kerbside waste bin collection services and reducing risks from satellite bulk bin services. Previous studies have identified these actions as priorities. In 2016, we must consider whether satellite bins offer the best solution in terms of environmental, cost and equality considerations.
2. Simplifying our waste management rates & charges and fees & charges structure. With weighbridges now installed at both landfills, an opportunity exists to embed landfill disposal fees based on tonnage, drastically reducing the number of fees and charges which landfill operators and customers have to deal with. At the same time, this exercise will remove complexity and reduce the potential for errors. Current Rates & Charges create inequality and do not conform to “user pays”.
3. Providing kerbside recycling collection services in the Region. Previous studies have made the case for kerbside recycling, and more recently updated waste data has strengthened that case. With Council’s financial priorities having changed since the 2012 Kerbside Recycling report, the time is now right to revisit the introduction of this service across the Region.
4. Reduce organics in our landfills. Improved Wastewater Treatment Plants across the Region have seen a significant increase in the amount of biosolids requiring disposal. This material contributes significantly to methane and leachate production at landfill sites and therefore more needs to be done to find alternatives to landfill for this material and potentially other organics.
5. Developing and managing engineered landfill cells to provide additional airspace that conforms to community expectations and industry best practice. During this strategy’s life Bowen Landfill will see its first lined landfill cells being constructed. As well as complying with site licenses and achieving optimum airspace utilisation, both landfills should continue to have long term Site Development Plans which align with Council’s corporate and financial planning regimes.
6. Ensuring the internal governance processes and systems, including IT, finance, risk management, data collection etc are provided to sufficiently support waste management. An opportunity exists for Waste Management services to support Council’s corporate governance initiatives in a way which reflects the importance of waste services to Council’s communities; however greater priority needs to be placed on the support given by these functions to waste management services. A particular opportunity exists to improve data capture to enable better use of meaningful waste data aimed at improving waste services.

5.16 Options Assessment

Some of the Prioritised Issues presented in Section 5.5 above could be completed via a number of ways. As part of the development of this strategy, those options have been assessed such that a recommended action could be included into the Action Plan set out in Section 4.8.

5.16.1 Address Rural Infrastructure Provision Services

The options to address this issue that have been assessed for this strategy are:

- **Option A** – Close all 12 satellite stations and replace with kerbside collection services
- **Option B** – Close a select number of satellite stations and replace with kerbside collection services
- **Option C** – Upgrade satellite stations with fencing and gates and provide keys to residents
- **Option D** – Do-nothing option

A 2014 internal Council report assessed the costs of provision of service to the 12 satellite stations, which included bin collection, bin hire, maintenance, cleaning and fencing. The figures used in this report have been used to compare against the cost provision of kerbside collection services, which is summarised in Appendix 2.

To compare the five options presented above, a rating was assigned based on a number of key criteria, from 5 (best) to 1 (worst). The outcome indicates the most beneficial option would be to close all satellite stations and replace with collection services, followed by closing a select number of satellite stations and replacing with collection services.

It should be noted that the assessment is subject with respect to community perception, and this should be tested through consultation with the community on the four options.

Table 14 Scoring of options for addressing rural infrastructure provision services

Assessment Factor	Option a	Option b	Option c	Option d	Weighting
Environmental/nuisance outcome	4	3	2	1	20%
Financial outcome	4	3	2	1	50%
Community perception	3	2	4	1	20%
Technical complexity	1	2	4	3	10%
Score	12	10	12	6	
Weighted Score	3.5	2.7	2.6	1.2	

Figure 12 Weighted score for options for addressing rural infrastructure provision services



5.16.2 Reduce organics to Landfill

The options to address this issue that have been assessed for this strategy are:

Option A – remove biosolids from landfill and establish a direct application to land beneficial reuse program

Option B – remove biosolids from landfill and co-compost with green waste and bagasse

Option C – remove biosolids from landfill and blend with compost to produce a material that can be used for progressive rehabilitation of the landfill

Option D – subsidise household compost bins for residents

Option E – do nothing

Some benefits and constraints presented by the options are provided in Table 15 below. Further exploration of Options A, B and are provided in Appendix 3. Based on the benefits and constraints presented below, it is recommended that implementation of a trial for Option A be considered. An implementation plan is provided in Appendix 3.

Table 15 Benefits and constrains for reduction of organics options

Option	Benefits	Constraints
Option A direct land application of biosolids	<ul style="list-style-type: none"> - Airspace saving of approximately 7.5% - Engagement with farmers - Beneficial reuse of resource - Ability to trial option and then upscale - Low investment of infrastructure, provided farmer undertakes drying activity 	<ul style="list-style-type: none"> - Requires ongoing transportation costs - Potential to cause environmental harm - Farm would require licence for ERA 53
Option B co-composting of biosolids and green waste	<ul style="list-style-type: none"> - Airspace saving of approximately 7.5% - Reduction of storage area requirements for green waste/mulch - Beneficial reuse of resource - New revenue stream if market is secured - Council can be seen as progressive 	<ul style="list-style-type: none"> - Significant capital infrastructure expenditure - Potential to cause environmental harm - Limited ability to trial and upscale - Requires ongoing operational expenditure - Heavily reliant on ability to secure market - Reliant on ability to segregate material and control input - Council would require licence for ERA 53
Option C blending of biosolids and green waste	<ul style="list-style-type: none"> - Airspace saving of approximately 7.5% - Material can be used to cap landfill, thus reducing the capital expenditure for capping projects - Can be conducted onsite with less site upgrade that required for composting (would still need to address ERA 53 requirements) 	<ul style="list-style-type: none"> - Storage area required on already constrained sites - Transport of mulched material from transfer station sites might be required - Uncertain timeframe to use material - Would likely require licence for ERA 53
Option D subsidised household compost bins	<ul style="list-style-type: none"> - Airspace saving of approximately 3%, assuming 30% take up of bins - Positive engagement with community - Supporting local business (compost bin sales) - Education and awareness ability with schools - Ability to trial and upscale 	<ul style="list-style-type: none"> - Cost imposition of approximately \$130,000, assuming 30% take-up of \$50 subsidy - Additional administration effort and cost at Council
Option E do nothing	<ul style="list-style-type: none"> - No investment required - Business as usual 	<ul style="list-style-type: none"> - Lost airspace of approximately 7.5% each year - Quantity is likely to grow, so problem and costs will increase. - Continuation of onsite risks from biosolids

5.17 Action Plan

Waste as a Service					
	Focus		Action	Lead Officer	By When
Focus Area	1.1 Operational Activity	Actions	1.1.1 Provide reliable and efficient waste collection service for 90% of the Region's population	MWS	Ongoing
	1.2 Infrastructure		1.2.1 Provide waste infrastructure (landfill, transfer station or satellite station) for 85% of population within 20 minutes travel time.	MWS	Ongoing
	1.3 Reporting and Data		1.3.1 Record collection services data and review service level changes quarterly	MWS	31.12.16
	1.4 Governance		1.4.1 Develop Customer Service Standards for Waste Services	MWS	31.12.16
	1.5 Finance		1.5.1 Simplify fees & charges schedule and reduce number of fees	MWS	30.06.17

	1.6 Education and Communication	1.6.1 Promote, through communications, newsletters and social media, the community's ability to report litter and illegal dumpsites through the Council feedback phone line or the State Governments Litter and Illegal Dumping Online Reporting System.	MWS	31.12.16
Waste as a Resource				
Focus Area	2.1 Operational Activity	2.1.1 Reduce organics in our landfills by one or a combination of the following: <ul style="list-style-type: none"> Finding a beneficial reuse option for biosolids Finding an alternative value-added use for greenwaste Investigating co-composting arrangements Subsidising composting bins 	COW W	31.12.19
		2.1.2 Introduce Kerbside Recycling to at least 90% of the waste collection area	MWS	31.12.18
	2.2 Infrastructure	2.2.1 Extend and upgrade resource diversion activities at Landfills / Transfer Stations, eg tip shops, recycle drop off points, improved signage	MWS	31.12.18
		2.2.2 Develop and Maintain long term Landfill development Plans	MWS	30.06.17
		2.2.3 Construct a new, engineered and industry compliant landfill cell at Bowen Landfill	MWS	30.09.17
		2.2.4 Construct a new, engineered and industry compliant landfill cell at Kelsey Creek Landfill	MWS	30.09.18
	2.3 Reporting and Data	2.3.1 Maximise the potential to carry out environmental monitoring by internal Whitsunday Water & Waste resources	COW W	30.06.17
	2.4 Governance	2.4.1 Publish Waste Reduction & Recycling Plans every 3 years and review annually	WMO	Annually
	2.5 Finance	2.6.1 Plan, execute and evaluate a Household composting education project	MWS	01.07.18
	2.6 Education and Communication	2.6.2 Host one National Recycling Week event each year that targets community engagement and communicates the message of Waste as a Resource	MWS	Annually
Actions				
Waste as a Priority				
Focus Area	3.1 Operational Activity	3.1.1 Review the position of waste management services within Council's structure and hierarchy	CEO	Complete
		3.1.2 Continue to deploy sufficient resources to Waste Management services	Council	Ongoing
	3.2 Infrastructure	3.2.1 Ensure that high priority is given to IT support for Waste Management services	EMCI	Ongoing
		3.2.2 Develop a risk-based review of the status of legacy sites and develop an action plan to address those sites that present an unacceptable risk to Council	MWS	30.06.17
	3.3 Reporting and Data	3.3.1 Improve waste data capture, monitoring and tracking against indicators by producing a regular performance and financial monthly reporting template that tracks waste data against indicators	MWS	Monthly
		3.3.2 Improve waste data capture and accuracy of data input by ensuring Council and contractor staff skills are regularly updated through refresher training on Mandalay system	MWS	Annual
		3.3.3 Identify and assess littering and illegal dumping hotspots in the Region including their location, common wastes deposited, frequency of dumping, cost and frequency of rectification works.	MWS	30.06.17
	Actions			

3.4 Governance	3.4.1 Maintain a Waste Management Risk Register within Council's Enterprise Risk Management Plan	MWS, DCS	31.12.16
	3.4.2 Ensure Procurement for Waste Management services is planned, resourced and compliant with Council's Procurement Policy	MWS, EMPA	31.12.19
	3.4.3 Revise the Waste tendering strategy to consider options for i) a single Regional Waste Collection Contract and ii) a single Regional Management of Waste Facilities Contract	MWS, EMPA	31.12.19
	3.4.4 Ensure that Waste Management Strategies are included as required outcomes in future Corporate Plans	Council	30.06.19
3.5 Finance	3.5.1 Align Waste Capital Plan with Site Development Plans and Council Asset Management Plan	MWS, CFO	30.06.17
3.6 Education and Awareness	3.6.1 Work with at least one community group (e.g. Eco Barge Clean Seas) to support their anti-litter, clean-up or recycling activities.	MWS	Annual
	3.6.2 In conjunction with the Communications Manager, produce at least one waste management related media release, promotion or event each month	MWS	Monthly
	3.6.3 Revise wording of all Council documents and policies to reflect the priority status of waste management services within Council; replace all references to tips, dumps, refuse and garbage with landfill / waste / resource recovery centre	MWS	30.06.17
	3.6.4 Continue to participate in LAWMAC meetings and activities at Councillor and Officer level	MWS	Quarterly

Key

MWS – Manager Waste Services,

CEO – Chief Executive Officer,

CFS - Chief Finance Officer,

DCS – Director Corporate Resources

EMPA – Executive Manager Procurement & Assets,

COWW – Chief Operating Officer, Whitsunday Water & Waste

5.18 Evaluation

Aspiration	Performance Indicator
Waste as a Service	Plan adopted for rationalising satellite stations 1) 50% completion Year 2 2) 100% completion Year 3
	Simplifying fees and charges 3) Amalgamation of fees and charges such that all charges can fit on one double-sided A4 page by Year 1
Waste as a Resource	Provide kerbside recycling collection to: 4) 50% of collection services by Year 1 5) 90% of collection services by Year 2 6) Achieve kerbside collected MSW diversion rates of: a) 5% by Year 1 b) 10% by Year 2 c) 25% by Year 3
	Reduce organics in landfill 7) Reduce biosolids in landfill by:

Aspiration	Performance Indicator
	a) 8% Year 1 b) 30% Year 2 c) 60% Year 3 d) 100% Year 4 8) Continue to divert >95% of green waste
	Education and Awareness 9) One composting workshop be held annually 10) One recycling week event held annually
Waste as a Priority	Developing and managing engineering landfills to community expectations and industry best practice 11) Update SDPs for both landfills by Year 2 12) Achieve a landfill compaction ratio of at least 700Kg m ⁻³ 13) One constructed cell at each landfill in the next five years 14) One area of progressive capping at Bowen by June 2019
	Internal processes and systems 15) Minimum one additional Waste Management Officer 16) 1 meeting with Finance per month 17) 12 monthly finance/performance reports per year including comparative waste data 18) Risk register kept up to date

5.19 Strategy Risks

Whitsunday Regional Council recognises that risk management is an integral part of good governance and management practice. The Council's Enterprise Risk Management Policy, Framework and Processes are aligned to the current Risk Standard, AS/NZS ISO 31000:2009.

Table 16 lists the risks to Council which have been identified in relation to the Waste Management Strategy.

Table 16 Strategy Risks

Risk	Likelihood	Consequence	Rating
Council does not continue to commit necessary resources to strategy	Possible	Major	H
Waste Projections prove not to be accurate	Likely	Moderate	H
Failure to find solution for Biosolids	Possible	Major	H
Public do not engage with waste services	Possible	Moderate	M
Strategy misalignment with future State Waste Strategy	Possible	Moderate	M
Council fails to meet strategy targets	Unlikely	Moderate	L
Adverse public reaction to change	Possible	Minor	L

6 Consultation

On 28 September 2016 Council approved a draft of this strategy for public consultation to take place for 28 days. Initially participation appeared to be low, and the consultation period was extended to 02 December 2016.

The draft strategy was made available via Council's website and via Council's online consultation platform Your Say Whitsunday. The consultation exercise was publicised via local press and via Facebook. Residents were able to send submissions via email or in person, and were asked to complete a short online survey which could also be completed in hard copy. Council officers also held face-to-face sessions at shopping centres in Cannonvale and Bowen during week commencing 21 November 2016 where residents were able to complete paper copies of the surveys as well as discuss waste management services and Council services more broadly with the officers.

In total 332 visits were made to the Your Say Whitsunday website, with 56 completing online surveys. A further 2 surveys were submitted via email and 32 via the face-to-face sessions, making 88 in total. Two written submissions were also made: one from a Council officer and another from a Bowen resident.

The survey asked residents to rank the Strategy's six Priority Actions in order of importance. The results of the surveys showed clearly that residents believed that *Introducing Kerbside Recycling* was the most important priority, with 78% of surveyed residents choosing this as their first choice. When the scores were aggregated to account for second, third etc choices, this Priority scored 471 points, with *Reducing Organics in Landfills* in second place with 350 points. Unsurprisingly, *Internal Governance* scored lowest with 213 points. This Priority also received the lowest number of votes as residents' first choice (3) along with *Simplified Fees & Charges* and *Engineered Landfill Cells* which both received 3.

Residents were asked to state any comments they had on the Priorities. Forty residents made comments. Analysis of these comments showed that 27 broadly related to recycling, three (3) to the fact that the Whitsundays is situated within the World Heritage Great Barrier Reef area, two (2) mentioned alternative waste treatments, and eight (8) would be categorised as "other".

The survey asked residents which waste sites they had visited and what they thought of the sites. 24 had visited Bowen Landfill, 49 Cannonvale Transfer Station, 7 Collinsville Transfer Station, 24 Kelsey Creek Landfill, and 4 Mt Coolon Landfill. Generally these scores reflected actual attendance rates at Council's sites, with 49% of all visits to a Council waste site in the period July to November 2016 being to Cannonvale, 26% to Kelsey Creek, 22% to Bowen and 2% Collinsville.

Residents were asked to make any comments regarding Council waste sites. 33 residents made comments. Analysis of these showed that 7 comments were generally positive, 5 were generally negative, 8 said there was not enough recycling, 5 related to the need for "Tip Shops" and 8 would be categorised as "other".

Residents were asked who they thought should pay for waste services and waste infrastructure. Ninety percent of the survey respondents chose "by all producers of waste paying their fair share depending on how much waste they produce". Most of those who chose "other" went on to describe a similar "user pays" charging regime. Whilst 3% chose "by Commercial waste producers only," not one respondent chose "by those residents with a wheelie bin".

The survey asked residents without a wheelie bin to score how strongly they agreed with the statement that "In 2016, for residents living in rural areas, Council should provide a better service than placing a skip at the end of the road for their household waste." The answers were polarised, with most respondents scoring either strongly agree (7) or strongly disagree (6), with the intermediate scores being 1 or 2.

The survey asked how much residents were prepared to pay for a kerbside recycling service. Whilst 37% chose “under \$100”, the remaining 63% answered that they were prepared to pay more than \$100, including 20% who were willing to pay more than \$150 per year.

Finally residents were asked to give any general comments about the waste strategy. Analysis of the thirty responses showed that 12 comments related to recycling, 5 comments concerned costs, one each were about education and tip shops, and the remaining 11 would be categorised as “other”, including waste management in Scandinavia, the skips at Shute Harbour, employing asylum seekers to sort recyclables, working for the Council, and Council water rates.

The detailed report has been attached as Appendix 4.

The written submission from a Bowen resident ran to 19 pages and described Council’s waste management strategy as being “far from Good Waste Management Practice” before describing various advanced waste technologies. Whilst officers are aware of many of these technologies, the huge investment could not be justified for the local population, even if it were to be combined with those of the Mackay and Isaac Regions to create a population of approximately 150,000.

The written submission from Council’s Manager of Resource Management runs to 4 pages and makes some valid points, including risk management, Council’s Litter Management strategy, the need for waste to be measured in tonnes but also the challenge of landfill airspace which needs to be measured by volume, which supports the strategy’s statement that historic waste data is a weakness which can only improve in the future.

The submission also supports the preference for direct land application of bio solids over the option to compost the bio solids.

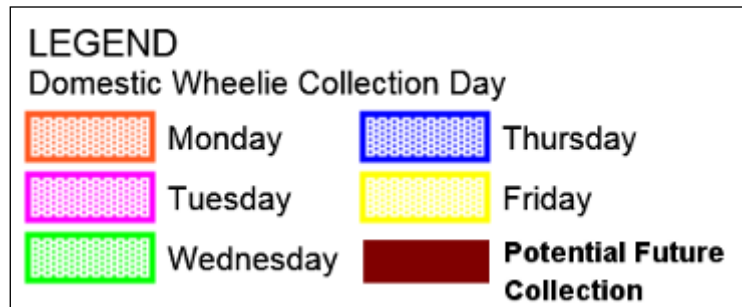
Council officers have concluded from the consultation exercise that:

- Broadly there is community support for the waste management strategy
- Residents consider kerbside recycling to be the most important of the Strategy’s six Priority Actions
- There is strong support for a “user pays” approach when it comes to funding for waste services and waste infrastructure
- There appears to be no significant change to the community’s appetite to pay for kerbside recycling, with nearly two-thirds willing to pay more than \$100 per year.
- The question of whether Council can do better for residents in rural areas (than provide a skip at the end of the road) polarised those who answered.
- There is an apparent desire for “Tip Shops”
- Council should continue to measure waste by tonnage, but also measure landfill airspace in terms of volume (m³)
- There is some support for the option to deal with bio solids by direct application to land as opposed to composting
- Some residents think that Council should invest in Alternative Waste Treatments

In preparing this final Waste Management Strategy, Council has made some changes to the draft Strategy, to reflect the outcome of the consultation exercise.

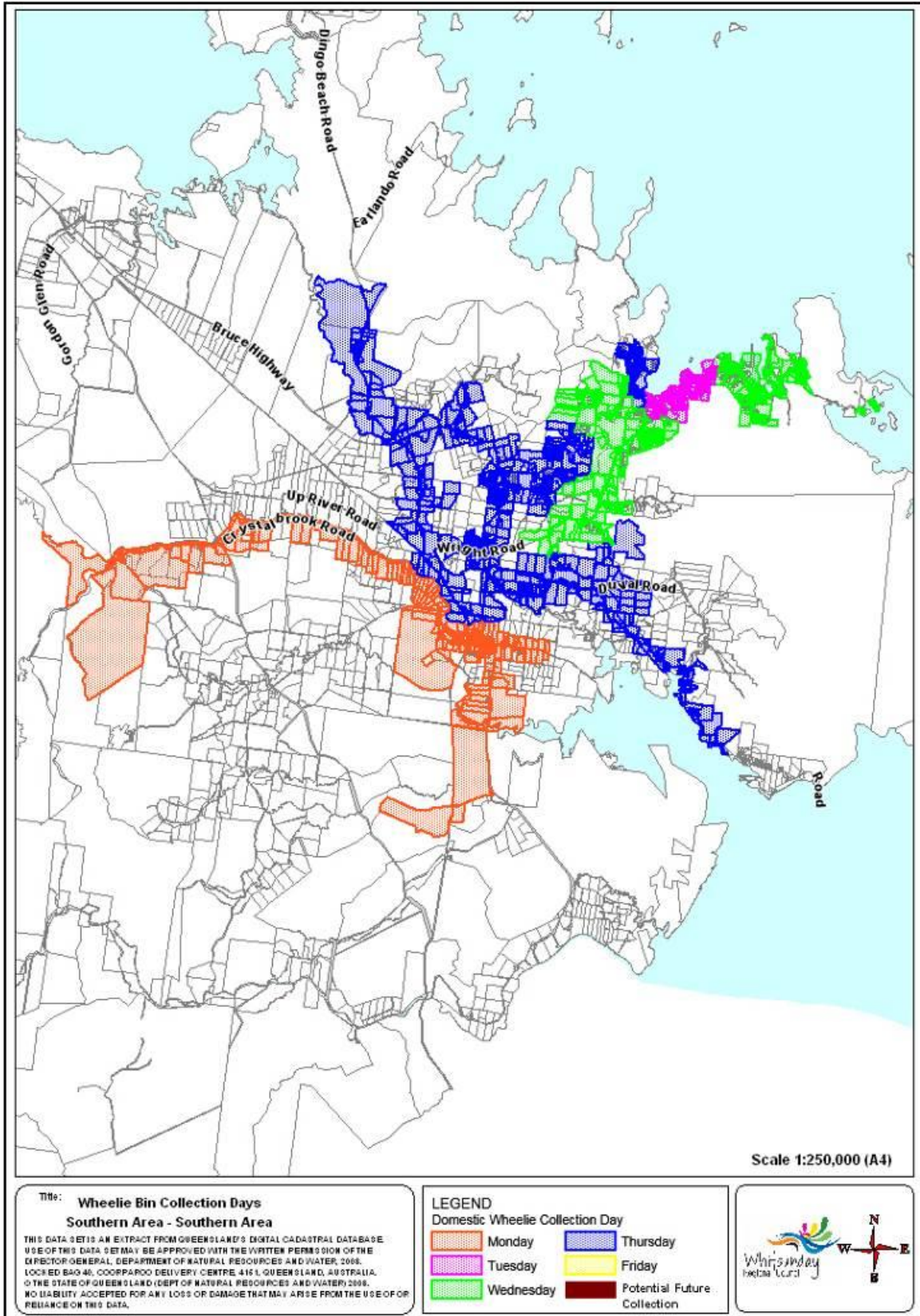
Council thanks all those who showed interest in its Waste Management Strategy.

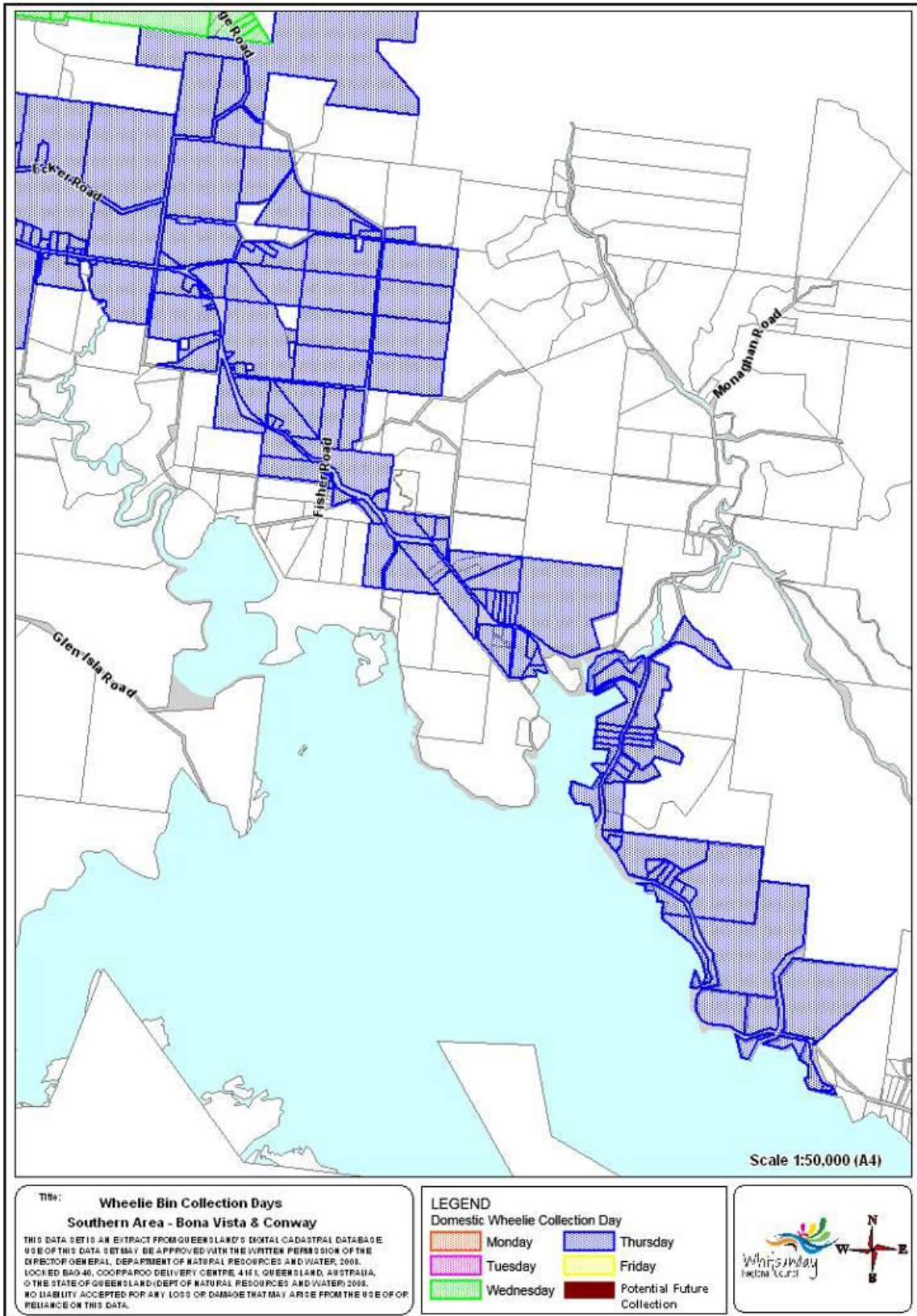
7 Appendix 1 - Maps of Collection Areas

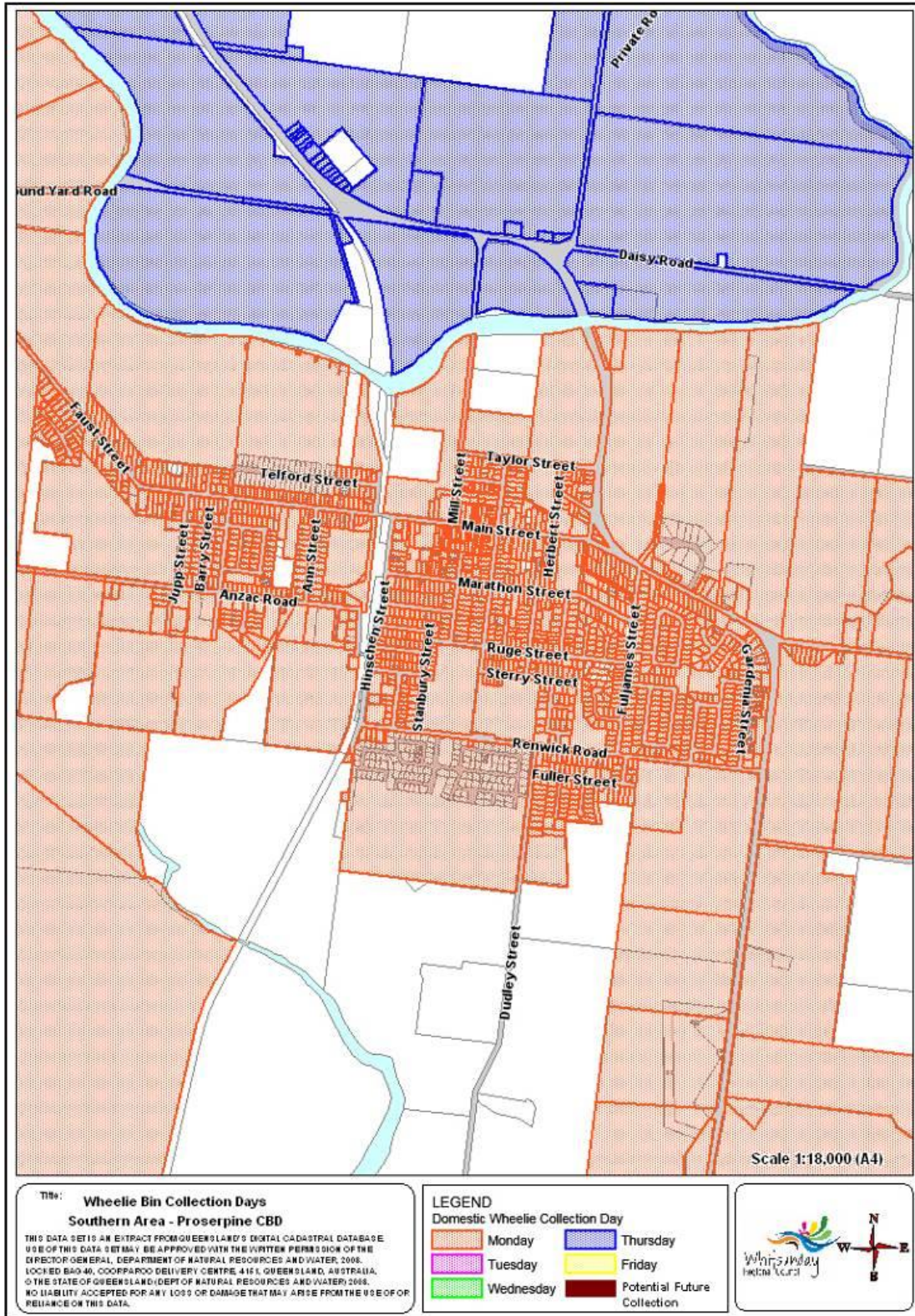


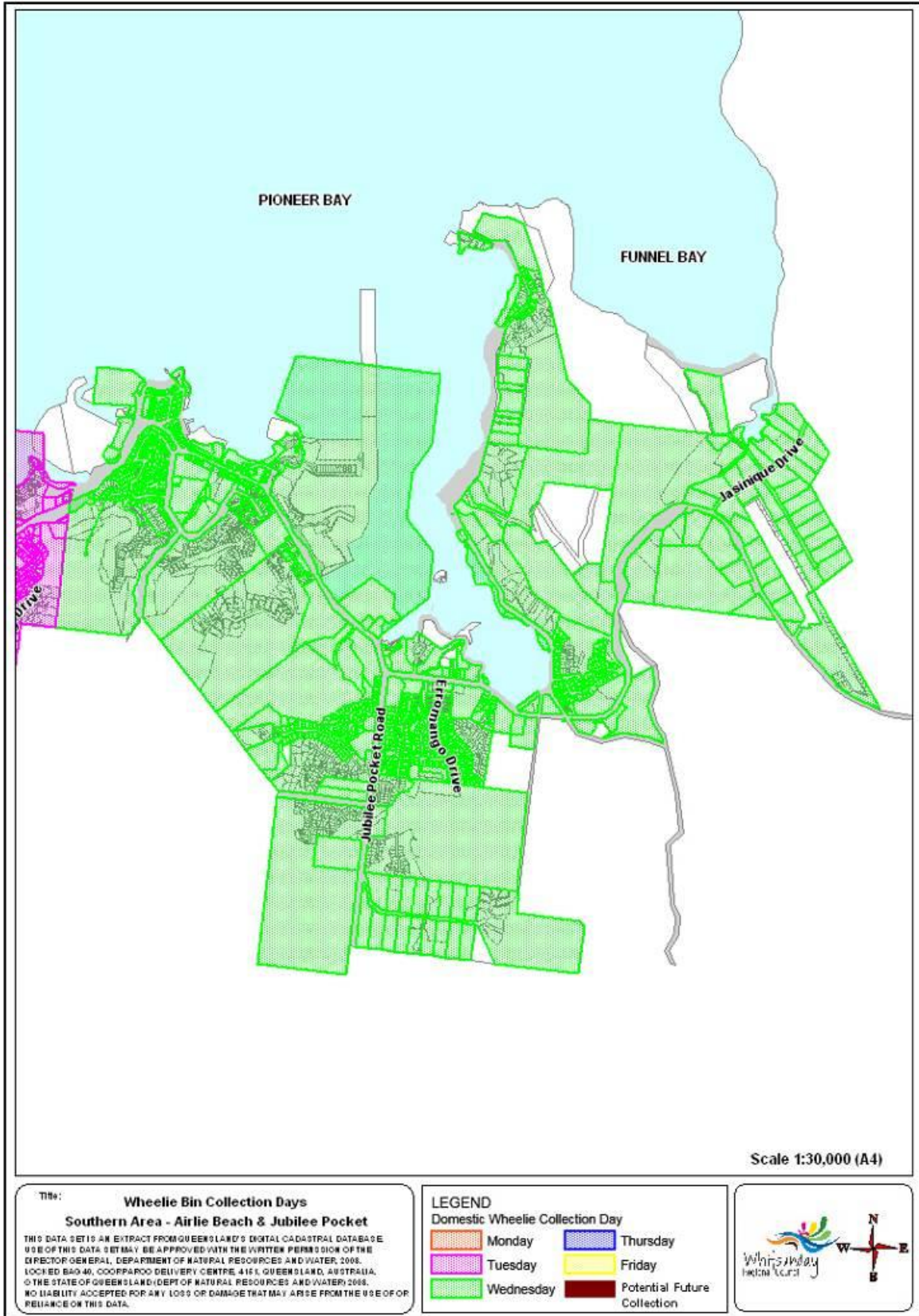
Maps:

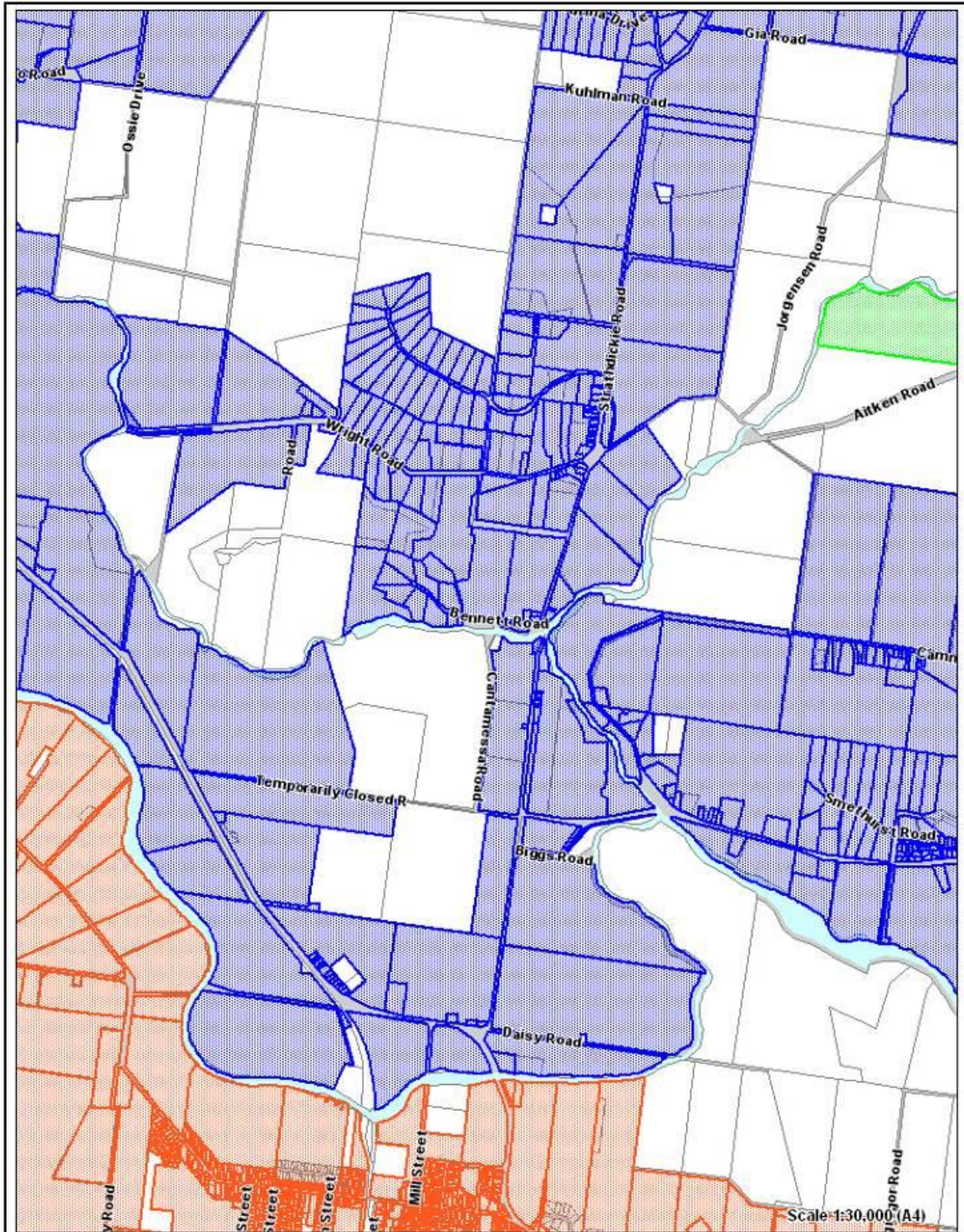
1. Southern Area – Southern Area
2. Southern Area – Bona Vista & Conway
3. Southern Area – Proserpine CBD
4. Southern Area – Airlie Beach & Jubilee Pocket
5. Southern Area – Strathdickie & Mount Julian
6. Southern Area – Cannonvale
7. Northern Area – Bowen Area
8. Northern Area – Bowen CBD
9. Northern Area – Grays Bay & Rose Bay
10. Northern Area – Delta
11. Northern Area – Merinda
12. Collinsville
13. Scottville











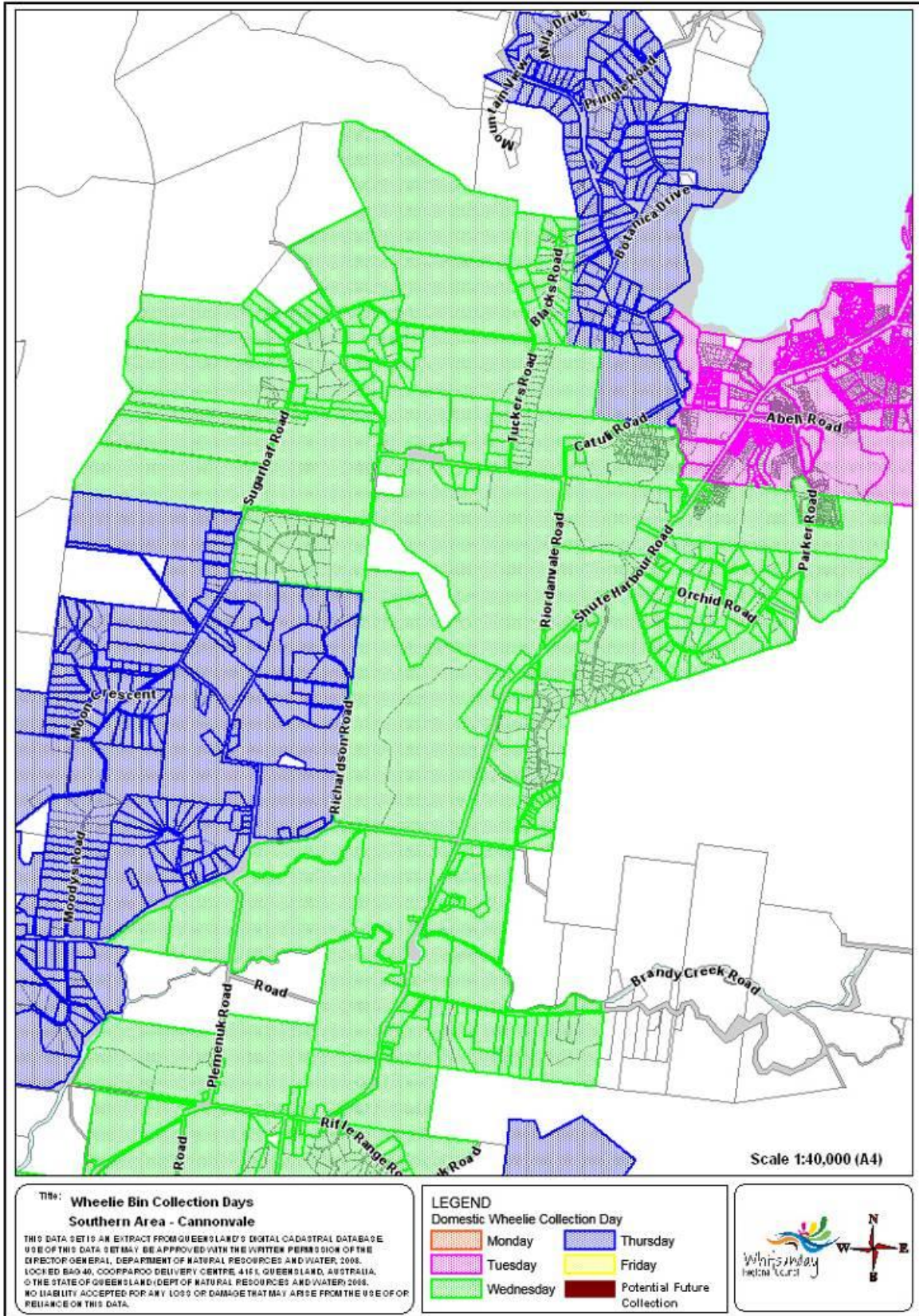
TITLE: Wheelie Bin Collection Days
Southern Area - Strathdie & Mount Julian

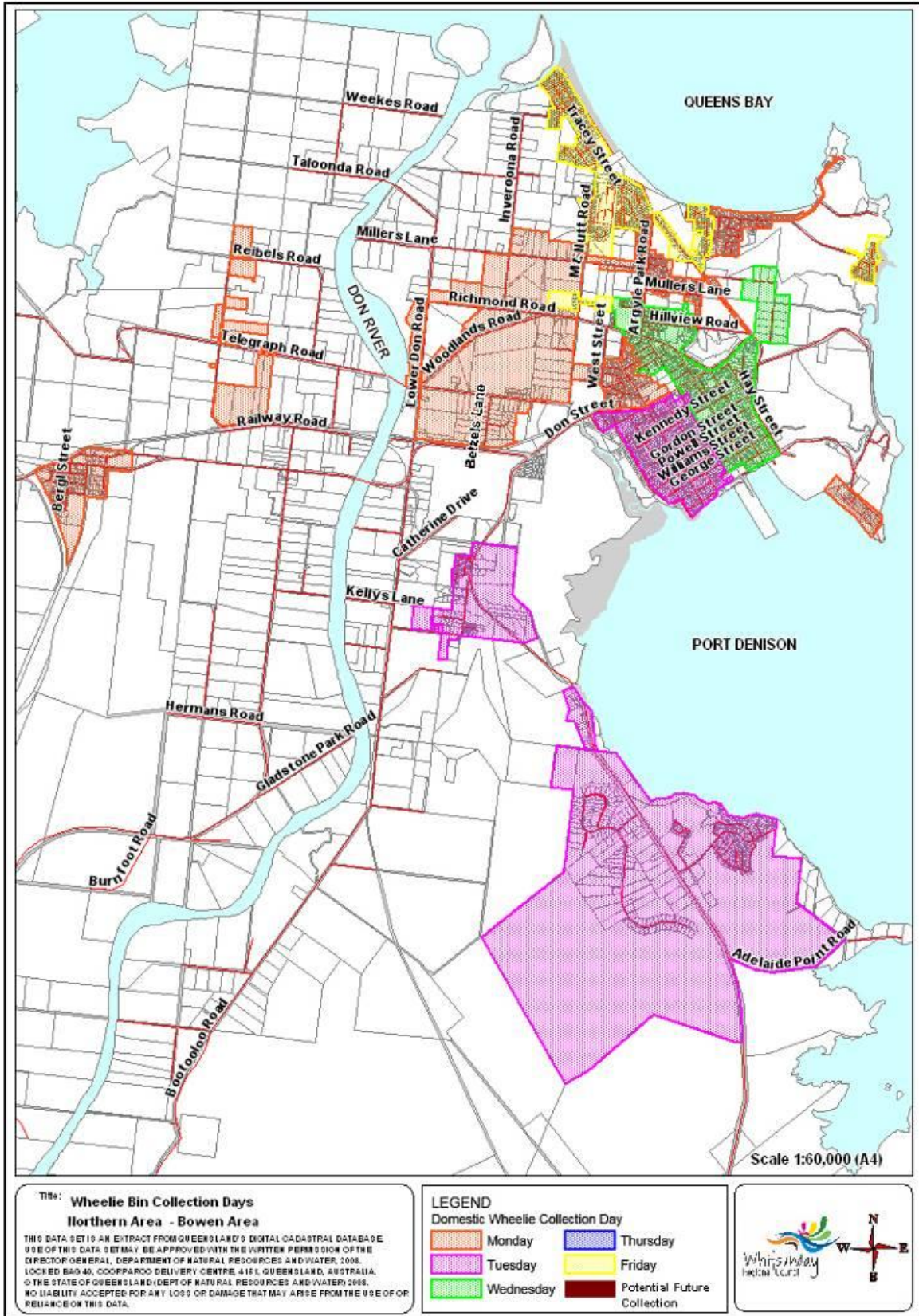
THIS DATA SET IS AN EXTRACT FROM QUEENSLAND'S DIGITAL CADASTRAL DATABASE. USE OF THIS DATA SET MAY BE APPROVED WITH THE WRITTEN PERMISSION OF THE DIRECTOR GENERAL, DEPARTMENT OF NATURAL RESOURCES AND WATER, 2006. LOCKED BAG 40, COOPERS CREEK DELIVERY CENTRE, 4161, QUEENSLAND, AUSTRALIA. © THE STATE OF QUEENSLAND (DEPT OF NATURAL RESOURCES AND WATER) 2006. NO LIABILITY ACCEPTED FOR ANY LOSS OR DAMAGE THAT MAY ARISE FROM THE USE OF OR RELIANCE ON THIS DATA.

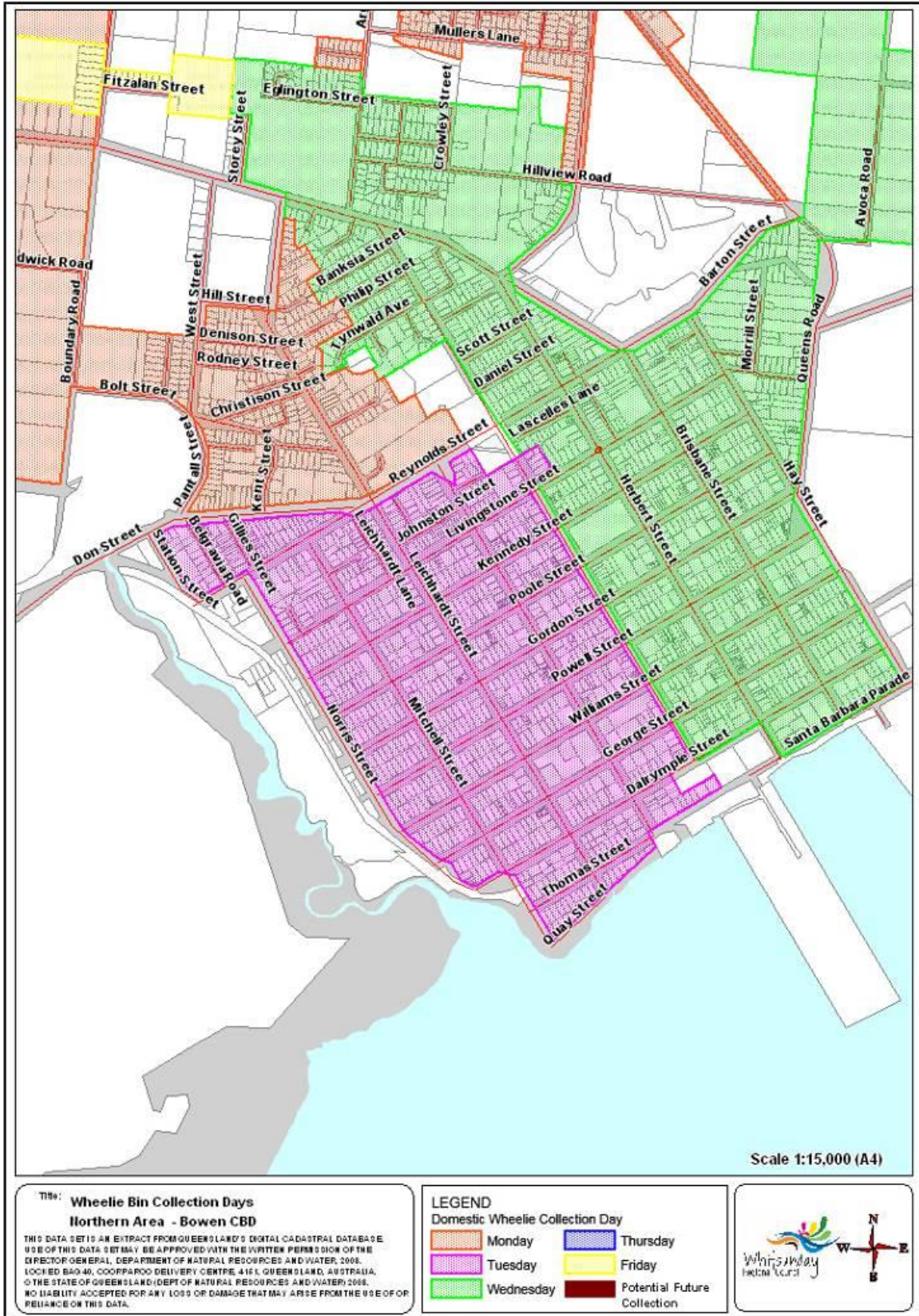
LEGEND

Domestic Wheelie Collection Day	
Monday	Thursday
Tuesday	Friday
Wednesday	Potential Future Collection

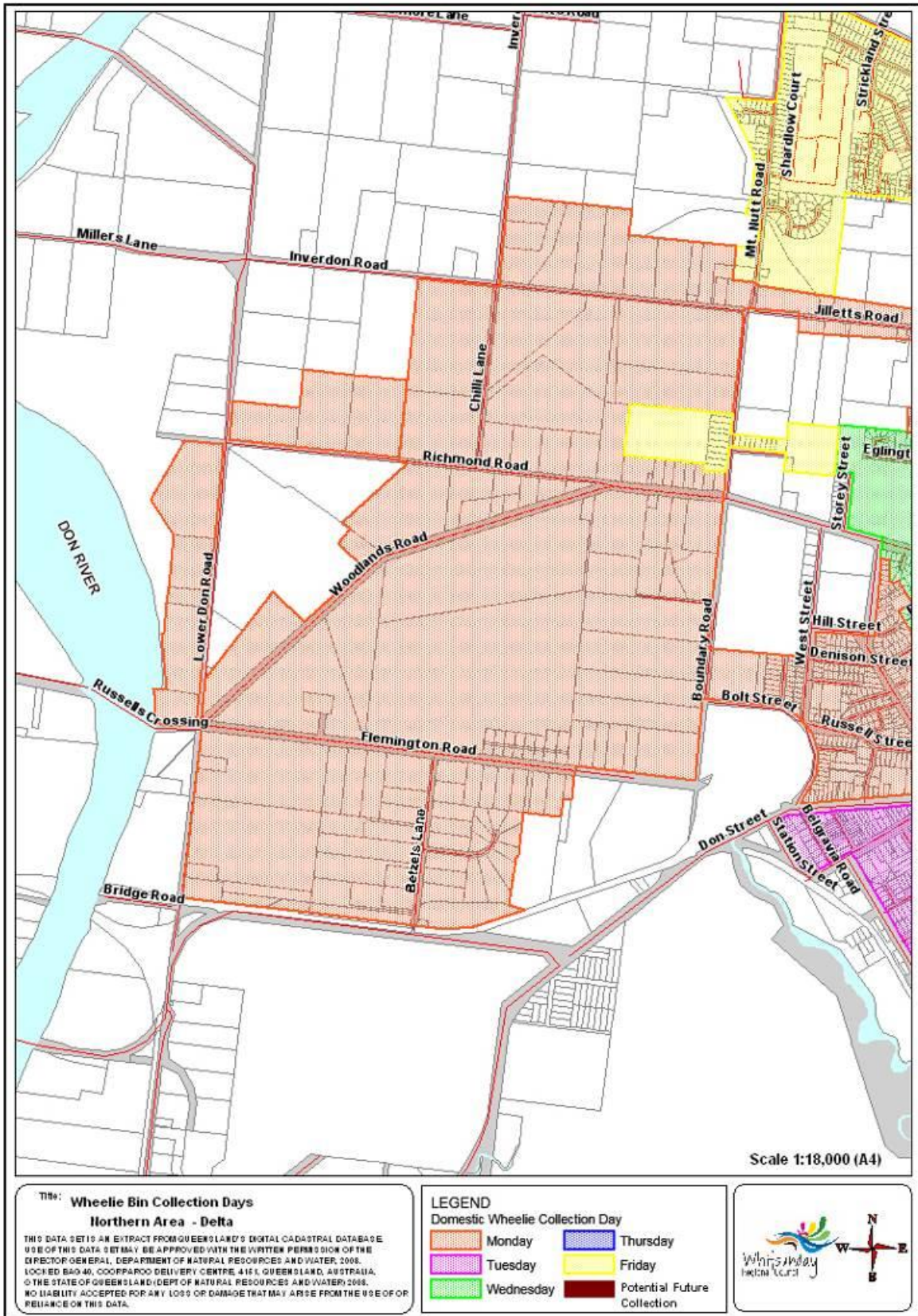


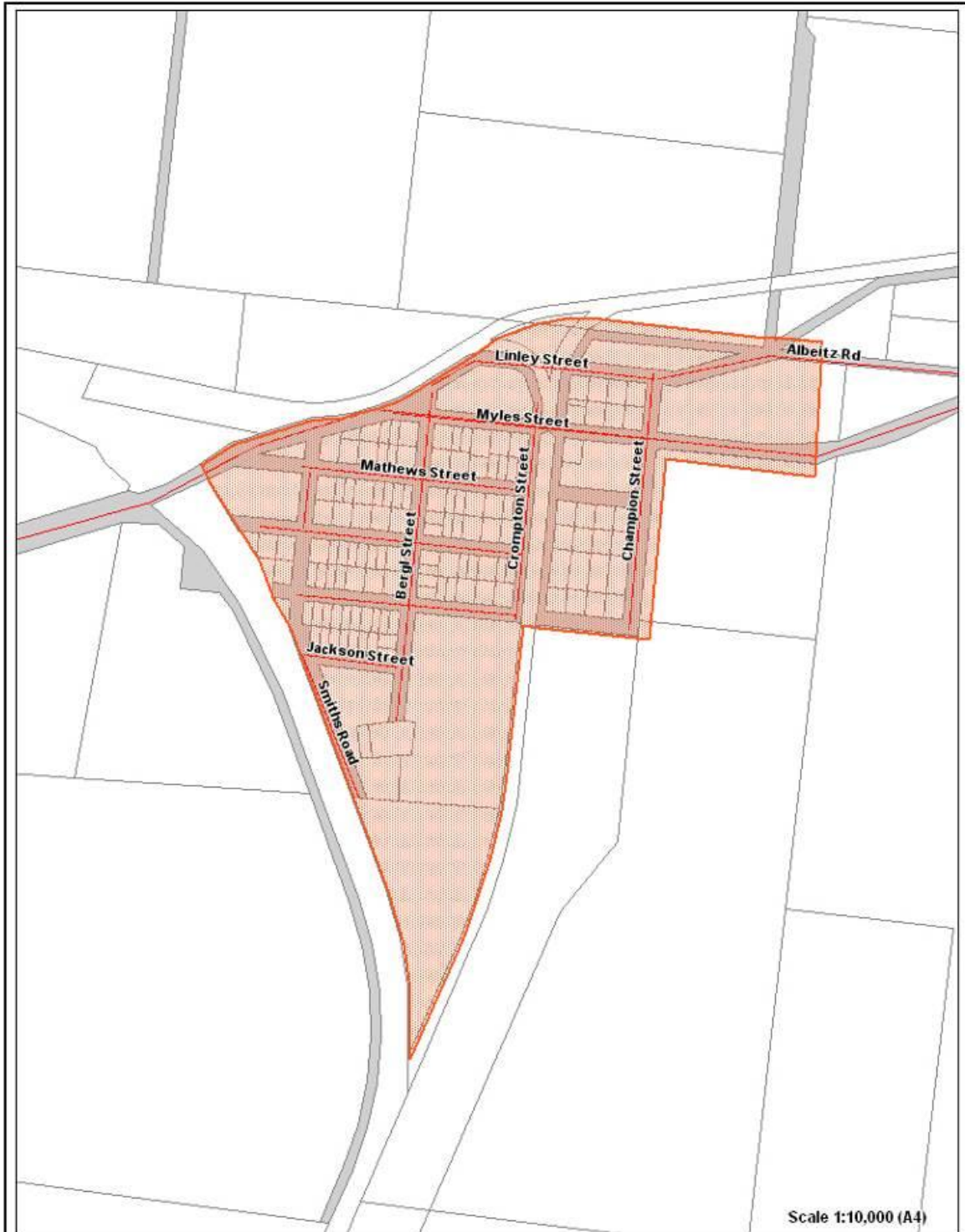












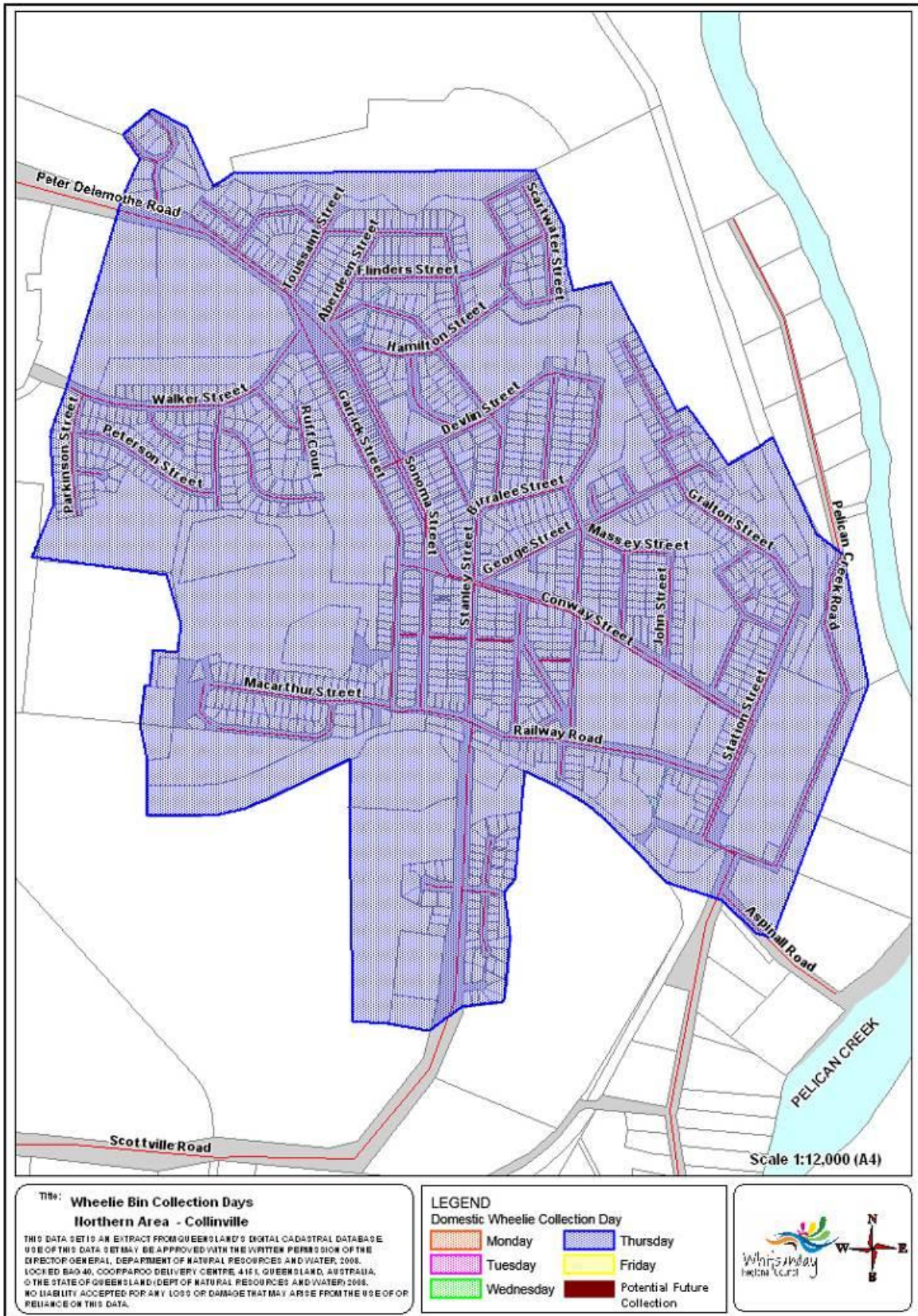
**TITLE: Wheelie Bin Collection Days
Northern Area - Merinda**

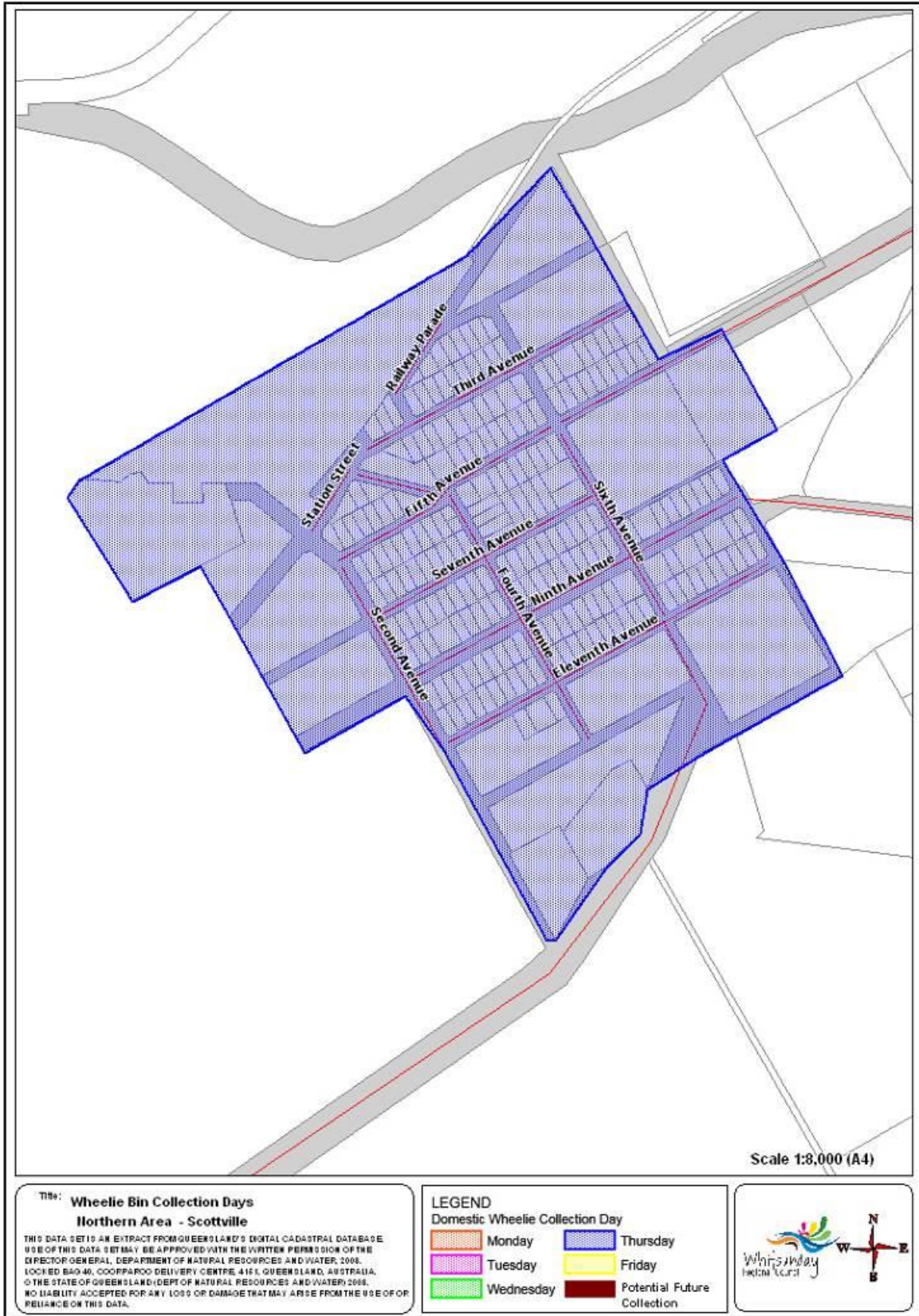
THIS DATA SET IS AN EXTRACT FROM QUEENSLAND'S DIGITAL CADASTRAL DATABASE. USE OF THIS DATA SET MAY BE APPROVED WITH THE WRITTEN PERMISSION OF THE DIRECTOR GENERAL, DEPARTMENT OF NATURAL RESOURCES AND WATER, 2006. LOCKED BAG 40, COORPAROOK DELIVERY CENTRE, 4151, QUEENSLAND, AUSTRALIA. © THE STATE OF QUEENSLAND (DEPT OF NATURAL RESOURCES AND WATER) 2005. NO LIABILITY ACCEPTED FOR ANY LOSS OR DAMAGE THAT MAY ARISE FROM THE USE OF OR RELIANCE ON THIS DATA.

LEGEND
Domestic Wheelie Collection Day

	Monday		Thursday
	Tuesday		Friday
	Wednesday		Potential Future Collection







8 Appendix 2 – Rationalism of Rural Infrastructure

Facility Name	Short Name	Dwellings	Annual Cost per dwelling	Monthly Cost	Monthly Wheelie Bin Collection Cost	Bin Capital Expenditure	Wheelie Bin Cost proportion of Satellite Service	Recommendation
Preston Satellite Station	Preston	89	\$189.57	\$1,406.00	\$587.03	\$6,230.00	\$0.42	Remove replace with collection
Dittmer/Kelsey Creek Satellite Station	Dittmer/Kelsey Creek	85	\$287.86	\$2,039.00	\$560.65	\$5,950.00	\$0.27	Remove replace with collection
Gunyara Satellite Station	Gunyara	18	\$340.00	\$510.00	\$118.73	\$1,260.00	\$0.23	Continue
Lethebrook Satellite Station	Lethebrook	27	\$317.33	\$714.00	\$178.09	\$1,890.00	\$0.25	Continue
Maloney Road Waste Satellite station	Maloney	14	\$437.14	\$510.00	\$92.34	\$980.00	\$0.18	Combine with Lethebrook
North Gregory Waste Satellite Station	North Gregory	29	\$847.45	\$2,048.00	\$191.28	\$2,030.00	\$0.09	Remove replace with collection
Up River Road Waste Satellite Station	Up River Road	37	\$231.57	\$714.00	\$244.05	\$2,590.00	\$0.34	Remove replace with collection
East Euri Satellite Station	East Euri	73	\$295.07	\$1,795.00	\$481.50	\$5,110.00	\$0.27	Remove Replace with collection
Gumlu Satellite Station	Gumlu	58	\$257.79	\$1,246.00	\$382.56	\$4,060.00	\$0.31	Combine with Molongle Creek
Guthalungra Satellite Station	Guthalungra	20	\$238.80	\$398.00	\$131.92	\$1,400.00	\$0.33	Continue
Molongle Creek Satellite Station	Molongle Creek	214	\$29.72	\$530.00	\$1,411.51	\$14,980.00	\$2.66	Continue
Normanby Satellite Station	Normanby	21	\$133.14	\$233.00	\$138.51	\$1,470.00	\$0.59	Continue
				\$12,143.00	\$4,518.15	\$52,468.15		
				\$145,716.00	\$54,217.75			

Fencing	Fence Length	Unit Rate	Monthly Maintenance & Cleaning Costs	Required Fencing Costs	Current Revenue	Proposed Revenue Option 1	Proposed Revenue Option 2
			\$100.00	\$3,492.00	\$9,256.00	\$20,114.00	\$20,114.00
\$1,746.00	20	87.3	\$100.00	\$1,746.00	\$8,840.00	\$19,210.00	\$19,210.00
\$1,950.00			\$100.00	\$1,950.00	\$1,872.00	\$4,068.00	\$1,872.00
\$1,746.00			\$100.00	\$1,746.00	\$2,808.00	\$6,102.00	\$2,808.00
			\$100.00	\$3,492.00	\$1,456.00	\$3,164.00	\$1,456.00
\$1,746.00	20	87.3	\$100.00	\$1,746.00	\$3,016.00	\$6,554.00	\$6,554.00
\$1,746.00			\$100.00	\$1,746.00	\$3,848.00	\$8,362.00	\$8,362.00
			\$400.00	\$3,492.00	\$7,592.00	\$16,498.00	\$16,498.00
			\$450.00	\$3,492.00	\$6,032.00	\$13,108.00	\$6,032.00
			\$0.00	\$3,492.00	\$2,080.00	\$4,520.00	\$2,080.00

9 Appendix 3 – Biosolids Management

Biosolids are the treated product from our wastewater treatment plants. Currently, approximately 2,600 tonnes of biosolids are sent to landfill each year, which represents approximately 3,700m³ of landfill airspace. The quantity of biosolids being landfilled has been increasing dramatically in the last four years almost 9-fold by mass.

Not only is this a cost to Council and ratepayers to manage, biosolids contribute to methane and leachate generation in our landfills and present a safety risk to workers by reducing accessibility in working areas. Furthermore, biosolids can be seen as a valuable resource, containing levels of nutrients (carbon, nitrogen, phosphorous and potassium) that can be highly beneficial to agricultural production. The capture and reuse of these nutrients, and resulting diversion from landfill, aligns with our aspiration of redefining “Waste as a Resource”.

Under the Queensland Government’s Waste Reduction and Recycling Act 2011, a waste can be approved as a resource if the department considers that it has a beneficial use other than disposal. Biosolids is a stated example of such a waste.

In general, Queensland uses the NSW Guideline “The Use and Disposal of Biosolids Products” 2000, which sets out classification categories based on contamination and stabilisation, and allowable land use applications based on those classifications. It is known that based on the current stabilisation grade of the biosolids produced in the Whitsunday Region, no land application is allowed due to risk from pathogens and bacteria.

To improve the stabilisation classification, further processing is required, in the form of:

- Mesophilic aerobic or anaerobic digester
- Thermophilic aerobic or anaerobic digester
- Sludge irradiation before centrifuge dewatering (microwave, electron beams, gamma rays, X-rays)
- Sludge drying
- In vessel composting
- Windrow composting
- Vermicomposting

Of the above, two options are considered by Council to be potentially viable in facilitating a reduction in biosolids in the landfills – option a - direct land application on farms by sludge drying and option b - windrow composting with green waste and bagasse. These two options are considered in further detail.

Aspect	Option A – Direct Land Application by sludge drying	Option B – Co-composting with green waste and bagasse
Requires EHP licence (ERA 53)	Yes	Yes
Could manage whole quantity of biosolids	Yes	Yes
Requires additional waste/resource input	No	Yes – green waste and bagasse
Relative complexity to establish infrastructure to support	Less complex	More complex
Relative cost to establish infrastructure to support	Less costly	More costly
Opportunity to create revenue stream	Less opportunity	More opportunity
Relative ongoing operational expenditure	Lower	Higher
Environmental/health risk	Bioaccumulation of heavy metals on one property Spread of pathogens to land Increased nutrient runoff from land to waterways/ocean Odour risk	Incomplete composting process results in spread of pathogens Odour risk (larger area) Concentrated leachate generation Dust generation
Ability to stage and run a trial	More opportunity	Less opportunity
Community perception	Less favourable – “spreading biosolids on land”	More favourable – “processing a waste into a resource”

Implementation plans for the two options are provided below.

Option A – Direct Land Application Implementation Plan

1. Confirm biosolids stabilisation and contamination grading through testing and analysis
2. Confirm nutrient content (nitrogen, phosphorous and carbon) of dried biosolids
3. Meet with EHP representatives to discuss the opportunity to conduct a trial with the view to progress to full scale beneficial reuse of biosolids
4. Meet with Canegrowers to discuss the potential for a direct application trial
5. Prepare a financial model to understand the costs to Council and potential revenues from farmer acceptance of the material as a resource.
6. Prepare a project specification for a direct land application trial that includes:
 - a. Trial timeframe
 - b. The expected quantity to manage and the associated nutrient content
 - c. The requirement for obtaining an ERA 53 soil conditioner licence for the farm (Consider a trial for less than 200t which eliminates the need to obtain an EHP licence at trial stage)
 - d. Acceptable processes for stabilising the biosolids, namely sludge drying, composting or digestion
 - e. The requirement for environmental controls
 - f. The proposed cost sharing model between farmer and Council
 - g. Transportation and logistical arrangements
 - h. Monitoring and reporting requirements (including Council’s proposed commitments to regular biosolids testing)
 - i. Key performance indicators for trial success (farmer’s perspective and Councils perspective)
7. Release an EOI to farmers for a direct application trial including project specification
8. Evaluate EOI proposals based on adherence to the specification, value for money and risk
9. Procure / Develop an MOU with famer to assist with ERA 53 licence application, concept design of infrastructure and process and site upgrades
10. Commence trial, monitor process, evaluate results against key performance indicators. The trial timeframe should be informed by discussion with famer but not less than 12 months.
11. Should the evaluation against KPIs be favourable, scale up project either with single farm or engage with other farms in Region

The performance indicator for achieving the removal of biosolids from landfill will be staggered over the following five years by implementing direct land application using a trial approach.

Performance indicator	Year 1	Year 2	Year 3	Year 4	Year 5
% biosolids removed from landfill stream	8% (200t)	30%	60%	100%	100%

Option B Windrow Composting Implementation Plan

1. Secure composting site
2. Test the market to understand the willingness to pay for compost products, if possible secure test sites / customers, taking into account the potential high costs for production to be passed on to customers
3. Develop a concept design of the composting process, infrastructure, earthworks, hardstands and structures
4. Prepare a financial model to support the capital expenditure, operational expenditure and revenue
5. Confirm required feedstock consistency including discussion if required with Wilmar or other external parties

6. Seek and obtain a licence from EHP for Environmentally Relevant Activity 53: Compost and soil conditioner manufacturing by demonstrating adherence to the departments Guideline for Open Windrow Composting and Australian Standard AS4454 for composts, mulches and soil conditioners
7. Release an EOI to the market to seek interest and likely costs based on the prepared concept design
8. Finalise detailed design of the facility with reference to licence conditions, and tender for construction
9. Construct facility including receivable areas and environmental controls
10. Establish sale system, product delivery system and quality control systems
11. Commence production operations
12. Conduct regular monitoring of product to ensure compliance with AS4454 and customer nutrient requirements.

The performance indicator for achieving the removal of biosolids from landfill will be tied to when processing at the facility commences.

Performance indicator	Year 1	Year 2	Year 3	Year 4	Year 5
% biosolids removed from landfill stream	0%	0%	100%	100%	100%

Appendix 4 – Consultation



Visitors Summary

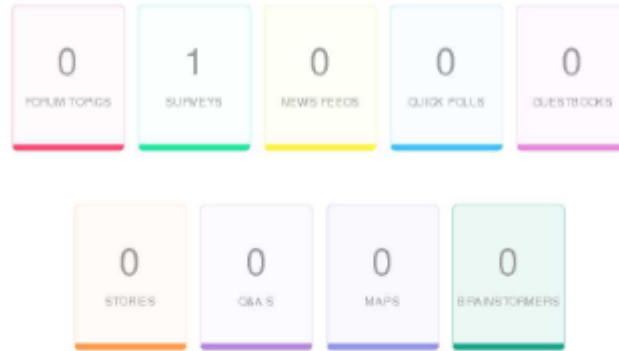


Highlights

TOTAL VISITS	332	MAXIMUM SINGLE DAY VISITORS	84
ENGAGED VISITORS	51	INFORMED VISITORS	187
		AWARE VISITORS	283

Aware Participants		Engaged			
283		51			
Aware Actions Performed	Participants	Engaged Actions Performed			
		Registered	Unverified	Anonymous	
Visited a Project or Tool Page	283				
Informed Participants	187				
Informed Actions Performed	Participants				
Viewed a video	0	Contributed on Forums			0 0 0
Viewed a photo	0	Participated in Surveys			56 0 0
Downloaded a document	12	Contributed to Newsfeeds			0 0 0
Visited the Key Dates page	9	Participated in Quick Polls			0 0 0
Visited an FAQ list Page	0	Posted on Guestbooks			0 0 0
Visited Instagram Page	0	Contributed to Stories			0 0 0
Visited Multiple Project Pages	132	Asked Questions			0 0 0
Contributed to a tool (engaged)	51	Placed Pins on Maps			0 0 0
		Contributed to Brainstormers			0 0 0

ENGAGEMENT TOOLS SUMMARY



Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors		
				Registered	Unverified	Anonymous
Survey Tool	Draft Waste Management Strategy	Published	185	56	0	0

INFORMATION WIDGET SUMMARY



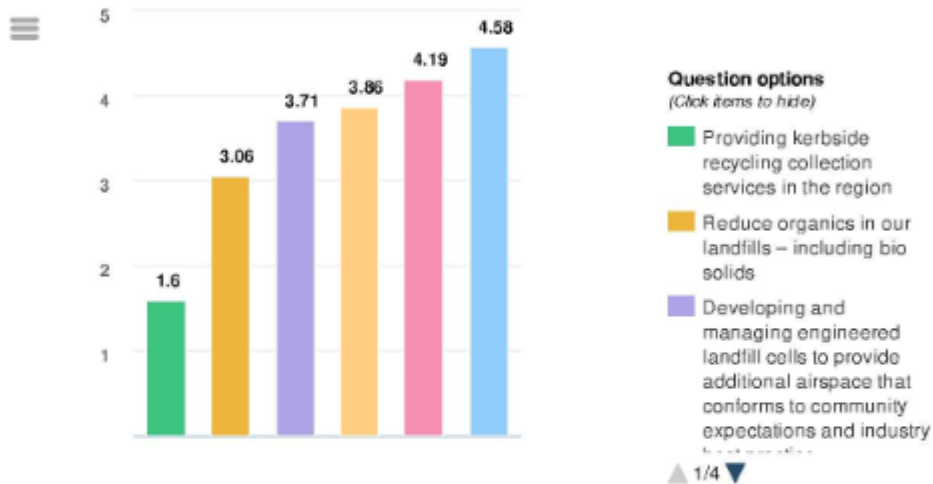
Widget Type	Engagement Tool Name	Visitors	Views/Downloads
Document	Waste Management Strategy	11	13
Document	Draft Waste Management Strategy	1	1
Key Dates	Key Date	9	9
Photo	Rubbish Collection	0	0

ENGAGEMENT TOOL: SURVEY TOOL

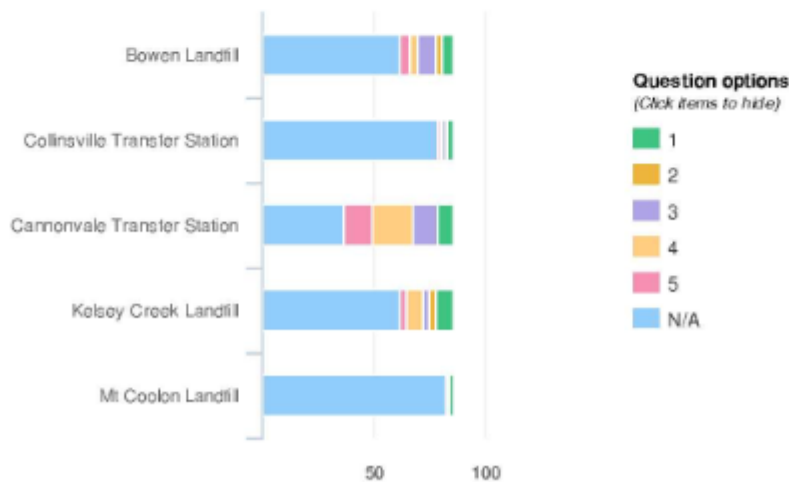
Tool title/name: Draft Waste Management Strategy

VISITORS 185	CONTRIBUTORS 56	CONTRIBUTIONS 88
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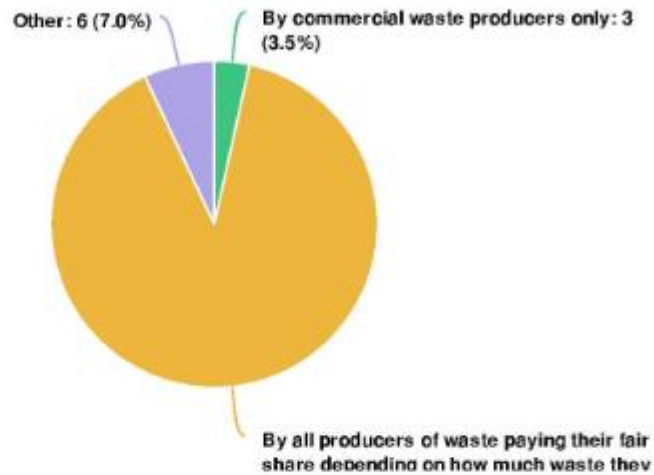
The Draft Waste Management Strategy identifies 6 priority actions for the next 5 years. Can you please rank these in order of importance, where 1 is the most important and 6 the least important.



Which of the following Council waste sites have you visited in the past 12 months?
For those that you have visited, please score the site on your overall impression, where 1 is poor and 5 is...

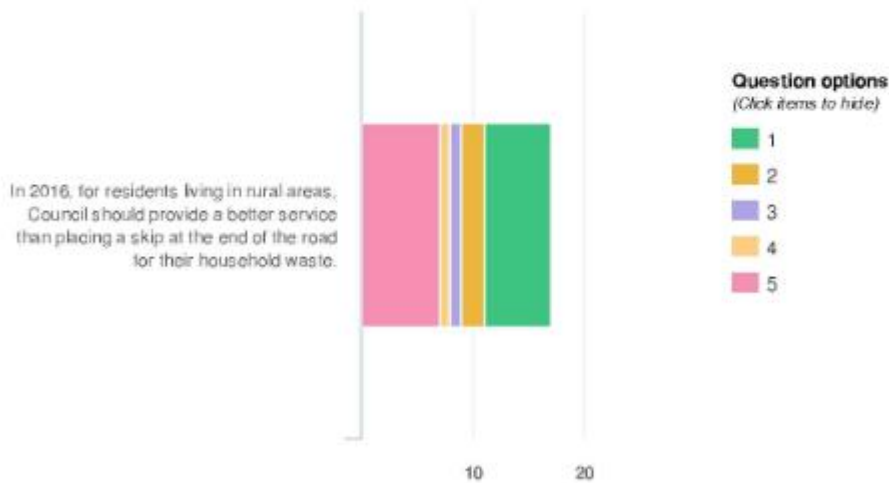


When it comes to funding for waste infrastructure and waste services into the future (including waste collection services, new landfill cells, environmentally responsible site management and...

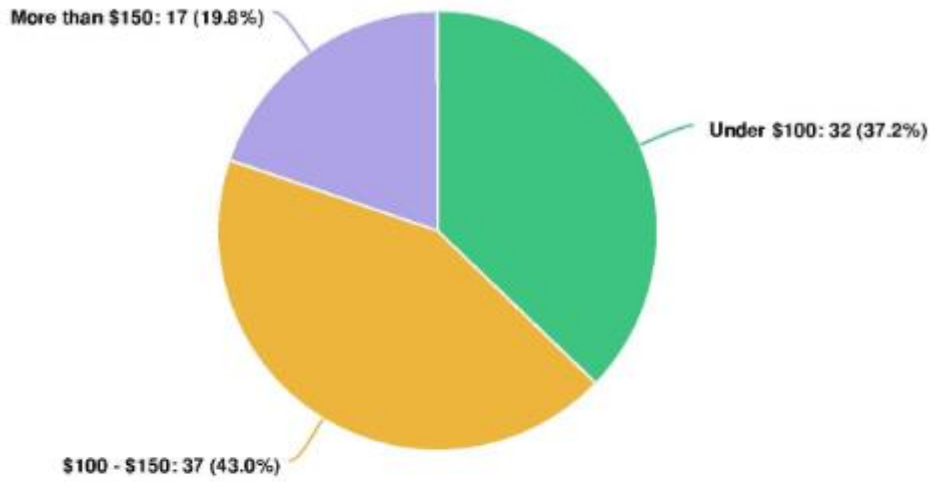


Do you currently have a kerbside garbage collection (wheelie bin) service? If yes, please go to question 6. If no, please advise to what extent you agree with the statement below where 1 is...

Optional question



Council is investigating the cost of implementing a kerbside recycling service across the Whitsunday Region for residential properties. What is the maximum amount you are prepared to pay for...



Do you work in the waste industry?

