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Background information about the effects of air quality on health and wellbeing in Islington

Health and Social Care Scrutiny

Content

- What is air quality
- The scale and location of air quality issues in Islington
- The health impacts of poor air quality and benefits of improving
- Overview of local programmes and interventions to improve air quality
- Scrutiny recommendations

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Definition of air pollution

Air quality refers to the air around us, how clean it is and how many pollutants (harmful chemicals or substances) it contains.

Air pollution is a gas (or a liquid/solid dispersed through ordinary air) released in a big enough quantity to harm the health of people, animals and/or plants. It can also damage or disrupt other aspects of the environment (such as making buildings crumble), or cause other kinds of nuisance (reduced visibility, unpleasant odour etc.).

It's the quantity (or concentration) of the chemicals in the air that makes the difference between harmless air and polluted air.

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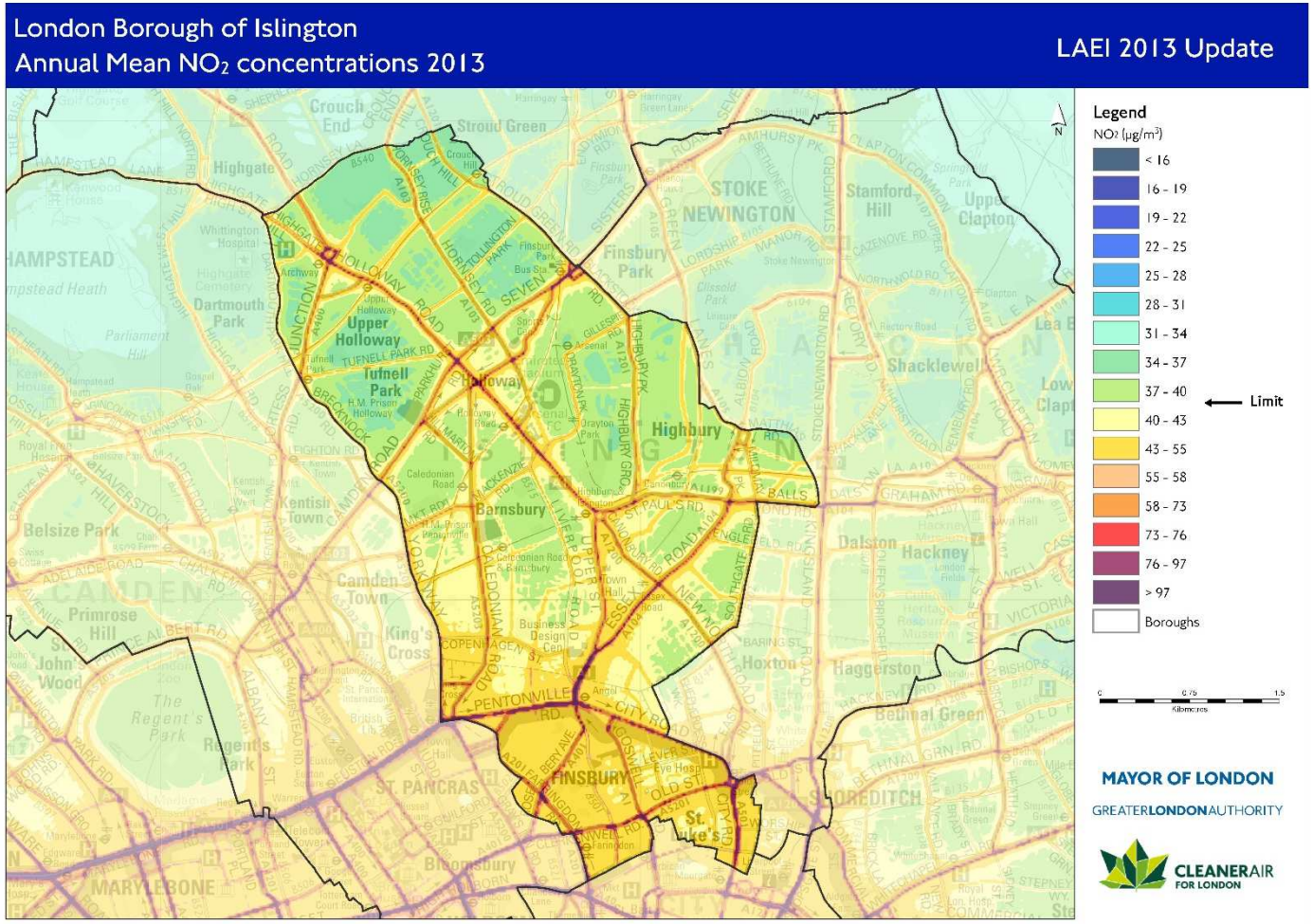
Scale and location of poor air quality in Islington



South of the borough most polluted

60% of borough over EU limits of 40

Every school near an area of high pollution

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Major air pollutants 1

Particulates: These are the sooty deposits in air that blacken buildings and cause breathing difficulties. In London, most particulates come from traffic fumes, brake and tyre wear and increasingly, wood burning.

Particulates of different sizes are referred to by the letters PM followed by a number, so PM_{10} means particles of less than 10 microns (less than 10/1000^{ths} of a millimetre).

We are most worried about fine ($PM_{2.5}$) and ultrafine (PM_1) particulate matter as these can enter deep into the lungs and into the bloodstream.

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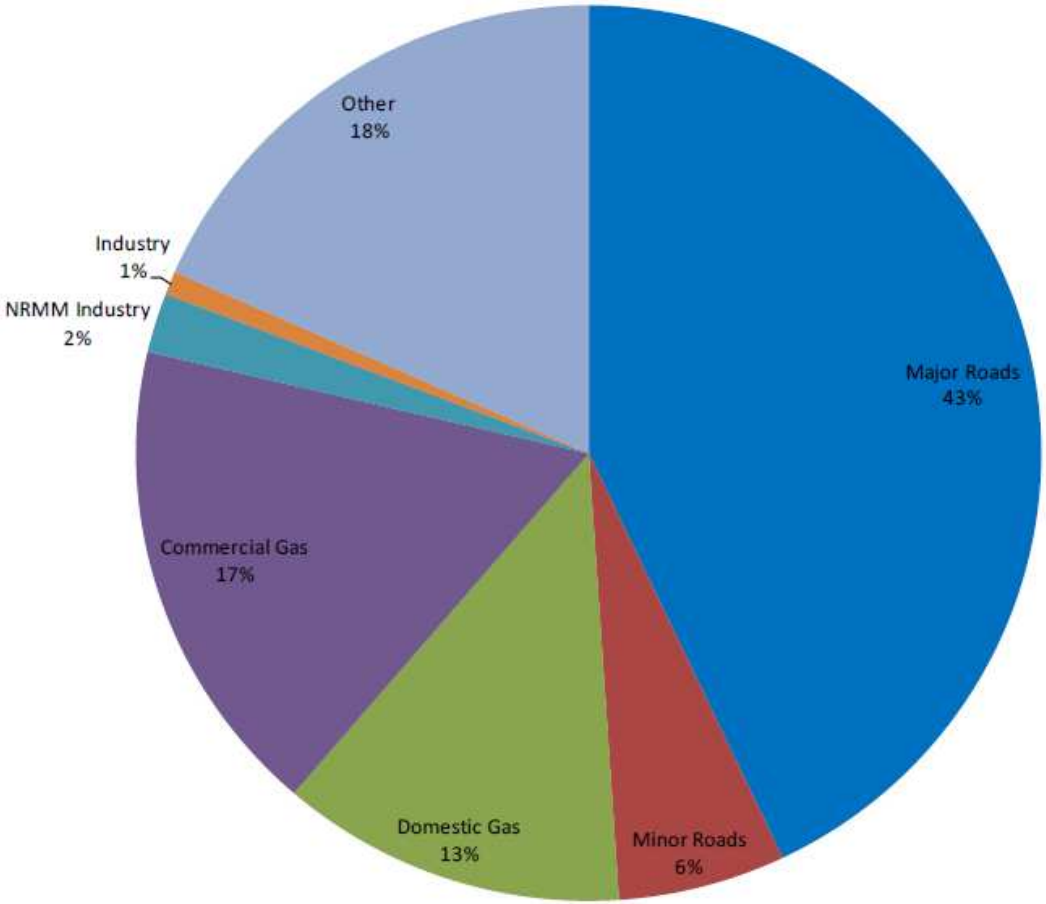
Major air pollutants 2

Nitrogen oxides (NO_X): Both nitrogen dioxide (NO_2) and nitrogen oxide (NO) are gas pollutants made as a result of burning when nitrogen and oxygen react together. They are harmful to health. A big source of NO_X is from vehicle engines.

Ozone (O_3): At ground level, ozone is a toxic pollutant that can damage health. It forms when sunlight strikes a cocktail of other pollution and is a key ingredient of smog.

Source apportionment

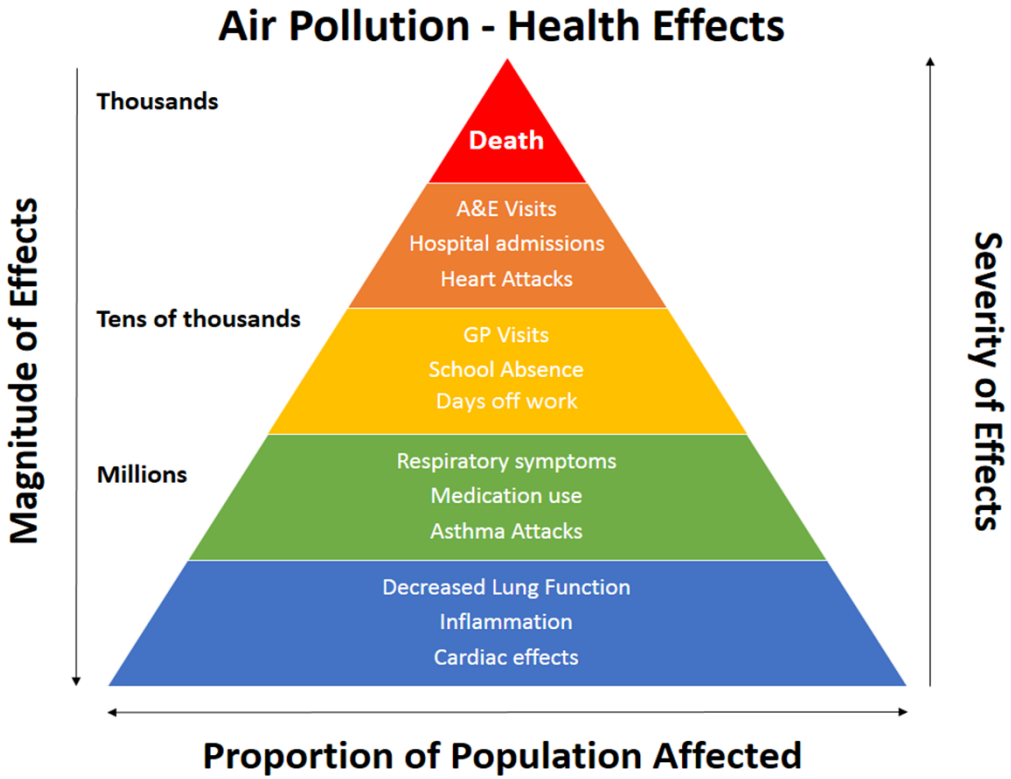


Islington NOx emissions by source type:

Major Roads	43%
Commercial Gas	17%
Domestic Gas	13%
Minor Roads	6%
NRMM	2%
Industry	1%
Other	18%

Impacts of air quality on health

- **Short term-** in high pollution episodes those with existing heart and respiratory conditions may find them exacerbated. In really high episodes otherwise healthy individuals may be impacted.
- **Long term-** the impact of exposure to air pollution over a long period is arguably even greater and evidence of the health impacts is increasing. It is known to increase the risk of respiratory and cardiovascular diseases and is also increasingly linked to other conditions.



Short-term effects of poor AQ on deaths and hospital admissions in London

- **$PM_{2.5}$:**
- 818 deaths brought forward
- 2072 respiratory hospital admissions
- 769 cardiovascular hospital admissions
- **NO_2:**
- 461 deaths brought forward
- 419 respiratory hospital admissions

- No estimates available at local level

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Long-term effects of poor AQ: early deaths

- $PM_{2.5}$ attributable mortality equivalent to 88 deaths in Islington
- NO_2 attributable mortality equivalent to 164 deaths in Islington
- Estimated overlap of 30% in the effects of $PM_{2.5}$ and NO_2, underlying the need to reduce both.

- The cause of death is not recorded as air pollution, rather (usually) heart or respiratory disease.
- Air pollution exacerbates heart and lung conditions which hastens death.
- The above deaths represent an average of 8.9 months lost attributable to $PM_{2.5}$ and 4.8 months lost attributable to NO_2 across all deaths, although this will be greater for people who died of heart or lung disease

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Impacts of air quality start early

- Before birth, high levels of $PM_{2.5}$ are associated with low birth weight
- Children are particularly at risk:
  - their lungs are still developing
  - they have a relatively high metabolic rate, so they breathe a greater volume of air per minute than an adult relative to their size
  - they are closer to vehicle exhausts, one of the biggest pollution sources
- Research into early exposure shows links between air pollution and lung function, respiratory infections, asthma exacerbation, cognitive development, and development of the brain and coordination
- There's also some evidence that air pollution plays a part in causing asthma, but more research is needed

Air quality: other impacts on health and wellbeing

As well as increased risk of early death and increased risk of hospital admissions:

- Time off school or work for illness
- Economic impact of long-term conditions including loss of earnings and increased costs of keeping the home warm for longer
- Deterrence of engaging in physical and/or social activities (particularly among people with existing conditions)
- Poor air quality impacts negatively on self-reported wellbeing

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Programmes to improve air quality

A combination of policies at different levels influence air quality:

- national level e.g. vehicle and fuel taxes, policy to promote uptake of cleaner technologies, **new Clean Air Strategy**
- city-wide e.g. healthy streets, congestion charging, low emission zones, investment in public transport, **announcement of ULEZ expansion**
- borough level e.g. local travel infrastructure, parking policy

Examples of local programmes

- Infrastructure/Policies
  - Reducing construction pollution, officers and planning
  - Parking surcharges for diesel vehicles
  - Electric charging points
- Behaviour change/ awareness raising
  - AirText
  - Work with health professionals and schools
  - Idling Action events
  - Car Free Day and Clean Air Day
- Low and Zero Emissions Networks- Archway and City Fringe, working with businesses and residents on infrastructure and behaviour change
- New schemes all the time

Key barriers and challenges to further improvement

Pollution sources outside of Local Authority control

- "Transboundary" – international, national and regional sources
- Through traffic
- Diesel sources (freight, buses, taxis)

AQ is cross cutting issue which impacts on multiple and diverse policy areas across the council. It requires:

- Closer and stronger communication and coordination across the Council, e.g. through a corporate board or steering group
- Improving/targeting public awareness and changing attitudes
- Funding and resources: initiatives and enforcement

Previous Recommendations 2013

- Working with neighbouring boroughs
- Business engagement
- Lobby Mayor on bus routes
- Investigate low emission zone
- Air quality priority when conflicts with carbon reduction
- Increase in tree planting and air quality planting
- Update vehicle fleet
- FORS award
- FORS as part of procurement
- Bid for funding
- Work with TfL in NO2 Focus Areas
- Avoid penalties for air quality regulations
- Cycle racks
- Air quality working group
- Work with public health and Health Scrutiny Committee
- Apply for Cleaner Air Borough Award
- Update on air quality between action plans
- Citizen action network
- Air quality events
- Walk to school plans
- Environment to encourage walking and cycling

Recommendations of Health and Care Scrutiny March 2018

- Car transport
- Schools
- Through traffic
- Idling vehicles
- Communications strategy
- Officer forum
- Lobby the Government
- Mayor of London's Clean Air Strategy
- Whittington NHS Trust
- Health and Wellbeing Board policies