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To Health, Wellbeing and the Environment Overview & Scrutiny Committee

Economy, Skills and Transport Overview & Scrutiny Committee

The impact of air quality on health in Birmingham

Submission by Birmingham Friends of the Earth, January 2017

Birmingham Friends of the Earth (BFOE) is an independent, non-party campaigning organisation which has been sustained by its members for 40 years. BFOE is one of many such groups nationally and internationally, all advocating protection of the Earth, on which depends the well-being of this and future generations.

What are the main types of air pollution that affect people's health, where do they come from, what is that health impact, and who is most likely to suffer the effects?

Birmingham city council has recognised the need to reduce carbon emissions from burning of fossil fuels by 60% by 2026. Combustion produces CO_2, but at the same time nitrogen oxides and particulates (fine smoke). Nitrogen dioxide has 300 times the greenhouse gas effect of CO_2, and particulates hold heat, so they add to warming. The same pollutants are directly damaging to people's lungs. Therefore measures for a Clean Air City should be complementary to those already identified in Birmingham's Carbon Roadmap[1], and the Low Carbon Transport Strategy[2], having the same aims and requiring the same actions. We urge the city council to do more than the bare minimum needed to comply with legislation on air quality, but rather to take the opportunity to clean up the city's energy, waste and transport systems.

Health effects

Many places in Birmingham regularly exceed EU and WHO safe limits for NOx and particulates. The effects of these pollution on human health have recently been set out in NICE guidelines[3]. People suffer every day from asthma, heart disease and lung disease aggravated by air pollution causing breathing difficulties, disability and even premature death. This health burden is very inequitably distributed, since the most vulnerable will be children, elderly people and those in poor health - who are the least likely to drive and pollute. Deprived inner city areas receive the highest levels of air pollution, much of it from cars driven by commuters from outside the city boundaries.

[1] Carbon Roadmap, Birmingham Green Commission 2013

[2] Birmingham Low Carbon Transport Strategy, 2012

3 "Air pollution: outdoor air quality and health" NICE guideline 3 December 2016

Static plant emissions to air

Large static combustion plants produce a background level of polluted air in the city. They tend to be concentrated in inner areas. Considered separately, they may not exceed permitted limits, but together they produce an unacceptable level of pollution. The proposed Clean Air Zone should include the larger combustion plants. It would be inequitable to levy a charge on the owners of single vehicles, but to exempt the owners of large combustion plants.

Buildings produce air pollution, especially if biomass is burned for heating. This is claimed to displace fossil fuels, but the smoke particles released from biomass hold heat and warm the air. They also may create a localised problem for human health, which is why the city council adopted a Biomass Policy in 2013 that required emissions to be identified and controlled. These plants should be included in the proposed Clean Air Zone.

Incineration of refuse does not "dispose" of it, rather it becomes air pollution, which we all breathe. The largest incinerator in Birmingham is the plant owned by Veolia plc, to which 100,000s tonnes a year of council collected refuse is delivered for burning. It is not surprisingly the largest source of CO2 emissions in Birmingham - 323,000 tonnes a year[4]. Its other by-products released to air are in proportion; they include nitrogen oxides and particulates. We have calculated its NO2 output compared to a car and find that it is equivalent to 1,300 extra cars taking to the streets, whenever it operates[5]. Other emissions reported to the Environment Agency from the plant are particulates, hydrogen chloride and fluoride, also metallic compounds, all substances injurious to human health[6]. We emphasise that rubbish is not a fuel, so its composition and the chemical by products from its combustion are unpredictable. The average figures that Veolia report may conceal spikes when the plant starts up. Even if emissions from the plant are within permitted limits this does not mean that they are healthy, and they are additional to all the other sources of air pollution. This plant is due to become the city council's property in 2019, so its emissions to air should be looked at critically before committing to its future operation. The new Waste Strategy should take into account the council's responsibility for air quality and conform to the Clean Air Zone.

Traffic emissions to air

Road traffic in Birmingham adds corridors of polluted air to the background level; the greater the traffic flow, the greater the exceedance of EU limits for NO2. The problem in the West Midlands has been comprehensively mapped and described in a recent report to DEFRA[7]. BFOE has itself measured unsafe levels using cheap diffusion tubes

The most polluted roads are those with highest traffic levels and those enclosed by concrete walls, especially the A38 in tunnels under the city centre. Drivers themselves suffer the worst effects, since they are enclosed and draw air at the level of exhaust pipes, so get 21% more exposure than pedestrians or cyclists according to research by Kings College, London[8]. Measures to reduce vehicle

[4] Freedom of information request by BFOE to Environment Agency, 2013 figures

[5] Tyseley plant NOx 312 t/pa 2012/ diesel car E6 NOx 0.08 g/km X average car commuting 2900 km pa = 1,345

[6] Environment Agency Air Pollution map http://apps.environment-agency.gov.uk/wiyby/

[7] "Air Quality Plan for the achievement of EU air quality limit value for nitrogen dioxide (NO2) in West Midlands Urban Area" DEFRA 2015

[8] http://www.airqualitynews.com/2016/02/16/higher-air-pollution-health-risk-inside-car-study-finds

pollution in a Clean Air Zone would therefore benefit the occupants of cars, buses and taxis, even more than other city residents.

We suggest learning from the report from Transport for London "Improving the health of Londoners Transport Action Plan"[9]

Birmingham has been ordered by the Government to impose charges in 'clean air zones' to cut pollution. What types of vehicle, driving mode, location and fuel system most contribute to the health impacts of road traffic?

Friends of the Earth campaigns to phase out diesel vehicles in the UK, since they produce 5 times the nitrogen oxide of petrol equivalents and cannot be made low emission. A Clean Air Zone in Birmingham must send a clear signal to vehicle owners and manufacturers that diesels are being discouraged and are to be phased out, so everyone can plan forward on this basis.

The internal combustion engine is abused by stop-start patterns of driving. Pollution is at its worst when vehicles are waiting at red lights, so the NICE guidelines recommend reducing delays and idling engines. We note that Coventry has recently taken out most of the red lights in its city centre and traffic is flowing more smoothly, while London is also removing many traffic lights. The new 20mph zones in Birmingham should be reviewed to take out unnecessary light controls.

We draw attention to research for DEFRA showing that most of the particulates do not come from car engines, but from the friction of tyres, brakes and the road[10]. This means that replacing every diesel vehicle with an electric one would not solve the problem, only less traffic overall will achieve clean air.

And what would be the most effective ways of implementing and operating a 'clean air zone' so as to minimise these burdens?

The clean air zone should include all polluting vehicles, but also large combustion plants, such as waste incinerators and biomass heating, as proposed above.

The problem of traffic emissions results from Birmingham's exceptional dependence on the private car, as recognised in the "Birmingham Connected" strategy. The council should therefore halt all changes to streets such as road widening and Red Routes that increase traffic flows and make it more convenient to drive. These schemes only encourage more driving, so are counter-productive. There should also be a freeze on parking provision in central Birmingham, with park and ride being provided instead at the city limits.

Birmingham City Council owns or leases a large fleet of vehicles, and we expect to see it show leadership by planning for a rapid phase out of its own diesels. Other public bodies should be asked to explain how they will change their fleets to low emission.

It would be inequitable to charge some vehicles and owners, but not others. The justification for charging would be the pollution caused, therefore any charge should be proportional to the emissions the vehicle produces.

It is essential that any charges on polluting vehicles operate in a way that reduces overall traffic flows and change the city's transport mix away from the private car. It would be counterproductive to levy charges on buses and taxis,

[9] Improving the health of Londoners Transport action plan, TFL

[10] "Sources of particles in the UK" ,DEFRA https://uk-air.defra.gov.uk/

but not private cars, since this is likely to be passed on in higher fares and could make people more likely to drive a car into the city. We do not see any reason to charge buses and taxis, when the council has the power to phase out polluting ones through the licensing system.

Any charges that are collected should be ring fenced and spent only on high profile schemes which offer cost effective alternatives to the private car. We suggest some, as follows.

Reallocating road space from the car is required to allow convenient and attractive journeys by tram, bus, taxi and bicycle. If the council will not charge cars for using road space, then it must be rationed and reallocated. There should be plans to reduce the number of lanes of traffic in the city centre and to widen footways, cycle ways and busways. Coventry city centre is a recent case where this has been done. In Birmingham's 20 mph zones, the traffic should require less road space since vehicles travel closer together, hence roadways can be narrowed to allow for alternatives to the car.

An important part of the solution is the promotion of active travel. Birmingham has a public health crisis from lack of physical activity that results from overuse of the private car for the 25% of car journeys that are under two miles. Better cycling and walking infrastructure would lower pollution and also make the city more attractive to businesses. People's mental health also shows improvement when they interact with nature.

BFOE's Let's Get Moving petition has called for £10 per person per year to be spent on cycling provision. Lines of back streets at 20mph could be made "no through road except cyclists" which would prevent cars from "rat running" through residential areas. Birmingham should have a cycle hire scheme like London, Paris and most other European cities.

We support plans to remodel and reduce traffic through Digbeth, which is no longer an A road but remains a pollution hotspot, especially around the Coach Station.

The A38 tunnels through the city centre are highly polluted, but offer an opportunity to use them for clean public transport, as suggested in the "Birmingham Connected" strategy. The Heartlands Parkway A47 has spare capacity, and could accommodate a busway.

Car clubs in many cities allow 12 or more people to use each car and members have much lower levels of driving, so Birmingham council should allocate free spaces for car club vehicles.

Electric vehicle charging points should be an early priority and locations for them found, if people are expected to run electric cars and vans.

'Birmingham Sprint' bus rapid transit would cost just one tenth per mile compared to Midland Metro for on-street running in Birmingham, we understand. Clean, fast buses seem to be the readiest way to save the city from over-use of the private car.

The existing number of buses could be reduced by an inter-operable smart ticketing system. The City of Oxford's Smartzone has resulted in fewer buses and a growth in bus use, with very substantial savings in emissions[11]. Future

[11] Oxford Smartzone https://city.oxfordbus.co.uk/smartzone

buses should be low emission and the new Mayor for the West Midlands could insist on this.

The South Birmingham rail line through Kings Heath is maintained to passenger standard, but it has no stations. One million car journeys every year take place that would be displaced if stations were reopened along this line, according to the original Centro feasibility study, so it should be a high priority. The level of pollution on Kings Heath High Street is unacceptable.

The level of pollution in New Street station is unhealthy and unacceptable and creates the wrong impression of public transport. The station's policy that drivers should switch off their engines when stationary is not being enforced. Diesel trains such as Cross Country's Voyagers should be charged or banned in future, to push forward the move to low emission alternatives.

What are the potential barriers to clean air zones being implemented widely in the city?

There is a danger that a charging zone is confined to the city centre, so causing a diversion of traffic, relocating the problem with informal 'ring roads' developing to bypass the zone. Therefore a city-wide approach to clean air is necessary.

If more drivers try to 'park and ride' at the city boundaries, then parking spaces will have to be provided there.

It could be that only low income households and self-employed people actually pay the charge, since they cannot afford to purchase a new car or van. The timescale should be such that people can actually purchase a low emission vehicle if that is the aim. A carefully-designed scrappage scheme is essential, to encourage people to exchange their old diesels and to ensure they stay off the road.

Are there other measures which can be taken such as for example the planting of urban trees to absorb airborne pollutants and improve air quality and are there any plans in relation to these?

Appropriate street trees can absorb air pollution and they should be maintained, replaced and increased. The NICE report says that street trees can prevent winds blowing the pollution away, but in fact there is no "away" and trees actually provide air conditioning. Trees give shade and transpiration that help to prevent the overheating of the city in summer and extreme events such as the 2006 Birmingham tornado which cost millions in damage. With climate warming this will be more important in future. Trees also help to slow rain runoff and so prevent expensive flooding incidents.

We welcome the efforts of Trees for Life in their partnership with the council, but would like their remit extended from parks to any suitable site for trees.

There should be more publicity about tree preservation and the benefits of trees in the city.