



# SAFEWASTE

the safe way to secure your waste



## FIELD TRIAL AND CASE STUDY

RIVERSTONE TERRACES, UPPER HUTT, NEW ZEALAND 2016

# OBJECTIVE

To assess and verify the effectiveness of the SafeWaste Latch.  
Also to gather data on the following:

- Ease and speed of installation on different bin sizes and types
- Effectiveness in adverse weather conditions
- Usage rate by residents
- Waste contractor feedback
- End user feedback
- Understand and evaluate all lost litter issues relating to kerb side collection of wheelie bins

## TEST SUBURB BACKGROUND INFORMATION

Riverstone Terraces is a hill suburb of Upper Hutt which is particularly prone to high wind due to its topography and lack of natural shelter such as large trees etc. It has an annual average wind speed of 17km/hr.

There are approximately 500 dwellings, with a population of around 1,500. All homes are of relatively new construction (12 years or less with a median price of \$580,000). The median annual house hold income is \$100,000.00.

The suburb's general waste, green waste and recycling is serviced by the six private collection companies listed below. They all collect weekly on Thursdays.

- Lo-cost Bins
- Waste Management
- The Wheelie Bin company
- General Waste
- Al's Binz
- Transpacific/EnviroWaste

The residents choose which Company they want to collect their waste and pay that Company directly for all collections.

## METHOD AND INSTALLATION

In partnership with Al's Binz, Safewaste installed 130 wheelie bin latches on 19 May 2016, in Riverstone Terraces, Upper Hutt. The trial period spanned 6 months, with a total of 3,120 bin lifts undertaken on the trial bins. An additional 20 bins were fitted due to requests from residents using other collection companies who were not involved in the trial during the installation – as willing participants, these residents were not included in the field trial or survey, to eliminate a biased result.

A single SafeWaste latch was fitted to the bin handle on the side that is visible to the collection truck driver (Fig A).



FIG. A

A simple flyer was tucked under the SafeWaste latch which was attached to the emptied bin and latched shut. The flyer included a brief description of the SafeWaste latch and a website survey with feedback option (Fig. B). In total, 12% of recipients responded (see appendix A for feedback comments). SafeWaste provided a person to ride with the collection truck and install the latch to bins and attach the information flyer. There were no bins that couldn't be fitted. The fitment process created a collection efficiency loss of 15%, when compared to the normal time for the operator to complete the run.



FIG. B

## SURVEY QUESTIONNAIRE RESULTS

### We asked the following yes/no questions on an online survey:

Have you had your bin lid blow open or the bin tip over due to windy conditions?

**77% responded yes.**

Would you chose a refuse collection company based on their environmental policy?

**77% responded yes.**

Did you find the SafeWaste latch easy to use?

**100% responded yes.**

Do you think SafeWaste is a good idea?

**100% responded yes.**

Would you like to see councils endorse the SafeWaste as part of their environmental policy?

**100% responded yes.**

Will you use SafeWaste?

**100% responded yes.**

## FIELD TRIAL DATA

After 6 months data was collected to gauge usage rate of the SafeWaste latch. The findings are as follows:

On Thursday 8th of December 2016 - Weather conditions were light drizzle with no wind. It was found that **70.8%** of trial participants had latched their bin.

On Thursday 15th December 2016 - Weather conditions were 40kph NW wind gusting to 80kph with heavy rain/showers. It was found that **84.6%** of trial participants had latched their bin.

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After half a year, latching the lid has become a habit for 71% of the users, with another 14% using it as required. It was noted that approximately 50% of the unlatched bins were positioned in "sheltered pockets" – none of the sheltered bins had been blown over or had lids blown open. It is likely that the end users don't see a need for their bin to be latched in its current location.

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## LOST LITTER OBSERVATIONS

AL's Binz are the first collection company each Thursday to service the neighbourhood, which gives a unique opportunity to survey the number of bins causing litter issues as the bins hadn't yet been disturbed or emptied by other collection companies.

During the adverse weather conditions, study undertaken on the 15 December 2016, it was observed that 27 full bins had been blown over and were creating litter issues necessitating clean-up (Fig. C). An additional 34 full bins had their lids blown open and were contributing to litter issues. These bins were a mixture of types and sizes and not limited to one specific street.

This equated to approx. 10% of the total bins out for collection. It is worth noting that 2 bins fitted with a SafeWaste latch were blown over and did not lose any litter, nor required the operator to clean up (Fig. D).



FIG. C



FIG. D

Some lost litter was generated by the waste truck tipper collection system – the SafeWaste greatly minimised this issue by holding the bin lid in a closed position until the bin was inverted over the sheltered tipping area of the collection truck.

Some interesting improvised lid holding solutions were observed with one resident filling a pail of water and lashing his bins to it in an attempt to anchor them. A number of bins were rigged with elastic bungee cords and ropes, some were taped closed, and others had rocks/bricks placed on them in an attempt to hold the lids shut (Fig. E). All of these methods have an adverse impact on collection efficiency. In the case of elastic cords with steel hooks, these constitute a hazard to the collection truck operator. However, it clearly showed a willingness by responsible residents to find solutions to an obvious litter issue and a need for the SafeWaste wheelie bin latch.



FIG. E

## OTHER OBSERVATIONS AND FEEDBACK

- During the 6 month trial period the driver reported zero non-opening bins during collection with the Automatic Side Loader collection trucks.
- During the 6 month trial period the collection truck operator reported no cases of tipped over latched bins opening or losing litter.
- The truck operator suggested that the long straight roads down in the valley floor are particularly bad in high winds for lost litter – he explained that this is because the broad streets that align with the prevailing wind act as a wind tunnel – he suggested that “grid neighbourhoods” on the flat are worse than exposed hill suburbs with their curved and undulating streets where some properties are sheltered due to the topography, however a further field study would be required to validate this claim.
- The SafeWaste restricted the ability for bins to be overfilled – it was noted that bins fitted with a SafeWaste were rarely overfilled compared to the other contractor’s bins. This is of great importance to private collection companies who pay per kg of waste emptied at landfills.
- The majority of bins seen with open lids were overfilled – there is a direct correlation with bin overfilling and unintentional littering – this is why residents are fined for overfilling in parts of the UK. Our study showed that overfilled bins in adverse wind conditions will guarantee the overfilled contents are lost – a latched safewaste bin stops this dead.
- One resident stated that she liked using the safewaste because she could tell that it had been emptied if the clip was unlatched, an unexpected bonus feature.

This trial only looked into litter issues caused by adverse weather – in other locations there will be different issues which will mean the Safewaste will be of even greater value, especially in the case of “animal invaders” where it would be safe to assume it would be constantly latched by the end user.



## APPENDIX A

"Safewaste catches are fantastic. Been using one for several months and even if the bin has fallen over, the contents have not released because of the catch. Fantastic invention and every one in a windy area should be made to use them."

"Just picked up my bin and found your product. You guys are just GREAT. Many times I was upset about waste that was blown out of a bin and we had to scout around to find and collect it. You just fixed this problem. And it gets better: you gave it to us for FREE. I would happily pay for your solution if it was in the shop! Thank you so much for assuring that our streets look tidy even if there is wind! My SafeWaste will be ON from now on." Pierre.

"Good idea but what is the catch Price? I will use it while it is free but do not know if I will if I have to pay for it"

"Fantastic idea. We live in a very Windy City."

"Good simple idea to reduce wind blowing rubbish around. Great service from our contractor."

"Safe waste is an amazing thing. As we are living in a quite windy area, safe waste is a life saver for us. We really like it as it is easy to use. After using this, I recommended to all my friends. Thank you for making our life easy"

"I think it's a fantastic idea that couldn't have been invented soon enough. Such a simple design yet works so effectively. Well done!

"This is a fabulous fastener, easy to use. My only concern is that it could get lost, knocked off when putting waste into the bin. Great initiative"

"Any device designed to stop rubbish blowing wildly around has to be good value."

"We spend a lot of time cleaning up other people's rubbish and recycling on windy days due to their unsecure packaging. Good for neighbours!"

"We live in a windy neighbourhood and this clip is ideal for keeping the closed."

"The SafeWaste clip is a great idea and will help prevent rubbish flying around when bins fall over or have their lids blown open."

"Great invention"

"I think your fastener for the bin is a great idea as I am fed up with other people's rubbish blowing into my property. I have used a Bungy cord on windy days but is not user friendly for the contractor and they also are not very durable. Your lid tie down attaches perfectly is easy to use and have just seen the contractor come and empty bin and they had no problems"

"Great Idea indeed!! My parents live in Harbourview Lower Hutt and could so do with this product"

"I think this is a wonderful idea, a really great item and so pleased it had been provided for us. Thank you."