
# Public service

**Municipal vehicles may appear to be mostly standard stuff. However, they're anything but. And that's not just due to cost-cutting and efficiency, but also the recycling agenda. Brian Tinham reports**

Talk to fleet engineers at local authorities, or their opposite numbers at outsource waste handling giants such as Veolia Environmental Services, Biffa and SITA, and you'll hear less about new technologies – such as hybrids and electric bin lifts – but much more about incremental vehicle improvement projects. You'll also hear that the choices around vehicles, numbers and specifications are linked to the bigger picture.

Why? Because the challenge for all of these organisations is not only achieving decent cost reductions and efficiency improvements, alongside better environmental performance, but also managing change, driven by the recycling agenda. And, given that the public purse is involved, it's also about value for money. So taking an holistic perspective – all the way from the implications of emerging waste markets to available vehicle options, lifecycle costs and residuals – is essential.

As Veolia fleet services director Robert Stubbs puts it: "You need the right vehicles for the right waste streams." Obvious, yes, but his point is that, if waste requirements change frequently, vehicles ordered today may not meet the demands of tomorrow, potentially leaving vehicles under-utilised. "You have to look at your forecasts for recycling and target new vehicles for the full contract period, while retaining as much flexibility as possible – and making sure you get the maintenance right, for both vehicle and body, so they stay the course," he says.

## Fashion statement

Stubbs – who is responsible for 1,600 RCVs in a fleet that extends to 3,300 vehicles over 7.5 tonne and some 1,500 under 7.5 tonne, as well as tractor units and trailers – also makes the point that in this industry vehicle fashions come and go.

"In terms of recyclables, the industry has moved from stillage vehicles that collect segregated recyclables in multiple containers, to kerbsiders, with multiple pods – and sorting either at the roadside by operatives or in the home by residents – but using far fewer boxes. But one of the main problems with all of these is variable volumes. So, if you buy a vehicle to take four waste streams, but there's more


**"When it comes to RCVs, issues such as collection frequency, waste volumes and densities, recycling targets and the markets for recycled material all alter the vehicle fleet you need"**
**Roger Ashcroft**

glass, say, than paper, one compartment fills before the others – and then you have a logistics issue."

For him, one solution is twin-split compactors. And as more local authorities go for co-mingled waste with sorting at the MRF (materials recycling facility), they make sense. "The workhorses now for our business are increasingly twin-split and single compartment, dual lift compaction bodied RCVs. For us, they're mostly Dennis Eagle, Faun and increasingly also Heil."

Roger Ashcroft, waste and transport manager at South Ribble local authority, agrees. "When it comes to RCVs, issues such as collection frequency, waste volumes and densities, recycling targets and the markets for recycled material all alter the vehicle fleet you need," he observes. And South Ribble's journey since 2005 proves his case.

Back then, the authority was running weekly bin collections, using fairly standard single compartment Dennis Eagle compactors, with dual bin lifts. However, in 2006, the authority decided to move to alternate week collections. That took the fleet from eight down to five refuse vehicles – Dennis Eagle Duos with 15m$^3$ bodies for residual waste and 7m$^3$ recycling pods on the front for paper and card – but with an additional five Terberg three-bin Kerbsiders.

The latter were purchased with funding from DEFRA (the Department for Environment, Food and Rural Affairs), for collecting cans, glass and plastic waste from separate boxes at the roadside. "Our

recycling rate improved from 21% in 2005 to 48% last year – although most of that happened early on. However, since 2006, our residual waste has also reduced year on year," comments Ashcroft.

Good stuff, but then two years ago, when Lancashire County Council's then new waste handling plant in Farrington had been commissioned, the authority wanted to collect co-mingled waste. "So we put the Duos on refuse service while they ran their lease term, leaving the front pod empty. But we moved recycling onto 70/30 split dual-compartment compactors – again Dennis Eagle – for glass, cans and plastic in one side, and paper and card on the other.

"If I had my time again, I'd go for a 50/50 split, because the volumes are difficult to predict. However, that has led to savings of about £250,000, not least because we were able to reduce the recycling fleet from five vehicles to four, manned by the driver and two operatives instead of our earlier driver and three."

As for residual waste, South Ribble has just finalised procurement for six Heil 19m$^3$ refuse bodied vehicles, but now with rear-steers. "We've done that because these vehicles no longer discharge onto landfill sites, so we can take the benefits, in terms of reduced tyre wear and better manoeuvrability, which we've already proved on three of our earlier green waste RCVs. We've also brought in high-level lifts for the compactors, with a switch so the packer plate only runs when there's more waste in the hopper. That will give us additional fuel savings, without having to go for eco-pumps or electric bin lifts."

Ashcroft concedes that there could be implications, in terms of driver training, for the rear-steers, and also spares stocking and technician training. However, he insists that these are minimal, noting also that the new Heil trucks are based on Mercedes-Benz Econic chassis with Terberg lifts, meaning the key differences, compared to the rest of the RCV fleet, are limited to the chassis and body, both of which are mainstream items.

### Beyond RCVs

But municipal vehicles are certainly not just about RCVs. The list is long – including tippers, road planers and repair vehicles, gully emptiers, sweepers, pick-ups, panel vans and conversions, minibuses, mobile libraries etc, from 3.5 tonnes up to 18 tonnes. Mark Wilkinson, fleet specifications engineer with Lancashire County Council, says it's this variety that provides the challenge and, for him, it's about incremental engineering improvements that make a difference.

He cites the authority's tipper grab vehicles, which, as with most authorities, are multi-purpose units with tow bars or drawbars for mini diggers, excavators and road rollers, covering road planing,


**Above: Mark Wilkinson (left), fleet specifications engineer, Lancashire County Council, and Roger Ashcroft, waste and transport manager at South Ribble**
**Above right: a Veolia Environmental Services RCV in action**
**Far right: a Volvo FM road sweeper, with Globetrotter cab, which recently entered service with Brooking Hire**

## Engineering initiatives

Although this industry is not unduly driven by technology, that's not to say it ignores it. Veolia fleet services director Robert Stubbs lists PTO speeds, reversing security, electric bin lifts, tridems, rear-steers, on-board weighing, telematics, and CNG (compressed natural gas) and "Euro five and a half", as among recent improvement projects.

"PTO speeds, for example, are a big issue. They run at 1,200rpm, but in some cases only need 800–900rpm, so there is a fuel-saving opportunity," explains Stubbs. "That's been a big piece of work for Veolia and the trick is applying the right PTO for the right equipment... We also designed the reversing safety stops, with Sentinel, which automatically halt the vehicle, if anyone walks into the zone where the driver can't see. They're now fitted on all our RCVs."

Indeed, for Stubbs, engineering is one of Veolia's strengths. "We don't just take what the manufacturers offer us. Although we use mostly 6x4s or 6x2s with a rear-steer, we worked closely with Mercedes-Benz on their eight-wheeler tridem, which is useful in areas that can take the truck and get the benefit of greater payload – meaning fewer vehicles, fewer trips and fewer crews." Incidentally, they also ensure no overloading of the rear axles, because the tridem bogies are self-compensating through the airbag system.

As for Veolia's telematics, it's not just about encouraging safe and efficient driving – by bearing down on over-revving, speeding and idling, with real-time GPS-based reporting – but also, moving to extended service intervals, using transmitted vehicle data. "We're currently implementing remote diagnostics, looking at filters and oil viscosities, for example, with a view to using that information to drive servicing, not just the schedule," says Stubbs, indicating that he expects the system to be rolled out within the next 12 months.

What about Euro 5.5? "Our green credentials are vital, and that's not just $CO_2$ performance, but also NOx and particulates. So we've always bought engine types in advance of the emissions legislation. For the last two years, everything has been to Euro 5 plus EEV [enhanced environmentally friendly vehicle] standards. We also operate 10 CNG-powered Mercedes-Benz Econic low-entry RCVs under a joint venture with Sheffield City Council. We would do more, but, because of the lack of a gas infrastructure, it's not yet financially viable."

And Stubbs also alludes to Veolia's two-year parallel diesel-electric hybrid RCV trials, with its 'hyper hybrid', ultra-electric system, developed in collaboration with Volvo and RCV bodybuilder Geesinknorba. "That reduced carbon emissions by 45%, compared to Euro 3 vehicles. It worked extremely well, but it was too complex. We're now looking at BAE Systems."

roadside repairs and the rest. "We recently replaced some 18-tonners like-for-like with DAF LF 55 220 4x2s, but one of the stumbling blocks concerned the on-board cranes," says Wilkinson.

"They're now governed by legislation that means stabiliser leg deployment must be proportional to the boom. That's good, because it prevents vehicles from toppling over, but it can cause problems, for example, if you're doing bridge repairs. If the legs operate at three-stage deployment, there might not be space and you might have to close a road. So we've moved to a Hiab system that minimises space by controlling the legs to the millimetre."

As for other developments, he mentions work on road sweepers – Johnson 650 bodies, but on DAF LF55 18-tonne chassis, instead of 15 tonnes, for stability – used on surfacing and surface dressing after road planing. "Sweeping up planings is a harsh duty, so I've had them lined with a rubberised spray-on material, which not only stops wear, but also keeps down noise. We also inject more water onto the sweepers to help lubricate the planing, which again reduces wear rates."

Beyond these, Wilkinson makes the point that specifying specialist vehicles is not just about considering the equipment duty, but also the different terrain – in this authority's case, between its eastern and western boundaries. He gives the example of gully emptiers – most of which are again DAF LF55 18 tonners, apart from one Iveco, and all Whale tankers. "We specified 1,800 gallon, medium volume combination units, because the bigger units wouldn't be able to negotiate the hills and terraced housing in some of our districts."

One last current development reveals the range. "At the moment, we're running Citroen C3s, Vauxhall Agilas and some old Daewoos for our care services, and we're considering replacing them with vans. That's partly because staff are required to have access to vehicles 24 hours a day, so they have to run them from home, and HMRC tax will be reduced for commercial vehicles. But it's also about gaining flexibility: the vehicle could be moved over to street lighting or highways inspectors, for example.

"But another point is that we're concerned about DPFs [diesel particulate filters] blocking, because these vehicles do so many short runs. So we may also go for stop-start diesel vehicles. It won't make the problem go away, but it should mean longer periods before regeneration."