Appendix 3 – Air Quality Analysis

Improving air quality

As part of the monitoring programme the highest density hyper local air quality mesh network in Europe was installed to monitor the local air quality and its relationship with traffic.

The two maps below show the Nitrogen Dioxide (NO2) concentration maps compared from 2016 and 2021 (Figure 4 and Figure 5). Figure 5 is showing a significant reduction in pollution across the whole area. Red areas being the highest pollution, and Blue the lowest pollution.

Figure 4. NO2 – 2016 GLA map   *Figure 5. NO2 - 2021 map*
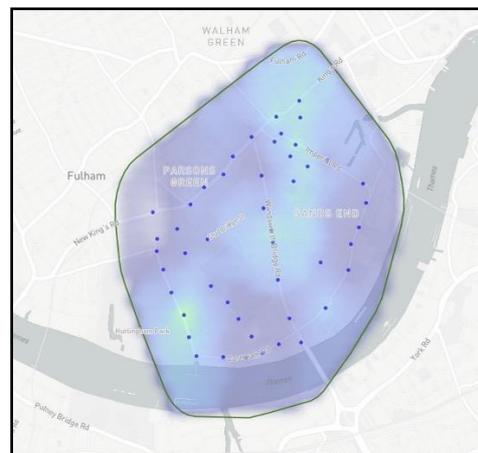
	Average Annual Level				
	Validated			Measured*	
	2017	2018	2019	2020*	2021*
NO2 (um3)	57.3	51.4	43.8	32.5	12.72
Reduction from previous year		10%	15%	26%	61%

unvalidated data is subject to distance correction before official publication

The World Health Organisation recently lowered thresholds for pollutants. The South Fulham area has been achieving this new standard since the scheme launched and is likely to improve further if the scheme is expanded to the whole of South Fulham.

Air quality improvements would be experienced over a wider area than the TCPR boundary as through traffic is constrained and removed from the road network.

The Council developed a real-time dashboard enabling a live view of both traffic and air quality levels. The air quality dashboard enabled the deciphering of the complex relationship with air quality to traffic density over time.

Figure 6 shows a screenshot as an example. It captures the data dashboard, mapping pollution levels and vehicle volumes over time.

Figure 6. Air quality dashboard showing rolling change in air quality over time

The average air quality for South Fulham is DEFRA index 2 which is considered good for a densely populated area in central London.

The main pollutant for contributing to the overall pollution index score is Ozone (O^3). Ozone is created in warmer weather by street trees as they break down Nitrogen Dioxide (NO_2) pollution from vehicles and convert it to Ozone. This is a natural occurrence and behaviour of trees.

The data has shown that the air quality in South Fulham is more sensitively linked to air temperature and pressure than traffic volumes, meaning lower air quality occurs more during the night (when traffic volumes are at the lowest). Day time pollution rises higher during warmer daytime temperatures, is geographically transferred by wind and atmospheric pressure and returned to ground level at night.

To effectively reduce pollution in a specific area requires pollution control in the immediate vicinity, but also in neighbouring areas over a larger geographic expanse.