

<b>SCRUTINY TASK &amp; FINISH GROUP: LONDON LUTON AIRPORT AIR QUALITY IMPACT (LLAAQ)</b>	<b>AGENDA ITEM</b>  <b>7</b>
<p><b>DATE OF MEETING:</b> 15<sup>TH</sup> AUGUST 2019</p> <p><b>REPORT OF:</b> SERVICE DIRECTOR HEALTHCARE ADULTS COMMISSIONING</p> <p><b>REPORT AUTHOR:</b> LISA HUDSON Tel: 01582 548446 PUBLIC HEALTH DEVELOPMENT OFFICER</p> <p><b>SUBJECT:</b> PUBLIC HEALTH RESPONSE TO MEMBER AIR QUALITY QUESTIONS</p>	

## PURPOSE

1. To provide responses to questions by members of the London Luton Airport Task and Finish Group.

## RECOMMENDATION (S)

2. To note the report
3. To make comments and or recommendations as appropriate

## AREAS OF INTEREST AND REVIEW

4. What is the scope?

Response – The review will focus on the assessment of air quality in the wards immediately around the Airport namely: Stopsley, Wigmore, Crawley, Roundgreen and Southwards.

5. Causes and impact of air pollution

### Q1. Understanding particulate and gaseous airborne pollution

6. Nitrogen dioxide pollution is mostly as a consequence of emissions from diesel cars and vans and particulate matter from exhausts as well as from brake and tyre wear and road surface abrasion with highest concentrations along urban busy roads. Road vehicles are the main pollution source that people in urban environments, like Luton are exposed to and the pollutants

they emit have the greatest health impacts. Exposure to air pollution inside vehicles can be as high, or higher, particularly in slow moving traffic. Strategies encouraging active travel and low or zero pollution modes of travel and park and ride type schemes that especially reduce traffic flow and congestion into a busy town centre will reduce air pollution.

Q2 What is out there, what are the potentially dangerous concentrations?  
Refer to Q4

Q3. Where does it come from .....



Sources of air pollution and pollutants of health concern [2]

7. The main source of air pollution in Luton is road traffic, particularly on the M1 motorway and Dunstable Road through to Stuart Street, including Telford Way and Castle Street.
8. Understanding what causes pollution, and knowing what actions work, and where local authorities have the ability through their decision making to make a difference is key to improving air quality. An AQAP should take account of the following factors where Council influences infrastructure that translates to making health protection part of planning:
  - traffic and parking management, including ability to influence 'no-idling' of vehicles
  - street design and road layouts
  - planning
  - public and school transport policies
  - **restricting access to the highest risk areas of the dirtiest vehicles**

- favouring clean vehicle fuels like petrol, LPG or CNG over diesel and bio-diesel
  - reducing polluting emissions through freight consolidation, delivery management and low or zero emission last mile services
  - fleet management and car clubs
  - installation and maintenance of electric vehicle charging points
  - vehicle and building air conditioning
  - building energy efficiency
  - permitting and regulation of certain types of industrial processes, factories and other activities that can cause pollution (Environmental Permitting)
  - Location and enforcement of Smoke Control Areas (SCA).
9. There is strong cost effective evidence for the above actions<sup>1</sup> to improve air quality, by reducing emissions and decreasing public exposure to pollution.

Q4. What damage are the pollutants capable of causing?

10. **For the main air pollutants of health concern See pages 28-35<sup>2</sup> of the Public Health England: Review of interventions to improve outdoor air quality and public health**

**Air pollution and health impacts**

11. Air pollution is associated with a number of adverse health impacts (figure 1). It is recognised as a contributing factor in the onset of heart disease and cancer, asthma, stroke, diabetes, obesity and changes linked to dementia**Error! Bookmark not defined.**.. Poor air quality affects everyone but has a disproportionate impact on the young and old, the sick and the poor. Gestation, infancy and early childhood are vulnerable times because the young body is growing and developing rapidly. The heart, brain, hormone systems and immunity can all be harmed by air pollution. Research is suggesting effects on growth, intelligence and development of the brain and coordination**Error! Bookmark not defined.**.. There is a strong correlation with inequalities, because areas with poor air quality are often the less affluent areas<sup>3</sup>, beside busy roads and where our most vulnerable may reside.
12. Air pollution has short and long term impacts and can reduce lung development in children, is a risk factor for asthma and can exacerbate conditions such as Chronic Obstructive Pulmonary Disease [COPD]**Error! Bookmark not defined.**<sup>3</sup>. Luton's statistical data shows emergency admissions rates for both adults and children patients in COPD and asthma are significantly worse than the England average and significantly worse than some of our statistical neighbours. The cost per emergency admission is estimated at £927 and £2,558 per patient respectively [Fingertips, 2010/11].

<sup>1</sup> Science, Environment & Policy Research, 2012. [‘14 Cost Effective Actions to Cut Central London Air Pollution’](#)

<sup>2</sup> PHE, Review of interventions to improve outdoor air quality and public health [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/795185/Review\\_of\\_interventions\\_to\\_improve\\_air\\_quality.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/795185/Review_of_interventions_to_improve_air_quality.pdf)

<sup>3</sup> PHE, DEFRA, LGA, 2017. [‘Air Quality: A briefing for Directors of Public Health’](#)

13. A study quantifying the air pollution effects estimates that nitrogen dioxide burden attributes to approximately 23,000 deaths and particulate matter [PM] approximately 29,000 deaths in the UK per year [the latter being approximately three times that of passive smoking and five times more than the number of deaths on roads].

**Main air pollutants**

14. The main pollutants significantly harmful to health are particulate matters and nitrogen dioxide. It is important to understand that there is no safe limit for particulate matter [PM10 and PM2.5]; and nitrogen dioxide is associated with adverse health effects at concentrations at or below legal limits, so any improvements in air quality will have positive health consequences.

## Where air pollutants go in our bodies and what they do

A few hours of PM<sub>2.5</sub> over 35 µg/m<sup>3</sup> or NO<sub>2</sub> over 200 µg/m<sup>3</sup> irritates the eyes, nose and throat.

PM can cause strokes. Ultrafine PM has been found in samples of brain and central nervous system tissue.

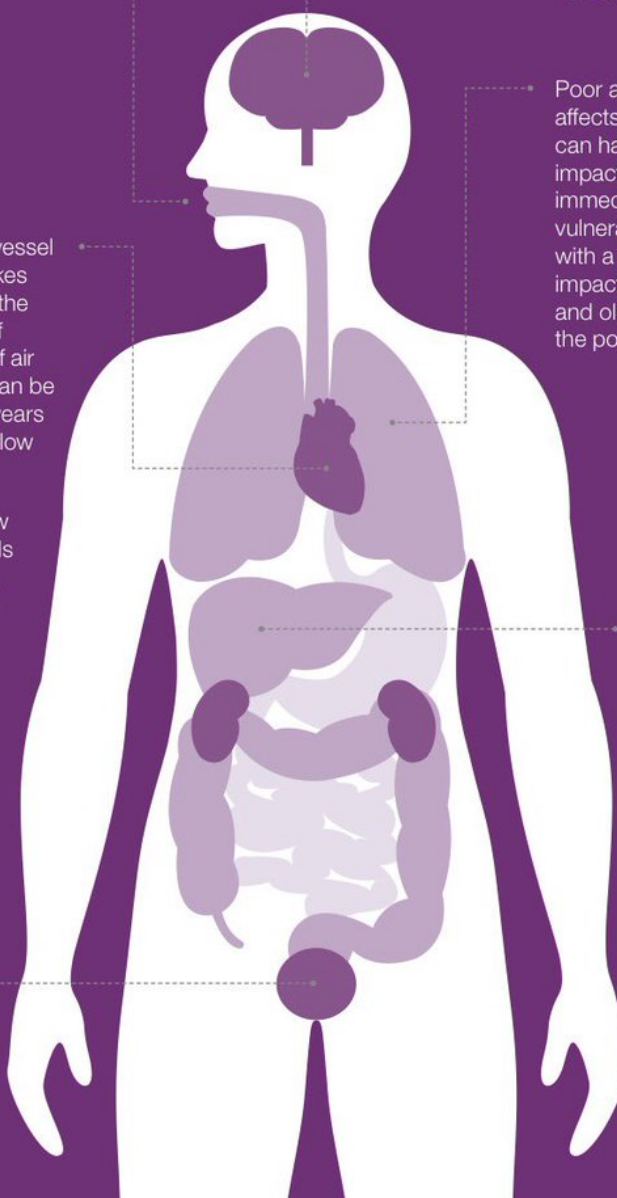
Poor air quality affects everyone. It can have long term impacts on all and immediate effects on vulnerable people, with a disproportionate impact on the young and old, the sick and the poor.

Heart and blood vessel diseases like strokes and hardening of the arteries are one of the main effects of air pollution. These can be caused by a few years exposure to even low levels of PM<sub>2.5</sub>.

Exposure for a few hours to high levels of PM<sub>2.5</sub> can bring on existing illness or strokes and heart attacks in ill people.

Ultrafine PM can get into the blood then throughout the body. Ultrafine particles have been found in body organs.

PM has been found in the reproductive organs and in unborn children.



### Q5. What effect do plants, trees, wind, rain, sunshine have on the pollutants?

Extract from the PHE evidence review paper [2].

15. P192 - Whilst there is a lack of evaluation of the air quality and health impacts of interventions related to urban green infrastructure, there is evidence

through smaller-scale studies and observational studies linking vegetation and improvement of air pollution that indicates certain species of plants can successfully remove air pollutants from the air (with greater effects reported using high density vegetation, particularly hedges, compared to trees).

16. Green infrastructure intervention case studies highlight the need for careful planning and consideration of tree placement and vegetation type. There can be a number of unintended adverse consequences if the wrong species of plants or location are chosen, such as increased releases of VOCs or pollen that may affect people with respiratory illness or pollen allergies and impacts on pollutant dispersion (214).
17. Co-benefits associated with greening infrastructure include social, environmental, ecological and hydrological aspects. They include mitigation of the urban heat island effect, carbon sequestration, and enhancement of mental health, well-being, social cohesion and possibly encouragement of physical activity.
18. Vegetation can benefit reclaimed or derelict land and control floods. However, use of green infrastructure is not a single solution for improving air quality and should only be used as part of a package of solutions.

*Q15. Is there anything relevant in the Annual Public Health reports for the last few years we should be looking at?*

19. **The 2018 Public Health Annual Report ‘Inclusive Growth and the Luton Investment Framework’<sup>4</sup>** recommends active travel and initiatives that reduce traffic flow, congestion, and improvements to green infrastructure of the town to reduce and mitigate against air pollution and encourage planting that improves the look of the town and therefore public health and wellbeing.
20. The annual report has a whole section on Cleaner air for all..... Extract as follows:

### **Town**

21. For Luton to have a town centre that delivers diverse and aspirational opportunities for all its citizens it will need to be a pleasant place to shop, work and socialise, with clean air, safe streets, priority given to pedestrians and cyclists, and fast, efficient and affordable public transport.
22. Poor air quality has a negative impact on public health, with potentially serious consequences for individuals, families and communities. Improving air quality is a complex issue, presenting a multi-agency challenge. How can we ensure that the right actions are taken to support such an important element in protecting the health and wellbeing of our town's people?

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<sup>4</sup> Luton Public Health Annual Report 2018:

<http://intranet/Departments/publichealth/Document%20library/luton-annual-public-health-report-2018.pdf>

## **Cleaner air for all**

23. Outdoor air pollution is the greatest preventable environmental risk to public health, disproportionately impacting the young, old, sick and the poor. The most disadvantaged and vulnerable in society often experience the greatest burden because they tend to live near busy roads. Death and disability attributed to air pollution has been estimated to cost the UK £20 billion per year, with nitrogen dioxide (NO<sub>2</sub>), primarily in the air from the burning of fuel, estimated to cause 23,500 deaths a year in the UK, and particulate matter (PM), a complex mixture of extremely small particles and liquid droplets, estimated to cause 29,000 deaths per year<sup>19</sup> with some overlap.
24. Pregnancy and childhood are particularly vulnerable times for people as the body is developing rapidly. The heart, brain, hormone and immune systems can be harmed, with emerging evidence suggesting risk to growth, intelligence and coordination and exposure during pregnancy is being associated with low birth weight and pre-term births.<sup>20</sup> Health harms from air pollution include cardiovascular disease (CVD), cancer and respiratory diseases, such as asthma and chronic obstructive pulmonary disease (COPD). Air pollution is linked to dementia and increases the chance of hospital admissions and emergency visits. The number of emergency child and adult asthma hospital admissions, and the number of emergency COPD admissions are significantly greater in Luton than the England average<sup>21</sup>. Given this magnitude of harm to health there is a need to act urgently ensuring pollution is considered seriously at all stages of local authority planning, considering risk at both low-level exposure as well as high level exposure.
25. Diesel vehicles produce on average four times the NO<sub>2</sub> and thirty times the PM<sub>10</sub> (particulate matter typically less than or equal to 10 microns) rate of a petrol vehicle, and as more people sought fuel and tax efficient cars in the 2000s, there was an increase in the percentage of diesel cars on the roads from 7.4 per cent in 1994 to almost 40 per cent in 2016<sup>22</sup> leading to a corresponding increase in air pollution.
26. However, that trend has now been reversed with sales of diesel cars falling by almost 40 per cent in the year to the end of March 2018.<sup>23</sup>
27. Government initiatives, for example ensuring all new cars and vans have zero emissions by 2040, will increase the number of cleaner vehicles on the roads and reduce air pollution but the numbers are still expected to be low compared with the number of petrol and diesel vehicles<sup>24</sup>. The main pollutant measured in Luton is NO<sub>2</sub> with PM<sub>2.5</sub> being a more recent focus. Three poor air quality management areas (AQMA) have been identified across the town meaning air quality exceeded legal limits in those areas. Although legal limits are in place there is no safe limit for PM<sub>10</sub> and PM<sub>2.5</sub>; and adverse health effects are experienced at concentrations at or below legal limits for nitrogen dioxide; meaning any improvements in air quality will have positive health

benefits. Working with our partners we need to use what evidence we have to target areas experiencing the poorest air quality. Luton has recently been ranked the fourth most congested town in the UK,<sup>25</sup> and most Luton commuters choose single car occupancy as their preferred mode of transport with most journeys being less than ten kilometres.<sup>26</sup> This excess traffic on Luton roads and expected increases in traffic, as a consequence of the airport, housing and business growth planned for the town, indicates Luton must make changes to its travel infrastructure, planning and energy policies if it is to promote good air quality.

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28. Cost effective actions that ameliorate air pollution with particular emphasis on changes that encourage active travel, ultra-low or zero pollution modes of travel and that specifically reduce traffic flow, congestion and dirty vehicle impacts on the town should be considered. 28
29. There is demonstrable evidence that green spaces can improve mental and physical health and wellbeing but they can also play a role in improving air quality. 29,30,31 Trees and green infrastructure can have positive environmental and health effects: lowering urban temperatures, supporting sustainable urban drainage, reducing flood risk, reducing soil erosion, providing a habitat for wildlife, play a role in carbon sequestration (capturing and removing CO<sub>2</sub>), noise abatement and removing pollutants from the air. Luton is deficient in green space with those in the most deprived wards having less access to green spaces compared with those living in wealthier parts of the town.<sup>32</sup> This emphasises the need to create more green spaces in Luton and fits well with the views of the local people, who in recent consultations about Air Quality and the Food Plan chose 'Greening up the borough' initiatives amongst their top priorities. However, land in Luton is at a premium with competing priorities from housing, business and leisure sector, leaving little room for new large green spaces. Therefore, we must think strategically across the borough on how we can create green infrastructure throughout the town in the spaces around us in our everyday lives.
30. Ensuring all of Luton benefits from 'Greening up the borough' initiatives will mean space-saving, innovative planning and well considered landscaping, planting and maintenance using evidence-based solutions. Green walls, roofs and pocket gardens, planting on roundabouts and road verges, and land swap that can deliver green space in areas of greatest deficiency, while being sensitive to safety requirements will all need to be considered.
31. These changes will also improve the aesthetics of the town attracting more people and business, bringing economic investment and creating places where people want to spend their time and money. Higher property returns and increased retail and leisure spending, will help transform Luton into a place people want to stay and call home.<sup>33</sup>
32. Aspiration 3 of the report:  
**To implement a single, comprehensive plan to create a town centre that:**
  - **Is inclusive** of people from all walks of life



- Easy to navigate, including crossings
- Provides shade, shelter and places to stop and rest
- **Is walkable and provide options for cycling**
- **Has a low level of noise and air pollution**
- Provides things to see and do
- Has a health-promoting retail offer
- Ensures people feel relaxed and safe

33. Aspiration 4 of the report: **Investigate the feasibility of an ultra-low emission zone in the town and look at options that reduce traffic-related air pollution, particularly around schools and other sensitive locations for example homes and housing on busy roads.**

Aspiration 5 Create and maintain green space and infrastructure by incorporating 'Greening up the borough' in all policies

Q6. Experience of other local authorities  
**Future of diesel and petrol vehicles**

34. It is important to note the government has made a commitment banning sales of all new diesel and petrol cars by 2040<sup>5</sup>. Some suggest past government interventions to encourage people to buy diesel vehicles as 'wrong'<sup>6</sup>. There are currently no diesel vehicle scrappage schemes available or being planned, national discussions continue. Government schemes to promote ultra low emission vehicles with grant plug in Car and Van Grant schemes is ongoing and highlighted in Luton's AQAP.

**ULEZ – LONDON**

35. Transport for London in 2008 introduced a low emissions zone [LEZ] operating across most of Greater London to encourage the most polluting heavy diesel vehicles to become cleaner. The LEZ daily charge affects larger vans, minibuses, lorries, buses and coaches as well as other specialist vehicles. The process uses number plate recognition to identify: if a vehicle meets LEZ emission standards; has paid the daily charge; and if a penalty charges notice needs to be issued.
36. Using the same process of identification, on 8<sup>th</sup> April 2019, an ultra low emission zone [ULEZ] will go live in London, with hopes of a drop of 50% in emissions by 2020. The charge will apply across the current congestion charge zone and ULEZ charges will be in addition to the congestion charge. This covers most of Greater London and is in operation 24 hours a day, every day of the year. If a vehicle meets the ULEZ emission standards it will also meet the LEZ emission standards. Vehicles can be checked for compliance using the: LEZ vehicle checker.

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<sup>5</sup> DEFRA & DfT, 2017 '[UK plan for tackling roadside nitrogen dioxide concentrations- detailed plan](#)'

<sup>6</sup> BBC News, 2017. '[Date announced for London ultra low emission zone](#)'

The ULEZ standards are:

- Euro 3 for motorcycles, mopeds, motorised tricycles and quadricycles (L category)
- Euro 4 for petrol cars, vans, minibuses and other specialist vehicles
- Euro 6 for diesel cars, vans and minibuses and other specialist vehicles
- Euro VI for lorries, buses and coaches and other specialist heavy vehicles

37. The City of London estimates this will mean petrol cars more than 13 years old in 2019 and diesel cars over four years old in 2019, will be charged. It will not apply to residents living in the zone until April 2022 and London licensed black taxis are exempt. New licensing requirements to phase out diesel taxis and increase the number of zero emission vehicles are being planned. There is a vehicle registration tool for Further details of the type of vehicles affected. It notifies if a vehicle does not meet the ULEZ standards using the [ULEZ VRM checker](#) and therefore is subject to the daily ULEZ charge. If the vehicle is found non-compliant to ULEZ standards it gives alternative options, travel alternatives and links to information on retrofit technologies, etc.

### **Costs to ULEZ non-compliant motorists**

38. The most polluting cars, vans and motorbikes, those not compliant with ULEZ, will pay a daily charge of £12.50 to drive through central London and buses, coaches and HGVs, £100. If the ULEZ daily charge is not paid a penalty charge of up to £130 and £1,000 respectively will be issued. The ULEZ scheme allows for vehicles to retrofit emissions reduction technology to meet the ULEZ standards. Retrofit technologies will have to be certified by the government's Clean Vehicle Retrofit Accreditation Scheme (CVRAS).

### **LEZ projects in England**

39. Outside of London, fifteen local authorities in England have been allocated prime funding from the Government to develop LEZ projects:

<b>Lead Authority</b>	<b>Total amount awarded</b>	<b>Projects</b>
Aylesbury Vale	£28,000	Low Emission Zone Feasibility Study
Bath & North East Somerset DC	£46,500	Low Emission Zone Feasibility Study
Birmingham (West Midlands Group)	£120,000	Project to define emissions reduction strategies, including LEZ, LES toolkit, green procurement.
Bradford	£102,000	Low Emission Zone Feasibility Study
Horsham District Council	£15,000	Storrington Traffic Fleet Survey & LEZ

		Feasibility Assessment
Leeds City Council	£50,000	Low Emission Zone Feasibility Study
Lewes Council	£120,000	Sussex Low Emission Zone feasibility assessment project (2012-2013)
Maidstone Borough Council	£40,000	Low Emission Zone Feasibility Study
Newcastle Upon Tyne (joint bid with Gateshead MBC)	£60,000	Low Emission Zone Feasibility Study
Reading Borough Council	£40,000	Low Emission Zone Feasibility Study
Sheffield City Council (joint bid with South Yorkshire Group)	£40,000	Low Emission Zone Feasibility Study
Southampton	£40,000	LEZ feasibility study and monitoring
Warwick District Council	£20,000	Tender Project: feasibility of introducing LEZs within Warwick District
Waverley	£21,500	Traffic management and Low Emission Feasibility Study
York City Council	£68,500	a) LEZ feasibility study, and b) Fleet Recognition Scheme