



UNINTENDED CONSEQUENCES: CORONAVIRUS, AIR QUALITY AND TOMORROW'S TRANSPORT

With the world in lockdown, air pollution levels have suddenly plummeted.

Duncan Urquhart, Associate Director in AECOM's Air Quality & Permitting division — examines the wider implications for the prediction of transport trends.

Exposure to poor air quality is one of the leading causes of death globally, greater than smoking or war. Many parts of Europe and the UK have been identified as experiencing high pollutant concentrations that have an adverse affect on public health. However, during the coronavirus pandemic, the shut-down and restriction of movements has

suddenly and significantly reduced emissions and improved local air quality, particularly in our towns and cities, reiterating the overriding contribution of road transport to urban air pollution.

This startling change is, by itself, clearly beneficial to public health and the environment in the short term. However, understanding the long-term effects and fall-out is also very important. ➔



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How does air quality monitoring inform transport trends?

An essential part of air quality management is understanding what the future holds. Air quality consultants model, or predict, how air quality will change based on various projections — such as assumptions about how and why people move from place to place, and the adoption of new technologies.

These predictions are key to informing the development of all sorts of traffic management and infrastructure schemes such as the development of Clean Air Zones (CAZ), as well as projections of the rate of uptake of ‘greener’ fuels and vehicle technologies.

Up until now we have generally assumed a continuance of previous trends, whereby technology improves, and emissions reduce. However, experience of notable past events, such as the recession in the late 2000s, and more recently ‘Dieselgate’ (where certain car manufacturers were found to have cheated emissions legislation), highlight the uncertainties and sensitivities that change these projections.

Once again, the sudden pandemic will alter these projections and the models and tools that rely on them, and a new understanding of population and economic behaviours will need to be developed.

Understanding changing habits

The current event is unique in how it is directly controlling behaviour and forcing new ways of engagement.

For example, we are seeing a new reliance on personalised delivery services, including essential items such as food, which emphasise a pre-existing trend towards more ‘white van’ services, as well as highlighting the dependence on the wider freight infrastructure.

The combined effects of recession in some sectors and bounce-back in others as they recover from the lost period of productivity and expand to fill demand, will force further changes to an already stressed system. Some demographics will be able to adopt new technologies, while others will be forced to keep operating older vehicles, which will emphasise the socio-economic disparities related to deprivation, health and air quality.

This bounce-back may also be framed by a new behavioural trend

towards home working and away from a traditional nine-to-five working day in many sectors — the role of private and public transport will be different as a result.

As people adapt to home-working, online meetings, and reduced high-street shopping we will see, to a certain extent, these new behaviours becoming the new norm. We therefore have the opportunity to make the most of the situation and encourage the long-term adoption of these behaviours for a more sustainable future.

The move to greener technologies

Up until recently, we would have normally expected a gradual shift of the vehicle fleet to newer, lower emission technologies, such as electric (EV) or hybrid. It is particularly important to understand not only the rate of turnover for the new vehicle market, but also the retention of older more polluting vehicles and fuel-types. Managing this fleet turnover is one of the core priorities for CAZs in order to remove older, higher emitting vehicles from the fleet.

A potential outcome of the current restrictions may be a reduced market for new or used vehicles — many major car makers will be releasing their first pure EV vehicles this year in a hugely disrupted market — although it may only affect part of the population. We may see wealthier individuals



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still upgrading to an EV, with poorer groups having to stick with their old vehicles.

Clean air zones

At the moment, air quality modelling is key to the development of Clean Air Zones (CAZ) in several UK cities; the modelling informs the type and extent of a CAZ (as each will have to comply with mandatory air quality limit values). Clearly, we want to be as sure as we can that these CAZs will improve air quality as intended, considering the economic costs to businesses and the public associated with these schemes.

While implementing CAZs has been put on hold while we tackle coronavirus, an immediate concern resulting from the various factors discussed above is the accuracy of the air quality predictions that are integral to informing the specification and detail of CAZs that were in the process of being rolled out. Are the CAZs in Birmingham, Leeds and elsewhere focussing on the right areas, the right vehicle types, and the right timescales? Will further measures be required to ensure compliance occurs earlier?

Or, perhaps we will find that measures predicted to be necessary are no longer relevant, and the funds can be redirected elsewhere for greater benefit. We may find ourselves asking is public money being invested in the most efficient way for the benefit of public health? ➔



Home working



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AIR QUALITY MODELLING
IS KEY TO THE
DEVELOPMENT OF CLEAN
AIR ZONES (CAZ) IN
SEVERAL UK CITIES.

CONCLUSION

We are seeing extraordinary short-term beneficial effects on air quality as a result of the lockdowns in force across the world.

We know more now about the importance of good air quality than at any time in the past, and this has only been reinforced by the current pandemic as emerging studies show that those who have been exposed to poorer air in the years preceding the pandemic have far worse outcomes than those who have breathed cleaner air.

However, effective air quality management cannot be achieved in a silo. While we cannot yet say for certain what the long-term effects will be, we must start planning beyond the current event. We must anticipate that many of the changes that have been forced upon us will alter our behaviours for good and we must recognise and understand the implications to allow us to achieve long-term positive changes to air quality. We cannot simply assume everything will return to normal. **WE**