

# Intelligence



In the face of pressurised budgets, local authorities need to make municipal vehicle fleets more efficient and cheaper to run, while meeting increasingly stringent environmental and safety standards. Toby Clark looks at technological developments

**W**e have become used to the idea of vehicle exhausts being assessed for particulate matter (PM), but this is also a concern for authorities involved in road sweeping. How well does the process remove particles smaller than 10 microns in diameter (PM10, which have been implicated in health problems) from the surrounding air?

EUnited, a European trade body for the engineering industry, introduced a PM10 test for truck-mounted, compact and trailed sweepers in 2007. This has been adopted by most of the European sweeper manufacturers, including Johnston Sweepers, Bucher, Faun, Scarab and Kärcher. Products have to pass the test before they can be given a 1-, 2- or 3-star EUnited PM10 test label, depending on performance. Last year the test

was revised, so more recent machines should bear the new labelling.

But no matter how effective your equipment, it needs to be used efficiently. So municipal operators are now using GPS tracking, video and telematics systems to optimise services, react to customer complaints faster and help with longer-term planning.

For example, Veolia Environmental Services is using a panoramic video system to monitor waste management operations for boroughs around central London. "We already had a good GPS system but wanted to add video monitoring that would integrate with that, and give us the functionality to monitor, map and analyse issues in real time," explains Tim Cattermoul, Veolia's central London business performance manager.

Veolia now uses car roof-mounted SphereVision 360-degree video, linked to a portable recording system and a GPS receiver. The system scans the area as it travels around the borough, and the operator can trigger it to video issues, such as overflowing bins or uncollected rubbish. Time and position data let analysts use SphereVision's software to identify trends and pinpoint problem areas.

According to Cattermoul, one auditor can now cover ground previously requiring four: "We liken the experience to being a tourist on an open-top bus," he says. "We can see exactly what they would see, and can sort out problems quickly and efficiently."

Similarly, Newham Council has introduced a telematics system to let staff report fly-tipping while on the road. In fact, 19 vehicles have been fitted with Nexcom VTC1000 in-cab touchscreen computers, linked to a management system

## Unimog clears the Großglockner Pass



The Mercedes-Benz Unimog is a rare beast in the

UK, but with increasing bouts of extreme weather, it may yet have its day. The Euro 6 model is as versatile as ever, with an improved 'Panorama Cab' having protruding door glazing that allows a direct rearward view. It also has a 'synergetic traction drive' called Easy Drive, which lets the driver switch from hydrostatic to mechanical drive smoothly while on the move. The 272bhp engine is claimed to use 3% less fuel than its Euro 5 predecessor.

Earlier this year, a Unimog U427 cleared the infamous Großglockner Pass, in Austria. The 14-tonne gvw vehicle was fitted with a Swiss Zaugg SF 90-100 snow blower that weighed 1.8 tonnes, so it needed a movable ballast weight at the back. It cleared drifts up to three metres deep at an altitude of 2,500m.



# test



devised by Mayrise Systems. The fly-tipping module is integrated into the council's back-office systems, including its website and call centres, so that reports from the public can be recorded, too. Incidents are transmitted directly to cleansing staff, so improving job allocation and reducing paperwork.

Rising sea levels are a longer-term issue, but one authorities need to plan for. Effective drainage can prevent or reduce costly flooding, but councils have to prioritise high-risk areas. One approach is 'visualised asset management', using survey data tied in to a geographic information system (GIS).

Wigan Council brought in Yotta to perform the first of three gully surveys across 1,040km of its road network last year. This looked at factors such as silt level, collecting data for 58,000 gullies. Vehicle-based digital video inventory surveys can include high-resolution photography of gullies. Combined with GIS data, this allows engineers to build predictive flood models. With further surveys, the data can also look at silt depth trends over several years, to assess whether gully cleaning regimes are appropriate. Additionally, all this mapping data and imagery is accessible by other council departments.

## Telematics and tracking


Then there are the more traditional uses of tracking and telematics – saving fuel and fulfilling local authority obligations on reducing CO<sub>2</sub> emissions and accident rates. Skanska UK's utilities business uses a system from Isotrak to report on drivers' driving styles. Information monitored includes maximum speed over a period, harsh or dangerous acceleration and heavy braking. This leads to an objective assessment of road safety, which can help identify areas where training is needed.

"We have been able to keep in line with our fleet company policy, significantly reducing fuel consumption and CO<sub>2</sub> within the business, while instilling safe and efficient driving skills into our workforce," declares Skanska manager Boyd Neal.

Meanwhile, vehicles themselves are becoming more efficient – particularly with the short-range, regular routes of many municipal operations lending themselves to alternative fuels. Electric versions of car-derived vans have been about for a while, and there have been a few forays into electric street sweepers (see the Tennant Green Machines 500ze, right), but there are fewer electric vehicles over 3.5 tonnes.

Mitsubishi Fuso might be the firm to break through: it already sells the diesel-electric Canter Eco Hybrid, and is now testing a small fleet of third-generation, fully electric Canter E-Cell dropside and box-body trucks in Portugal with local authorities, utilities and a parcel delivery firm (see page 27).

One of the issues with electric vehicles is utilisation – they are of little use while being charged – and another is cold-weather performance. You can't say the same of the Mercedes-Benz Unimog (see panel, left). But it is not the only multi-role vehicle: there are smaller alternatives, such as the Austrian-built Lindner Unitrac 7.5-tonner, the Italian Bremach T-Rex (at 3.5-6 tonne gvw) and, from Ireland, the Multihog MH90.

The latter is a road-going, 6.5-tonne utility vehicle with an articulated chassis, 250bar hydraulic PTOs front and rear, and hydrostatic four-wheel drive from an 87bhp Yanmar diesel. While it is compact enough for municipal mowing and cleaning duties (it is just 3.40m long and 1.86m wide, with a claimed turning circle of 2.8m), it is tough enough for heavier jobs such as patch planing for pothole repair. Other attachments include extending hedge cutters, a forklift and a hefty woodchipper. 

**Left to right:**  
Newham Council's in-cab display; a Multihog in action; Yotta telematics embedded with Mercedes Econic

## Tennant Green Machines 500ze electric street sweeper



The all-electric Tennant Green Machines 500ze

has been independently tested delivering a full eight-hour non-stop shift on a four-hour charge – and battery packs can be swapped quickly.

This 2.7-tonne gvw sweeper has a 3.55m turning circle and its 15kW traction motor is very quiet – useful for noise-sensitive areas such as schools and hospitals. It also has a cyclonic Cloudmaker dust control system, claimed to use up to 70% less water than traditional models.