“The Wheels on the Bus Make Toxic Air” - Parent groups warn diesel buses choking young children

*Environmental Defense Fund Europe methodology*

**Finding:** Harmful NO\(_x\) pollution from TfL diesel buses is on average 62% higher in London’s most deprived areas than the least.

The Government’s [Index of Multiple Deprivation](https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019) (IMD) data was used to determine the deprivation score for every Lower Layer Super Output Area ([LSOA](https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019)) in London\(^1\); an LSOA is the smallest census geography of public statistics made available. These scores were used to allocate each LSOA into one of ten equal groups, or deciles, such that decile 1 includes the most deprived 10% of LSOAs and decile 10 includes the least deprived 10% of LSOAs.

High resolution source apportionment modelling data produced for the Breathe London pilot project\(^2\), based on the London Atmospheric Emissions Inventory 2013 dataset\(^3\), estimates the concentration of NO\(_x\) produced by Transport for London (TfL) buses at a 10m grid resolution across Greater London. The average concentration of NO\(_x\) from TfL buses for areas of each deprivation decile was determined by summing the concentration at each grid cell within all the areas of a particular IMD decile and dividing that total by the count of all grid cells within the same area.

The average NO\(_x\) concentration of 1.57 \(\mu\)g/m\(^3\) in decile 1 areas is 62% higher than the average concentration of 0.97 \(\mu\)g/m\(^3\) in decile 10 areas.

**Finding:** Only 3% of London’s bus routes are currently electric or hydrogen, with TfL aiming to reach 7% by 2022.

Data from TfL describes a total of 781 bus routes in London (not including river boat routes)\(^4\). Data from a recent Freedom of Information Act response from TfL lists a total of 26 bus routes which are currently fully electric, which represents 3% of all bus routes\(^5\).


\(^3\) [https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-2013](https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-2013)

\(^4\) [https://tfl.gov.uk/info-for/open-data-users/our-open-data#on-this-page-3](https://tfl.gov.uk/info-for/open-data-users/our-open-data#on-this-page-3)

Finding: New air quality modelling and analysis at select kerbside locations outside central London shows a zero-emission bus fleet in London could reduce levels of the toxic gas nitrogen dioxide (NO$_2$) by up to 13%.

Please see the Breathe London technical report$^6$.

Finding: St Joseph’s Catholic Primary School, close to Kingston town centre where families shop, TfL buses account for up to 24% of NO$_x$ pollution from road transport.

The high-resolution source apportionment modelling data produced for the Breathe London pilot project, based on LAEI 2013, estimates the concentration of NO$_x$ produced by different road transport sources at a 10m grid resolution across Greater London. At the grid cell closest to the entrance to St Joseph’s Catholic Primary School, the NO$_x$ concentration from TfL buses is 12.4 μg/m$^3$, which is 24% of the 52.5 μg/m$^3$ from all modelled road transport sources combined. Road transport sources include the following: Articulated HGVs, Diesel Cars, Diesel LGVs, Motorcycles, NonTfL Buses and Coaches, Petrol Cars, Petrol LGVs, Rigid HGVs, Taxis, and TfL Buses.

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