



Understanding Kerbside Dumping Behaviour in Brisbane

A report for the Department of Environment and
Heritage Protection and Brisbane City Council

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Executive summary

Background and methodology

Pollution from illegally dumped waste on kerbsides of urban roads has been identified as a problem by the Queensland Department of Environment and Heritage Protection (EHP) and the Brisbane City Council (BCC). This project aimed to understand why people dump material on the kerb so EHP and BCC can implement strategies to address the drivers of the illegal activity. Other information that could inform potential interventions was gathered, such as key times to intervene, and how people best receive information. A structured short interview face to face with 64 residents was carried out in high dumping suburbs. Approximately a third of interviewees admitted to dumping in the past; the rest of the respondents were non-dumpers.

The fieldwork focussed on the BCC Asset Services Branch South region of Brisbane. This area was chosen as there was readily available and accessible data on the number and location of reported kerbside dumping. In this region it appears that high dumping suburbs are more likely to have residents with lower income and higher unemployment than residents of lower dumping suburbs.

Findings

Dumpers were asked directly why they had dumped. The most common reason for kerbside dumping was that it is a simple method that works – dumpers agreed that most items were quickly collected. Sharing items with other people was another commonly expressed reason for dumping, with many dumpers also collecting off the kerb.

There were many other reasons nominated by fewer dumpers, including:

- believing that kerbside disposal was the correct method of disposal
- mistakenly believing council collection was coming up
- lack of storage
- it was the easiest option
- lack of transport to the tip

Uncommon reasons included the cost of entry to the tip, the need to dump when moving house and seeing dumping as recycling. Dumpers were more likely to nominate breakages as a prompt for dumping than non-dumping, with almost half of dumpers saying breakages caused them problems compared to only a small proportion of non-dumpers. This could be related to the earlier mentioned issues of storage (not being able to store items until the official collection) and transport to the tip (not being able to transport it there).

Non-dumpers were asked why they thought others dumped. Observations from neighbours led many non-dumpers to conclude that the main reason for other people dumping was moving house. There was also a widespread view that the cost of tips leads to kerbside dumping, which is in contrast to the experience of the dumpers interviewed.

Nearly all respondents had seen re-usable items, which is not surprising given the focus on sampling in key dumping suburbs. A large group of respondents said that “putting reusable items on the kerb was okay”, while a slightly smaller group said it was not okay. A significant proportion

said that the acceptability of reusable kerbside dumping depended on the situation for example the nature of the items left out and the duration.

Far fewer people had noticed non-reusable items (rubbish) on the kerbs in their area than reusable items. However, far more people said that the practice was not okay – nearly all said it was not acceptable and a very small proportion said it depended on the situation.

The official kerbside collection was a popular disposal mechanism for respondents, with most saying they had used it in the past. The most popular alternative disposal mechanism was donating to charity. No other option had a majority of respondents say they would use it. The least popular was having a garage sale.

Overall it appears that cost at the tip is unlikely to be a large barrier to most people. Most people have not considered the cost of the tip, and guesses about the cost were not hugely inflated.

Two-thirds of respondents had not heard of the fine for kerbside dumping. People who had dumped or were suspected of dumping were asked if knowing about the fine would change their behaviour. A similar proportion said that knowing about the fine would change their behaviour (though some will probably realise that prosecution is quite difficult).

Most people had either never heard of tip vouchers or had not used them. Only one tenant had received tip vouchers from their landlord, and no one in the Housing Commission units had received any. Slightly more than half of the respondents said they would not find it useful to have more tip vouchers.

The most popular future sources of information about rubbish services were a letterbox notice and a letter from a landlord, both of which almost all respondents said they would use. Least popular were the council website and the local newspaper.

Summary

Kerbside dumping appears to be a widespread cultural practice in some areas. The behaviour is reinforced by the success of items being quickly picked up and by a positive feeling of sharing unwanted items with other people. Council reinforces the norm by collecting leftover items and by a lack of fines. Dumping appears to be associated with lower socio-economic residents. It is more prevalent in poorer areas. Poorer people are less likely to have storage or transport to the tip, and to own a computer. Dumpers are also more likely not to speak English as a first language. These factors imply that care should be taken to protect vulnerable citizens when planning interventions.

Suggestions

As kerbside dumping has many causes it is likely that more than one response will be required. The potential responses based on this research are broadly:

- Information provision (e.g. letterbox notices in key suburbs to at least let people know it is illegal to kerbside dump)
- Supporting access to rubbish services (e.g. tip voucher provision; may need to address barriers for some people such as transport to the tip)
- Changing the social norm (longer term changes around emphasising that the socially acceptable thing to do is to use the official collection or the tip, for example through high visibility “illegal dumping under inspection” tape).

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Introduction

Pollution from illegally dumped waste on kerbsides of urban roads has been identified as a problem by the Queensland Department of Environment and Heritage Protection (EHP) and the Brisbane City Council (BCC). This waste is typically old household goods, mattresses and green waste. There are significant costs to collect materials dumped on the kerbside. Every year, half a million dollars is spent on cleaning up illegally dumped waste in Brisbane, although only a proportion of this is kerbside dumping. One Brisbane City Council region has a collection crew that spends approximately a day week for most of the year collecting illegally dumped kerbside rubbish, which is another indication of the burden of the activity. The Gold Coast City Council spent half a million dollars in 2014 cleaning up kerbside dumping¹, while Local Governments in NSW spend \$10 million a year removing and properly disposing of illegally dumped materials and land filling.² These direct costs do not account for the reduction in amenity value in the communities involved. There are also safety concerns for some types of waste left in the path of pedestrians. Similarly it is possible that kerbside dumping can create traffic hazards from drivers slowing down to look at piles of rubbish and possibly getting out and removing items.

Other research

Kerbside dumping is a problem for many city and regional councils in Australia and around the world. However, it appears that there has been little research carried out on the motivations for kerbside dumping. It is important that we understand motivations before introducing strategies and interventions designed to address them.

Most of the literature is focussed on bushland dumping or littering. However, bushland dumping and littering are quite different to dumping outside a residential property, and most likely driven by quite different motivations. Bushland dumping (or dumping in car parks, council parks etc.) requires the dumper to load up a vehicle and drive it to a secluded location. This means that the dumper not only has the means of accessing a tip, it is almost certain that they would also know that what they are doing is illegal. Littering is also usually carried out when someone is away from home – the most commonly reported sites in the National Litter Index were retail, industrial and highway locations (Keep Australia Beautiful 2014). While we can probably assume that the motivations for littering and bushland dumping do differ, under the Waste Reduction and Recycling Act 2011 the only difference between littering and illegal dumping is the volume of waste – over 200L (approximately the volume of an average wheelie bin) constitutes dumping.³ However, this study was limited to examining the motivations for kerbside dumping, which for the purposes of this project, is any item being placed on the kerb outside of one's own residence, even if it is small in volume. The home-based nature of the behaviour immediately presents it as a different problem requiring different solutions to other dumping behaviours.

A significant piece of research on kerbside dumping was conducted in NSW in 2004 by the Department of Environment and Conservation using telephone surveys and focus groups. This study focussed on Multi Unit Dwellings (MUDs - for example townhouses and apartment complexes) as they had been identified as kerbside dumping 'hotspots'. The researchers found

¹ <http://m.brisbanetimes.com.au/advertisers/gold-coast-council-uses-smartphone-app-to-tackle-kerbside-junk-20150309-13z5dp.html>

² <http://isustainfairfield.org.au/waste-a-recycling-81/illegal-dumping#.VTWloVzfA7c>

³ https://www.ehp.qld.gov.au/waste/lid_faq.html

that most people did not see illegal dumping as a major problem in their area. Although 14% of phone survey respondents admitted to dumping, more admitted to the practice in the face to face groups. Department of Housing and non-English speaking (NESB) residents were slightly more likely to dump than owners or renters. This mostly seemed to be associated with a lack of alternate options for Department of Housing residents and a lack of awareness/knowledge for the NESB respondents.

The researchers concluded that a social norm about kerbside dumping had been created, where dumping was perceived to be the easiest option especially as no one was ever known to be fined and the rubbish was always taken away. The activity was not seen as illegal by most people but rather a minor misdemeanour. Other reasons for dumping included seeing the issue of waste removal as the council's responsibility, considering dumping as a recycling activity and perceiving the alternative options as expensive.

Suggestions for addressing kerbside dumping in MUDs included:

- Education strategies to help those who want to do the right thing.
- Making it easier to dispose of items correctly including addressing barriers like cost for lower income residents
- A long term strategy to change the social norm, by using strategies that make people feel guilty for dumping and reinforce pride in their local area; and reinforcing the unacceptability of the practice in all media and communications; and
- Advertising the presence of fines.

A recent online survey in Queensland for EHP (Enhance Research 2014) on littering and dumping found that only 14% of respondents consider it acceptable to place household goods on the footpath in the hope someone will take them, although this proportion increases to 40% saying it is acceptable if a "free" sign is added. As this question was asked within a negative framing about "littering", it is possible the true proportion thinking it is acceptable to place household goods on the footpath is higher. Similarly, only 5% admitted to dumping, although as the behaviours involved had been called "illegal dumping" it is likely respondents did not feel they could admit to the act. The two most common dumping locations were bushland and industrial bins which are outside the scope of this research. 20% of the dumped rubbish discussed by respondents was dumped on footpaths, which unfortunately means that only a small proportion of self-confessed dumpers were kerbside dumpers. The main reasons for overall dumping were avoiding cost (18%), no other alternative (13%) and left for someone else (13%) but it was not clear which of these reasons related to kerbside dumping.

Of the one in ten respondents who knew someone who has illegally dumped items, around 40% attributed this behaviour to laziness. Around one-quarter suggested the high cost of proper disposal as a reason for people they know illegally dumping unwanted items.

A study carried out in South Australia (Square Holes 2007) on illegal dumping found that most people did not see kerbside dumping as a major issue, and did not see it as a common occurrence. Only 2% of residents admitted to dumping but the question was framed within a discussion about "dumping" and thus the true rate could be higher. Respondents were asked why they thought people would leave unwanted items on the street and around bins, and 46% said that people are too lazy/don't care, 29% said that it costs too much to dispose of rubbish properly and 22% said that people do not know what else to do with their rubbish.

A report from the NSW Department of Environment and Conservation (2008) and the Charles Sturt action plan for illegal dumping (2013) note that although unwillingness to pay is often suggested as a major motivation for illegal dumping, the presence of continued dumping in the face of free kerbside collection may mean that cost is not the main driver.

A small number of in-depth interviews with people who place items on the kerbside in France (it appears in both official collection but also outside of the official collection period in some cases) found a major motivation was the convenience of getting rid of something they did not want any more with ease (Guillard and Roux 2014). The idea that they were helping someone by giving them the object was also mentioned frequently. The researchers note that in France “people are developing, in an invisible manner, a system for the circulation of second-hand goods”. They suggest that there is a need for specified areas for people to exchange second-hand goods to increase the accessibility of the practice.

Similarly Lane (2011) reported on a household survey and interviews with households in Melbourne, and noted that the kerb had become a “commons” where people could divest and acquire items. “While the existence of council hard rubbish collections may have been important in initiating such practices, in some suburbs they appeared to have attained the status of a social norm or informal institution that endured regardless of formal collections”.

There has also been research conducted specifically on the motivations and behaviours surrounding kerbside collecting (Lewis et al. 2014; Guillard and Roux 2014; Brosius et al. 2013; Lane 2011). This research often discusses the perceived benefits of materials being placed on the kerbside such as increased recycling. Lane’s (2011) household survey indicated that 35% of household hard rubbish was recovered by collectors compared to the 13% diversion rate by official council collectors (who primarily only collected scrap metal). Lewis et al.’s (2014) small qualitative study in Melbourne concluded that collecting allowed for the “expression of positive values associated with not-wasting, caring for others, and social responsibility.” They also suggested that the practice fostered a sense of connection across the community. Collectors often reported an increased motivation to consume more sustainably as a result of their observations while collecting in Brisbane and Auckland (Brosius et al. 2013),

It is also clear from the research into kerbside collecting, and from reactions in newspaper articles and social media, that kerbside collecting is seen as part of Australian culture. This may influence the behaviour of people who choose to place items on the kerb as they may think they are participating in a culturally encouraged practice.

Dumping in the South region

The fieldwork focussed on the South region of Brisbane (Figure 1). This region was chosen as it had the most comprehensive data on dumping within the Brisbane City Council area.

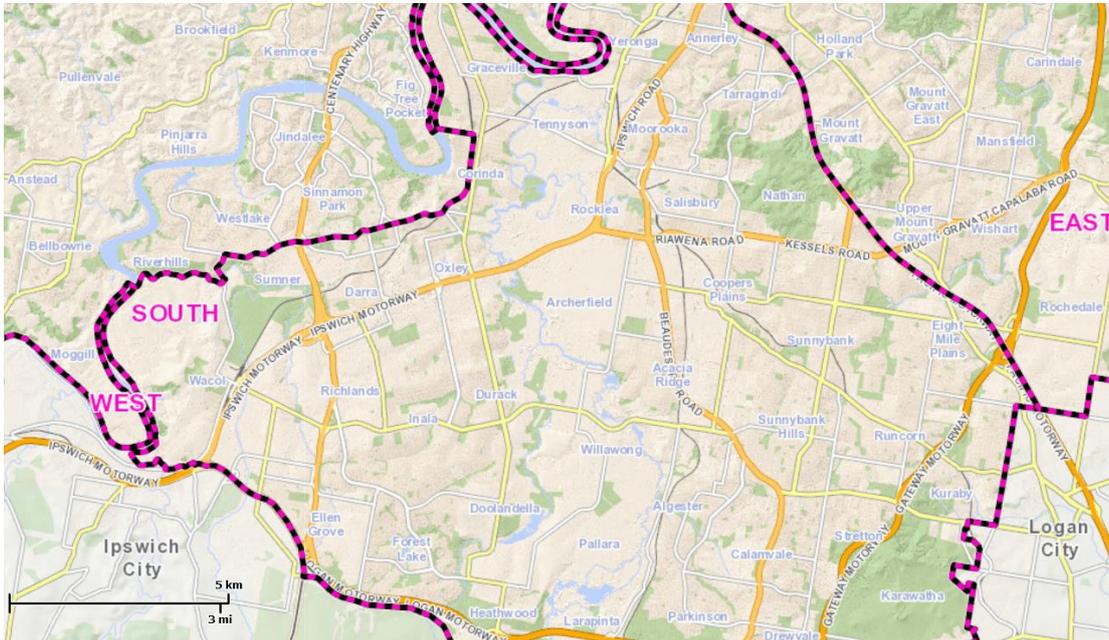


Figure 1 - South Region of Brisbane City Council

Dumping statistics were collated from approximately 18 months of data between July 2013 and March 2015.⁴ There were approximately 1400 incidents over this time in the South region, as shown in Table 1. This included a period in December 2014 where a significant number of suburbs were storm affected and had additional bulk rubbish collections (and thus may have also collected what would have been illegal kerbside dumping in this period, making the figures lower during this period). As the population of different suburbs varies significantly, and a higher population could be a reason behind a high dumping rate, the number of dumping incidents per capita is displayed in the final column. The number is shown per 1000 people for clarity. It should be noted that many of these instances – perhaps over half – were in non-residential areas such as parks, car parks, power line easements, bushland and outside businesses, and so do not constitute residential kerbside dumping. It is also important to note that these are only reported incidences of waste - i.e. the waste that has annoyed someone enough that they have reported it to council – and there are likely to be far more instances of quickly collected items that have been dumped on the kerb. It is possible that in wealthier areas, the kerbside waste is of higher quality and thus is quickly picked up and is not reported. However, there is no way to verify this suggestion.

⁴ Missing dates include mid June 2014-September 2014.

Table 1 - Dumping in South Region⁵

Suburb	Dumping incidents	Population 2011	Dumping incidents per 1000 people
Parkinson	17	9539	1.78
Forest lake	46	22426	2.05
Graceville	10	4213	2.37
Algester	23	8262	2.78
Sherwood	14	4998	2.80
Drewvale	12	3943	3.04
Wacol	9	2957	3.04
Chelmer	8	2594	3.08
Tarragindi	31	9965	3.11
Eight mile plains	42	13379	3.14
Sunnybank hills	54	16830	3.21
Stretton	14	4067	3.44
Durack	27	6177	4.37
Calamvale	68	15291	4.45
Robertson	22	4867	4.52
Oxley	37	7291	5.07
Corinda	24	4695	5.11
Doolandella	16	3105	5.15
Ellen Grove	14	2529	5.54
Salisbury	35	6096	5.74
Acacia Ridge	40	6945	5.76
Richlands	13	2076	6.26
Macgregor	35	5576	6.28
Inala	88	13796	6.38
Kuraby	58	7777	7.46
Runcorn	109	14075	7.74
Coopers plains	34	4208	8.08
Fairfield	21	2554	8.22
Annerley	92	10664	8.63
Sunnybank	73	8091	9.02
Yeronga	52	5540	9.39
Yeerongpilly	19	1984	9.58
Moorooka	126	9984	12.62
Darra	49	3838	12.77

The five highest dumping suburbs per capita were Darra, Moorooka, Yeerongpilly, Yeronga and Sunnybank. The lowest dumping were Parkinson, Forest Lake, Graceville, Algester and Sherwood. Within each suburb, there appear to be areas of high and low dumping that tend to cluster within key streets. There are also differences between suburbs within the high and low dumping group. However, there are still some overall differences between the highest and lowest dumping suburbs.

⁵ Suburbs that were not primarily residential or were very small were cut from this list: Karawatha, Willawong, Pallara, Rocklea and Archerfield.

For example, income varies between the two groups of suburbs as shown in Table 2. The overall distribution of income is generally similar. However, 29% of residents in the high dumping suburbs have a low income (\$1-\$20,799) compared to 23% of residents in the low dumping suburbs and fewer are in the \$52,000-\$78,000 category – 14% of high dumping suburb residents compared to 19% of low dumping suburb residents. This indicates that income is lower in the higher dumping suburbs than in the lower.

Table 2 - Income in high and low dumping suburbs

Yearly income	Nil or negative	\$1-\$20,799	\$20,800-\$51,999	\$52,000-\$78,000	\$78,801-\$103,999	\$104,000+
Lower dumping suburbs	10%	23%	32%	19%	9%	7%
Higher dumping suburbs	11%	29%	32%	14%	8%	6%

Similarly the lower dumping suburbs had a far greater proportion of residents who were employed full time (47% compared to 38%), and also fewer residents not in the labour force at all (34% compared to 26%), as seen in Table 3.

Table 3 - Employment in high and low dumping suburbs

Yearly income	Employed full time	Employed part time	Employed (away from work or hours not stated)	Unemployed	Not in the labour force
Lower dumping suburbs	47%	20%	4%	4%	26%
Higher dumping suburbs	38%	20%	4%	4%	34%

These two indicators suggest that dumping is associated with areas that are more economically disadvantaged.

There are far more MUDs in high dumping suburbs (34.7% of total dwellings) than in the low dumping suburbs (12.6% of total dwellings), which reinforces the NSW belief that dumping occurs more outside MUDs than other dwellings (DEC 2004). Similarly, the NSW finding that owners were less likely to dump is supported by the higher proportion of residents renting in high dumping suburbs – 35.04% compared to 27.05% in low dumping.

The proportion of residents who do not speak English well or not at all is greater in the higher dumping suburbs (6.2% of total residents) than in the lower dumping suburbs (3.4% of total residents). In the higher dumping suburbs there are two suburbs with particularly high proportions of residents who do not speak English well or at all – Darra-Sumner (12.7% of residents) and Sunnybank (10.7% of residents). This also matches the conclusions of the NSW research that there was a higher rate of dumping amongst non-English speaking residents of MUDs (DEC 2004).

It is not clear why this is the case, but it could be related to different cultural expectations or barriers in accessing information in English.

Methodology

This project aims to understand why people dump material on the kerb so EHP and BCC can implement strategies to address the drivers of the illegal activity. Other information that could inform potential interventions was gathered, such as key times to intervene, and how people best receive information. A structured short interview face to face with residents was carried out in high dumping suburbs. The interview (available in the appendix) covered:

- Use of official kerbside collection and use of illegal kerbside dumping;
- Willingness to use alternate disposals mechanisms such as online or garage sales;
- Reasons they had left items on the kerb or, if they had not dumped, reasons why they think their family or neighbours may have done so;
- Prevalence and acceptability of reusable items and non-reusable items being left on the kerb;
- Whether this is a regular activity or occurs predominantly at key times;
- Knowledge of the cost and location of the tip, and use of tip vouchers;
- Knowledge of a fine for kerbside dumping and whether this knowledge would change their behaviour;
- Preferred sources of information about rubbish services; and
- Willingness to report others

The question about reasons for dumping was left open ended as it was felt that people were more likely to give their true reasons for dumping when encouraged to discuss the issue rather than asking them to agree or disagree with a list of statements. The interviewer attempted to avoid negative terms such as “illegal”, “litter”, and “dumping”, and eased into asking if the interviewee had ever left anything on the kerb outside of official kerbside collection. This encourages honest discussions with most interviewees.

The selection process followed a purposive sampling methodology for most of the interviews. The aim was to maximise the number of dumpers interviewed. To this end, high dumping suburbs were chosen as the focus of the interviews. In order to maximise the chances of speaking to residents from a variety of backgrounds, suburbs with a mixture of key variables were chosen (based on BCC advice & NSW experience). The variables chosen were:

- The percentage of multi-unit dwellings vs. detached homes;
- The percentage of people who speak English not very well or not at all
- The percentage of renters vs. home owners; and
- The percentage of students.

Census data was used to examine these characteristics. Key suburbs of Sunnybank, Sunnybank Hills, Runcorn, Moorooka and Annerley were chosen.

If residents were not home during the first visit on a weekday, they generally received a return visit on a weekend or early evening. This was designed to reduce the bias towards people more likely to be home during a weekday (for example students, the unemployed, pensioners, parents). The number of eligible (i.e. English speaking residents) home was typically around 20% of doors knocked.

Finding dumpers was more difficult than anticipated. The Brisbane City Council database of dumping included a lot of dumping near open areas and green spaces, which was not the target activity of residential dumping. These addresses were generally filtered out before any field visit with the assistance of Google maps. However, even when residential addresses were visited the database included people who had reported dumping rather than the dumpers themselves. There was also a high time cost to visiting numerous addresses scattered across suburbs due to most people not being home even after two visits.

As a result of these challenges, it was decided after the first round of interviews to try convenience sampling where addresses with rubbish placed out the front would be targeted. The independence of researchers and confidentiality of results was stressed to these interviewees as they were at risk of being fined. A different questionnaire was created for this group to reflect the fact that both the interviewer and interviewee know that the dumping behaviour has occurred – for example, they were not asked if they would report someone for the activity. This strategy had some success, but due to the limited amount of kerbside rubbish on any one day (even in key suburbs) it was very time consuming.

As a result, this sampling strategy was supported by door to door knocking of all MUD addresses in high dumping streets in Moorooka and Annerley. MUDs were targeted as the literature suggested that they were more likely to dump, which was supported by visual observations in the dumping database and in the suburbs themselves. This also allowed interviewers to potentially talk to more interviewees in one location.

Interviews were carried out in a variety of Southside suburbs, as seen in Table 1, with the majority in Moorooka and Annerley. It proved difficult to recruit interviewees in Sunnybank, Sunnybank Hills and Runcorn. This was due in large part to the number of single dwelling homes where no one was home even after two visits. Limited rubbish on the kerbs restricted convenience sampling. There were also numerous gated communities (which the interviewers could not access) with rubbish outside in both the database and in suburb visits.

Table 4 - Location of interviews

Suburb	Number of interviews
Annerley	25
Moorooka	22
Sunnybank/Sunnybank Hills	9
Yeronga	5
Oxley	2
Runcorn	1

Sixty-four interviews were carried out, although interviews with two non-dumpers at the end of the project were not finished as the interview process was prioritising dumpers at this stage. There were five additional interviews that were terminated due to inadequate English skills. The response rate was approximately 70%.

Of these 64 interviews, 21 had dumped at some time in the past and 7 were deemed by the interviewers as potential dumpers: people who were actively considering dumping or had thought about dumping but just had not had an item to dispose of yet, or who were strongly suspected of dumping by the interviewers due to statements made throughout the interview. 29 interviewees were non-dumpers. These were people that the interviewers felt definitely did not place items on

the kerb, and indeed were sometimes the person who had reported the rubbish to council. Seven interviews were not informative enough for the interviewers to conclude the dumping status of the person.

Twenty percent of interviews were with residents in detached houses, with the rest of the interviews with residents of multi-unit dwellings.

Most (75%) of the interviews were completed by English as a first language speakers, with 22% completed by respondents who spoke English as a second language.

Most of the interviewees rented their properties (57%) or lived in Housing Commission properties (24%). The Housing Commission figure could be an underestimate as interviewees were not asked specifically if they were in community housing, but rather volunteered the information. Most were not recent arrivals, with 31% living in the area 2-5 years, 13.6% 5-10 years and 25% over 10 years. Nearly all of the people who had lived in their properties for less than two years had moved from within Brisbane City Council areas.

Hand written notes were taken during the interviews with verbatim quotes captured whenever possible. Accuracy of notes was improved through the presence of a non-participating research officer at all interviews. Analysis was carried out with the assistance of *Excel 2010*, the statistical package *SPSS 22* and the qualitative analysis software *Nvivo 9*. Analysis was primarily deductive, with the wider literature and experiences of officers involved guiding the development of the interview form and the first set of codes for open ended questions. However, the analysis was also partially inductive, with new codes developed from the observations made during the interviews, and theories developed from these codes.

Results

Characteristics of dumpers

Table 5 suggests that residents of Housing Commission units were more likely to dump than other tenure types. However this relationship was not statistically significant, perhaps due to low numbers ($\chi^2 = 1.358 (1), n.s.$). Owners were less likely to be dumpers with the relationship weakly significant ($\chi^2 = 3.396(1) = p \leq .1$)

Table 5 - Tenure type and dumping status

Dumping status	Housing Commission (n=14)	Own (n=11)	Rent (n=33)
yes or possible	57%	27%	49%
No	29%	73%	39%
Unclear	14%		12%

57% of HC residents (n=14) were most likely to say it's okay to put out reusable versus only 27% of owners (n=11) and 37% of renters (n=30). Owners most likely to say it was not acceptable (55%). Renters were evenly split between saying it was okay (37%), that it was not (37%) and that it depends 27%.

People who spoke English as a second language (n=16) were more likely to be dumpers (63%) than those who spoke English as first language (38% n=48) ($\chi^2 = 3.695(1) = p \leq .1$). This is in line with the NSW research (DEC 2004).

There were 15 students amongst the interviewees. Of these, 4 were dumpers and 6 were possible dumpers. This indicates that students were more likely than non-students to be a confirmed or possible dumper, and the relationship was statistically significant ($\chi^2 = 4.703(1) = p \leq .05$). However, their dumping may be unrelated to being a student (for example only two mentioned moving in relation to dumping), and more to do with other barriers such as storage and transport.

There was no obvious relationship between length of residency and views on the acceptability of dumping. The most settled residents (over ten years n=14) were as likely to say reusable items on the footpath were okay (36%) as not okay (36%) ($\chi^2 = .144$, n.s). There was no relationship between living in area less than a year and thinking reusable items on the kerb were okay ($\chi^2 = .452$, n.s.).

Why do people dump?

Interviewees who said that they had dumped in the past, or who had items on the kerb at the time of the interview, were asked why they put the items there. This section explores the reasons that were given, as well as the reasons nominated by potential dumpers.

A very strong incentive for kerbside dumping is that it works. It is seen as an effective way of getting rid of items, as they are quickly collected by neighbours or passer-bys. Nearly all dumping respondents said that items placed on the kerb were quickly collected. Several said an item would be gone within 5 minutes, and others told stories about times they had items taken almost straight away. In one dumping hotspot someone commented that "utes etc. collect white goods regularly [ID32]"

Most people did not say what they thought happened to goods that were not collected, though a few dumpers noted the council would come and collect leftover items - for example "If someone needs it they can have it, if not council take it [ID10]" and "If it doesn't go Council will get it [ID7]".

Kerbside dumping was seen as a common practice in their areas and more widely, e.g. "think whole city of Brisbane does it [ID32]". Some people said that they copied others doing this "I'm not a local...[I] watch and learn [ID38]" and "if I had something break I would put out on footpath as have seen other people do it" [ID58].

The other major reason that was discussed by a high number of dumpers was the idea of sharing the items. Numerous respondents talked about how they were leaving the items for someone else who might want it or need it for example ""Let someone else use it [ID7]" One person noted that it was "same as giving it to charity - same deal as far as I'm concerned [ID7]. Another said that they had "taken it [kerbside rubbish] in myself, and left things there for someone else [ID16]" and yet another said that they "put them out for other people who don't have enough things [ID43]"

There were many other reasons nominated by fewer dumpers. Some of these reasons generally supported the hypotheses held by the project team prior to the research being carried out, including:

- believing that kerbside disposal was the correct method of disposal
- mistakenly believing council collection was coming up

-
- lack of storage
 - it was the easiest option
 - lack of transport to the tip

Several people had put items out assuming that it was the standard practice within their area for rubbish disposal. One thought that perhaps the council came around monthly to collect large items off the kerb "[I] don't pay attention - I'm a boy [ID38]". "I thought they picked it up but not sure when...wouldn't have known [it was illegal] if you guys hadn't come by [ID68]". This same respondent said that they did not even know of the existence of the tip. Other respondents were also shocked to discover that the practice of kerbside dumping was illegal. Some respondents struggled to come up with a reason for why they dumped beyond something not being wanted any more, implying that they simply saw the kerb as the location to place items that are no longer desirable.

Placing items on the kerb was clearly the most convenient option for several respondents – the "easiest way [ID55]". One called going to the tip "a big hassle" [ID46].

Lack of storage for unwanted items until the official collection was mentioned by several dumping interviewees as a reason for kerbside dumping. Four of these were in MUDs that often had limited storage space (including a lack of garage). The last lived in a house but noted that he shared with many other people which presumably limited his personal storage space.

Barriers to disposing of the rubbish outside of official collections included lack of transport to the tip. The interviews did not ask about availability of transport to the tip, but 11 of our interviewees (dumpers and non-dumpers) mentioned in passing that they did not have cars or could not drive. This is 18.9% of the responses who simply mentioned it in passing, which is far higher than the Queensland rate of owning no vehicle of 7.2%. Five dumpers mentioned that they did not have a car, for example "basically only way as have no car [ID55]" or "If big can't manage on public transport [ID24]". This lack of transport was compounded for some people by not being able to afford to hire a vehicle to take the items to the tip. "don't have money to get someone to do it and a friend who said he would do it, didn't [ID44]"

A few people said that they thought the official collection was coming up for example "it was a day we thought the collection was on but it wasn't [ID43]".

Some simply felt that they had no other choice for example, "No other way to get rid of it – luckily people take it [ID25].]". "what [else] are you going to do with it ?[ID10]"know not supposed to but...[ID24]". When one interviewee (who had dumped items outside his residence at the time of the interview) found out that it was illegal to put waste on the kerb, he became genuinely distressed as he could not think what he would do with the items. He did not have the space to store the items and genuinely could not think of any other option to dispose of the goods [ID68].

Contrary to prior expectations, cost of entry to the council waste facility (referred to colloquially as "the tip") does not appear to be a significant barrier to proper disposal. The cost of entry to the tip was only mentioned by two dumpers, one of whom admitted that a tip voucher would not help them out as "rather not go, not my favourite thing to do [ID46]". It is possible that the other barriers to disposing of waste are so high (for example the cost of hiring transport) that the relatively minor cost of the tip does not seem important. In this case, the cost of the dump could be a barrier, just not the most important one.

Also unexpectedly, only two interviewees mentioned that moving was their prompt for dumping - "stuff we thought we were going to keep and when we moved we had less room [ID45]" and "in rush time for example when move in a hurry [ID50]". However, another interviewee had already considered placing items on the kerb when he moved countries in 6 months' time.

Lastly, only one dumper mentioned the environment as a reason that they support items going to the kerb rather than landfill - "modern society needs to be more frugal and not waste [ID46]".

A structured question in the interviews asked if particular situations had generated large items of waste that the person had struggled to dispose of – summarised in Table 6. Not surprisingly, more dumpers said they struggled to dispose of waste than non-dumpers. There were some differences between dumpers and non-dumpers. The largest difference was with breakages, with almost half (46%) of dumpers saying breakages caused them problems compared to only 8% of non-dumpers. This could be related to the earlier mentioned issues of storage (not being able to store items until the official collection) and transport to the tip (not being able to transport it there). More dumpers said they struggle with yard clean up (21% vs. 11%) and spring cleaning (18% vs. 8%) than non-dumpers.

Table 6 - Situations when people struggled to dispose of waste

Situation	Dumpers (number)	Dumpers (% of total dumpers) ⁶	Non-dumpers (number)	Non-dumpers (% of total non-dumpers)
Purchase new item	9	32%	9	25%
Moving house	6	21%	8	22%
Breakages	13	46%	3	8%
Spring cleaning	5	18%	3	8%
Renovating	3	11%	2	6%
Yard clean up	6	21%	4	11%
TOTAL	28		36	

Why others dump

The views of the non-dumpers might also provide insight into the motivations behind dumping, as often people have spoken to their neighbours about the problem or have observed dumping. It also offers insight into how the majority of the community perceive the problem and whether they share some of the more positive associations with kerbside dumping expressed by the dumpers (for example, the perception of it as a way to share unwanted goods with others).

The main reason for other people dumping was seen to be moving house, based on the observations of neighbours. This is in contrast to the views of dumpers themselves, however given the small sample size it is possible that moving is a major trigger for dumping in some areas. It is also the type of activity that is open to observation by neighbours so is less likely to be fuelled by speculation.

There is also a widespread view that the cost of tips leads to kerbside dumping, which is again in contrast to the experience of the dumpers interviewed. One interviewee noted that rental tenants

⁶ Included possibles

might not get tip vouchers. These views appear to have been based more on “common sense” rather than discussions with their dumping neighbours, which might explain the discrepancy between the results of the two groups. Similarly the cost of proper disposal of rubbish was raised as potential reasons for other people dumping in other research in South Australia (Square Holes 2007) and Queensland (Enhance Research).

Non-dumpers also noted that items were quickly collected off the kerb both in official collections and outside of them “usually everything gets picked-up” [ID54]. For example one couple said that soon after they moved to Australia they had left their pram on the footpath outside their apartment block to carry their child inside, and by the time they walked back down for their pram it had been taken.

Eight respondents suggested that dumpers were just lazy - for example, "Because they're lazy - the prime problem of the human species [ID15]" - with one respondent suggesting sarcastically that they "expect some nice person to pick it up"[ID59]. One respondent said "They think it's just their right. They just don't care [ID23]". One person commented that “They think the council will pick it up, and then the council do pick it up, which reinforces the behaviour. It's a vicious circle. [ID3]”. These views reflect the frustration felt by many non-dumpers. Laziness was also the main reason for why others dump given by respondents to surveys in South Australia (Square Holes 2007) and Queensland (Enhance Research 2014).

Another reason that had significant support was the idea that dumpers were leaving items out for other people to pick up and use, for example "may think it helps someone [ID28]." This is in agreement with the results of the dumper interviews.

Several respondents felt that dumpers genuinely were unaware that kerbside dumping was not an allowable practice. For example, one interviewee spoke about “New Australians who are given minimal information let alone anything on rubbish [ID15]”. Another commented that her neighbour did not know it was wrong to put his couch on the footpath until she told him. She also noted that "I see [dumping] all the time so lots of people don't know [it's illegal]" [ID31].

Similarly some felt that people just did not have another option, for example "No other way of doing it I suppose" [ID 6].

A couple of respondents suggested that lack of storage was partly responsible for residents not being able to store items until the official collection, for example "garages these days are not big enough to store old whitegoods, old bikes etc. and the car" [ID31]. Others implicitly gave support to the importance of storage space by noting that it was the reason why they were able to keep items until the official kerbside pickup, for example "Lucky we have a yard to store things" [ID48]).

Transportation was noted by some interviewees as a barrier. One commented that “Think major reason for dumping is getting it there - either no car or car is too small [ID48]”. Another believed that "transportation costs the highest thing [ID50]".

Reinforcing the social norm idea, one non-dumper observed “where there is existing furniture other rubbish is added [ID5]”, and another noted "There is a pile of rubbish around the corner all the time. [ID15]”.

A large storm damaged some parts of Brisbane in late November 2014, prompting Council to offer additional kerbside pickups of damaged household items and green waste in badly affected areas. Although only some suburbs were offered this service, some other suburbs may have thought they were eligible for additional pickups. One interviewee in Sunnybank said he had noticed an increase

in kerbside rubbish and assumed a pickup was scheduled [ID9]. In one part of Sunnybank Hills, green waste was evident in neat piles on many streets and in one street in particular almost every house had a pile outside. A local resident said they had been told by the council that they were doing an extra pick up of green waste. This was not the case but is illustrative of the contagiousness of putting out kerbside waste.

Views on kerbside dumping

Interviewees were asked about their opinions on the acceptability of placing reusable and non-reusable items on the kerb.

Views on reusable items

Respondents (both dumpers and non-dumpers) were asked if they had noticed reusable items (such as furniture) and rubbish (non-reusable) items on their streets. Nearly all (91% n=56) interviewees had seen re-usable items, which is not surprising given the focus on sampling in key suburbs. It should be noted that the interpretation of what was considered reusable and not was left up to participants – some might consider an old mattress reusable while others would categorise it as rubbish. Some people also revealed they considered small items of litter dropped by passer-bys as kerbside rubbish (until the interviewer specifically asked them about larger items of waste) which means it is possible other people also interpreted this similarly.

A large group of respondents (both dumpers and non-dumpers) said that “putting reusable items on the kerb was okay” (40% n=55). Many of these respondents were surprised that anyone could ask if it was acceptable or not, as they clearly saw it as appropriate. The most common comment was that kerbside dumping was a positive practice as it allowed items to be shared. For example, one interviewee said it was a system of “helping each other out [ID12]”. “Good as people who need things can take them” [ID1]. One noted that it was a form of recycling [ID46]. There were numerous comments on prevalence of the activity for example “wake up and something is there” [ID28].

Some people did note that only some items were quickly taken “reckon if it's good enough someone would take it” [ID30], “if good it will be gone [ID7]” “quite good way to get rid of useful, easily picked up things [ID59]” . Though others noted that even broken items were taken for parts or to be fixed - “Even if broken someone often takes it, for example a neighbour's bed head and broken bed frame [ID15]”, “Even if doesn't work people would fix it [ID17]”, or “will be taken for motors etc...I myself do up old bikes [ID46]”.

Quite a few respondents noted that they had picked items up off the kerb themselves in the past as well, making it a system of local sharing. E.g. “picked up a few good things [ID53]” “[if need something] scan around suburb [ID46]” One person had even dumped an item that they had picked up from the kerb in the first place “I got my doggy couch from people who put it out so I thought I would recycle [ID38]”.

Around a third (33% n=55) said it was not okay. Many of these people said that they thought kerbside rubbish looked bad. Typical comments include “No it is never okay, it's grubby. [ID2]” and “Looks terrible. Untidy and cheap. [ID3]” . Others noted that it reduced the appeal of the area “devalues property seeing junk stuck there” [ID31] and “[if people dump outside official time] place turns into a ghetto [ID28]”. Two long term residents of Moorooka spoke about their pride in their area and how they were unhappy to see it looking dirty or messy ([ID23] and [ID31]). “just because housing commission doesn't mean you don't have pride” [ID23]. Some noted that it was

dangerous to have these items present. E.g. "sometimes causes a hazard. It blocks the streets, might cause injuries" [ID60]. A few people noted that it was illegal "it's just littering essentially" [ID18], and others just noted that they preferred people to wait until the official collection.

A significant proportion (27% n=55) said that the acceptability of reusable kerbside dumping depended on the situation. These respondents typically said some kerbside items were okay, but not if they were especially unattractive – for example "If looks bad or ugly, take it to the dump" [ID10] or if they were sitting out a long time for example "see if someone takes it, not leave it for months" [ID14].

These caveats on the acceptability of kerbside dumping were related to some self-imposed conditions mentioned by some dumpers, such as care over the items left -"we don't leave trash" [ID17]- the acceptable time frame - "just a few weeks to see if someone picks it up" [ID51]- or restricting to a "high traffic area [ID59]".

It was obvious that beliefs about the acceptability of kerbside dumping were complex. For example, one respondent thought it was not acceptable for reusable items to be dumped as they should go directly to charity, but did not mind rubbish on the kerb [ID52]. Another [ID50] who had noted "normal practice is that some take from kerb and reuse them" was upset when commercial operators came and collected items from the official collection as he did not think a business should be profiting from it.

Some people blamed specific groups for dumping, such as MUD tenants, immigrants or particular ethnic groups.

Not surprisingly, dumpers (including possible dumpers) were more likely to say it was okay to place reusable items on the kerb (68% okay n=25) vs. non-dumpers (8% okay n=24) as seen in Table 7. This relationship was highly significant ($\chi^2 = 14.843(1) = p \leq .001$). Non-dumpers were far more likely to say the practice was not-acceptable (50% vs. 12%) or to think the acceptability depended on the situation (42% versus 20%). Interestingly some dumpers (12%) did not agree with the practice despite having done it themselves – these people typically had only put something particular on the kerb a couple of times and justified the activity due to the quality of the item or the speed with which it was picked up.

It is important to note that as the database originally used to source addresses for interviews included those who had reported dumping, the "non-dumpers" participating in the interviews, are more likely to be aware of the problem and dislike it than the average Brisbane resident.

Table 7- Proportion of dumpers/non-dumpers who think reusable dumping is acceptable

	Acceptability depends on situation	Not acceptable	Yes acceptable
Not a dumper (n=24)	42%	50%	8%
Definitely or possible a dumper (n=25)	20%	12%	68%
Dumping status unclear (n=6)	0%	50%	50%

Views on non-reusable items

Far fewer people had noticed non-reusable items (rubbish) on the kerbs in their area than reusable items (52% vs. 91% n=56). However, far more people said that the practice was not okay – 84% said it was not acceptable compared to 33% for reusable rubbish, and only 2% said it depended on the situation compared to 27% for reusable rubbish.

The people who said rubbish was okay were just generally not bothered by it, or thought the person doing it had no other option. One noted that they would just move it out of their way if there was a problem [ID52]. Another said that even if something was broken "they might be able to use parts" [ID50]. The one person who said it depends on the situation noted that they did not like plastic bags flying around [ID48].

The many people who disagreed with the practice often seemed to think it was self-evident that the practice was not acceptable. Those who commented tended to remark on the appearance of the rubbish (for example "if not reusable then I think it's being very untidy [ID34]"") and the subsequent reduction in local amenity value - "makes the building look awful" [ID22] and "Everyone wants to live in a good neighbourhood" [ID17].

Alternate disposal options

The official kerbside collection was a popular disposal mechanism for respondents, with 73% (n=60) saying they had used it in the past. Interestingly, 12% of total respondents (n=60) had not heard of the collection at all. Just over half (57% n=7) of the respondents who had not heard of the collection had lived in their local area for less than 6 months. This helps explain their unfamiliarity with the process. However, the other three people had lived in the area for between 1 and 5 years, indicating that familiarity with rubbish disposal processes does not always improve over time.

A few respondents noted that they avoided the problem of a lack of storage for items by waiting until the kerbside collection to purchase a new large item such as a mattress or television. e.g. "Because I used my brain and bought it [new mattress] the same time as the council pick up" [ID15].

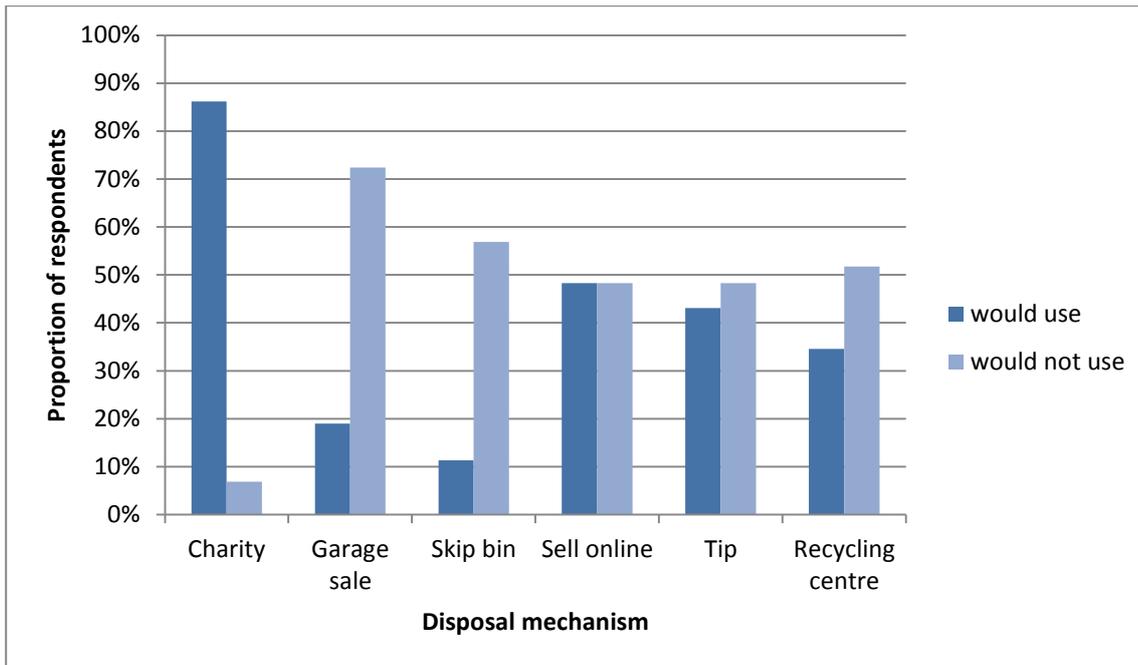


Figure 2 - Popularity of disposal mechanisms for unwanted goods

As shown in Figure 2 giving to charity was the only alternate disposal mechanism that appealed to the majority of respondents. A very large majority (86% n=58) of respondents said that they would give unwanted items to charities. However, this is a solution that only works for some items with many saying they would only donate items in good condition, and others commenting that charities will not take everything including some electronics, for example "sometimes not want it...not fancy enough [ID27]". A few people said they liked it when charities picked items up from them or had used a bag left for collection as this alleviated the need to transport the items to the store/charity bin.

No other option had a majority of respondents saying that they would use it to dispose of rubbish. 48% (n=58) said they would sell items online, although some people noted that they would only sell particular items such as electronics or high quality goods. An equivalent number of people said they would not sell items online. Some people commented that they did not have the skills for this, or did not want the hassle - "honestly I can't be bothered [ID15]". A couple of people noted that they did not have a computer.

The rubbish tip was the next most popular rubbish disposal option at 43% of respondents (n=58), though slightly more people (52% n=58) said they would not use it. Several (9) of these people volunteered the information that they did not have a car, whilst others said they had to hire a ute or asked a friend with a ute/car and trailer to take them.

24 respondents (41% n=59) knew where the tip was, which was very similar to the number of people who said they would use the tip.

Recycling centres were less popular with only 35% (n=55) of respondents saying they would use them compared to 52% (n=55) saying they would not. Quite a few people had not heard of this option.

Garage sales were the least popular way to dispose of items, with only 19% (n=57) saying they would consider having one and 72% (n=57) saying they would not. The most common comment

was not having enough unwanted belongings to justify a garage sale. A few people in MUDs commented that they did not think they had the space for a garage sale. A few others said that it was too much work, and one commented that the Brisbane City Council did not make it simple to join the Garage Sale Trail and mentioned problems with liability insurance [ID15]. One interviewee explained that they did not want to sell items online or at a garage sale as he believes that if he has something he doesn't need and someone else needs it, of course he should give it to them [ID68].

Skip bins were also unpopular, with only 11% (n=53) saying they would consider having one, and 62% (n=53) saying they would not. Several respondents noted that they would not have enough rubbish for a skip bin. Others noted that they believed it was expensive to hire one. A couple of people commented that they were not sure if they were allowed to have a skip bin on common property at their MUD.

For most options people said they would or would not do something, with few saying they "might do this". This might indicate that people are unlikely to revise their opinion about, for example, online selling, which reduces the option to try to target an action to increase usage. One exception could possibly be skip bins, as 25% (n=53) of respondents said they were not sure or might use a skip bin. However, the caveats about being able to use them would still hold for some people.

Information for potential interventions

Cost of the tip

To gauge whether interviewees had an accurate perception of cost, we asked them how much they thought it would cost to take a queen sized mattress to the tip in a car or ute without a tip voucher (this would cost around \$10.70). Most (60% n= 57) said they did not know. A further 28% guessed a higher price (most between \$15 and \$20), 11% guessed the price within a dollar (\$10) and 2% guessed too low. The average guess was \$20.70.

When they found out the current price, nearly every respondent reacted positively. 87% (n=55) said they thought the price was about right, with many people using the term "reasonable". A few pointed out that the council had to cover the cost of running the tip - for example "They have to pay for people to maintain the dump so it's fair enough." [ID44]). The remaining 13% said it was too high. Those who said it was too high gave reasons such as "we pay rates for God's sake" [ID27] "If you could take white goods or a mattress for nothing you wouldn't find them lying around streets" [ID9] and "But on a limited budget that could be difficult at times" [ID24]; "if families are struggling then \$10 is a lot [ID8]"

Unusual responses included one person who could not hazard a guess as he assumed the price would be set accurately "they know the reason, their expenses [etc...]" [ID68]. Another respondent was [ID 46] concerned free entry or a low price at the tip would encourage people to use the tip rather than recycling.

Overall it appears that cost at the tip is unlikely to be a large barrier to most people. Most people have not considered the cost of the tip, and guesses were not hugely inflated.

Fine

Interviewees were asked if they were aware that there was a fine of around \$1800 for dumping an item (or accumulation of items) that was larger than a wheelie bin. Two-thirds of respondents had not heard of the fine for kerbside dumping (66% n=56). Dumpers were no less or more likely to have heard of the fine (66% had not heard of fine n=28, $\chi^2 = .252(1)$, n.s.). Many people expressed surprise at the size of the fine. One non-dumper commented that she did not know about the fine "because nothing got done about it [rubbish on kerb] [ID23]", implying that she assumed that if there was a fine it would be enforced. Similarly another person said "see [dumping] all the time so lots of people don't know" [ID34].

Some respondents approved of the level of the fine for example "make it more...not the right thing to do if you have pride in your neighbourhood" [ID9]. Others were concerned at the level "gee they don't miss you do they?" [ID57] and "That [fine level] should be included in letters to residents. All pensioners here and can't afford those sort of fines" [ID23]

People who had dumped or were suspected of dumping were asked if knowing about the fine would change their behaviour. 68% (n=19) said that it would change their behaviour. This is likely to be true for some of the respondents – indeed, one person (in a house) immediately went to the kerb and dragged in their rubbish after the interview had finished. Another had actually been fined in the past and had not dumped again [ID48].

However, others quickly realised that it would be hard for BCC to know who had dumped, particularly outside MUDs. e.g. "have to prove Joe Blow put it out there [ID31]" and "You can't track down the people who do it anyway [ID7]". A non-dumper was incensed at the idea that the council would think this was a viable strategy for reducing dumping "but how [do they] find out who did it" [ID27].

Some still did not see any other option for their rubbish disposal and planned to continue dumping for example "what are you going to do with it? [the rubbish]?" [ID10]. A few said they would "be more careful about it" [ID46] perhaps by checking that it is indeed picked up "I would leave out a day or two and then take it in, don't leave it for weeks or you can get in trouble" [ID30].

Reporting others

Respondents were asked if they would be willing to report others for dumping. A quarter (25% n=48) said they would be willing to report. A further 35% said they might do so. Several comments were made that it depended on what was left on the kerb - "unless it was dangerous or ugly" [ID14] or "if furniture, probably ok as people might reuse" [ID20] - and the length of time it had been there - "depends how long there, if a while [yes] otherwise a day or 2 and didn't block flow no difference" [ID48]. Many of these responses appeared to be more about people's attitudes towards the acceptability of kerbside dumping so it is unclear if they would actually go ahead and report a dumper. A few said they would report someone if they saw who dumped it and knew who it was, which presumably is often not the case.

The largest group of responses (40% n=48) were not supportive of reporting. The reasons given were varied. Several were against reporting on principle, for example "I'll never be a cop" [ID7], or didn't think that the activity warranted a fine - "S**t no. Don't think it should be illegal." [ID55]. Another group of people favoured just dealing with the rubbish or dumpers themselves. For example, one person said to "use common sense...keep it simple" and pointed out there is a cost to calling council out to deal with it [ID19]. Some would prefer to approach the dumper themselves,

for example, "tell people straight to their face that [there's an \$1800 fine]" [ID37]. A few said they would not report others out of a sense of understanding and compassion for example "you don't know what they're going through...could have been evicted and need to move fast. Reporting them makes their life worse. Some people are going through a lot and are struggling" [ID17]. A couple of people noted that they had a "fear of backlash" [ID8] and that council might tell the dumper who reported them [ID12].

Tip vouchers

Most people have either never heard of tip vouchers (36% n=58) or have not used them (43% n=58). Only one tenant had received tip vouchers from their landlord, and no one in the Housing Commission units had received any. Rental/Housing Commission tenants who had used vouchers commented that they had got them from family members or friends. One house owner said he went to the tip around once a month (including helping out an elderly neighbour) and when he runs out he gets more vouchers from his local ward office [ID9]. He heard about being able to obtain more vouchers in this way through the neighbourhood watch newsletter.

Slightly more than half of the respondents said they would not find it useful to have more tip vouchers (52% n=58), with one additional person saying they were not sure. The main reason for not finding it useful was not having a car. 47% of respondents said it would be useful to have more vouchers (n=58). This included over half of the definite and possible dumpers (56% n=27), indicating that providing vouchers to rental and housing commission tenants might encourage some of them to access the tip. One said "we do have access to a car and trailer to use the vouchers" [ID16], ""would be a lot more inclined to go [if had vouchers]"[ID45], "could go more often and just load up the back of the car with small stuff" [ID44], whilst a non-dumper noted that "If had vouchers would find someone with a car" [ID53].

Popular and unpopular sources of information

Table 8 - Sources of information⁷

Mode	Would use source (number)	Would use source (% of total)	Would not use source (number)	Would not use source (% of total)
Council newsletter	31	54%	23	40%
Website	20	35%	36	63%
Letterbox notice	45	82%	9	16%
Local newspaper	21	38%	35	63%
Community event	23	41%	30	54%
Landlord letter⁸	38	88%	5	12%

⁷ The total responses for each option are slightly different, and the n/a answers have been removed

⁸ The proportions here are of the population that rent

The most popular way of communicating rubbish information to all residents is through a letterbox notice drop, with 82% of interviewees saying they would read such a notice. The people who said they would not read it made comments such as "Get so many. Perhaps if in big writing!" [ID24] or "only if has my name on it" [ID17]. Two respondents objected to it on environmental grounds saying it wasted paper.

For those renting their properties, 88% would also read a letter from the landlord about rubbish services, which makes it a very reliable method of communication. One tenant commented that landlords "have enough to do", that such a letter would be "passing the buck" and said such communication was really the council's responsibility [ID15].

The council's newsletter was the next most popular means of communication, with just over half of respondents (54% n=57) saying they would use it to get information about rubbish services. The 40% of respondents who said they would not use it either had not heard of the newsletter or never read it.

Just over half of respondents (54% n=56) said they would not attend a council run stall at a community event, but 41% (n=56) said they would visit such a stall if they happened to be at the event/site.

The local newspaper was not a popular option. Approximately 2/3 of respondents said they did not read the paper (63% n=56), and only 38% said they do read it. There were similar figures for the council website, with only 35% (n=57) saying they would access it.

The questionnaire included an option for an informative poster in an MUD lobby. However, few MUDs had a communal noticeboard or physical space for such a poster. Of the 11 interviewees that were asked about this option, 8 said they would read such a poster and only 3 said they would not. However, given the overall lack of suitable locations for such information it is unlikely to be a good communication option.

The preferred information sources for dumpers were similar to the answers for the respondents as a whole.

Conclusion and recommendations

The widespread cultural practice of kerbside dumping in some areas is reinforced by the success individuals have had with items quickly being picked up off the kerb, or observing items quickly disappearing during the official collections and at other times. This behaviour is also reinforced by the positive association of sharing items with others.

Even high quality items that might not cause the same aesthetic or financial problems as items that are not collected may still add to the kerbside dumping problem in a few ways - adding to the perception that this is 1) the standard rubbish disposal service for the area 2) that it is a quick solution to unwanted goods and 3) it is a good way to share items with others (especially when charities are seen as only taking certain items).

Kerbside dumping appears to be associated with lower socio-economic factors. Many dumpers seemed to be less affluent and included many Housing Commission respondents. This is supported by the data indicating that high dumping suburbs have lower incomes and less employment than low dumping suburbs. Some of the barriers identified in this research such as a lack of transport, inability to afford to hire transport and lack of storage are problems unlikely to be faced by better-off residents. Poorer residents are also less likely to be online to find out information about official rubbish services. Although cost of tip entry does not appear to be a barrier, it should also be noted that in many cases the poorer members of the community also did not have access to free visits to the tip that home owners receive, due to either being residents of Housing Commission or renters (where landlords frequently keep the tip vouchers for themselves). This means a careful intervention is needed to avoid targeting more vulnerable members of our community.

Potential responses

As kerbside dumping has many causes it is likely that more than one response will be required. The potential responses based on this research are broadly:

- Information provision
- Supporting access to rubbish services
- Changing the social norm

At a minimum, adequate information must be given to residents about proper disposal of rubbish and the illegality of kerbside dumping. Some of our respondents genuinely did not know that it was wrong to place items on the kerb or the legal alternatives for disposing of rubbish. This ignorance is not surprising given the lack of access to the internet and the common practice of kerbside dumping in some areas, particularly as researching rubbish services is unlikely to be a priority for most people. Even if the internet is accessible, the information is only likely to be found by people actively seeking it. A large fine – which is particularly impacting for people in lower socio-economic groups - may be a disproportionate response in these situations.

If a communication strategy is implemented a letterbox drop in high dumping suburbs – or even high dumping streets – could be a low cost method. Letterbox notices were the preferred method of communication by residents.

Alternatively – or in addition to – the letterbox notice, a “welcome to the neighbourhood” package could be provided outlining key council services including rubbish collections and proper disposal. Alternatively the Council or EHP could coordinate with the Department of Communities and the

sections in BCC that look after migrants to ensure that new arrivals are familiar with rubbish services.

It is not entirely clear if moving house is a major trigger for kerbside dumping, however given the observations of non-dumpers and Council staff it is probably worth targeting.

It will be more difficult to change the widespread perceptions and practices surrounding kerbside dumping. Long term cultural change would be necessary. For example the BCC could end scheduled kerbside collections in case it adds to the perception that the footpaths are an appropriate place for waste. However, as discussed in the literature review this would reduce the benefits associated with kerbside collecting and provide some residents no means of disposing of large items. It would also be unpopular.

Emphasising the illegality of kerbside dumping might help change cultural perceptions. For example, some councils in Australia place tape saying “illegally dumped rubbish under investigation” around piles of kerbside waste. Advertising the fine more widely is therefore likely to have some impact on behaviour but the extent to which it might be effective is unknown. This is particularly the case after people observe their neighbours not being fined after dumping or if they understand that a fine can only be issued if the dumper is known. More widespread enforcement would likely be necessary to help reinforce any deterrent effect.

It is important that any authorities do not make the problem out to be more widespread than it actually is otherwise there is a risk of reinforcing the social norm of dumping as it would be perceived as consistent with the rest of the community’s behaviour (Cabinet Office 2012). Emphasising that most Brisbane residents use the official kerbside collection or take their rubbish to the tip may help contribute to changing the social norm in some areas where it is considered acceptable and common practice to dump on the kerbside.

It might be simpler to provide support for the utilisation of the tip such as addressing storage limitation and limited transportation. For example the Housing Commission or another government department could offer subsidised skip bins or transport/free collection for Housing Commission residents. Of course the cost of providing services such as these would have to be compared to the current cost of collecting kerbside rubbish. This would also have the advantage of addressing the main prompt for dumping of “breakages”. Most people were pleasantly surprised by the low cost of using the tip, indicating that if the council advertised this cost more widely it would be acceptable to most people.

There was some evidence to suggest that providing vouchers to rental and housing commission tenants might encourage some of them to access the tip. However, this information should be balanced with the lack of concern over the cost of the tip, as opposed to the lack of transport to the tip and the undoubted lure of being able to put items on the kerb and know they will be collected.

However simply receiving tip vouchers might raise awareness amongst residents of the expectation of council that residents will take their own rubbish to the tip, and also provide an opportunity for Council to communicate information about rubbish services with residents.

The Behavioural Insights Team in the UK has created a framework that summarises ways that behavioural science can help improve policy interventions. In essence they suggest that interventions should aim to be Easy, Attractive, Social and Timely. Table 9 summarises the framework and maps the suggested interventions from this section against the different elements of the framework.

Table 9 - Behavioural Insights and kerbside dumping

Framework element	Summary of behavioural insights	Possible applications of behavioural insights into kerbside dumping
Easy	harness defaults; reduce hassle factor; simplify messages	Reduce hassle factor – provide tip vouchers to everyone, and information with them on how to find ute hire, when official pick up is etc. For some categories (eg Housing) consider offering subsidised services. Any message that goes out e.g. letterbox notices should be designed to be easy to read and eye-catching.
Attractive	attract attention; design rewards and sanctions for maximum effect	The tape around the pile is a visible way to advertise that the activity is unsanctioned and may increase shame in those who dump. Advertise when fines are given.
Social	show that most people perform the desired behaviour; use the power of networks; encourage people to make a commitment	Make sure emphasise in communication is that most people use the official pickup or the tip. Visible tape highlights social norm is not to put stuff on the street. Messages might also be listened to coming from multicultural organisations or housing groups rather than just council.
Timely	prompt people when they're receptive; consider the immediate costs and benefits; help people plan their response to events	Note on notices for the official pickup that another collection won't come for another year; include info on what to do outside of the collection (including reference to the fact most people wait a year or go to the tip) – specific information such as where to find a service that drives rubbish to the tip. Try to think of way of contacting people before they move Advertise cost of dumping i.e. fine

Other suggestions for EHP and BCC include:

Research:

- Do an analysis of the database using street view on Google maps and see where the dumping is occurring so as to have a better idea of who to target. For example is it all MUDs, are gated communities a problem, how much is bushland dumping (and thus needs a different strategy)
- Might be worth assessing if gated communities and other large institutions are a problem and developing a separate strategy for them.
- Given the proportion of NESB residents in dumping suburbs, and the association in our research between dumping and language background, if dumping problems persist in these suburbs it might be worth carrying out targeted research to discover what the association is based on – for example, is it different cultural practices, ignorance of practices in Australia from new arrivals or the inability to source information in their own language?

Collaboration:

- Liaise with Department of Housing and Housing Associations in key areas about what strategies they think will work for their tenants
- Similarly liaise with multicultural organisations to gain ideas on what might work to reduce dumping amongst people with a non-English speaking background.

Alternative disposal options

- Given the lack of support from interviewees for garage sales, council and state government promotion of the Garage Sale Trail may not address many people's dumping needs
- Encouraging an item swap would help connect with people's desire to share with others. However, if this was held on the street it might reinforce the social norm around dumping. If it is held in a park or another community location, transport will become an issue.

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