

# APSE South and South West Regional Environmental Services Advisory Group



## The use of IT in the provision of waste management services

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Managers and Administrators



Contact  
Centre

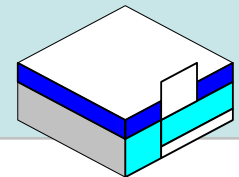
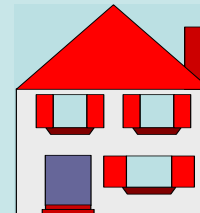


Joined up  
Service Delivery

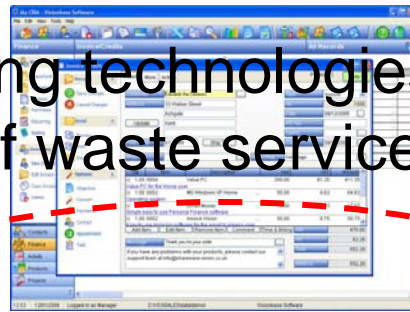
Internal and Contractor  
Operatives



Citizens & Trade Contracts



How many differing technologies are currently in use in the provision of waste services...



Finance



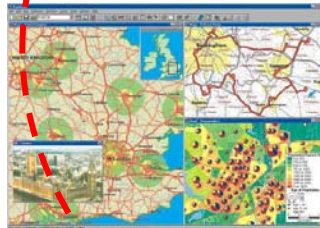
Mobile Communications

3G, GPRS, XML & Web Services

... lots!



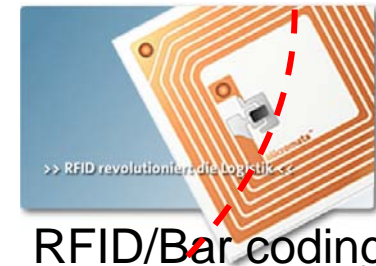
Vehicle Tracking



GIS Mapping

Property ID: 740320000680		Address: WINDRUSH, MARINE ROAD, PEVENSEY BAY, FORTH, BN24 5EG				
Name: DRYNN MASTIN		Telephone Home: 01123331027				
Round ID	Description	Day	Type			
BW-40130	RCT4-Thu-WG-RHONDA	Thursday	W-GOODS			
BW-40180	RCT4-Thu-WG-RHONDA	Thursday	W-GOODS			
BW-50100	RCT5-Fri-PF-RHONDA	Friday	FRIDGE FREE			
BW-50160	RCT5-Fri-WG-RHONDA	Friday	W-GOODS			
Job ID	Job Description	Logged	Date Due	Job Status	Pat.	Description
B900000004		13/10/2007	25/11/2007	AP	TODAY	BULKY WASTE DEMO 01 - HAB

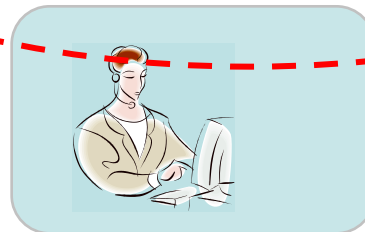
Operational Management Software System 'the back office'



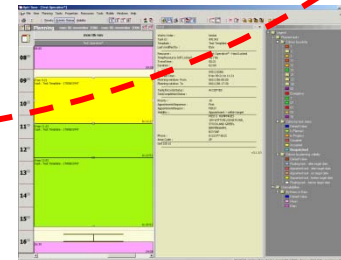
RFID/Bar coding



Bin Weighing



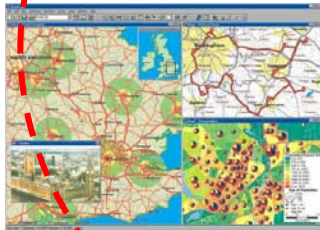
CRM/Contact Centre



Job Scheduling



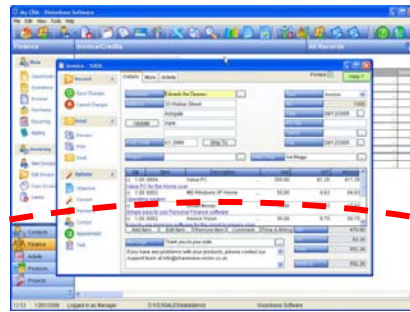
Vehicle Tracking



GIS Mapping

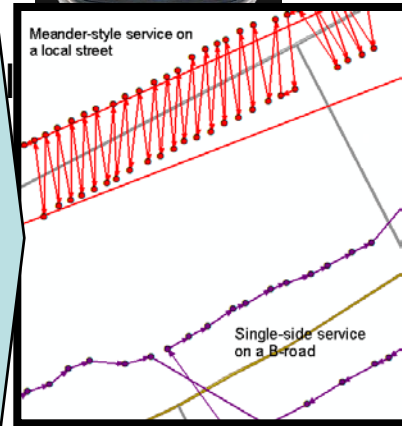


Bin Weighing

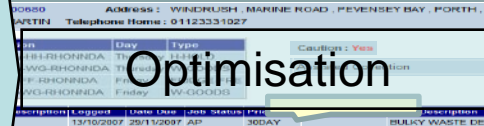


Finance

# XML & Web Services



RFID/Bar coding

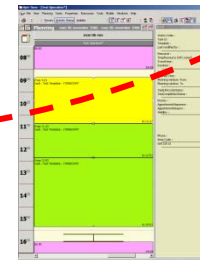


Optimisation

Operational Management  
'the back office'



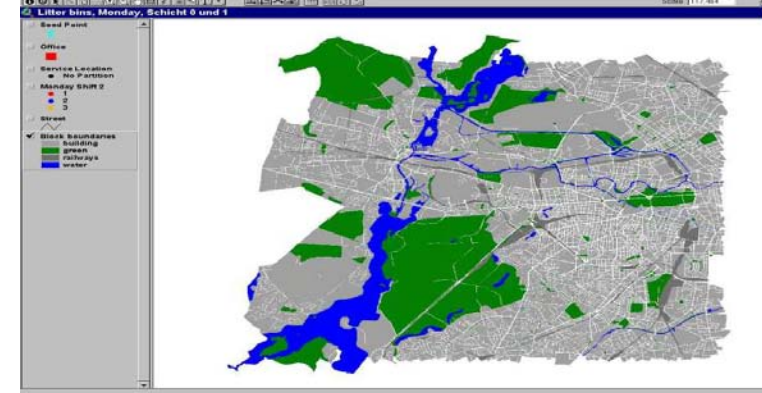
CRM/Contact Centre



Job Scheduling



# Optimisation software



“PC software that provides the optimum solution to any road transportation task... There are three basic steps involved when using the ABC software. These are:-

- Enter map data
- Enter pickup points, drop off locations and vehicle details
- ABC calculates the optimal vehicle routing solution. After optional **manual fine tuning**, the package will provide driver directions supplemented by comprehensive route time and distance information”

“Dear Mr Paget

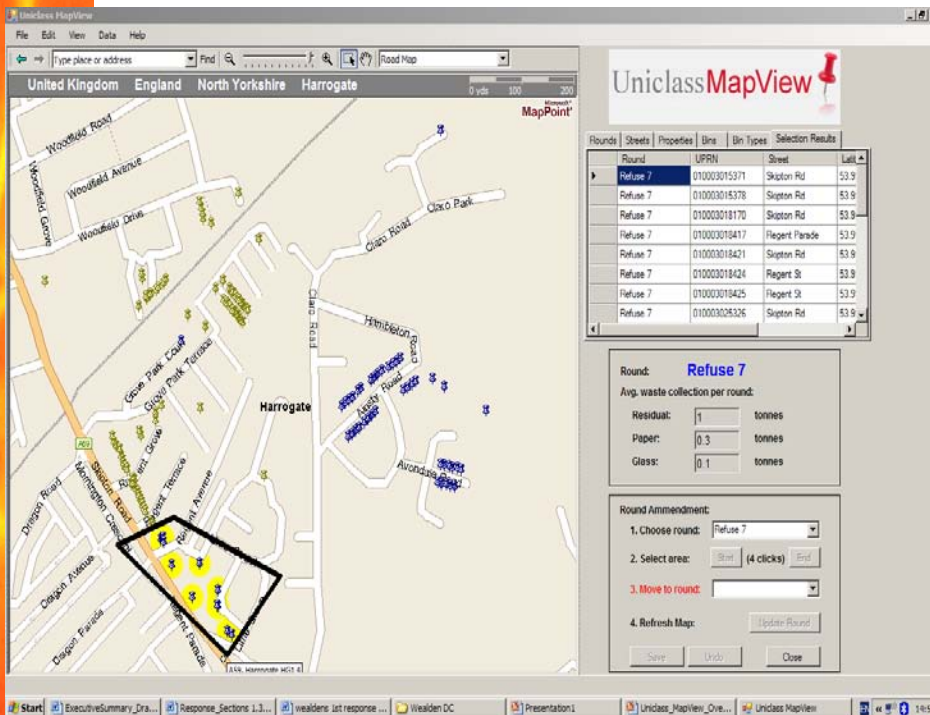
ABC Council have just reorganised all the rounds using @\* &+ software, and I have no intention of doing it again during my career here.

Regards, John D, A London Borough”

It is not optimisation software placing more emphasis on local knowledge

It is an operational tool to aide the on-going management of rounds, it replaces paper maps, red pens and spreadsheets

It is a 'unified view of data' using mapping software and a database – on one screen



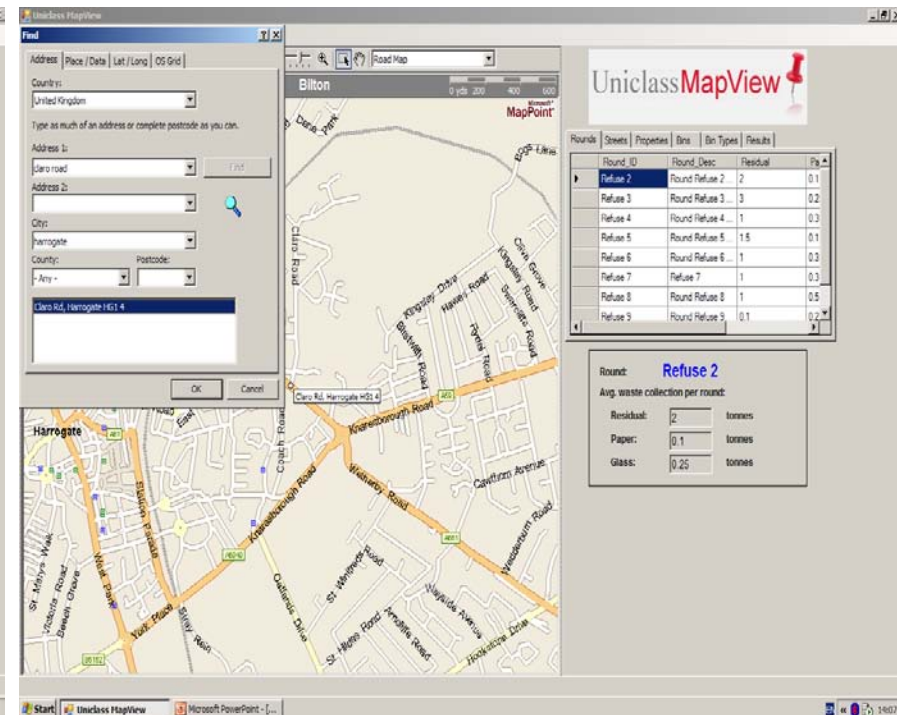
The screenshot shows the UniclassMapView interface with a map of Harrogate. A table of rounds is displayed, and the details for Refuse 7 are shown below.

Round	UPRN	Street	Lat
Refuse 7	010003015371	Skipton Rd	53.9
Refuse 7	010003015378	Skipton Rd	53.9
Refuse 7	010003018170	Skipton Rd	53.9
Refuse 7	010003018417	Fleight Parade	53.9
Refuse 7	010003018421	Skipton Rd	53.9
Refuse 7	010003018424	Ragert St	53.9
Refuse 7	010003018425	Fleight St	53.9
Refuse 7	010003026326	Skipton Rd	53.9

**Round: Refuse 7**  
Avg. waste collection per round:

Residual:	1	tonnes
Paper:	0.3	tonnes
Glass:	0.1	tonnes

Round Amendment:  
1. Choose round: Refuse 7  
2. Select area:  (4 clicks)   
3. Move to round:   
4. Refresh Map:



The screenshot shows the UniclassMapView interface with a map of Harrogate. A search window is open, and the details for Refuse 2 are shown below.

**Find**  
Address / Place / Data / Lat / Long / OS Grid  
Country: United Kingdom  
Type as much of an address or complete postcode as you can.  
Address 1:  
Address 2:  
City:  
Harrogate  
Country:  
Postcode:  
Claro Rd, Harrogate HG1 4

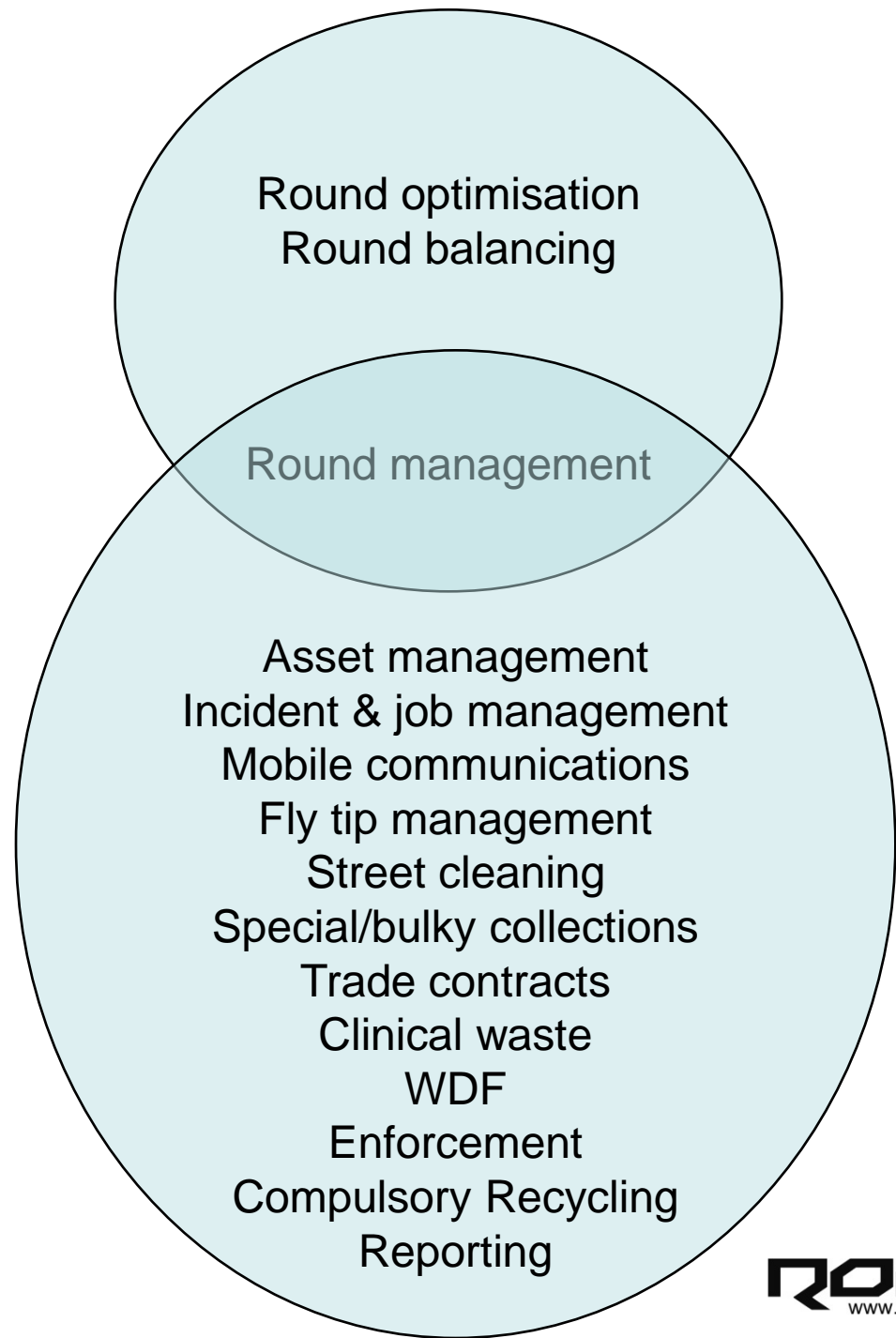
Round ID	Round Desc	Residual	Pg
Refuse 2	Round Refuse 2	0.1	
Refuse 3	Round Refuse 3	0.2	
Refuse 4	Round Refuse 4	1	0.3
Refuse 5	Round Refuse 5	1.5	0.1
Refuse 6	Round Refuse 6	1	0.3
Refuse 7	Refuse 7	1	0.3
Refuse 8	Round Refuse 8	1	0.5
Refuse 9	Round Refuse 9	0.1	0.2

**Round: Refuse 2**  
Avg. waste collection per round:

Residual:	2	tonnes
Paper:	0.1	tonnes
Glass:	0.25	tonnes

Optimisation  
– “strategic”

Operational  
Management –  
“day to day”



# Mobile working – “thick” versus “thin” client

- Paperless process
  - reduce costs
  - improve efficiency
- Data captured at point of service delivery
  - improved accuracy
  - evidence based reporting
  - able to show compliance





# Mobile working - hand held or in cab

- Citizen fatality caused by distracted RCV driver – hand held devices for charge hands not drivers
- Purchasing hardware – get a better deal from your airtime provider?
- What type of mobile hardware?
- 3G, 3.5G and more G!
- Requires user acceptance



# Barcoding and RFID tagging (chips in bins)

## Barcoding

- Transparent
- 'Low tech'
- Low cost

## RFID – “Chips in Bins”

- Perceived stealth monitoring
- 'Higher tech' – leading edge?
- Greater potential capacity and flexibility – but what information do you want/need?



# 'Pay as you throw' and the role of IT

- Billing
- Bin weighing
- "That's not my rubbish" – prove it!

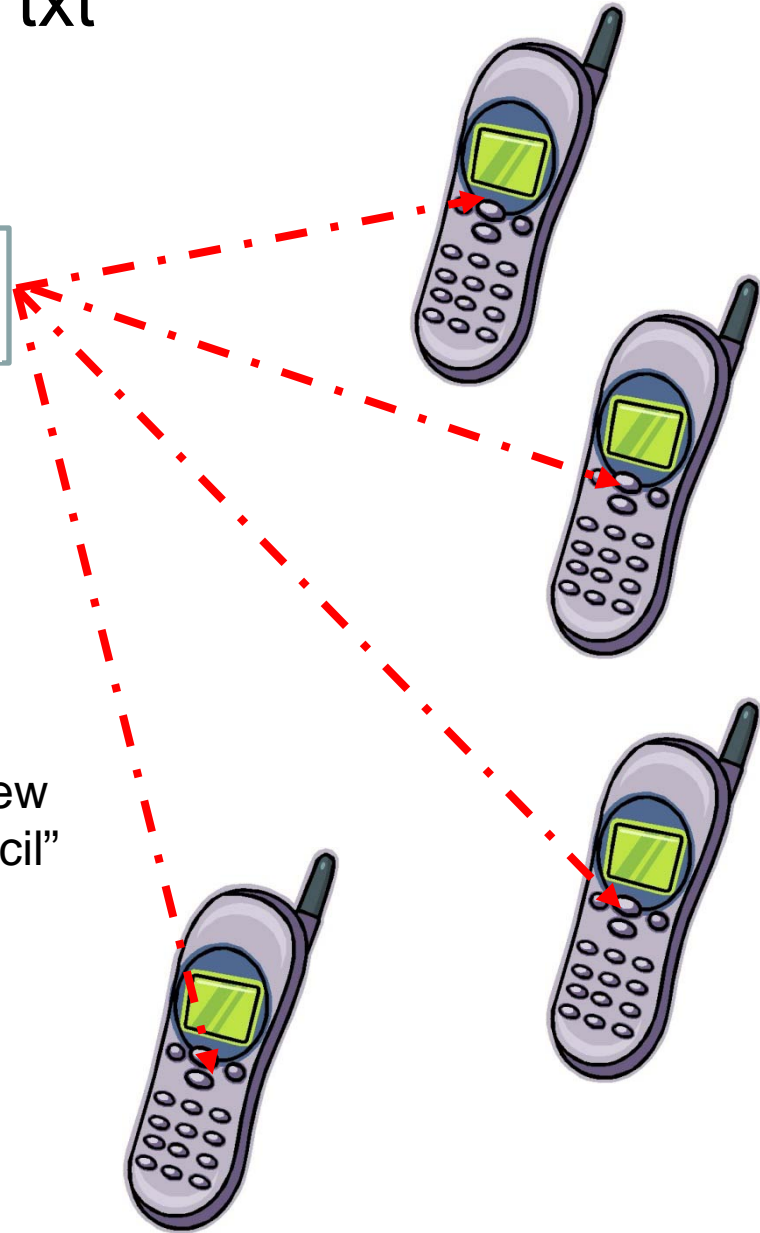


# tx 4 txt

Property ID: 740350000890	Address 1: WINDCRUSH, MARINE ROAD, PEVENSEY BAY, PORTH, BN24 5EG					
Name: BRYNN MARTIN	Telephone Home: 01123331027					
Round ID	Description	Day	Type	Caution: Yes		
BW-40100	RCT4-Thu-Fri-RHONDA	Thursday	W-HOLD	Assisted Collection		
BW-50100	RCT5-Fri-Fri-RHONDA	Friday	FRIDGE FREE			
BW-50100	RCT5-Fri-Fri-RHONDA	Friday	W-GOODS			
Job ID	Job Description	Logged	Date Due	Job Status	Prk	Description
H900000004		13/10/2007	20/11/2007	As	TODAY	BULKY WASTE DEMO 01 > HAD

## Operational Management Software System

“Mge from ABC Council: Due to vehicle breakdown bins will not be collected today. Will txt again with new collection date. Regards, ABC Council”



# Stop cleaning the clean streets – how ‘real time data’ can improve performance management on a minute-by-minute basis

- Real time street monitoring – “big brother is watching you (and your litter)”
- Joined up communications and rapid response
- NI195 – rounds and inspections with mobile devices



# Council spends £6,000 on lawnmower sat-navs

**Ross McGuinness**

SAT-NAV is a godsend when you're lost on a country lane and can't see the wood for the trees.

But one council is spending £6,000 fitting out its fleet of lawnmowers with satellite navigation systems – because gardeners keep getting lost in the long grass.

Officials say the sat-navs will help its staff combat an 'unprecedented amount of growth' on grass verges and playing fields.

'You would think there would be better ways of doing things,' said Cllr Steve Smith, who described the decision as mad.

A question whether the council could be lavishing taxpayers' money on things like this during a recession. Sunny spells last year made Leicestershire's grass grow furiously – but frequent rain meant it was too wet to cut, so it reached new heights.

A lot of people in our borough and other areas had to complain about the state of the grass last summer,' admitted Cllr Smith. 'But the satellite system idea seems mad to me.'

The sat-navs will be used by contractors to find the next patch of un-



**Lost cause? Some of the team aboard their newly kitted-out mowers**

Picture: Cafers

mown grass. An interactive computer map will show council staff back in the office where gardeners are and which areas have been cut and when.

'Keeping Leicestershire's grass verges neat and tidy is important and

I'm pleased we are embracing innovative technology,' Leicestershire County Council leader David Parsons said as he launched the system.

'Following last year's unprecedented amount of growth, we have also in-

creased the number of cuts and staff.' The council owns 14 ride-on mowers and five tractors for mowing grass.

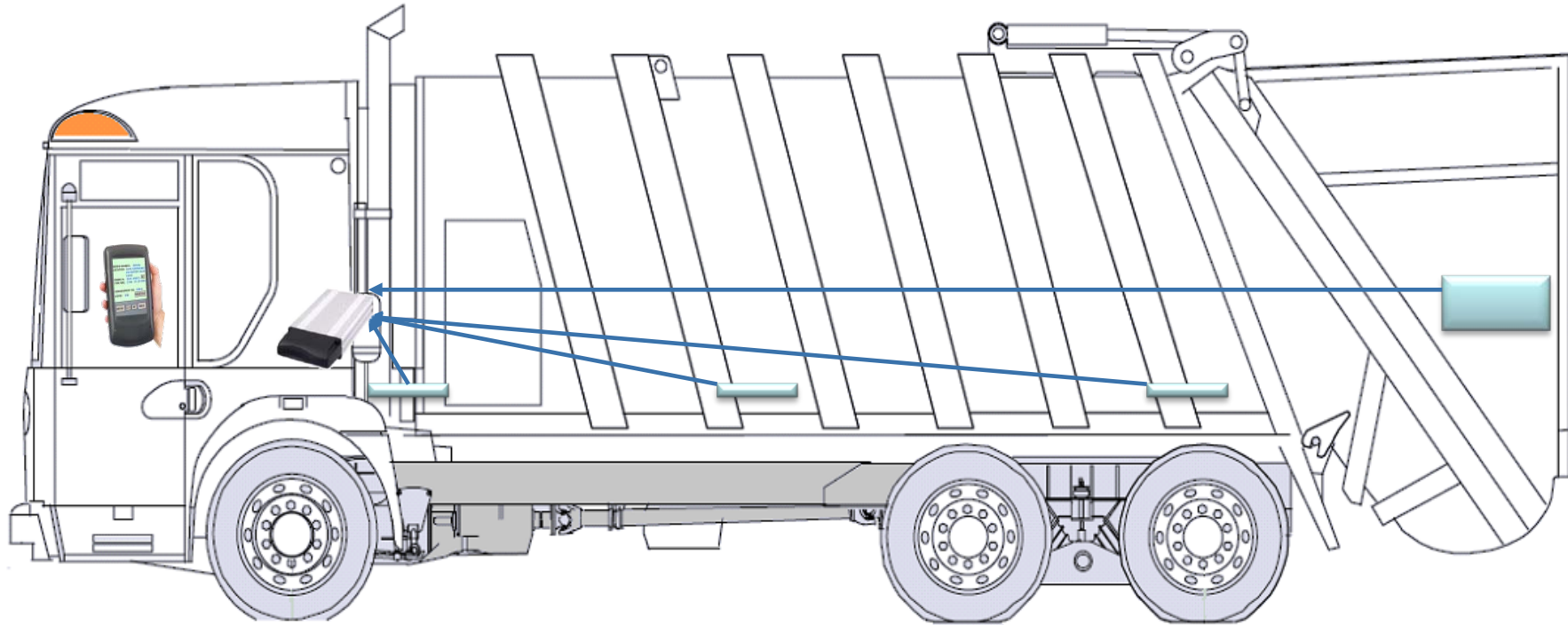
More than 30 staff, employed by contractor Tarmac, are involved in keeping grassed areas neat.

GPRS Tracking

Bin / ID Weight

Body Weighing

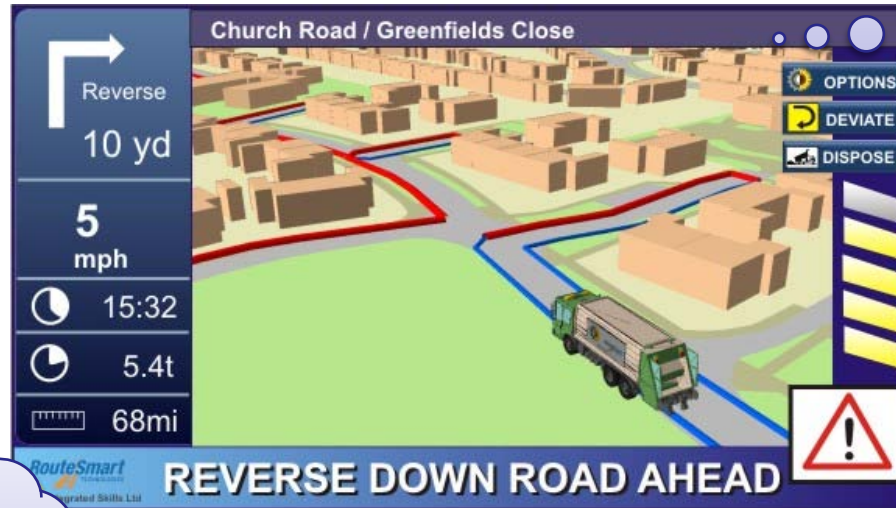
Voice Comms



Round  
management/Navigation/Defects/Login

Driver/Vehicle/Fuel  
Management

Route  
Navigation



Disposal  
point  
selection

PLEASE CHOOSE A DISPOSAL POINT			
1. Byker Landfill	1.2 mi	5 mins	£32 per tn.
2. Newcastle TS	5.0 mi	15 mins	£25 per tn.
3. Rothbury Terrace Depot	8.0 mi	22 mins	£23 per tn.
4. Condercum Road Depot	12.4 mi	31 mins	£23 per tn.



# Vehicle Tracking

The screenshot displays a vehicle tracking application interface. The main map shows a route in North Wales, marked with red and black icons representing vehicle positions. A data popup for a specific vehicle is visible, showing the following details:

- 06/12/2005 18:09:08
- 39.2 MPH
- Control Box: On
- Salt Flow: On
- Blast Switch: Off
- Auto Mode: Off
- Pre-Wet: Off
- Spinner: 07
- Rate: 10

The interface includes several control panels on the right side:

- Refresh:**  Automatic refresh in 60 seconds,  Vehicles,  Map/Vehicles
- Map view:**  Small,  Medium,  Large;  Vehicles, POI: -- None --;  Territories,  Contacts;  Geofencing
- Click on the map:**  Draw a zoomable Frame,  Zoom In,  Centre,  Zoom Out,  Add a Location
- Journey:** Stop: All, 06:31:23 - 52.4 miles;  Quickest,  Shortest, [View](#)
- Find location:** Post Code: , [Search](#)
- Favourites:** [Save Map as favourite](#), My favourites: -- Auto --, [Rename](#) [Delete](#)
- [Close](#)

Map labels include: Anglesey, Llanfairpwllgwyngyll, Llanddaniel Fab, Vaynol Hall, Port Dinorwic, Llanddeiniol, Bethel, Penisa, Clwt-y-bont, Cwm-y-glo, Dinorwic, Rhiwlas, Llanlechid, Rachub, Llanfyllid, Llandegai, Tal-y-bont, Bangor, and Snowdonia National Park. Road numbers A4080, A4087, A4086, B445, B37, and B66 are also visible.

## Daily Lift Report

Summary of the days' rounds per vehicle

<b>Vehicle Title</b>	<b>E005 DDD</b>
<b>Total Lifts</b>	<b>2165</b>
<b>Total Weight</b>	<b>44154.00 kg</b>
<b>Average lifts per min</b>	<b>1.492</b>

Start Round	End Round	Number of Lifts	Total Weight	Average Lift Weight	Round Duration	Total Distance	Average Downtime	Lifts per Min	Avg. Distance Between Lift
			Kg	Kg	HH:MM:SS	Km	HH:MM:SS		Km
29/01/2007 07:20:11	29/01/2007 12:34:58	503	10188.50	20.26	05:14:47	9.006	00:00:17	1.598	0.017
30/01/2007 07:26:02	30/01/2007 13:35:58	564	11474.00	20.34	06:09:56	11.402	00:00:19	1.525	0.020
31/01/2007 07:27:07	31/01/2007 13:51:47	539	10698.50	19.85	06:24:40	11.200	00:00:22	1.401	0.020
01/02/2007 07:19:37	01/02/2007 10:42:10	288	6276.50	21.79	03:22:33	5.370	00:00:22	1.422	0.018
02/02/2007 07:26:25	02/02/2007 10:25:27	271	5516.50	20.36	02:59:02	6.821	00:00:19	1.514	0.025

**Period** 19 Apr 2006 - 19 Apr 2006

**Vehicle Title** MX05 XAR

Date	Ignition on	Ignition off	Trip time	Drive time	Distance	Avg speed	Speeding time	Spd Max speed	Idle time	Over rev count	Max RPM	Over rev time	Economic driving	Harsh brake count	Fuel used	MPG	
	HH:MM	HH:MM	HH:MM	HH:MM	Km	Kph	MM:SS	Kph	HH:MM			MM:SS	%		Ltr		
19 Apr 2006	05:55	07:45	01:49	00:52	52	59	00:00	0	91	00:56	0	1983	00:00	55.92	0	24	6.2
19 Apr 2006	07:48	08:58	01:10	00:45	28	36	00:00	0	88	00:24	0	2115	00:00	69.77	0	18	4.4
19 Apr 2006	09:14	10:58	01:44	00:52	36	40	00:00	0	90	00:52	0	2219	00:00	77.40	0	29	3.5
19 Apr 2006	11:29	13:39	02:09	01:29	73	48	00:00	0	90	00:39	0	2102	00:00	74.27	0	35	5.9
19 Apr 2006	13:59	14:54	00:55	00:40	43	63	02:42	3	102	00:14	0	1991	00:00	55.89	0	21	5.7
19 Apr 2006	14:57	15:29	00:31	00:18	9	29	00:00	0	86	00:13	0	1982	00:00	77.00	0	6	4.3
19 Apr 2006	15:35	15:44	00:09	00:01	0	2	00:00	0	9	00:07	0	1315	00:00	8.69	0	0	0.0

<b>Totals</b>	<b>08:28</b>	<b>05:00</b>	<b>240</b>		<b>02:42</b>	<b>3</b>	<b>102</b>	<b>03:27</b>	<b>0</b>	<b>2219</b>	<b>00:00</b>		<b>0</b>	<b>133</b>	
<b>Averages</b>	<b>01:12</b>	<b>00:42</b>	<b>34</b>	<b>40</b>	<b>00:23</b>	<b>0</b>	<b>79</b>	<b>00:29</b>	<b>0</b>	<b>1958</b>	<b>00:00</b>	<b>59.85</b>	<b>0</b>	<b>19</b>	<b>5.1</b>

# Maintaining and improving efficiency using IT in the management of operations

- Data all in one place, access from anywhere increasing productivity
- Less administration tasks for domestic collections, street scene, grounds
- Trade waste not a full time job
- Easier reporting – KPIs, mgt and operational
- Quicker resolution of disputes, enquiries, etc - dealt with at first point of contact
- Evidenced based incident reporting – photos, time/date/GIS location recorded

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01273 274715

# Data in, Data out

Citizens / Location / Properties / Streets / Rounds / Assets / Contracts

Refuse & Recycling	Special Collections	Street Cleaning
Trade Waste	Minor Repairs	Grounds
		Emergencies

Enforcement or 'Education'

Performance Management, WDF, KPI Monitoring & Reporting