



# Case Study

## Westminster City Council



### Overview

Part of one of the largest data collection studies in London to date, Westminster City Council used twenty of EarthSense's Zephyr® monitors to investigate changes in air quality at twelve primary schools in Westminster that were trialling school streets.

The results were used to determine whether school streets should be rolled out permanently at each of the schools involved.

### The Challenge

After acknowledging that Westminster had some of the highest carbon emissions and poorest air quality of any local authority, and the launch of its Active Strategy in 2020, Westminster City Council wanted to find evidence-based methods of reducing emissions – especially for those that would protect the younger generation.

It launched a pilot study to discover the impact of school streets on air quality levels at primary schools in the city, for which data would be used to decide whether to implement the initiative on a full-time basis.

### The Solution

What part did EarthSense play in trying to resolve the problem, meet the objective or overcome the challenge? How many Zephyr's/scale of MappAir was used, processes, what was done? Who else was involved.

Westminster City Council needed to collate data for air pollutants that were attributable to vehicles, as well as air quality technology to measure levels of nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter (PM<sub>2.5</sub>). Both of these pollutants can cause significant damage to human health, ranging from eye irritation, to asthma, to chronic lung diseases, and can also affect children's lung function and development as they grow older.

In September 2020 to January 2021, Westminster City Council installed diffusion tubes outside the twelve primary schools that were involved in the school street pilot study to monitor levels of PM<sub>2.5</sub> and NO<sub>2</sub>, --however decided to focus the study on NO<sub>2</sub> -- the main pollutant that comes from diesel and petrol fuelled vehicles.

Launching the first part of the study provided the council with baseline data which would give insight into what air quality looked like on a typical day, especially during drop off and pick up times – hours when vehicle use, and tailpipe emissions may have been at their peak.

January to December 2022 saw Westminster City Council introduce the school streets, a scheme used by local authorities to reduce vehicular access to roads outside of schools during pick up and drop off times, at the twelve schools involved in the study.

These included All Souls C of E Primary School, Ark Atwood Primary School, Barrow Hill Primary School, George Eliot Primary School and eight others. The council worked with engineering consultants, WSP and contracted infrastructure services company, FM Conway, who installed twenty of EarthSense's Zephyr® air quality monitors on to lighting columns outside each site.

With an active sampling mechanism that draws local air into its inlet and releases it back into the air after taking air quality measurements, Zephyr® monitors provided real time measurements for NO<sub>2</sub> and PM<sub>2.5</sub>, delivering insights into how the school streets were impacting on air quality levels at each school site.

Measurements taken by the Zephyr® monitors were automatically transmitted back to EarthSense's MyAir® web application, where Westminster City Council could access, analyse and download measured air quality data. MyAir® was also used to ensure that air quality didn't exceed national limits and put school children at increased risk from dangerous exposure.

As Zephyr® monitors were continuously transmitting NO<sub>2</sub> and PM<sub>2.5</sub> measurements to MyAir®, this enabled Westminster City Council to make use of historic measurements to view the changes in air quality following the introduction of school streets. After the twelve-month monitoring period, Westminster City Council compared NO<sub>2</sub> measurements taken by the Zephyr® monitors and compared these with traffic and diffusion tube baseline data from September 2020 and January 2021.

Assessing each dataset enabled the council to correlate the relationship between traffic count, pedestrian movements, and air quality, and used this for gathering quantitative evidence about changes in air quality that could be attributed to introducing school streets.

## Outcomes

As a result, the council discovered a 20% reduction in the number of children travelling to school by car – resulting in improved air quality at each school.

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## Get in Touch

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