DOES YOUR DONATION COUNT OR COST?

UNDERSTANDING DONATING AND DUMPING BEHAVIOURS AND THEIR IMPACTS FOR QUEENSLAND CHARITIES

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UnitingCare Community
UnitingCare Queensland
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MINISTER'S FOREWORD

The amount of poor quality items and rubbish dumped at charity bins and stores is a widely known problem.

Disposing of these illegally dumped items is now one of the largest and most expensive challenges facing Queensland charities, reducing the capacity of these organisations to deliver social good to the community.

We need to help our charities tackle this problem.

This report provides an insight for the first time into public attitudes and beliefs of donation behaviours, its nature, scale and impact of the 'dumping' problem in Queensland.

It also explores current strategies used to deter illegal dumping.

Its findings will help guide a community based, social marketing campaign to empower the community to dispose of their rubbish responsibly and meaningfully.

This is a great example of a public-private partnership working to change the way Queenslanders look at litter and illegal dumping.

The report found approximately 8,200 tonnes of rubbish has been dumped at Queensland charities between 2014 and 2015.

This is unacceptable and irresponsible – a habit that we must break.

The report was prepared by UnitingCare Community and undertaken in partnership with my Department of Environment and Heritage Protection, National Association of Charitable Recycling Organisations, and the Brisbane City Council.

I commend this report to you and hope all Queenslanders will play a part in reducing this unfair burden on our charitable sectors.

Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef.

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Key findings

The dumping of poor quality items and rubbish at charity bin and store sites is widely known to be a problem for charities across Australia but very little research has examined this specific form of illegal dumping. Levels of illegal dumping are increasing and Queensland charitable recyclers (hereafter referred to as "charities") dealt with an estimated 8,215.8 tonnes of illegally dumped waste in the 2014-15 financial year. Managing this waste comes at a cost, which undermines the ability of charities to generate income for the provision of community services.

An investigation of public attitudes and beliefs about donating found that a preference for convenient donation methods combined with low levels of stewardship and a lack of information about how to donate correctly are major contributors to illegal dumping. In addition, certain physical features at donation sites (such as low levels of foot traffic) and the presence or absence of deterrents (such as lighting and CCTV) may trigger dumping behaviours. This project provides evidence to inform a social marketing campaign that is particularly targeted to the largest group of donors, Unintentional Dumpers.

Background and aim

This research was initiated by several Queensland charities that were concerned about increasing amounts of waste being left at donation sites. This concern aligned with a strategic objective of the Department of Environment & Heritage Protection (DEHP) to reduce illegal dumping in Queensland.

A partnership was established between six Queensland charities, DEHP, representatives of the National Association of Charitable Recycling Organisations (NACRO) and Brisbane City Council. Funding was obtained through the Queensland Government's Litter and Illegal Dumping Community and Industry Partnerships program to conduct a research project, and UnitingCare Community agreed to provide staff to carry out the work. The research was governed by members of the partnership, who invested significant time and resources to provide advice on the design of the study, data collection, findings and recommendations.

The research had two aims: to understand the nature, scale and impact of the problem in Queensland in order to establish a baseline for future monitoring, and; to gather background information about the motivations and triggers for donating and dumping at charity sites to inform a social marketing campaign to reduce illegal dumping. The research has also examined strategies used by charities to manage waste and donation sites to identify how features of the environment and charity practice can influence donating and dumping behaviours.

Defining the problem

While a legal definition of illegal dumping does exist, there is no shared understanding of what constitutes illegal dumping at charity sites. This lack of clarity contributes to different stakeholder perspectives of the problem. Drawing on an analysis of legal, charity and public views, for the purposes of this report:

> *Illegal dumping at charity sites is the donation of poor quality items and rubbish that is unsuitable for sale by charities, (quality of items) and/or leaving donations outside designated donation areas (placement of items).*

Illegal dumping at charity sites lies along a spectrum of behaviours, ranging from well-meaning but uninformed donation behaviour through to the deliberate dumping of household rubbish. Charities rely on donations as a way to generate income for the provision of community services, so responses to illegal dumping at charity sites must strike a balance between deterring undesirable behaviours and encouraging appropriate ones.

Methodology

This research used a variety of methods that are summarised in the table below:

RESEARCH THEMES	RESEARCH QUESTIONS	MEASURES
1. Understanding the problem of illegal dumping	1.1 What do we know about illegal dumping?	Review of academic and grey literature
	1.2 What is the extent of illegal dumping in QLD?	Review of historical waste data
	1.3 What is the impact of illegal dumping in QLD?	Key informant interviews (charity stakeholders n=26)
2. Understanding donating and dumping behaviours	2.1 What beliefs and attitudes trigger donating and dumping behaviours?	Online survey (members of the public in QLD n=750)
		Public interviews (members of the public in Brisbane and Cairns n=167)
	2.2 What environmental factors at charity sites influence donating and dumping behaviours?	Photograph log of waste (daily photographs of bin and store sites)
		Bin and store site audits (n=53)
3. Formulating responses to illegal dumping	3.1 How can we better manage dumped waste?	Waste audit of dumped items and recommendations for managing waste
		Stakeholder mapping of recyclers, educators and enablers
	3.2 How can we change dumping behaviours?	Overall conclusions

Findings: Research Theme 1 – Understanding the problem of illegal dumping

Literature review

Very little research has considered the specific problem of littering and illegal dumping at charity sites. However, the literature does suggest that in relation to donating to charity, people may be influenced by environmental considerations or a desire to help others, but a primary motivation is to make room for additional goods. In relation to littering more broadly, people's behaviour generally results from a combination of what they believe they ought to do, what they observe others doing and the practical options open to them at a particular time.

The extent of illegal dumping

Limited data are available concerning the extent and cost of the problem which has made it difficult to provide a clear baseline for Queensland. Data collected by several charities and Cairns Regional Council have been used to calculate the estimated level of illegal dumping as 8,215.8 tonnes of waste processed by Queensland charities in the 2014-15 financial year. This figure must be used cautiously due to the patchy nature of the available data; however, it is more likely to be underestimation than an overestimation of the problem.

Some charities collect enough data to clearly demonstrate their organisation's experience of illegal dumping over the past few years. Examination of these datasets confirms anecdotal evidence that: levels of waste are increasing slowly over time, and; that illegal dumping is highly seasonal, with the amount of waste collected increasing in summer and dropping in winter.

The impact of illegal dumping

Charities report that illegal dumping has a significant financial impact on their business. Most clearly this includes costs associated with a range of reactive measures for managing dumped items, such as staff and equipment overheads for clearing waste, personal protective equipment, and tipping fees (where these are not waived by Councils). Further direct costs are generated through the adoption of preventative measures aimed at reducing dumping, such as the installation of signage, specialist fencing and surveillance (CCTV). Two charities reported information about the cost of managing illegal dumping, but probable differences in costing methodologies prevented an estimation of the cost of illegal dumping for Queensland to be calculated.

Charities are also aware of indirect costs related to a potential loss of business; for example, the removal of bins in response to community complaints and the presence of dumping acting as a deterrent for genuine donations. The full impact of these indirect costs is not known.

Other negative impacts are also experienced by charities. Staff and volunteers typically experience feelings of demoralisation and frustration at the levels of waste they are required to sort through. Many spoke about a sense that the work that charities do, and the people that they support, are not respected by the community. Further sources of concern are health and safety risks that arise from the need to handle dumped items, which can be hazardous. Environmental impacts include the attraction of pests, leaking of toxic chemicals and the disposal of waste to landfill.

Findings: Research Theme 2 – Understanding donating and dumping behaviours

The Theory of Planned Behaviour was used as a framework for analysing the survey and interviews with members of the public, examining the beliefs and attitudes about donating and dumping. The model was also used to drive the analysis of charity bin and store sites in order to assess whether the physical features of sites functioned as effective behavioural controls for appropriate donating.

Public beliefs and attitudes

The analysis found that donating unwanted items to charity is a frequent activity with three-quarters of the public donating items at least once per year. Overall, donation is not strongly linked to a motivation to support charities and is more closely associated with the idea that the items are potentially useful for someone else. Most people are well-intentioned and select quality goods when sorting items to donate, but few take the initiative to contact charities if they are unsure whether items are suitable. A small proportion of survey respondents (6%) admitted that they would be likely or very likely to leave rubbish at charity sites.

Exploring underlying beliefs revealed that most people are aware that the cost of dealing with inappropriate donations is a top problem for charities. Further, most people stated that they would personally feel guilty if items that they had donated created a disposal cost for charities. However, many people are misinformed about the operational realities of the charitable recycling sector and the way that charities want people to donate. For example, it is commonly believed (incorrectly) that charities have staff members and volunteers who can repair and clean donations, and despite the signage at charity sites, most people are not aware that fines apply for illegal dumping at charity sites. This lack of information is a major contributor to unintentional dumping behaviours.

In terms of community norms about donating and dumping, the research found that donating quality items to charity is broadly considered to be a socially valued activity. Conversely, public perception of illegal dumping behaviours is that those who leave items outside bins and stores are lazy, can't be bothered to donate properly, want to avoid paying tip fees and are aware that their behaviour is wrong. However, many people believe it is "inevitable" that charities will have to deal with a certain amount of rubbish at donation bin sites where donations are not monitored by charity staff.

People who prefer to take donations into charity stores demonstrate a high level of stewardship, or a concern that their donations are delivered undamaged and into the "right hands". In contrast, a preference for using charity bins is associated with an appreciation for the ease and convenience of the method. Choosing to donate at stores provides opportunities for charity staff and volunteers to provide feedback about item quality, but due to the lack of surveillance, those who prefer to use charity bins never get the opportunity to learn about the suitability of their donations. Most people take responsibility for their behaviour, but some are more likely to consider that certain personal circumstances might justify leaving rubbish at charity sites.

A typology of donors

A typology of donors characterised by specific sets of beliefs, knowledge and behaviours was constructed from the survey and interview data. "Champion Donors" (approximately 40% of donors) are well-informed donators that place a strong emphasis on personal responsibility for behaviour and stewardship of goods. This group prefers to donate at charity stores (unlike the other two groups who prefer to use charity bins) and are most likely to be older and retired. Champion Donors may still be confused about some aspects of appropriate donation.

"Unintentional Dumpers" (approximately 50% of donors) are well-meaning but lack sufficient awareness to understand appropriate donation practices. This group is comfortable with shifting the responsibility for the selection of quality items to charities. They are not aware that they are part of the problem and would be horrified to learn that their behaviour has created a cost for charities. This group is more likely to be aged 35-54 years, the least likely to have access to a car, and the most likely to be employed or currently a student.

"Deliberate Dumpers" (approximately 10% of donors) may knowingly use charity sites for the disposal of rubbish. This group typically considers that it is too difficult to figure out the kind of items that charities will accept and that they do not have time to sort items carefully. They are the most likely to consider that circumstances can sometimes force people to leave rubbish at charity sites. Deliberate Dumpers are the most likely to speak a language other than English at home, the most likely to be unemployed or not seeking work, and the most likely to say that it is difficult for them to get to the tip.

Environmental influences on behaviour

Analysis of photographic evidence showed that when donation bins are full, the severity of dumping (if present) is likely to be higher. Given that ease and convenience are major reasons for why people prefer to use charity bins, when charity bins are full, it is probably not reasonable for charities to expect people not to leave good quality donations outside. Operational costs impact on the regularity of bin clearances, but more frequent clearances could be a critical factor for reducing dumping.

Some bin sites attract more severe levels of dumping than other sites. It is commonly believed by charities that dumping is worse in low socioeconomic areas; however, a review of demographics did not find any clear differences between sites known to attract high or low levels of dumping. Features of the immediate location of the bins were more significant, with high dumping sites more likely to be located next to busy roads or in industrial areas which offer little natural surveillance after hours.

High levels of dumping are most likely to result from a combination of multiple environmental factors, including: convenient site access, low visibility from surrounding roads, low public surveillance (foot traffic), ample parking, ample space around the bins, a high number of bins, and low or ineffective deterrents (CCTV, lighting and specialist fencing). Low dumping sites were more likely to have bins located directly next to charity stores, or in car parks and next to transport stations. These sites have higher levels of natural surveillance in the form of foot traffic.

A key difficulty with the assessment of charity responses to dumping is a lack of robust data to evidence the impact of strategies. However, some charities appear to be having success with installing closed-circuit television (CCTV) which appears to work as a deterrent for dumping. Some charities are trying to encourage the public to bring donations into stores by removing bins and installing signs directing people to donate in-store. Co-locating bins with stores appears to provide more natural surveillance than is present at stand-alone bin sites.

These results are promising as they suggest that donating and dumping can be shaped at donation sites by selecting locations and physical surroundings that are conducive to appropriate behaviours. However, more research is needed to confirm the relative value of specific features to identify what is likely to be most effective.

Findings: Research Theme 3 – Formulating responses to illegal dumping

Managing waste

Effective public education may help to reduce illegal dumping but it is unlikely to eradicate it completely. Charities generally attempt to recycle as much waste as possible, which includes sorting recyclable items and seeking out markets for items that cannot be sold (such as exporting used clothing). However, charities sometimes have limited resources for recycling and the audit of illegally dumped waste revealed that 23.5% of dumped items could have been recycled instead of being sent to landfill. A list of recycling organisations is provided as a resource for charities seeking to improve their waste recycling.

Public education and charity practice

Despite the problems associated with illegal dumping, charities value bins because they are effective for attracting large amounts of donations. Very few members of the public are fully informed about correct donation behaviour and the consequences of dumping for charities, therefore a public education campaign should seek to address the misperceptions that are common across the community.

Most people do not dump intentionally. The motivation to get rid of things in a way that is easy and convenient is a key driver of unintentional dumping, but if educated about the consequences of this behaviour, most people would be dismayed to learn that their donations created a cost for charities. The campaign should seek to target Unintentional Dumpers (the largest group), who want to do the right thing and would be the most likely to respond to messages about appropriate behaviour.

Those who dump intentionally are unlikely to change their behaviour in response to educational messages. Other strategies, such as careful selection of donation sites and utilising best practice for site management, may be more effective deterrents for this group.

RECOMMENDATIONS

Recommendation 1
To enable more accurate assessment of the extent of illegal dumping, including ongoing monitoring, stakeholders should agree on a common method for collecting data about waste using directly comparable data definitions. On this basis:

i. Charities should commit to collecting and compiling data about the weight of waste deposited at transfer stations;
ii. Councils that waive tipping fees should commit to collecting data about the weight of waste deposited at transfer stations and the value of lost tipping fees.

Recommendation 2
It would be beneficial for charities to collect site-specific information to monitor the impact of preventative measures implemented to reduce illegal dumping (for example, photographing the site for a period of time pre-implementation and post-implementation). Charities could share this information to build sector knowledge of the most effective methods for reducing dumping.

Recommendation 3
A social marketing campaign to reduce illegal dumping should consider the different beliefs, attitudes and behaviours exhibited by three distinctive groups of donors:

i. Educational messages should be targeted to address the key knowledge gaps that are common across the whole community;
ii. Unintentional Dumpers appear to be the largest group of donors and the most likely to respond to messages seeking positive behaviour change. The social marketing campaign should seek to target this group to achieve maximum impact;
iii. The behaviour of Deliberate Dumpers may be best addressed through the use of deterrents at donation sites (see Recommendation 4).

Recommendation 4
When planning the location of donation bin sites, consideration should be given to the impact of multiple factors that may increase the likelihood of dumping, including: convenient site access, low visibility from surrounding roads, low public presence (foot traffic), ample parking, ample space around the bins, high number of bins, and low or ineffective deterrents (CCTV, lighting and specialist fencing).

Recommendation 5
Where possible, charities should seek to prevent the build-up of rubbish at donation sites by clearing bins on a more frequent basis. This is important to prevent normative ideas from forming around illegal dumping as being acceptable.

Recommendation 6
Councils, charities and other stakeholders should work in partnership to develop practical and effective recycling options to reduce the amount of recyclable waste sent to landfill.

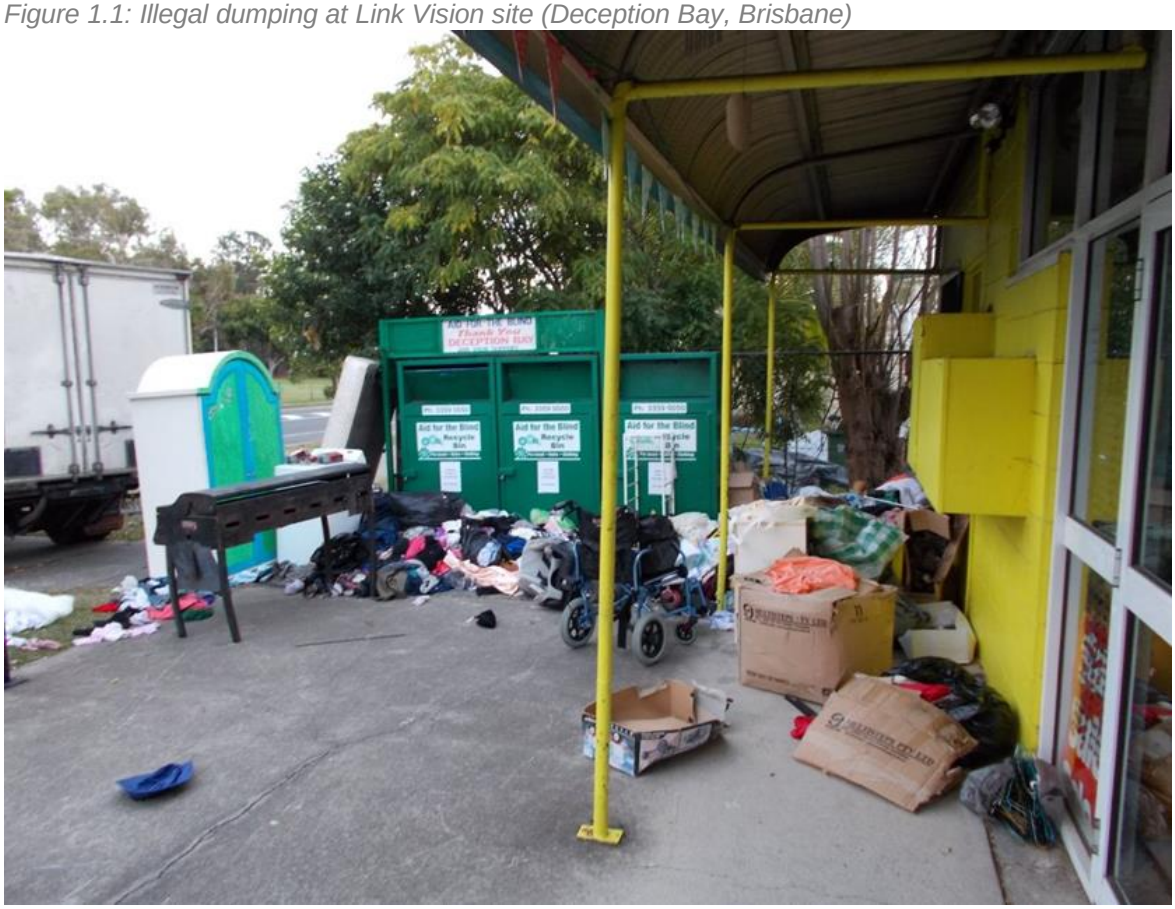
1.0 INTRODUCTION

1.1 Background and context

This report provides evidence about the illegal dumping of waste at charity donation bin and store sites in Queensland. Research was conducted in 2015 in partnership with six charitable recyclers in Brisbane and Cairns (Endeavour Foundation, Lifeline, Salvation Army, Vinnies, Link Vision and Anuha), along with the Litter and Illegal Dumping Unit (Department of Environment & Heritage Protection), Brisbane City Council, and national and state representatives of the National Association of Charitable Recycling Organisations (NACRO).

Charitable recycling organisations (hereafter referred to as "charities") accept donations of goods in order to sell these items thereby generating income which is used to fund essential community services. However, clearing sites and disposing of illegally dumped waste creates a significant financial burden which erodes the generation of income. Recent calculations (NACRO, March 2016[1]) have found that NSW charities spend around $7 million per annum to deal with waste. Further, a national analysis found that while the total volume of donations has been increasing since 2009, but that in the same period, the volume of illegal dumping at charity sites has also increased. In 2012 charities across Australia received 300,000 tonnes of donations; approximately 40% of this total was disposed of to landfill, because the items were either unsuitable for re-sale or export (24%) or consisted of illegally dumped material (16%) (NACRO, 2013).

Figure 1.1: Illegal dumping at Link Vision site (Deception Bay, Brisbane)



The experience of Queensland charities mirrors the national trend. The Salvation Army experienced such a volume of waste that the decision was made to remove more than half of its Brisbane bins

[1] This information was supplied by NACRO in April 2016 through a direct communication. The figure includes the costs of hauling waste (including truck maintenance & running costs), engaging contractors to haul waste, tip fees and staff costs.

over the past three years. Lifeline Brisbane has seen a steady increase in dumping since 2011 and now spends around $100,000 annually on the management of illegally dumped waste in the Brisbane area alone[2]. This amount could fund training for 50 new telephone crisis supporters; the provision of 3,250 online support sessions; or enough staff to answer 5,000 crisis support calls.

In addition to the financial cost, managing the problem of illegal dumping takes volunteer hours away from supporting other community programs. Cleaning up waste can negatively affect staff and volunteer morale and health and safety risks must be managed. Donation bins and store fronts that are overflowing with dumped items is unsightly and affects visual amenity, aesthetic values, neighbourly relations, access to properties and even property values. It may lead to environmental risks such as leaking chemicals and the attraction of pests, and the disposal of illegally dumped waste to landfill is a further concern.

Despite these significant impacts, very little is known about the dynamics of illegal dumping at charity sites. Some studies have been conducted into the disposal of consumer goods through donating or recycling, but links between these behaviours and the dumping of waste at charity sites have rarely been considered. Overall, the available information is dominated by news stories about the abuse of charities as cheap dump sites and protocols developed by governments and local councils to counteract the problem.

This research aims to address this knowledge gap. Extensive data collection has sought to determine the extent and impact of illegal dumping in Queensland, and to better understand the motivations, triggers, facilitators and deterrents for illegal dumping behaviours. The research findings contained within this report will be used by members of the Charity Reference Group to develop a public education campaign to reduce dumping at charity donation bin and store sites. In addition, the report provides recommendations for best practice that charities may wish to adopt to manage the problem.

Figure 1.2: Illegal dumping at Salvos site (Kallangur, Brisbane)

[2] In the 2014/15 financial year, total Lifeline Brisbane expenditure for running a dedicated tip truck to deal with illegal dumping was $103,542.

1.2 Research governance and partnership

This study was funded by a grant of $50,000 from the Queensland Government's Litter and Illegal Dumping Community and Industry Partnerships program. In recognition of the broad impacts of illegal dumping for the community, this program was established to fund educational activities, behaviour change campaigns, and research and evaluations that seek to address littering and illegal dumping in Queensland. The partnership for this project includes six charity organisations in Brisbane and Cairns (Endeavour Foundation, Lifeline, Salvation Army, Vinnies, Link Vision and Anuha), along with the Litter and Illegal Dumping Unit (Department of Environment & Heritage Protection), Brisbane City Council, and national and state NACRO representatives.

The research was conducted by UnitingCare Community, which provided $95,485 of in-kind support that covered the cost of staff to deliver the project (breakdown provided in Appendix A). Professor Jill Wilson (UnitingCare Queensland) also provided significant in-kind support ($10,000) for the research in the form of project oversight and ongoing guidance to the research team. Ethical clearance for the social aspects of the research was granted by the UnitingCare Queensland Human Research Ethics Committee (Reference: Leggatt-Cook/Wilson 17515).

This project would not have been possible without the significant time and resources invested by members of the Charity Reference Group, which has included at least one contact from each of the charity partners and other stakeholder organisations. Members have contributed to the study design and development of methods, shared data and information, facilitated access to charity staff for interviews, supervised the collection of photographic data by truck drivers and store managers, participated in waste audits, and provided ongoing support, advice and feedback on findings to the research team.

Of particular note, staff from Brisbane City Council (Waste & Resource Recovery Services) provided assistance to: develop and test a framework for conducting waste audits, facilitate access to a Council transfer station for conducting the audits, and provide supervision and protective equipment to 19 people who conducted the audits. Staff from DEHP also supported the project well beyond funding, providing ongoing advice about shaping the methodology and findings as well as staff to assist with the waste audits. Finally, an important contribution was made by student volunteers from Queensland University of Technology (QUT) and TAFE Queensland, who provided support for the waste audits, developed the bin and store site audit framework, and conducted stakeholder mapping, data entry and data analysis.

1.3 What is illegal dumping at charity sites?

A specific challenge for the study of illegal dumping is the lack of a clear definition that is commonly accepted by stakeholders. Illegal dumping at charity sites is enmeshed with practices of donation, which makes it different to other types of dumping (for example, in bushland areas or littering in city streets) that are more directly concerned with the disposal of waste. Consequently, understandings of the issue, including why people dump and how best to prevent these undesirable behaviours while still encouraging appropriate donation behaviours, vary widely. The following anecdote illustrates this complexity well:

> *While conducting interviews with members of the public, we talked to a woman in the car park of a Vinnie's store where a set of donation bins were located. We had just observed her leaving a clothing rack beside the bins where some other donations had been placed (see Figure 1.3 below). The rack was in excellent condition but clearly too big to fit inside the bin.*
>
> *At no point during the interview did the woman appear to connect the topic of the interview with what she had just done. The first part of the interview explored her donation habits. She was a regular donator, because she liked to keep her home tidy but didn't like to throw out things that other people could use. She was well aware that rubbish was a problem for charities and expressed a strong belief that some people used charity sites as a dump because they were too lazy to go to the tip.*

> *About halfway into the interview, we showed her a photograph of a donation bin site with a couch and textiles left outside. We asked her if she thought it was a problem. She said yes, because the donations could get ruined in the weather. She thought that the rack that she had just donated was ok because it was a durable item. Whenever she donates breakable or perishable items she always takes them into the store.*

In terms of her beliefs and values, the woman in this example was a model donator. She wanted to support the work of charities and she demonstrated responsible stewardship towards her donations, wanting them to pass safely into the hands of the charity. Although she was well-intentioned, in this situation charities consider her to be an illegal dumper.

Figure 1.3: Illegal dumping at Vinnies (Kenmore, Brisbane)

Legal definitions of dumping are necessary to enable offenders to be prosecuted, but definitions of dumping at charity sites are problematic when considering examples like the anecdote above. In Queensland the legal definition states that:

> *Illegal dumping is the unlawful deposit of any type of domestic, commercial or industrial waste that is 200 litres or more in volume (about the volume of an average wheelie bin).*[3]

The clothing rack in question does not fit the volume criterion and it is also uncertain whether the item, which was in excellent condition, would be considered "waste". While this anecdote is more ambiguous, in many cases the legal definition does strongly reflect charity experience. In the quote below the items intended to be left at a charity site were of sufficient volume (a trailer load) and of sufficient poor quality ("just rubbish") to unequivocally fit the legal definition:

[3] Department of Environment & Heritage Protection: http://www.ehp.qld.gov.au/waste/illegal_dumping_litter.html

> *I caught a guy … one day with a whole trailer. I said, "What are you doing with that?" and he says, "Putting it here." I said, "That's just rubbish, mate … you can't just dump that here, mate. That's just complete stuff out of your garage"* (Truck Driver).

Charities generally agree that leaving any item (irrespective of quality) outside donation bins and stores (the designated donation areas) constitutes illegal dumping. Signage at sites typically directs people to place items inside the bins only, as described in these examples below:

> *…all our signs say that large items shouldn't be there, and nothing should be left outside the bins* (Warehouse Manager).

> *Nothing to be left outside bins. No dumping* (Sign at Link Vision bin site).

> *Dumping of goods outside Salvos stores is an illegal practice* (Sign at Salvos store site).

> *No items to be left outside donation bins. Littering is an offense* (Sign at Lifeline bin site).

However, charity practices for dealing with items left outside donation bins and stores vary. Lifeline Brisbane views all items dumped outside bins as waste, and this material is collected and taken directly to the transfer station. A separate Lifeline truck clears donations from inside the donation bins and redirects them to the warehouse for sorting. In contrast, most other charities collect and sort all donations, regardless of where they are placed, in order to salvage what they can from items left outside bins and stores:

> *… we can use it, as long as it hasn't been rained on … one of the biggest problems at all of our sites is there is no undercover … it does get wet overnight, which is a shame. That stuff could be saved but it just gets wet and then it's wasted* (Warehouse Manager).

If items left outside donation bins and stores are good quality and the charity gets to them before they are damaged, then most charities will process those items for sale. In this regard it is not clear if such items would fit within the scope of the legal definition of dumped "waste". Unsellable items are often placed inside donation bins (a designated donation area), which further complicates the application of the legal definition.

Interviews and survey conducted with members of the public for this research revealed that public understandings of donating and dumping also vary. Some people (a minority) demonstrated good awareness of the problem. In the quote below, the survey respondent suggests that if people are donating good quality items in the first place, then they will take care to ensure that the goods remained undamaged:

> *[Items left outside bins are] probably not sellable quality in the first place - it's dumping rubbish*.

However, many donators believe that their choice to leave items outside bins and stores is rational and justified. In the quote below, the survey respondent indicates that, like the woman at the Vinnies site, it is acceptable to leave durable items outside donation bins:

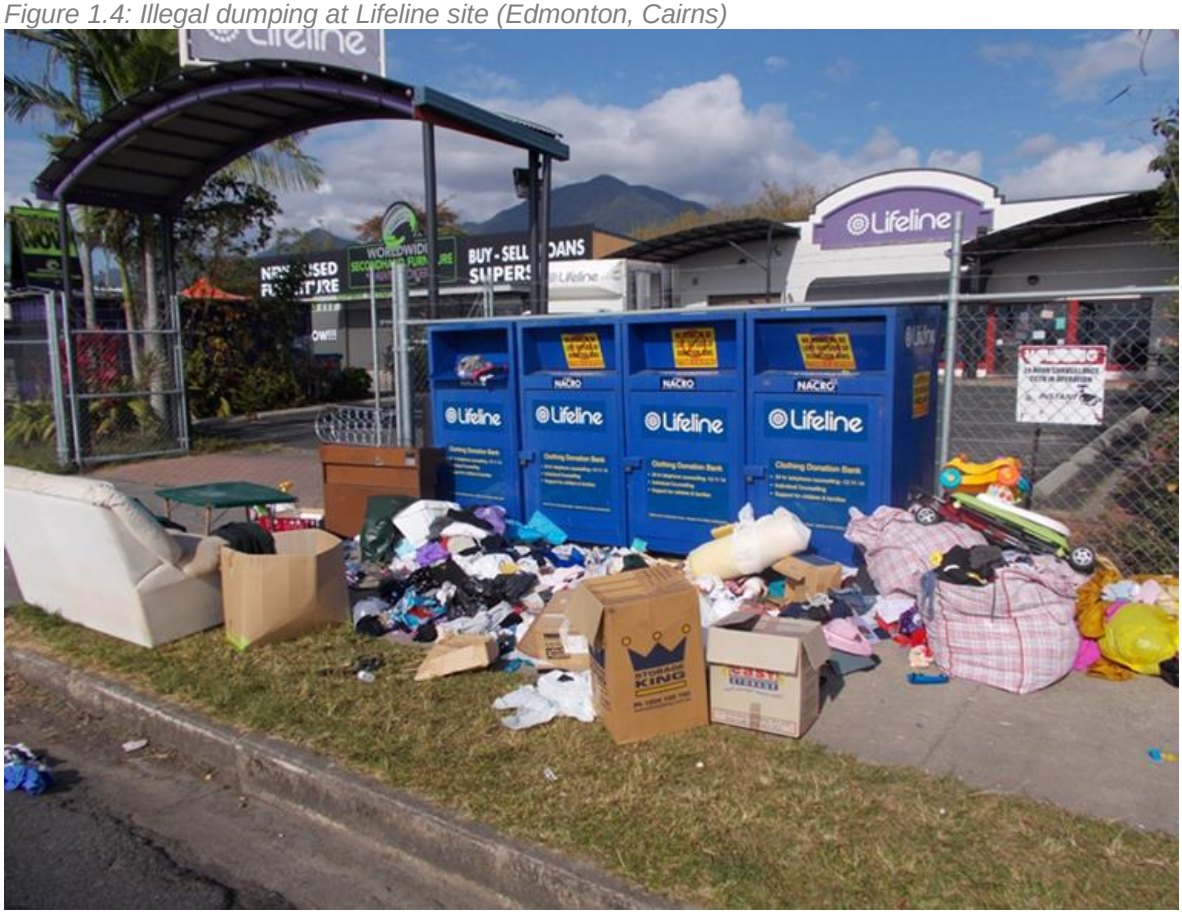
> *I wouldn't put a stereo in the bins because it might get damaged. I have left furniture outside bins before, things that were more durable*.

Changing such well-intentioned but uninformed behaviours is a key challenge for charities. For many members of the public, the idea that just because a good quality item is left outside bins that this means it is rubbish (or will become rubbish due to damage) is difficult to understand. Although charities can have different interpretations of what they will accept in terms of donation behaviours, two key ideas were consistently referenced by charity stakeholders: the quality of donations and the placement of donations. For the purposes of this report we define illegal dumping as follows:

> *Illegal dumping at charity sites is the donation of poor quality items and rubbish that is unsuitable for sale by charities, (quality of items) and/or leaving donations outside designated donation areas (placement of items).*

Beyond this definition, an understanding of the range of donor intentions is also important. The Victorian Litter Alliance (2014) posits that illegal dumping at charity sites lies along a spectrum of behaviours which reflect different donor intentions. At one end of the spectrum, well-meaning donors may leave items that they believe to be suitable for sale but which are not accepted by charity stores, such as electronic items and children's car seats. In addition, many good quality donations are left outside charity stores and bins where donors do not get the chance to observe how exposure to weather and damage caused by scavenging may render the goods unsuitable for sale. At the other end of the spectrum, donors may dump rubbish that is clearly unsuitable for sale by charities, such as soiled mattresses, broken furniture and window blinds, green waste and household waste. The outcome of these various behaviours is the same: a disposal cost is incurred for charities. However, a public education campaign needs to consider these different intentions in order to develop targeted messages that will encourage the right behaviours and deter the undesirable ones.

Figure 1.4: Illegal dumping at Lifeline site (Edmonton, Cairns)



1.4 Research design

Understanding of the motivations and triggers for dumping behaviours is very limited and based largely on anecdotal evidence. With the support and guidance of the Charity Reference Group, this research has sought to:

> *…obtain background information to inform the adoption of a community-based social marketing approach for changing behaviours around the dumping of unsuitable materials at charity stores and bins.*

In order to meet this objective, the research has focused on addressing three key themes summarised in Table 1.1 below:

Table 1.1: Research themes, questions and measures

RESEARCH THEMES	RESEARCH QUESTIONS	MEASURES
1. Understanding the problem of illegal dumping	1.1 What do we know about illegal dumping?	Review of academic and grey literature
	1.2 What is the extent of illegal dumping in QLD?	Review of historical waste data
	1.3 What is the impact of illegal dumping in QLD?	Key informant interviews (charity stakeholders n=26)
2. Understanding donating and dumping behaviours	2.1 What beliefs and attitudes trigger donating and dumping behaviours?	Online survey (members of the public in QLD n=750)
		Public interviews (members of the public in Brisbane and Cairns n=167)
	2.2 What environmental factors at charity sites influence donating and dumping behaviours?	Photograph log of waste (daily photographs of bin and store sites)
		Bin and store site audits (n=53)
3. Formulating responses to illegal dumping	3.1 How can we better manage dumped waste?	Waste audit of dumped items and recommendations for managing waste
		Stakeholder mapping of recyclers, educators and enablers
	3.2 How can we change dumping behaviours?	Overall conclusions

A literature review conducted as part of this study has confirmed that there is limited published research about dumping at charity sites. While instances of severe dumping are sometimes reported in local newspapers, there is a lack of robust data available. **Research Theme 1** – understanding the problem of illegal dumping – has therefore been concerned with establishing a baseline for future monitoring (through the analysis of historical waste data) and gathering evidence about the impact of the problem (through interviews with charity stakeholders).

Some charities and councils collect data about levels of waste and this information has been shared and analysed. Based on these data, we estimate that illegal dumping at charity sites in Queensland produced a total of 8,215.8 tonnes of waste in the financial year 2014/15; however, this figure is likely to be an under-representation of the problem. The impact for charities of managing this waste was explored in interviews with charity staff in Brisbane and Cairns (n=26). A range of financial costs were identified associated with reactive and preventative strategies for managing waste. Non-financial costs, such as staff morale and the risk of injury, and environmental impacts were also identified.

Research Theme 2 – understanding donating and dumping behaviours – has been centrally concerned with investigating public beliefs and attitudes about donating to charity and considering whether environmental factors at charity sites might play a role in triggering dumping behaviours. To explore this theme, an online survey was conducted with a representative sample of 750 people living in Queensland. In addition, follow up interviews were conducted at charity locations known to attract either high or low levels of dumping. The analysis of these data has been used to develop three donor profiles characterised by distinct beliefs and behaviours: the Champion Donor, Unintentional Dumper and Deliberate Dumper.

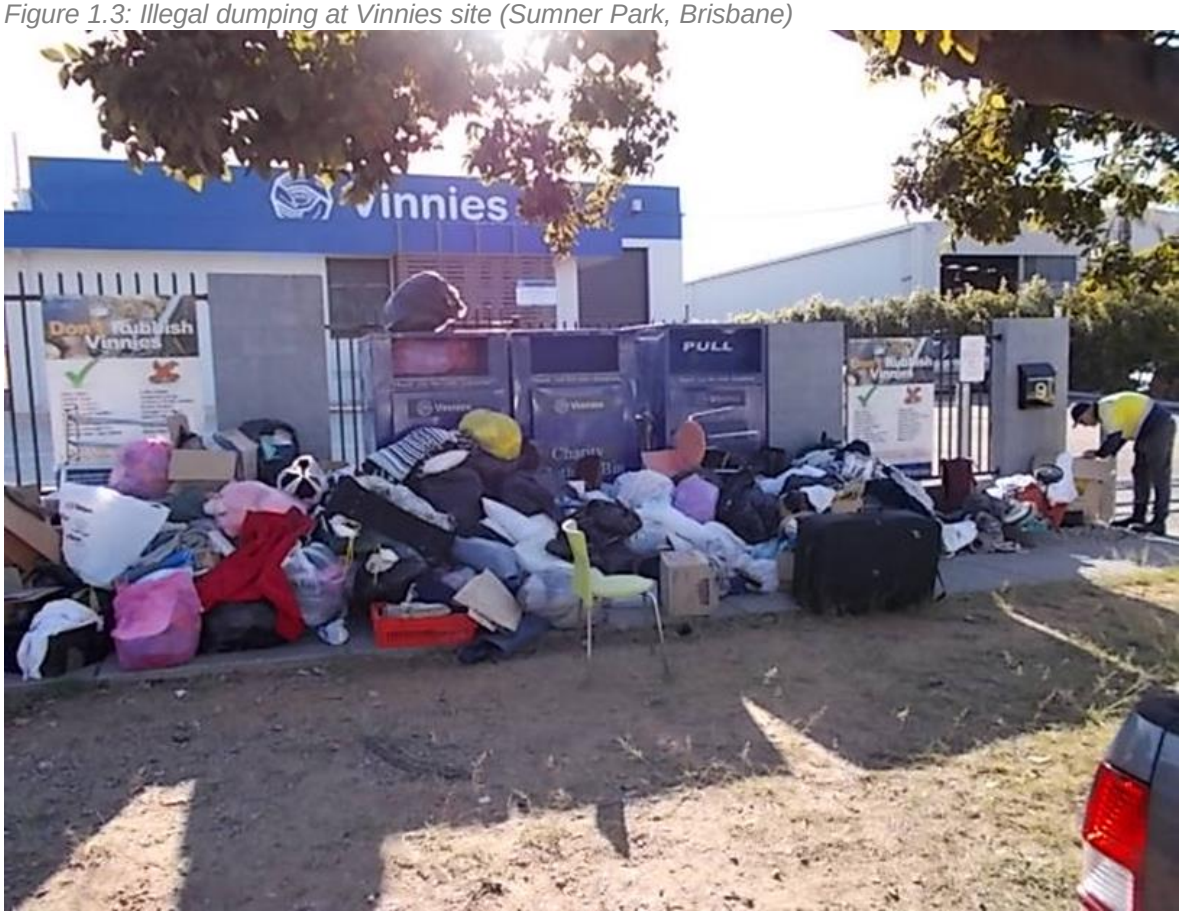
Available advice for reducing littering in public spaces[4] emphasises the importance of design, convenient disposal systems, accurate information and maintenance of sites for shaping littering behaviours. Two data collection methods were used to assess the physical environment of charity bin and store sites and their potential impact on dumping. Collection truck drivers and store managers photographed charity sites every day for four weeks to document the frequency and severity of waste. The key finding was that full bins are associated with more severe levels of dumping.

[4] For example, see: Sustainability Victoria (2013), and http://www.communitychange.com.au/insights-and-tools/changing-littering-behaviour/top-tips-for-clean-public-places.html

In addition, a total of 53 sites (13 stores; 40 donation bin sites) identified as high or low dumping sites (27 high; 26 low) were audited to examine features such as the level of natural surveillance, access convenience and the presence or absence of deterrents such as CCTV and fencing. No single feature emerged as significant, but the analysis showed that high and low dumping sites are associated with particular combinations of physical features that may attract or deter dumping.

Research Theme 3 focuses on formulating responses to illegal dumping. Using the findings developed in relation to Theme 2, overall recommendations are made regarding key messages for a targeted public education campaign and the management of donation bin and store sites. These recommendations are likely to reduce the level of illegal dumping, but they are unlikely to eradicate it. For this reason, the research has also sought to understand the nature of dumped waste and the implications for landfill. A total of 5506.5 kg of illegally dumped waste was audited and 23.5% of this was found to be recyclable material that would normally be sent to landfill. A list of recycling providers is provided for charities seeking to improve their management of illegally dumped waste.

Figure 1.3: Illegal dumping at Vinnies site (Sumner Park, Brisbane)



1.5 Report structure

Section 2 of the report presents a review of the available research evidence and information about illegal dumping at charity sites. The review considers broad approaches to donating and dumping behaviours and summarises the evidence for strategies to reduce waste and illegal dumping.

Section 3 provides a brief overview of the theoretical framework used to interpret the data about public beliefs and attitudes: the Theory of Planned Behaviour (Ajzen, 1991).

Sections 4-8 address the three research themes summarised in Table 1.1 above. Sections 4 and 5 focus on “Understanding the Problem” in terms of the extent and impact of illegal dumping within Queensland. Section 4 summarises the analysis of historical waste data collected by charities and

councils and Section 5 presents the findings of interviews with charity staff about the financial and non-financial impacts of illegal dumping.

Sections 6 and 7 focus on “Understanding Donating and Dumping Behaviours”. Section 6 presents the results of the online survey and public interviews, and attempts to answer the question: what beliefs and attitudes trigger donating and dumping behaviours? Section 7 explores the role of environmental factors at bin and store sites, and examines several cases studies of sites that attract high and low levels of dumping. These sections provide evidence for the key finding of this research, that the beliefs of the public and environmental factors at bin sites are interactive in the production of dumping behaviours.

Sections 8 and 9 focus on “Formulating Responses to Illegal Dumping”. Section 8 reviews data collected about the nature of dumped waste and recommends that charities (in partnership with other stakeholder organisations) seek to improve the recycling of waste in order to reduce landfill. Section 9 forms a short concluding section that summarises the key findings of the research, recommending that a targeted educational campaign and adjustments to charity practice are required to address the issue of illegal dumping in Queensland.

Figure 1.5: Illegal dumping at rear of Lifeline Superstore (Browns Plains, Brisbane)

2.0 LITERATURE REVIEW

2.1 Overview

The literature around donations to, and dumping at, charity bins and shops is dominated by stories and photographs of waste, the abuse of charities as cheap dump sites and the protocols developed by governments and local councils to counteract the problem. At a broader level there are some references to the place of the charity collection of goods in the chain of the behaviour leading to the disposal of goods, particularly fashion items; in the socially responsible process of their recycling; and in the dynamics of donating. Charity bins and shops seek these goods, and in the process often attract unwanted goods that must be dumped and which may contaminate otherwise usable donations. Links between behaviour that leads to the donation of saleable goods and behaviour that leads to the dumping of rubbish are not clear in the literature, though it is suggested by proposals to limit unwanted donations that a combination of an attitude that it is acceptable to dump unwanted goods, a belief that they will not be caught and a lack of time or opportunity to visit the tip or other places of disposal may support dumping behaviour.

2.2 Broad approaches to understanding donating and dumping behaviours

There are a number of approaches to used clothing and household goods donation behaviour and more broadly, the patterns of stewardship of possessions. Land and Watson (2012, p. 1254) introduce the notion of product stewardship to explore the relationship between people and the material world. They contend that different ways of carrying out our rights and responsibilities to products emerge, and that the practices of material responsibility can be understood in terms of household behaviour (Land and Watson, p. 1255). Their work is based on a review of existing research in Australia and the UK and suggests that consumers are motivated by a range of factors, not just environmental ethics or economic dimensions in deciding how to exercise their stewardship when goods are no longer useful. Hawkins (2006, p. viii) suggests that “constant consumption” is seen as an expression of personal freedom, and that its corollary is the freedom to waste or discard things that may still be useful. New social norms challenging this view have emerged as the provision of kerbside collection of materials have made the acceptable disposal of materials easier (Hawkins, 2006).

Gregson, Metcalf and Crewe (2007) provide a critique of the concept of the throwaway society drawing on research in the UK. They found that 60% of unwanted goods (clothing, household items) were given away to charity, friends and family or sold, rather than sent to rubbish tips[5]. Gregson et al (2007) suggest that it is helpful to discriminate between the act of discarding and what discarding actually achieves. They note that discarding is linked to the breakup of households at different life stages and the establishment of new households, moving and excessive consumption. Many people take considerable care in disposing of surplus or unwanted goods to ensure that they are of use to their new owners. Charities are beneficiaries of such goods when there are no family members or friends in need of them.

The bulk of material deposited in charity bins or taken to charity shops is textiles, predominately clothing. The retrieval of textile waste is generally undertaken by charities in Australia, in contrast to other developed countries where there are more private textile waste collections (Bianchi and Birtwistle, 2012, p. 3). In Australia, “a significant amount of textile waste from manufacturers and consumers is sent to landfill every year at great cost to the industry and tax payers” (Caulfield, 2009, cited in Bianchi and Birtwistle, 2012, p. 3) and an estimated 12.5 million kilos of textile waste is sent to landfill each year.

Overall, the research literature indicates that people dump unwanted household goods when they do not perceive that they have other options, or it is difficult to dispose of it in other ways. People give goods away for reuse when they wish to make space and simultaneously wish to avoid waste. However, feeling that the goods may be of use to others is a secondary consideration and people

[5] These findings were replicated by Land, Horne and Bicknell (2009) in Melbourne.

tend not to be motivated by the nature of the particular charity or the use to which goods are put. Donation of goods will be carried out only when it is relatively convenient to do so.

2.3 Factors influencing donating behaviours

Most people have items that they no longer want and charities provide an important disposal option for the community. The NSW Environment Protection Agency (2015) study used a mixture of qualitative interviews and online surveys to explore the motivations of those who dump illegally using a range of venues. The most common form of disposal of unwanted items was the weekly collections by councils (87%), with 47% using organised kerbside collections. Over half, 57%, left goods at charity bins and shops (2015, p. 54). The motivations for such donations, nor the nature of these donations are not explored in any depth in this NSW study, beyond noting that this was seen as a positive way to dispose of unwanted items, with the proceeds going to charity.

Only a small number of studies have examined the behaviour of people around disposing of unwanted clothing (Shim, 1995; Domina and Koch, 1999; Morgan and Birtwistle, 2006), despite the important role of disposal within the apparel consumption experience (Ha-Brookshire and Hodges, 2009). Behaviour in relation to the disposal of unwanted clothing has been explored from the perspectives of socially responsible consumer behaviour and environmental studies. Shim (1995) found that the environmental attitude of consumers had a strong influence on disposal methods such as recycling. Other studies have found that consumer knowledge of disposal options and waste recycling has an impact on the recycling options chosen.

However, Bianchi and Birtwistle (2012) note that it is still not clear which are the main drivers that lead consumers to choose different methods of disposal. In a study comparing patterns of clothing disposal behaviour in Australia and Chile these authors found that in both countries consumers who had a positive attitude towards recycling are more likely to dispose of their clothing by donating it to charity rather than giving it away to family and friends, suggesting that giving to family or friends is linked to helping out those they know, while giving to charity is linked to recycling. However, people who are environmentally aware do not necessarily behave pro-environmentally if they see that other people do not behave in this way (Ohtomo and Hirose, 2007).

Ha-Brookshire and Hodges (2009) explored the experiences of individuals who had recently donated used clothing in the USA to understand the motivations, intentions and other factors that influenced their behaviour around the donating decision-making process. They found that the most common motivation was to ‘get rid of stuff’ and make room for more (2009, p. 185). In contrast to the view in the literature that donating used clothing is a form of socially responsible conduct, none of these participants mentioned a social conscious as the primary reason for donating. They saw donations of food or money as things they were ethically inclined to contribute, while clothing was less of a ‘real’ donation. It had more of a value to them than to others. In selecting donation sites these participants were clear that convenience to the site was the most important factor, expressing little idea of what the donation site would do with their items. Contrary to the view that clothing donation is socially responsible behaviour, Ha-Brookshire and Hodges (2009, p. 193) argue that it is “just one part of the entire clothing consumption process”. These authors make two suggestions for charities to promote the donation of usable goods: educating the public about the importance of used clothing; and paying attention to the convenience of their sites and review the hours for leaving donations.

In general people are motivated, or need to get rid of goods that are no longer necessary for a range of reasons that include moving house, especially when downsizing, renovating, replacing household goods or distributing deceased estates.

2.4 The problem of unusable donated goods

The estimates of the number of bins and their operators vary considerably between states. Sustainability Victoria estimated that in 2012 there were 1350 bins in that state. Of these 1100 were operated by commercial operators and 250 by charities. It is clear that some bins attract more rubbish than others, though the reasons for this are not clearly explored. The Victorian Litter Alliance (2014) noted that a third of donated goods are unsuitable for sale and quoted NACRO as estimating that

waste disposal cost the sector $4 million dollars in 2008-09. Most people prefer to recycle in some form or other though the impact of the minority who dump goods inappropriately on charities is significant. Recent calculations (NACRO, March 2016[6]) have found that NSW charities spend around $7 million per annum to deal with waste. It may well be the case that descriptions of what can and cannot be used are changing as the sector finds a bigger range of outlets for donated goods, such as export markets and recycling providers, rather than relying on charity stores alone. Goods that are not able to be used fall into three categories:

- Good material left out in the open and exposed to the weather and scavengers;
- Goods people believed were saleable but are not, and;
- Goods that were clearly unsuitable.

The Victorian Litter Alliance (2014) proposes a spectrum of donating and illegal dumping with motivations ranging from being a community role model of donating quality goods in an appropriate manner, to being well-intentioned but not always well informed about the consequences of leaving goods outside bins or shops, to being an indiscriminate dumper of unwanted items who donates when and what suits them and finally, the deliberate dumper who is opportunistic and deliberate in making use of charity sites to get rid of rubbish and perhaps avoid any costs associated with dumping rubbish. Each of these four groups may require a different response to maximise the usability of goods and to minimise dumping.

2.5 What do we know about avoiding or reducing waste?

Different models exist around the processing of recovered unwanted goods, their sorting and disposal. The goals of these models may include reducing waste to landfill, maximising profit, offering employment and minimising illegal dumping. In the Australian not-for profit sector, operators generally manage the entire process from collecting, to sorting and selling recovered goods (Bianchi and Birtwistle, 2012). Southern Cross Recycling[7] is a private for-profit company that manages the supply chain of recycled clothing and household goods from collection through to some marketing. They partner with twenty-three local charities that donate their name to the collection bins and work with Australian Disability Enterprises to create work for people with disabilities. Depending on the agreements reached charities select goods to be sold in their stores. They are quoted as having 600 bins nationally and claim that up to 95% of goods collected are recycled and diverted from landfill. They emphasise their commitment to sustainability as well as the assistance to charities.

Comments in the media in Australia and internationally suggest that the dumping of unusable goods outside bins and shops is on the increase (for example, Caywood, 2011; Lill, 2015; Townsville Bulletin, 2014). The point is repeatedly made that goods other than clothing or other small items are left outside shops or bins and that some people appear to avoid leaving goods at shops and instead place them outside shops when they are closed. While the reasons for this behaviour are not explored in the literature, likely explanations are that some members of the public cannot attend when the shops are open or that they expect the goods will not be welcomed. Increasing concern is expressed about the dumping of household rubbish, and other items which can have no resale value at all, but which contaminate other goods, waste the time of volunteers and dishearten them.

A range of factors are identified that may encourage or discourage dumping. Caincross (1993) noted that when Seattle started to charge citizens for disposal of rubbish by the bagful, charity shops found themselves knee deep in unwanted gifts. Banyule City Council (2014) in Victoria, in cooperation with the police, used a camera to capture evidence of people leaving or stealing goods outside a Salvation Army store. In addition, high-profile signs were installed warning people they were under surveillance. Around 600 people were caught and a reduction of 75% in the volume of dumped rubbish was noted.

Sustainability Victoria (2014) makes the point that levels of dumping vary at certain times of the year, coinciding in that state with the period of daylight saving. They recommend running public awareness strategies to coincide with this period. Decreasing littering, waste and the incidence of dumping can

[6] This information was supplied by NACRO in April 2016 through a direct communication. The figure includes the costs of hauling waste (including truck maintenance & running costs), engaging contractors to haul waste, tip fees and staff costs.
[7] http://scrg.com.au/

also be linked to the level of community knowledge about what goods are saleable, the use made of the goods and of money generated from the goods.

Sustainability Victoria (2013) has also published recommendations for reducing littering at charity sites. These recommendations are informed by research that identified and examined a range of approaches to reduce litter and illegal dumping around clothing bins at a distance from charity shops or other drop-off points. Overall the research advised that "well placed and maintained clothing bins with regular monitoring, appropriate scheduled clearances and good signage are consistent with best practice and most likely to experience less litter and illegal dumping than other clothing bins" (Sustainability Victoria, 2013, p. 3). The specific points for reducing illegal dumping are:

- If possible make use of existing electronic or 'line of sight' surveillance systems;
- Having more than one organisation represented by the bins increases littering. This may be because it is unclear to users and operators which organisation is responsible for the bins and the areas around them;
- Reducing material overflowing from a bin minimises the prospect of people leaving further material outside a bin. An appropriate clearance schedule and timely response to excess material reduces litter and dumping;
- Reliable and quick reporting of overflowing bins reduces the incidence of dumping;
- Effective signage reduces littering. Signage should direct people to other nearby clothing bins or drop-off facilities, provide information about what goods are acceptable, and explain how to organise for larger items to be picked up. Signage should also state that leaving goods outside the bins is an offence, and, where appropriate, that the bins are being monitored.

These suggestions are echoed by other groups, including NACRO[8] and many Councils[9], which publish policy documents outlining the conditions that govern the use and maintenance of charity clothing bins. Local news stories recount attempts by charities to exclude the use of their bins and sites as rubbish dumps. Campaigns to reduce dumping, often in partnership with local councils, have focused on providing information on the costs to charities of unusable goods (Gold Coast Sun, 2015), providing information on how to make donations count (NACRO[10] and the charitable partnership, GIV.org.au[11]), and publicising the illegality and financial consequences of dumping (Mackay Daily Mercury, 2014).

Most of these initiatives are linked to some reduction in the amount of dumping but have not resolved the problem. The Brotherhood of St Lawrence, in central Melbourne, decided to get rid of their bins and accept items in their stores, offer free pick-ups and place bins-on-wheels in the workplaces of companies that support their clothing appeals. They also publicise requests for some items such as mobile phones and fridges (Sydney Morning Herald, 2010). These strategies appear to have resolved the problems of dumping unwanted goods. However, the Salvation Army in Brisbane removed its bins because of the cost of clearing away rubbish, but found that people leave goods outside their second-hand stores, and that much of this is not usable. In contrast, the Salvation Army in NSW (2014) reports a decrease in unwanted dumping after removing their bins. They reported a 10% reduction in unusable donations between 2012 and 2013 linked to removing bins, installing CCTV in problem sites, improved signage and running campaigns.

2.6 Final comments

The available research literature indicates that people's behaviour generally results from a combination of what they believe they ought to do, what they observe others doing and the practical options open to them at a particular time. In relation to donating and dumping behaviours it is suggested that several profile groups exist that are likely to respond to different strategies to enhance the donating of usable goods and to limit dumping and the donating of products of no use to charities. There are also structural considerations that will encourage positive and less positive behaviours. These include the placement of bins (and their signage and maintenance), access to charity stores

[8] See NACRO's Code of Practice for the operation of clothing donation bins: http://www.nacro.org.au/policy/
[9] For example, see the ACT government policy: http://www.tams.act.gov.au/city-services/public_land_use/code-of-practice-for-the-management-of-charity-bins-on-public-land
[10] http://www.nacro.org.au/donating-your-goods/
[11] http://giv.org.au/

and pick up services, and the cohesiveness of neighbourhoods. People donate goods for a variety of reasons, but an intention to assist a particular charity is generally not the primary motivator in large cities. They may be influenced by environmental considerations or a desire to help others, but the available literature suggests that a primary motivation is to clear out unwanted items to make room for additional goods.

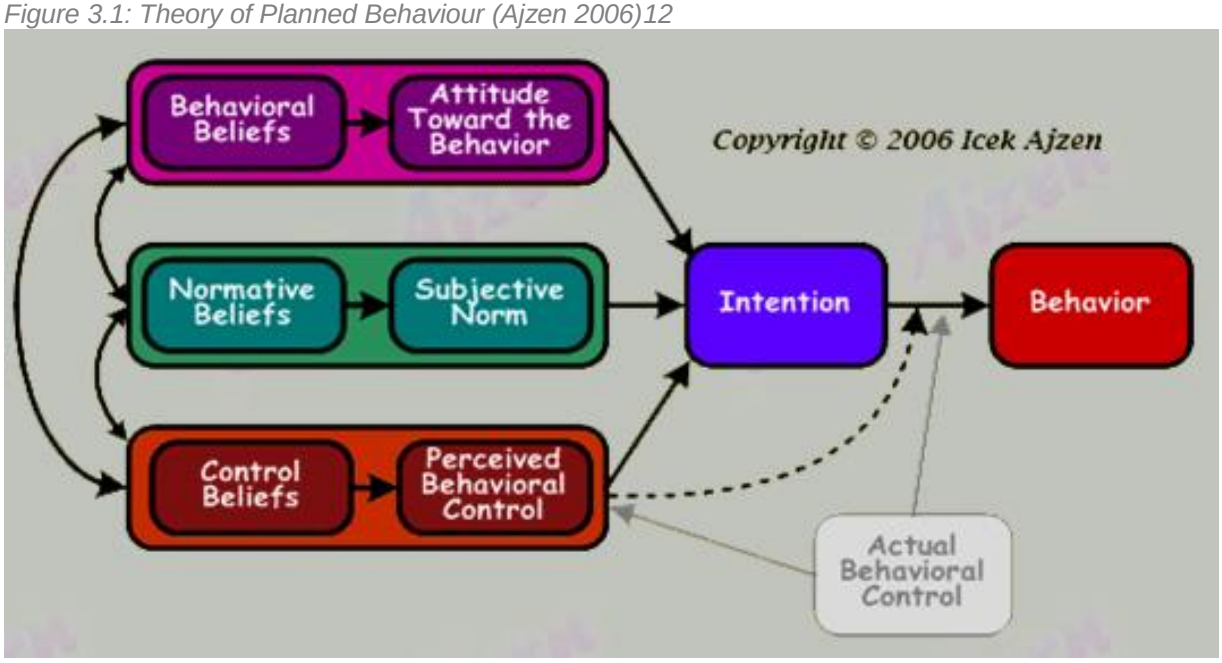
3.0 THEORY OF PLANNED BEHAVIOUR

There are a range of social influences on behaviour that may assist in understanding the decisions and actions of people when disposing of unwanted goods. The impact of social norms is a central theme and studies of social influence have largely been done within the Theory of Planned Behaviour (TPB) (Azjen, 1999) and its predecessor the Theory of Reasoned Action (Fishbein and Azjen, 1975). Both models are founded on the assumption that people behave rationally; in other words, they will consider the implications of their actions prior to fulfilling a behavioural intention.

Within these models, social influence is represented by the concept of subjective norms which "describes the amount of pressure people perceive they are under from significant others" to behave in particular ways (White et al., 2009). The TPB model contends that social norms, in conjunction with an attitude towards the behaviour (a positive or negative evaluation) and the level of perceived control (the extent to which the person feels able to perform the behaviour) are key predictors of behavioural intention, which in turn strongly predicts behaviour (see Figure 3.1 below).

At a deeper level, an individual's attitude, norms and perceived control are underpinned by their underlying beliefs about the world, the community and environment. Attitude is determined by behavioural beliefs about the perceived likely consequences or outcomes of the behaviour, subjective norms are determined by the individual's perception of the normative expectations of other individuals and community groups, and the level of perceived control is determined by the individual's beliefs about the presence of factors that may facilitate or impede performance of the behaviour.

Figure 3.1: Theory of Planned Behaviour (Ajzen 2006)12



The TPB model is widely used in social and consumer research as it provides a useful framework for systematically investigating the determinants of behaviour (Tonglet, 2002). Applying this model to the problem of illegal dumping, we can hypothesise that the more favourable an individual's attitude towards dumping (e.g. it's inevitable that charities will get rubbish put in and around their bins), the more that subjective norms are perceived to support the behaviour (my family and/or friends wouldn't care if I knowingly left rubbish at a charity bin) and the more control perceived (no-one ever gets caught or fined for leaving rubbish at charity sites), the *more likely* it is that people will intend to dump rubbish at charity sites and will ultimately carry out that behaviour.

[12] Figure sourced 21/12/15 from: http://people.umass.edu/aizen/tpb.diag.html and used for non-commercial purposes only.

Conversely, the less favourable the attitude (e.g. there is no excuse for leaving rubbish at charity sites), the stronger the subjective norms against the behaviour (e.g. my family and/or friends would be disappointed in me if I knowingly left rubbish at a charity bin) and the less control perceived (e.g. people can get fined for leaving rubbish at charity sites), the *less likely* it is that people would intend to or actually dump rubbish at charity sites. The model should not be interpreted in terms of a simple linear direction as beliefs and norms can influence behaviour in multiple ways. A key point for the study of illegal dumping is the influence of actual behavioural controls. An individual might arrive at a charity site with the intention to dump, but on noticing specific features of the environment (for example, the presence of CCTV or signage), they might change their behavioural intention at that particular site, but not necessarily their beliefs about the general acceptability of using charity sites to dispose of rubbish.

Nigbur, Lyons and Uzzell (2010) suggest that one shortcoming of TBP is its rather individualistic view of human behaviour, which does not clearly take into account the role of identity in determining behaviour. They explored social aspects of behaviour, including social and self-identities as well as social and personal norms to predict participation in a kerbside recycling program. They found a difference between injunctive norms (the sense that neighbours would expect others to recycle) and descriptive social norms (the perception that neighbours were setting out their recycling boxes for collection) in terms of how they influenced attitudes and hence behaviour. They noted that the descriptive norm was focal and therefore more potent at the time (Nigbur et al 2010, p. 281). The authors suggest one practical application of this finding is that over time there is likely to be convergence "between injunctive and descriptive norms in cohesive groups, including closely known neighbourhoods, is an encouraging mechanism through which behaviour change may become self-maintaining and permanent" (Nigbur et al 2010, p. 282).

A further criticism of the TBP model is the absence of factors such as personality, social circumstances and demographics, which may shape behaviour. Within the literature generally, these characteristics are only considered to influence behavioural intentions indirectly therefore they are not usually included within the model. Nonetheless, there is growing acceptance that such additional variables may be included if they contribute significantly to the explanation of intentions (Tonglet, 2002). With regard to illegal dumping at charity sites, it is possible that personal values such as a commitment to environmental sustainability and recycling or a commitment to supporting the work of charities may shape attitudes towards donating and dumping at charity sites.

In summary, the TPB framework, in conjunction with the literature on donating and dumping, suggests that the factors of social identity, social and personal norms, social cohesion, level of perceived control and attitude towards the issues are helpful for understanding intentions and behaviours around the disposal of unwanted goods in charity bins or at charity stores. To these psychological theories it is helpful to add the impact of social circumstances such as access to a car, access to suitable disposal points, and the time available to make arrangements to dispose of goods. The instruments developed for this research have incorporated each of these factors in order to examine their influence on donating and dumping behaviours.

4.0 UNDERSTANDING THE PROBLEM: THE EXTENT OF ILLEGAL DUMPING IN QUEENSLAND

4.1 Overview

Charity experience indicates that levels of illegal dumping at charity sites have been increasing since about 2011; however, few charities collect data to evidence this trend. This research has sought to establish a baseline for Queensland by examining historical waste data collected by some charities and councils and estimating the extent of the issue and trends over time.

Members of the Charity Reference Group were asked to share any data that they recorded about levels of waste (some do not collect any data) and Cairns Regional Council was able to provide 11 years of waste data collected from four Cairns charities. These data were not always directly comparable, but when considered collectively, the analysis confirmed that levels of waste are increasing overall. Against this trend, some individual charities appear to be experiencing declining levels of waste which may be attributed to the implementation of new waste management strategies. It is estimated that in the financial year 2014/15, Queensland charities dealt with an estimated 8,215.8 tonnes of illegally dumped waste; however, this figure must be treated cautiously due to issues relating to data quality.

Given the difficulty of obtaining sufficient data of sufficient quality for the calculation of an estimate, a key recommendation is that all Queensland charities should commit to recording data about the weight of waste deposited at transfer stations. This minimal investment in data collection will enable charities to better monitor their own experience, and if collated, the information could provide a more accurate estimate for Queensland and evidence about the success of any state-wide responses implemented. A further recommendation is that other Queensland councils that waive tipping fees for charities should follow the lead of Cairns Regional Council and commit to collecting data about the weight of waste deposited and the value of lost tipping fees. This section is structured as follows:

- Data definitions and sources
    - Cairns data
    - Lifeline Brisbane data
    - Endeavour Foundation Brisbane data
    - Link Vision data
    - Vinnies (Western Brisbane Diocese) data
    - Comparison of charity waste levels
- An estimation of the level of dumping in Queensland

4.2 Data definitions and sources

To ensure that the review compared like data, the available data sources were examined closely. Four types of waste data were identified and these are summarised in Table 4.1 below.

Table 4.1: Waste data definitions and sources

CATEGORY	DEFINITION	DATA SOURCES
Bin site waste	Waste collected from outside donations bins	Lifeline Brisbane (this data source also includes some store waste)
Warehouse waste	Waste generated through the donation sorting process at the warehouse	Lifeline Brisbane (this data source also includes some store waste)
Store waste	Waste from store sites i.e. items that have not sold	No charity records this data separately
Total waste	Total waste (combined) from bin sites, stores and warehouse	Cairns Regional Council Lifeline Brisbane Endeavour Foundation Link Vision Vinnies (Western Brisbane Diocese)

Lifeline Brisbane collects the most comprehensive data about levels and types of waste. Lifeline Brisbane began recording and compiling the weekly total weight of bin site waste (waste collected from outside donation bins) and warehouse waste (waste generated through the warehouse sorting process) in 2002. Store waste (items that have not sold at stores) is not recorded separately by Lifeline, and this waste is absorbed into the figures relating to both bin site and warehouse waste. The figures for bin site and warehouse waste can be combined to provide total waste figures for Lifeline Brisbane. This dataset is analysed to examine overall trends in the amount of waste and seasonal fluctuation of waste levels.

Endeavour Foundation Brisbane began recording data about total waste collected in 2006. Endeavour Foundation also calculates waste as a proportion of total donations collected, which provides a slightly different (and useful) perspective on the issue of dumping.

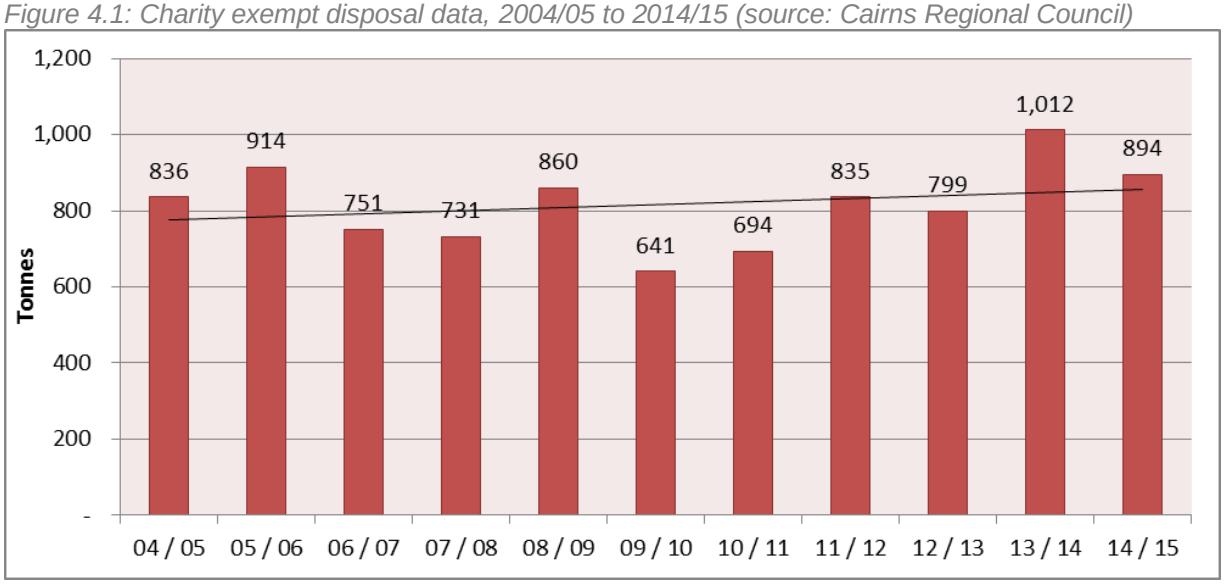
Cairns Regional Council waives tipping fees for Endeavour Foundation, Salvation Army, Lifeline and Vinnies in Cairns. As part of this scheme, the Council collects data on the weight of total waste deposited by these charities at the local transfer station, and calculates the value of lost tip fees.

Two other charities have provided data for analysis. Link Vision has recently started collecting data on the total waste sent to the transfer station each week and has provided data for the 2014/15 financial year along with information about the cost of waste management for the organisation. Vinnies (Western Brisbane Diocese) collected tip receipts for a three month period during the research and provided this information expressed as an average weight of waste per trip to the tip.

4.2.1 Cairns data

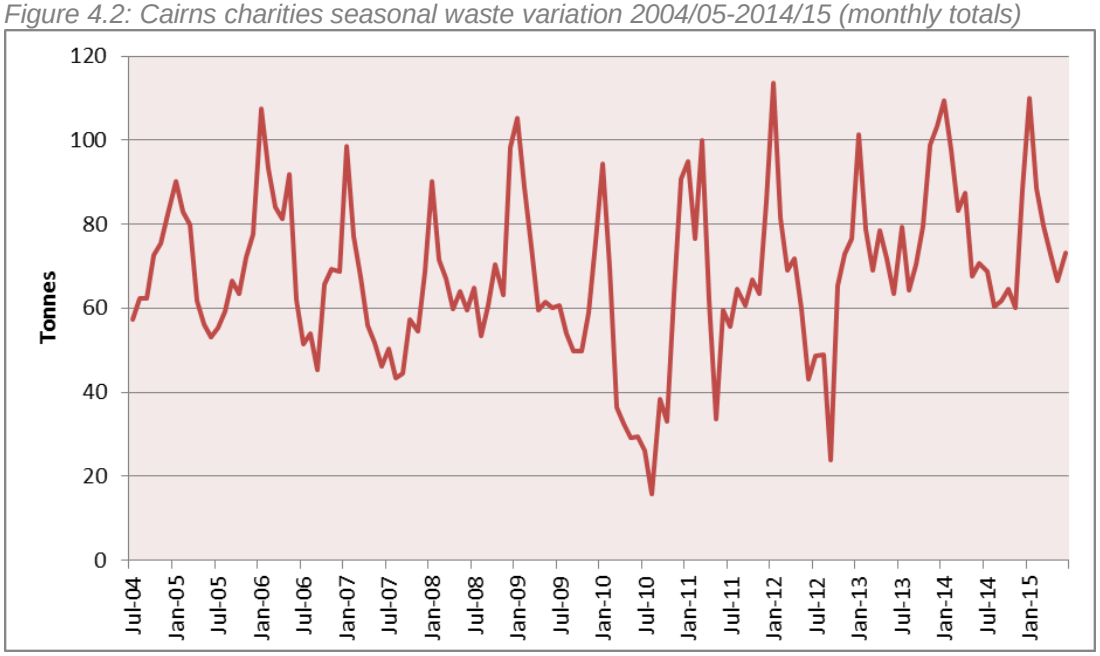
Waste data sourced from Cairns Regional Council covers an 11 year period and presents the total waste from four Cairns charities: Endeavour Foundation, Salvation Army, Lifeline and Vinnies. Over 11 years, the average total weight of waste sent to landfill each year was 815.3 tonnes. The trend line displayed in Figure 4.1 below indicates that waste levels have slowly increased over time. Cairns Regional Council calculates the cost of Council tip fees at $120 per tonne. The total average cost to Council (and cost saving to Cairns charities) therefore amounts to $97,836 per financial year.

Figure 4.1: Charity exempt disposal data, 2004/05 to 2014/15 (source: Cairns Regional Council)



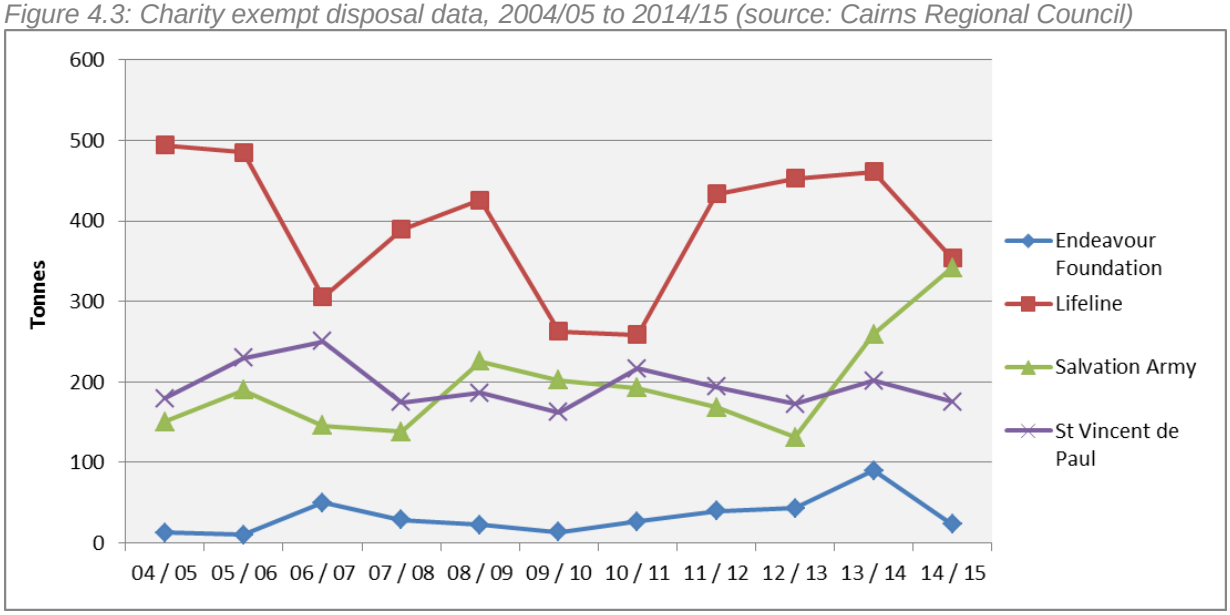
The Cairns Regional Council data was also provided as monthly totals, which means that it is also useful for evidencing seasonal variation with regard to waste levels. In the key informant interviews charity staff were asked about seasonal variation, and most agreed that levels of dumping were worse during summer (especially close to Christmas), during school holidays, after public holidays and after weekends. As shown in Figure 4.2 below the Cairns data clearly evidences summer-winter seasonal variation, with levels of waste spiking in summer (January) and reducing in winter (July).

Figure 4.2: Cairns charities seasonal waste variation 2004/05-2014/15 (monthly totals)



The information provided by Cairns Regional Council was also broken down by charity. This showed that while waste levels are increasing overall, some charities are experiencing a decline in levels of waste (see Figure 4.3 below). These differences suggest that diverse operational strategies for the management of waste and donation sites are likely to influence levels of waste for each charity.

Figure 4.3: Charity exempt disposal data, 2004/05 to 2014/15 (source: Cairns Regional Council)



Lifeline Cairns generates the most waste overall, which is most likely a reflection of the number of bins (25) operated by this charity in Cairns. Waste figures for Lifeline Cairns are trending down slightly. Salvos figures are trending up with a notable jump occurring in 2013/14. By the 2014/15 financial year, the total weight of waste disposed was 341.7 tonnes, which was close to the Lifeline Cairns figure (353.9 tonnes) for the same year. Salvos have removed all of their bins located at shopping centres due to high levels of dumping and now operate 11 bins at three sites only. Vinnies Cairns operates 21 bins in the broader Cairns region. Their figures have remained fairly consistent but are trending down slightly. Endeavour Foundation Cairns has consistently recorded the lowest

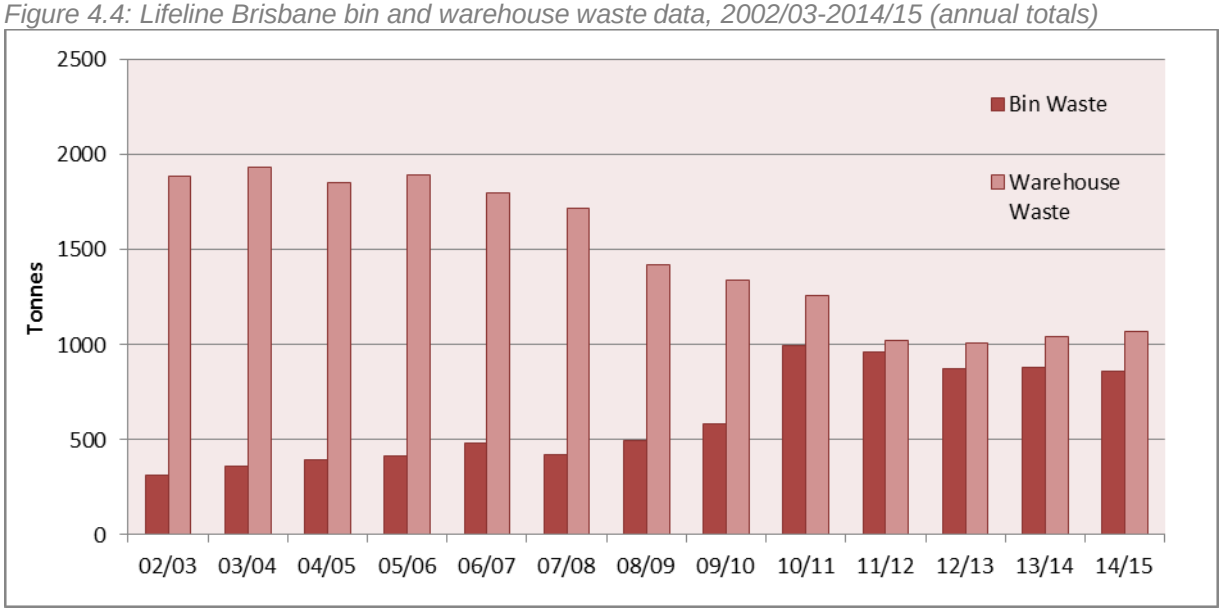
waste figures, but overall, figures have increased slightly since 2004. Endeavour Foundation Cairns operates a total of nine bins across six sites[13].

4.2.2 Lifeline Brisbane data

Lifeline Brisbane waste data is useful because the weight of waste from outside bins has been recorded separately to the waste generated through the warehouse sorting process since the 2002/03 financial year. This is possible because Lifeline's operational strategy for managing waste at bin sites involves the use of a separate truck for the collection of waste. Collection of items at bin sites is clearly delineated between a donation collection truck, which clears donations from inside the bins and removes them to the warehouse for sorting, and a waste collection truck, which clears donations and rubbish from outside the bins and removes it directly to the transfer station for disposal. The weight of waste collected from bin sites can therefore be recorded separately from the weight of waste removed from the warehouse. The waste collection truck also removes some waste from stores; however, store waste is not recorded separately and is incorporated into both the bin site waste and warehouse waste figures.

Figure 4.4 below maps the total Lifeline Brisbane bin site and warehouse waste levels for the last 13 financial years. Levels of warehouse waste have gradually declined, which largely reflects the redirection of some unusable donations to used clothing export markets and recycling outlets. In contrast, levels of bin site waste have gradually increased since data collection commenced. In 2010/11 Lifeline Brisbane experienced a sharp increase in the amount of bin waste collected, and this was attributed to the widespread damage caused by the January 2011 flooding of the Brisbane River. Since this event, bin site waste levels have remained high and in the 2014/15 financial year, a total of 858.7 tonnes of waste was collected from outside donation bins. Lifeline manages a total of 447 bins across 168 sites across Brisbane.

Figure 4.4: Lifeline Brisbane bin and warehouse waste data, 2002/03-2014/15 (annual totals)



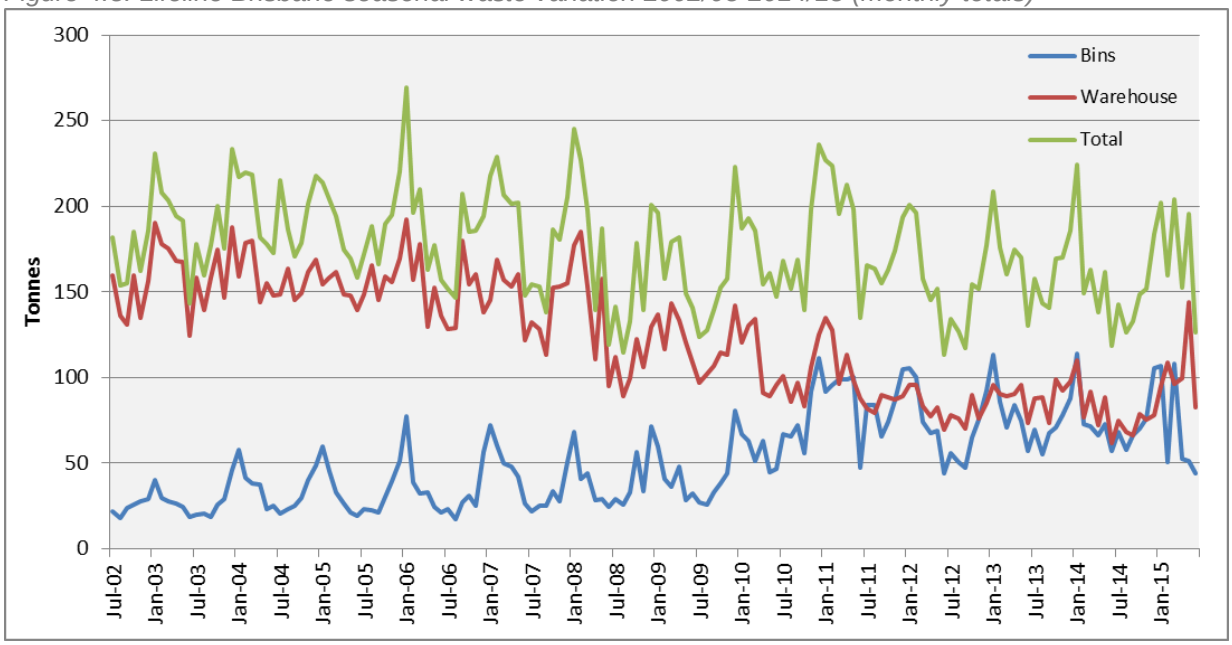
In the 2014/15 financial year, Lifeline Brisbane spent a total of $103,542 managing waste. This cost included all direct expenses and overheads associated with running a dedicated tip truck (fuel, maintenance, depreciation) to collect illegally dumped material and to staff the truck with a driver (salary and employee overheads). In the same financial year, Lifeline spent a further $62,000 for other waste management expenses, including hiring skip bins for waste removal. Lifeline Brisbane

[13] Since these figures were provided by Endeavour Foundation Cairns, one bin has been removed in response to high levels of illegal dumping.

does not pay council tip fees, which at a cost of $119.10 per tonne[14], would have added a further $229,435.43 to the cost of managing waste in 2014/15.

The Lifeline Brisbane data is recorded as weekly and monthly totals. Examination of the data provides further confirmation that illegal dumping is seasonal. As for Cairns (see Section 4.2.1 above) levels of dumping typically drop in winter (around July) and spike in summer (around January) (see Figure 4.5 below).

Figure 4.5: Lifeline Brisbane seasonal waste variation 2002/03-2014/15 (monthly totals)



4.2.3 Endeavour Foundation Brisbane data

Endeavour Foundation Brisbane has collected waste data over the past nine years. Figure 4.6 below maps the total waste collected and Table 4.2 reports the same data expressed as a percentage of total donations. These data show that waste levels were fairly static from 2006 to 2011, but the organisation experienced a sharp increase in the financial year 2011/12, which as for Lifeline Brisbane, reflects the impact of the January 2011 flooding of the Brisbane River.

Waste levels continued to climb to a peak of 710.1 tonnes (43% of total donations) during the 2013/14 financial year then dropped in the 2014/15 financial year to a total of 647.2 tonnes (39% of total donations). According to Endeavour Foundation Brisbane, this recent drop in levels of waste reflects the implementation of multiple strategies to modify bin site management and refocus collections to emphasise high quality donations. This result is very promising; however, it may be too early to determine if this drop is directly attributable to these strategies or is simply an outcome of natural fluctuation. Endeavour Foundation manages a total of 182 bins across 83 sites located in Brisbane and up to Gympie in the north and Gold Coast in the south.

[14] Brisbane City Council tipping fees for commercial operators are currently $119.10 per tonne, source: http://www.brisbane.qld.gov.au/environment-waste/rubbish-tips-bins/waste-recycling-facilities/transfer-stations/waste-vouchers-fees-charges

Figure 4.6: Endeavour Foundation Brisbane total waste, 2006/07-2014/15 (annual totals)

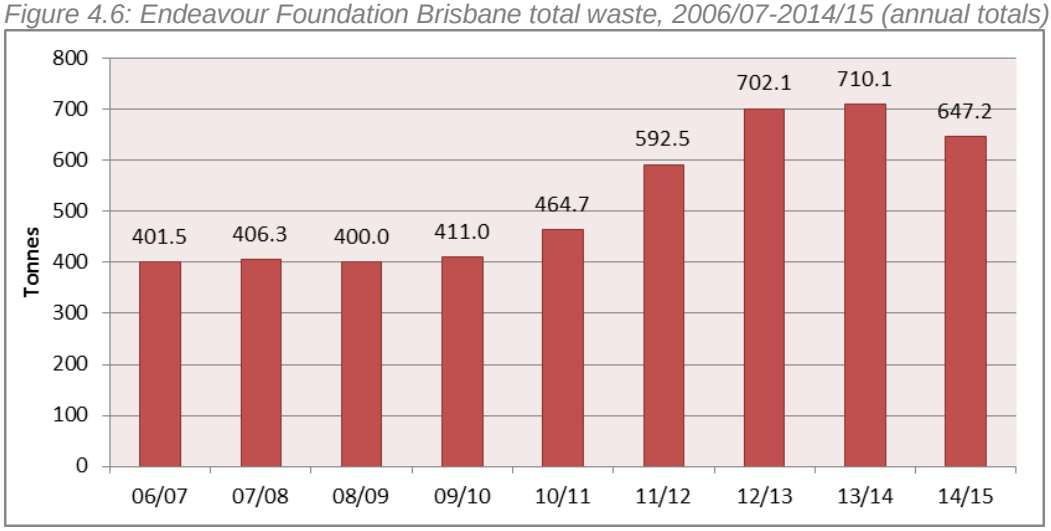


Table 4.2: Endeavour Foundation total annual waste as percent of donations, 2006/07-2014/15

FINANCIAL YEAR	TOTAL WASTE (TONNES)	% OF DONATIONS
06/07	401.5	32%
07/08	406.3	33%
08/09	400.0	34%
09/10	411.0	35%
10/11	464.7	34%
11/12	592.5	40%
12/13	702.1	43%
13/14	710.1	43%
14/15	647.2	39%

4.2.4 Link Vision data

Link Vision commenced data records for waste at the beginning of the 2014/15 financial year and provided data for the complete year (see Figure 4.7 below). At present there is insufficient data to identify trends over time for Link Vision; however, the expected seasonal variation is apparent, with greater levels of waste collected during January and February. Link Vision manages a total of 35 bins across 13 sites in Brisbane.

Link Vision estimates the total annual cost of waste management at $49,850, which includes labour, fuel, depreciation, and other running costs. This amount equates to the cost of fully renovating two of Link Vision's accommodation units. Like many Brisbane-based charities, Link Vision does not pay tipping fees. If it did, at a cost of $119.10 per tonne of waste[15], this would have added a further $15,840.30 cost in the 2014/15 financial year.

[15] Brisbane City Council tipping fees for commercial operators are currently $119.10 per tonne, source: http://www.brisbane.qld.gov.au/environment-waste/rubbish-tips-bins/waste-recycling-facilities/transfer-stations/waste-vouchers-fees-charges

Figure 4.7: Link Vision total waste, 2014/15 financial year (monthly totals)

4.2.5 *Vinnies (Western Brisbane Diocese) data*

Vinnies (Western Brisbane Diocese) collected tip receipts for a three month period during the research and provided information about the average total waste that was dumped per trip to the tip (0.52 tonnes with an average of three trips to the tip per day). This amounts to an average total of 1.56 tonnes waste sent to landfill each day. Expressing this rate as an annualised figure produces an estimation that Vinnies is dealing with approximately 377.5 tonnes of waste per year[16]. However, this rate seems high, when compared with other charities, given the small number of bins operated by Vinnies Western Brisbane Diocese (24 bins at 15 sites across Western Brisbane). More data is required to determine if this figure is representative of the problem for this charity.

4.2.6 *Comparison of charity waste levels*

This review indicates that levels of total waste appear to be increasing; however, some charities have recently experienced a decline in waste levels. In an attempt to compare waste levels across the charities, a waste per bin rate was calculated using the total waste figures for the 2014/15 financial year only (see Table 4.3 below). For the three Brisbane charities for which comparable data were available[17], the rate of waste per bin ranged from 3.6 to 4.3 tonnes of waste per year. This indicates that while the impact of waste is broadly similar across charities in Brisbane, specific operational strategies used to manage donations and bin sites may influence levels of waste for each charity.

Table 4.3: Rates of waste per bin (three Brisbane charities; 2014/15 only)

CHARITY	TOTAL WASTE COLLECTED 2014/15	# DONATION BINS	WASTE PER BIN 2014/15
Link Vision Brisbane	133 tonnes	35	3.8 tonnes
Endeavour Foundation Brisbane	647.2 tonnes	182	3.6 tonnes
Lifeline Brisbane	1926.4 tonnes	447	4.3 tonnes

Applying the same methodology to the data from Cairns charities produces a waste per bin rate that varies wildly, from 2.6 to 31.1 tonnes per year (see Table 4.4). These data indicate that illegal dumping may operate differently in Cairns. Some Cairns charities may simply attract higher levels of dumping than other charities. Further, some charities in Cairns experience high levels of dumping outside store sites (even after bins have been removed) which may inflate the total waste figure when

[16] This figure was calculated as: 1.56 tonnes multiplied by 242 days (356 days per year, minus weekend days (104 days) and public holidays (10 days)).
[17] Data from Vinnies Western Diocese was excluded due to concerns regarding data accuracy, see Section 4.2.5.

the number of bins is used as the proxy for the size of the charity. More investigation of the dynamics of illegal dumping in Cairns is required to understand these apparent regional differences.

Table 4.4: Rates of waste per bin (four Cairns charities; 2014/15 only)

CHARITY	TOTAL WASTE COLLECTED 2014/15	# DONATION BINS	WASTE PER BIN 2014/15
Lifeline Cairns	353.9 tonnes	25	14.2 tonnes
Endeavour	23.2 tonnes	9	2.6 tonnes
Vinnies	175.3 tonnes	21	8.3 tonnes
Salvos	341.7 tonnes	11	31.1 tonnes

Responding proactively to illegal dumping is expensive (see Section 5.3), and charities rarely collect data systematically in order to monitor the impact of any strategies that are implemented. As part of future investment in site-specific strategies to address dumping, it is recommended that charities consider collecting systematic data about levels of waste prior to the implementation of strategies, and continue to collect this data following implementation. It could be difficult for charities to collect weight and volume data for individual sites, but data collection could involve taking a photograph of the site each day so that levels of waste can be compared visually over time. Ideally, charities would then share information about the strategies they have implemented and trialled, along with collated evidence about the success of these approaches.

4.3 An estimation of the level of dumping in Queensland

The datasets provided for this analysis reflect the problem well for individual charities (especially where data have been collected over a number of years) and for charities in the Cairns Region in particular, but calculating an overall estimate of the extent of illegal dumping for Queensland has been hampered by a lack of data. Table 4.5 below presents a best guess, using total waste figures only (as this is the only data that is comparable across charities) and selecting the figures for 2014/15 financial year only, as this was the year for which the most complete data were available.

Table 4.5: Estimation of total waste, Queensland 2014/15

REGION	POPULATION (ADULT)	TOTAL WASTE 2014/15	WASTE PER ADULT
Cairns	161,765[18]	894.2 tonnes[19]	0.0055277 tonnes/adult
Brisbane	1,369,813[20]	3084.1 tonnes[21]	0.0022514 tonnes/adult
Combined Brisbane & Cairns	1,531,578	3978.3 tonnes	0.0025975 tonnes/adult[22]
Queensland	**3,162,958[23]**	**8,215.8 tonnes (estimated)**	-

[18] This figure represents the Cairns (Statistical Area Level 4) adult population (20 years and over) collected in the 2011 census, source: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/306

[19] Combined total waste for 2014/15 for four Cairns charities (Lifeline, Endeavour Foundation, Salvos and Vinnies). This total figure may under-represent the problem for Cairns as waste data from other charities operating in the same industry were not available.

[20] This figure represents Brisbane (Urban Centre and Localities) adult population (20 years and over) collected in the 2011 census, source: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/UCL301001?opendocument&navpos=220

[21] Combined total waste for 2014/15 for three Brisbane charities (Lifeline, Endeavour Foundation, Link Vision), with the annualised figure from Vinnies (Western Brisbane Diocese) added. This total figure significantly under-represents the problem for Brisbane as waste data were not available for Salvos, Vinnies (Eastern Brisbane Diocese) and other major charities that operate in this industry in Brisbane, such as Red Cross and the RSPCA.

[22] This figure is calculated as 3978.3 tonnes divided by 1,531,578 adults.

[23] Queensland adult population (20 years and over) collected in the 2011 census, source: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/3?opendocument&navpos=220

Waste figures were added together to determine total waste figures for Brisbane and Cairns and these totals were divided by the adult population (20 years and over) of the same cities to arrive at a rate of waste per person. This rate was multiplied by the total adult population of Queensland to arrive at an estimated total waste figure of 8,215.8 tonnes for Queensland for 2014/15.

This estimated total waste figure must be treated cautiously. The total waste figures used are likely to under-represent the problem to an unknown degree because many more charities operate in the charitable recycling sector than the few that were able to provide waste data (especially in Brisbane). Further, the extent of dumping at charity sites in rural areas is likely to be over-estimated. The calculation assumes that donation and dumping behaviours and levels are similar across urban and rural areas, whereas it is reasonable to expect that dumping at charity bins would be less problematic in rural areas. This is because charity bins are less common in rural areas and the disposal of rubbish and unwanted items may operate differently there (for example, rubbish can be burned, and larger properties enable greater space for storage).

Nonetheless, although rough, the estimation does establish that illegal dumping at charity sites is a significant problem in Queensland. To put the problem into perspective, in 2015, local governments in Queensland managed a total of 10,900 tonnes of illegally dumped waste at a cost of $18.7 million[24] (Department of Environment & Heritage Protection, 2015). If Queensland charities are managing approximately 8,000 tonnes of illegally dumped waste per year, then this represents a sizeable cost saving for local governments across the state. The two local governments covering the areas included in the research (Cairns and Brisbane City) both waive tip fees for charities, largely in recognition of the savings to council generated by the charitable recycling sector. Not all local governments waive tipping fees for charities.

Unfortunately it was not possible to calculate an estimated total cost for Queensland charities to manage illegal dumping. The detailed cost information provided by two Brisbane charities did not appear to align, as expected, with the size of the charity (e.g. number of bins and number of bin sites). It is likely that these charities use different methodologies to calculate costs, which made an estimation of total cost for Queensland unfeasible.

This attempt to develop an estimation of the extent and cost of illegal dumping in Queensland highlights the importance of collecting data to evidence the problem. A key recommendation from this report is for charities to commit to collecting and recording basic data about waste levels. For most charities, calculating bin site waste separately to warehouse waste will not be possible because waste is not separated in this way. However, recording total waste per week would be possible by collecting tip receipts each time waste is taken to a transfer station. Alternatively (or in addition), Councils that waive tipping fees for charities could follow the example of Cairns Regional Council and record the weight of waste and the value of lost tipping fees. More work is required to develop a common approach to estimating the cost of managing illegal dumping.

[24] No further information regarding this figure (e.g. data sources and method of calculation) is provided in the DEHP (2015) report.

5.0 UNDERSTANDING THE PROBLEM: THE IMPACT OF ILLEGAL DUMPING IN QUEENSLAND

5.1 Overview

This section reports on the findings of interviews with charity staff in Brisbane and Cairns. The interviews focused on the financial and non-financial impacts of illegal dumping. Financial impacts include the costs associated with reactive measures for managing waste (such as staff and equipment overheads for clearing waste) and preventative measures for preventing dumping (such as installation of signs, fencing and CCTV). Estimates of the cost of illegal dumping varied widely, from approximately $50,000 per year to $250,000 per year.

The non-financial impacts of illegal dumping are no less significant. Participants spoke about feelings of frustration, anger and disappointment about having to deal with an issue that takes their focus away from their core mission. Health and safety risks are a frequent source of stress, as handling dumped items can be hazardous. Concerns were also raised about the environmental impact of illegal dumping, particularly for charities that lack the resources and knowledge to engage with recycling operators. Participants often talked about distinct groups of donors characterised by different degrees of respect and personal responsibility. These groups aligned well with the profiles identified in the analysis of survey data: Champion Donor, Unintentional Dumper and Deliberate Dumper (see Section 6.6).

This section begins by describing the interview methodology and the process of recruiting participants. The key findings are reported as follows:

- The financial impact of dumping for charities
- The non-financial impact of dumping for charities
- Understanding the problem of dumping and donating behaviours
- Charities response to dumpers

5.2 Key informant interview methodology

The key informant interviews (tool located in Appendix B) were designed to be semi-structured. Basic demographic questions were included, but the remaining questions were open-ended, encouraging participants to talk conversationally about their experience of illegal dumping. Specific questions were asked about the financial and non-financial impacts of dumping (such as staff morale), and the impact of strategies used by the organisation to try and combat dumping. Staff understandings of donating and dumping behaviours at charity bin and store sites were also explored. In addition to this, interviewees were asked about the times and days when dumping is likely to occur, and the best and worst sites for dumping. This information was used to inform the site audits (see Section 7).

Interviewees were recruited through a snowball sampling method. A contact person from each charity was asked to nominate individuals who could be approached to participate. Additional interviews were then sourced by asking those nominated to identify further staff who might be interested. A total of 26 people working in Brisbane and Cairns charities took part in either a face to face or telephone interview, each lasting for approximately 30 minutes.

The sample of 26 employees and volunteers who took part in this project held varying occupational roles, which enabled a broad perspective to be collected. As shown in Table 5.1 below, 15 of the 26 interviewees held some type of senior position. The remaining 10 interviewees were in non-senior positions and worked either as truck drivers (pick up/drop off/rubbish collection) or held positions within the capacity of volunteer, administrative or store and warehouse workers. The participants all had relatively long experience working within their organisations with the average length of service ranging from 5-12 years. The most common age range was 55-64 years and 10 women and 16 men participated.

Table 5.1: Interview participant characteristics

ROLE	NUMBER INTERVIEWED	AVE. LENGTH OF EXPERIENCE
Warehouse Managers and Supervisors (including recycling)	7	9 years
Retail Managers (including Store and Area Managers)	4	7 years
Regional Managers	2	9.5 years
Transport/Logistics Supervisors and Coordinators	2	5 years
Collection Truck Drivers	7	12 years
Other (e.g. Administration; Volunteer)	4	7.6 years

5.3 The financial impact of dumping for charities

Charities are both proactive and reactive in dealing with illegal dumping. The following section provides an overview of costs associated with the financial impact of managing illegal dumping.

A number of prevention (proactive) strategies have been implemented by charities to prevent illegal dumping by discouraging problematic behaviours. For example, charities have taken the initiative to develop signage warning members of the public not to leave items outside charity sites. This is illustrated below:

> *We as a company…now [have]…big laminated sign[s] explaining to people why they should not dump, and there is a cost dollar on that sign telling them that it is very expensive for us to remove the waste from our premises (Store Manager).*

While some charities have found signs to be a useful strategy, others found that their effectiveness was limited. For example, one Volunteer stated:

> *[They are successful] up to a point, yes. There are people who ignore the signs all together.*

Speaking further about the use of signs, one Driver drew attention to the lack of sustained success they have in preventing illegal dumping, stating:

> *…they put that sign on the wall, right next to the bins…three weeks after that sign went up, I had no rubbish, whatsoever. Now, I'm continually picking up rubbish, there.*

Strategies that have minimal success ultimately have a greater financial impact on charities as they cost money to implement, and do not effectively reduce the problem. However, charities are put in a position where they must take the initiative and experiment with various strategies because not addressing the issue undoubtedly poses far greater costs.

In addition to signs, charities have implemented strategies such as fencing and CCTV. These strategies, which are particularly costly, have proven to be quite successful:

> *That fence is there…it used to take us three hours to get in here in the morning because people dumping all the rubbish outside the warehouse there. So once we put the fence up, that was great, [it] stopped all that (Regional Manager)*

CCTV was identified as a strategy that only some charities implemented. One Warehouse Supervisor stated about the use of CCTV:

> *…that is where the security camera comes in, because you cannot catch them, if you are not there.*

Unfortunately, the cost incurred from installing CCTV limits its use for most charities. Even if it is implemented, the use of CCTV does not guarantee success in regard to prosecutions. These

preventative measures are costs which charities are forced to absorb in order to deal with illegal dumping. However, the success of these strategies is not guaranteed, and certain strategies that are successful are too costly to implement at all charity sites.

In addition to preventative measures, charities also spend additional money to deal with the waste they receive (reactive strategies). These costs are accrued in various ways. Some charities have specialised trucks, known as tip-trucks, to collect waste from their sites. One Warehouse Manager estimated that these trucks cost around $100,000 per annum to run, stating:

> *We are paying truck costs…fuel costs…vehicle maintenance costs.*

One Driver whose job it is to collect waste (although not all of this is from illegal dumping) from charity sites stated that his wage is around $40,000 a year. In addition to this, some charities operate over the weekend to manage the amount of waste they receive. For example, one Driver stated:

> *We have a roster system here… [we have]…a roster for…Sundays* [Interviewer: "why do you clear sites on Sundays?"] *…they started doing it Sunday…because if you do not go certain days, what happens is you will be out here with two people, and…there is so much stuff that goes out, and then what happens then, they [members of the community] open all the bags…You come in on Monday, and…everyone [has gone] through everything.*

Drivers also work additional hours over the holiday period as illustrated below:

> *In between Christmas and New Year, which is when we are picking up the most rubbish, that Driver has to work for those three days just to pick that rubbish up. We are paying that guy for three days just to pick up rubbish (Warehouse Manager).*

One Regional Manager estimated the total of these costs as follows:

> *I figured a while back it was costing me just under $250,000 a year to pick up stuff on Saturdays and Sundays, pay wages and run trucks*.

There are additional costs involved in dealing with illegal dumping. For example, staff and volunteers who clear illegal dumping must be equipped with personal protective equipment for their safety. In addition to this, charities spoke about the loss of time spent clearing illegal dumping from their sites, as explained below:

> *…leaving stuff right at your front door …it is so hard to even move…get the shop open to keep on doing what [we do] (Retail Manager).*

> *…on Mondays it could - and Fridays, it could take a couple of hours' work just to clean the rubbish up (Driver).*

Clearing illegal waste from charity sites is critically important to charities, as some indicated they had lost bin sites as a result of complaints made to the local council. One Driver stated:

> *…we do spend hours cleaning it up and taking it to the dump. The biggest impact is losing bin sites. The rubbish congregates, people complain, and the council tells you to take the bins away.*

This presents a significant financial impact for charities as the loss of bin sites reduces the amount of donations collected which has a flow on effect to the amount of income generated through charity stores. Charities are also concerned about the impact that dumping has on the way the broader community views them, and the possibility that this might reduce donations, creating long-term financial impacts. This is explained in the following statement:

> *…it has a reputation issue associated and a social stigma as a result of that as well, because people just see crap dumped there and that is not a good thing. They are…reluctant then to want to donate because they see the certain element of our community that are clearly doing*

the wrong thing. They see the end result of that and that is a visual image that sticks in people's mind (Regional Manager).

The total financial costs of illegal dumping for charities may potentially be greater than direct costs associated with equipment and staff overheads, as dumping may also deter future donators. Further non-financial issues negatively impact on charities and these are discussed below.

5.4 The non-financial impacts of dumping for charities

As well as financial impacts, dumping also has a number of non-financial impacts for charities, including emotional impacts, health and safety hazards, charities feeling victimised or disrespected by dumpers and environmental impact. Each of these is discussed below.

Charities equip their employees and volunteers with personal protective equipment to clear dumped waste at sites. However, there are still dangers around handling this waste. Interviewees shared their apprehension about the hazards of clearing waste, stating:

…you have to wear gloves, you can cut yourself, you can get jabbed with needles possibly (Driver).

…we have actually had someone who has pricked herself with a syringe. That was just in general donations (Warehouse Supervisor).

Other issues include the physical strain of clearing sites, which depending on the amount of rubbish present, can take hours to complete. One Retail Manager talked about having to clear large furniture items from the front of her store, stating:

…we might get to work and there might be a couch and a fridge there. It is me and just a lady.

The physical toll of clearing illegal waste is particularly concerning for older volunteers. This is demonstrated in the statement below:

It is heartbreaking watching some of our elderly volunteers be subjected to the overwhelming task of cleaning it up…we do not have the resources of paid staff to go to each store and help, so it is incumbent upon the volunteers (Operations Manager).

In addition to this, charities spoke about the emotional impact that dumping has on staff and volunteers. Staff and volunteers experience a range of emotions in response to illegal dumping. Some spoke about not being greatly affected by dumping, but recognised the impact it had on their colleagues. For example, one Driver commented:

It does not really bother me. But I know there are people that are involved with the rubbish…they get mentally depressed or angry.

Another Driver commented about the emotional impact that dumping specifically has on him:

I think it makes you quite angry at times that you try to keep your bin sites clean, and … some filthy person's come along and dumped all their garbage there. It just annoys you.

Adding to this, a Regional Manager commented about the impact dumping for his staff and volunteers:

They know the good work that they are doing, so there is nothing more demoralising than arriving at a site and just seeing garbage dumped there.

This sentiment is shared by a Volunteer who expressed his frustrations about having to deal with waste:

You come here to try to help make a difference in people's lives by being able to recycle through the shops second-hand goods. You do not want to be dealing with collecting rubbish.

An emerging concern among charities is that illegal dumping can negatively impact on how staff and volunteers view the work they do. For example, two interviewees stated:

…some days, you go out there and you wish to God you had stayed in bed (Driver).

A lot of them [volunteers] question why they are here and what they are doing (Retail Manager).

Some charities shared their concern about losing volunteers as a result of dumping. This is illustrated in the statement below:

Coming into a backyard of rubbish, unable to get to our back gate day after day, causes a lot of angst. It is disheartening. Who knows? We may have lost volunteers over that sort of thing. Just gets too much. People who work here have a heart for what they are doing, and when someone else is dishonouring that, it is I guess impacting them mental health-wise and things like that (Retail Manager).

Many charities expressed a sense of frustration about a lack of respect from members of the community who illegally dump. Such individuals were characterised as demonstrating an indifferent attitude to the work that charities do, and a total lack of concern for their time and resources. A Transport and Logistics Supervisor stated:

Everybody knows what we are and what we do. But there is still that small percentage who decides that they want to treat us with disrespect.

Charities spoke about this lack of respect as sometimes being particularly blatant. For example, a Warehouse Supervisor stated:

We get literally bags of garbage. Bags of kitchen waste. They have just been too lazy to chuck it in the bin. They have just walked past and thrown it in the [donation] bin, and it is literally garbage.

This feeling of disrespect was shared by a Retail Manager who believes that some individuals take advantage of charities and the role they play within the community:

…you are a charity so you probably will not make too much noise about it. You have got to be nice to everybody because you rely on donations, what is your problem?

This suggests that individuals in the community believe that charities are powerless to do anything about dumping, and are able to get away with this behaviour. In addition to charities feeling as though they are not respected, they also identified dumpers as having a lack of respect for people in need who access their services. This is demonstrated below:

It is amazing the feedback you get – "this will be good enough to give to the people that have nothing", even if it is a torn couch. We do not give torn couches to the needy because they need to be treated with respect and dignity (Retail Manager).

Unsurprisingly, charities feel undermined by this lack of respect demonstrated by some members of the community towards them and the people they support. One Store Manager spoke about the need for the community to be more aware of the work that charities do and how donations are used to generate income for the provision of services. He states:

I think we need to educate them on why we need that support, why we are raising these funds.

In addition, charities discussed the environmental impact of illegal dumping. For example, pests, such as rats, were identified as a common presence around bin and store sites as a result of dumped

waste. Toxins such as engine oil are also known to be dumped at charity sites. Charities attempt to recycle much of the waste that they receive, such as plastic bags, clothes and metals. However, not all charities have the facilities, resources and time to do this with the result that some recyclable items end up in landfill. For example, one interviewee described how the expense of recycling combined with a lack of awareness about how to find an appropriate recycling operator affected their ability to reduce the environmental impact of illegal dumping:

> *I tried to get the paper people, but they wanted to charge me and we cannot afford to do that … do you know what else would be great? To get rid of the plastic shopping bags that everyone donates in. If I could find an outlet for that, we would have hardly any rubbish (Warehouse Supervisor).*

When solutions to recycling are found, these strategies are not always sustainable long-term. For example, one charity stated that they had developed a partnership with a private company to recycle cardboard at no cost to them. However, if this arrangement broke down, the charity would find it difficult to continue this activity.

5.5 Understanding the problem of dumping and donating behaviours

In order to explore the ways that charities constructed the problem of dumping and dumping behaviours, interviewees were asked why they think people dump at charity bin and store sites. Responsibility emerged as a key theme that underpinned responses to this question.

Charities identified the ability or desire for individuals to take personal responsibility for their actions as a key factor influencing their donating and dumping behaviour. In these discussions, charities suggested that there are three main groups that demonstrated differing levels of responsibility (including a lack of responsibility) in the way they donate or dump at charities. The characteristics of these groups are summarised in Table 5.2 below and discussed in further detail in this section.

Table 5.2: Types of donators and dumpers (charity definitions)

TYPE	CHARITY DESCRIPTIONS OF BEHAVIOUR
Champion Donor	Responsible donator who is educated about donating processes. Does not solely rely on charities to dispose of unwanted items.
Unintentional Dumper	Genuine donators who lack awareness of how to donate appropriately. Factors which might influence the behaviour of this group include: leaving items outside bins or stores because of *convenience*, or perceiving this behaviour to be *normative* (Deliberate Dumpers are also influenced by this behaviour)
Deliberate Dumper	Dumping behaviour may be a result of: laziness, convenience (time) or unwillingness to pay tip fees. This group lacks respect for charities and those who access the services of charities.

The Champion Donor is identified by charities as a responsible individual that donates appropriately. These individuals are able to employ various strategies to dispose of unwanted items, rather than relying on charities as the only channel for this. For example, one Warehouse Supervisor suggests that young people in particular are able to access alternative channels such as GumTree (a site where individuals can buy, sell, trade or give away items) to dispose of unwanted items, particularly for items which may not be suitable for charities.

Another type of donator is the Unintentional Dumper who, unlike responsible donators, lacks awareness about appropriate donating behaviour. Unintentional Dumpers are individuals who may leave items outside charity bins, or donate items that are not suitable such as electrical items or items that need to be repaired. One Driver stated about this group:

> *A high percentage of it is (people) think they are doing the right thing. It is probably a small minority that dump a lot of actual rubbish and unusable items.*

A number of key factors were identified as influencing the behaviour of Unintentional Dumpers. Unlike Champion Donors, charities recognise that not everyone has the ability to employ various strategies for disposing of unwanted items. For example, certain members of the community, particularly older people, may lack awareness of alternative methods for disposing of unwanted items (including internet based options) and they may donate items that are not suitable for charities. This is suggested by one Warehouse Supervisor who states:

> *I will have people come here with something that is perhaps unsuitable and I will say, 'put it for free on Gumtree' – a washing machine or a fridge that's working – 'someone will come and get it'. They are like, 'oh, thanks for that'. So, maybe older people are unaware of it.*

Unintentional Dumpers may have good intentions about donating items but certain factors can cause them to donate inappropriately. For instance, one Driver stated that if the bins are full (particularly during holiday season), people may leave items outside charity bin sites. Indeed, seven of the 26 interviewees argued that some Unintentional Dumpers may believe they are doing the right thing by donating quality items; however, their method for donating (leaving items outside of bins) is inappropriate.

It was also suggested by charities that individuals who begin as genuine donators may dump as a result of factors that they view as beyond their control, such as time pressures and encountering a full bin. For example, a Driver states below:

> *A lot of people…probably have the right cause, in their heart, but when they get there and it is full (bin), they probably just do not want to take an hour and do it, again. So they just dump it, and leave it there.*

Overall, Unintentional Dumpers are viewed by charities as a group of genuine donators who do not always display responsible ways of donating. While this group may not intend to create problems for charities (through illegal dumping), their actions ultimately impact on charities who are left to deal with waste left at their bin and store sites. Furthermore, items placed outside bins that may have once been useful, can become damaged or stolen diminishing the original intentions of this group.

The third group are identified as Deliberate Dumpers, who do not attempt to take any type of responsibility for getting rid of unwanted items appropriately, and often donate poor quality items and rubbish. Most interviewees spoke of these individuals as being the minority. As one Transport and Logistics Supervisor stated:

> *I maintain that 99.5 percent of people who put stuff in our bins are genuine donators. It is that 0.5% who treat us badly*.

Charities believe that what separates Deliberate Dumpers from Unintentional Dumpers is that Deliberate Dumpers do not have good intentions, and in fact they are often selfish. This is illustrated by a Retail Manager:

> *They do not think about the environment, or people that have to sort through it, or how it affects the streets if you leave stuff out overnight. They are just being…really self-centred*.

The overwhelming consensus among charities was that this group dumps as a result of two main factors: laziness or convenience, and an inability or unwillingness to pay tip fees. Of the 26 interviewees, 17 suggested that individuals will deliberately dump because it is quick (time might be an issue for this group) and because charity sites might be closer than their local dump. In addition, 12 interviewees suggested that individuals will deliberately dump because of economic reasons (lack money for the tip), or as a means to avoid paying tip fees. Many interviewees felt that dumping would not occur if tip fees were waived, as illustrated by the following comment from a Regional Manager:

> *All they are trying to do is avoid the cost of taking it to the tip … none of us had this problem when dumping was free. The moment the decision was made to charge for waste removal, illegal dumping just exploded … in many cases people will clearly go out of their way, will drive past a waste transfer station to illegally dump.*

The idea that individuals dump at charities sites to avoid dumping fees is shared among other interviewees. For example, one Warehouse Supervisor described an experience where an individual brought items to a charity warehouse and stated they came to the warehouse because they did not want to pay tip fees. While these items were suitable for donation, this experience is interesting because it offers insight into an attitude of Deliberate Dumpers: that if they do not want to pay tip fees, they can take their unwanted items to charities. In Brisbane, ratepayers are provided with free tip vouchers every year for each of their properties, but it is incumbent on them to pass these onto their tenants, which may not occur in all cases.

Surprisingly, there were a number of participants who talked about experiencing confrontations with dumpers. A Warehouse Supervisor role played a typical situation:

> *They will get defensive and say, "well, it was good enough for me. What is wrong with you?" What is wrong with me is that this is rubbish and you need to take it to the tip. [Deliberate Dumper]: "well, I am here, now. And you can take it to the tip for me".*

It was also suggested by charities that people may deliberately dump because it is seen as acceptable (it should be noted here that Unintentional Dumpers may also leave items outside of bins because others have done this). Three interviewees spoke about a perception in the community that dumping at charity bin and store sites is normative:

> *Every single day, they look over and they see that around the bins there is rubbish. So it is taken into a mental thing that that is acceptable … So without thinking, without anything else, they do not see anything else, they just know that every day, four days out of five, or three days out of five, there is rubbish there. That's acceptable (Administrative Support).*

Charities spoke about clearing sites as quickly as possible as a strategy to prevent illegal dumping and normative beliefs from forming. However, this can become quite difficult during the holiday period and over the weekend when dumping is most likely to occur.

While the majority of interviewees spoke about laziness or convenience and economic reasons as contributing to illegal dumping, a few interviewees spoke about factors beyond the control of individuals as influencing their behaviour. For example:

> *…you have got people that have had a loss … or they are being abused, they have just got to get out, they cannot think straight (Administrative Support).*

Within the Deliberate Dumping group, this employee suggested that there are complex triggers for dumping. For instance, she further stated that while there are those in the community who "just could not care less, and they will dump whatever", there are those who "get to the point emotionally in desperation…they do not know what to do".

Nevertheless, illegal dumping, no matter the cause or trigger, can have a number of negative effects on charities and their employees and volunteers as previously discussed. As result of these broad financial and non-financial impacts, charities have utilised a number of strategies to reduce dumping, which are discussed below.

5.6 Charities response to dumpers: Education, respect and accountability

As the discussion above suggests, dumpers are a heterogeneous group that require tailored responses. Education was a common theme in discussions concerning Unintentional Dumpers. Here, charities specifically spoke about this group as requiring greater awareness and understanding about appropriate donating methods, as well as about the types of items that are suitable for charities. For example, one Driver stated:

> *You can reduce it by educating people … dumping is not pretty. It's dangerous, it's hazardous*.

Indeed, discussions with charities show that they are altering the way they receive donations so as to encourage individuals to be more responsible for their donating behaviour. For example, one charity asks that people bring their donations into the store and only use the bins after hours. Once in the store, this charity directs donators to sort their items into large crates according to donation type (for instance, one crate for clothes, and one for breakables), and will reject items that do not meet their standard. This process helps donators to become more educated about donating practices and aware of the standard of items that charities can sell.

Some interviewees specifically discussed the responsibility of charities in responding to dumping. This is demonstrated in the statement below:

> *I've been doing this for years now – replacing our older bins with new bins … we found that if you have old, ugly, daggy-looking bins out there, then they're more likely to be dumped upon than what a nice, new bin would be (Transport and Logistics Coordinator).*

This suggests that charities recognise that in order to encourage positive donating behaviour, they also need to take responsibility for educating individuals about donating or how they present their donating bins to the community.

In comparison, accountability and respect emerged in discussions about specifically changing the behaviour of Deliberate Dumpers. Charities identified accountability as particularly important to addressing the behaviour of this group. A shared belief among charities is that where there is a lack of accountability, dumping is more likely to occur. Charities identified weekends as particularly problematic as charity stores are typically closed and a lack of presence can encourage individuals to dump without being seen.

Interviewees identified a number of factors that might encourage accountability: surveillance (both natural, e.g. foot traffic, and formal, e.g. CCTV), prosecution, signage about fees for dumping, and visibility (e.g. positioning bins so that individuals who intend to dump are likely to be visible to others). One Regional Manager speaks below about the success his charity has had at a bin site located at a shopping centre where dumping had previously been a problem:

> *We have just mitigated that through a discussion with centre management, because the bins were actually located on the footpath, on council property, out the front of the shopping centre, and people were treating that as a massive dumping group. We have had car batteries, furniture, mattresses, just garbage … In discussions with the centre management we have agreed to take the bins onto their property. They put a loading zone and blacked out a designated area for us. We put it under lighting and right in front of security cameras … immediately that dropped the illegal dumping significantly because all of a sudden we're on private property, people are aware that there are security cameras.*

While these changes did not prevent dumping all together, it has greatly reduced the level of dumping this site previously received. However, charities spoke about the difficulties they experience in holding people accountable for their actions through prosecution. As one Driver stated:

> *The law is you have to be seen and proven … so unless you catch somebody in the act … I do not think you can do anything … I think the law protects them.*

Some charities had experienced some success with prosecutions, but this was not typically the case for most charities.

5.7 Final comments

These findings have revealed that the cost of illegal dumping impacts greatly on the operational practices of charities. Financial costs include preventative measurements such as signage and CCTV to deter would be dumpers. These types of strategies are not always effective and are quite often expensive to implement. Nonetheless, charities are forced to take a proactive approach as a way to moderate the occurrence of dumping. Reactive measures are financially costly and include the use of specialist trucks designated to collect rubbish from charity sites, staff overheads to sort waste from

genuine donations, and additional hours spent clearing waste during the holiday periods when dumping is at its peak. Illegal dumping also has a number of non-financial impacts that highlight the insidious nature of the problem. Feelings of anger, disrespect, and dismay are typical emotional responses among staff and volunteers. Health hazards, such as the risk of physical injury from lifting heavy objects dumped at charity sites have become day to day concerns for staff and volunteers.

Environmental sustainability is important to charities but limited resources and knowledge of key stakeholders in this field can mean that charities struggle to meet this obligation, resulting in bigger environmental impacts. Illegal dumping can also produce social stigmas around donating that potentially reduce the number of donations that charities receive, and consequently their ability to make a profit from these donations. Additional loss of revenue has also occurred from the removal of donation bins as a result of community complaints about constant dumping at charity sites.

These are the multiple impacts of illegal dumping that charities, in varying degrees, are forced to absorb. The following section seeks to understand what might be the motivators for donating and dumping behaviour. This information will be used to help inform recommendations for the education campaign and best charities practices to reduce problem.

6.0 UNDERSTANDING DONATING & DUMPING BEHAVIOURS: MOTIVATIONS, ATTITUDES & ENVIRONMENTAL INFLUENCES

6.1 Overview

According to the Theory of Planned Behaviour (TPB) model, donating and dumping behaviours are underpinned by attitudes, norms and perceptions of control, which in turn, are based on an individual's beliefs about the consequences of behaviour, the expectations of others and the existence of factors that might impede or facilitate the chosen actions. The online survey and public interviews were structured according to the TPB framework and sought to systematically identify respondents' beliefs and attitudes about donating and dumping at charities. These findings provide a baseline understanding of the public's view of the issue that has not been previously investigated.

The results show that the majority of people who donate to charity are well meaning but uninformed, and misconceptions about how charities want the public to donate are common. While some people are educated about charities and demonstrate stewardship towards their donations, a large proportion of the community is primarily motivated to dispose of unwanted items in a convenient way. The idea that such items may possibly be of use to someone else is sufficient justification to donate items rather than throwing them away. This pervasive lack of knowledge, combined with a lack of motivation to obtain the correct information about appropriate donating, is a major contributor to current levels of illegal dumping. The key findings discussed in this section are:

- Attitudes to donating commonly focus on the utility of the item for another person, particularly for people "in need";
- Most people are aware that the cost of dealing with rubbish and inappropriate donations is a top problem faced by charities;
- Most people select quality items for donation, but many incorrectly believe that poor quality and broken items can be accepted by charities;
- Most people are aware that donations should not be left outside charity bins and stores, but most also think that if donations are left outside that these are processed for sale just like donations left inside bins;
- In terms of social norms, donating unwanted items to charity is generally viewed as a community expectation. On the other hand, leaving rubbish at charity sites is strongly considered to be against community norms;
- Charity bins and stores are the most preferred methods of donation. Those who use charity stores demonstrate a high level of stewardship for donations, while those who prefer bins value convenience. These preferences are indicative of underlying motivations for donating;
- Only a few people think that personal circumstances can justify dumping at charity sites;
- Most people are not aware that fines can be issued for leaving items outside bins and stores;
- A small number of people are likely to leave rubbish at charity sites.

The analysis of the survey and interview data has been used to develop a set of donor profiles – Champion Donors, Unintentional Dumpers and Deliberate Dumpers – that are characterised by specific sets of attitudes, knowledge and behaviours. In order to achieve the desired behaviour changes, it is recommended that the social marketing campaign seeks to tailor key messages to these audiences. Unintentional Dumpers, who are probably the largest group, are the most likely to be receptive to messages about the importance of correct donation.

6.2 Survey and interview methodology

6.2.1 Online survey

The online survey was designed to collect base information about public knowledge and beliefs about donating and dumping at charity sites. The questions sought to identify respondents' self-reported past behaviour concerning taking items to charity bins and stores and their potential behaviour if they found themselves confronted with a full charity bin or closed store. A series of questions based on the TPB model then sought to identify the respondents' attitudes towards donating and leaving rubbish at

charity bins and stores, their perception of social norms and moral obligations to donate appropriately, and their knowledge of the consequences of inappropriate behaviour for charity organisations. Further questions asked about donation frequency, preferred methods of donation, whether respondents' shopped at charity stores and if they had access to a car. Key demographic questions were also included. The survey tool is provided in Appendix C.

A market research company, Edentify Pty Ltd, was engaged to conduct the online survey utilising a panel of community members who regularly participate in market research studies. Over a period of eight days (25 August to 1 September 2015) a total of 750 complete responses were collected across Queensland. Three screening questions were built into the survey to ensure that the sample was representative with regard to gender and location (excluding participants from rural areas, as these areas have few charity bins) and to exclude any participants below the age of 18 years.

Descriptive statistics were generated and examined for initial findings about the total sample. Three donor profiles (Champion Donors, Unintentional Dumpers and Deliberate Dumpers) were constructed based on responses to key questions and Edentify were contracted to run cross-tabulations according to these profiles.

The sample for the online survey was characterised by the following demographics (a full report of the demographic characteristics is provided in Appendix D):

- Equal numbers of men and women;
- Three-quarters lived in metropolitan areas;
- The median age group (45-54 years) was older than the median age of the broader Queensland population;
- People who spoke a language other than English at home were under-represented;
- The two largest employment groups were retired followed by full-time employment;
- Over one-third had a household income of $49,999 or lower;
- The majority of people were owner-occupiers and most lived in a detached house on a large or small section;
- Most people had access to a car.

6.2.2 Public interviews

Interviews with members of the public were designed to supplement the online survey results by further exploring public opinion, particularly with regard to social norms and attitudes about donating and dumping. As part of the interview, participants were presented with a photograph of a bin site with a moderate amount of dumping present (see Figure 6.1 below) and were questioned about their reactions. The interview schedule was designed to be conducted very rapidly (five minutes maximum), and was largely structured as closed-ended questions, although some open-ended questions were included to capture additional commentary if people had time to talk. These responses were subsequently organised into main themes and coded for analysis. The interview schedule is provided in Appendix E.

Prior to the interviews, charity contacts were asked to provide a list of sites known to attract high and low levels of dumping and the interviews with the public were conducted at these sites (the same sites were also audited for the analysis of environmental factors at bin and store sites, see Section 7). Local councils were provided with information about the research and a list of sites prior to commencing the data collection. A total of 150 interviews were sought, and 167 were conducted across 53 sites in Brisbane and Cairns (see Table 6.1 below).

At each site, members of the public were approached by interviewers about the survey and verbal agreement to participate was sought prior to commencing the questions. Many of the sites were standalone charity store sites (frequently co-located with bins), and it was generally easier to attract interview respondents in these locations. In total, 55% of the people interviewed were charity store shoppers (either leaving or entering the store when interviewed) and 16% were donating at a charity bin or store site at the time. It was more difficult to attract respondents at sites on public property (such as strip malls, train stations, schools and businesses), and about one-third (30%) of interviewees were members of the general public (i.e. not engaged in charity store shopping or donating at the time of the interview). The sample for the public interviews was characterised by the following demographics (a full report of the demographic characteristics is provided in Appendix F):

- More women (two-thirds) than men (one-third);
- The median age group (45-54 years) was older than the median age of the broader Queensland population;
- The two largest employment groups were retired followed by full-time employment.

Table 6.1: Public interviews: Number of sites and interviews conducted

CAIRNS	High dumping sites	Public interviews	Low dumping sites	Public interviews
Salvation Army	2	10	1	6
Vinnies	2	7	3	6
Lifeline	3	11	3	7
Endeavour Foundation	1	4	2	5
TOTAL CAIRNS	***8***	***32***	***9***	***24***
BRISBANE	**High dumping sites**	**Public interviews**	**Low dumping sites**	**Public interviews**
Salvation Army	2	13	5	25
Vinnies (Western Brisbane Diocese)	4	15	1	4
Vinnies (Brisbane City Diocese)	1	4	2	9
Lifeline	5	10	2	1
Endeavour Foundation	5	12	5	7
Link Vision	2	11	2	0
TOTAL BRISBANE	***19***	***65***	***17***	***46***
TOTAL SAMPLE	**27**	**97**	**26**	**70**

6.3 Attitudes and beliefs about donating and dumping

As part of the objective to understand the public's view of donating and dumping practices, the online survey and public interviews sought to identify commonly held beliefs and attitudes about donating to charity. The following key findings are discussed in this section:

- Donation frequency is high but not strongly connected to a desire to support charities. People want to make space at home and will donate unwanted items if they think there is a chance that someone else could use them;
- Most people emphasise quality when selecting items for donation, but large proportions think it is acceptable to donate broken items or items that they simply do not need anymore;
- Few people take the time to clarify charity guidelines before donating items;
- A small proportion of people consider that it is acceptable to leave household rubbish at charity sites;
- Most people are aware that the cost of dealing with inappropriate donations is a key issue for charities, but common misperceptions about the operational realities of the charitable recycling industry are a key driver of unintentional dumping;
- Inappropriate donation behaviours are associated with specific demographic characteristics including: younger age, living in a unit, flat or apartment, currently a student or not seeking work, and a non-English speaker at home.

6.3.1 Attitudes about donating

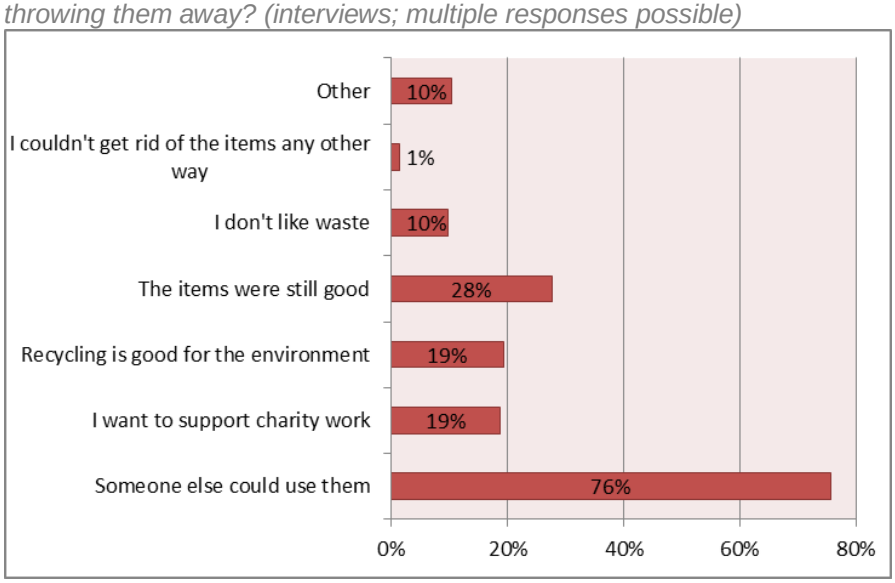
One of the surprising findings from the analysis of the survey and interview data was the high frequency of donation among the respondents. About one-quarter of survey respondents (27%) were regular donators, giving items to charity at least once every three months. Over three-quarters (77%) donate at least once per year, and only a very small proportion (2%) said that they had never donated to charity. Donation frequency was even higher among the interview respondents, with 44% donating

items at least once every three months and 89% donating at least once within the last year. Women were more likely than men to donate more frequently[25].

The research literature about donating to charity links this behaviour with a utilitarian need to dispose of unwanted items rather than a motivation to support charities (Ha-Brookshire and Hodges, 2009). To explore attitudes about donating, interview participants were asked to think about their last donation and explain why they had donated the items rather than throwing them away (see Figure 6.1 below). Only 19% of responses mentioned the idea of wanting to "support charity work", which aligns well with the literature, but attitudes that explicitly linked to the notion of utilitarianism were rare. The most common reason was that "someone else could use the items" (76% of responses). Two related ideas mentioned were that "the items were still good" (28%) and "I don't like waste" (10%). These findings indicate that the predominant reason for donating items is to do with a perception that the items still possess some intrinsic value – not for the donator, but potentially for other people within the community. This is backed up by comments made by some interview participants:

> *The items were still useable – I just didn't want them anymore.*
>
> *They were in good condition – some were brand new and it would be a waste to throw them out. I also didn't want to go to the trouble of selling them.*

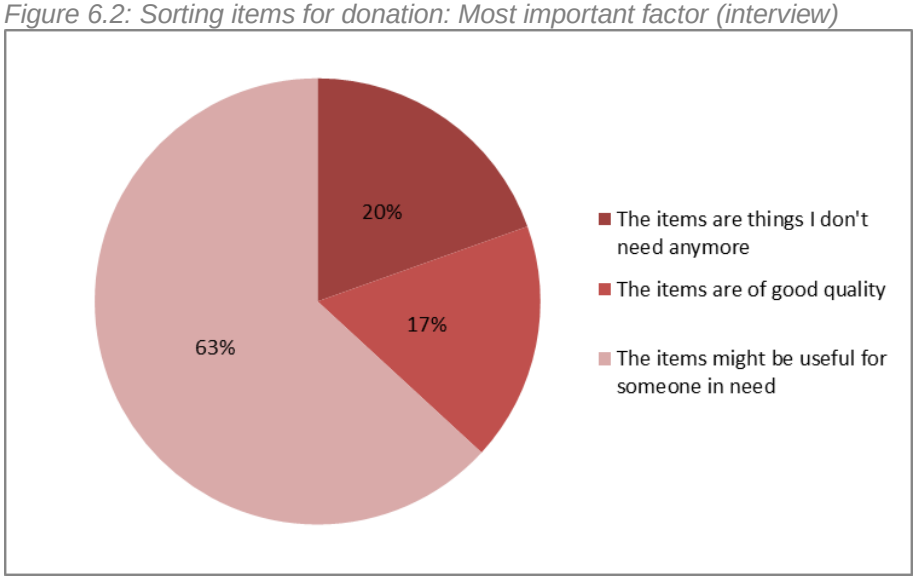
Figure 6.1: Thinking about the last time you donated, why did you donate the items rather than throwing them away? (interviews; multiple responses possible)



To explore these ideas further, interview participants were offered three possible values that might shape how they sorted items for donation and asked to select which was most important to them (see Figure 6.2 below). Again, the idea that "the items might be useful for someone in need" was regarded as the most important factor driving item selection (63%). One-fifth (20%) chose the more personal-utilitarian option that the items were things that they "simply don't need anymore".

[25] 31% of women donated at least once every three months *cf.* 23% of men, and 33% of women donated every 10 months or less *cf.* 50% of men (survey).

Figure 6.2: Sorting items for donation: Most important factor (interview)



The survey also found that donation was most strongly linked to a charitable attitude of helping people less fortunate, justified as an act of good community citizenship. Most survey respondents valued donating because they cared about "helping people" (87%). These results appear to contradict the broader literature, which largely suggests that donation is not strongly motivated by a perception that the goods may be of use to others. However, it is possible that the nature of the interview (face to face) and the format of survey questions encouraged a level of social desirability in the responses provided, so it is important to consider the other results presented later in this section.

A further attitude, "recycling helps the environment", was identified as important for most survey respondents (82%), but was less common among interview respondents who (in an open-ended question format) identified this reason only 19% of the time. This indicates that environmental sustainability is probably not a strong motivator for most people, but when offered this idea as a possible reason for donating, most people accept that it is an important value.

6.3.2 Attitudes about illegal dumping

The survey and interviews also sought to identify people's attitudes towards illegal dumping. Overall, most people were aware that charities often received donations that they were unable to use. When survey respondents were asked to identify the top three problems faced by charities, "the cost of getting rid of inappropriate donations and rubbish" was the most commonly selected problem (see Figure 6.3 below). Likewise, when shown the photograph of a moderate amount of dumping at a bin site (see Appendix E) almost all interview respondents (96%) stated that what was depicted was a problem.

Further, the majority of survey respondents (88%) stated that they would probably or definitely feel guilty if they personally donated items that created a *disposal cost* for the charity (only 4% said that they would not feel guilty) (see Figure 6.4 below). Respondents would feel slightly less guilty if their donated items had to be *thrown away* by the charity, with 71% stating that this was probably or definitely true. This suggests that for some people (those who feel less guilty about donated items being thrown away by charities) there is a lack of understanding that having to throw items away is the same as creating a disposal cost. Every single donated item that is unsuitable creates a cost for charities as they are forced to take on the responsibility of disposing of these items, either through recycling or to landfill.

Overall, these results indicate that there is a high level of awareness within the community that inappropriate donations are costly for charities. This attitude, combined with the motivation to donate in order to help people, should result in a high level of appropriate donation practices within the community. However, this is not the experience of Queensland charities, which are seeing increasing levels of illegal dumping over time (see Section 4). Something else must be influencing actual

donation behaviour more strongly than these stated good intentions. The rest of this section examines underlying behavioural beliefs about donation quality and donation placement (the two aspects of illegal dumping at charity sites) held by the survey and interview respondents.

Figure 6.3: The top three problems that charities face (survey; multiple responses possible)

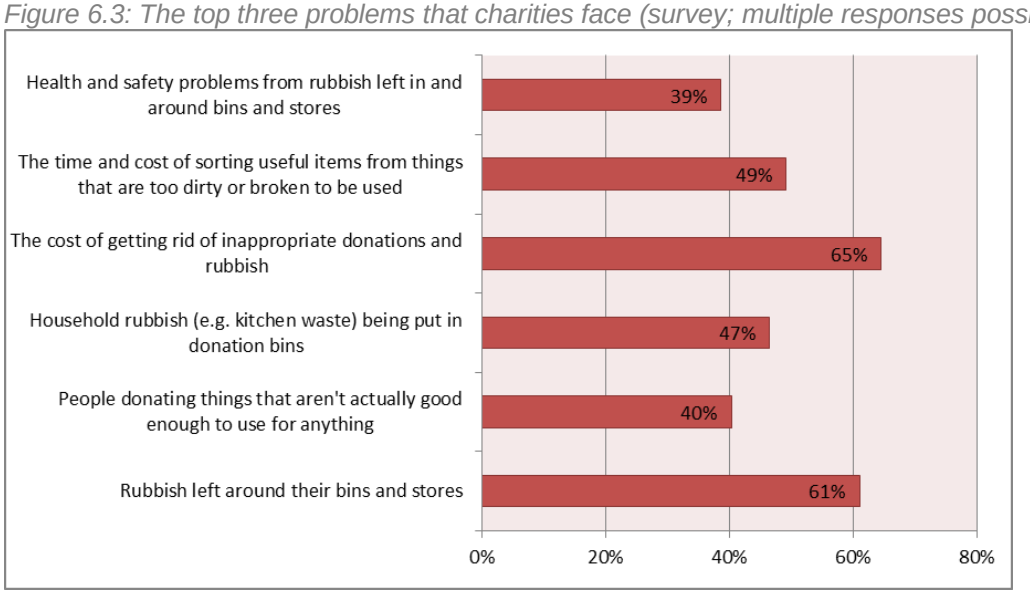
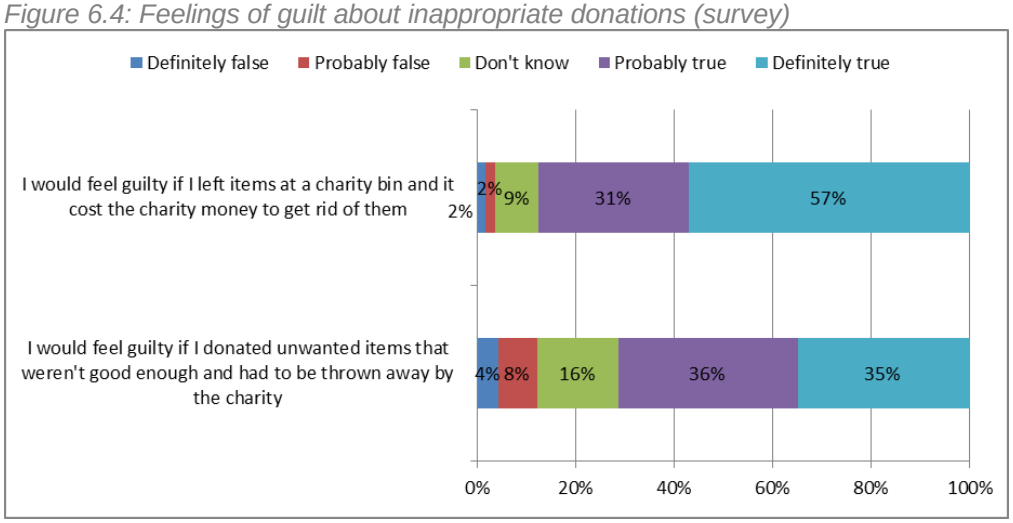


Figure 6.4: Feelings of guilt about inappropriate donations (survey)



6.3.3 Beliefs about appropriate donation quality

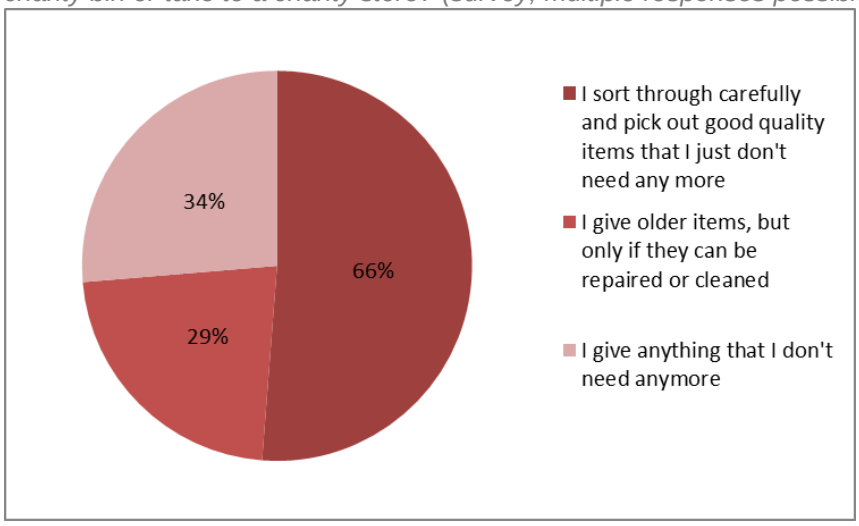
The donation of poor quality items that are not sellable by charities is one aspect of illegal dumping at charity sites. The survey sought to identify what respondents' believe to be important when selecting items to donate (see Figure 6.5). The majority (66%) of people selected the option related to quality: "I sort through carefully and pick out good quality items that I just don't need any more". This response is the ideal response as it reflects a high standard of item sorting practice.

A smaller proportion of respondents (29%) selected "I give older items, but only if they can be repaired or cleaned", and a third option, "I give anything that I don't need anymore", was selected 34% of the time. These response options link more strongly with the idea that donating to charities is an act that fundamentally serves an individual's need to dispose of unwanted items rather than the needs of charities and consumers of second-hand goods, and the usefulness of items to them (Ha-Brookshire and Hodges, 2009). Selecting these responses indicates that the individual has a different set of beliefs and knowledge compared to those who carefully assess the quality of items they donate.

Considering the demographics of those who prioritise convenient disposal over the selection of quality items showed that they are:

- Slightly more likely to be younger (aged 18-34 years)[26], whereas those who prioritise quality are older (aged 35-54 years)[27];
- More likely to be students[28] than any other employment group, whereas those who prioritise quality are most likely to be retired or unemployed[29];
- More likely to be living in a flat, unit or apartment than any other housing type[30], whereas those who prioritise quality are most likely to be living in a detached house on a small section[31].

Figure 6.5: Which of the following statements apply to you when you are thinking of what to put in a charity bin or take to a charity store? (survey; multiple responses possible)



These beliefs about item selection may be shaped by the level of knowledge held by individuals concerning what charities can and cannot accept. Survey respondents were asked if it was true that "most charities have volunteers or staff who repair slightly broken items so they can be sold". A large proportion (44%) agreed that this was probably or definitely true, and a further 33% stated that they did not know. This is a significant finding because it demonstrates that approximately one third of people are unaware of the operational realities with which charities contend. Charities do not have the resources to repair or clean items, and all broken or dirty donations create a disposal cost for charities.

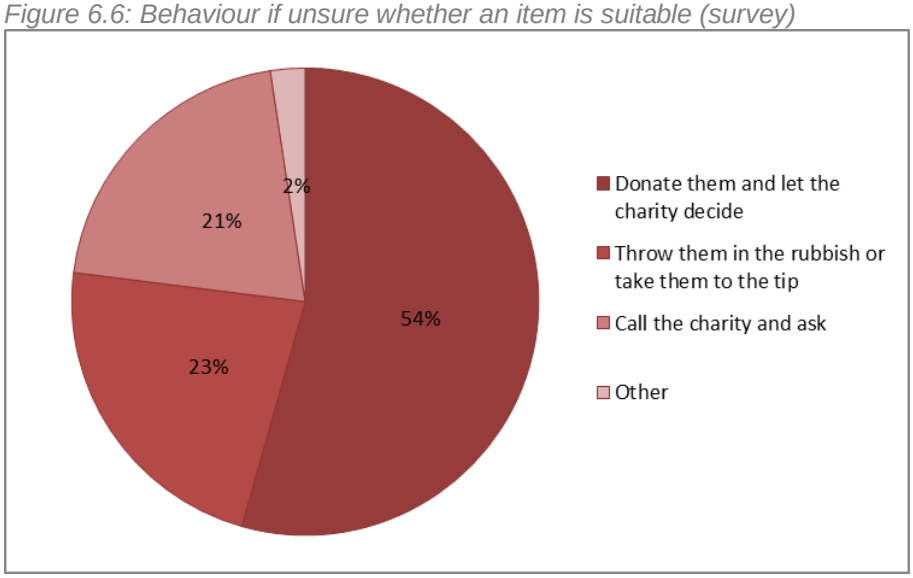
Further, a large proportion of the survey respondents (33%) believe that it is probably or definitely true that the quality of clothing and fabric donations does not matter as old or dirty items are turned into rags. A further 26% don't know. While a proportion of clothing and textiles is indeed converted into rags by some charities, only non-synthetic fabrics are appropriate for this purpose, which means that large proportions of poor quality textiles are sent to landfill by charities. For many people, this lack of correct knowledge may mean that they illegally dump without being aware (or fully aware) of the consequences of their behaviour.

[26] 40% of those aged 18-34 years *cf.* 30% of those aged 35-54 years and 35% of those aged 55 years and over
[27] 70% of people aged 55 years and over *cf.* 67% of those aged 34-54 years and 57% of those aged 18-34 years
[28] 46% of students *cf.* 38% of those currently unemployed (the next largest group). They were least likely to be retired (33% of retirees)
[29] 73% of retirees and 70% of the currently unemployed *cf.* 67% of those employed full-time (the next largest group). They were least likely to be students (42% of students)
[30] 43% live in a flat, unit or apartment *cf.* 35% of those living in a semi-detached house (the next largest group). They were least likely to live in a detached house on a small section (29% of those living in this housing type).
[31] 72% live in a detached house on a small section *cf.* 68% of those living in a semi-detached house (the next largest group). They were least likely to be living in a flat, unit or apartment (61%)

While most people say that they would carefully review their unwanted items and select high quality items for donation, many are willing to pass on the responsibility of item selection to charities. When asked what they would do if they were unsure whether an item was suitable for donation, most people (54%) said that they would simply donate the item and let the charity decide. Only 21% would take the time to call the charity to clarify their donation guidelines (see Figure 6.6 below). The demographic differences between respondents were less clear for this question, but those who donate and let charities decide were slightly more likely to be younger (18-54 years), self-employed or caring for others, and living in a unit, flat, apartment or townhouse.

This result suggests that for many people, a sense of good intention (the idea that the items would help someone in need) is enough to motivate them to donate the items rather than choosing some other form of disposal. They do not consider the operational context that enables charities to collect, sort, price, deliver and sell items to the community, nor the consequences for charities if what has been donated turns out to be unsellable. Many people are simply not motivated to seek out information that will enable them to *ensure* that their donations are of use; it is enough to believe that they *may* be of use.

Figure 6.6: Behaviour if unsure whether an item is suitable (survey)



The donation of poor quality (unsellable) items is a form of unintentional dumping that can be connected to a lack of information about correct donation behaviour. However, when people dump items that would be unequivocally regarded as rubbish, such as general household waste, old tyres, and broken electrical items, then this behaviour constitutes intentional dumping. People who dump rubbish at charity sites must know that their behaviour is wrong.

To explore this issue, one question in the survey asked how people might dispose of rubbish that did not fit into their regular household rubbish bin. As shown in Figure 6.7 below, most people said they would be likely or very likely to take the rubbish to the tip or wait for the council kerbside collection. Leaving the rubbish at a charity site was the least popular option, but 6% of people (n=49) admitted that they would be likely or very likely to do this. This group were:

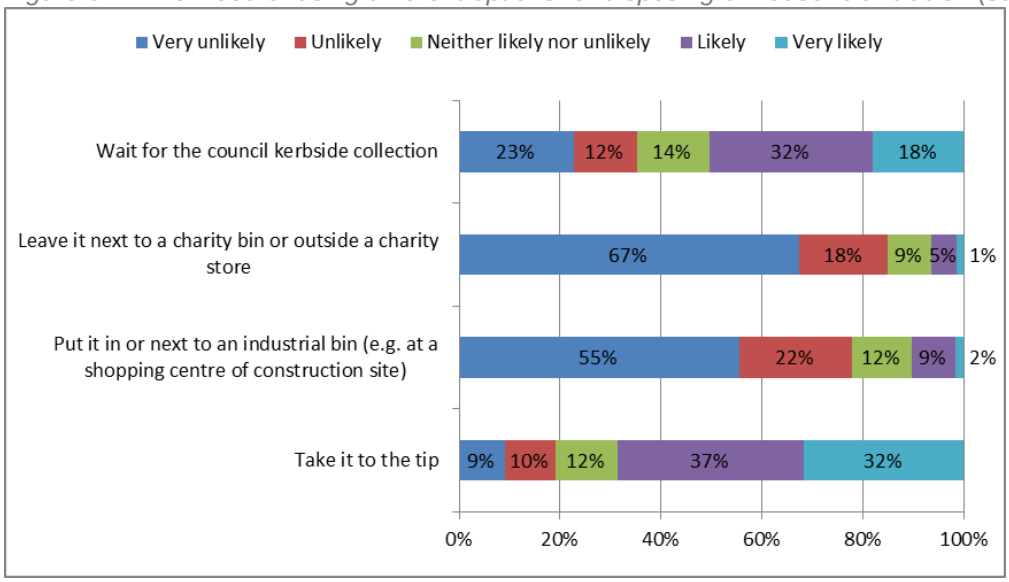
- More likely to be younger (18-34 years[32]); whereas those who would be unlikely to do this are older (55 and over[33]);
- Slightly more likely to be a student, unemployed or not seeking work[34];
- Slightly more likely to be living in a semi-detached house or flat, unit or apartment[35] whereas those who would be unlikely to do this live in a detached house on a small section[36];

[32] 12% of those aged 18-34 years *cf.* 8% of those aged 34-54 years and 3% of those aged 55 and over
[33] 88% of those aged 55 and over and 86% of those aged 34-54 years *cf.* 74% of those aged 18-34 years
[34] 12% of students, 11% of those currently unemployed and 9% of those not seeking work *cf.* 6% of those employed full time (the next largest group). They were least likely to be retired (4% of retirees). No clear differences in employment type were noted among those who would be unlikely to leave rubbish at charity sites.

- More likely to be living in community or government housing[37] whereas those who would be unlikely to do this are owner-occupiers[38];
- More likely to speak a language other than English at home[39], whereas those who do not dump rubbish are more likely to not speak a language other than English at home[40].

In summary, most people want to make genuine donations and will consider the quality and useability of their donations for the next person. Despite this, few people will go out of their way to seek confirmation of donation suitability, preferring to pass this responsibility on to charities. A minority of people consider that leaving rubbish at charity sites is an acceptable disposal method. While they are only a small group, the impact of their lenient attitude towards dumping creates a significant problem for charities. The next section examines the underlying beliefs about appropriate donation placement, which is a further aspect of illegal dumping at charity sites.

Figure 6.7: Likelihood of using different options for disposing of household rubbish (survey)



6.3.4 Beliefs about appropriate donation placement

Illegal dumping also occurs at the site of donation, when donations and rubbish are placed around charity bins and left outside stores after hours. Charities are clear that donations should not be left outside and signage usually stresses that leaving donations outside bins is littering and that fines apply. However, over half (52%) of the survey respondents believe that items that are left outside of charity bins are sorted for sale, just like items placed inside bins (see Figure 6.8 below). Further, nearly one-fifth (18%) of the survey sample believe it is true that large items should be left next to bins and 22% believe it is true that items can be left outside if the bin is full. This is not correct because, due to high levels of damage, donations left outside are often thrown out by charities, and some charities have strict policies around the potentially hazardous nature of donations left outside. In terms of managing rubbish at charity bin and store sites, 17% think (incorrectly) that this cost is paid by the landowner. These are significant findings, which show that even if people intended to donate quality items that would be useful to someone else, their lack of knowledge about the importance of donation placement can act as a barrier to the fulfilment of their good intentions.

---

[35] 11% of those living in a semi-detached house and 9% of those living in a flat, unit or apartment *cf.* 7% of those living in a detached house on a large section and 4% of those living in a detached house on a small section

[36] 91% living in a detached house on a small section *cf.* 87% of those in a detached house on a large section. They were least likely to live in a flat, unit or apartment (75% of those in this housing situation).

[37] 19% of those living in community or government housing *cf.* 8% of those in private rentals and 5% of owner-occupiers

[38] 87% of owner-occupiers *cf.* 83% of those in private rentals and 71% of those living in community or government housing

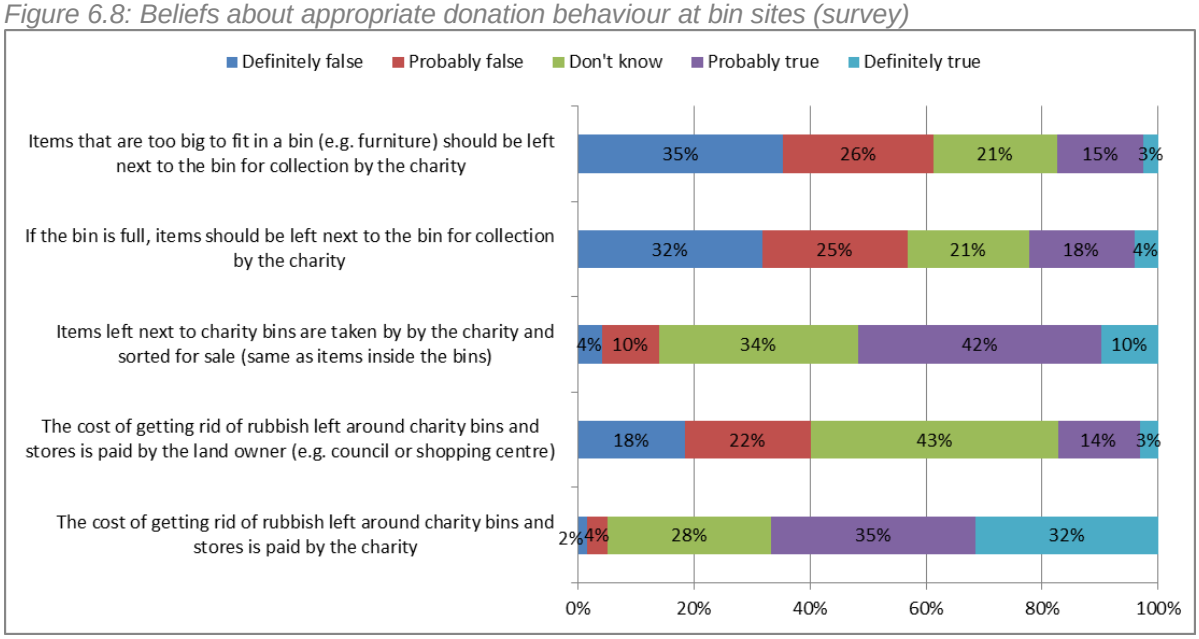
[39] 15% of those who speak a language other than English at home *cf.* 5% of those who do not

[40] 87% of those who do not speak a language other than English at home *cf.* 69% of those who do

This result also suggests that current signage at bin sites is not effective for preventing the inappropriate placement of donations outside. Signs typically ask people not to leave items outside bins or stores, but the way this is expressed and the specificity of the information varies from charity to charity. The public is clearly confused about how items left outside are viewed by charities. For many people who donate good quality items, the idea that simply leaving items outside bins would be considered "littering" (and the items "rubbish") is difficult to understand. Further, in situations where charity bins are full, it is probably not reasonable for charities to expect people not to leave donations outside.

In summary, misconceptions about correct donation practices and the operational realities of the charity business are clear contributors to illegal dumping behaviours. These misconceptions are so common, that an educational campaign should target a broad audience to promote messages about how to donate correctly. Emphasising the idea that all inappropriate donations create a cost for charities should be a key message within an education campaign; however, this needs to be connected to a sense of personal responsibility for this cost. Illegal dumping often begins at the very point when people clear out their homes and sort items for donation, so an educational campaign needs to target item selection behaviours as well as the placement of donations. Key messages could aim to increase public understanding of what charities can and cannot accept and communicate suitable alternative disposal options if items are not appropriate for charities. Linking personal responsibility for donation with values about community-mindedness and stressing that the cost of unsellable donations prevents charities from helping people could support behaviour change. Most people with genuine good intentions would be concerned to learn that they have donated items in the past that, not only were of no use, but created a cost for charities. The next section examines a further driver of donation behaviour: the normative expectations of others.

Figure 6.8: Beliefs about appropriate donation behaviour at bin sites (survey)



6.4 Normative Expectations about Donating and Dumping

Within the Theory of Planned Behaviour, an individual's understanding of social norms and their perception of how the community, or at least significant others, expects a person to behave exerts a strong influence on whether or not they carry out certain behaviours (Tonglet 2002). The online survey contained two questions about normative expectations and the public interviews sought to explore in more depth how an individual's perception of community norms might influence donating and dumping behaviours. The key findings discussed in this section include:

- Donating unwanted items to charity is perceived to be a community norm;
- Leaving donations outside donation bins and stores is not considered to be acceptable due to the risk of damage and theft;
- Dumping rubbish at charity sites is not considered to be socially acceptable;

- Laziness (unwillingness to take items to the tip or to a charity store) is considered to be the main reason why people dump at charity bin sites.

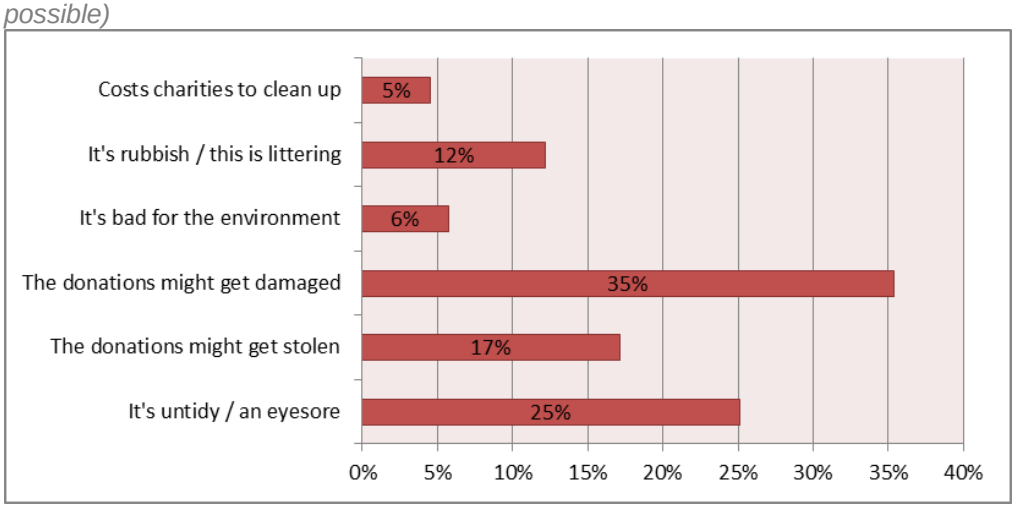
6.4.1 Community norms about donating

To identify community norms about donation, survey respondents were asked whether donating unwanted items to charity was considered to be a valued activity within their close social circles. Over half (52%) said that their family and friends would be disappointed in them if they threw items away instead of donating them to charity. This perceived social expectation is one reason why donation frequency is generally high within the community.

6.4.2 Community norms about donation placement

Findings from the public interviews demonstrated that leaving donations outside of bins was not considered to be socially accepted behaviour. For example, when shown the photograph of a moderate amount of dumping at a bin site (see Appendix E) almost everyone (96%) stated that this was a problem. When asked why it was a problem, 35% of responses focused on the idea that the donations could be damaged and 17% of responses noted that the donations could get stolen (see Figure 6.9 below). Only a minority of respondents were specifically aware that donations left outside created a cost for charities (5%), although 12% of responses made the direct association that placing items outside was littering and a further 25% referred to aesthetic values ("untidy/eyesore"). This suggests that there is strong expectation that people in the community should practice good stewardship of their donations in terms of the placement of donations at charity sites (to prevent damage and theft), but that the impact for charities is rarely considered.

Figure 6.9: Why is it a problem to leave donations outside bins? (interviews; multiple responses possible)



Interview participants were also asked to speculate about the photograph (see Appendix E) and explain why the donations depicted had been left outside. Half of the sample (52%) believed that people were lazy and did not want to take the items to the tip or take the time to donate them properly at a charity store. Typical comments include:

> *People use the bins as a dumping ground, they don't want to pay the dump fees. People know it's wrong - it's on the TV.*
>
> *Some people are too lazy to figure out the best way of disposing of things; they don't have knowledge of [the charity] pick up service.*
>
> *They are too lazy to arrange proper donation. They can't be bothered taking it to the tip and [they see charity sites] as a rubbish dump. They are not taking responsibility; it is well known not to dump.*

They know charities won't take the items so they dump them. They don't want to go to the effort of calling someone out to collect items.

These findings strengthen the idea that leaving donations outside bins and stores is socially undesirable and that there is a general community expectation that only useful items are donated to charities. A minority of interview participants (16%) did concede that difficulty getting to the tip (for example, lack of a car or inability to pay tip fees) or to charity stores (for example, stores not being open after hours) could explain, but not condone, why some people might leave items outside at charity sites. Another common explanation was that, in relation to the photograph, the furniture items were too big to fit inside the bins (21%), and some participants argued that bin sites should be re-designed to offer greater protection for large items:

Charities need to provide a special area for large items and things that could get damaged (if put in the bin).

Charities need to put in bigger bins or organise pick-ups at these locations.

A few participants stated that donation bins were part of the problem, suggesting that this donation method invited illegal dumping behaviours:

The bin system encourages people to leave stuff outside. A better idea would be to have a pick-up service or after hours depot.

Similarly, in the survey, many people (57%) agreed or strongly agreed that it was "inevitable that charities will get rubbish put in and around their bins". This suggests that there is a certain level of resignation among the community that even if it is wrong to leave donations outside, that merely having the option of donating at charity bins is enough to enable some members of the community to take advantage of the convenience of this method to donate inappropriately.

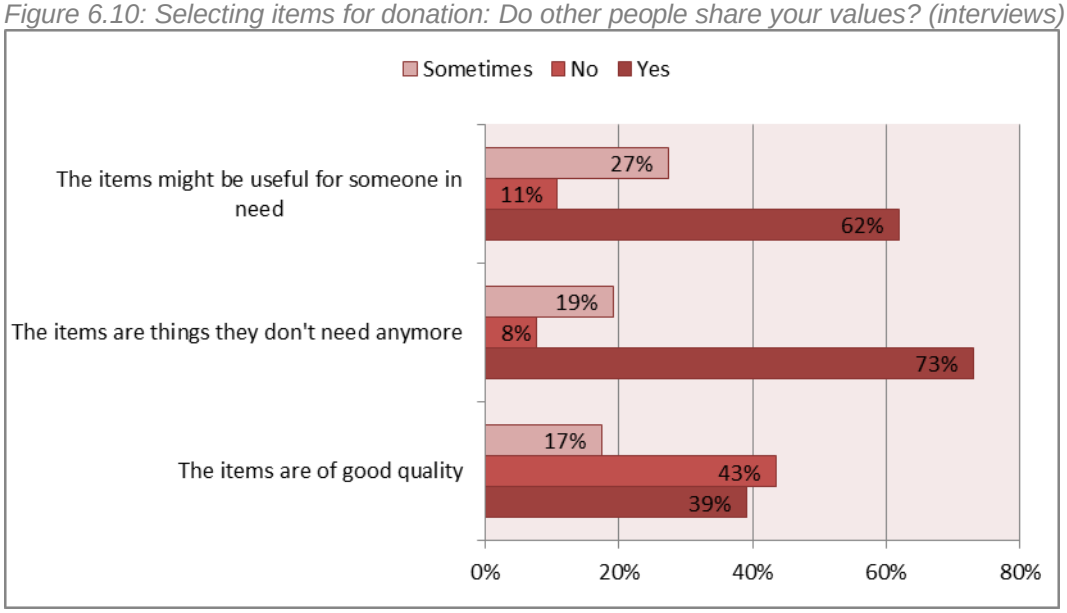
6.4.3 Community norms about donation quality

One of the questions in the interview asked people to identify the value that most strongly influenced how they selected items for donation. As discussed in section 6.3.1, the idea that "the items might be useful for someone in need" was the most common response (see Figure 6.2). To explore community norms around item selection, interview participants were then asked if they thought that the value they had selected was shared by other members of the community. The majority of participants (61%) agreed "yes", 25% responded "sometimes" and 14% disagreed "no", which overall, shows that the participants generally perceived a high level of community cohesion with regard to donating behaviours.

However, when considered by value the picture is slightly different (see Figure 6.10 below). People who select items by considering their usefulness for others or simply for convenient disposal were highly likely to perceive that other people in the community shared their value. In contrast, people who stated that they value quality above all else when selecting items for donation were much less likely to perceive that their chosen value was shared by other people in the community. People who are motivated to donate responsibly perceive less community cohesion about acceptable donating behaviours, possibly because they are more aware of the impact of illegal dumping for charities. An educational campaign therefore needs to work at building community understanding of the impact of illegal dumping for charities and promoting a new social norm that a responsible donator who cares about helping others is someone who carefully considers the quality of their donations.

The survey also sought to test normative expectations by asking a confronting question about illegal dumping: "my family and/or friends would be disappointed in me if I knowingly left rubbish at a charity bin". The majority of people (70%) said that this was probably or definitely true, indicating that the general community perception is that dumping rubbish at charity sites is wrong. Only a small proportion (11%) believed their family and/or friends would not be disappointed in them if they knowingly left rubbish at a charity bin. This group undoubtedly has a lower perception of social pressures to perform appropriate donating behaviours and they may be part of social circles where dumping is considered acceptable.

Figure 6.10: Selecting items for donation: Do other people share your values? (interviews)



In summary, although donating correctly, by giving quality items and ensuring that they are placed inside bins or taken into stores, appears to be a strong community expectation, this must be balanced by other findings that demonstrate that the public generally lacks understanding of how charities want people to donate (see Section 6.3) and by the high levels of dumping that charities are currently experiencing (see Section 4). The next section considers how people prefer to donate and if these preferences contribute to dumping behaviours.

6.5 Preferred method of donation

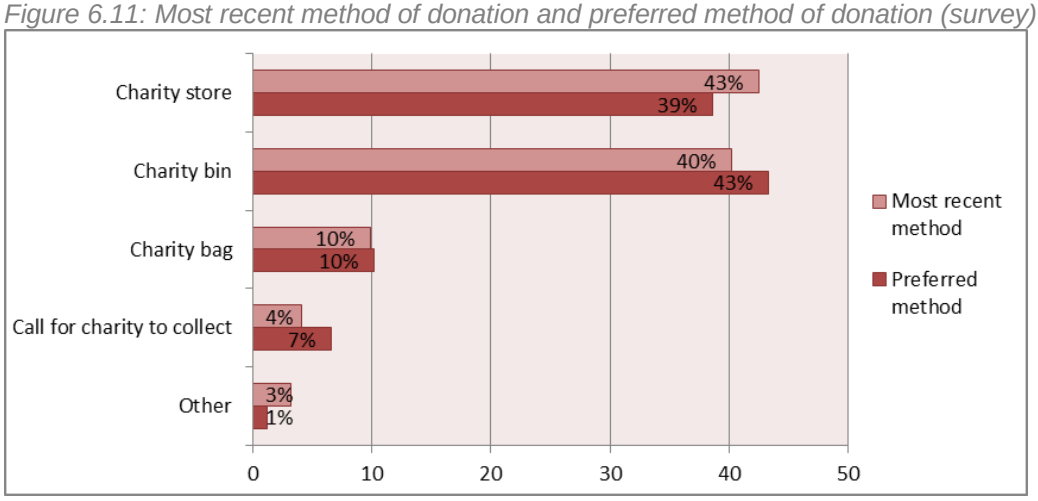
Members of the public demonstrate clear preferences with regard to donation method and examination of these preferences reveals distinct underlying motivations for donating. The key points discussed in this section include:

- People who prefer to use charity stores place emphasis on ensuring that their donations are delivered safely into “the right hands”;
- People who prefer to use charity bins place emphasis on the convenience of the method and the ability to drop donations off at any time of the day or night;
- The lack of staff surveillance at charity bins means that those who prefer this method do not receive feedback about the quality and placement of their donations, which may perpetuate poor donation practices.

6.5.1 Most recent and most preferred method of donation

When asked about their most recent donation and their most preferred method of donation overall, survey respondents demonstrated a clear preference for either charity bins or charity stores (see Figure 6.11 below). Charity bins were overall the most preferred method. Similar results were collected in the public interviews, with 41% of people preferring charity bins and 52% preferring to donate at charity stores.

Figure 6.11: Most recent method of donation and preferred method of donation (survey)



6.5.2 Reasons for preferring to donate at charity stores

When asked to explain why they preferred to donate at charity stores, responses typically emphasised notions of stewardship and community connection. People who prefer to donate at charity stores expressed a strong sense of individual responsibility for the items that are donated (see Figure 6.12 below). For instance, this group was highly likely to focus on the safety of items, which was specified 46% of the time by survey respondents and 35% of the time by interview respondents. A common phrase used by this group was a desire to ensure that items are delivered "into the right hands":

> *I can make sure that the items are not damaged during the journey and that it falls into the hands of the right person.*
>
> *I like to make sure the items are received in great condition to where they are meant to go.*
>
> *Just easier to donate them to people that are working in the store as opposed to cramming them into a bin ... feels like it actually goes somewhere.*
>
> *Able to hand in personally to them as some items are quite new and large and don't feel safe just to leave them in the bins.*

Some respondents were aware that items can get stolen or damaged at charity bin sites:

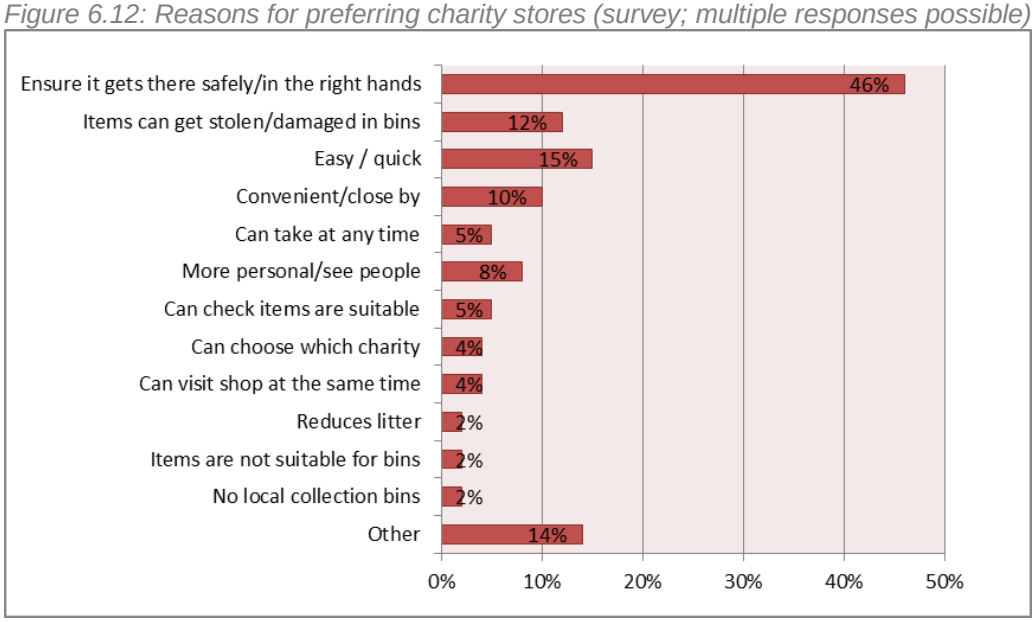
> *I have seen people stealing goods from bags left by the front fence and believe that too much rubbish is placed in the charity bins with the chance of it spoiling other donations.*
>
> *I know they* [charities] *get them as sometimes charity bins are overflowing and I do not like the thought of things being left there and stolen.*

For some respondents in both samples, the personal interaction with staff at charity stores and ability to shop at the store at the same time as donating were key reasons for preferring to donate directly to charity stores:

> *I can interact with the volunteer staff have a browse around the shop and possibly buy an item which would in turn also donate to that particular charity organisation.*
>
> *I prefer to take smaller items to the store because the staff are so appreciative and it makes me feel good. I get larger items collected and it still makes me feel good.*

Ease and convenience were identified in 15% and 10% of survey responses and by 40% of interview responses, but overall, concerns regarding item safety were the overriding factor for people who prefer to donate by taking items into stores.

Figure 6.12: Reasons for preferring charity stores (survey; multiple responses possible)



6.5.3 Reasons for preferring to donate at charity bins

The idea of taking individual responsibility to ensure the safety of donated items was not shared by individuals who prefer to donate at charity bins. Instead, for survey respondents who prefer to donate at charity bins, the most commonly cited reasons for this preference focused on aspects of convenience (see Figure 6.13 below). Similarly, convenience was the major reason given by 76% of interview respondents who preferred to use charity bins.

Previous research on donating unwanted clothing has found that the desire to get rid of things and "make space" is a key motivation for donating to charity (Ha-Brookshire and Hodges, 2009). This motivation is based on personal need rather than a desire to help others or to support charity, so it is not surprising that personal convenience is an overriding concern for many people. Among those who prefer bins, typical direct quotes about the method include:

> *Quick and easy, no fuss, just drop off and go.*
>
> *It seems to be the easiest. I can just bag things up and put them in the car, then when I find a charity bin, I can put them in there.*
>
> *There is a charity bin close to a regular way I drive. It makes it easy and convenient to drop off items in the bin without going too far out of the way.*

Being able to take items to bins at any time of the day or night was mentioned 29% of the time by survey respondents and 11% of the time by interview respondents:

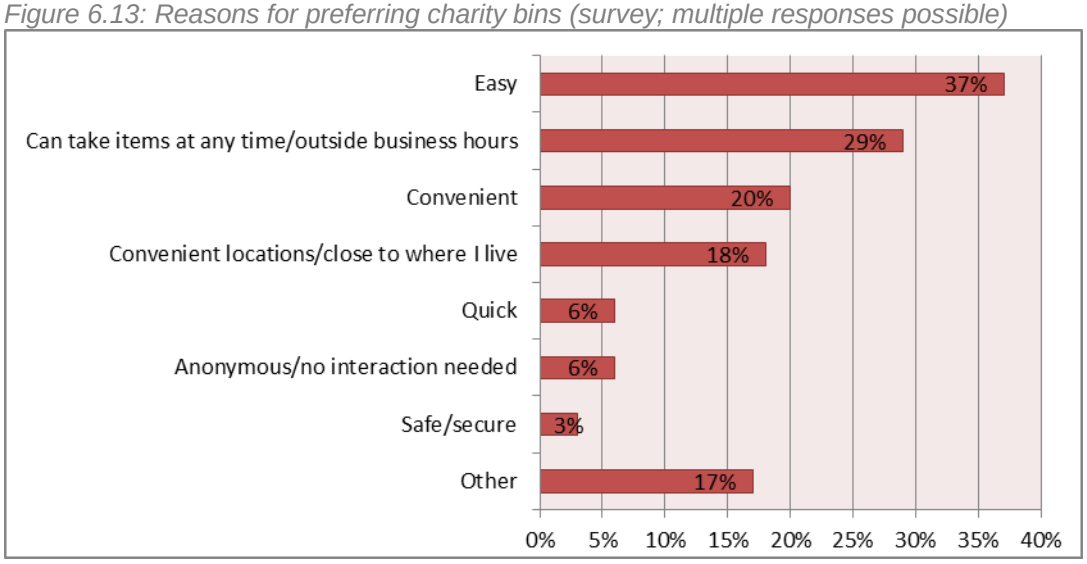
> *It's easy. You can drop off your stuff anytime it suits you.*
>
> *I can donate at any time of the day. If I give them direct to the charity shop I can only donate when the shop is open and if I have them pick up the items I have to wait around for them to come to me.*
>
> *I can donate at any time – I like this spot because it is easy to get to and donate, it's like a drive through.*

The lack of surveillance or monitoring at bin sites (which is potentially the lack of both charity staff and members of the public at these sites) was valued by 6% of the respondents:

I can do it out of hours. I can remain anonymous. I don't feel I have to be judged by what I take.

The safety and security of donated items was only mentioned 3% of the time by survey respondents and 4% of interview respondents who preferred to use charity bins. Given that convenience is such a strong motivator for people who use bins and there is minimal to no concern for what happens to donations once they are out of sight, education alone is not likely to resolve illegal dumping among people who donate at bin sites[41].

Figure 6.13: Reasons for preferring charity bins (survey; multiple responses possible)



6.5.4 Preferred donation method is linked to motivations for donating

This analysis suggests that asking people to identify their preferred method of donation and describe their reasons for this preference may be a better way to assess the drivers of their donation behaviour than asking about their attitude towards donating. People know why they *should* donate unwanted items (to help people in need), but their *actual behaviour* with regard to item sorting and choice of donation method are more revealing of their underlying motivations to donate.

Convenience is clearly a concern for most people regardless of which method they prefer, but people who prefer to donate at charity stores are motivated to consider other factors. Their value of stewardship extends from the beginning of their donation process (item sorting) through to the end (delivery of the items). Their behaviour ensures that their good intentions – donating quality items that are of use to others in a way that avoids undue burden for charity organisations – are actually realised. Comparing the demographics of those who prefer donating at bins to those who prefer stores reveals some key differences. Those who prefer to donate at charity bins are:

- Younger on average[42];
- Much less likely to shop at charity stores[43], therefore less likely to be familiar with the types and quality of items that charities are able to sell;
- Have a higher household income[44];
- More likely to be unemployed, not seeking work, currently a student, and also more likely to be employed full-time or part-time. People who prefer charity stores are most likely to be

[41] Note that there is still a small group (5% of survey respondents) who state that their preference for donating at charity stores is due to the ability to take items at any time. It is clearly important to educate users of charity stores that leaving donations outside stores after hours is not acceptable donation behaviour.
[42] 59% of those who prefer bins are aged 18-34 years. Only 28% of people who prefer to donate at charity stores are aged 18-34 years.
[43] 49% of those who prefer bins do not shop at charity stores *cf.* only 27% of people who prefer to donate at charity stores
[44] Of the 24% of people with a household income of $100,000 or more, 50% are people who prefer bins and only 28% are people who prefer stores.

retired or self-employed, which may mean that they have more ability to visit stores during opening hours;
- More likely to speak another language besides English at home[45];
- More likely to live in a flat, unit or apartment[46], which may mean that they have less storage space at home;
- Slightly less likely to have access to a car[47], which may mean that it is more difficult for them to get to the tip.

In summary, individuals who donate at charity stores during opening hours not only demonstrate good stewardship, but their interaction with charity staff provides an opportunity to receive feedback about the types and quality of items that charities can and cannot accept. In contrast, the lack of staff surveillance at donation bin sites (and outside charity stores after hours) means that those who use this method never get the opportunity for positive or negative feedback about the types, quality and placement of items they are donating. The majority of Queensland charities are invested in the use of bins as a key collection method because of the significant quantity of donations that are received this way. Educating the public and changing the physical features and management of bin sites to encourage more appropriate donating (see Section 7) is therefore critical to changing behaviours at bin sites.

The Theory of Planned Behaviour holds that intervening factors (behavioural controls) may cause some well-meaning people to deviate from their intended donation behaviour, and act in a way that does not align with their underlying beliefs and attitudes. The next section considers the potential role of control factors that may function as barriers to appropriate donating behaviour.

6.6 Perceived control over donating behaviour

Within the TPB model, the performance of a behavioural intention can be facilitated or impeded by the level of control that the individual perceives within the situation. The survey identified a number of barriers that may influence the perception of control and ultimately the behaviour of individuals at the site of donation. The key findings identified in this section include:

- Many people who have encountered a full bin or a closed store have left their items outside;
- Despite the signage at charity sites that explains that fines can be issued for illegal dumping, few people are aware of the fine;
- Nearly one-third of people agree or strongly agree that it is too hard to figure out what kinds of donations charities accept;
- Most people do not accept that personal circumstances may force people to illegally dump but a small number do;
- One third of people are unclear about the type of items that are suitable for donation.

6.6.1 Status of bins and ability to access stores

One of the factors that may influence actual donating behaviour when people arrive at a donation site is the status of the bin (whether it is full or not full) or the ability to access the store (whether it is closed or open). A question in the survey asked: “have you ever taken a load of items to a charity bin or charity store and found either they wouldn’t fit in the bin or the store was closed?” Just over one third (38%) answered yes.

The follow up question asked “what did you do with the items?” Most of the time, respondents’ took a desirable course of action and took the items home (48%) or to a different bin or store location (27%), but respondents had left the items outside the bin or store 41% of the time (see Figure 6.14 below). Given that the risk of damage or items getting stolen if left outside was a key concern among interview respondents, it is likely that other factors, particularly the desire to complete the donation quickly is enough to influence some people who may not have planned to leave their donations outside. In this situation, the lack of surveillance from charity staff and other members of the

[45] Of the 11% who speak a language other than English at home, 45% prefer bins and 32% prefer charity stores
[46] Of the 17% who live in a unit or apartment, 53% prefer bins and 33% prefer to donate at charity stores
[47] Of the 8% who do not have access to a car, 36% prefer bins and 28% prefer charity stores

community may contribute to this decision, and in addition, if the donor happens to notice that other donors have left items outside, this may convince them that such behaviour is acceptable. Section 7 further considers the role of the physical features of the site, including the status of bins, for dumping behaviours.

In terms of demographics, those who stated that they had left the items outside as opposed to taking any other option were:

- Younger (18-34 years)[48];
- More likely to be a student than any other type of employment[49];
- More likely to be living in a flat, unit or apartment than any other housing type[50];
- More likely to have no access to a car[51];
- More likely to speak a language other than English at home[52].

Figure 6.14: Actions taken when bin is full or store is closed (survey; multiple responses possible)

The 62% of people who had not encountered the problem of a full bin or a closed store were asked about their potential behaviour if they did find themselves in this situation (see Figure 6.15 below). Respondents thought that they would be likely or very likely to take the items home and come back another time (73%) or take them to a different bin or store location (54%). However, 25% said that they would be likely or very likely to leave the items next to the bin and they were:

- Much more likely to be a student than any other employment type[53];
- More likely to be younger, aged 18-34 years[54];
- Slightly less likely to have access to a car[55];
- Slightly more likely to live in a flat, unit or apartment[56];
- More likely to live in a private rental[57];
- More likely to speak a language other than English at home[58].

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[48] 62% of those aged 18-34 years *cf.* 46% of those aged 34-54 years and 26% of those 55 years and over

[49] 91% of students *cf.* 57% of those self-employed (the next largest group). They were least likely to be retirees (24% of retirees)

[50] 58% of those living in a flat, unit or apartment *cf.* 45% of those living in a detached house on a large section (the next largest group). They were least likely to live in a detached house on a small section (29% of those living in this housing type)

[51] 67% of those with no car access *cf.* 40% of those who do have access to a car

[52] 54% of those who speak a language other than English at home *cf.* 39% of those who do not speak a language other than English at home

[53] 46% of students *cf.* 30% of those currently unemployed (the next largest group). They were least likely to be retired (13% of retirees).

[54] 43% of those aged 18-34 years *cf.* 31% of those aged 34-54 years and 14% of those aged 55 years and over

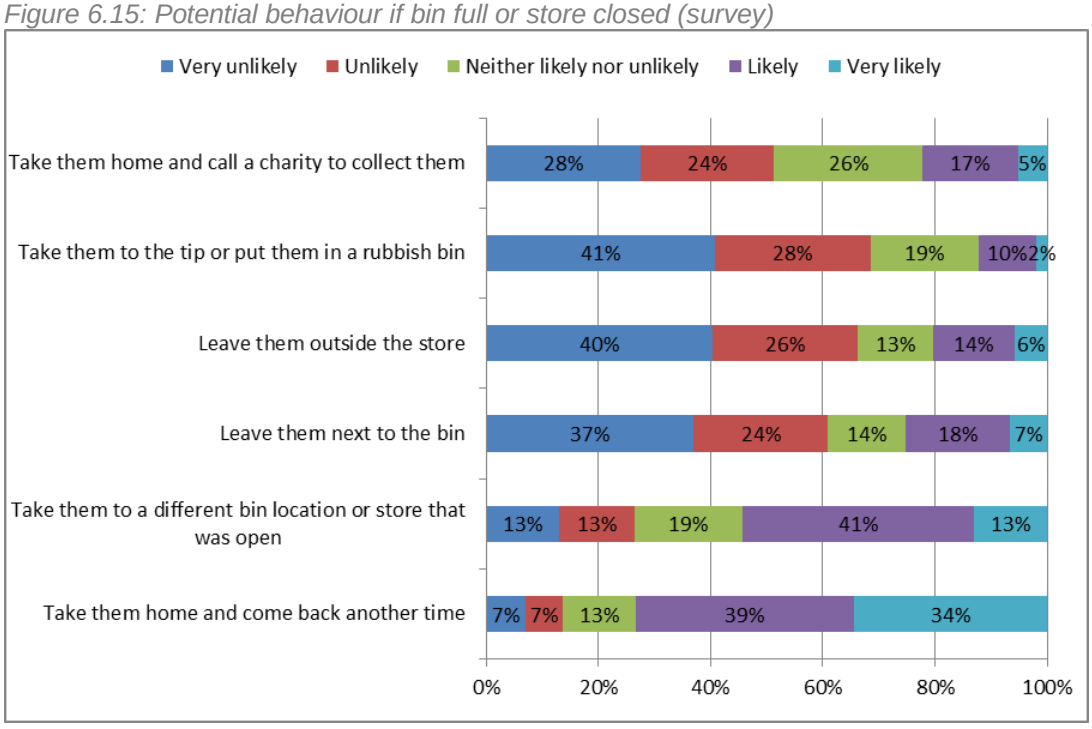
[55] 29% of those with no care access *cf.* 25% of those with car access

[56] 35% of those living in a flat, unit or apartment *cf.* 25% of those living in a detached house on a large section (the next largest group). They were least likely to live in a townhouse (21%).

[57] 33% of those living in a private rental *cf.* 23% of owner-occupiers and 13% of those living in community or government housing

According to the TPB model, behavioural intentions do not always predict behaviour as control factors can intervene. Given that (as discussed above) the rate of people who admitted dumping outside charity bins and stores is higher (41%) than the rate of people who said that they would be likely to do this if they encountered a full bin (25%), it is likely that at the point of donation, many people who do not intend to dump simply make a quick decision to leave the items outside because this is the most convenient option. Aside from ease and convenience as a trigger for this type of behaviour, individuals may also have erroneous beliefs about charity practices that cause them to donate inappropriately (discussed in Section 6.3).

Figure 6.15: Potential behaviour if bin full or store closed (survey)

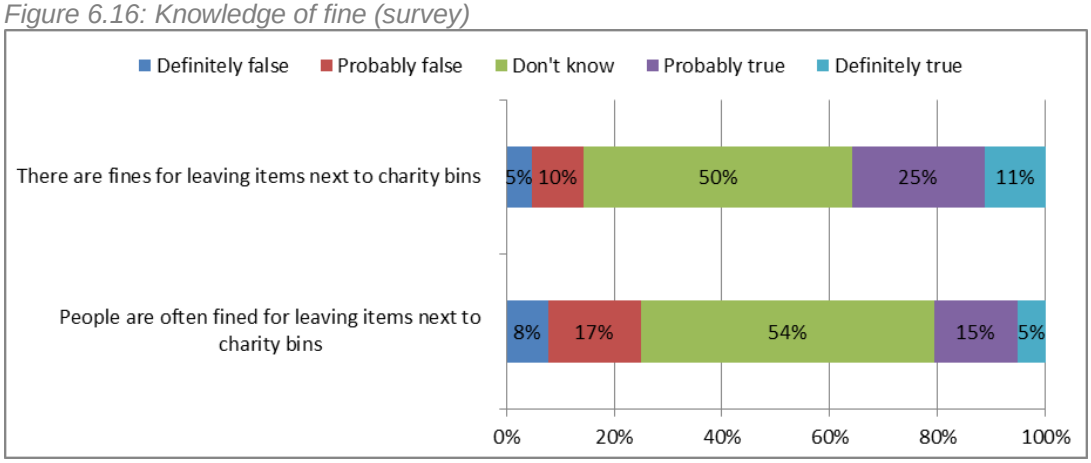


6.6.2 Knowledge of fines

Knowing that a behaviour is illegal and that fines can be issued is usually an effective deterrent for socially undesirable behaviours. In order to test the effect of this idea in relation to dumping at charity sites, the survey included questions asking about people's knowledge of fines. As shown in Figure 6.16 below, only 36% of respondents considered that it was probably or definitely true that donors could be fined for leaving items next to charity bins. Even fewer people (20%) believe that people are often fined. The interview participants were more aware of the fine, but even so, only 68% knew that there was a fine for leaving items outside at charity sites. Despite the signage at charity sites warning that leaving items outside is considered to be littering, these results indicate that the message is not noticed by the public or not taken seriously. This lack of knowledge about the ability to be fined therefore works to *facilitate* dumping behaviours.

[58] 37% of those who speak a language other than English at home *cf.* 24% of those who do not speak a language other than English at home

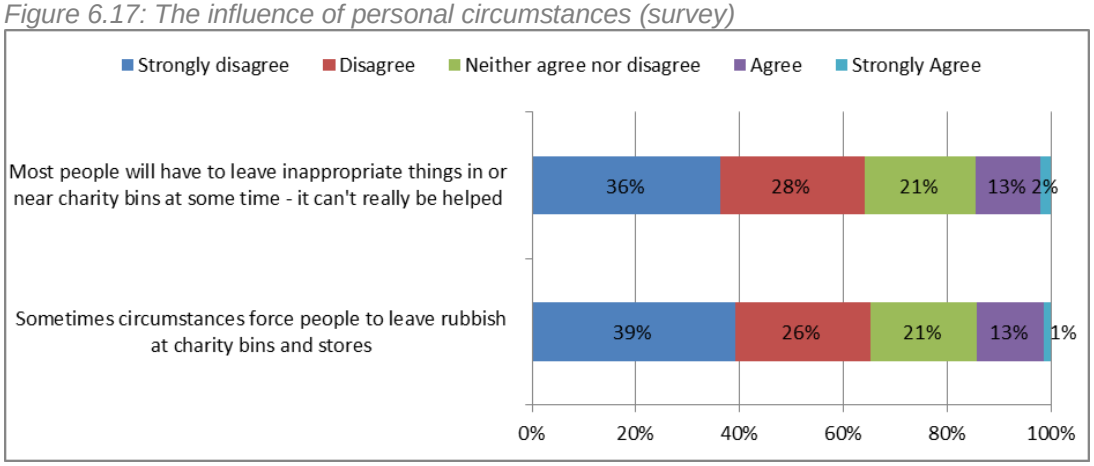
Figure 6.16: Knowledge of fine (survey)



6.6.3 The influence of personal circumstances

The survey identified a series of control factors that are related to personal circumstances which may impact on appropriate donating intentions. Charities are aware that at times people might dump at charity sites due to personal crises, which may result in an urgent need to move house. However, the survey respondents reacted quite strongly to this idea. Most people (65%) disagreed or strongly disagreed that circumstances can sometimes "force" people to dump at charity sites (see Figure 6.17 below). A very similar proportion (64%) respondents disagreed or strongly disagreed with the idea that leaving inappropriate items in or near bins "can't be helped" some of the time. While most people accept personal responsibility for their donation behaviours, 14% of people agreed with both statements. For this minority, personal circumstances may be a valid reason for justifying dumping at charity bin sites.

Figure 6.17: The influence of personal circumstances (survey)



Further statements examined respondents' levels of perceived control regarding rubbish disposal (see Figure 6.18 below). In relation to the statement "taking unwanted rubbish to the tip is really hard for me", 35% agreed that this was probably or definitely true. This could reflect a range of personal difficulties related to time, access to transport, distance to the transfer station, and ability to pay tip fees, and examination of the demographics of this group showed that they were more likely to be:

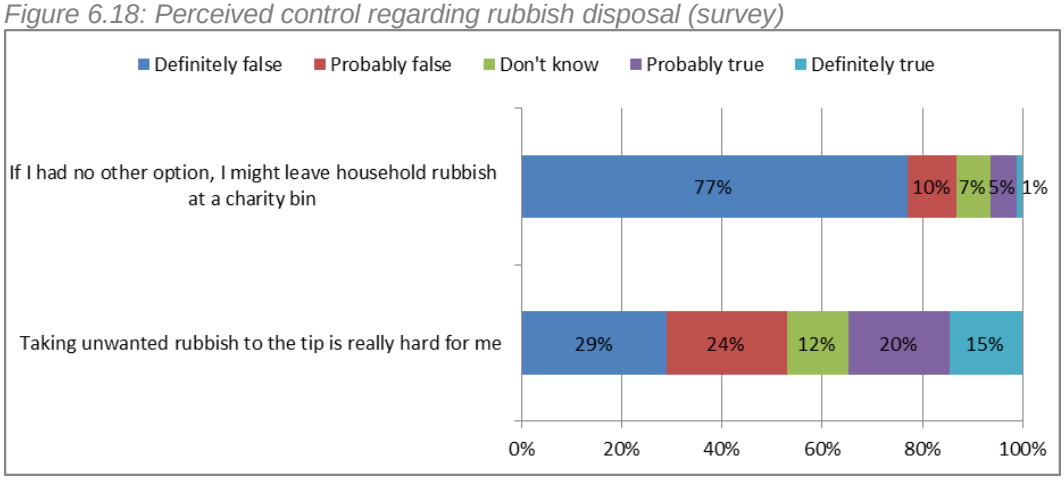
- Women[59];
- Speak a language other than English at home[60];
- Live in community or government housing[61] and in a flat, unit or apartment[62];

[59] 39% of women *cf.* 30% of men
[60] 43% of those who speak a language other than English at home *cf.* 34% of those who do not
[61] 55% of those living in community or government housing *cf.* 41% of those who live in private rentals (the next largest group). They were least likely to be owner-occupiers (31%).

- To have no access to a car[63];
- To be a student[64];
- Younger, aged 18-34 years[65];
- To be on a lower income, under $49,999 per year[66].

Despite this acknowledgement of barriers to accessing the tip, few people agreed (6%) that they might leave household rubbish at a charity bin if they had "no other option", and most people (77%) said that this was definitely false. These results indicate that knowingly leaving rubbish at charity sites is widely regarded as wrong, even when circumstances make rubbish disposal difficult.

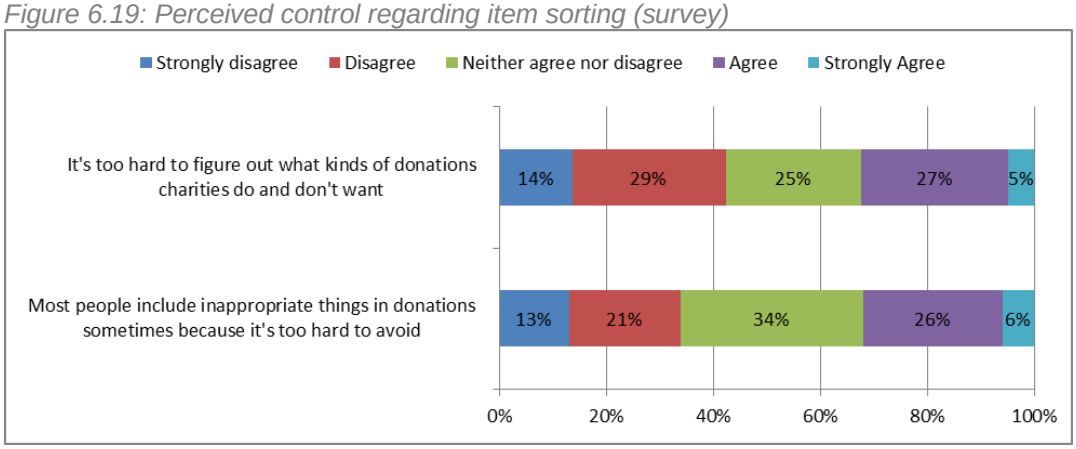
Figure 6.18: Perceived control regarding rubbish disposal (survey)



Previous findings reported that the majority of individuals carefully consider the items they donate to charities. To further examine donating behaviour, people were asked to respond to the following statement which related to perceived levels of control when sorting items for donations: "Most people include inappropriate things in donations sometimes because it's too hard to avoid". Nearly one-third (32%) of survey respondents agreed or strongly agreed with this statement and the same proportion agreed or strongly agreed that it was too hard to figure out what kinds of donations that charities would accept (see Figure 6.19 below). Although many people do take responsibility for sorting donations appropriately, these results suggest that understanding charity guidelines is a source of confusion for many people. Queensland charities do accept different types of items (and possibly different levels of quality as well) so this result is not surprising; however, this lack of clarity may be used by some people as a way of justifying what they donate to charity.

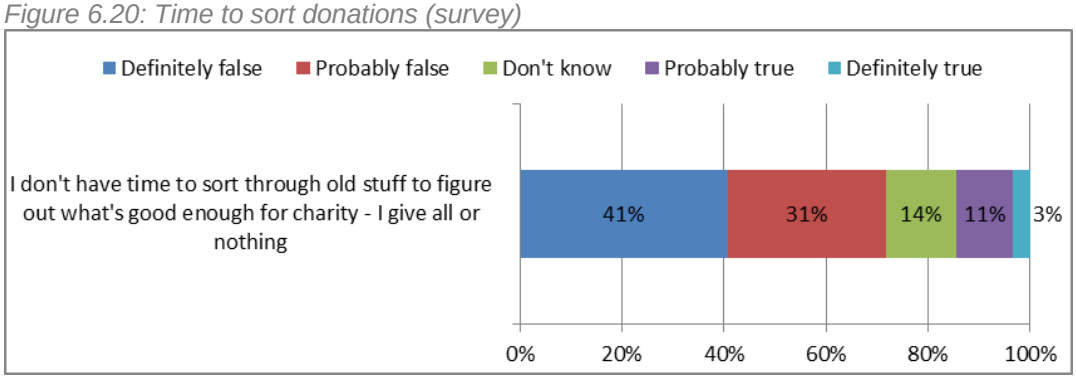
[62] 52% of those living in a flat, unit or apartment *cf.* 37% of those living in a detached house on a small section (the next largest group). They were least likely to live in a detached house on a large section (25%).
[63] 64% of those with no access to a car *cf.* 32% of those with car access
[64] 54% of students *cf.* 40% of those currently unemployed (the next largest group). They were least likely to be not seeking work (21%)
[65] 41% of those aged 18034 years *cf.* 32% of those aged 34-54 years and 34% of those aged 55 years and over
[66] 42% of those on $49,999 or under *cf.* 32% of those earning $50,000-$99,999 and 25% of those earning $100,000 or more

Figure 6.19: Perceived control regarding item sorting (survey)



Finally, the survey asked about circumstances that could influence item sorting behaviour. As shown in Figure 6.20 below, most people (72%) did not accept that a lack of time impacted on how they sorted items for donation. However, 14% believed that a lack of time did mean that they were unable to sort donations thoroughly, and that this justified giving "all or nothing" to charities. This belief reflects a focus on an individual need to get rid of unwanted items quickly and conveniently and demonstrates a lack of respect for the impact on charities.

Figure 6.20: Time to sort donations (survey)



Addressing personal circumstances that might trigger illegal dumping is difficult to address through education and marketing, because knowing the right thing to do is unlikely to change behaviours when people feel desperate. Stressing the potential for fines may have a place in education messages but it is likely to be effective only if people believe that fines are enforced. Educational messages also need to be careful not to be too negative, as this might risk deterring genuine donators. Providing clearer information about what charities can and cannot accept and communicating this more clearly to the public may help to reduce the ability of some people to use lack of information and lack of time as excuses for dumping behaviours.

The next section considers three distinct donor profiles and how educational messages could be targeted to address misconceptions and problematic attitudes within the community.

6.7 Three donor profiles

Thus far this section has presented commonly held beliefs and attitudes identified within the total samples of the survey and public interviews. Close examination of the findings has shown that the community is highly heterogeneous and opposing beliefs about donating and dumping practices are clearly apparent. The notion of distinct donor profiles has been presented elsewhere in the illegal dumping literature; for example, the Victorian Litter Alliance (2014) proposes four profiles. The current project has sought to identify distinct donor profiles in order to build knowledge about potential sub-groups of audience to whom tailored educational messages could be targeted. Responses to key

questions in the survey about actual and intended donation behaviours were used as the basis of cross-tabulations to examine the most common beliefs and attitudes associated with these specific behaviours. The results were used to construct three distinct donor profiles, which are discussed below.

6.7.1 Champion Donors

Champion Donors exhibit model donation behaviours and are the most responsible and educated about how charities want the public to donate. This group practices good stewardship of their donations, and were the most likely of the three profiles to be motivated by the desire to help people in need through donations or to support environmental sustainability.

When faced with a full bin or a closed store, Champion Donors will take their donations home or go to a different bin or store site. This group is unlikely to leave large items outside bins or to leave rubbish at charity sites, and when sorting items for donation, they carefully pick out good quality items. If they are unsure if an item is suitable for donation, Champion Donors will contact a charity to ask or throw it in the rubbish. The analysis suggests that approximately 40%[67] of the public could be characterised as Champion Donors. Of the three groups, Champion Donors are the most likely to believe that:

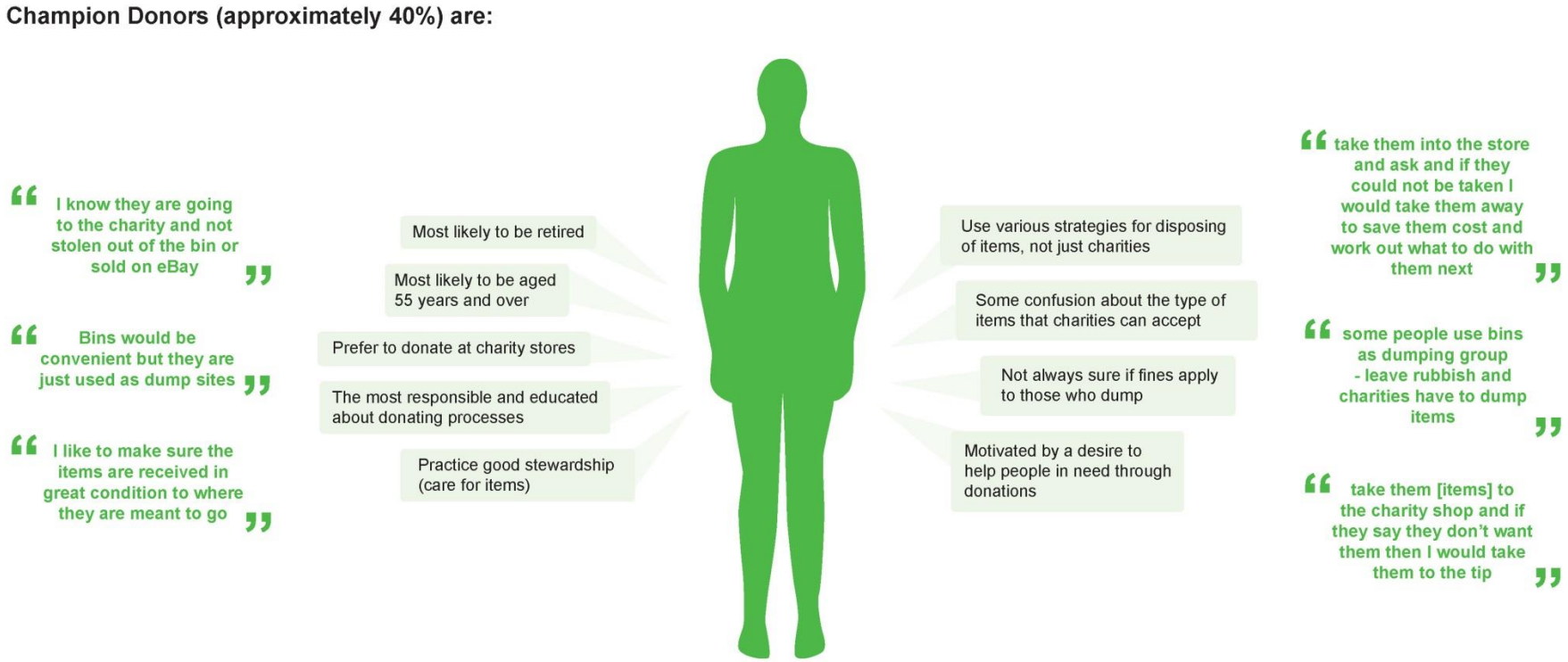
- The quality of clothing and textiles is important;
- Charities have to carry the cost of clearing up bin sites;
- It is wrong to leave any sort of donation outside bins and stores;
- Their family and friends would be disappointed in them if they knowingly left rubbish at bin sites.

It is important to note that Champion Donors may not always do the right thing every time. Much like the woman in the example given in Section 1.3, under certain circumstances even Champion Donors might unintentionally dump at charity sites. This may be due to the existence of some gaps in their knowledge. For example, the idea that donations left outside bins are sorted for sale just like donations inside bins and that fines cannot be issued for leaving donations outside were commonly found among survey respondents who displayed model beliefs in many other key areas.

In terms of demographics, Champion Donors are most likely to be aged 55 years and over and retired. If they are employed, they are more likely than the other two groups to be employed on a casual basis, and (along with Deliberate Dumpers) they were the most likely to be earning a low income (under $50,000). They are most likely to be an owner-occupier (like all three groups) and living in a detached house on a large or small section. Champion Donors were the group most likely to shop at charity stores, which may reflect lower incomes on average and holding values related to frugality and avoiding waste. Shopping at charity stores also enables Champion Donors to become familiar with the types and quality of items that charities can sell. Champions Donors are more likely than the other groups to donate at charity stores. See Figure 6.21 below for a summary of the characteristics of Champion Donors.

[67] Responses to Question 13 were used to calculate the approximate proportion of Deliberate Dumpers (those who would be likely or very likely to leave rubbish at charity sites). Responses to Question 10 about item sorting behaviour (if you aren't sure whether your items were suitable for donating, what would you do?) were used to identify the approximate proportion of Champion Donors (those who would call the charity to ask or throw the items in the rubbish) and Unintentional Dumpers (those who would donate them and let the charity decide).

Figure 6.21: Infographic: Champion Donors



6.7.2 Unintentional Dumpers

Unintentional Dumpers are well meaning but uninformed about how to donate appropriately. Like Champion Donors, they have a strong perception that donation is a community norm. They perceive that their family and friends would be disappointed in them if they threw things away rather than donating them, or knowingly left poor quality donations or rubbish at charity sites. However, beyond this, their beliefs about donating are a mix of accurate and inaccurate information. Unintentional Dumpers are:

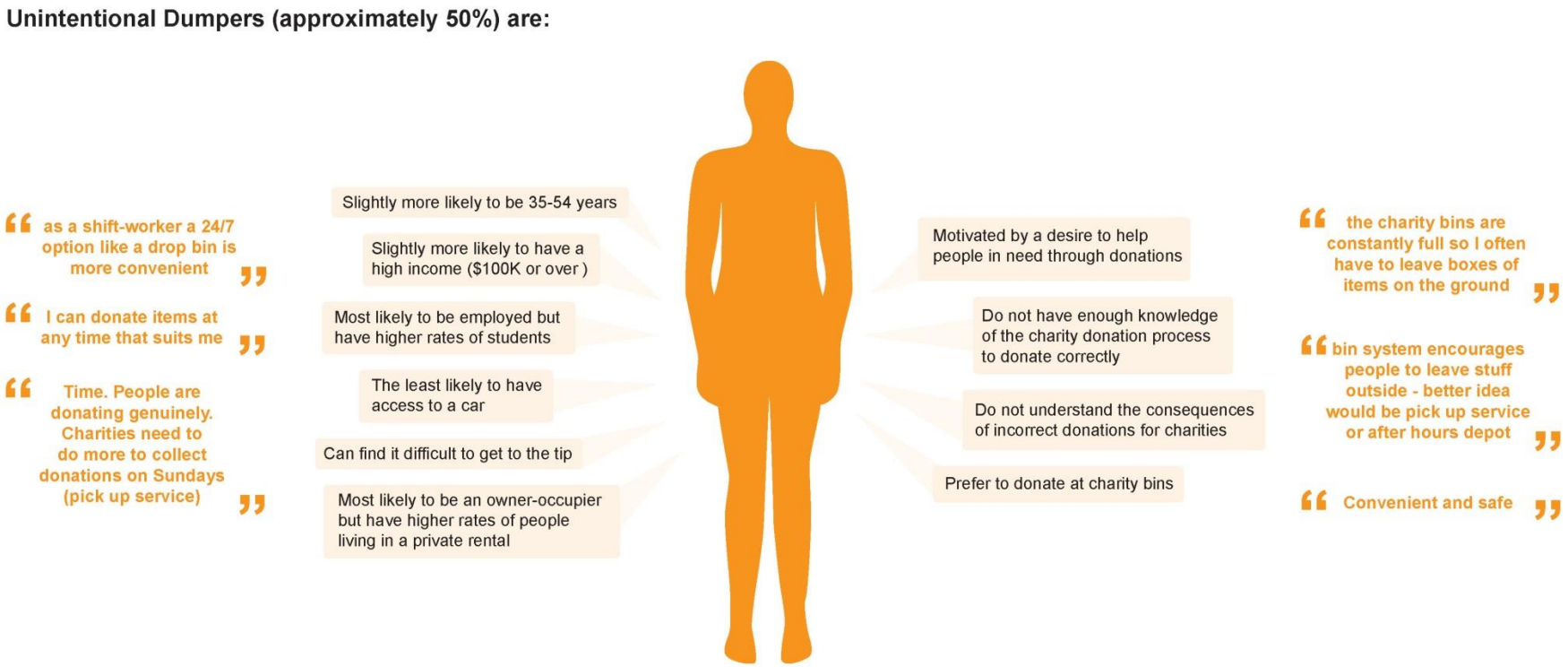
- Either in agreement with, or indifferent to the idea that it is too hard to figure out what kinds of donations charities do and don't want;
- Likely or very likely to leave donations outside when they encounter full bins or closed stores and many of them have actually done this. They are also likely or very likely to leave large items outside bins and stores;
- When unsure if an item is suitable for donation, likely to donate it and let the charity decide;
- Less likely to feel guilty (compared to Champion Donors) about charities having to throw their donated items away.

Approximately 50%[68] of the public could be characterised as Unintentional Dumpers. Despite their good intentions this group may illegally dump at times, particularly when there are barriers that make it difficult for them to donate appropriately. Compared with Champion Donators, Unintentional Dumpers are less concerned about stewardship of goods and more likely to be motivated by convenience when donating. However, like Champion Donors, they consider that people should take responsibility for their donating practices. Unintentional Dumpers are unlikely to believe that they do not have time to sort through items carefully and they rarely accept that circumstances might force some people to leave rubbish at charity sites. Overall, this mix of inaccurate knowledge and lower sense of stewardship means that the behaviour of Unintentional Dumpers oscillates between appropriate donating practice and illegal dumping.

In terms of demographics, Unintentional Dumpers are slightly more likely to be middle-aged (35-54 years) and most likely to be employed full-time (like Deliberate Dumpers), although this group also has the highest rate of current students. If employed, Unintentional Dumpers are most likely to be in a permanent employment arrangement. Their household income is most likely to be in the middle or high income range (middle income - $50,000 to $99,999; high income - $100,000 and over). In terms of housing, this group is most likely to be an owner-occupier (like all three groups) but more likely than Champion Donors to live in a private rental and a flat, unit or apartment (which are associated with less storage space). They are the group that is least likely to have access to a car, which explains why some Unintentional Dumpers say that it is difficult for them to get to the tip. In terms of their donation patterns, they are irregular donors (every 10 months or less) and they prefer to use charity bins. They are much less likely than Champion Donors to shop at charity stores, so they are less aware of the types and quality of items that charities can sell. See Figure 6.22 below for a summary of the characteristics of Unintentional Dumpers.

[68] See footnote above

Figure 6.22: Infographic: Unintentional Dumpers



6.7.3 Deliberate Dumpers

Deliberate Dumpers are similar to Unintentional Dumpers in terms of their inaccurate knowledge base, but the behaviour that distinguishes them as a group is their propensity to deliberately leave rubbish at charity sites if the need arises. One question in the survey asked about what people would be likely to do if they needed to get rid of rubbish that did not fit into their regular household bin. A small number (6%) admitted that they would be likely or very likely to leave such rubbish at a charity site. This suggests that Deliberate Dumpers comprise less than 10%[69] of the public.

Deliberate Dumpers are more likely to believe that illegal dumping is acceptable. As illustrated by the following findings, Deliberate Dumpers are more likely to believe:

- That it is too hard to figure out what charities can and cannot accept;
- That they lack the time to sort through their items and decide what is good enough to donate to charity;
- That there are circumstances outside of a person's control that might justify leaving rubbish or inappropriate donations at charity bins and stores.

Overall, Deliberate Dumpers are the least likely to take personal responsibility for their donating behaviours and it is plausible that this group might have even personally experienced events that have triggered them to dump at charity sites. They demonstrated a nonchalant response to the idea that their family and/or friends would be disappointed in them if they knowingly left rubbish at charity bins, which suggests that illegal dumping at charity sites could be more accepted within their close social circles.

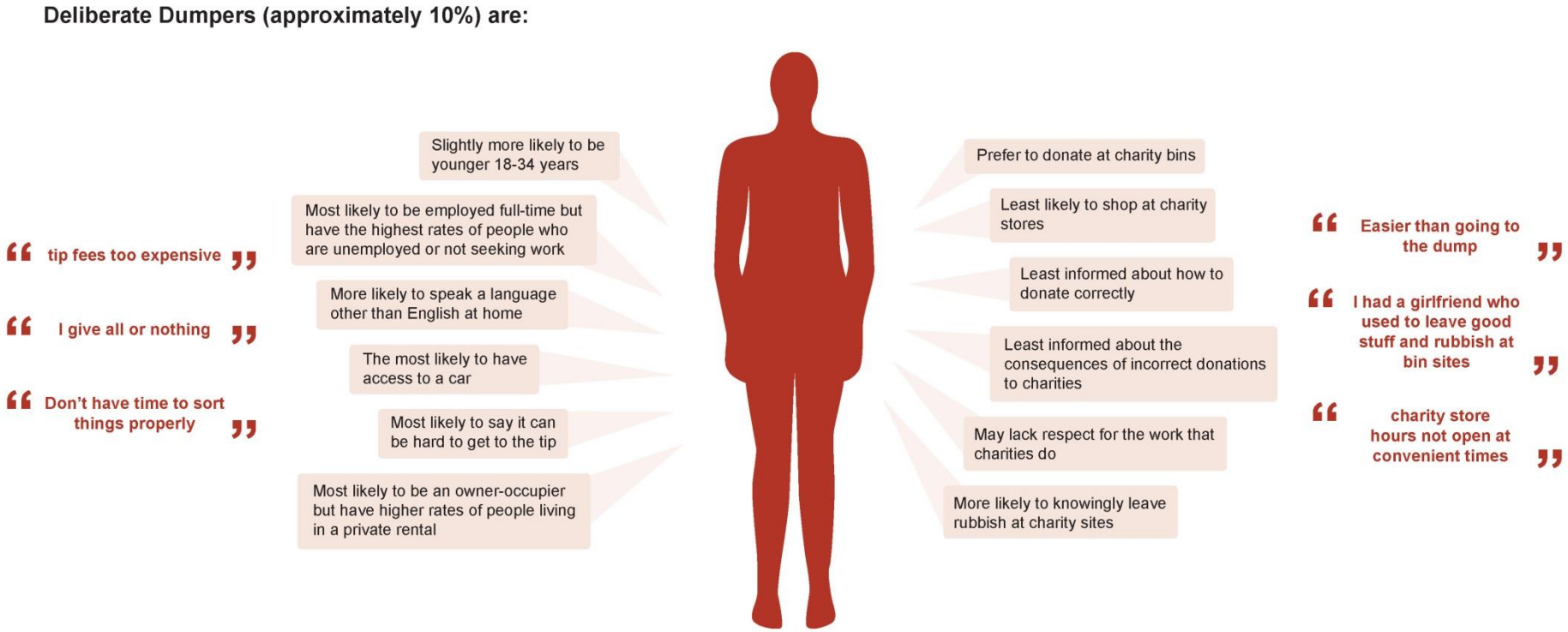
Interestingly, Deliberate Dumpers were more likely than the other two groups to be aware that people are often fined for leaving items next to charity bins. However, this does fit with the assessment that Deliberate Dumpers are aware that dumping rubbish at charity bins is not appropriate. Educating the public to improve awareness of possible fines and enforcing fines, should (according to the TBP model) lower a sense of personal control when leaving items outside charity bins. Currently, the potential for fines is not working as an effective deterrent for dumping.

Another surprising finding was that this group believes that their family and/or friends would be disappointed in them if they threw things away instead of donating them to charity. This suggests that this group does experience some peer influence to donate unwanted items. However, Deliberate Dumpers are less likely than the other groups to feel guilty if their donations were not of acceptable quality.

In terms of demographics, Deliberate Dumpers are slightly more likely to be younger (18-34 years). They are most likely to be employed full-time (like Unintentional Dumpers) but have the highest rates of people who are unemployed or not seeking work. If they are employed, they are most likely to be on a permanent employment contract, but their incomes are lower (like Champion Donors, they are most likely to earn a low income of under $50,000). Deliberate Donors are most likely to be an owner-occupier living in a detached house on a large section (like all three groups), but this group has higher rates of people living in private rentals and flats, units or apartments. They are more likely than the other three groups to speak a language other than English at home and the most likely to have access to a car. In terms of their donation patterns, they are frequent donors (monthly up to three months) and they prefer to use charity bins. They are the least likely to shop at charity stores. See Figure 6.23 below for a summary of the characteristics of Unintentional Dumpers.

[69] See footnote above

Figure 6.23: Infographic: Deliberate Dumpers



6.8 Final comments

Most people who donate to charity are well meaning and consider donation to be an act of good community citizenship that is generally shared and valued across the community. Some donors are highly educated and display model behaviours, but a lack of correct information about how to donate properly coupled with a low motivation to seek out the correct information means that many people dump unintentionally. Donation itself is tightly connected to the need to clear out unwanted items at home and dispose of them in a convenient way. This motivation drives the choice of donation method for many people, and may also make it easier to justify inappropriate behaviours when barriers to correct donation (for example, a full bin or a closed store) are unexpectedly encountered.

A small number of survey respondents admitted that they would be likely or very likely to leave rubbish at charity sites. This group was noticeably more lenient in terms of their acceptance that circumstances might sometimes justify such actions, even though they appear to understand that such behaviour is wrong. The general public perception of illegal dumping behaviours is that those who leave items outside bins and stores are lazy, can't be bothered to donate properly and want to avoid paying tip fees. However, many people believe it is "inevitable" that charities will have to deal with a certain amount of rubbish at donation bin sites where donations are not monitored by charity staff.

The three donor profiles identified may be useful for informing targeted educational messages to change dumping behaviours. In terms of proportions, Unintentional Dumpers are likely to be the most receptive to education messages about behaviour change. This group wants to do the right thing and thinks that they are. Information that aims to correct gaps in knowledge should prompt this group to recognise that they may have dumped in the past, providing new motivation to behave differently in the future. Other strategies, such as altering the physical features of bin and store sites and enforcing fines for dumping at charity sites, may be more effective strategies for changing the behaviour of Deliberate Dumpers.

7.0 UNDERSTANDING BEHAVIOUR: ENVIRONMENTAL INFLUENCES

7.1 Overview

The previous section examined the beliefs and attitudes of the public towards donating and dumping and identified three donor profiles that are associated with particular behavioural patterns. This section continues to explore behaviour by examining the influence of environmental factors. Within the Theory of Planned Behaviour, an individual's perceived level of control over the behaviour, or the extent to which they believe that they can carry out the behaviour without negative consequences, will influence their decision to enact the behaviour (Ajzen, 2012). Certain environmental features (Tonglet, 2002) at charity bin and store sites may inhibit or enable the intended behaviour of individuals; in effect, triggering or deterring dumping. Section 6 considered the effect of controls such as knowledge of fines, the influence of personal circumstances and the status of bins. This section builds on this analysis to consider the influence of other controls related to the physical aspects of donation sites, such as site access, lighting and the impact of natural surveillance. These findings support and expand on the best practice recommendations concerning the management of donation bins and sites in key policy documents (e.g. NACRO, 2013; Sustainability Victoria, 2013).

The analysis in this section draws on the findings of two data collection methods used to assess the physical environment of charity sites. The first method involved a photograph log of bin and store sites and the second was an audit of selected charity sites. The key findings include:

- The severity of dumping at bin sites is likely to be higher when bins are full. This provides further justification for clearing bins more frequently to prevent the formation of normative ideas that illegal dumping is acceptable;
- It is commonly believed that the demographics of the local population and the socio-economic status of the surrounding area play a role in illegal dumping, but this was not substantiated. Instead, the analysis indicates that specific features present at site locations are more likely to be stronger influencers of donating and dumping behaviours;
- Sites that attract high levels of dumping are characterised by excellent access to the site, ample space for parking and for leaving large items outside bins, a high number of bins, low natural surveillance in the form of foot traffic, and few deterrents such as lighting and CCTV;
- To reduce the likelihood of dumping, charities should consider locating bin sites at locations with high natural surveillance, particularly in the form of foot traffic. Lower levels of dumping are also more likely to be associated with the presence of multiple deterrents such as CCTV, excellent lighting and specialist fencing.

7.2 Photograph log of waste

This section presents findings from a novel approach to exploring patterns of dumping over time. The section begins with a detailed discussion of the photographic log method, including the development of the log tool and the approach taken to data collection. The analysis is presented as follows:

- Frequency of dumping
- Severity of dumping
- The impact of bin status on dumping
- Final comments

7.2.1 Photograph log methodology

In order to assess the severity and frequency of illegal dumping at bin and store sites, a photograph log was recorded over a four week period in Brisbane and Cairns. Drawing on a similar method developed by Newton and Smith (2013), Collection Truck Drivers were asked to take photographs of all bin and store sites on their scheduled routes and Managers of selected charity stores were asked to take photographs of the front of their store. Staff were asked to photograph sites every day, whether dumped items were present or not. Charities were provided with a digital camera and a protocol to ensure consistency in photographing sites. For example, charities were asked to ensure that the entire bin was captured in the photos (see Appendix G for the protocol and recording sheet).

In addition to photographing sites, Drivers and Managers were asked to complete a log sheet noting if the bins were full, whether or not dumping was present, and the amount of dumping at each site. A scale for measuring the amount of dumping present was provided as follows (and is depicted in Figure 7.1 below):

- Level 1 accounted for a small amount of dumping, i.e. 1 or 2 bags or items
- Level 2 a moderate amount of dumping, i.e. the volume of a wheelbarrow
- Level 3 a significant amount of dumping, i.e. around 2-3 wheelbarrows
- Level 4 a very significant amount of dumping, i.e. a trailer load or more of rubbish.

The method was tested prior to commencing data collection. One of the researchers spent a day in the Link Vision truck accompanying the driver on their scheduled route. Using the draft log sheet as a guide, the driver was asked to complete the log sheet to assess the clarity of instructions and any operational impacts. Following this, the finalized protocol and cameras were provided to each of the charities to undertake a one day trial. Data from the trial showed that the photographs and log sheets were conducted to a high standard; however, many adjustments were required to clarify roles (who would collect the data and who would send the data to the research team), how often data would be sent to the research team (daily or weekly), and the method of transferring data (Dropbox was set up to enable multiple large files to be sent). Based on the trial, decisions were made to restrict data collection for some charities. Table 7.1 below summarises the final charity and site list.

Figure 7.1: Photos from photographic log of waste according to level of dumping

Level 1 Dumping

Level 2 Dumping

Level 3 Dumping

Level 4 Dumping

Table 7.1: Charities and data collection method

CHARITY	DATA COLLECTOR	TYPE OF SITE/S
Lifeline (Brisbane)	Collection Truck Driver	All bin sites in Brisbane area
Lifeline (Cairns)	Collection Truck Driver	All bin sites in Cairns area
Endeavour Foundation (Brisbane)	Collection Truck Driver	All bin sites in Brisbane area
Link Vision (Brisbane)	Collection Truck Driver	All bin sites in Brisbane area
Salvation Army (Brisbane)	Store Manager	Single store – Lutwyche
St Vincent de Paul (Western Brisbane Diocese)	Warehouse Supervisor	Single store – Sumner Park (bins also present)

Data collection occurred over a four week period, commencing on 14 September 2015 to 9 October 2015. Charities typically experience an increase in illegal dumping during school holidays and public holidays, so the dates selected included the September school holidays in Weeks 2 and 3 and the Labour Day holiday on 5 October, which fell at the beginning of Week 4. Some challenges were experienced during data collection; for example, technical challenges such as access to computers and changes in staff hindered data collection at times. These challenges were mostly resolved and resulted in only a small amount of missing data.

Data collected from the log sheets were entered into spread sheets and the ratings given for the severity of dumping were checked for consistency against researcher scoring. The average margin of difference between how the researcher and charities scored levels of dumping was 21%. While this was not a major difference, it did show that there was some inconsistency in how sites were assessed by charities.

7.3 Dumping patterns over time

The following section examines patterns in the extent of illegal dumping at selected charity sites over a four week period. Data were analysed to assess the *severity* and *frequency* of dumping and the impact of *bin status* on dumping. The severity of dumping was assessed according to the average level of dumping, and frequency according to the number of times dumping was accounted for (or present) at each site photographed. Key findings include:

- Dumping is more frequent and slightly likely to be more severe during holiday periods;
- Full bins are more likely to be associated with more severe levels of dumping;
- More frequent bin clearances may help to prevent community norms from forming about the acceptability of dumping.

7.3.1 Frequency of dumping

Table 7.2 below summarises the total number of times that dumping was and was not present at the charity sites included in the sample. Over the four week period, the frequency of dumping was close to or just over 50% of the time. Charity experience is that dumping is more likely to occur during holiday periods. The school holidays (Weeks 2 and 3) were associated with an increase in the frequency of dumping by about 5% and the frequency remained higher into Week 4, which included a public holiday. Charities participating in the photographic log consistently commented that if the data collection had taken place in summer (especially during the lead up to Christmas) that a much greater increase in frequency would have been identified.

Table 7.2: Frequency of dumping (all charities)

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
Dumping present	93 (49.7%)	106 (54.6%)	107 (54.9%)	98 (55.1%)
Dumping not present	94 (50.3%)	88 (45.4%)	88 (45.1%)	80 (44.9%)
Total sites photographed	**187**	**194**	**195**	**178**

7.3.2 Severity of dumping

The average level of severity for dumping per week ranged from 1.3 to 1.6 although the levels varied considerably across the individual charities (see Table 7.3 below). The range 1.3-1.6 equates to between a small amount of dumping (1 or 2 bags or items) and a moderate amount of dumping (the volume of a wheelbarrow). The severity of dumping was relatively consistent across the four weeks but it reached its peak in Week 3 (average of 1.6) when the frequency of dumping was also high, which may again reflect the school holiday period. In addition to the time of year, the status of bins was also found to be an important factor that shapes the severity of dumping, and this is discussed in the following section.

Table 7.3: Average severity of dumping (by charity, by week)

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
Endeavour Foundation	0.3	0.2	0.4	0.3
Lifeline Brisbane	1.2	1.2	1.4	1.1
Lifeline Cairns	2.6	1.7	1.8	1.4
Link Vision	1.6	2.0	1.7	0.7
Salvos	2.4	1.8	2.6	1.3
Vinnies	0.6	1.6	1.4	3.3
Average severity	**1.5**	**1.4**	**1.6**	**1.3**

7.3.3 The impact of bin status on dumping

The literature suggests that the public prefers to make donations at charity bins rather than stores, and this is further supported by the findings of the survey (see Section 6.5). Examining the frequency and severity of dumping at bin sites can help to inform how bins are used by the public and further inform charity practices. Examination of the photographic data showed that, irrespective of whether or not bins are full, dumping is more likely to be present than not. In fact, the frequency of dumping at sites that have full bins (34.9%) is on par with the frequency of dumping at sites which *do not* have full bins (33.9%). This suggests that the status of bins (whether or not they are full) has no impact on whether or not people dump at bin sites (see Table 7.4 below).

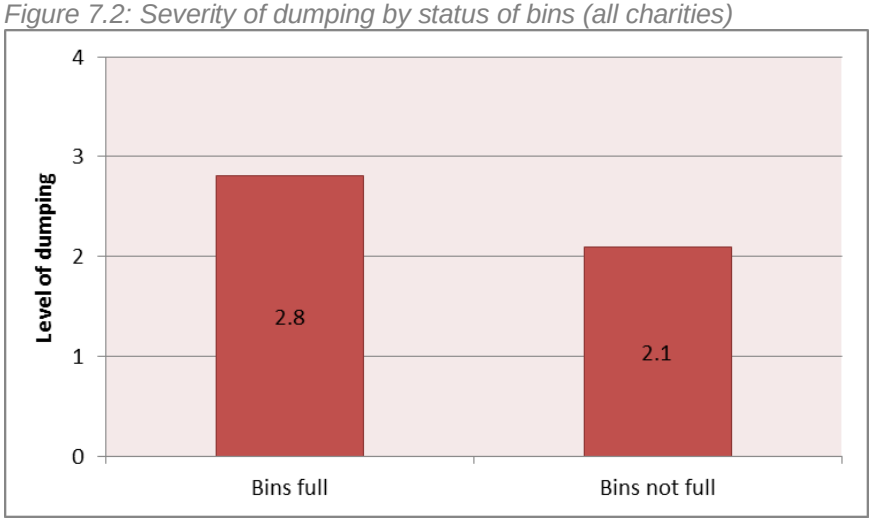
Table 7.4: Status of bins and frequency of dumping

	FULL BINS	%	BINS NOT FULL	%
No dumping	51	34.9%	297	33.9%
Dumping	95	65.1%	578	66.1%
Total sites	**146**	**100%**	**875**	**100%**

While the status of bin may not have an impact on the *frequency* of dumping, it does have a notable difference on the *severity* of dumping. As shown in Figure 7.2 below, full bins are likely to attract more severe levels of dumping. On average, it was found that full bins attracted a severity rating of 2.8, which is close to a level 3 dumping, while bins that are not full attracted a severity rating of 2.1, which is close to a level 2 dumping. While this difference may seem minor, the photos shown previously in Figure 7.1 highlight the significance between a level 2 and a level 3 dumping severity.

Frequent bin site clearances to minimise the attraction of further dumping is a key recommendation for best practice within the broader literature (NACRO, 2013; Sustainability Victoria, 2013). This analysis provides further evidence in support of this recommendation. Charities recognise that normative ideas about the acceptability of dumping are quickly formed by the community (see Section 5.5) and 41% of members of the public who have encountered a full bin or a closed store had left their donations outside (see Section 6.6.1). Ensuring that the public is more likely to encounter clear bin sites with bins that are not full is therefore a key strategy for encouraging appropriate donating behaviours. Clearing sites frequently may be particularly important during holiday periods when dumping at all charity sites is likely to be higher in frequency and severity.

Figure 7.2: Severity of dumping by status of bins (all charities)



7.3.4 Final comments

The findings above show that dumping fluctuates according to certain time periods and that the severity of dumping is likely to be worse when the frequency of dumping is high. Bin status (whether bins are full or not) does not impact on the frequency of dumping, but full bins are more likely to attract a more severe level of dumping.

The photographic log is a useful method for assessing the fluctuation of waste at charity sites over time. Although challenges were experienced in the collection of the data, these were quickly overcome. Future uses of the tool might consider a longer data collection period to provide a more comprehensive dataset, but the existing analysis shows that useful information was gleaned from the relatively short period of four weeks. It is also suggested that photographic examples of the different levels of dumping (shown in Figure 7.1) may be useful to include with data collection protocols to reduce inconsistencies in staff assessment of illegal dumping.

Overall, these findings provide insight into dumping behaviours, especially when bins are full. Some individuals may be influenced by the dumping behaviour of others, thus creating a greater imperative for charities to clear sites on a more frequent basis. The following section extends upon the examination of environmental influences by exploring physical features at sites that may further attract or deter illegal dumping.

7.4 Bin and store site audits

This section reports on findings from environmental audits conducted at bin and store sites. This novel approach to data collection in the area of illegal dumping at charity sites examines factors that might influence donating and dumping behaviours. The section begins with a detailed description of the audit method then the analysis is presented in the following sections:

- Features of bin site locations
- Case studies: High dumping sites
- Shared features of high dumping sites
- Case studies: Low dumping sites
- Shared features of low dumping sites

7.4.1 Audit methodology

The audit framework was jointly developed by the research team and a group of volunteer students from the Queensland University of Technology (QUT). The process began with an initial evaluation of a nearby bin site to identify physical features (and broad categories of features) that might be important to understanding donating and dumping behaviours. A draft tool was constructed and

tested, with each person independently scoring features and taking notes to check for differences in understanding and levels of detail. A further draft was then tested at a larger bin site before final adjustments were made. Table 7.5 below summarises the key features that were audited at each charity site. A copy of the audit recording sheet is provided in Appendix H.

Table 7.5: Physical features audited at charity bin and store sites

CATEGORY	LOCATION	BINS	INFORMATION / SIGNAGE	OTHER DETERRENTS
Specific features	Description of site and surroundings	Number of bins	Language	CCTV present
	Space around the bin	Number of charities present	Written or visual information	Bins in a well-lit area
	Presence of public	Bin size	Types of items accepted	Surrounding area well lit
	Level of site visibility from street	Dumping present	Visibility of signs and placement	Specialist fencing
	Sufficient parking	Status of bin (full or not)	Consistency and clarity	
		Appearance of bins	Warnings about dumping	

To select the sites for auditing, charities were asked to identify sites that were known to attract high and low levels of dumping. These sites also formed the locations for the public interviews (see Section 6.2.2). A total of 53 sites across Brisbane and Cairns were audited and these are summarised in Table 7.6 below. Data collected on the audit recording sheets were entered into Survey Monkey along with key demographics for the suburb of each site location. The analysis involved splitting the dataset into two groups (high and low dumping sites) and comparing the results. Where relevant, information provided during the key informant interviews with charity staff was also incorporated.

Four site case studies (two high dumping sites and two low dumping sites) are featured as part of the analysis. The cases were selected by first identifying sites for which four types of data had been collected: photograph log of waste, site audit, public interviews and reference to the site during the key informant interviews with charity staff. The list was then narrowed to four cases that were particularly bad hot spots for dumping and/or presented interesting combinations of features thought to influence dumping behaviours.

Table 7.6: Bin and store site audits conducted

CAIRNS	High dumping sites	Low dumping sites
Salvation Army	2	1
St Vincent de Paul	2	3
Lifeline	3	3
Endeavour Foundation	1	2
TOTAL CAIRNS	***8***	***9***
BRISBANE	**High dumping sites**	**Low dumping sites**
Salvation Army	2	5
St Vincent de Paul (Western Brisbane Diocese)	4	1
St Vincent de Paul (Brisbane City Diocese)	1	2
Lifeline	5	2
Endeavour Foundation	5	5
Link Vision	2	2
TOTAL BRISBANE	***19***	***17***
TOTAL SAMPLE	**27**	**26**

7.5 Features of bin and store sites

The following section presents the findings of the analysis of the bin and store site audits. The analysis focused on the population demographics of the suburb within which each site was located, and the physical features of bin sites across the four categories summarised in Table 7.6 above. The key findings discussed in this section include:

- Minimal demographic differences were identified between sites that attract high and low levels of dumping;
- Demographics may play a role in dumping, but behaviour is more likely to be a result of the complex interaction of beliefs, information, resources and the experience of barriers;
- Specific features present at site locations are likely to strongly influence donating and dumping behaviours;
- Sites that attract high levels of dumping are characterised by excellent access to the site, ample space, a high number of bins, low natural surveillance, and few deterrents to inappropriate donating;
- Sites that attract low levels of dumping are characterised by locations with high natural surveillance and the presence of multiple deterrents such as CCTV, excellent lighting and specialist fencing.

7.5.1 Population demographics

Anecdotal evidence from charities and the findings of the limited existing research suggested that certain demographics would be key indicators for high or low dumping areas. Demographics that were expected to be associated with high levels of dumping include:

- Lower access to a car (which makes it harder to transport rubbish to the tip);
- Higher proportion of apartment, unit and townhouse dwellings (which is associated with less space to store goods);
- Higher levels of people from a non-English speaking background (different cultural expectations about rubbish removal options may create different donation behaviours);
- Lower levels of employment and income levels (lower ability to pay for tip fees, pay for car expenses and pay for rubbish removal).

However, very little difference in demographics was found between low and high dumping sites and the differences that were apparent sometimes contradicted assumptions (see Table 7.7 below for a summary of the demographic comparison). For example, lack of car access was slightly more likely to be a feature of areas where low dumping is reported (10.4%) than areas of high dumping (9.6%). Similarly, in terms of dwelling type, more people lived in apartments and units in low dumping areas (19.7%) than in high dumping areas (15.7%). Low dumping areas also had higher rates of people from non-English speaking backgrounds (12.7%) than high dumping areas (10.4%).

Socio-economic status was also expected to be a key indicator for low or high dumping areas, with high dumping expected to occur in lower socio-economic areas. However, unemployment rates were similar in both high (3.2%) and low (3.25%) dumping areas. The average proportion of individuals in full time employment (31.9%) was exactly the same for both areas and there was very little difference between median incomes ($81,900 in low dumping areas and $81,354 in high dumping areas).

These findings show that the notion that dumping is influenced by the demographic characteristics of the surrounding community is not substantiated, at least not by this analysis, which considered demographic data at the suburb level. This does not mean that demographics have no association with dumping, because analysis of the survey data indicates that demographics do play some role (see Section 6). However, simplistic explanations should be avoided as behaviour is most likely to be a result of the complex interaction of beliefs, information, resources and barriers. For example, people living in communities characterised by a lower socio-economic status may have fewer options for alternative methods of item disposal when faced by barriers to appropriate donating, such as full bins.

The analysis presented in the remainder of this section further indicates that the physical features of charity sites, particularly the presence or absence of multiple deterrents to dumping, are significant influencers of the behaviour of the public.

Table 7.7: Population demographics in high and low dumping areas (averages)[70]

Demographic	High dumping areas	Low dumping areas
Age	36.2 (Median)	36.3 (Median)
Dwelling type		
Separate house	72%	71%
Semi-detached	10.2%	8%
Apartment / unit	15.7%	19.7%
Caravan	1%	0.7%
Other	0.15%	0.2%
Housing tenure		
Fully owned	25.8%	25.8%
Being purchased	33.7%	33%
Rented	37.4%	38.1%
Other	0.6%	0.7%
Income (median)	$81,900	$81,354
English-speaking background		
ESB	10.9%	10.8%
Non-ESB	10.4%	12.7%
If Non-ESB, speaks English…		
Well or very well	30.3%	32.7%
Not well	4.8%	5.8%
If Non-ESB, main language	Italian, German, Creole	Japanese, Italian, Vietnamese
% Tertiary qualified	46.2%	47.2%
% Current students	24%	24%
Employment status		
Employed full time	31.9%	31.9%
Employed part time	14.1%	14.2%
Away from work	2.4%	2.3%
Unemployed	3.2%	3.3%
Not in the labour force	22.9%	23.4%
% need for mobility assistance	4.3%	4.3%
% no motor vehicle at dwelling	9.6%	10.4%

7.5.2 Features of bin site locations

The analysis found that the features of the broader surroundings and the immediate location of charity bins and stores have the most significant impact on levels of dumping. This aligns with charity perceptions, and many key informants were aware that certain types of locations attracted higher levels of dumping. For example, busy roads (main roads and highways) do not work as a source of natural surveillance. Despite the quantity of traffic moving past the site, the speed of traffic means that drivers and passengers are not likely to pay attention to what is happening at a charity site located to the side of the road. Industrial areas (with limited or no residential properties close by) were identified as likely to attract dumping, largely due to the lack of public presence after hours: "*[if] it is…an industrial area…[more dumping occurs]*" (Driver).

In comparison, charity experience was that sites located near the vicinity of or directly next to shops (especially strips of shops), typically attracted low levels of dumping: *"[that site does not receive a lot of dumping because] it is on a shopping strip"* (Warehouse Supervisor). This is because areas that are dense with shops attract high levels of foot traffic, which provides excellent natural surveillance. In

[70] Suburb data sourced from (1) Australian Bureau of Statistics (2011) Census of Population and Housing: Basic Community Profile:http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/2011.0.55.001Main%20Features12011?opendocument&tabname=Summary&prodno=2011.0.55.001&issue=2011&num=&view and (2) Queensland Government Statisticians Office (2016) Population by Age and Sex, Regions of Australia unpublished data and Queensland Treasury estimates: http://statistics.qgso.qld.gov.au/report-viewer/run?__report=sis-stats-available.rptdesign&systemName=QRSIS&__format=pdf

addition, shopping areas are usually well lit, may have CCTV present, and the amount of space available for leaving donated goods is limited to the foot path. Some charity stores attract high levels of dumping; however, these stores tend to be stand-alone stores rather than part of a strip, with lower surveillance present after hours. Stand-alone stores also frequently have another access point at the rear of the store, which can be a target for dumping.

However, analysis of the site audit data was not always consistent with charity experience. As summarised in Table 7.8 below, shops were a typical feature in the immediate and broader location for both high and low dumping sites. One finding that is consistent is that high dumping areas were more likely than low dumping areas to be immediately located in industrial areas and to feature busy roads in terms of the broader surroundings.

It is possible that no single feature is most likely to be associated with either high or low dumping sites, and that combinations of features are more relevant predictors. For example, one of the highest combinations for high dumping sites includes busy roads in the broader surroundings (20.5%) and shops as the immediate location (33%). The second highest of these is industrial area 22% (immediate location) and busy roads (20.5%) or shops (20.5%) as a feature of the broader surroundings.

In comparison, low dumping sites are likely to be placed in the immediate or broader vicinity of shops (24% and 29% respectively), car parks (17%) and next to train stations (21%). At these types of locations, there are likely to be a number of features already present which deter illegal dumping, such as high natural surveillance (foot traffic, including security guards), CCTV and good lighting. The remainder of this section examines four case studies, reviewing the impact of specific combinations of location types for levels of dumping.

Table 7.8: Ranked features of location and broader surroundings

HIGH DUMPING AREAS	1	2	3	4	5
Broader surroundings	Busy roads 20.5% and Shops 20.5%	Car park 18.2%	Residential 13.6%		
Immediate location	Shops 33%	Industrial area 22%	Shopping centre 11%	Train station 8%	Community centre 8%
LOW DUMPING AREAS	**1**	**2**	**3**	**4**	**5**
Broader surroundings	Shops 24%	Car park 17%	Busy roads 13%	Transport station 13%	
Immediate location	Shops 29%	Train station 21%	Shopping centre 13%	Industrial area 13%	Community centres 8%

7.5.3 Case studies: High dumping sites

CASE STUDY 1

The Cannon Hill (Brisbane) bin site operated by Link Vision attracts high levels of illegal dumping that are rated 3.1 on average (significant to very significant), which is well above the average level of dumping across other Link Vision sites (average level is 1, a small amount of dumping). The Cannon Hill site (described in the textbox below) is an open site surrounded by businesses with a caravan park located to one side. Despite the built up nature of the area, natural surveillance is quite low as the bins are located at one end of the very large car park, a wooden fence provides screening from the caravan park behind, and the shopping centre itself is somewhat run down and attracts few shoppers. Clear deterrents for dumping behaviour (such as CCTV) are not present. Access to the site is very convenient, as donors can easily pull off the main road and ample space is available for parking and leaving large items beside the bins. It is possible also that this site has become known in the community as a place to dump waste and scavenge donations, as some members of the public who were interviewed at this site commented that dumping and scavenging occurred frequently at the site.

Case Study 1 (Link Vision, Cannon Hill)
Immediate location: shops and car park
Surrounding area: busy road

This site has ten bins located at one end of a large shopping centre car park (a Link Vision store is located in the shopping centre complex). In the area surrounding the bins there is a caravan park and several businesses outside of the main shopping centre complex. The bins are located directly next to a walkway leading to the caravan park next door. While the bins are not visible from the road (Wynnum Rd, a busy main road), members of the public are able to easily access the car park where the bins are placed. An audit of the site found that while the surrounding car park area has adequate lighting, the bins are not well-lit. CCTV may be present near the shops, but the area containing the bins is not captured. Specialist fencing is not installed.

CASE STUDY 2
Lifeline's Virginia Superstore in Brisbane also receives above average levels of illegal dumping (3.6, significant to very significant) compared with the average level of dumping for Lifeline Brisbane (0.4, a small amount of dumping). A description of this site is provided in the textbox below. Like the Cannon Hill site, the Virginia Superstore site is easy to access at both the front and rear. The rear of the building is particularly sheltered from view, especially after hours, and traffic on busy Sandgate Rd is not an effective source of natural surveillance for the front of the store.

Case Study 2 (Lifeline Superstore, Virginia)
Immediate location: shops and industrial
Surrounding area: busy road

At this Superstore, there are eight bins located at the front, facing towards a busy main road (Sandgate Road). At the back of the Superstore there are two more bins. Bins on both sides of the Superstore were well-lit. The surrounding area at the front of the store was also found to be in a well-lit area, although this was not the case for the area at the back of the Superstore. The public is able to exit directly from Sandgate Road into a car park in front of the Lifeline Superstore. The back of the Superstore is not visible from the road and is accessed via a side driveway, where other private warehouses are located. CCTV and specialist fencing were not installed at this site.

7.5.4 Shared features of high dumping sites

Photographs of the two high dumping case studies are provided in Figure 7.3 below. In terms of the common features, both sites are located either on or directly near main roads In the Key Informant Interviews, *accessibility* to sites was identified as a contributory factor to illegal dumping. For instance, one Warehouse Supervisor stated:

> *This is a main road so you are just in and out…they can drive in, dump, keep driving out the exit*.

Ease and convenience are top reasons why donors prefer to use charity bins (see Section 6.4) and the site audits confirm generally that sites that have *sufficient parking* and are easily accessible from the main road may attract people to dump. These sites are *convenient* for donators to access; however, this same convenience also inadvertently attracts dumpers to these sites.

Low visibility (natural surveillance, especially foot traffic) might also be a factor that encourages dumping as this is a shared feature of both of these sites (especially for the Cannon Hill site and the rear of the Virginia Superstore site). Charity staff often stated that dumping generally occurs when dumpers are not visible to other members of the public. Findings from the audit show that there is little difference between high and low dumping sites in terms of the visibility of bins from the street (53.8% and 50% respectively). However, there is a difference between the level of public presence, which is less likely to be high at high dumping sites (37%) compared to low dumping sites (57.7%).

A lack of deterrents may also encourage dumping. For example, both of these sites have only partially *well-lit areas* and neither has *CCTV* installed, which further contributes to a lack of surveillance. Specialist fencing is not installed at either site, providing members of the public with open access to these sites at any time of the day or week. As was suggested charity staff (see Section 5.5), dumping is more likely to occur at night and during the weekend.

Both sites also have a large number of bins. Analysis of the audit data showed that the median number of bins at high dumping sites was four, and at low dumping sites it was 2.9 bins. It was proposed by one Warehouse Supervisor that this might influence dumping:

> C*annon Hill is really messy, as well, but that is probably the volume of bins that we have at that site*.

Large numbers of bins may have been placed at the Cannon Hill and Virginia sites simply because there is ample space to accommodate a large number of bins. *Ample space around bins* may be further factor that encourages illegal dumping. Photographs collected for this research show how people make use of the space around the bins when they dump (see Figure 7.4 below). The two photos on the left are of bins located in plenty of open space where donations can be left, and the two photographs on the right are of bins located in restricted areas with little space donations.

It is most likely that illegal dumping occurs as a result of a combination of factors, rather than one specific factor. However, deterrence is a critical factor in dissuading individuals from dumping. This is shown in the following case studies of particularly successful low dumping sites which both feature high levels of deterrents.

Figure 7.3: Cannon Hill (top) and Virginia (bottom) bin sites

Figure 7.4: Use of space (open and restricted) at bin sites in Brisbane and Cairns

7.5.5 Case studies: Low dumping sites

CASE STUDY 3
The Endeavour Foundation Hendra (Brisbane) site rarely experiences dumping. The photograph log of data showed that over a four week period, this site did not receive any dumping. A description of this site is provided in the textbox below.

Case Study 3 (Endeavour Foundation, Hendra)
Immediate location: shop (private business)
Surrounding area: residential, shops and transport station (train station)

At this site there are three bins located on private property next to a mechanic business. The site is close to a relatively busy road (Kitchener Road), and train tracks are located directly opposite the site. The surrounding area also includes residential houses and a strip of shops further down from the bin site. The site has a good level of visibility from the street, and the presence of the public (foot traffic and slow suburban road traffic) is high. The site contains a number of deterrents. For instance, CCTV cameras have been installed, and both the bins and surrounding areas are well-lit.

This site is located in a high socio-economic suburb, and on the day of the audit the area was busy with local suburban traffic, pedestrians, donators driving in to offload items, and workers at the private business. The high presence of public around this area means that natural surveillance is high, and the multiple forms of surveillance (foot traffic, cars, residential, and private business) provides a sense that these bins are constantly under watch. This site also has CCTV so even if the area is quiet after hours, individuals going to this site may still believe they are under surveillance.

CASE STUDY 4
Another interesting case study is the Endeavour Foundation site located at Wooloowin. This large site covering two car parks is a combination high and low dumping site. Three bins placed in one section of the car park attract high dumping, and two bins placed in a different section attract low levels of dumping. The photograph log of data shows that the average level of dumping over the four weeks was 0.5 (less than a small amount of dumping). The site is summarised in the textbox below.

Case Study 4 (Endeavour Foundation, Wooloowin)
Immediate location: car park
Surrounding Location: train station

This site is located in a large train station car park that is separated into two sections. There are a total of five bins with two located just inside the entrance to the car park. CCTV is present in the car park and aimed directly at these bins. Close to the entrance is a footpath and in front of this a pedestrian crossing to provide access to the adjacent train station. Both the bins in this section and the surrounding area are well lit. The levels of public presence and site visibility from the street are medium and the road is moderately busy.

In the other section of the car park, there are three bins. Of these three bins, two are located towards the back of the car park and the third bin is located a few metres away, next to a second entrance to the car park. This entrance is off a quiet side street. In this section of the car park, the presence of the public is medium and the level of site visibility from the street is low. CCTV is present; however, unlike the first section, the cameras are not pointed directly at the bins and are too far away to act as a deterrent. The bins and surrounding area is well-lit, but there is a feeling of enclosure created by the large, dense trees that surround the car park.

The section of the car park known to attract minimal or no dumping was relatively busy on the day of the audit (although not as busy as the Hendra site). There was a consistent flow of local traffic, and pedestrians crossing the road directly in front or near the bins to the train station on the opposite side of the road. The level of public presence was assessed as medium, although this would likely increase in the morning and evening when people leave and return to their cars from work, and presumably decrease over weekends.

7.5.6 Shared features of low dumping sites

At the outset, these two low dumping sites (excluding the second section of the Wooloowin site), appear to be quite different. However, the key feature that contributes to their success is the presence of multiple effective deterrents (see Figure 7.5). The location of these sites, including the surrounding areas, is well-lit. Both sites have medium or high level visibility from the street, and medium or high public presence in the form of foot traffic. CCTV is installed at both sites. An analysis of the full audit dataset showed that low dumping sites were more likely to have CCTV present (52%) than high dumping sites (33.3%).

Aside from these shared features, there are additional deterrents that are unique to these sites. At the Hendra site, features that might seem to attract illegal dumping are mitigated by the presence of additional deterrents to those outlined above. For instance, the Hendra site has adequate space in front of the bins that would be attractive to illegal dumpers, but the owner of the adjacent private business monitors the bins and even clears the site if it gets untidy. (Other charities noted that they are sometimes assisted by members of the public in monitoring the bins, for example: *"he actually rings us to say, 'look, someone has left their bike there', or rubbish, 'can you pick it up?' It is always clean…if he sees something he rings…that is good for us"*). In addition to this, the Endeavour Foundation Hendra site is surrounded by houses and shops. This increases the presence of public so that natural surveillance is high.

Figure 7.11: Hendra (top) and Wooloowin (bottom) bin sites

The immediate location of the Endeavour Foundation Wooloowin site is a car park, which can be a feature of both high and low dumping sites.[71] The first car park receives only a minimal amount or no dumping has more deterrents than the second car park that does receive dumping. While both sections of the car park were found to have medium presence of public, there may be a more consistent flow of public around the section of the car park that does not attract dumping, as it is closer to the train station. In addition, this section of the car park has more foot traffic (a pedestrian crossing is located directly in front of where the bins are placed), compared to the other side of the car park which is placed on a quiet side street (see Figure 7.6 below).

The Endeavour Wooloowin site is also interesting because it demonstrates that CCTV does not work effectively as a deterrent unless it is positioned carefully. As described in the case study above, both sections of the car park have CCTV present. However, in one section of the train station car park, CCTV is directly aimed at the bins, and in the other section CCTV is not directly aimed at the bins or is placed too far away from the bins to deter people from dumping. Unsurprisingly, the latter area receives more dumping. This suggests that charities which find that CCTV is not working effectively, particularly those on private property, should consider the position of these sites.[72] This case study highlights the significance of multiple deterrents, particularly CCTV, at sites where the public has unlimited access.

Figure 7.6: Endeavour Foundation Wooloowin site: Rear of second car park

[71] One charity spoke about the problems they had moving a bin site from the main road into a carpark, stating: *we were…forced to move it around the back of the carpark, which was worse because it was a carpark and you get utes right into it. So we just took them away.*

[72] One charity spoke about the CCTV as ineffective in deterring illegal dumping, stating: *it is a very large open car park that is not attended after hours. Even though they do have security cameras in the car park, there has never been anyone prosecuted or no follow-up for dumping of rubbish there.* Despite this, other charities believe that CCTV would have an impact on illegal dumping. As one store manager stated: *the biggest deterrent would be having working CCTV cameras.*

7.6 Final comments

This section provides evidence for the key finding of this research, that the beliefs of the public and environmental factors at bin sites are interactive in the production of dumping behaviours. Building on existing best practice recommendations for the management of donation bins and sites (e.g. NACRO, 2013; Sustainability Victoria, 2013), it is recommended that charities consider both the immediate and the broader surrounding area when planning the location of new bin sites. It is further recommended that charities focus on the effective use of deterrents such as lighting and CCTV and clear bins regularly to avoid the accumulation of rubbish at sites. Taking these factors into consideration may strengthen the position of charities to influence behaviours by mitigating potential triggers for dumping at the point of donation.

The site audit method was a useful way to systematically assess and compare the features of sites that attract high and low levels of dumping. Even with a relatively small sample of 53 sites, the results revealed valuable findings that challenged assumptions held by charities, particularly the influence of population demographics, and identified key features of sites that may attract or deter dumping. The case study analysis suggested that there is no single environmental feature that is responsible for dumping behaviours and instead, it is the combination of several salient features that may be responsible for dumping outcomes. More research is needed (particularly, with greater sample sizes) in order to determine if there are one or two key features which produce the greatest impact. This information would be highly valuable to charities seeking to maximise their investment in (often expensive) strategies for reducing illegal dumping.

8.0 FORMULATING RESPONSES TO ILLEGAL DUMPING: MANAGING WASTE

8.1 Overview

The previous two sections have focused on understanding donating and dumping behaviours. This information can be used to inform the development of a social marketing campaign to promote responsible donating practices. Recommendations about how charities select and manage donation sites may also help to deter undesirable behaviours.

It is important to acknowledge that a marketing campaign and adjustments to charity operations should result in a reduction of illegal dumping, but they are unlikely to eradicate it completely. For this reason, attention must also be given to the environmental impact of illegal dumping and how waste is processed and disposed of by charities. The charitable recycling sector already prevents a significant quantity of unwanted items from ending up in landfill, but there is little evidence about the nature of illegally dumped waste and whether this is being managed in an optimal way.

In order to fully understand the nature of illegal dumping at charity sites, an audit was undertaken of a sample of items dumped at bin sites and a further sample of waste resulting from the warehouse sorting process. The audit revealed some surprising findings about the proportions of items. Four broad types if items – Textiles & Clothing, Furniture, Toys and Footware – represented 50% of the waste sent to landfill, and the total proportion of materials that could be recycled was calculated as 23.5%. The types and quantities of items were also found to partly reflect the different operational strategies used by charities to manage waste. The overall recommendation is that charities, councils and other stakeholders should work in partnership to improve current levels of recycling. A comprehensive list of local recycling organisations is provided as a resource to facilitate this work.

8.2 Waste audit

Charities were able to provide anecdotal evidence about the types of items commonly dumped, but this audit developed a clear methodology for categorising and weighing dumped items. This section begins with a detailed description of the audit methodology, including how the tool was developed and tested and used in the field. The analysis is then presented in the following three sections:

- Most common items
- Proportion of rubbish and recyclable items
- Charity comparison
- Final comments

8.2.1 Audit methodology

Developing a methodology for the audit was a key challenge for the project. A number of possible approaches were considered, including:

- A researcher to accompany collection trucks on their scheduled route to photograph and estimate the volume and type of waste at each donation site before it was loaded;
- Truck drivers to complete a log book estimating the volume of waste and describing its type at each site visited on collection rounds;
- Staff or volunteers at charity warehouses to undertake additional sorting to separate waste into categories and weigh items.

Each option was discarded due to concerns about maintaining data quality, workplace health and safety, lack of sufficient space at charity warehouse sites and the operational impact of data collection. An alternative approach was subsequently offered by Brisbane City Council, which has expertise in undertaking surveys of municipal waste. Brisbane City Council was able to support the development of an audit framework, arrange access to a local transfer station for conducting the audits, and provide protective equipment and supervision of charity staff and volunteers.

DEVELOPING THE AUDIT FRAMEWORK

The development of the audit framework commenced with a review of the waste categorisations that Brisbane City Council uses for the municipal waste categorisation surveys. Queensland state-wide waste classifications as reported in Hyder (2011) were also consulted. An initial list of 21 categories was developed that grouped material types broadly (e.g. recyclable plastics and non-recyclable plastics) and designated separate categories for commonly donated items such as clothing and furniture (regardless of material type).

In order to trial the framework, a sample load of waste was provided by Lifeline Brisbane and delivered to Nudgee Transfer Station (operated by Brisbane City Council). A total of 460.7 kg of items (not the full load) were sorted and weighed. Notes were recorded about each item, and this information was used to refine the audit categories. Decisions were made about how to classify certain types of items, for example, blankets and sheets were to be recorded in "Clothing & Textiles", but pillows and cushions were to be recorded in "Mattresses", but weighed separately from mattresses. It was expected that the audits would identify items that were difficult to categorise, so the audit sheet included space to record notes about each item to facilitate post-audit reclassification. The draft audit framework was sent to the Charity Reference Group for feedback.

The first day of auditing provided a live test for the framework. After this audit, final adjustments were made to the categories (e.g. a separate category for "DVD's, videos and cassettes" was created) and to the layout of the recording sheet to maximise useability. Final decisions were made about how to treat sub-categories of items, for example, plastic bags and reuseable plastic bags were sorted, weighed and recorded separately under the category of "Non-recyclable plastics".

CONDUCTING THE AUDITS

Two charities in Brisbane each provided a load of waste to be audited every Wednesday over four consecutive weeks, from 16 September to 7 October. The two charities were Lifeline, the largest charity represented in Brisbane with a total of 447 bins across 168 sites, and Link Vision, one of the smallest charities represented, with a total of 35 bins across 13 sites in Brisbane. Wednesday's were selected because Lifeline was able to guarantee that the first load of waste on a Wednesday would contain items left outside bins only. On other days (and indeed, for subsequent loads on Wednesday afternoons) the Lifeline load would include waste collected from Superstores, i.e. items that had not sold at these stores and were being cleared out to make room for new stock.

The two charities have different operational strategies for managing donations and waste so it was important that their waste was audited separately. The Lifeline tip truck dropped off a load of waste at 9am and once this load was fully audited, the Link Vision truck deposited a second load of waste for auditing. Each charity was able to identify the sites from which the waste had been collected and to supply other information that impacted on the nature of the waste; for example, on the second week it rained during the night and some of the donations were wet, which increased their weight.

The audits were conducted by a team of staff and volunteers who participated as available, with between five and nine people assisting with each audit. Auditors were fitted with protective overalls, steel-capped boots, safety glasses, dust masks and gloves, and a safety briefing was provided, which included a focus on safe lifting. The audits took place within a marked area next to the pit (see Figure 8.1 below[73]) and wheel bins and containers of various sizes were set up around the waste. Items were sorted into the bins and then weighed, with the weight of the bin subtracted from the total (see Figure 8.2 and 8.3 below). The sorting and weighing process started with large items, such as furniture and mattresses, and continued until the size of items became too small to weigh effectively. These remaining very small items generally consisted of fragments of broken donations and rubbish, and were swept into a bin, weighed and recorded as "miscellaneous fine material". The same person took responsibility for recording data for each of the four audits to maximise consistency.

[73] The photographs featured in Figures 8.1, 8.2 and 8.3 are used with the permission of Brisbane City Council.

Figure 8.1: Waste audit area at Nudgee Transfer Station

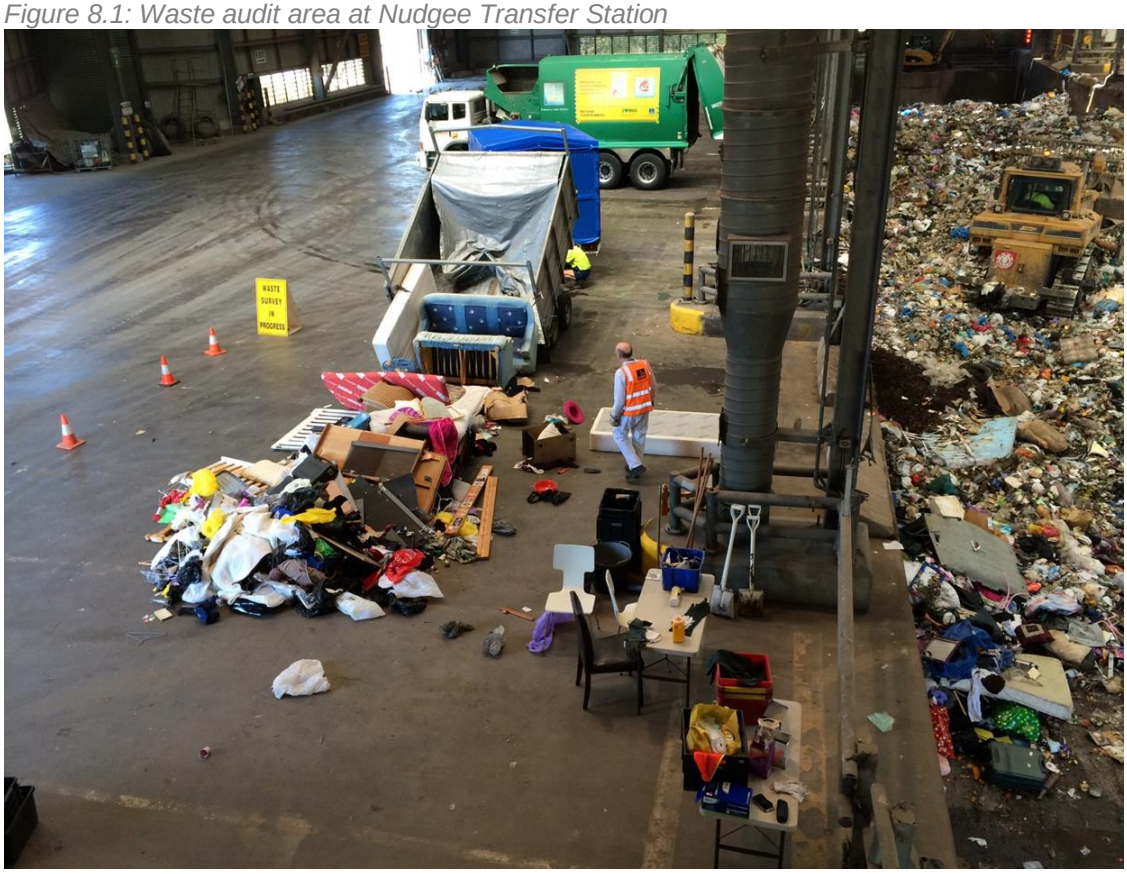
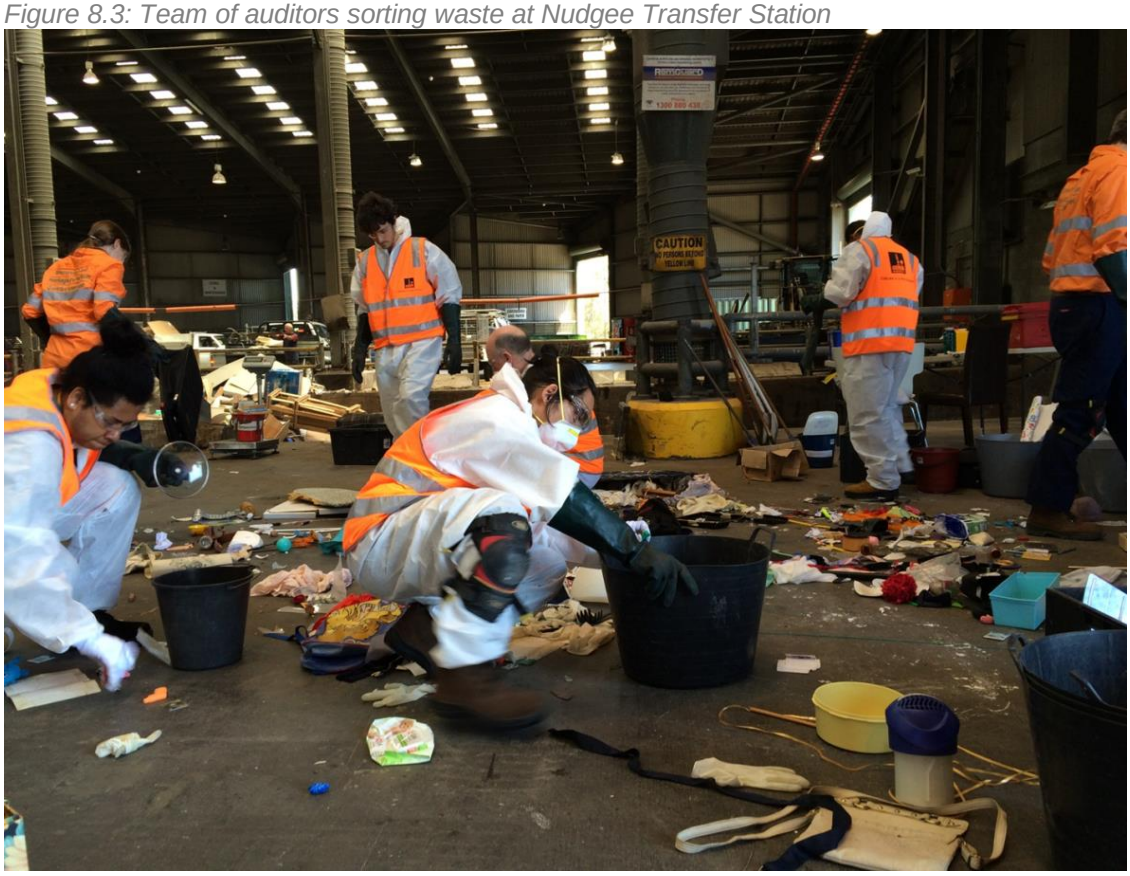


Figure 8.2: Weighing waste at Nudgee Transfer Station

Figure 8.3: Team of auditors sorting waste at Nudgee Transfer Station



DATA CLEANING

Data were transferred from the audit recording sheets to a spread sheet along with notes about the items. After all audits were completed, the notes were used to review the categorisation decisions to create a consistent dataset. Some items previously recorded within the "Miscellaneous" category were found to be of sufficient significance in terms of overall weight to form new categories, such as "Baby items" (strollers, car seats, unused nappies) and "Luggage" (large bags and suitcases). Other categories were split, for example, "Plastic bags" were separated from "Other plastic/Non-recyclable". All categories were checked for consistency and cleaned as required. The final audit framework contained 28 categories and the recording sheet is provided in Appendix I.

8.3 The nature of dumped items

8.3.1 Most common items

Figure 8.4 below summarises the total amount of waste per audit, per charity. A total of 5506.5 kg of waste was audited with similar total quantities supplied by each of the two charities (2842.1 kg supplied by Lifeline and 2664.4 kg supplied by Link Vision). Charities typically experience an increase in illegal dumping during school holidays and public holidays, so the dates selected for the audits purposely spanned the September school holidays in Weeks 2 and 3 and the Labour Day holiday on 5 October, which fell at the beginning of Week 4. The total quantities of waste did not show a clear increase in Weeks 2 and 3, however, Lifeline did see an increase in Week 4.

Figure 8.4: Total waste audited, by charity and week (kg)

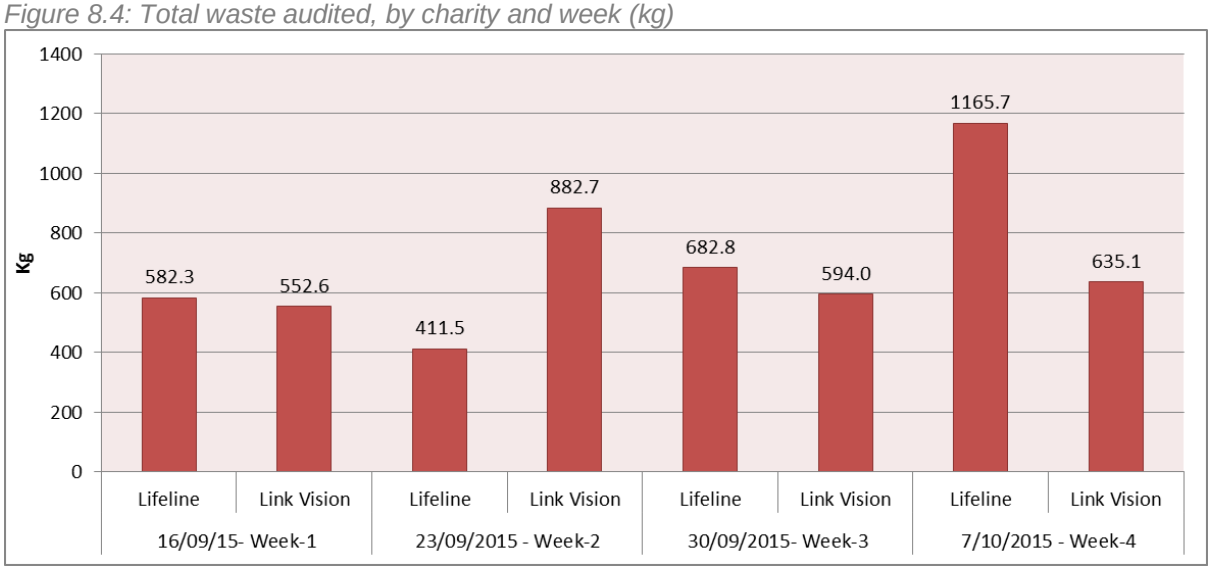
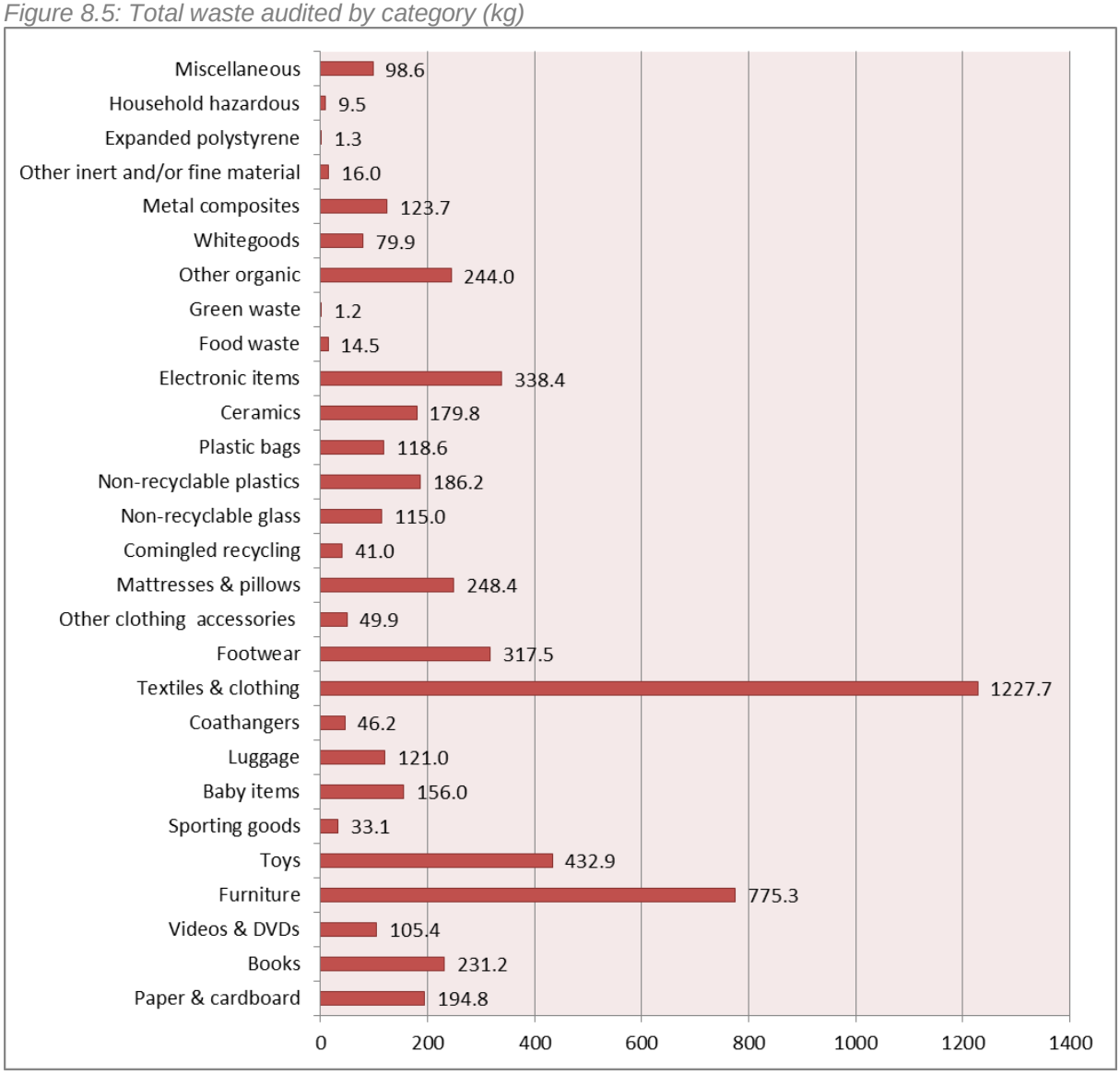


Figure 8.5 provides the breakdown of total audited waste by category. The most common category of waste was Textiles & Clothing with a total of 1227.7 kg audited. This is not surprising, given that other research has found that the bulk of material deposited in charity bins or taken to charity shops is textiles, predominately clothing (Bianchi and Birtwistle, 2012). A total of 775.3 kg of Furniture was audited, which included heavy items such as couches, bedframes and tables, as well as many smaller items such as artwork and storage boxes.

Toys were the third most common item with a total of 432.9 kg audited. This figure did not include children's books, which were categorised under Books. Footwear was also common (317.5 kg); however, in Weeks 1 and 2 Link Vision was clearing out a backlog of single shoes from their warehouse as their export provider had decided to no longer accept these. This is likely to have had the effect of inflating the total weight of footware audited. Overall, the weight of these four most common items amounted to 2,753.4 kg or 50% of the total weight of items audited.

Figure 8.5: Total waste audited by category (kg)



8.3.2 Proportion of rubbish and recyclable items

Charities often find that donated items are broken or dirty and the survey results indicate that many people wrongly assume that charities have the resources to fix and clean these items (see Section 6). In the eyes of the public, these may be genuine donations but for charities, these items are rubbish. Some notes about the quality of items were recorded on the audit sheet. Many items were in excellent condition (sometimes brand new and still in packaging) but many were also in poor condition or were broken and unusable. Unfortunately, information about item quality could not be analysed systematically as it was not possible to determine if items were already damaged at the point of donation, or whether they were broken during the collection process or when tipping the load of waste off the trucks into the audit area.

In contrast to broken or dirty items, which may be donated with (mistaken) good intentions, it is also common for charities to receive items that are indisputably rubbish. As summarised in Table 8.1 below, the audit process identified a total of 83.5 kg of rubbish items (1.5% of the total items audited), which included Comingled Recycling, Food Waste, Green Waste, Expanded Polystyrene, Household Hazardous items and Inert and/or Fine Material. In addition, three further categories included significant proportions of rubbish items: Paper & Cardboard, Other Organic and Plastics Bags. While some items in these categories were genuine donations, the bulk were rubbish. When these

categories are added, the total weight of rubbish collected amounted to 640.9 kg or 11.6% of the total items audited.

Table 8.1: Items categorised as rubbish, total audit (kg)

RUBBISH ITEMS	CATEGORY INCLUDED	WEIGHT
Commingled Recycling	Recyclable glass and cans, plastics 1-6	41 kg
Food Waste	Household rubbish	14.5 kg
Green Waste	Lawn clippings, trimmings etc	1.2 kg
Expanded Polystyrene	Expanded polystyrene	1.3 kg
Household Hazardous	Old paint, batteries, medications and cosmetics	9.5 kg
Other Inert and/or Fine Material	Fragments of materials that were too small to sort and weigh	16 kg
TOTAL		**83.5 kg**
SIGNIFICANT PROPORTION OF RUBBISH	**CATEGORY INCLUDED**	**WEIGHT**
Paper & Cardboard	Predominantly cardboard boxes, also packaging and magazines	194.8 kg
Other Organic	Predominantly wood offcuts, tyres, other rubber items and broken baskets	244 kg
Plastic Bags	Plastic shopping bags, including re-useable plastic bags	118.6 kg
TOTAL		**557.4 kg**

Many of the items audited could have been recycled rather than being sent to landfill. Table 8.2 below summarises these recyclable items, which totalled 1,292.9 kg (23.5% of total items audited). Charities do separate some recyclable items as part of the warehouse sorting process, although as noted in the key informant interviews (Section 4), charities rarely have sufficient space, facilities and resources to recycle as much as they would like to. Transfer stations represent a further point where recyclable materials can be separated, but charities do not have the resources to sort and extract recyclable waste at transfer station sites.

Table 8.2: Recyclable items

RECYCLABLE ITEMS	CATEGORY INCLUDED	WEIGHT
Paper & Cardboard	Cardboard boxes, packaging, magazines	194.8 kg
Books	Books	231.2 kg
Electronic Items	TV's, computer equipment, DVD players, small appliances	338.4 kg
Metal Composites	Any item with a metal component	123.7 kg
Other Organic	Wood offcuts, tyres, other rubber items and broken baskets	244 kg
Comingled Recycling	Recyclable glass and cans, plastics 1-6	41 kg
Green Waste	Lawn clippings, trimmings etc.	1.2 kg
Plastic Bags	Plastic shopping bags, inc. reuseable plastic bags	118.6 kg
TOTAL		**1292.9 kg**

8.3.3 Charity comparison

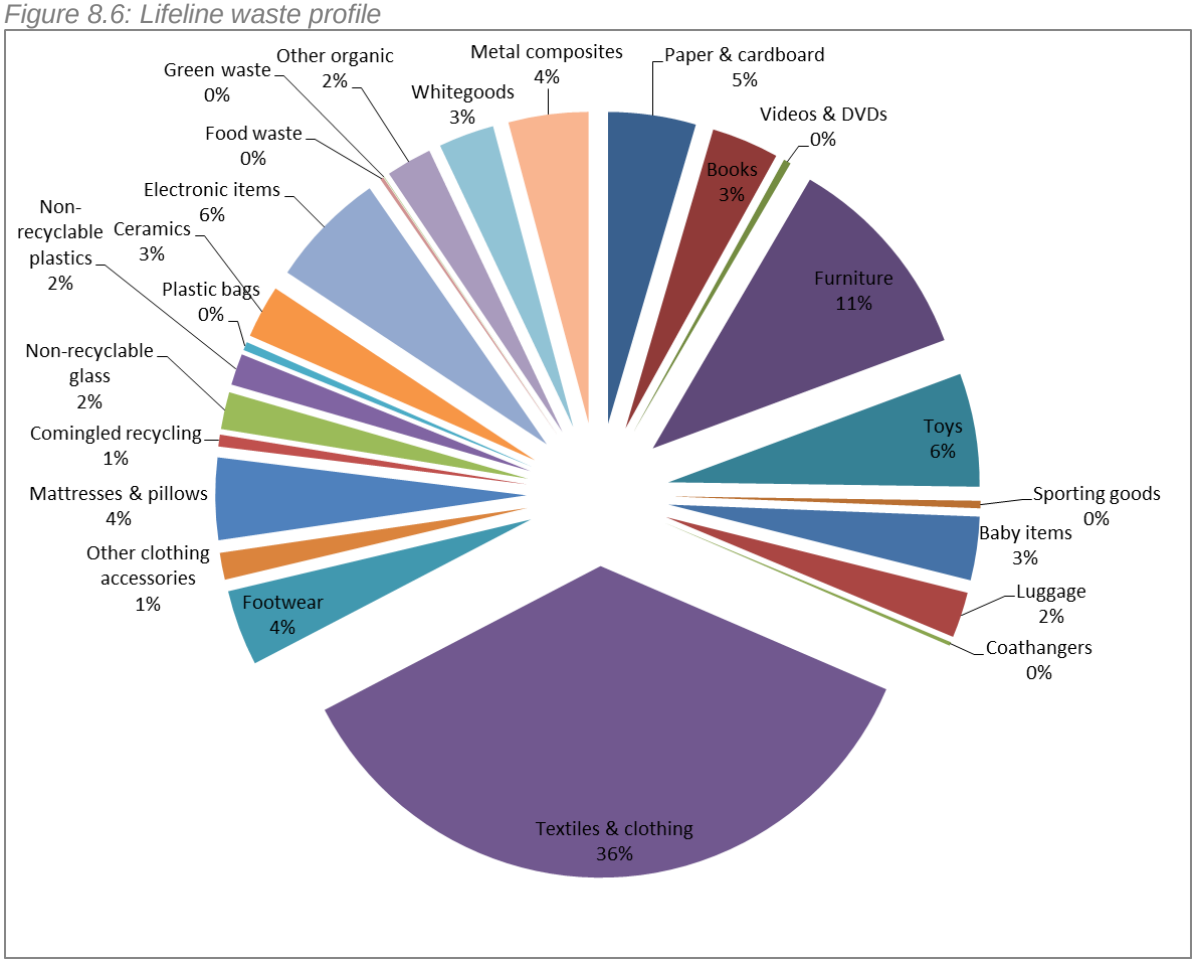
The different operational strategies used by the two organisations were clear in the profile of waste collected. Link Vision collects all donations and rubbish from inside and outside the bins and takes it back to a central warehouse for sorting. The separated rubbish is accumulated over a period of days and when the truck is full, the rubbish is taken to the transfer station. The waste provided by Link Vision for auditing was therefore “warehouse waste” (see Table 4.1, Section 4.2), and was comprised of broken, dirty and poor quality items that could not be sold by the charity.

Lifeline Brisbane considers all donations left outside bins as waste (see Section 4.2.2 for further details). The Lifeline collection truck clears the donations from inside the bins to take back to the warehouse for sorting. A second tip truck collects all items left outside bins and takes them directly to the transfer station. The waste provided by Lifeline for auditing was therefore "bin site waste" (see Table 4.1, Section 4.2), and included a mixture of good quality donations in addition to broken, dirty and poor quality items that could not be sold by the charity.

Figures 8.6 and 8.7 below provide the breakdown of items per charity. The clearest difference is in the Textiles & Clothing category, which comprised 36% of the Lifeline waste and only 9% of the Link Vision waste. The Link Vision Textiles & Clothing waste consisted of items that were unsuitable for sale, unsuitable for export markets and unsuitable for rags. In contrast, the Lifeline Textiles & Clothing waste included a high proportion (up to 75%[74] of the textiles and clothing sent to landfill) that, if returned to the warehouse for sorting, could have been sold to generate income for the charity.

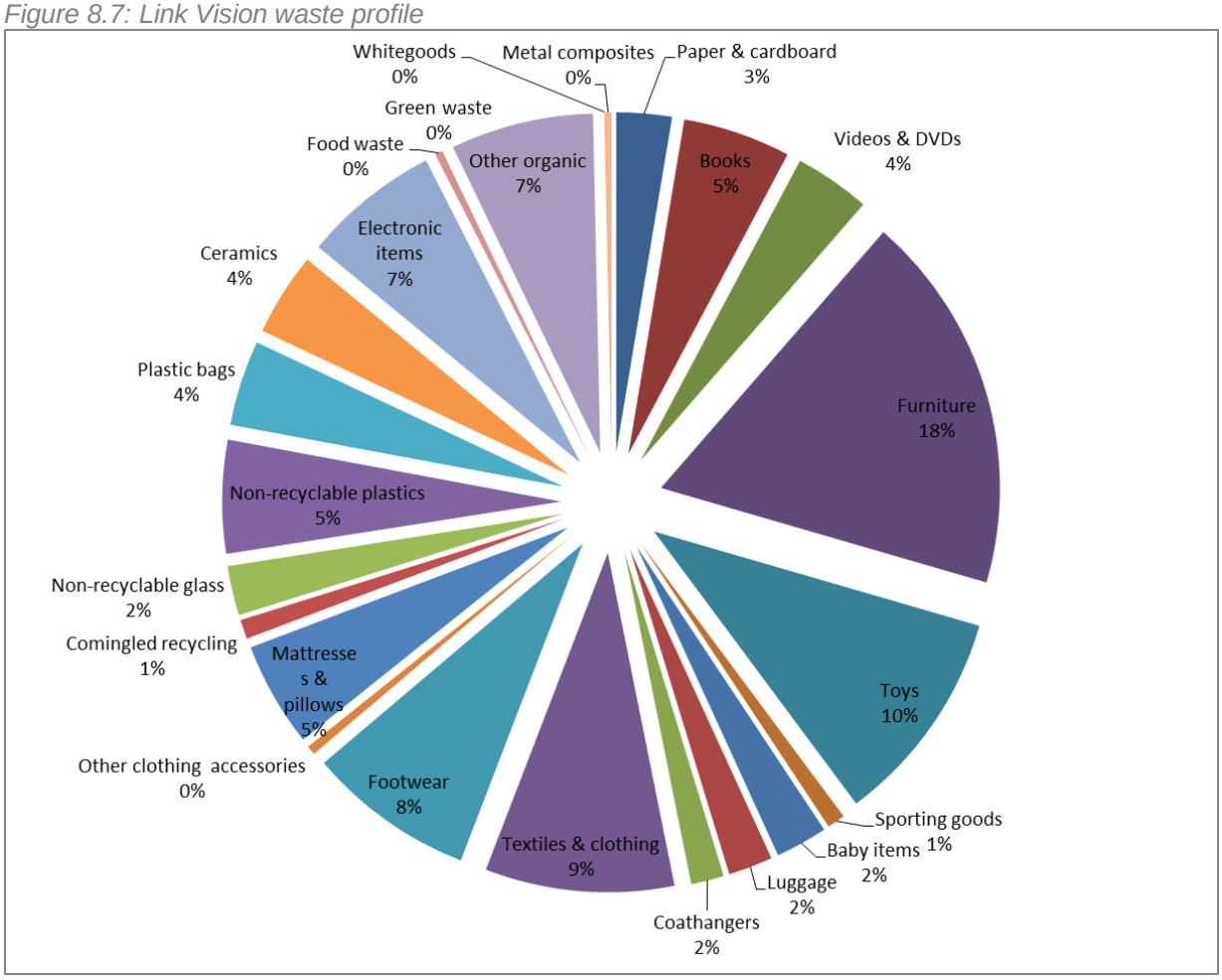
Another key difference is the amount of Plastic Bags audited. Donations are often placed into plastic bags before being taken to donation bins and stores. In the Lifeline waste less than 1% of waste (12.1 kg) was plastic bags whereas the Link Vision waste included 4% (106.5 kg) plastic bags. However, if the audit included Lifeline warehouse waste, we would expect to see a similar proportion of plastic bags. Charities could be doing more to recycle plastic bags that are separated from donations during the warehouse sorting process.

Figure 8.6: Lifeline waste profile



[74] This figure was calculated as follows: 9% Link Vision sorted textile and clothing waste is 25% of the total Lifeline unsorted textile and clothing waste (36%). Therefore 75% of the Lifeline unsorted textile and clothing waste may have been suitable for use if returned to the warehouse.

Figure 8.7: Link Vision waste profile



8.4 Final comments

The waste audit results represent a baseline measure of the nature of dumped items at charity sites in Brisbane. Future audits, using the same methodology, could be used to assess the impact of any new strategies implemented by stakeholders to address illegal dumping as well as strategies for disposing of different types of dumped items.

Charities already prevent large amounts of items from being sent to landfill by re-directing these goods to be sold in charity stores, exported overseas or recycled. Despite these efforts, more could be done to reduce the amount of recyclable waste that is currently sent to landfill. Charities are restricted by a lack of resources but in partnership with local governments and other stakeholder organisations, new solutions to recycling could be identified.

As part of this research, a map of stakeholders (see Appendix J) was constructed to facilitate future responses to the problem of illegal dumping. This map includes a comprehensive list of recycling organisations that operate within Queensland, as well as educators such as Keep Queensland Beautiful and Green Cross Australia. Charities are encouraged to use this list as a resource for networking and building partnerships to increase their recycling activities and generate alternative pathways for the disposal of materials for both the public and charities. Charities are also encouraged to consider working together to collect recyclable items and share that the costs of ensuring that these do not end up in landfill.

9.0 FORMULATING RESPONSES TO ILLEGAL DUMPING: OVERALL CONCLUSIONS

Analysis of the survey and interviews has provided insight into the commonly held attitudes, normative beliefs and behavioural responses to barriers at charity sites. These findings revealed that the community generally holds a favourable attitude towards donating and a key motivator is to help people in need. Most people believe that dumping at charity sites is wrong. Despite this, a closer examination of people's actual behaviour at charity bins, particularly when confronted with barriers that make it difficult to carry out appropriate donating behaviour, suggests that people do not always take responsibility for the way that they donate.

Few people clearly understand how charities want them to donate and how donations are used to generate income for the delivery of community services. This lack of information about how to donate is a major contributor to dumping behaviour. The act of donation begins with the sorting of items at home, and many people think it is appropriate to donate items that *might* be of use to someone else rather than seeking to confirm their suitability with charities. This behaviour effectively shifts the responsibility for ensuring donation quality away from individual donors. Educating the public about the cost of inappropriate donations to charities and the importance of donating good quality items may lead to positive behaviour change for many people. A lack of knowledge about how charities want the public to donate can mean that people unwittingly engage in dumping behaviour without intending to; for example, donating broken or dirty items and incorrectly believing that charities have staff who can fix and clean donations. An educational campaign should therefore seek to correct the misperceptions about donating that are common across the community.

The utilitarian need to clear out unwanted items and dispose of them in a convenient manner is a further contributor to illegal dumping. Convenience is a key driver behind the choice of donation method, and prioritising the desire to complete a donation may motivate some people to behave in ways they know or suspect are wrong, such as leaving donations outside when faced with a full bin. Charity practice, including more frequent bin clearances and giving consideration to the presence or absence of deterrents to dumping at donation sites, may produce environments that are more likely to encourage appropriate donating behaviours.

In order to change behaviour it is critical to change people's beliefs about what is right (the rules of appropriate donating) and their beliefs about the consequences of their behaviour. The analysis identified thee profiles of donors and it is recommended that the campaign messages are tailored to appeal to the values and motivations of each group.

Unintentional Dumpers are probably the largest group (approximately 50% of the community), and targeting them will provide the greatest impact for the campaign. Results from the online survey and public interviews indicated that Unintentional Dumpers have mixed beliefs and attitudes about donating and dumping practices. They have good intentions about donating to charity and potentially helping people need, but they are also highly motivated by convenience. Unintentional Dumpers agree that dumping is wrong, but they lack knowledge about the consequences of their behaviour and are genuinely unaware that they are part of the problem. Most of them would be genuinely horrified to learn that items they had donated in the past were a burden for charities. The campaign should seek to educate this group about the cost of incorrect donation for charities and how this effectively undermines the values and good intentions that this group holds about donating. The overall aim is to build a new social norm that taking responsibility for good donation practice is an expression of good community citizenship.

Charities are dependent on donations in order sustain the work they do, therefore it is critical that the marketing campaign strikes a balance between informing people about the right thing to do without appearing overly critical or judgemental about poorly informed past behaviour. It is also important to acknowledge that many donors already do the right thing (Champion Donors), and the campaign should seek to reinforce that their beliefs, attitudes and behaviours are indeed correct.

The campaign will help to address gaps in public knowledge about donating, but it must be recognised that the motivation to get rid of things in a way that is easy and convenient will continue to be a major factor that shapes donating behaviour. Beyond the educational messages, attention must

be given to the spatial configuration of charity sites and the influence of features that may attract or deter dumping behaviours. Ideally, the campaign will be supported by changes in charity practice at donation sites to reinforce correct behaviours; however, it is acknowledged that the ability of charities to make such changes will be strongly shaped by available resources.

A social marketing campaign may be less helpful for changing the behaviour of Deliberate Dumpers. This group is also characterised by a lack of knowledge about correct donation, but at the same time, they are the most likely to be aware that their behaviour is wrong. Deliberate Dumpers will be the most challenging group to appeal to, because they are the most driven by convenience and the most likely to justify their behaviour as acceptable. Addressing the physical features of bin sites, particularly increasing the level of surveillance, may be the biggest influencer of behaviour change for this group.

This research project has helped to address key gaps in understanding about the dynamics of illegal dumping at charity sites. The multiple data collection methods used have provided comprehensive baseline evidence about the extent of illegal dumping in Queensland, the financial and non-financial impacts for charity organisations, the attitudes and beliefs held by the public about donating, and the potential environmental triggers for dumping behaviours. This research has only been possible because multiple charities and state and local government representatives committed to working in partnership to build a knowledge base for the purpose of informing a social marketing campaign. Illegal dumping is a complex problem, but the ultimate outcome of dealing with large quantities of waste is that charities are less able to provide services that are essential to the wellbeing of the community. It is a shared issue and the responsibility for developing responses to illegal dumping, including ongoing monitoring of the issue, also needs to be shared.

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APPENDIX A: BREAKDOWN OF UCC IN-KIND CONTRIBUTION

As discussed in Section 1.2, this study was funded by a grant of $50,000 from the Queensland Government's Litter and Illegal Dumping Community and Industry Partnerships program. This grant covered project expenses, including the employment of a research assistant, travel costs and equipment used to collect and analyse data. UnitingCare Community provided $95,485 of in-kind support that covered the cost of staff to deliver the project (breakdown provided in Table A.1 below). Professor Jill Wilson (UnitingCare Queensland) also provided in-kind support ($10,000) in the form of project oversight and ongoing guidance to the research team.

Table A.1: Breakdown of UCC in-kind contribution to research project

EXPENSE	COST
Base labour *(Mainly researcher time, but also time contributed by staff in finance, human resources, volunteer management, data analysis, graphic design, marketing and communications, administration support, Lifeline operations, workplace health and safety and strategic policy.)*	64,543
Labour on costs	17,035
Total salary costs	***81,578***
Use of laptops	2,092
Use of mobile phones	2,862
Group Office Recovery	8,953
TOTAL COST	**95,485**

APPENDIX B: KEY INFORMANT INTERVIEW SCHEDULE

The interviews can be conducted face to face (if convenient) or over the phone. Interviews will run for up to 30 minutes and will be recorded for transcription.

Participants will be selected in discussion with each charity partner and will reflect the following key roles:

- Operations Managers / Warehouse Supervisors
- Collection Truck Drivers / Tip Truck Drivers
- Store Managers (from stores that attract high and low levels of dumping)
- Volunteers

QUESTIONS:

1. Please briefly describe your role and responsibilities at [charity]

2. How long have you worked at [charity]? And how long have you been in your current role with [charity?]

3. What is your gender?
   - Male
   - Female
   - Other

4. What is your age range?
   - Under 18
   - 18 to 24
   - 25 to 34
   - 35 to 44
   - 45 to 54
   - 55 to 64
   - 65+

5. What do you know about:
   a. The volume of waste your charity deals with?
   b. The types of waste typically dumped?
   c. The financial cost to your charity of dealing with this waste?

6. Within your organisation, which are the worst sites for illegal dumping?
   a. Are these bin sites or store sites (or both – co-located)?
   b. Why do you think these sites attract dumping?

   Which are the best sites? (I.e. the sites that attract the least dumping)
   c. Are these bin sites or store sites (or both – co-located)?
   d. Why do you think these sites DO NOT attract dumping?

7. What days are the worst for dumping? [Prompt for seasonal change as well]

8. What strategies has [charity] tried to reduce dumping? How effective have these strategies been?

9. What strategies has [charity] tried to deal with waste collected? [Prompt for recycling, export]. How effective have these strategies been?

10. What is the impact of dumping on staff and volunteers at [charity]? [Prompt for issues like staff morale, staff workload, volunteer morale and hours, health and safety]

11. What is the impact on the local community and neighbours of dumping in and around charity bins and stores? [Prompt for issues like health and safety, appearance of litter (eyesore), property values]

12. Is there any impact for Council? [Prompt for issues like complaints]

13. Have you observed any environmental impact from dumping [Prompt for issues like landfill, the attraction of pests, contamination of area]

14. What more could be done to reduce dumping?
    a. By your organisation
    b. By the government/Council [If fines/convictions are mentioned, ask if participant knows how to go about seeking a conviction]
    c. By the community

15. Why do you think people dump items at charity bins and stores?

16. Is there anything else you would like to add?

APPENDIX C: ONLINE PUBLIC SURVEY

1. What is your gender?
   - Male
   - Female
   - Other

2. Which age group do you belong to?
   - 17 years or under
   - 18 to 24
   - 25 to 34
   - 35 to 44
   - 45 to 54
   - 55 to 64
   - 65 to 74
   - 75 years and over
   - Prefer not to answer

3. What is your postcode? [blank space for people to enter postcode]

4. How often, on average, do you donate items that you don't want any more to a charity?
   - Monthly or more
   - Every 2-3 months
   - Every 4-6 months
   - Every 7-9 months
   - Every 10-12 months
   - Less often
   - I have never donated unwanted items to a charity

5. Thinking about the most recent time you donated to charity, how did you donate the items?
   - Took them to a charity bin
   - Took them to a charity store
   - Put them in a charity bag left in the letterbox
   - Rang the charity and they collected them
   - Other – please specify ……

6. Which of these is your preferred method for donating items you don't want any more?
   - Took them to a charity bin
   - Took them to a charity store
   - Put them in a charity bag left in the letterbox
   - Rang the charity and they collected them
   - Other – please specify ……

Why is this your preferred method?
……
……

7. When you need to get rid of large items (e.g., furniture), how likely are you to do each of the following?

	Very unlikely	Unlikely	Neither likely nor unlikely	Likely	Very likely
Take them to a charity store (while the store is open – take the items inside)					
Leave them next to a charity bin or outside a charity store (if the store is closed)					

Call a charity to collect them					
Take them to the tip					
Pay someone to take them away					
Wait for the council kerbside collection					
Give them to family or friends					
Other – please specify …..					

8. Is there anything else you think you would do when you need to get rid of large items?

9. Which of the following statements apply to you when you are thinking of what to put in a charity bin or take to a charity store? (tick all that apply)
   - ☐ I sort through carefully and pick out good quality items that I just don't need anymore
   - ☐ I give older items, but only if they can be repaired or cleaned
   - ☐ I give anything that I don't need anymore

10. If you aren't sure whether your items are suitable for donating, would you: (choose one)
    - ☐ Donate them and let the charity decide?
    - ☐ Throw them in the rubbish or take them to the tip?
    - ☐ Call the charity and ask?
    - ☐ Other (please specify)……

11. Have you ever taken a load of items to a charity bin or charity store and found either they wouldn't fit in the bin or the store was closed?
    - ☐ Yes
    - ☐ No

    If yes, What did you do with the items? (select all that apply)
    - ☐ Left them next to the bin or outside the store
    - ☐ Took them to a different bin location or store that was open
    - ☐ Took them to the tip or put them in a rubbish bin
    - ☐ Took them home and came back another time
    - ☐ Took them home and called a charity to collect them
    - ☐ Other (please specify)……..

    If no - If you took a load of items to a charity bin and it was full, or a charity store and it was closed, how likely would you be to do each of the following?:

	Very unlikely	Unlikely	Neither likely nor unlikely	Likely	Very likely
Leave them next to the bin					
Leave them outside the store					
Take them to a different bin location or store that was open					
Take them to the tip or put them in a rubbish bin					
Take them home and come back another time					
Take them home and call the charity to collect them					
Other – please specify……					

12. Would you say the following statements are true or false? There are no right or wrong answers; we just want to know what people think:

	Definitely true	Probably true	Don't know	Probably false	Definitely false
Items left next to charity bins are taken by the charity and sorted for sale (same as items inside the bins)					
The quality of clothing/fabric donations doesn't matter – old or dirty items are turned into rags.					
Most charities have volunteers or staff who repair slightly broken items so they can be sold.					
Items that are too big to fit in a bin (e.g., furniture) should be left next to the bin for collection by the charity.					
If the bin is full, items should be left next to the bin for collection by the charity.					
There are fines for leaving items next to charity bins.					
People are often fined for leaving items next to charity bins.					
The cost of getting rid of rubbish left around charity bins and stores is paid by the council.					
The cost of getting rid of rubbish left around charity bins and stores is paid by the charity.					
The cost of getting rid of rubbish left around charity bins and stores is paid by the land owner (e.g. shopping centre)					

13. When you need to get rid of rubbish that won't fit in your regular bin, how likely are you to:

	Very unlikely	Unlikely	Neither likely nor unlikely	Likely	Very likely
Take it to the tip					
Put it in or next to an industrial bin (e.g., at a shopping centre or construction site)					
Leave it next to a charity bin or outside a charity store					
Wait for the council kerbside collection					
Other – please specify ……					

14. Is there anything else you might do if you need to get rid of rubbish that won't fit in your regular bin?

15. Would you say the following statements are true or false?

	Definitely true	Probably true	Don't know	Probably false	Definitely false
Sometimes it takes a lot of effort, but I always manage to donate my unwanted items instead of throwing them away.					
I like to donate my unwanted items to charity, but often it's just too hard.					
Taking unwanted rubbish to the tip is really hard for					

me.					
If I had no other option, I might leave household rubbish at a charity bin.					
I don't have time to sort through old stuff to figure out what's good enough for charity – I give all or nothing.					
It's important to me to donate my unwanted goods to charity because I care about helping people.					
It's important to me to donate my unwanted goods to charity because recycling helps the environment					
I would feel guilty if I left items at a charity bin and it cost the charity money to get rid of them.					
I would feel guilty if I donated unwanted items that weren't good enough and had to be thrown away.					
My family and/or friends would be disappointed in me if I knowingly left rubbish at a charity bin.					
My family and/or friends would be disappointed in me if I threw things away instead of donating them to charity.					

16. How much do you agree or disagree with the following statements?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Sometimes circumstances force people to leave rubbish at charity bins and stores.					
It's inevitable that charities will get rubbish put in and around their bins.					
Most people will have to leave inappropriate things in or near charity bins at some time – it can't really be helped.					
Most people include inappropriate things in donations sometimes because it's too hard to avoid.					
If the charity bin is full, there's really no choice other than to leave your items next to it.					
It's too hard to figure out what kinds of donations charities do and don't want.					

17. Which of the following do you think are the biggest problems that charities face? Please choose your top three:
    - ☐ Rubbish left around their bins and stores
    - ☐ People donating things that aren't actually good enough to use for anything
    - ☐ Household rubbish (e.g., kitchen waste) being put in donation bins
    - ☐ The cost of getting rid of inappropriate donations and rubbish
    - ☐ The time and cost of sorting useful items from things that are too dirty or broken to be used
    - ☐ Health and safety problems from rubbish left in and around bins and stores

18. Do you shop at charity stores?
    - ☐ Yes
    - ☐ No

Demographics

19. Do you speak any languages other than English at home?

- Yes
- No

If no, what language(s) other than English do you speak at home?

- Mandarin
- Cantonese
- Vietnamese
- Italian
- German
- Spanish
- Hindi
- Japanese
- Samoan
- Other (please specify…….)

20. Which of the following housing situations applies to you?
    - Community or government housing
    - Private rental
    - Owner occupier
    - Other [please specify]

21. What type of housing do you live in?
    - Detached house on a large section
    - Detached house on a small section
    - Semi-detached (e.g. townhouse, terrace etc)
    - Flat, unit or apartment
    - Other

22. Do you have access to a car?
    - Yes
    - No

23. What is your annual household income before tax?
    - Less than $25,000
    - $25,000 to $49,999
    - $50,000 to $74,999
    - $75,000 to $99,999
    - $100,000 to $149,999
    - $150,000 or more
    - Prefer not to answer

24. Which of the following employment situations applies to you?
    - Employed full-time
    - Employed part-time
    - Self-employed
    - Unemployed
    - Not seeking work (e.g. caring for children at home)
    - Retired
    - Student
    - Other (please specify……..)
    - Prefer not to answer

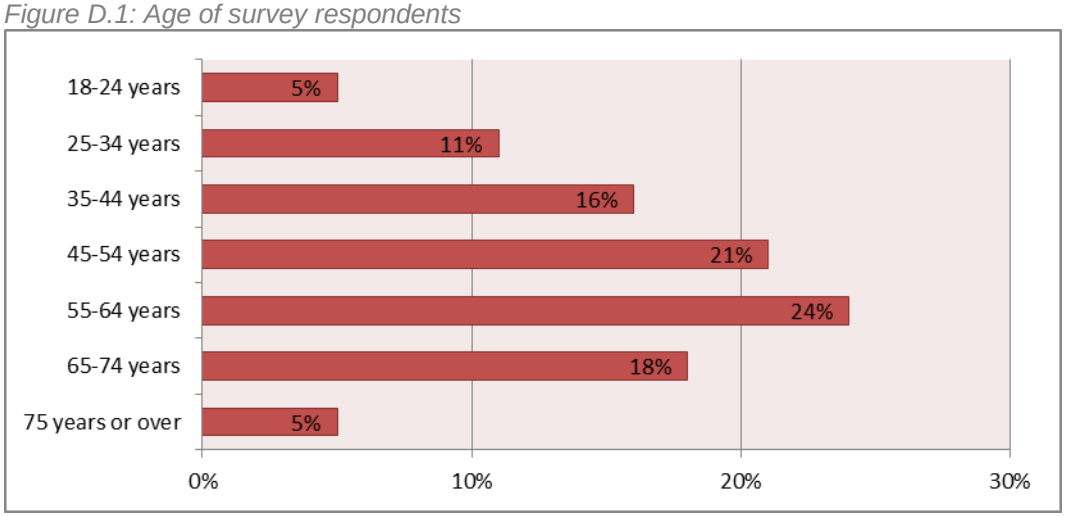
If employed, what type of employment are you currently in?:

- Permanent
- Casual

APPENDIX D: SAMPLE DEMOGRAPHICS: ONLINE SURVEY

Most of the 750 survey respondents were located in metropolitan areas (75.4%) with the remaining 24.6% located in large regional towns. The median age of the Queensland population as a whole is 36.8 years[75], and the respondents to the survey were older on average. The median age group was 45-54 years (21%) and nearly one quarter (24%) were aged 55-64 years (see Figure D.1 below).

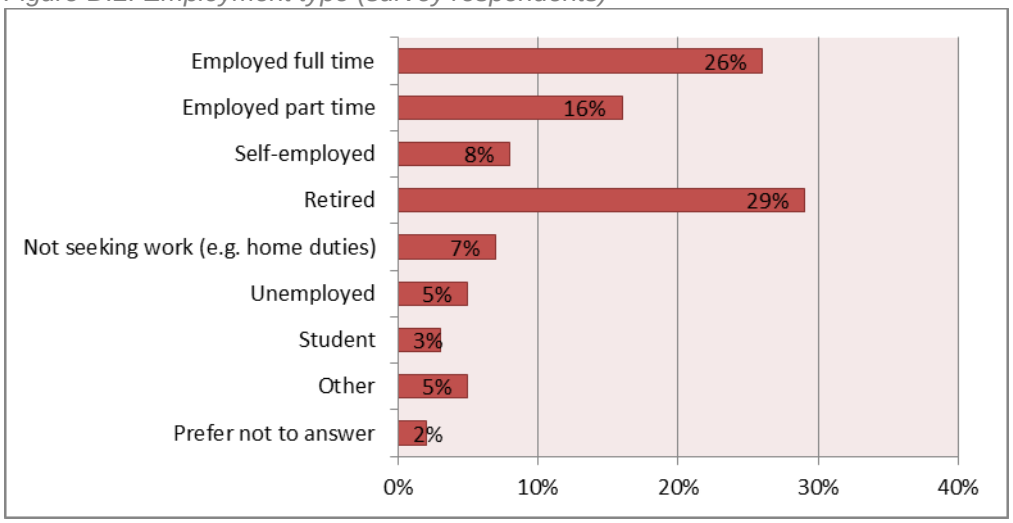
Figure D.1: Age of survey respondents



The results of the 2011 census indicated that 36% of Queenslanders spoke a language other than English at home, but most respondents (88%) in our survey did not speak another language besides English at home[76]. Of the 11% who did, the most common languages spoken at home were Mandarin (16%), Italian (10%), Cantonese (9%), Hindi (8%), German (8%), Spanish (5%) and Japanese (5%)[77].

Questions about employment status and before tax household income were included as proxy markers of socio-economic status. The most common employment category was retired (29%) followed by full time employment (26%) (see Figure D.2 below). Of those who were employed full time or part time, 78% were employed on a permanent contract and 22% on a casual contract.

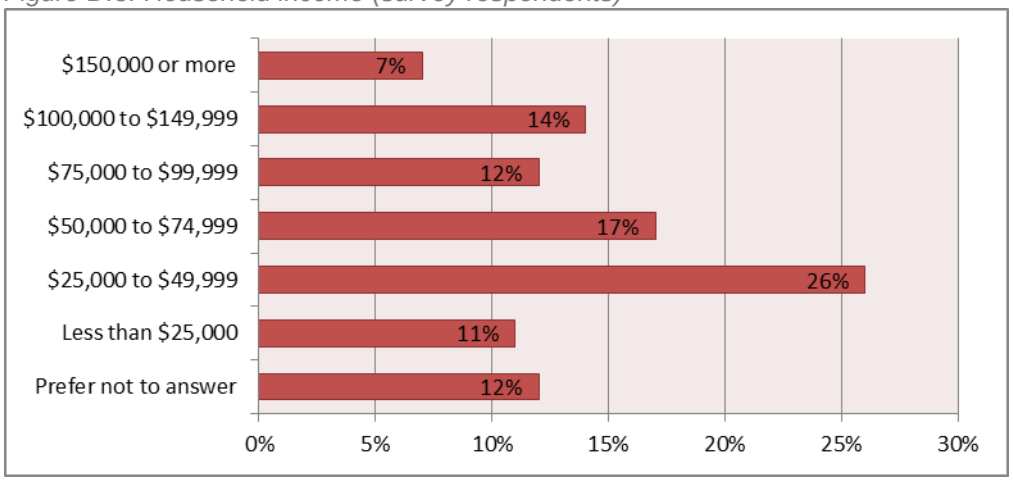
Figure D.2: Employment type (survey respondents)



[75] Results of the 2011 census, source: http://statistics.qgso.qld.gov.au/qld-regional-profiles
[76] This figure is comparable to the figure of 84.8% of all Queenslanders who spoke a language other than English at home in the 2011 census (source: http://profile.id.com.au/australia/language?WebID=120).
[77] The Language Spoken at Home categories were drawn from the ten major languages spoken at home in the 2011 census with an "other" category provided (source: http://profile.id.com.au/australia/language?WebID=120).

With regard to before tax household income, a total of 37% identified that their household income was $49,999 or lower. This may reflect the high number of retirees within the sample. Only 21% of respondents reported a household income of $100,000 or more (see Figure D.3 below). These results appear to be broadly representative of the Queensland population, for which the median before tax household income was $64,220[78].

Figure D.3: Household income (survey respondents)



Respondents were asked to identify their housing tenure and type and whether they had access to a car. These factors are potentially important aspects of understanding illegal dumping at charity sites. Within the Brisbane City Council area, rate-payers receive tip vouchers that entitle them to free rubbish disposal at Council operated transfer stations. These vouchers may not be passed on by landlords to tenants of private rental housing, which reduces rubbish disposal options for tenants. In addition, people who rent accommodation may move house more often and therefore experience more frequent pressures to get rid of excess possessions and rubbish quickly. The majority of respondents to the survey were owner-occupiers (64%) or private renters (30%).

Housing type may also be significant, because detached houses generally have more storage space than apartments, units and semi-detached houses. Needing to make space is often a trigger for donating unwanted items to charity (Ha-Brookshire and Hodges, 2009). Most respondents in the sample lived in a detached house on a large or small section (73%). Only 17% lived in an apartment, unit and a further 8% lived in a semi-detached house such as a townhouse. People who do not have access to a car may also find it difficult to take rubbish and large items to transfer stations. Most people in the sample (91%) had access to a car.

[78] Results of the 2011 census, source: http://statistics.qgso.qld.gov.au/qld-regional-profiles

APPENDIX E: PUBLIC INTERVIEW SCHEDULE

Q1: In the past year, how often did you donate to a charity?

- ☐ Monthly or more
- ☐ Every 2-3 months
- ☐ Every 4-6 months
- ☐ Every 7-9 months
- ☐ Every 10-12 months
- ☐ Less often
- ☐ I have never donated unwanted items to a charity [skip to Question 7]

Q2: Thinking about the last time you donated, can you remember what the item was?

- ☐ Clothing
- ☐ Other textiles e.g. bedding
- ☐ Shoes, handbags
- ☐ Toys
- ☐ Books
- ☐ Furniture [what type of furniture?]
- ☐ Other [record details]

Q3: Thinking about the last time you donated, why did you donate the items rather than throwing them away?

……
……

- ☐ Someone else could use them
- ☐ Want to support charity work
- ☐ Recycling is good for the environment
- ☐ Couldn't get rid of items any other way

Q4: Thinking about your last donation, how did you donate the items? Did you:

- ☐ Put them in a charity bin
- ☐ Take them to a charity store
- ☐ Put them in a charity bag for collection

Q5: Is [answer to Q3] your preferred method? ☐ Yes ☐ No

Q5a: If NO, which is your preferred method? ☐ Bin ☐ Store ☐ Bag

Q6: Why do you prefer this method?

……
……

- ☐ Convenient
- ☐ Anonymity
- ☐ Social interaction
- ☐ Safe and secure method

Q7: Is there anything that makes it difficult for you to donate to charity? [Or, if never donated]: Is there any reason why you haven't donated?

……
……

- ☐ Lack of transport
- ☐ Charity bins are full
- ☐ Items can get damaged/stolen if left at bins
- ☐ Stores aren't open at convenient times
- ☐ Hard to know what charities will take

Q8: When people are thinking about what to donate, they might think about whether [read out options]. Which of these is most important to you? [tick response]:

- ☐ The items are things they just don't need anymore
- ☐ The items are of good quality

- ☐ The items might be useful for someone in need

Q9: Do you think that this is the most important thing for other people in the community?
☐ Yes ☐ No

Q10: I'm going to show you a photo [see Figure E.1 below] – do you think that this is a problem?
☐ Yes ☐ No

Q11: If "yes", why? If "no", why?
……
……
- ☐ It's untidy / an eyesore
- ☐ The donations might get stolen
- ☐ The donations might get damaged
- ☐ It's bad for the environment

Q12: Why do you think that people have left the donations outside the bins?
……
……
- ☐ The bins are full
- ☐ Items are too big to fit
- ☐ The charity hasn't cleared the donations
- ☐ People are lazy
- ☐ It's too hard to get to a store or the tip

Q13: What do you think happens to donations left outside bins?
……
……
- ☐ Charity will collect and sell
- ☐ Charity will collect and dispose
- ☐ Council will collect and dispose
- ☐ Landowner will collect and dispose

Q14: Did you know that there is a fine for leaving items outside charity bins? ☐ Yes ☐ No

Q15: Are you happy to tell me your age range?
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65-74
- ☐ 75+

Q16: Are you happy to tell me your employment status?
- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Self-employed
- ☐ Retired
- ☐ Unemployed
- ☐ Not seeking work
- ☐ Student
- ☐ Other
- ☐ Prefer not to answer

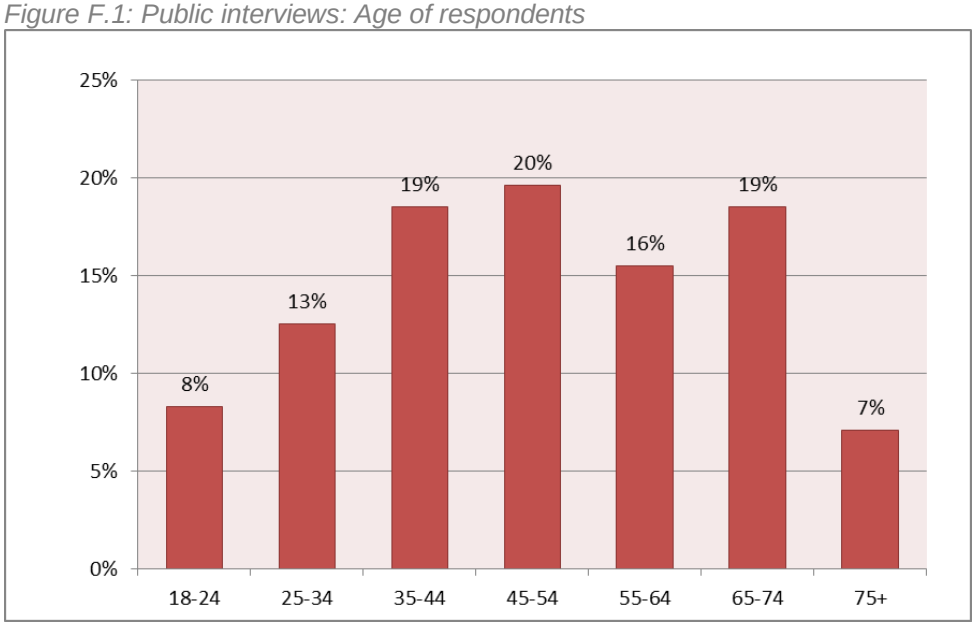
[Interviewer to record gender] ☐ Male ☐ Female ☐ Unsure

Figure E.1: Photograph of moderate dumping used in public interviews

APPENDIX F: SAMPLE DEMOGRAPHICS: PUBLIC INTERVIEW

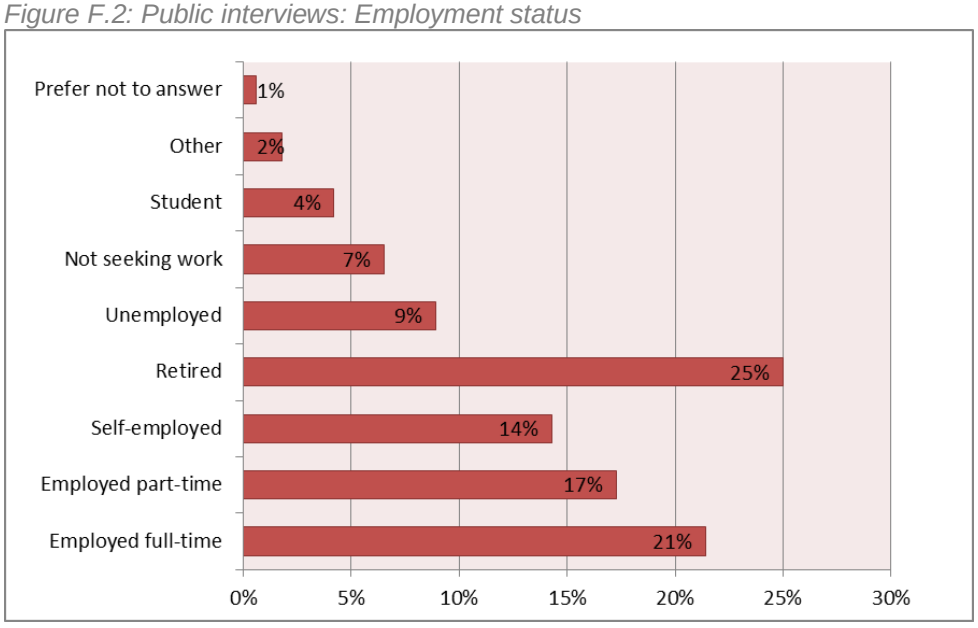
The sample of 167 public interview respondents included more women (64.5%) than men (35.5%). The age of respondents was spread more evenly across the categories than the sample for the online survey but the median age group was the same, 45-54 years (19.6% of respondents) (see Figure F.1 below).

Figure F.1: Public interviews: Age of respondents



The public interview contained a question about employment status rather than household income, as asking about income was considered to be potentially offensive in a situation where people were being approached in public space. Figure F.2 below summarises the results of this question. As for the online survey, the largest group were retired (29% of online survey respondents *cf.* 25% of interview respondents). Over half were employed in some capacity (53% full-time, part-time or self-employed), which is again very similar to the results in the online survey (a total of 50% of people were employed in some capacity within the online survey sample).

Figure F.2: Public interviews: Employment status



APPENDIX G: PHOTOGRAPH LOG OF WASTE PROTOCOL AND RECORDING SHEET

PROTOCOL FOR PHOTOGRAPHING BIN SITES

Thank you for helping us to collect photographic evidence of the illegal dumping of goods at Charity bin sites. Your help is greatly appreciated.

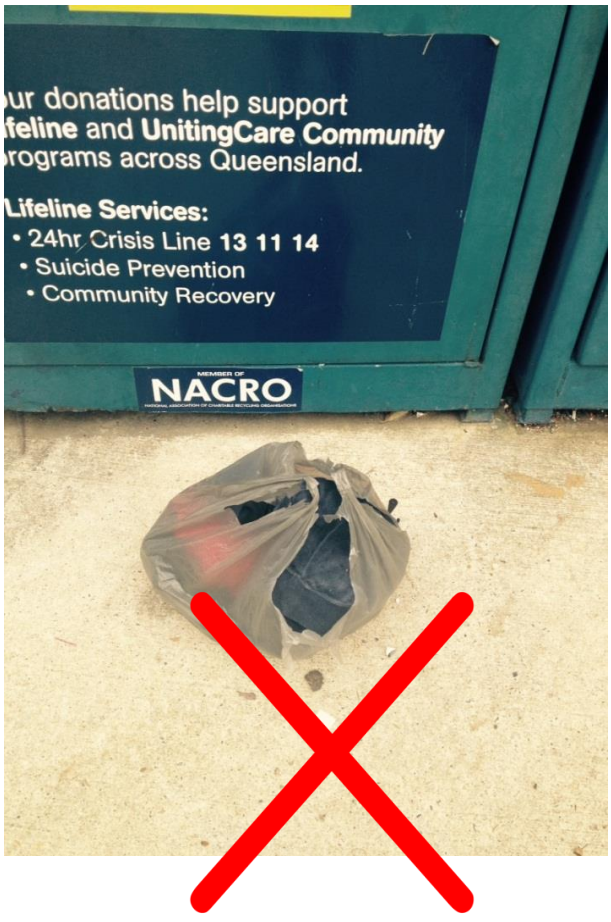
Photographic data collection **starts** on Monday 14th September and **ends** on Friday 9th October.

Photos are to be taken **every day, and at each collection site** over the four week period. Please take a photo of every bin site **whether or not rubbish is present**.

To ensure consistency in the way photos are taken, please:

1. Make sure the bin and rubbish (if present) is in the centre of the photo
2. We can see the whole bin site
3. See diagram below for an example of how to photograph bin sites.

***** Please note:** return the camera at the end of the day to your supervisor. Your supervisor will upload and send the photos to us. Please remember to collect the camera from your supervisor the following morning ready for your daily pickup.



PROTOCOL FOR PHOTOGRAPHING STORE SITES

Thank you for helping us to collect photographic evidence of the illegal dumping of goods at Charity store sites. Your help is greatly appreciated.

Photographic data collection **starts** on Monday 14th September and **ends** on Friday 9th October.

Photos are to be taken **every day** outside the store over the four week period. Please take a photo **whether or not rubbish is present**.

To ensure consistency in the way photos are taken, please:

1. Please take photos outside your store where rubbish is usually dumped, making sure the dumped rubbish (if present) is in the centre of the photo while also keeping as much of the store in the photo as possible.
2. See diagram below for an example of how to photograph store sites.

RECORDING SHEET FOR PHOTOGRAPH LOG OF WASTE

CHARITY: **DATE:**

Bin site location	**# Photos taken**	**Were the bins full?**	**Was there dumping outside the bin/ store?**	**Level of dumping if present: 1-4** **1** – small (1-2 bags) **2** – moderate (wheelbarrow worth **3** – significant (2-3 wheelbarrows) **4** – very significant (trailer load or more of rubbish)
1.		Yes / No	Yes / No	1 – 2 – 3- 4
2.		Yes / No	Yes / No	1 – 2 – 3- 4
3.		Yes / No	Yes / No	1 – 2 – 3- 4
4.		Yes / No	Yes / No	1 – 2 – 3- 4
5.		Yes / No	Yes / No	1 – 2 – 3- 4
6.		Yes / No	Yes / No	1 – 2 – 3- 4
7.		Yes / No	Yes / No	1 – 2 – 3- 4
8.		Yes / No	Yes / No	1 – 2 – 3- 4
9.		Yes / No	Yes / No	1 – 2 – 3- 4
10.		Yes / No	Yes / No	1 – 2 – 3- 4
11.		Yes / No	Yes / No	1 – 2 – 3- 4
12.		Yes / No	Yes / No	1 – 2 – 3- 4
13.		Yes / No	Yes / No	1 – 2 – 3- 4
14.		Yes / No	Yes / No	1 – 2 – 3- 4
15.		Yes / No	Yes / No	1 – 2 – 3- 4
16.		Yes / No	Yes / No	1 – 2 – 3- 4
17.		Yes / No	Yes / No	1 – 2 – 3- 4
18.		Yes / No	Yes / No	1 – 2 – 3- 4
19.		Yes / No	Yes / No	1 – 2 – 3- 4
20.		Yes / No	Yes / No	1 – 2 – 3- 4
21.		Yes / No	Yes / No	1 – 2 – 3- 4
22.		Yes / No	Yes / No	1 – 2 – 3- 4
23.		Yes / No	Yes / No	1 – 2 – 3- 4
24.		Yes / No	Yes / No	1 – 2 – 3- 4

APPENDIX H: BIN AND STORE SITE AUDIT RECORDING SHEET

Charity:		**Date:**	**Dumping Site Type:** □ High
Location:		**Time:**	□ Low
FEATURES		**RATING SCALE**	**DETAILS**
LOCATION			
1	Description of site	□ Shopping centre □ Train station □ School	□ Other (record here)
2	Description of broader surroundings		
3	Is there space around the bin?	□ Yes □ No	
4	Level of public presence	□ High □ Medium □ Low	
5	Level of site visibility from street	□ High □ Medium □ Low	
6	Is there sufficient parking available?	□ Yes □ No	
BINS			
1	Number of bins	1- 2- 3- 4- 5- 6- 7- 8- 9- 10	
2	Number of charities represented (primary + additional)	1- 2- 3- 4- 5- 6- 7- 8- 9- 10	
3	Is the bin a standard size?	□ Yes □ No	
4	Is dumping present?	□ Yes □ No	
5	Is the bin full?	□ Yes □ No	
6	Appearance of the bins (see reference)	□ Good □ Avg □ Poor	
INFORMATION/SIGNAGE			
1	Language	□ English □ Other	
2	Information	□ Written □ Visual □ Both	
3	Is there information about the types of items accepted by the charity?	□ Yes □ No	
4	Visibility of signs and placement	□ Good □ Avg □ Poor □ Front □ Side □ Next to bin	Size □ S □ M □ L Number of signs:
5	Is the information consistent and clear?	□ Yes □ No	
6	Are warnings displayed about dumping?	□ Yes □ No	
OTHER DETERRENTS			
1	Is CCTV present?	□ Yes □ No	
2	Are the bins in a well-lit area?	□ Yes □ No	
3	Is the surrounding area well-lit?	□ Yes □ No	
4	Is there specialist fencing present?	□ Yes □ No	
PHOTOS (Record photo file number)			
(1) Location:		(3) Signage:	
(2) Bins:		(4) Other deterrents	

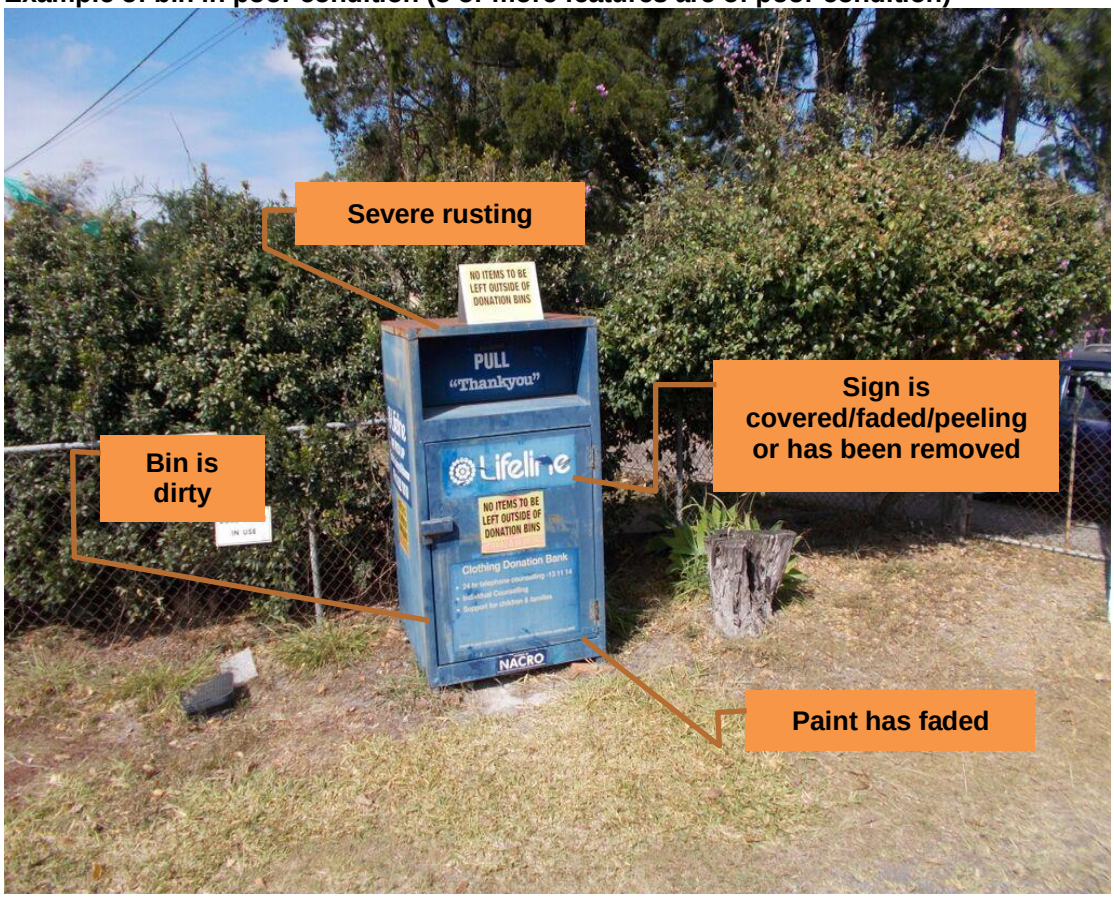
Notes:

APPEARANCE OF BINS: REFERENCE PHOTOGRAPHS

Example of bins in good condition

Example of bins in average condition (1 or 2 features are of poor condition)

Example of bin in poor condition (3 or more features are of poor condition)



APPENDIX I: WASTE AUDIT RECORDING SHEET

CHARITY:		DATE:	RECORDED BY:
#	Material Category	Weight (kg)	Notes about item & volume
1	**Paper & cardboard**		
	Magazines, packaging etc.		
2	**Books**		
3	**Videos/DVDs/cassettes**		
4	**Furniture**		
	Including artwork, picture frames		
5	**Toys**		
6	**Sporting goods**		
	Exercise equipment, basketballs etc.		
7	**Baby items**		
	Strollers, car seats, high-chairs,		
	nappy bins, unused nappies etc.		
8	**Luggage**		
	Suitcases and large bags		
9	**Coat hangers**		
	Plastic, wooden and metal		
	hangers		
10	**Footwear**		
11	**Other clothing accessories**		
	Jewellery, belts, small handbags		
12	**Textiles & clothing**		
	Clothing		
	Blankets, linen, curtains etc.		

#	Material Category	Weight (kg)	Notes about item & volume
13	**Mattresses**		
	Including pillows, cushions		
14	**Comingled recycling**		
	Recyclable glass, cans		
	Plastics (1-6)		
15	**Non-recyclable glass**		
	Drinking glasses, glass plates etc.		
16	**Non-recyclable plastics**		
	Foam, film, PVC pipe,		
	Composite items (mostly plastic)		
17	**Plastic bags**		
	Including reusable plastic bags		
18	**Ceramics**		
	Plates, cups, china ornaments etc.		
19	**Electronic items**		
	TV's, computer equipment		
	DVD players, small appliances etc.		
20	**Metal composites**		
21	**Whitegoods**		
	Fridges, washing machines etc.		
22	**Food waste**		
	Domestic - scraps, wrappers		
23	**Green waste**		
	Lawn clippings, trimmings etc.		
24	**Other organic**		
	Rubber (e.g. tyres), oils, wood offcuts		
25	**Household hazardous**		
	Paint, fluorescent tubes, batteries,		
	Household chemicals		
26	**Expanded polystyrene**		
	Commonly used for packaging		
27	**Other inert and/or fine material**		
	E.g. rocks, dirt, ash		
28	**Miscellaneous**		
	Anything that doesn't fit		

APPENDIX J: STAKEHOLDER MAP

This stakeholder map was constructed in order to identify the key players in the waste and recycling industries in Queensland. It is hoped that charities and other stakeholders will refer to this list to support the creation of critical networks between organisations, generate alternative pathways for the disposal of materials for both the public and charities, and increase the recycling of waste.

RECYCLERS		
GROUP	**DESCRIPTION**	**CONTACT**
Aussie bulk discount: All recyclables	Free service. Aims to reduce electronic waste going to landfill. Will collect items such as: televisions, printers, game consoles, electronic games, speakers, and mobile phones. Items are re-used or disposed of in the correct way.	www.aussiebulkdiscount.com.au Phone: 0402 008 247 Email: steve@aussiebulkdiscounting.com.au info@aussiebulkdiscounting.com.au Postal Address: PO Box 572 Rochedale QLD 4123
Australian Metal Recycling Industry Association (AMIRA)	Recognised as the 'voice' of the Scrap Metal Recycling Industry. Contact details can be found for members of the scrap metal recycling Industry according to State. In QLD, members include Scott Metal - Coorparoo	http://www.amria.com.au/qld.html
BMI group	BMI Group currently operates facilities across South East QLD providing recycling, waste transfer and landfill activities. Resource recovery is focused on the separation of concrete, steel and timber from the waste stream to minimise waste to landfill and maximise recyclables	www.bmigroup.com.au
Brisbane City Council: E-waste	Recycle e-waste. This includes: home appliances and electrical items.	www.brisbane.qld.gov.au
Brisbane City Council: Resource Recovery Centres	Members of the public can recycle and donate at Resource Recovery Centres (tip shops) at Chandler, Ferny Grove, Nudgee and Willawong Transfer Stations	www.brisbane.qld.gov.au
CDS	Recycling services includes: E-Waste, Paper & Cardboard, Plastic, Liquid, Timber, Batteries, Metal and fluorescent	www.cds.com.au Email: info@cds.com.au Address1359 Kingsford Smith Drive, cnr Curtin Ave East Eagle Farm, QLD 4009 Phone: 3268 1828
CMA Ecocycle	CMA Ecocycle is Australasia's most experienced mercury recovery and recycling company. CMA Ecocycle is part of Recycal, an experienced metal recycling group that provides a range of metal recycling solutions.	http://www.cmaecocycle.net/ Business Address: 1204 Lytton Road, Hemmant, Queensland 4174 Email: 3260 1796
E-waste	E-waste is a locally operated business with over 18 years' experience in recycling e-waste and waste management. They accept e-waste such as computers, microwaves and electric toys	www.ewaste.com.au Phone: 1800ewaste (1800 392 783)
Greenbins: all recyclables	Provides services for entire waste disposal needs including household waste, green waste, concrete, soil, and construction and	www.greenbins.com.au Business address: 24 Bandara Street, Richlands QLD 4077

	demolition. Greenbins also sorts through and recovers by-products that can be re-used at their Resource Recovery Centre located at Narangba and Richlands.	Email: sales@greenbins.com.au Phone: 1300 656 624
Mattress recyclers	Recycle mattress that can be refurbished.	www.mattressrecyclers.com.au
MRI: e-waste	MRI offers 20 years' experience in computer recycling and e-waste solutions. Assets with potential for reuse are refurbished, and items of no value are recycled. There is a small fee to recycle items, and a rebate may be offered for items of value.	www.mri.com.au 2/33 Gosport Street, Hemmant QLD 4174 General Enquiries: 1300 4ewaste (1300 4 39278) internetsales@mri.com.au
Polytrade Recycling	Polytrade Recycling is the recycling industry in Australia for recycling sorting & processing. Repla's partners with companies such as Dulux and Coles to assist them in reducing their environmental impact by ensuring their plastic waste is recycled and reused within Australia.	www.polytrade.com.au Address: 38 MacBarry Place Rocklea, QLD 4106 Email: rocklea@polytrade.com.au Phone: 3277 9882
Recyclers Australia: All including whitegoods and electrical	Recyclers Australia is specialised in recycling scrap metals and plastic. They are located in Brisbane, Gold Coast and Melbourne.	www.recyclersaustralia.com.au Head Office: 46 Union Circuit Yatala QLD 4207 Phone: + 61 (7) 3382 7262
Redcycle	Recycle soft plastics disposed in their collection bins. Drop-off bins are located at 480 Coles stores and 100 Woolworths stores around the country. REDcycle Program operates Nationally.	www.redcycle.net.au/redcycle Email: info@redgroup.net.au
Redland City Council	Recycles e-waste such as unused televisions, computers and computer equipment. Recycle collection points are located at Redland Bay and Birkdale Waste Transfer Stations. This is free for all residents and small businesses. Council also has free cardboard and polystyrene recycling collection at both sites.	www.redland.qld.gov.au/EnvironmentWaste/Waste/Pages/ElectronicWaste.aspx Email: rcc@redland.qld.gov.au Business Address: Cnr Bloomfield and Middle Streets Cleveland QLD 4163 Phone: 3829 8999
Replas	Replas is Australia's leading recycled plastic manufacturer and aims to provide a solution for plastic waste by delivering quality cost effective sustainable products.	www.replas.com.au/ Email: sales@replas.com.au Head Office: 27 Titan Drive, Carrum Downs 3201 (and local Offices in Queensland) Phone: 1800 REPLAS
Resource Recoveries & Recycling	This company takes waste products from various industries & trades, and recycles these waste streams into usable products. They aim to operate an effective service to the local and broader community	www.rrrecycle.com.au gary@brisbanequarries.com Business address: 706 Mt Cotton Rd Sheldon, Qld, Phone: 3206 0422
Richlands Resource Recovery Centre	Specialises in scrap metal recovery and recycling. Manages materials including electrical equipment (such as batteries), and Furniture and Fittings (such as white goods)	http://recyclingnearyou.com.au/business/12982 Business Address: 56 Link Crescent, Coolum Beach QLD 4573 Phone: 07 5351 1351 Email: shane.mac@therecyclecentre.com.au

SIMS e-Recycling	Provide IT and electronics recovery, reuse and recycling services.	http://www.apac.simsrecycling.com/
SIMS Metal Management	Provide end-to-end metal waste management and collection services to manufacturing, industrial, mining, council and government client. Most households, businesses, building sites, farms and factories have equipment that can be recycled and converted to cash quickly and easily.	www.scrapmetal.com.au Services available in Brisbane Phone: 1800 727 276
Substation33	Substation33 disassembles electronic waste and redirects recovered materials back into the manufacturing stream, diverting it from landfill	http://substation33.com.au/ Email: info@substation33.com.au Phone: 3826 1533
Teracycle	Reuse of non-recyclable, post-consumer waste	www.terracycle.com.au Email: customersupport@terracycle.com.au Phone: 1 800 983 324
The Recycling Centre	Recycle all items including Scrap metals. Industrial, Commercial and domestic wastes.	http://recyclingnearyou.com.au/business/13256
The Resitech Group	Specialist in Plastic Recycling & Sheet Extruded products	www.theresitechgroup.com Business Address: 5A Priority St Wacol 4076 QLD Phone: 3879 4409
Toxfree	Toxfree's National Resource Recovery Facilities are used to sort recyclables including glass, plastics, metals and paper, which are then separated, whereby the recyclable material is further processed and converted back into new products.	www.toxfree.com.au Email: info@toxfree.com.au Phone: 1300 869 373
Transpacific Cleanaway	Transpacific has one of Australia's largest fleets of specialist waste management vehicles, providing clients with access to a range of specialist waste management services each and every day. Capabilities include: Recycling solutions, General waste management services and processing facilities, Waste oil collections and re-processing, Advanced resource recovery solutions and much more.	www.transpacific.com.au/ Business Address: Level 1/159 Coronation Dr MILTON QLD 4064 Phone: 3367 7800
VISY	Visy recycles paper and cardboard, glass, plastics and metals (including aluminium and steel cans). Visy also offers solutions for businesses, including provision of recycling bins and a pick-up service.	www.visy.com.au Head Office: 13 Reo Crescent Campbellfield VIC 3061 (locations in Queensland) Phone: 13 VISY (13 8479)
Waste metal industries	Generates an engine search list of waste metal industries	www.wastemetalsindustries.com.au

EDUCATORS (ORGANISATIONS THAT MAY SUPPORT EDUCATIONAL CAMPAIGN)		
GROUP	**DESCRIPTION**	**CONTACT**
Brisbane Catholic Awareness	Provides a list of services and resources about recycling	http://www.bne.catholic.edu.au/creationwecare/Pages/Waste.aspx
Brisbane City Council: School Recycling	Educational programs and resources to assist kindergarten and school groups implement waste minimisation practices.	http://www.brisbane.qld.gov.au/environment-waste/green-living/green-schools/school-recycling

Brisbane City Enterprises PTY LTD	Brisbane City Enterprise provides solutions in transport, governance, water, environment and waste management services	http://bce.com.au/environment-waste/ Phone: 3029 6690 Email: bce@smec.com
Department of Environment & Heritage Protection	Protect the Environment and the Heritage. This includes: Flora & Fauna species. They advocate sustainability and Protection of the environment.	https://www.ehp.qld.gov.au/ General Enquiries: 13QGOV (13 74 68)
Green Cross Australia	Green Cross Australia educates and engages community to become more resilient to the changing environment.	https://www.greencrossaustralia.org/founder.aspx Phone: 3003 0644
Keep Queensland Beautiful	Voluntary committee representing local and state governments, community and service associations and business and commerce groups to deliver anti-litter campaigns to QLD	http://www.keepqueenslandbeautiful.org.au/aboutus/history
Sita	Dedicated Education Centres for schools, community groups and businesses interested in learning more about recycling, resource recovery and sustainable environment practices.	www.sita.com.au Phone: 13 13 35
Stakeholder Engagement	Extensive experience in tailoring education programs to meet the needs of the client, targeting specified demographics with contemporary curriculum and resources.	http://www.envirocom.com.au/tag/stakeholder-engagement/ Phone: 3457 2400 Email: qld@envirocom.com.au
ENABLERS (ALTERNATIVE OPTIONS FOR THE DISPOSAL OF UNWANTED ITEMS)		
GROUP	**DESCRIPTION**	**CONTACT**
GivIt	GIVIT currently supports more than 1,100 of Australia's most trusted charities by sourcing quality urgently needed items direct from the public.	www.givit.org.au email: corporate@givit.org.au
Recycling Metal Industries	Recycling Metal Industries offer a broad range of services including national bin collections and site clean ups (domestic, commercial and industrial). They also import material from overseas for processing and recycling.	http://www.recyclingmetal.com.au/ scrap@recyclingmetal.com.au 522 Boundary Road, Archerfield, Qld 4108 Phone: 3277 3090
Reverse Garbage	Not-for-profit worker run co-operative that promotes environmental sustainability and resource reuse. They collect high quality industrial discards, diverting them away from landfill and sell them at a low cost to the general public.	www.reversegarbageqld.com.au info@reversegarbageqld.com.au 20 Bourke Street Woolloongabba QLD 4102 Phone: 3844 9744