

AIR APPARENT

By the end of this month, local authorities are required to produce plans to clean up the air – so the clock is ticking to solve the biggest pollution crisis since the 1950s. According to Imperial’s managing director, **Ashley Bijster**, and Videalert’s sales director, **Tim Daniels**, one solution could be to harness cutting-edge technology



“Existing and future systems to monitor parking present an opportunity not only to manage an important revenue stream, but also to improve people’s health and lives”

Just like Madness in 1982, plenty of us like driving in our cars, but it can be a toxic relationship. While ensuring clean air for those who live, work and travel in our towns and cities is not a new challenge, local authorities have struggled to reduce vehicle emissions.

The noxious pollutants that our vehicles create are largely invisible and are contributing to tens of thousands of premature deaths every year. Many experts believe we are facing a public health emergency that is as serious as – or even worse than – the situation in the 1950s.

The Great Smog of 1952 – which caused the deaths of up to 12,000 people in London – was the catalyst for change that led to the Clean Air Acts of 1956 and 1958.

In a feature in *The Geographical* magazine in 1983, entitled ‘Pollution over London’, academic Derek Lee highlighted the positive impact of the legislation. But he also issued a warning about a potentially serious problem that the acts could not control – the rise of photochemical air pollution from motor vehicle emissions.

A FLOW DIAGRAM SHOWING THE END-TO-END SOLUTION FOR ENCOURAGING THE BEHAVIOURAL CHANGE THAT’S REQUIRED TO IMPROVE AIR QUALITY IN OUR TOWNS AND CITIES



IMPROVING AIR QUALITY

Our love affair with the car has not diminished since Madness’s lead singer, Suggs, waxed lyrical about the band’s prized Morris Minor. In 1983, there were around 20 million vehicles on Britain’s roads. Today, the figure is nearer 38 million – a 90 per cent increase.

Sadiq Khan, the mayor of London, is calling for a new Clean Air Act – and he is not alone. For the foreseeable future, however, the onus is on councils to reduce the high levels of nitrogen dioxide (NO₂) in their areas by introducing creative measures to reduce emissions as quickly as possible.

After the introduction of low-emission bus zones and the T-Charge for dirtier cars in the capital, figures for January 2018 suggest London’s annual air-quality limits were not breached as quickly as they have been during the past 10 years.

The government’s Air Quality Grant Programme and the creation of low-emission zones will certainly help to drive improvements in other urban areas, with Birmingham, Leeds, Nottingham, Derby and Southampton required to implement Clean Air Zones by the end of 2019. So, too, will the moves towards fuel-cell technologies and the introduction of electric vehicles.

DIGITAL DEVELOPMENTS

We are now in the digital age, with unprecedented access to technologies and capabilities that were just pie in the sky in the 1980s. However, the real challenge bears a striking similarity >

LOCAL AUTHORITIES – IMPROVING AIR QUALITY

By the end of March 2018, local authorities must set out initial plans to improve air quality in areas where air pollution is above legal limits. Final plans need to be submitted by the end of December 2018.

The government will assess local plans to ensure they are effective, fair,

good value, and deliver the necessary air-quality compliance. A local plan will only be approved by government – and so considered for appropriate funding support – if:

- it is likely to bring NO₂ levels in the area to legal levels within the shortest time possible

- the effects and impacts on local residents and businesses, including on disadvantaged groups, have been assessed and there are no unintended consequences

- proposals that require central government funding demonstrate value for money

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EXAMPLE OF EMISSIONS-BASED PERMITS

Permit type	Emissions band	Cost	Diesel surcharge	Additional car surcharge (2nd, 3rd, 4th permit)
Resident	Green annual permit: gCo2 emissions 110 or below	Free of charge	+£10 per vehicle	+£10 per vehicle
Resident	Lower band emissions permit: gCo2 emissions of 111-150	£45	+£10 per vehicle	+£10 per vehicle
Resident	Middle band emissions permit: gCo2 emissions of 151-200	£52.50	+£10 per vehicle	+£10 per vehicle
Resident	Higher band emissions permit: gCo2 emissions of 201 and above	£85	+£10 per vehicle	+£10 per vehicle

to that which existed in the 1950s – the need for behavioural change. Fortunately, councils already have the tools to succeed. Existing and future systems to monitor parking present an opportunity not only to manage an important revenue stream, but also to improve people's health and lives.

Local authorities all over the country use enforcement schemes that include virtual vehicle permits and intelligent traffic-enforcement systems to ensure compliance with road-management objectives. A logical and practical extension is self-serve, emission-based permits to encourage behavioural change. Working in tandem with fully integrated automatic number plate recognition (ANPR), such virtual permits open up a whole new world.

A virtual permit solution uses a tiered pricing structure to reflect the specific characteristics of different vehicles. In the management of clean air and low-emission zones, this might include European standard emission bands (Euro rating) for diesel and petrol engines, as well as factors such as vehicle classification and gross weight.

The specific pricing band for a vehicle is automatically calculated during the online permit-application process. Significantly, it offers a wealth of back-office data, as well as real-time information, to ensure effective permit enforcement. An authority's

existing support infrastructure can then be used to take the enforcement of the permits to another level.

With CCTV cameras linked directly to a dedicated review platform, vehicles can be identified in real time according to make, model, colour, gross weight, engine type, Euro rating, and so on. When this is linked to the back-office permit-management system, effective and highly responsive enforcement – vital to maximise compliance and encourage behaviour change – is ensured for the new emission permits.

EFFECTIVE ACTION ON AIR QUALITY

Automated vehicle identification also gives invaluable insight and data to show what types of vehicles are entering the designated areas of a city. This enables a council to determine the most appropriate charging structure to ensure effective action is taken against vehicles that have the greatest impact on air quality.

The introduction of emissions-based permits alongside an intelligent digital video platform is not reinventing the wheel. It is an approach founded on well-proven, approved and fully integrated technologies, so there are no risks or unknowns. In most cases, it harnesses existing back-office and surveillance infrastructure. More importantly, it is a highly cost-effective and immediate solution to help make our towns and cities better, cleaner and safer.

BRIGHTON'S EMISSION-BUSTING BUSES

Brighton and Hove City Council became the third authority outside London to introduce a low-emission zone. It had been monitoring air quality and a particular pinch point was an area where 98 per cent of bus routes converged.

'We looked at the type of traffic that was causing pollution and, in the city centre, buses were the real issue,' says Paul Nicholls, parking strategy and contracts manager.

On 1 January 2015, a low-emission bus zone was introduced, which Nicholls says has helped to bring the pollution levels down. 'It also had a

knock-on effect because buses drive all around the city and clock up tens of thousands of miles each year, so – by improving them – you can make a big difference.'

The council uses existing CCTV to enforce the low-emission bus zone, which has worked well – although Nicholls believes that, to be cost-effective, the infrastructure has to be there in the first place.

Other clean-air measures introduced include requiring taxis to meet emissions targets in order to be granted a licence, and permit

parking for residents; those with less polluting models getting a discount on the annual cost.

'Private vehicles are the toughest nut to crack, especially in the absence of a scrappage scheme,' says Nicholls, who, nevertheless, believes the decline in diesel sales and increase in electric vehicle purchases shows public opinion is changing – a change the council is keen to support. 'We are looking to accommodate that growth by ensuring we have sufficient charging points around the city so people have no reason not to go electric.'