## **Revealed measured levels of AIR Pollution this Winter in Hitchin and Stevenage:**

## Reporting on Air pollution in North Herts and Stevenage – Nitrogen Dioxide readings (2022-2023)

Following on from my first 2 letters to the North Herts Council in Jun 2021 and Jun 2022, and the growing concerns that local air quality and pollution levels were based on only 2 local air monitoring locations in North Hertfordshire that were coming up for status review, with a view to stopping the monitoring in future, members of the North Herts and Stevenage Green Party have undertaken recently some air pollution sampling for Nitrogen Dioxide (NO<sub>2</sub>) using the Gradko Diffusion tubes in places across Hitchin and Stevenage.

The current UK NO<sub>2</sub> annual mean sets the Air Quality Objectives (AQO)  $40\mu g/m^3$  (micrograms per cubic metre of air) - the standard set to improve protection of human health from dangerous excesses. It was due to have been achieved by 1<sup>st</sup> Jan 2010 and maintained since. However, that is only an interim target on a gradually decreasing target range with the aim to reach the ideal lower Air Quality Goal (AQG) level of  $10\mu g/m^3$  at by 2040. Interim targets were proposed as incrementally reducing steps in a progressive reduction of air pollution, and were intended for use in areas where pollution is high.

Taken from the WHO report:

Pollutant	Averaging time	Interim target				AQG level
		1	2	3	4	-
ΡΜ <sub>2.5</sub> , μg/m³	Annual	35	25	15	10	5
	24-hourª	75	50	37.5	25	15
PM <sub>10</sub> , µg/m³	Annual	70	50	30	20	15
	24-hour <sup>a</sup>	150	100	75	50	45
O <sub>3</sub> ,μg/m³	Peak season⁵	100	70	_	_	60
	8-hour <sup>a</sup>	160	120	-	-	100
NO <sub>2</sub> , µg/m³	Annual	40	30	20	_	10
	24-hourª	120	50	-	-	25
SO <sub>2</sub> , µg/m³	24-hourª	125	50	-	-	40
CO, mg/m <sup>3</sup>	24-hourª	7	-	-	-	4

## Table 0.1. Recommended AQG levels and interim targets

a 99th percentile (i.e. 3-4 exceedance days per year).

<sup>b</sup> Average of daily maximum 8-hour mean O<sub>3</sub> concentration in the six consecutive months with the highest six-month

running-average  $O_3$  concentration.

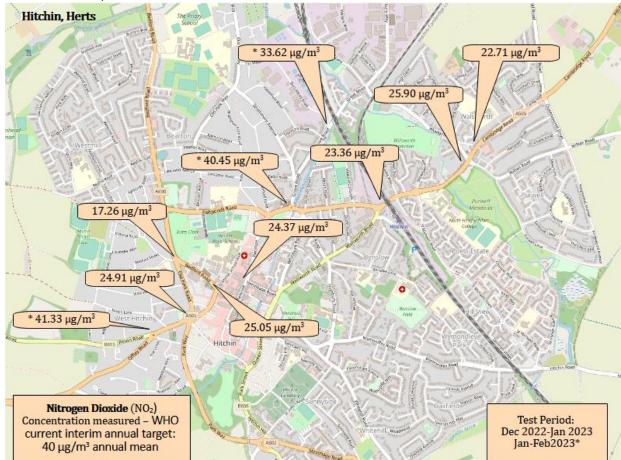
In Hitchin, the NHC uses only 2 sites (Stevenage Road for full monitoring, and Payne's Park roundabout for partial monitoring) and Stevenage BC only partially monitors the site at St Georges Way South.

Nitrogen Dioxide (NO<sub>2</sub>) gas is a reddish brown gas, it is a strong oxidant, and it reacts with water to produce nitric acid and nitric oxide thus a contributor to acid rain. In the lower atmosphere is a key initiator of the formation of ozone, also a harmful gas to living organisms. When we breathe polluted air, it can inflame the lining of our lungs and move into our bloodstream ending up in the heart and brain, causing lung disease, heart disease, dementia and strokes.

## Some useful information can be found in: <u>https://globalcleanair.org/</u>

The latest report from NHC recognises many of the damaging characteristics of Nitrogen Dioxide as a polluting gas in the air we breathe, and the strong correlation with inequality issues "because areas with poor air quality are also often less affluent areas". (2022 Air Quality Annual Status Report (ASR) - Sep 2022) which in Appendix states: "There is current uncertainty over NO<sub>2</sub> concentrations within the UK, with roadside levels not reducing as previously expected due to the implementation of new vehicle emission standards." In this report the results up to and including 2021, show lately a decrease (due to Covid-19 lockdown effects), however our readings reflect the rise that is being felt after the lockdown restrictions were lifted.

 $NO_2$  can react to form nitrous oxide ( $N_2O$ ), which is a greenhouse gas, and contributes to global warming. Nitrous Oxide ( $N_2O$ ) has a global greenhouse gas emissions effect, it is <u>264 times</u> more powerful than carbon dioxide over 20 years, and its lifetime in the atmosphere exceeds a century, according to the IPCC.



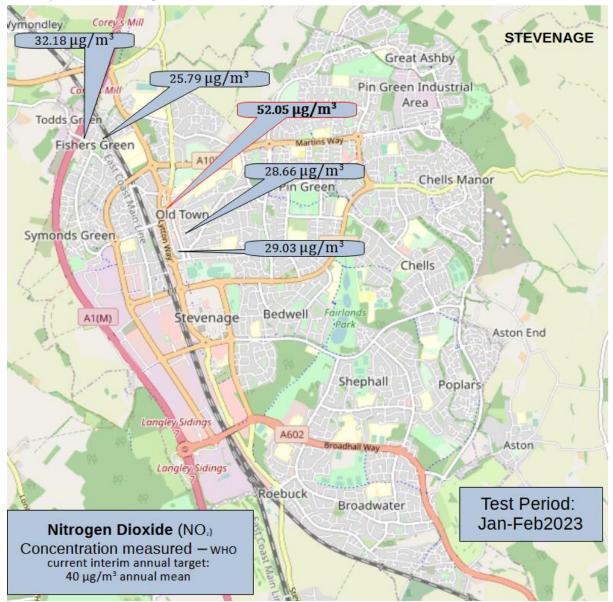
Our test results speak for themselves:

We are pleased to see that many results are between the  $30\mu g/m^3$  and  $20\mu g/m^3$  improving range, nonetheless we can see that on 2 sites tested, the  $40\mu g/m^3$  upper limit target was breached in the last Dec22-Jan23-Feb23 months: one site being the Grove Rd and Nightingale Road junction; and the other the Pirton Rd/Offley Rd junction on the A505 where many have suspected high pollution levels.

It is also worth noticing the significantly lower value of  $17.26 \ \mu g/m^3$  measured at the Old Park Road/Bedford Road crossing, that despite it being a very traffic busy crossing, it significantly benefits from being besides an open park green area with trees that enables the pollution to disperse more easily, quite the opposite effect to the pollution containing and funnelling effects seen in densely built-up roads.

Evidence if ever it were needed of at least one beneficial effect of providing green spaces through a conurbation to engineer a healthier living environment for the community!

Similarly for the Stevenage results:



Again, we are pleased to see that some results are between the  $30\mu g/m^3$  and  $20\mu g/m^3$  improving range, however we can see that in one site by the southern end of the Old Town centre, we measured  $52\mu g/m^3$  in last Jan23-Feb23 months - well above the  $40\mu g/m^3$  upper limit target.

Our results illustrate that writing an Air Quality report based on the test results from one or two testing stations is very incomplete and misleading to policy makers and us, the people living in the community, whose health is being impacted daily by the harmful pollutants present in every breath we take.... the damage is not instantaneous appreciated, but it is insidious and cumulative and leads to the rise in poor air quality and long term conditions like asthma and other lung and heart conditions. Often the relief medication provided for helping those with such conditions, are just long term sticking plasters, enabling the person to "experience" easier breathing, while opening their airways to carry on in-taking more of the harmful toxic air pollutants that causes them harm.... All this just increases the long term cost of the NHS to the nation, when actually removing the pollutants from the air we breathe is the real solution to the problems caused by them.

There are many long term consequences to results as high as measured, like acid rain that stunt the growth of trees, acidification of rivers and lakes, and corrosion of social sandstone and concrete infrastructure.

Nitrogen Dioxide is also seen as proxy indicator of  $PM_{2.5}$  pollution presence, as both are resulting pollutants from the burning of any fuels when the oxygen consumed is part of a Nitrogen (N<sub>2</sub>) rich mixture. Since the Industrial Revolution, human sources of nitrous oxide emissions have been growing. Activities such as agriculture, fossil fuel combustion and industrial processes are the primary cause of the increased nitrous oxide concentrations in the atmosphere. Together these sources are responsible for 77% of all human nitrous oxide emissions. Other sources include biomass burning (10%), atmospheric deposition (9%) and human sewage (3%). See: <u>https://whatsyourimpact.org/greenhouse-gases/nitrous-oxide-emissions</u>

Last year **Herts County Council** launched a campaign on air pollution - **'Let's clear the air'** a campaign that highlights actions we can all take to protect ourselves and others from air pollution. It also highlights how we can reduce our own personal contributions to the problem so we can all breathe cleaner, healthier air. <u>https://www.hertfordshire.gov.uk/microsites/clean-air/clean-air.aspx</u>

In Europe and the UK, **NO**<sub>2</sub> outdoor air pollution is mainly caused by petrol and diesel motor vehicles and by burning of fossil fuels (gas or coal) for energy production. While indoor **NO**<sub>2</sub> pollution sources are: tobacco smoking, wood burning fire places, and unvented cooking or heating appliances using gas (resulting in pollution levels higher indoors than outdoors when in use - https://www.youtube.com/watch?v=rC1j6qzQDRQ ).

People living near busy roads are particularly exposed to and affected by  $NO_2$  pollution. Studies have shown that short term peak exposures can increase respiratory allergic reactions. Often there is a greater harmful impact in the morning rush hour than in the evening. And there is a greater impact of indoor air pollution during the weekends in the colder seasons than outdoor pollution.

Even though some studies have shown associations between  $NO_2$  exposure and mortality, present evidence is not sufficient to conclude that effects on mortality can be attributed to long-term exposure to  $NO_2$  itself.

The Parliamentary Officer of Science and Technology (POST) have approved a new briefing on 'Indoor Air Quality'. This briefing will identify contributing factors to both improved or compromised indoor air quality, and subsequent effects on health. Work will commence in May 2023 – we await their findings.

In North Herts Council and Stevenage BC areas the local Green Party recommends they work together to become a "Clean Air Zone" (CAZ):

- A rapid transition to electric buses and making the town centres a ULEZ (Ultra Low Emission Zone),
- Increase of dedicated cycle lanes within towns and between them
- No further new build properties with gas supplied, nor wood burning fire places.

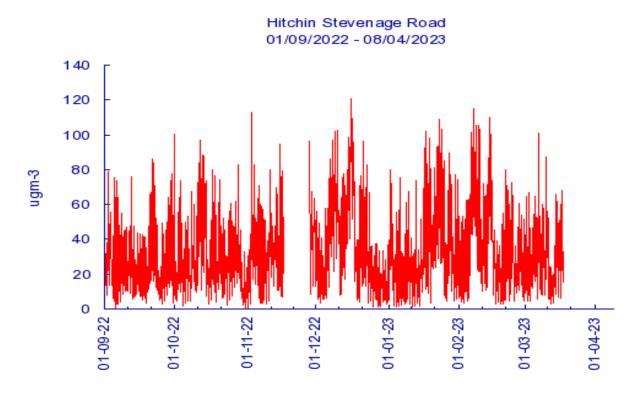
- Encouragement and facilitating the uptake of air-source and ground-sourced heat pumps to both commercial and residential properties,

- Requirement for all properties that physically can to be required to provide EV charging points
- Ban the use of petrol engine children's novelty town trains by any organisation or charity raising funds by selling rides
- Ban the use of petrol and diesel generators to run food and activity vans for town and faire events,
- We support the council's intensions to increase EV charging on public car parks.
- Greater promotion and support for the national CLEAN AIR DAY 15<sup>th</sup> June 2023 https://www.actionforcleanair.org.uk/campaigns/clean-air-day
- Roll out of No-idling campaigns and traffic fines.

Deolinda Eltringham

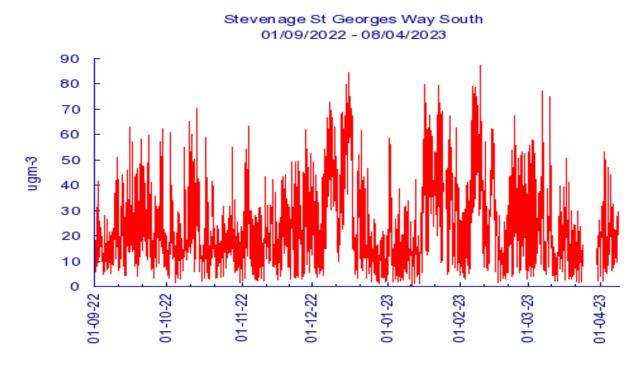
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/1125 278/Environmental\_targets\_consultation\_summary\_of\_responses\_and\_government\_response.pdf Appendix - Taken from Herts-Beds-Air monitoring website <u>https://www.airqualityengland.co.uk/local-authority/graphing?la\_id=408</u>

For Nitrogen Dioxide (NO<sub>2</sub>) last Autumn and Winter - Air Quality Objectives (AQO)  $40\mu g/m^3$ : For Hitchin

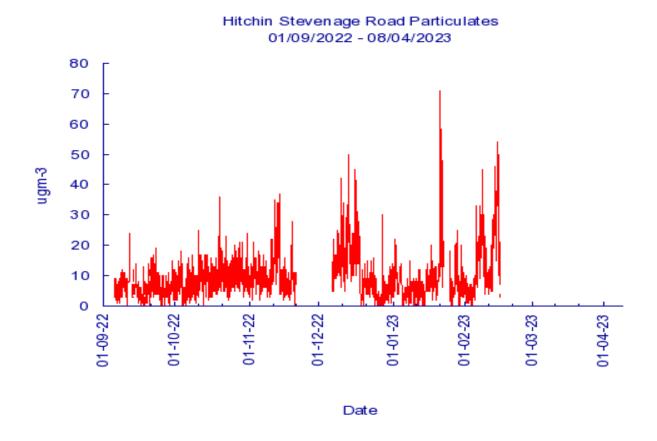


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And Stevenage:

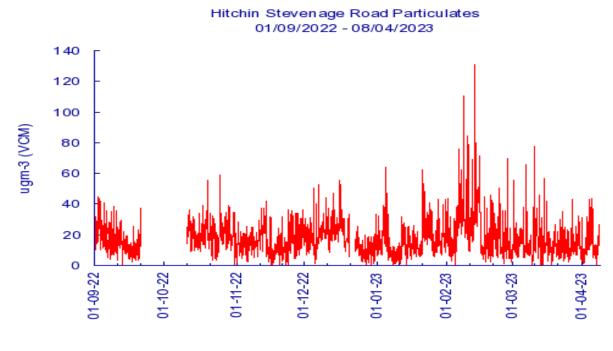


Date



Particulates PM<sub>2.5</sub> data only available for Hitchin Stevenage Road - Air Quality Objectives (AQO) 35µg/m<sup>3</sup>

Particulates PM<sub>10</sub> data only available for Hitchin Stevenage Road - Air Quality Objectives (AQO) 70µg/m<sup>3</sup>



Date