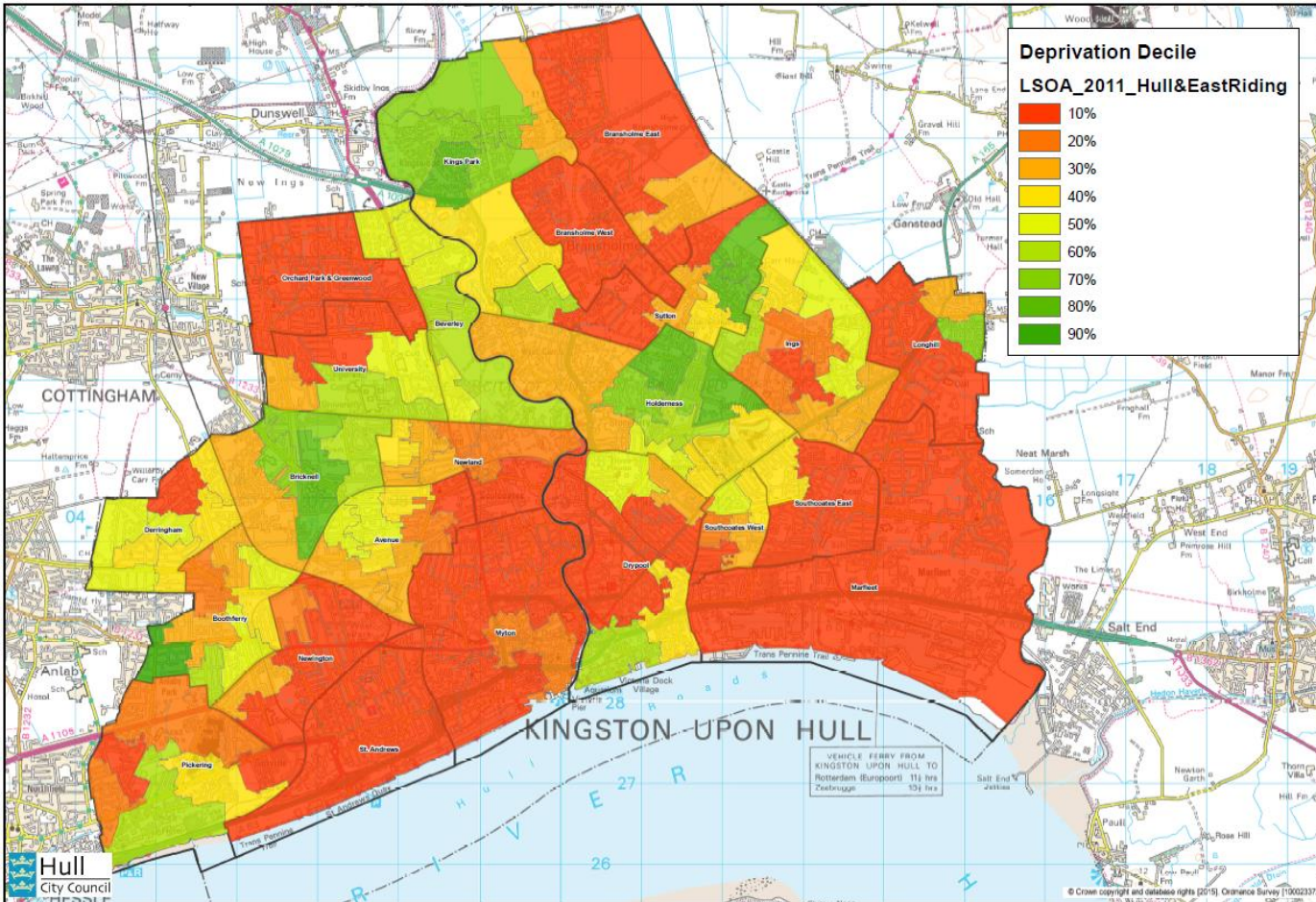


# Dealing with the problem of contamination – The Hull experience

- Identifying the level of contamination
- Analysing possible causes of contamination
- Developing a programme of initiatives to reduce the problem

Doug Sharp, Assistant City Manager, Hull City Council

# Demographic



Deprivation Index	Rank (Out of 326)
Income	3
Employment	4
Education	2
Health	32
Crime	8
Overall	3

# Background

- 2008/09 – NI 192 performance at 26%
- Options appraisal to achieve 45%
- Policy decision:
  - Introduce fortnightly fully commingled dry recycling service
  - Introduce garden and food waste service
  - Collection policy to minimise barriers to recycling participation
  - Retain weekly refuse collection



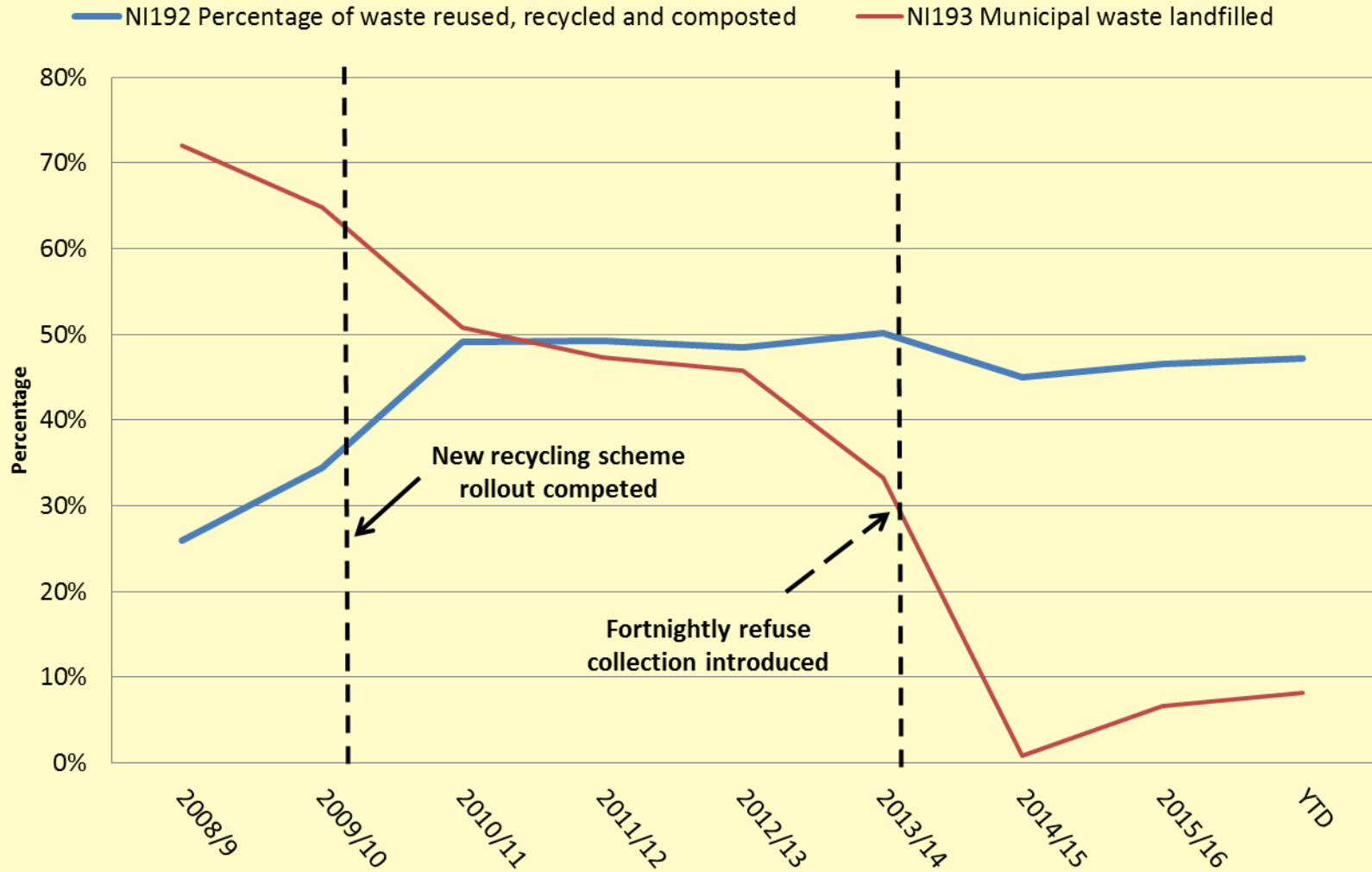
Hull  
City Council



HULL  
2017  
UK  
City  
of  
Culture

# Waste Collection – Performance History

## NI192 and NI193 performance trends

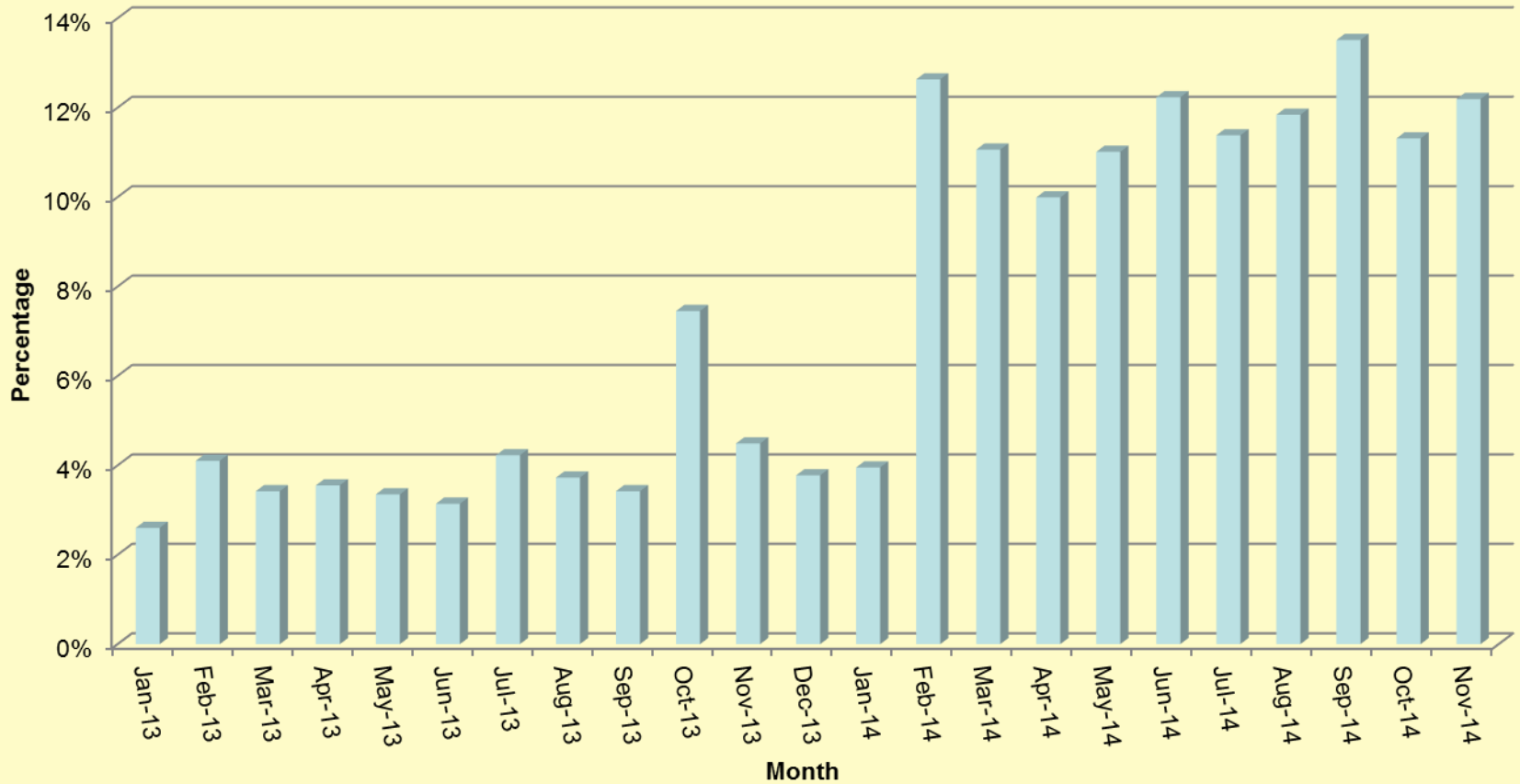


# Waste Disposal - History

- Integrated contract with FCC up to March 2015
- 2009 to 2015 - Third party MRF provision at Biffa Aldridge, Trafford Park and Casepak, Leicester
- 2013 to 2015 – New contract procurement
- April 2015 – New Contracts commenced:
  - MRF – J&B Recycling, Hartlepool
  - IVC – J&B / Biowise consortium, Hull
  - Residual waste – Impetus, Teeside
  - HWRC/TLS – FCC Environment

# What was our contamination rate?

## MRF Contamination Rate



# MEL Research - Acorn Categories

ACORN CATEGORY		%	ACORN GROUP		%
1	Wealthy Achievers	3.30%	A	Wealthy Executives	0.49%
			B	Affluent Greys	0.13%
			C	Flourishing Families	2.68%
2	Urban Prosperity	6.32%	D	Prosperous Professionals	0.66%
			E	Educated Urbanites	2.32%
			F	Aspiring Singles	3.34%
3	Comfortably Off	18.65%	G	Starting Out	4.30%
			H	Secure Families	10.03%
			I	Settled Suburbia	4.05%
			J	Prudent Pensioners	0.27%
4	Moderate Means	30.76%	K	Asian Communities	0.00%
			L	Post Industrial Families	7.38%
			M	Blue Collar Roots	23.38%
5	Hard Pressed	40.78%	N	Struggling Families	21.06%
			O	Burdened Singles	14.62%
			P	High Rise Hardship	5.10%
			Q	Inner City Adversity	0.00%
Unclassified		0.19%	Unclassified		0.19%
TOTAL		100.00%	TOTAL		100.00%



# Waste Composition Analysis

BLUE BIN RECYCLING	3-H	4-L	4-M	5-N	5-O	WEIGHTED
RECYCLABLE PAPER	27.65%	31.96%	39.68%	44.54%	29.28%	34.74%
RECYCLABLE CARD & CARDBOARD	10.34%	17.92%	19.72%	13.42%	10.12%	13.97%
RECYCLABLE PLASTIC BAGS	0.79%	1.68%	1.08%	0.53%	1.70%	1.11%
RECYCLABLE PLASTIC BOTTLES	4.65%	5.39%	5.99%	2.79%	7.00%	5.30%
RECYCLABLE PLASTIC CONTAINERS	1.16%	2.01%	2.57%	1.17%	1.69%	1.74%
RECYCLABLE GLASS	20.10%	15.01%	15.46%	18.69%	14.46%	16.82%
RECYCLABLE METALS	5.11%	5.27%	6.62%	7.50%	6.57%	6.33%
CONTAMINATION	30.21%	20.76%	8.87%	11.36%	29.19%	<b><u>20.00%</u></b>



# Contamination Breakdown

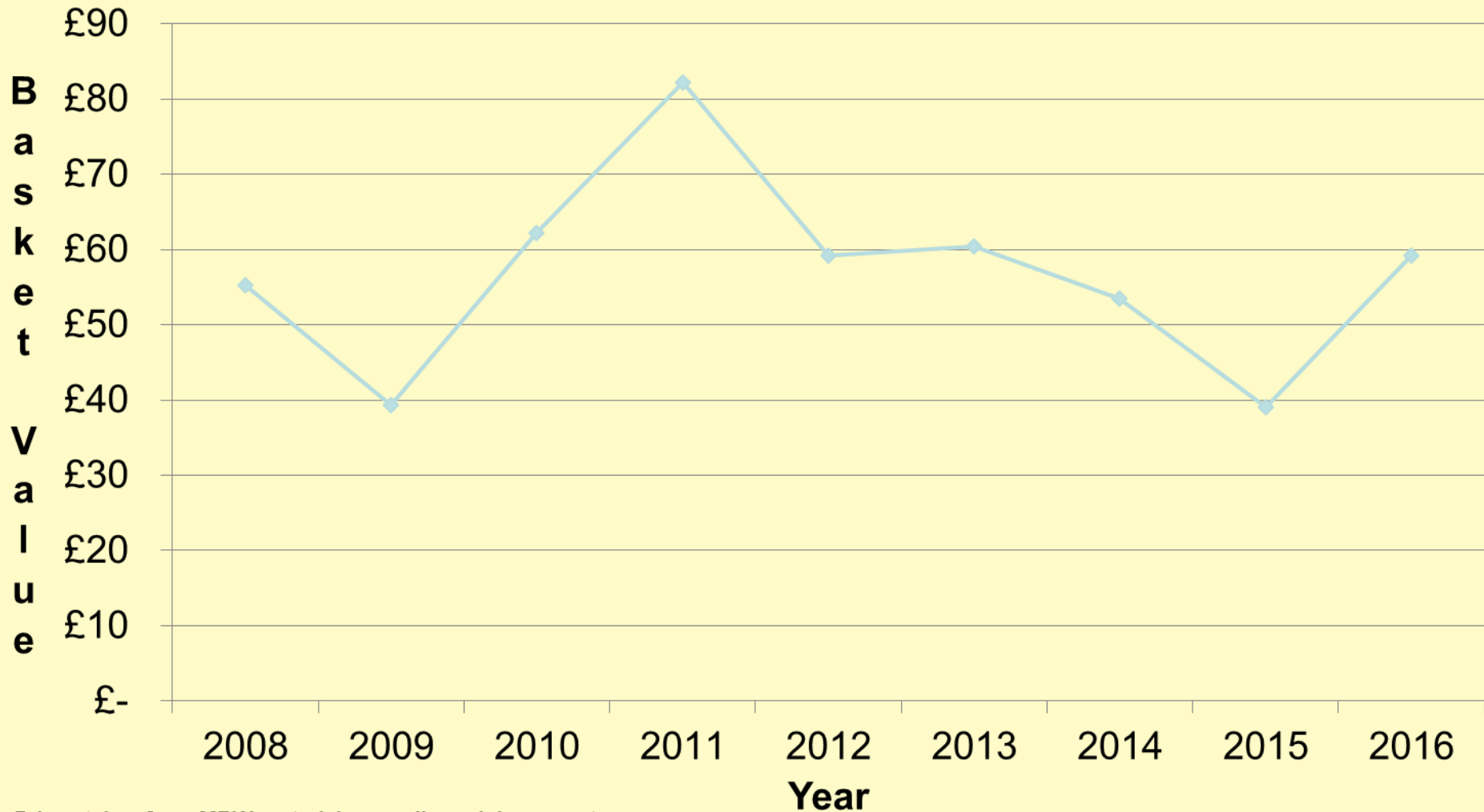
BLUE BIN CONTAMINATION % OF RECYCLING	WEIGHTED
NON-RECYCLABLE PAPER & CARD	3.05%
NON-RECYCLABLE PLASTIC FILM	1.28%
NON-RECYCLABLE PLASTICS	2.31%
TEXTILES	0.77%
NON-RECYCLABLE GLASS	0.11%
NON-RECYCLABLE METALS	0.63%
FOOD WASTE	3.75%
LIQUIDS	0.28%
DISPOSABLE NAPPIES	2.09%
ALL OTHER CONTAMINATION	5.73%
TOTAL CONTAMINATION	20.00%



# Mixed Messages

- MEL research an unwelcome surprise
- MRF previously silent on contamination issue
- Crew brief – Only reject grossly contaminated bins
- Resident message - What you're putting in the bin is fine!
- Reasons?
  - MRF Code of Practice launched Feb 13 and implemented October 14?
  - Focus on quality, not quantity?
  - Commodity markets?

# Commodity Market - Net revenue share value 2008-16



Prices taken from MRW materials recycling pricing report



Hull  
City Council



HULL  
2017  
UK  
City  
of  
Culture

# Current Situation

- New 10 year MRF contract – J&B Recycling, Hartlepool
- 1<sup>st</sup> year cost £600k more than budgeted
- 15% contractual contamination threshold
- Increased cost when contamination > 15%
- C20% contamination rate
- Revenue share agreement 80:20 in the Council's favour
- Revenue share based on 12 to 15 samples per month (70-90kg each)



## So what have we done about it?

- Operational changes
- New crew standard operating procedures
- Contamination policy
- Collection of robust data
- Load quality assessment
- Hypothesis testing
- Alternative communications trials

# Operational & Policy Changes

- Change to bespoke residual and recycling rounds to avoid cross contamination
- Vehicle alterations to reduce water ingress and reduce compaction
- Crew procedures –
  - All bins visually checked
  - Bins tagged and left when contaminated
  - Waste collector – event logged against the address
- 3 strikes and you're out!
  - 1st event receives a letter
  - 2nd event receives a letter and a warning that the bin may be removed without further notice
  - 3rd event within a 3 month period = bin removal
  - No enforcement policy – yet!

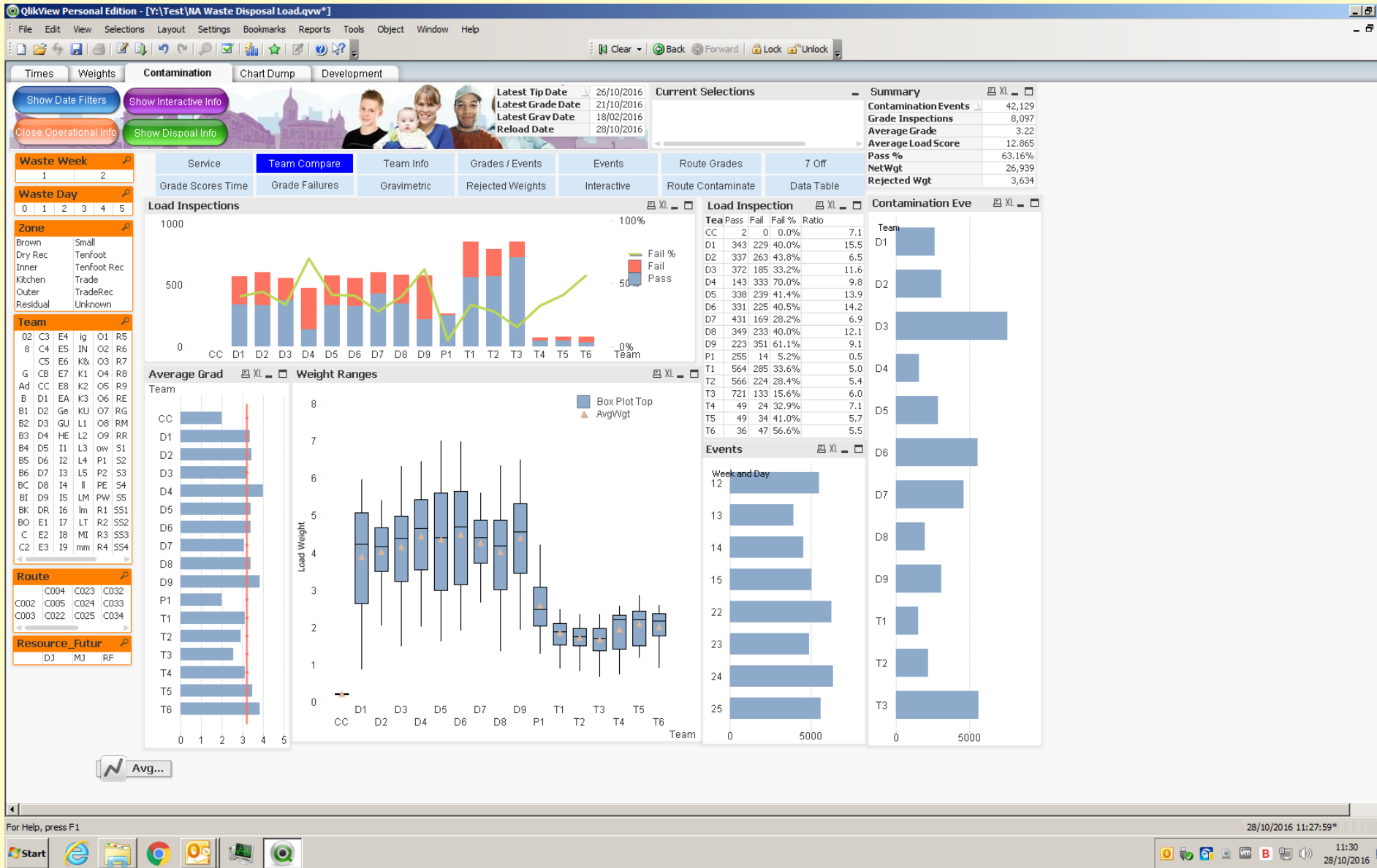


# Performance data

- Load quality assessment
  - Moisture
  - Compaction
  - Contamination
  - Graded 0 to 20 for each load
  - 12 rounds – 2 to 3 loads per day

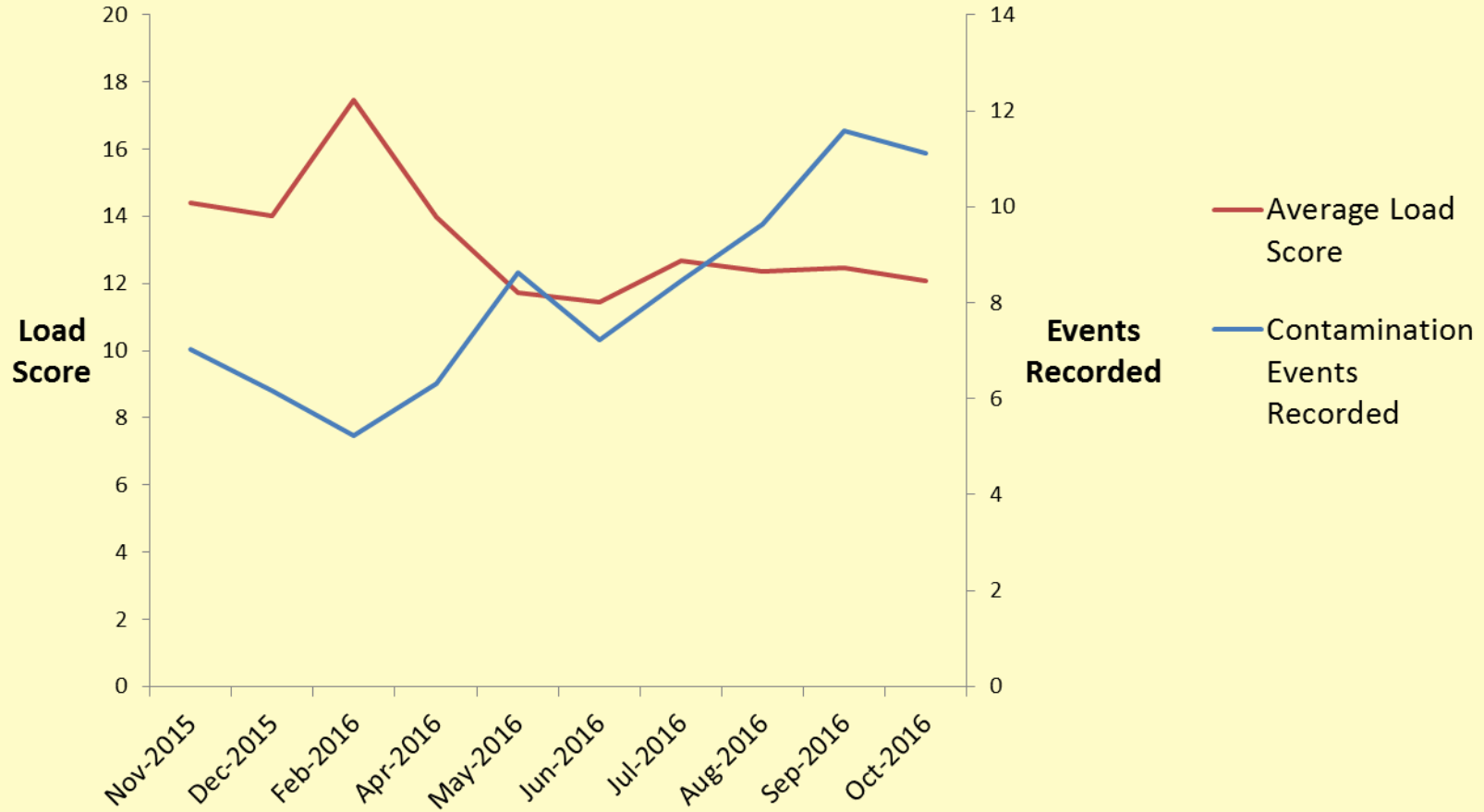


# Performance Information

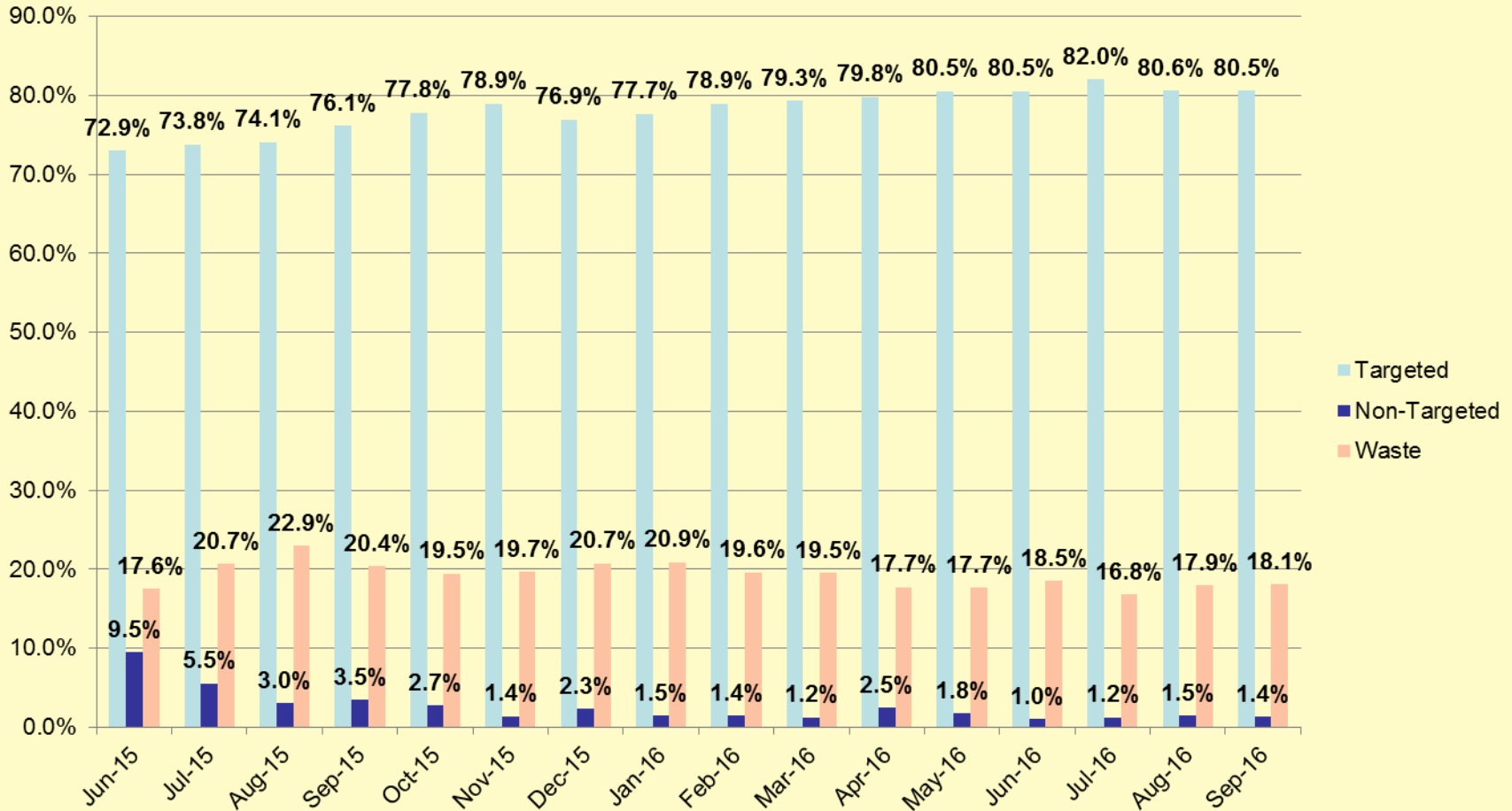




# Crew contamination event analysis



# Current Contamination Levels



# What kind of contamination?

<b>Contaminant</b>	<b>Count</b>
<b>Food Waste</b>	<b>35178</b>
<b>Black Liner</b>	<b>21784</b>
<b>Polystyrene</b>	<b>12302</b>
<b>Textiles</b>	<b>12286</b>
<b>Hard Plastics</b>	<b>11472</b>
<b>Nappies</b>	<b>4184</b>
<b>Wood</b>	<b>2809</b>
<b>Electrical goods</b>	<b>2031</b>
<b>Garden Waste</b>	<b>1644</b>
<b>Building Materials</b>	<b>1621</b>



# Hypothesis Testing – Policy Challenge

- Hypotheses to be tested
  - Hidden waste is a significant problem
  - Residents who ask for additional refuse capacity are more likely to contaminate their blue bin
  - Bagged waste is more likely to be contaminated
  - If contamination is visible, the bin is high risk
  - Residents use additional recycling bins for residual waste

# Is hidden waste is a significant problem?

- All presented bins on selected streets were visually inspected. Those that passed the visual inspection were emptied and graded A, B or C based on the amount and type of contamination seen in the bin.

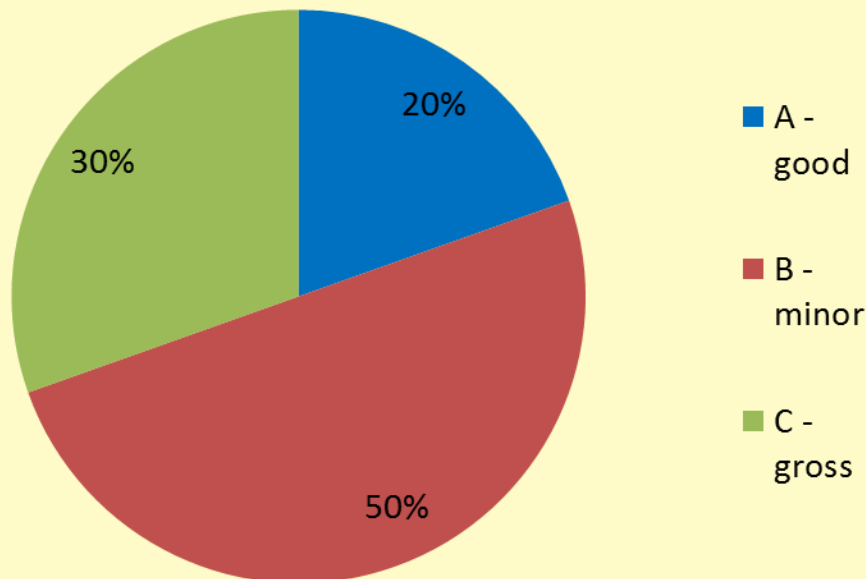
<u>Presented bins</u>	<u>Passed visual inspection</u>	<u>Failed visual inspection</u>	<u>A - good</u>	<u>B - minor</u>	<u>C - gross</u>
<b>685</b>	<b>647</b>	<b>38</b>	<b>230</b>	<b>311</b>	<b>106</b>
<b>Percentage</b>	<b>94%</b>	<b>6%</b>	<b>36%</b>	<b>48%</b>	<b>16%</b>



# Is hidden waste is a significant problem?

- A subsample of 46 graded bins were analysed and the target material and contamination sorted out and weighed off

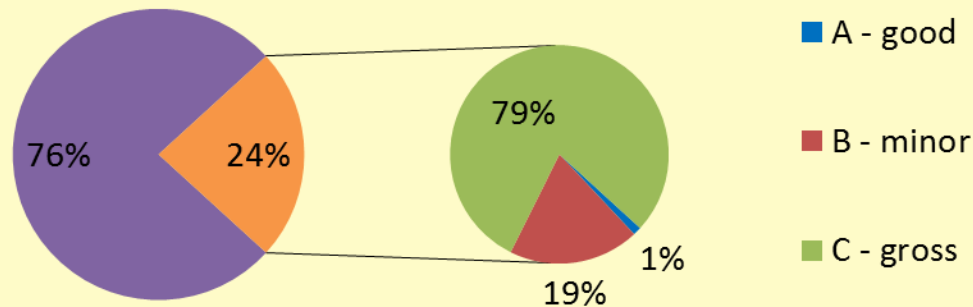
## Proportion of Grades In Subsample



# Is hidden waste is a significant problem?

Analysing the Subsample we get a 24% contamination rate. Most importantly, the overwhelming majority (79%) was from our grossly contaminated “C” grade bins.

**Contamination rate of Subsample**



## Results – Other Hypotheses

- 45% of blue bins from households who asked for additional refuse capacity were grossly contaminated
- 78% of bagged waste contains some kind of contamination
- Bins with visible contamination at the surface have a greater level of contamination by weight than those bins with no visible surface contamination
- Residents who ordered additional recycling capacity are no more or less likely to contaminate than residents who did not



# Education/Awareness & Behavioural Change

- Is lack of awareness/education the problem?
- How do we change behaviour?
- Annual collection pack
- Stickers on recycling bins
- Continual media activity
- External support commissioned - £100k



## Bin ban if your rubbish is dirty: Hull council waste £100,000 on war with residents over recycling

Locals who fail to rinse out jars face being sent on an 'awareness course'

BY PAUL SIMS | 12th April 2016, 11:01 pm



COMMENT NOW

**A HARD-UP council was blasted last night for blowing £100,000 on a war with residents who fail to rinse binned bottles and jars.**

The blitz enraged locals in Hull who were warned that recycling bins containing dirty items could be confiscated.

Householders failing to wash all the beans out of tins or who leave any ketchup in old bottles also face being sent on "awareness" courses.

**Residents who don't wash out tins or cans face having their bin taken away**



One angry resident vowed: "If they take my blue bin away I'll just chuck all my recyclables in the normal one." Another, Fiona Kelly, 54, stormed: "They should be after people who are really breaking the law."

Offenders wanting confiscated blue bins back will have to sign a declaration promising to rinse under the crackdown revealed yesterday by the city's Labour council — which has hired a team of consultants to get across its recycling message.





# EXPRESS



Home of  
the Daily and  
Sunday Express

## Council hires bin snoopers to check baked bean tins have been washed - at £300,000 a year



Hull  
City Council



HULL  
2017  
UK  
City  
of  
Culture

## Hull Council workers start sifting through blue bins in rubbish crackdown



*Credit: PA*

Council workers in Hull will start looking through residents' blue wheelie bins from today in a crackdown on people who fail to recycle properly.

The authority is warning residents that bins will not be collected if there is too much of the wrong rubbish in the bins.

A team of ten people has been recruited to visit around 40,000 homes to provide advice on using the recycling services correctly.

Around 45 per cent of household waste in the city is currently recycled but the council says as much as 18 per cent of what goes in the blue bins shouldn't be there.

It says the problem is costing the council more than £600,000 a year to deal with.

The campaign has been developed by "specialist behavioural change firm" EnviroComms.



## Recycling police take to Hull streets to look in your bins - and could refuse to empty them

By **Hull Daily Mail** | Posted: September 14, 2016

By Angus Young

g+ Share

Tweet

f Share

Email

41 COMMENTS > 53 SHARES



ADVICE: Phil Sidwell, left, and Les Cammish assessing a blue bin. Picture: Peter Harbour

### Comments (41)

A new team of blue bin inspectors are hunting for unwashed yoghurt pots and half-filled drinks bottles in Hull's blue bins. They are aiming to help save **Hull City Council** £500,000 a year by teaching people to recycle correctly.

As exclusively revealed by the Mail, the council is paying consultants EnviroComms £100,000 to help **stop the wrong type of rubbish going in blue bins** across Hull.



Hull  
City Council

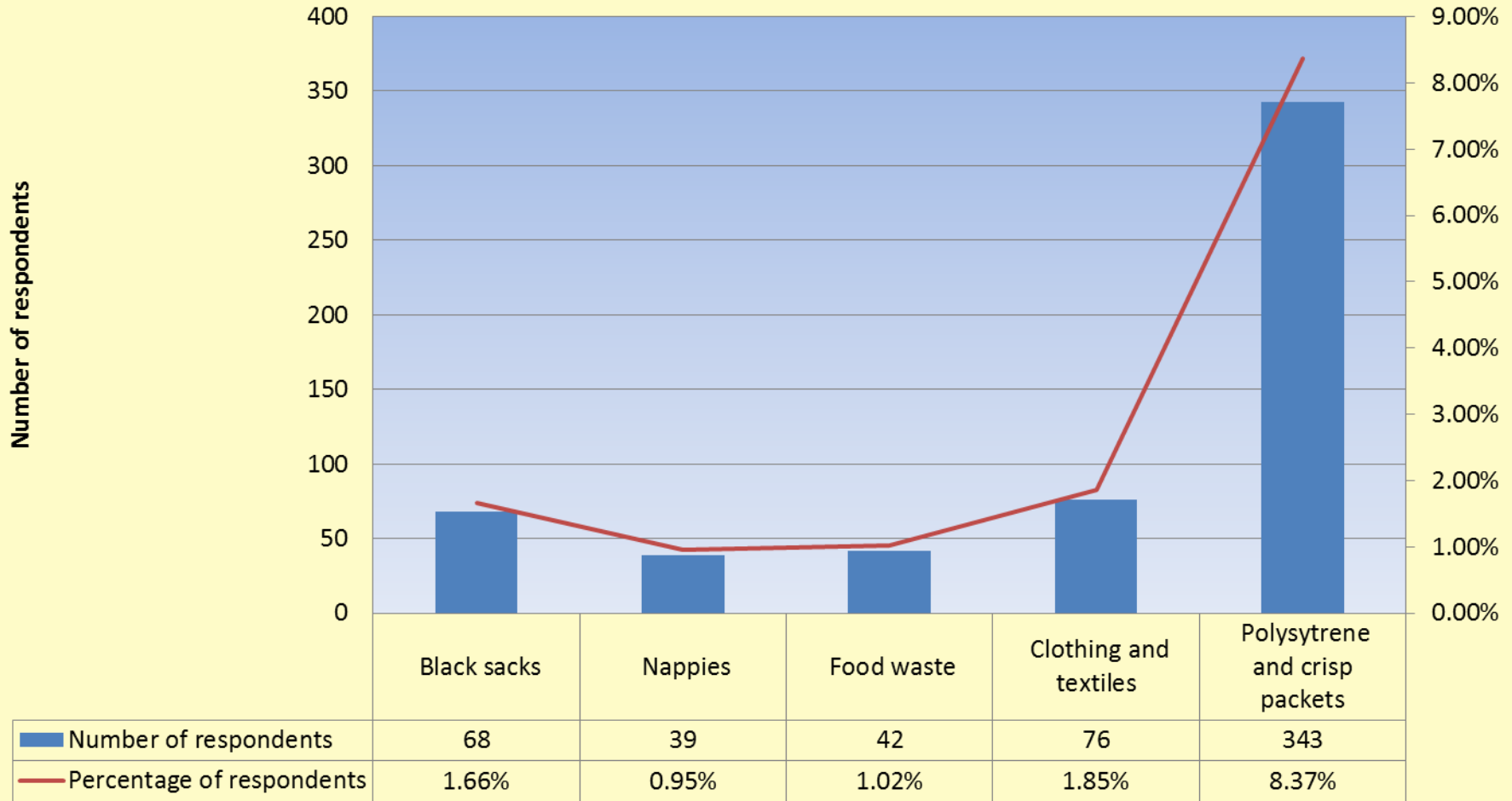


HULL  
2017  
UK  
City  
of  
Culture

# Public Awareness

## Most commonly confused refuse items that are often placed into recycling bins

\*percentages were calculated based on a total of 4099 responses



# Future

- 40,000 household doorstepping – lowest performing areas
- Outcomes report – recommendations for future action
- Increased operational resource – Spend to save
- Greater operational focus – consistency and thoroughness of crew policy application
- Further hypothesis testing and potential trials e.g. additional refuse capacity
- Focus on behavioural change
- Methodology for detecting gross contamination e.g. visual view of the hopper, bin odour, bin weight etc

# Contact Details

Doug Sharp, Assistant City Manager – Streetscene Services

Hull City Council

Tel : 01482 612744

Mob: 07788 580173

Email: [doug.sharp@hullcc.gov.uk](mailto:doug.sharp@hullcc.gov.uk)



Hull  
City Council

