



Greening the Game: Improving Air Quality and Reducing Emissions from Football-Related Travel

Half of BCFA training grounds in locations exceeding WHO guidelines for PM_{2.5}

Football travel contributed to 20% of the average participants overall annual travel emissions

Liftsharing has resulted in 141,557 miles avoided, reducing carbon emissions by 31.21tCO₂e and saving £41,073 in fuel costs

King's Award for Enterprise



Co-creation - with BCFA



Knowledge Exchange - informed initiatives



Practice - liftshare partner



Health + Wellbeing - reducing mortality and morbidity



Environmental - sustainability

WM-Air worked in partnership with Birmingham County Football Association (BCFA) as part of their 'Save Today, Play Tomorrow' initiative to assess local air quality and air pollutant emissions from football travel in order to better understand links between football activities, air quality and health, and to support sustainable transport policy actions.



Method – what did we do?

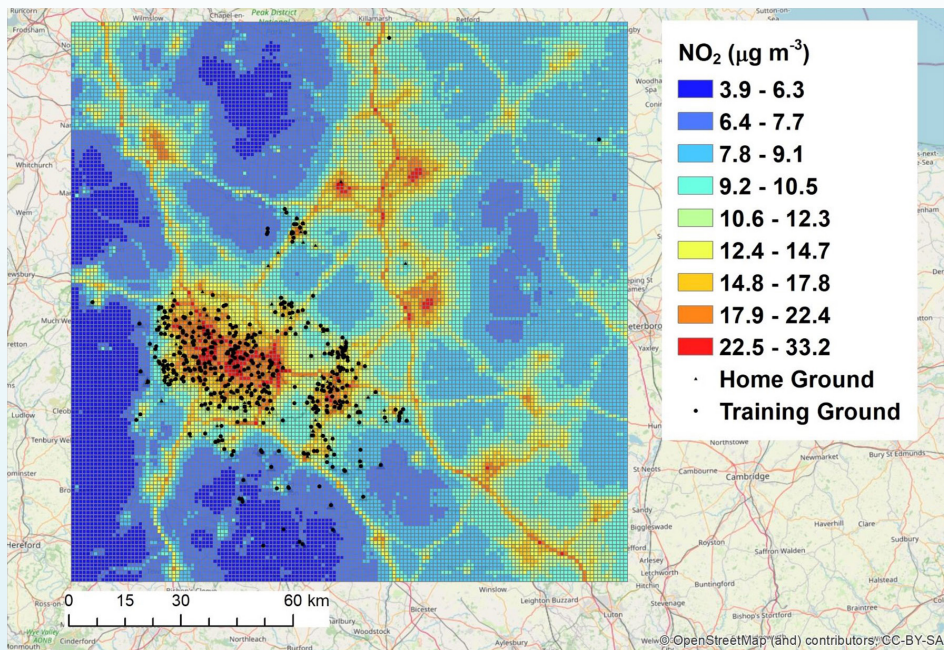
Following initial meetings with BCFA to brief the WM-Air team, the following work was conducted:

1. Quantifying local air quality for football locations, by overlaying BCFA club sites with annual air quality data (NO₂, PM_{2.5}) in order to identify which football venues are located in areas of air quality exceedances.
2. Estimating air pollutant (NO_x, PM_{2.5}) emissions related to football activities (per person per year) by utilising football-related travel data (i.e. journey distances to/from football) over 6 seasons, and combining with real-world vehicle air pollution emissions factors (EFs) from WM-Air.
3. Following this initial work, further work was commissioned to explore the air quality for all national football venues.

What tools/outputs were developed?

- Map of Air quality in GoogleMaps:
 - [Training grounds](#)
 - [Home grounds](#)

- Report detailing the emissions generated for football-related travel in BCFA area.
- GIS map of air quality across all national football venues.



“Over the last couple of years, the WM-Air team has provided us with science-based data and analysis which has played a crucial role in informing our decision making at a local level, but ultimately positioning ourselves as a credible, academic research led governing body.”

Richard Lindsay, Business Insights Manager, BCFA

Outcomes, Impacts and Benefits delivered

Results indicated that:

- Approximately 50% of all registered Home Grounds and 55% of Training Grounds in the County are in locations which exceed WHO health-based air quality guidelines for annual $PM_{2.5}$ concentrations ($10 \mu g m^{-3}$).
- On average, football-travel-related air pollutant emissions is roughly 20% of the total road transport-related emissions each year for these players.
- Almost a quarter of players travelled within the same postcode area, but a large number travelled significant distances for football, therefore contributing to the highest emissions.

Having this evidence supported the early narrative of delivering the importance of improving the regions health & wellbeing through clean air to our member clubs, helping to raise awareness of the impact of poor air quality on both player health and performance

BCFA have now progressed their football travel & transport work by partnering with Liftshare, a digital platform predominantly used in the corporate world, to create the first of its kind grassroots football Liftshare community for their members. Participants register through a safe & secure digital app and engage in car-sharing to/from football, validating & recording all journeys and the subsequent savings made. To-date, 850 people have signed up to the programme and active users who have avoided 141,557 miles, reduced emissions by 31.21tco₂e and saved £41,073 in fuel costs.

Since the air quality report was published, BCFA have presented the methodology and results at various sport & sustainability forums and events including The Department for Digital, Culture, Media & Sport (DCMS), Sport England and the FA where it has been well received as a credible best practice approach.

Furthermore, BCFA were successfully awarded £10,000 in Oct 21 by CSE (Centre for Sustainable Energy) to complete further research on travel behaviours within football and to pilot schemes with 3 of the venues in Birmingham that were highlighted on the WM-Air study with poor air quality to promote more sustainable & active travel solutions. Of the clubs who trialled informal liftsharing, the data showed that on average individuals could avoid up to 680 miles per season and save £300 in fuel costs, which

**County FA
Recognition
Award -
Birmingham
County FA**



**BBC Green
Sport
Awards:
Teamwork
Award**



**2021 Sports Business Awards
in the Sustainability in Sport
Award category**

**Winner of Strategy -
Organisation Award at
the British Association
for Sustainable Sport
awards 2022**

**Greater Birmingham
Chamber of Commerce
Annual Dinner and Awards
2023: Winner of excellence
in Sustainability**

King's Awards for Enterprise

“When we initially set about creating our sustainability programme for football, air quality was not something we had considered, however following the excellent work completed by WM-Air in detailing the venues in at risk areas and providing the evidence/data that supports this we have now focused heavily on travel & transport and trying to shift the behaviours of over c.125,000 people across the West Midlands involved in grassroots football to consider how they travel and finding alternative more sustainable solutions.”

Richard Lindsay, Business Insights Manager, BCFA

are considerable savings given that overall economic deprivation compared to the rest of the UK is high in the West Midlands, with 34.5% of local areas among the most deprived in the country.

In February 2022 BCFA hosted the first football & climate conference at St Georges Park with representatives from 5 of the regions professional clubs participating in discussion & debate on how football can play its part in tackling the climate crisis. The WM-Air study was used alongside work completed by the Italian FA & Life Tackle who were in attendance to validate mobility in football as the biggest challenge to resolve.

Looking to the Future/Legacy

Following on from the regional analysis and after being approached by several other County FAs, BCFA commissioned WM-Air to map the air quality for all national grounds in order to complete a national study of home ground & training ground mapping of air quality with a view in the future to provide wider solutions that bring about meaningful long-term change on greater scale.

Underpinning Science

- Ghaffarpasand, O., Burke, M., Osei, L. K., Ursell, H., Chapman, S. & Pope, F. D., (2022) Vehicle Telematics for Safer, Cleaner and More Sustainable Urban Transport: A Review, Sustainability, 14, 24, 20 p., 16386.
- Ghaffarpasand, O. & Pope, F. D (2024) Telematics data for geospatial and temporal mapping of urban mobility: New insights into travel characteristics and vehicle specific power, Journal of Transport Geography, 115, 103815.

Partners



About WM-Air: Clean Air Science for the West Midlands

WM-Air (“Clean Air Science for the West Midlands”) is a NERC-funded initiative, led by the University of Birmingham, working in collaboration with over 20 cross sector partners, to apply environmental science research expertise to improve air quality in the West Midlands, delivering health, economic and environmental benefits.

wm-air.org.uk



Natural Environment Research Council

More info
and URLs:

