Sefton Council

Draft Air Quality Action Plan

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

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Executive Summary

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often the less affluent areas. Source: Environmental equity, air quality, socioeconomic status and respiratory health, 2010.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion. Source: Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Sefton Council is committed to reducing the exposure of people in Sefton to poor air quality in order to improve health.

This Draft Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the actions we intend to take to improve air quality in Sefton between 2024- 2029. This action plan replaces the previous AQAP which ran from 2015 to 2023.

The Council currently has four Air Quality Management Areas (AQMA) declared for exceedances of National Air Quality Standard (NAQS) objectives as described below:

- AQMA 2 Lathom Close, Princess Way A5036, Seaforth (declared for exceedances of annual mean NO_2).
- AQMA 3 Millers Bridge /Derby Road A565 junction, Bootle (declared for exceedances of annual mean NO_2 and daily mean PM_{10}).
- AQMA 4 South Road/Crosby Road North A565 junction, Waterloo (declared for exceedances of annual mean NO_2); and
- AQMA 5 Hawthorne Road/Church Road A5036 junction, Litherland (declared for exceedances of annual mean NO_2).

Projects delivered through the previous air quality action plan include:

- A package of measures contained within the A565 Route Management Strategy and Action Plan, which includes junction improvements to the South Road/Crosby Road North/ Haigh Road, Waterloo junction.
- Hurry Call traffic management system to allow HGVs through the Millers Bridge/ Derby Road traffic lights without having to stop/start on the incline at Millers Bridge, thus reducing pollution from this vehicle type.
- Effective regulatory control and monitoring of industrial sites within the Port of Liverpool to minimise their impact on PM_{10} levels.
- A study on HGVs using the A5036, to gain information on destination, age of vehicle & Euro emission standard.

- HGV Port booking system to reduce congestion on the routes into the Port and improve movement of HGVs within the Port of Liverpool.
- ECO Stars fleet recognition scheme to improve emissions from HGV fleet operators using roads in Sefton and Sefton Council's own fleet of vehicles; and
- Port expansion mitigation measures. These include a Defra funded study looking at an alternative fuels strategy (AFS) for HGVs and buses in Sefton and the Liverpool City Region, rather than using diesel as a fuel.

In this AQAP we outline how we plan to effectively tackle air quality issues within our control, and we have developed actions that can be considered under six broad topics:

- Alternatives to private vehicle use
- Freight and delivery management
- Policy guidance and development control
- Promoting low emission transport
- Promoting travel alternatives
- Traffic management

Council Priorities

The Council's priorities in terms of air quality actions, are to encourage fleet turnover to newer, less polluting vehicles, reduce traffic congestion and improve traffic flows, explore opportunities for freight decarbonisation, improve public transport and active travel infrastructure to encourage sustainable travel, ensure that future development proposals will not have negative impacts on air quality, and explore innovative mitigation measures to improve local air quality where possible.

Sefton Council is also committed to working with other stakeholders and partners including, local communities, the Liverpool City Region Combined Authority and neighbouring Local Authorities, such as Liverpool City Council, National Highways and Peel Ports, to deliver air quality initiatives that will have benefits across wider areas as well as contribute to improvements in our Air Quality Management Areas.

Responsibilities and Commitment

This AQAP was prepared by the Environmental Health Service of Sefton Council with the support and agreement of the following officers and Steering Group:

- Peter Moore- Assistant Director of Place (Highways and Public Protection)
- Greg Martin- Environmental Health and Licensing Service Manager (Highways and Public Protection)
- Helen Cumiskey – Clean Air Plan Manager/ Strategic Transport Planner (Highways and Public Protection)
- Andrew Dunsmore- Transport Planning Manager (Highways and Public Protection)
- Air Quality Member Reference Group.

This Draft AQAP has been approved by: Peter Moore Assistant Director of Place (Highways and Public Protection)

This AQAP will be subject to an annual review, appraisal of progress and reporting to the Air Quality Member Reference Group. Progress each year will also be reported in the Annual Status Reports (ASRs) produced by Sefton Council as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP, please send them to:

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Introduction

- This Draft Air Quality Action Plan (AQAP) sets Sefton Council's priorities and actions for improving air quality and reducing public exposure to air pollution within the borough for the period 2024 to 2029 inclusive. An AQAP is required to ensure appropriate actions are developed to bring about improvements in air quality within Sefton's four Air Quality Management Areas (AQMA) and wider Borough.

- Sefton Council has a legal responsibility under Part IV of the Environment Act 1995 (Environment Act 1995) for Local Air Quality Management (LAQM) to achieve air quality objectives for ambient air, the term 'ambient' applies here in the context of outdoor air quality only, which are set out in Air Quality Standards Regulations (The Air Quality Standards Regulations 2010). These air quality objectives are for the protection of public health. An AQAP is necessary following the declaration of an AQMA, where air quality is not likely to meet one or more air quality objective. The purpose of the AQAP is to ensure that deliverable measures are enacted to improve air quality. Improvement in air quality will lead to positive impacts on the health and quality of life of residents and visitors to Sefton.

- The AQAP 2024-2029 replaces the previous plan, which ran from 2015. Focus on measures to reduce emissions associated with road traffic remains a priority. There are also concerns to address regarding particulate matter that is generated by domestic solid fuel burning, traffic and other sources. In 2023 the Government set new national targets to be met by the end of 2040 for annual mean $PM_{2.5}$ concentrations (Environmental Improvement Plan 2023 - GOV.UK) of 10µg/m^3 or below and a reduction in average population exposure of 35%, compared to a 2018 baseline. Non-statutory interim targets from the beginning of 2028 have also been set at 12µg/m^3 for annual mean $PM_{2.5}$ concentrations and for 22% exposure reduction compared to a 2018 baseline. Although $PM_{2.5}$ is not currently included under the LAQM framework (Air quality strategy: framework for local authority delivery - GOV.UK), as a local authority, Sefton Council has a supporting role in meeting these national $PM_{2.5}$ targets by addressing local sources such as road traffic and domestic combustion.

- Despite the positive effects of changed commuting habits, since the COVID-19 pandemic, on reducing levels of air pollution in 2020/2021, Sefton has observed traffic on key port access routes (A565 and A5036) returning to pre-COVID-19 levels. In addition, HGV traffic associated with the expansion of the Port of Liverpool is predicted to increase in the coming years. As such there are likely to be challenges ahead to ensure levels of NO_2 in some of Sefton's AQMAs, particularly those impacted by traffic entering and leaving the Port of Liverpool, remain below the national air quality standard.

- The development of this current AQAP follows on from an initial study by consultants AECOM into the feasibility of implementing a Clean Air Zone (CAZ) to reduce traffic related emissions. The AECOM report found that a Charging CAZ could potentially deliver more rapid improvements in NO_2 than more traditional air quality improvement measures.

- Following on from the Preliminary Clean Air Zone (CAZ) feasibility study, Sefton's Cabinet gave approval for Officers to progress the development of a detailed Outline Business Case (OBC) for the potential implementation of a Sefton based CAZ, in line with the approach recommended by DEFRA. AECOM were commissioned in 2020 to undertake the additional detailed air quality and transport modelling work needed to assess the impact the predicted increase in port traffic would have on air pollution and prepare a draft OBC in conjunction with Council officers.

- The modelling work undertaken as part of the OBC identified a number of future NO_2 exceedances resulting from the predicted increase in port related traffic. Several different CAZ scenarios were then tested to determine which would be the most effective and efficient in terms of reducing traffic related NO_2.

- The work to develop the OBC for the creation of a Sefton based CAZ is complete, with the main proposal, comprising a HGV Charging CAZ scheme that aims to address persistent air quality issues identified within Sefton in the shortest time possible. The CAZ scheme preferred option (referred to as 'Option 2A') features a charging CAZ applied to non-compliant HGVs (Euro 5 and older) that cross into a designated section of the Sefton highway network. The preferred option HGV CAZ is focused on the A565 and A5036 corridors, incorporating all four of the existing Air Quality Management Areas (AQMAs).

- Following completion of the OBC, detailed stakeholder engagement took place in relation to the possible CAZ implementation. A number of significant observations and challenges were raised by the stakeholders on the preferred option which required further detailed consideration by officers.

- In response, additional technical studies and assessments have been undertaken including an updated Automatic Number Plate Recognition (ANPR) study to determine the current make up and age of Sefton's vehicle Fleet and an updated natural compliance assessment to determine when the predicted NO_2 exceedances would become naturally compliant.

- The outcome of the stakeholder engagement and analysis of the additional studies indicates that progression to Full Business Case for a HGV Charging CAZ would be extremely challenging and alternative actions could bring about similar air quality improvements. A final formal decision on a CAZ is yet to be made consequently, the implementation of a CAZ is not considered in this current AQAP.

- Notwithstanding this, the work undertaken as part of the OBC, and recent technical assessments has provided vital information on the air quality issues in Sefton and where to target our actions. A package of air quality improvement measures/actions has therefore been developed to tackle current and future air quality issues within the AQMA's and wider borough, which will form part of the main elements of this AQAP and Sefton's overarching Clean Air Plan.

- The AQAP will be reviewed every five years at the latest and progress on the implementation of AQAP measures will be reported on annually within Sefton Council's Air Quality Status Report (ASR). The AQAP is designed to be flexible, and measures may be updated, added, or removed throughout the duration of the time the plan is live.

Summary of Current Air Quality in Sefton

- Since 2009, Sefton Council has declared five Air Quality Management Areas within the borough where ambient concentrations of Nitrogen Dioxide (NO_2) and Particulate Matter (PM) exceed (i.e., do not meet) the air quality objectives. These exceedances have been attributed to road transport and industrial sources associated with the nearby Port of Liverpool.
- The first of these, AQMA 1, declared in 2009 for exceedance of the 24-hour mean PM_{10} air quality objective along the A565 - Crossby Road North, between South Road and College Road, was revoked in 2016 as the air quality objective was no longer exceeded.

  Four AQMAs remain in place:

  - **AQMA 2** was declared in 2009 for exceedance of the annual mean NO_2 air quality objective for an area around the A5036 Princess Way from the Ewart Road flyover up to and including the roundabout and flyover at the junction with the A565 Crosby Road South (shown in Figure 1 -page 4).
  - **AQMA 3** was declared in 2009 for exceedances of the annual mean air quality objectives for NO_2 and PM_{10} and the objective for 24-hour mean PM_{10} for the area around the junction of the A5058 Millers Bridge and A565 Derby Road (shown in Figure 2 -page 4). The Council is currently reviewing the position regarding the possible partial revocation of this AQMA with respect to particulate matter exceedances.
  - **AQMA 4** was declared in 2012 for exceedance of the annual mean NO_2 air quality objective for the area around the junction of the A565 Crosby Road North and South Road, Waterloo (shown in Figure 3- page 5). The Council is currently reviewing the position regarding the possible revocation of this AQMA.
  - **AQMA 5** was declared in 2012 for exceedance of the annual mean NO_2 air quality objective for the area around the junction of the A5422 Hawthorne Road B5422 and the A5036 Church Road, Litherland (shown in Figure 4-page 5).

Figure 1: AQMA 2 Princess Way

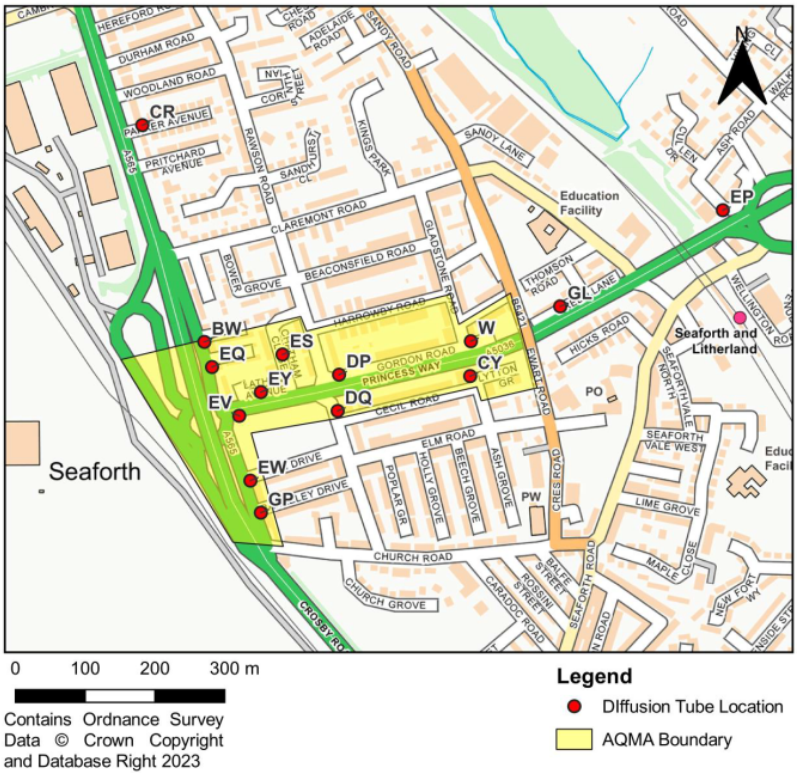


Figure 2: AQMA 3 Millers Bridge

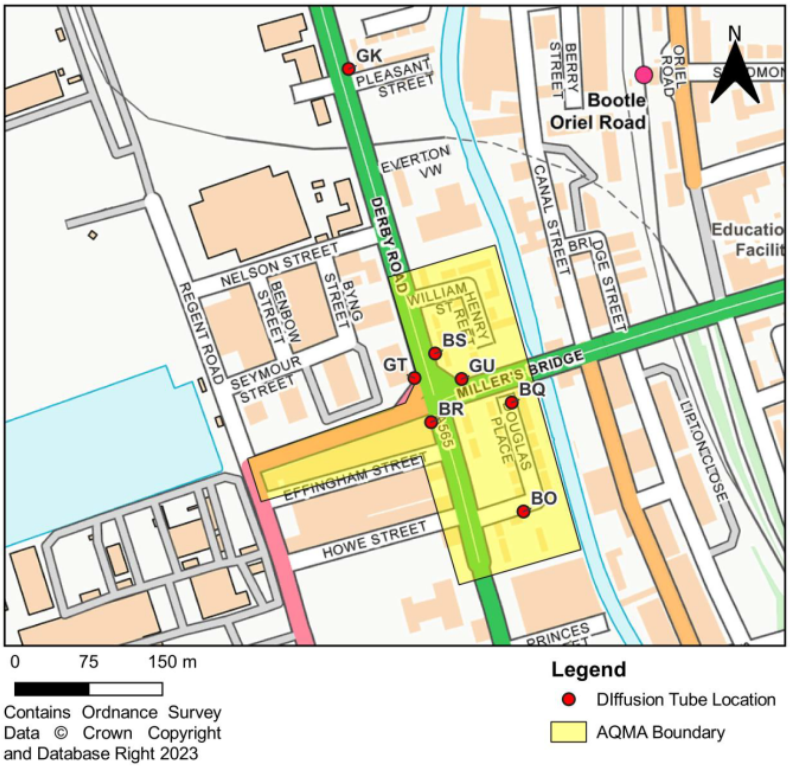


Figure 3: AQMA 4 South Road

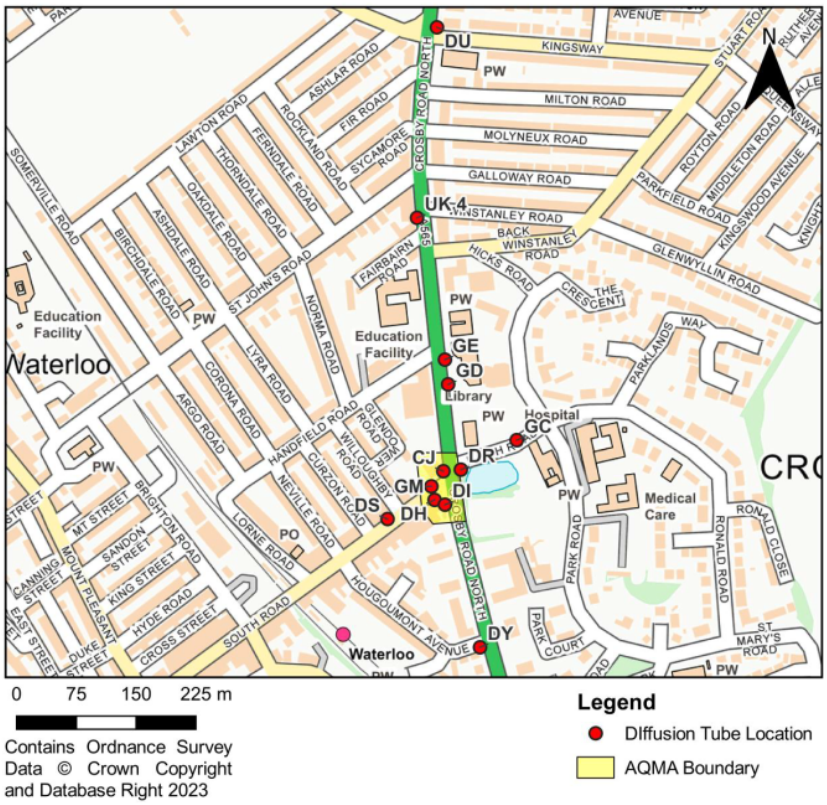
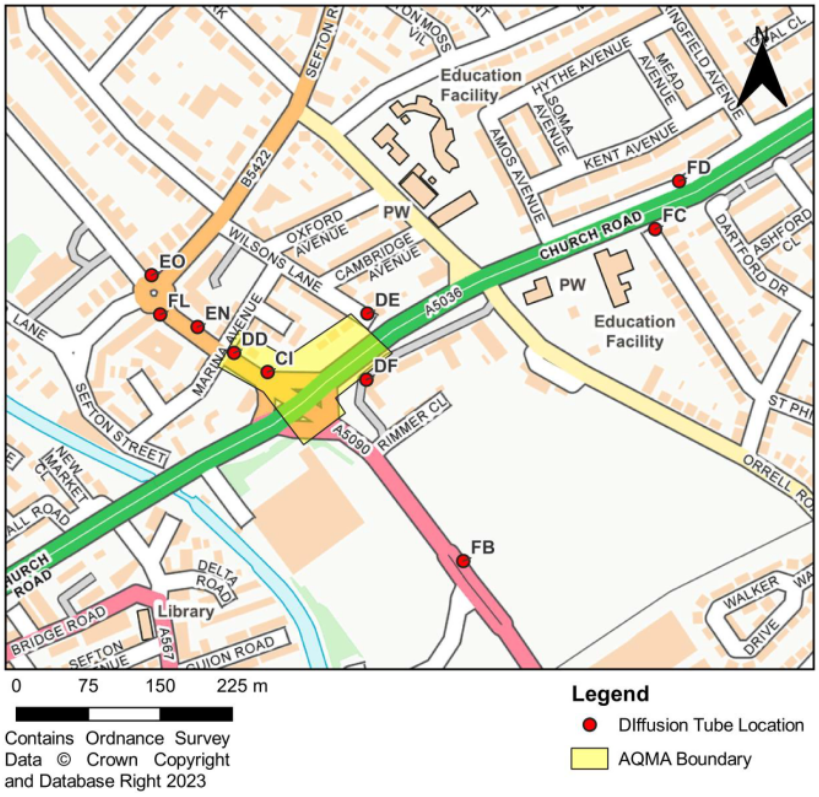


Figure 4: AQMA 5 Hawthorne Road



- Sefton Council maintains an extensive ambient air quality monitoring network to keep track of the changes and trends in pollutant concentrations at sensitive locations across the borough, and each year reports its findings to DEFRA in its Annual Status Report (ASR). As part of the ASR for 2023, Sefton Council reported on pollutant concentrations up to the end of 2022 2023 air quality annual status report. Substantial reductions in monitored pollutant concentrations were noted for 2020 compared to previous years that were attributed to Covid-19 pandemic restrictions, which limited normal day-to-day activities; in-particular, these restrictions substantially reduced levels of road traffic. However, since the lifting of restrictions at the end of 2021, activities and levels of road traffic have returned to similar levels as before the pandemic.

- Whilst activity levels have generally recovered following the pandemic restrictions, the long-term trends in pollutant concentrations are continuing on downward trajectories suggesting that the legacy of changed transport habits resulting from the COVID-19 pandemic, coupled with fleet improvement and previous action plan measures is having a lasting positive effect on Sefton's air quality.

- Annual average NO_2 concentrations generally do not exceed the National Air Quality Standard objectives in and around Sefton. For 2022, lower concentrations were reported at 78 diffusion tube sites (out of a total of 84) than for 2021, with only four site showing increases. For 2022 and as in previous years since 2017 the 1-hour mean NO_2 air quality objective was met at all diffusion tube sites. Overall, there is evidence of a decreasing trend in annual mean NO_2 concentrations over the period 2018 to 2022 inclusive.

- Sefton is currently compliant by some margin with legal limits for particulate matter according to the continuous monitoring results. Over the last 5 years of annual PM_{10} monitoring, concentrations have remained relatively stable at all monitoring locations. The 24-hour mean PM_{10} monitoring for 2022 shows no exceedances of the 50µg/m^3 AQS objective, which continues the same trend over the last 5 years of monitoring.

- During 2022, all three automatic monitoring sites recorded $PM_{2.5}$ concentrations well below the $PM_{2.5}$ AQS target of 20µg/m^3.

- Sefton Council has implemented measures detailed in the previous Air Quality Action Plan to improve air quality within the district. These have fallen into two categories – site specific measures for individual AQMAs and general measures applicable for all AQMAs. Key areas targeted by the previous recommended measures were port expansion in AQMA 2, traffic management in AQMA 3 and junction improvements in AQMA 4. The implementation of these measures has had a positive effect of reducing NO_2 levels within the AQMAs.

Compliance with National Air Quality Standard objectives in current AQMA's

- A summary of each AQMA with regard to NO_2 objective compliance is discussed below.

AQMA 2 Princess Way, Seaforth

- No exceedance of the NO_2 annual mean objective was observed in 2022 either at the automatic monitor or any diffusion tube site. All results in 2022 were within the NAQS objective with the highest level of 34.8 µg/m3 observed at diffusion tube site ID: EY -Lathom Close. Compliance with the 1-hour mean objective was also achieved at this location. Levels in 2022 have decreased compared to 2021 and remain well below those observed pre-covid.
- Whilst it is positive to see that current levels in this AQMA are within the NAQS, it is still unclear whether this trend will continue. There is still concern that increases in port related traffic will impact on pollution levels in this area and as such this AQMA is not being considered for revocation in the immediate future.

AQMA 3 Millers Bridge, Bootle

- An exceedance of the NO_2 annual mean objective occurred in 2022 at 1 diffusion tube Site ID: BR Derby Road, Bootle with an annual mean of 41.0 µg/m^3. As this site recorded a NO_2 annual mean concentration in exceedance of the air quality objective at a monitoring site which is not representative of public exposure, the concentration at the nearest receptor for this location was estimated using the distance correction via the Defra diffusion tube processing tool. This showed the estimated concentration of 38.6 µg/m^3 which is within the NAQS. All other monitoring locations showed levels of NO_2 below the NAQS in this AQMA.
- Levels of NO_2 in 2022 have fallen compared to 2021 and for the first time since monitoring began in this AQMA NO_2 Levels (when corrected for fall off with distance) were below the NAQS objective. Compliance with the 1 hour mean objective was again achieved at this location. Due to the uncertainties around the port expansion and the fact that this is the first time the NAQS objective has been met, this AQMA is not currently being considered for revocation.

AQMA 4 Waterloo

- As in previous years no automatic NO_2 monitoring was undertaken within AQMA 4. Diffusion tube monitoring in 2022 has shown compliance with the NAQS objective at all monitoring locations. Overall levels have reduced compared to 2021 and remain well below those observed pre-covid. The maximum monitored level in 2022 was Site ID: GM - South Road with an annual mean level of 32.9 µg/m^3.
- Sefton is currently considering revoking AQMA 4 due to ongoing compliance with the NAQS.

AQMA 5 Hawthorne Road, Litherland

- Compliance with the NO_2 annual mean objective and 1-hour mean objective at the automatic monitoring location was achieved in 2022. For the third consecutive year all diffusion tube monitoring locations in this AQMA also showed levels in compliance with the NAQS objective in 2022 with levels reducing compared to 2021. The highest level recorded in 2022 in this AQMA was site ID: DD -Hawthorne Road with a level of 34.3 µg/m^3. Due to the ongoing uncertainties around longer-term post-covid transport patterns and unknown impact the port expansion will have on pollution levels in this area, this AQMA is not being considered for revocation in the immediate future.

Air Quality Trends

- The trends in air quality monitoring data for annual mean NO_2 are visualised in Figure 5 to Figure 8 below. These figures show only the monitoring that is undertaken within each AQMA, with continuous monitors presented as a dashed line and diffusion tubes as a solid line. The air quality standard for NO_2 is also shown as a red line.

Figure 5: Princess Way AQMA 2 NO_2 Trends

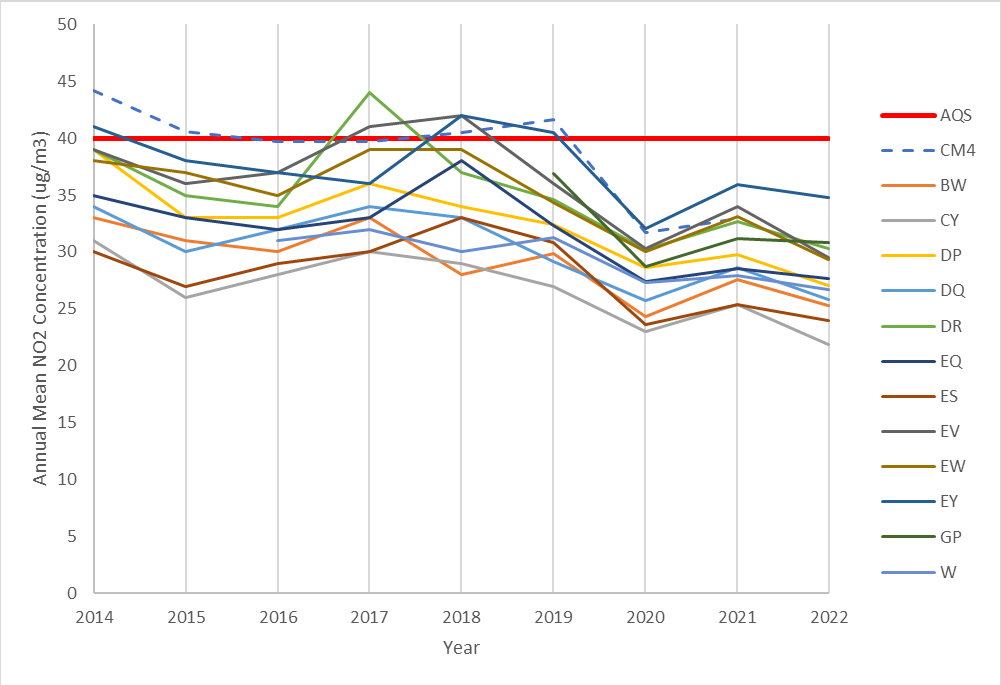


Figure 6: Millers Bridge AQMA 3 NO_2 Trends

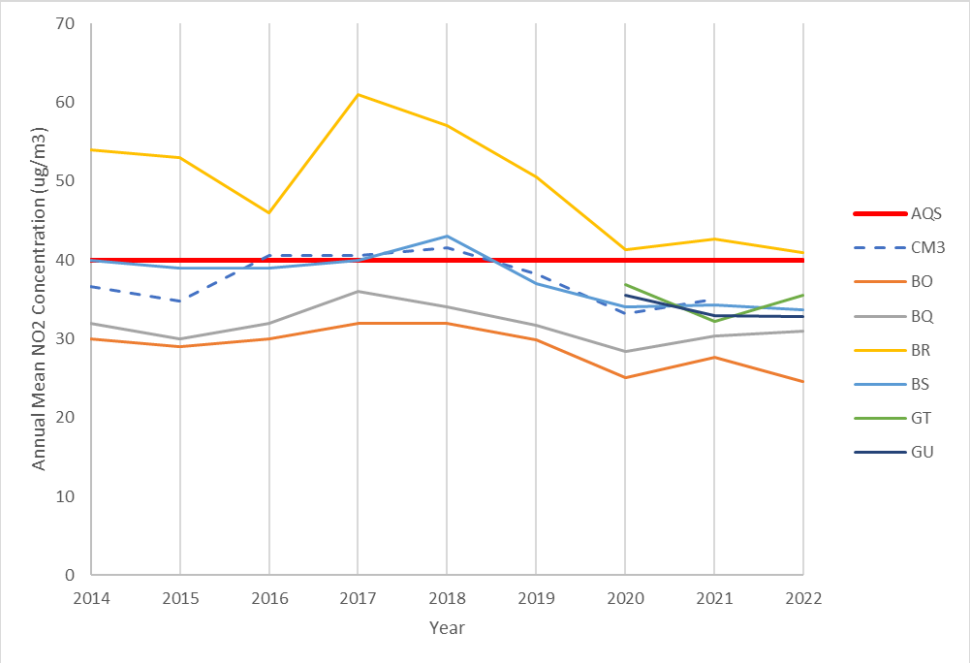


Figure 7: South Road AQMA 4 NO_2 Trends

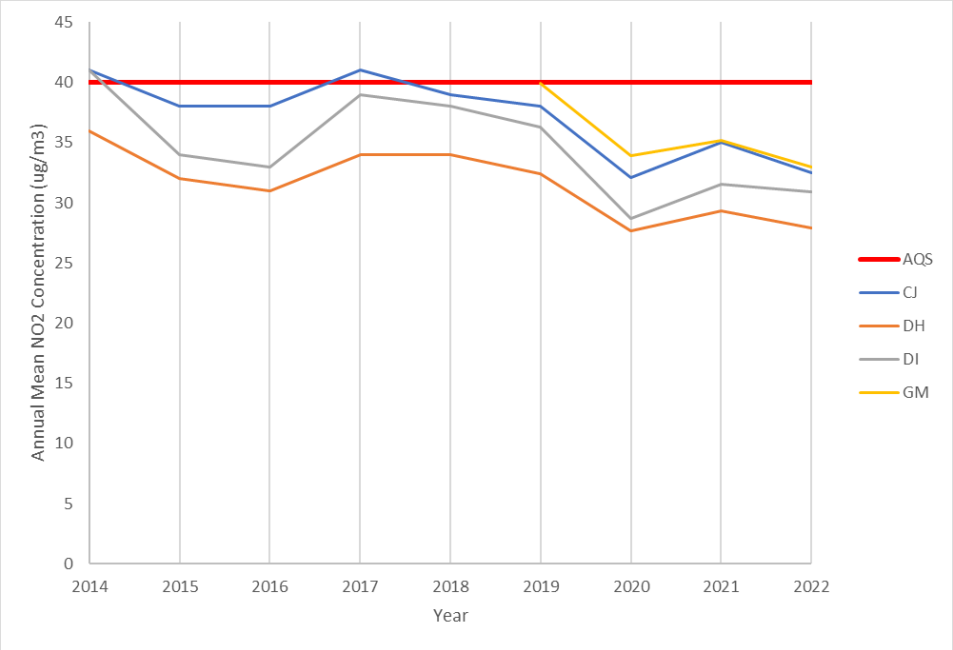
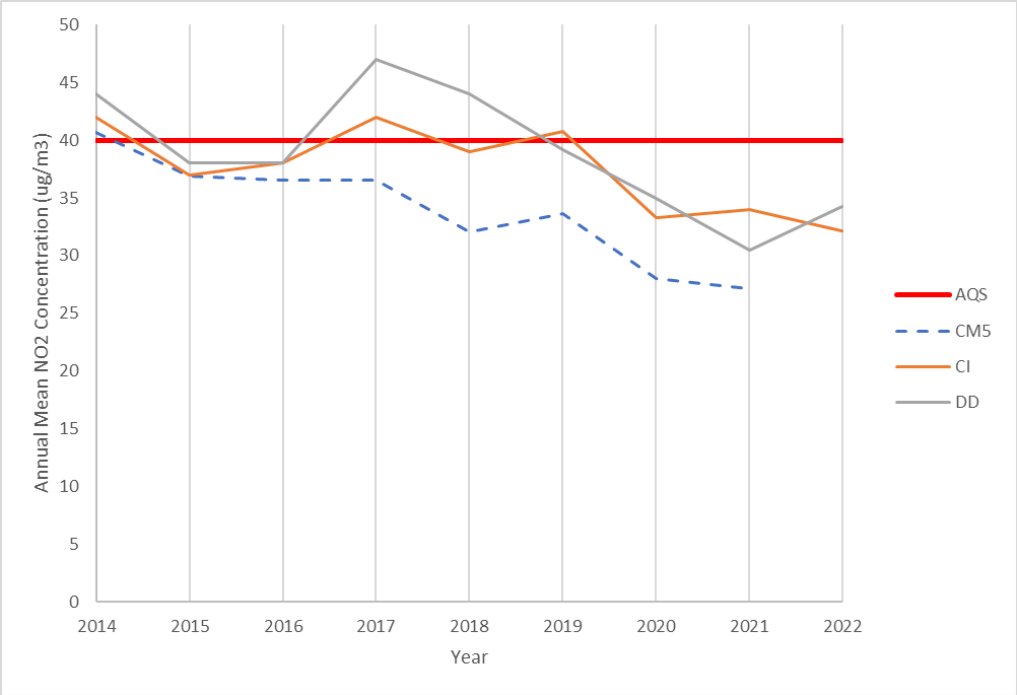


Figure 8: Hawthorne Road AQMA 5 NO_2 Trends



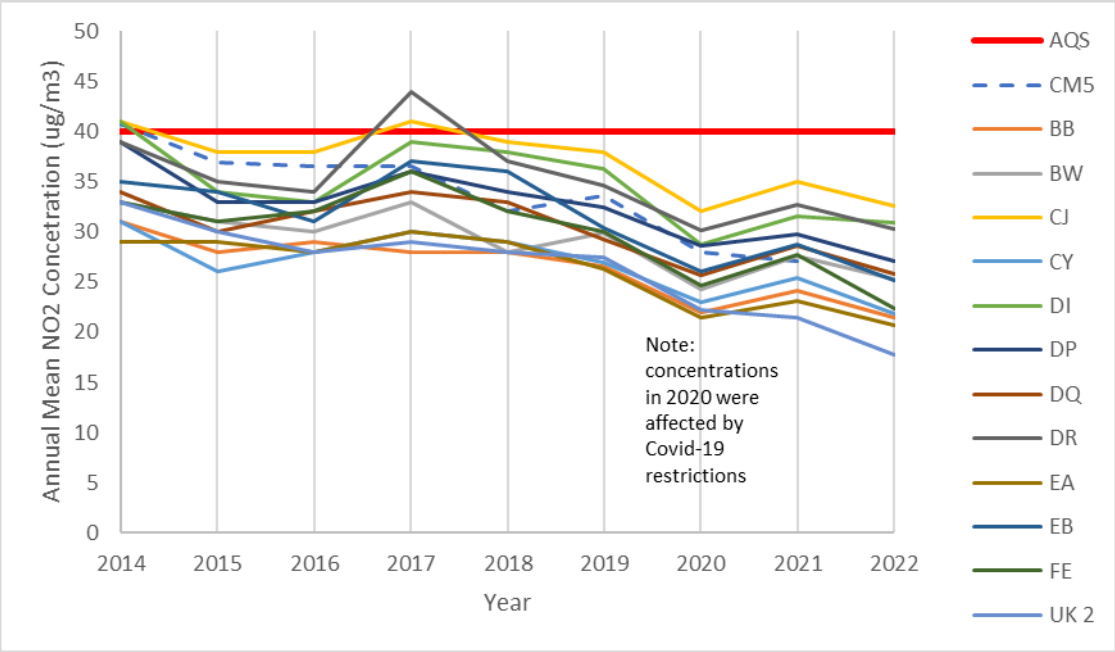
- The figures presented above show a general decrease in pollutant concentrations within each AQMA, noting that results for 2020 are much lower than the previous year. Again, this is due to the Covid-19 restrictions in place at the time and their effect on traffic in the region.
- A statistical analysis of annual trends of NO_2 and PM_{10} concentrations has been undertaken using the Mann-Kendall method and the Finnish Meteorological Institute MAKESENS (v1) spreadsheet. The purpose of the analysis was to identify if there were any statistically significant trends in pollutant concentrations across the borough to show that concentrations have no random trend across recent years. The MAKESENS spreadsheet identifies trends as statistically significant if there is a greater than 95% confidence (i.e. less than 5% probability that the concentrations are entirely random).
- The Council monitoring was filtered so that only diffusion tubes with a minimum of 5 years of data in Sefton were included in the analysis. It should be noted that 2020 was excluded from the analysis, as the effect of Covid-19 restrictions greatly reduced concentrations across the borough.
- The analysis showed that 13 monitoring sites showed a statistically significant reduction in pollutant concentrations (equivalent to a probability of greater than 95%). Of the statistically significant monitoring sites, 8 are located within or adjacent to AQMAs in the borough, suggesting that measures in place are having an effect on reducing pollutant concentrations. The significant trends are shown in Table 1-1 and Figure 9.

Table 1-1 – Summary of Trend Analysis Monitored Concentration (µg/m³) 2014 – 2022 (Statistically Significant Trends Only)

Location	2014	2015	2016	2017	2018	2019	2020	2021	2022	AQMA*	Annual decrease (µg/m³)
CM5	40.7	36.9	36.5	36.5	32.1	33.6	Not used	27.1		**5**	-1.65
BB	31.0	28.0	29.0	28.0	28.0	26.6	Not used	24.2	21.4	-	-0.97
BW	33.0	31.0	30.0	33.0	28.0	29.9	Not used	27.6	25.3	**2**	-0.89
CJ	41.0	38.0	38.0	41.0	39.0	38.0	Not used	35.0	32.5	**4**	-0.88
CY	31.0	26.0	28.0	30.0	29.0	27.0	Not used	25.4	21.8	**2**	-0.80
DI	41.0	34.0	33.0	39.0	38.0	36.3	Not used	31.5	30.9	**4**	-0.97
DP	39.0	33.0	33.0	36.0	34.0	32.4	Not used	29.8	27.0	**2**	-1.30
DQ	34.0	30.0	32.0	34.0	33.0	29.2	Not used	28.6	25.8	**2**	-0.95
DR	39.0	35.0	34.0	44.0	37.0	34.6	Not used	32.7	30.3	**2**	-0.93
EA	29.0	29.0	28.0	30.0	29.0	26.3	Not used	23.1	20.7	-	-0.99
EB	35.0	34.0	31.0	37.0	36.0	30.4	Not used	28.8	25.1	-	-0.99
FE	33.0	31.0	32.0	36.0	32.0	30.0	Not used	27.7	22.3	-	-1.01
UK 2	33.0	30.0	28.0	29.0	28.0	27.5	Not used	21.4	17.8	-	-1.54

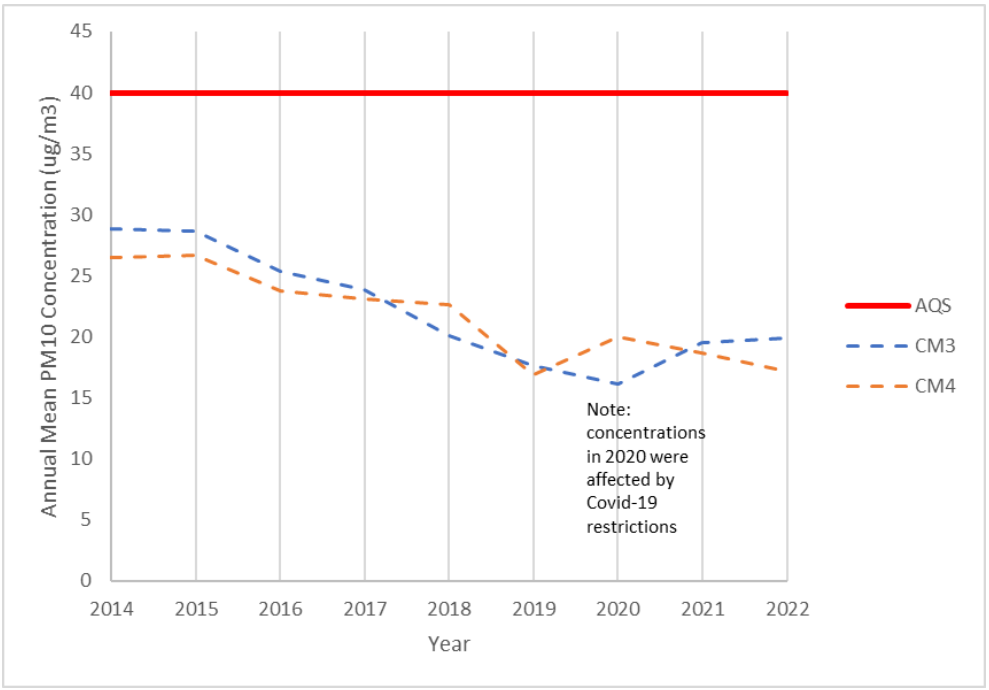
*AQMA List: 2 = Princess Way AQMA 3 = Millers Bridge AQMA 4 = South Road AQMA 5 = Hawthorne Road AQMA

Figure 9: Significant trends in annual mean NO_2.



- The same exercise was repeated for annual mean PM_{10} monitoring, of which four sites were suitable for analysis. Two of the four sites (CM3 and CM4) showed a significant downward trend in air quality data and are presented below in Figure 10. CM3 is representative of concentrations in Millers Road AQMA, whilst CM4 is representative of concentrations in Princess Way AQMA.

Figure 10: Significant trends in annual mean PM_{10}.



- In summary, pollutant concentrations are generally decreasing over recent years, with a notable proportion of monitoring in key locations showing significant improvements in air pollution across multiple AQMAs.

Review of Previous Air Quality Action Plan Measures

- A review of the effectiveness of measures introduced for the previous Air Quality Action Plan for Sefton Council was undertaken, using trends in air quality data across the various AQMAs where relevant. The review of the measures is presented in Table 2-1, where each measure has been assigned a Red, Amber or Green (RAG) score as follows:
    - Green = measure has been effective at reducing pollutant concentrations and will continue to be implemented.
    - Amber = measure has not had clear effect on pollutant concentrations, but it will be continued.
    - Red = measure ineffective at reducing pollutant concentrations and has (or will be) ceased.

It should be noted that for some of the implemented measures it is difficult to comment on the effectiveness. There are various reasons for this such as the lack of available monitoring in that area or that there is no clear method of assessing success.

Table 2-1 – Review of Previous Air Quality Action Plan

ID	Description of Measure	RAG Score	Notes
SSM1 Crosby Road North AQMA 1	Implementation of the package of measures contained within the A565 Route Management Strategy and Action Plan.	Green	AQMA revoked as result of reduced levels of NO_2 and PM_{10} following implementation of measures. Continued compliance with NAQS objectives
SSM2 Crosby Road North AQMA 1	Increased road sweeping and pavement and carriageway washing to reduce the impact of resuspended dust on PM_{10} levels.	Green	Measure ceased in 2013 due to funding issues however reductions in PM_{10} levels were observed following cleaning operations
SSM1 Princess Way AQMA 2	HGV booking system to improve movement of HGVs in and out of the Port Liverpool.	Green	Monitoring in the Princess Way AQMA shows significant improvements in air quality over time, with no exceedances recorded in 2022. Amongst other measures, it is highly likely that reduced congestion has contributed to this improvement since its implementation.
SSM2 Princess Way AQMA2	ANPR survey to gather intelligence on the HGV fleet on the A5036.	N/A	Completed in 2013 and replaced with the measures below. This measure will not have a direct impact on air quality.

ID	Description of Measure	RAG Score	Notes
SSM2 Princess Way AQMA2	Port expansion mitigation measure No1 National Highways A5036 Road option study Port expansion mitigation measure No3. Alternative fuels strategy for HGV's and buses Port expansion mitigation measure No4. HGV parking demand study	N/A	Measure number 1 is still under review/consideration by National Highways. Studies for measure numbers 3 and 4 completed – results used to inform further actions. No direct impact on air quality.
SSM2 Princess Way AQMA2	ECO stars Vehicle fleet recognition scheme	Green	Monitoring in Princess Way AQMA shows significant improvements in air quality over time, with no exceedances recorded in 2022. The Eco Starts Fleet Recognition Scheme will not have a direct impact on air quality, but it is assumed its implementation has contributed to the improvement in concentrations in the Princess Way AQMA.
SSM1 Millers Bridge AQMA3	Installation of Hurry Call HGV priority traffic light System	Amber	For the Millers Bridge AQMA whilst levels of NO_2 have shown reductions over time, these are not as significant as in other AQMA's suggesting that the measures implemented have not been as effective as envisaged in the previous AQAP. There is one remaining monitored exceedance within the AQMA for annual mean NO_2.

ID	Description of Measure	RAG Score	Notes
SSM2 Millers Bridge AQMA3	Effective regulatory control and monitoring of industrial sites within the Port of Liverpool to minimise their impact on PM_{10} levels.	Green	For PM_{10}, there has been notable improvement in concentrations over time, confirming that these measures have had positive impacts on concentrations. The trends analysis above shows that, for PM_{10}, there is a significant reduction in pollutant concentrations over time in this AQMA.
SSM3 Millers Bridge AQMA3	Increased road sweeping and pavement and carriageway washing to reduce the impact of resuspended dust on PM_{10} levels	Green	Measure ceased in 2013 due to funding issues. however, some notable reductions in PM levels were observed following cleaning operations
SSM1 South Road AQMA4	Implementation of the package of measures contained within the A565 Route Management Strategy and Action Plan.	Green	Monitoring in South Road AQMA shows significant improvements in air quality over time, with no exceedances recorded in 2022. The measures adopted within the A565 Route Management Strategy and Action Plan seem to be taking effect, with concentrations of NO_2 reducing every year since 2017. Sefton **Currently considering revoking this AQMA.**

ID	Description of Measure	RAG Score	Notes
SSM2 Hawthorne Road AQMA5	Eco Stars Fleet Recognition Scheme	Green	As for the Princess Way AQMA it seems as though the Eco Stars Fleet Recognition Scheme is having an impact on Sefton's air quality. Although the monitoring does not indicate a significant trend over time for the Hawthorne Road AQMA, there are no exceedances in 2022 and generally air quality is improving. The Eco Starts Fleet Recognition Scheme will not have a direct impact on air quality, but it is assumed its implementation has contributed to the improvement in concentrations in the Hawthorne Road AQMA.
GM1	Optimum use of SCOOT on all AQMA corridors.	Green	It is difficult to comment on the effectiveness of this measure, but AQ monitoring is showing general decreases over time across the borough suggesting this may be having some effect.
GM2	Introduce the display of air quality information, advice and alerts into Variable Message Signage.	N/A	It is difficult to comment on the effectiveness of this measure.
GM3	Encourage businesses through the planning system to implement workplace travel plans, particularly in and around areas likely to impact on AQMAs.	Green	Several workplace travel plans have been implemented. It is difficult to comment on the effectiveness of this measure, but monitoring is showing general decreases over time across the borough suggesting this may be having some effect.
GM4	Encourage the uptake and implementation of school travel plans, particularly in and around AQMAs.	Green	A number of schools within Sefton have an active travel plan aimed at improving air quality in the borough

ID	Description of Measure	RAG Score	Notes
GM5	Encourage cycling and walking.	Green	Again, it is difficult to comment on the effectiveness of this measure. It is assumed that there has been an increase in participation across the borough, but it is difficult to quantify this.
GM6	Use the planning system to mitigate the air quality impacts of any new development likely to have an impact on the AQMAs through the use of planning conditions incorporating Low Emissions Strategy measures from developers and the use of Section 106 Agreements.	Green	All planning applications received, were reviewed and where an AQ concern is identified a AQA was required. Measures to mitigate impacts required as part of planning approval where AQA concludes the development will impact AQ negatively
GM7	Develop and implement a low emissions strategy.	Green	A number of Low Emission Strategies have been implemented. It is assumed that this has had an impact on pollutant concentrations across the borough.
GM8	Plant trees where appropriate within AQMAs to reduce PM_{10}.	Green	
GM9	Raise awareness of air quality issues through a range of initiatives.	N/A	It is difficult to comment on the effectiveness of this measure, but monitoring is showing general decreases over time across the borough suggesting this may be having some effect.

ID	Description of Measure	RAG Score	Notes
GM10	Work with the Merseyside and Halton Freight Quality Partnership and the Freight and Air Quality Task Group to seek and implement measures to reduce the impact of freight on air quality, particularly within the Millers Bridge and Princess Way AQMAs.	Green	It is difficult to comment on the effectiveness of this measure, but monitoring is showing general decreases over time across the borough suggesting this may be having some effect.

Sefton Council's Air Quality Priorities

Public Health and Social Inequality Context

- Poor air quality is a public health issue that can cause negative impacts for those who are exposed to it and affect quality of life. Air pollution can be harmful to health at all concentrations, whether above or below the air quality objectives so this remains a key issue for Sefton Council.
- Exposure to NO_2, whether short or long term is known to cause respiratory infections, airway inflammation and aggravates the symptoms of those suffering from chronic lung conditions such as asthma and chronic obstructive pulmonary disease.
- Fine particulate matter (particles of a diameter of 2.5µm and below) has been identified as a significant health risk as its small size means that it is easily able to access the nose, throat, lungs and bloodstream leading to increased mortality and morbidity from cardiovascular and respiratory issues. Evidence has also been found linking higher rates of particulate matter to increased risk of dementia and the International Agency for Research on Cancer has classified particulate matter as carcinogenic to humans (PR 221 - IARC: Outdoor air pollution a leading environmental cause of cancer deaths).[1] According to Government data, the fraction of mortality for the population of Sefton that can be attributed to particulate air pollution is 5.9% of the population. This compares to averages of 5.3% for the northwest region and 5.5% for England (the highest for a local authority area in England is 7.2%) (Public Health England Dashboard).
- The Consumer Data Research Centre (CDRC) provide Index of Multiple Deprivation (IMD) datasets for the UK. The levels of deprivation within the UK are measured through consideration of a number of broad themes, these include income, employment, education, health, crime, barriers to housing services, and the living environment. IMD data was gathered for Sefton and reviewed in relation to proximity to AQMAs and diffusion tube monitoring sites. The IMD dataset ranks areas from most deprived (rank 1) to least deprived (rank 10). The areas are also split into 10 bandings known as deciles. Therefore, the IMD decile rankings were analysed for this AQAP.
- Review of the IMD dataset has shown that the AQMAs declared by Sefton Council are located in the areas which represent the top 3 most deprived deciles in Sefton. Figure 11 presents this analysis. As can be seen in Figure 11, AQMA 2 and AQMA 3 are located in areas which represent some of the most deprived deciles in Sefton. AQMA 4 is located within a decile which is ranked one of the second most deprived areas, and AQMA 5 is located within a decile which is ranked one of the third most deprived areas.
- Figure 12 presents a review of the IMD dataset in relation to locations of diffusion tube monitors deployed by Sefton Council during 2022. As can been seen in Figure 12, the majority of monitoring locations which reported annual mean concentrations of NO_2

between 30-40 gm^3 are located within deciles which are ranked as the most deprived areas in Sefton. Figure 14

Figure 11 IMD decile rankings within AQMA's declared by Sefton Council

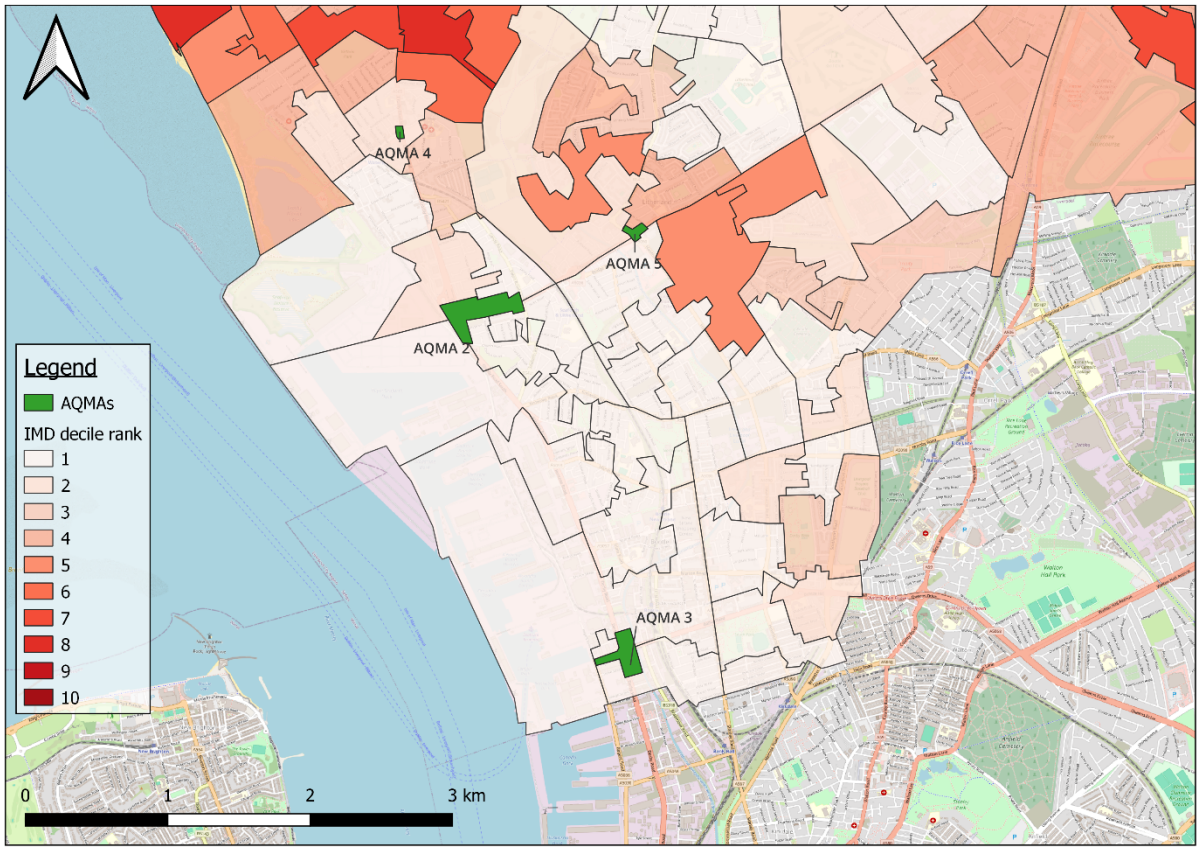
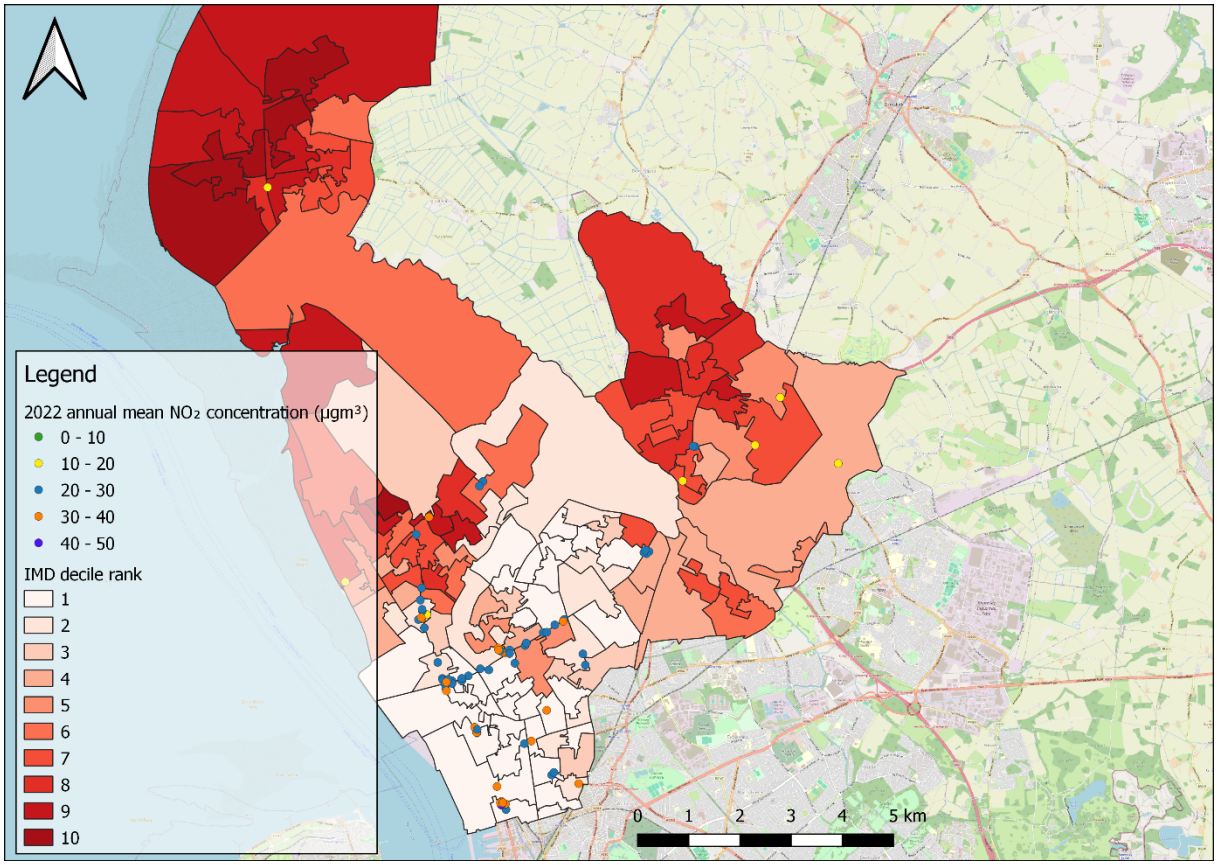


Figure 12 Proximity of IMD deciles to areas of high pollution of NO_2 concentrations in Sefton.



- Sefton is therefore focusing its efforts on improving air quality in its AQMA's and surrounding areas where Sefton's most deprived and vulnerable residents reside.

- To ensure appropriate targeted measures are developed to tackle air pollution in these areas it is essential to fully understand the effects that the predicted increase in HGVs due to the expansion of the Port of Liverpool will have on air quality and how this can be mitigated to protect the health and wellbeing of residents living close to the Port and main access routes. Due to the scale of the expansion, there is potential for this to impact on air quality in existing AQMAs and also impact on public exposure at residential locations on port access routes.

- The Port of Liverpool has undergone a £300 million expansion, known as L2, which included the building of a new deep-water berth. This allows large post pan Amax container ships to berth there. Although port expansion is expected to bring economic benefits to the region, it is also predicted to lead to a significant increase in HGVs using the A5036, the main port access route, and to a lesser extent the A565, and will pass through three of Sefton's AQMAs, potentially leading to a worsening of air quality in areas that were previously identified as having poor air quality and congestion, particularly on the A5036.

- Sefton has recently undertaken its own detailed traffic and air quality modelling to assess the impact of this potential increase in port traffic on air quality levels. This modelling has been used to inform Sefton's Clean Air Plan (CAP) and help develop the measures contained within this AQAP.

- In addition to measures being developed by Sefton to deal with current and future air quality issues associated with increasing traffic levels, National Highways who manage the A5036 are currently progressing a route improvement option known as POLAS (Port of Liverpool Access Scheme)

- An Offline route option through Rimrose Valley has been chosen by National Highways (NH) as the preferred option. Further detailed assessment and design of this option is now underway by NH and their appointed consultant. The Covid pandemic has delayed the project significantly however the various studies and assessments have now recommenced. National Highways is currently working to understand the impact of the pandemic on the proposed scheme. Changes in trade patterns following Brexit, initiatives like the Freeport, local employment and commuting habits since the pandemic struck in early 2020, need to be considered. As a result, traffic modelling is due to be updated, following this an updated project plan will be released.

- As the POLAS Scheme is outside the direct control of the Council it is not included in our Draft AQAP as a specific action, however Sefton will need to fully understand NH's proposed scheme and the impact it will have on local air quality, particularly within the designated AQMAs. Further details regarding the project and progress can be found via the following link: Highways England Port of Liverpool Access Scheme

Planning and Policy Context

Planning policy and its enactment at national and local levels is key in delivering good air quality for all.

The National Planning Policy Framework

- The **National Planning Policy Framework** sets out the Government's planning policies for England and how these should be applied by local authorities in developing local plans and making planning decisions.

- The core underpinning principle of the NPPF is sustainable development, which broadly means *"meeting the needs of the present without compromising the ability of future generations to meet their own needs"*. To achieve this there are three overarching objectives to ultimately improve economic, societal and environmental conditions – all of which are intrinsically linked to ambient air quality conditions.

- Section 15 of the NPPF 'Conserving and enhancing the natural environment', paragraph 186 relates specifically to air quality and states that: *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

Sefton Local Plan

- The Local Plan for Sefton (2030) was adopted in 2017 and contains policies concerning development in the district and set out the priorities. The Local Plan acknowledges that there are areas of Sefton that experience poor air quality (with five AQMAs declared at the time) and the consequent health impacts, and the role of traffic congestion in causing this.

Air quality requirements are set out in three policies: IN2 Transport, EQ1 Healthy Sefton, EQ4 Pollution and Hazards and EQ5 Air Quality. The relevant extracts of these policies are included below:

IN2: Transport

"3. Transport Assessments or Transport Statements will be required for all significant development. A Transport Assessment will also be required where a development:

...

c. Is judged to result in a significant impact on air quality, particularly where the development is within, or adjacent to an Air Quality Management Area or the development would be likely to result in the declaration of an Air Quality Management Area"

EQ1 HEALTHY SEFTON

"Development should help maximise opportunities to improve quality of life to make it easier for people in Sefton to lead healthy, active lifestyles, by:

…

2. Managing air quality and pollution."

EQ4 POLLUTION AND HAZARDS

"1. Development proposals should demonstrate that environmental risks have been evaluated, and appropriate measures have been taken to minimise the risks of adverse impacts which include amenity, damage to health and wellbeing, property and the natural environment (including internationally important nature sites) from:

a. Pollution of the … air, ….

2. Development will be permitted where it can be demonstrated that:

a. Appropriate measures are incorporated into proposals to avoid pollution to air …

b. […] Proposals for sensitive uses close to existing sources of pollution must demonstrate that there will be no detrimental impact on the amenity of existing or future occupiers, ….

3. The cumulative effects of pollution will be taken into account in terms of the impact of a number of developments in an area. The effects of a combination of various types of pollution will also be considered."

EQ5 AIR QUALITY

"1. Development proposals must demonstrate that they will not:

a. Hinder the achievement of Air Quality Management Area objectives, and the measures set out in an Air Quality Management Area Action Plan, or

b. Hinder the revocation of an Air Quality Management Area by:

i. introducing significant new sources of air pollutants, or

ii. Introducing new development whose users will be especially susceptible to air pollution, or

c. Lead to the declaration of an Air Quality Management Area, or

d. Lead to a material decline in air quality.

2. Where appropriate Major developments must incorporate appropriate measures to reduce air pollution and minimise exposure to harmful levels of air pollution to both occupiers of the site and occupiers of neighbouring sites."

- Air Quality officers work closely with Planning and Transport Planning colleagues to ensure the above policies are followed and where necessary appropriate mitigation is secured through the development control regime.

Source Apportionment

- To help develop our action plan measures a source apportionment study of road traffic related emissions within 2 of Sefton's AQMAs has been carried out following LAQM Technical Guidance 2022 (TG22) guidance. This has made use of traffic data collected by Automatic Number Plate Recognition surveys conducted within Sefton, including AQMAs 2 and 3, in the years 2018 and 2022. This has enabled determination of local vehicle fleet compositions for these years.
- Emissions data for each pollutant have been obtained from Defra's Emissions Factors Toolkit (EFT) v12.0.1 based on the local fleet compositions for 2018 and 2022. Figure 13 shows the breakdown of Euro exhaust emission class by vehicle type for 2018. Figure 14 shows the same for 2022. The figures show definite improvements across the vehicle fleet from 2018 to 2022 with pre-Euro 4 vehicles being largely removed from the fleet - the exception being buses where 2.4% were Euro 3 and 0.1% were Euro 2.
- With regard to particulate emissions (PM_{10} and $PM_{2.5}$) within AQMAs 2 and 3, artic HGV emissions contributed the most towards particulate emissions during 2018 and 2022.
- Despite improvements in the HGV fleet, their contribution towards NO_x emissions in Sefton during 2022 remains significant. Additionally rigid HGVs are notably older than the national average with a substantial proportion still non-compliant (i.e. Euro 5 and older). Action plan measures have therefore been developed to target this sector of the fleet. Emissions from diesel cars and LGVs are also significant with actions proposed to help reduce their emissions also.

Figure 13 2018 Euro classification by vehicle type within Sefton.

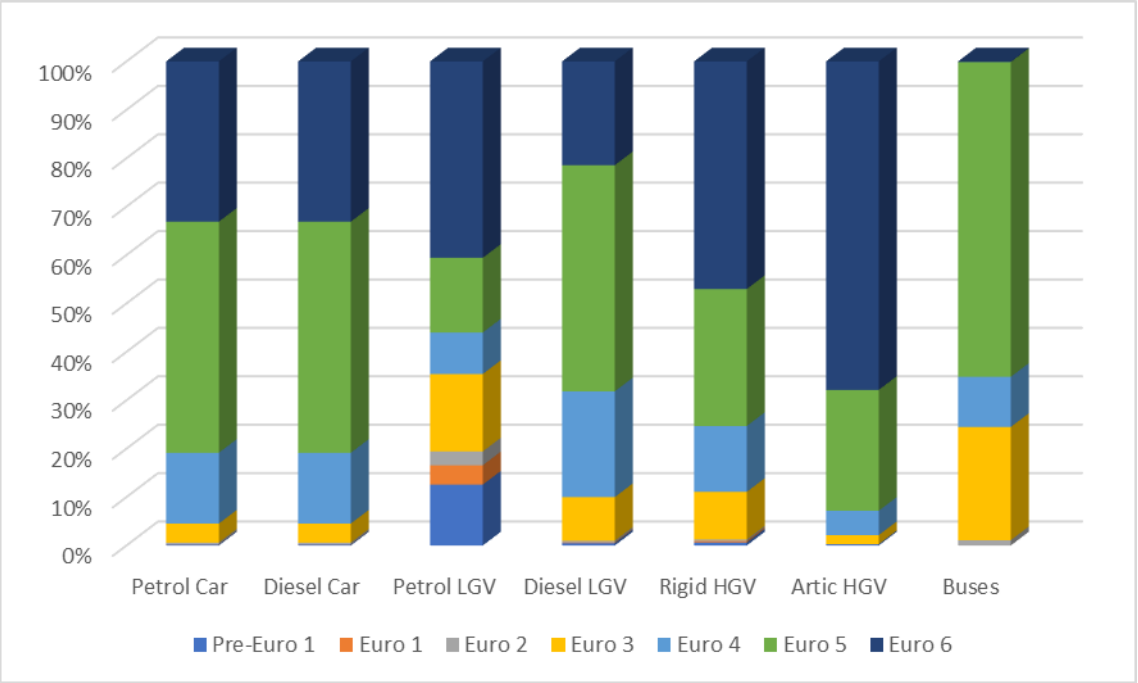
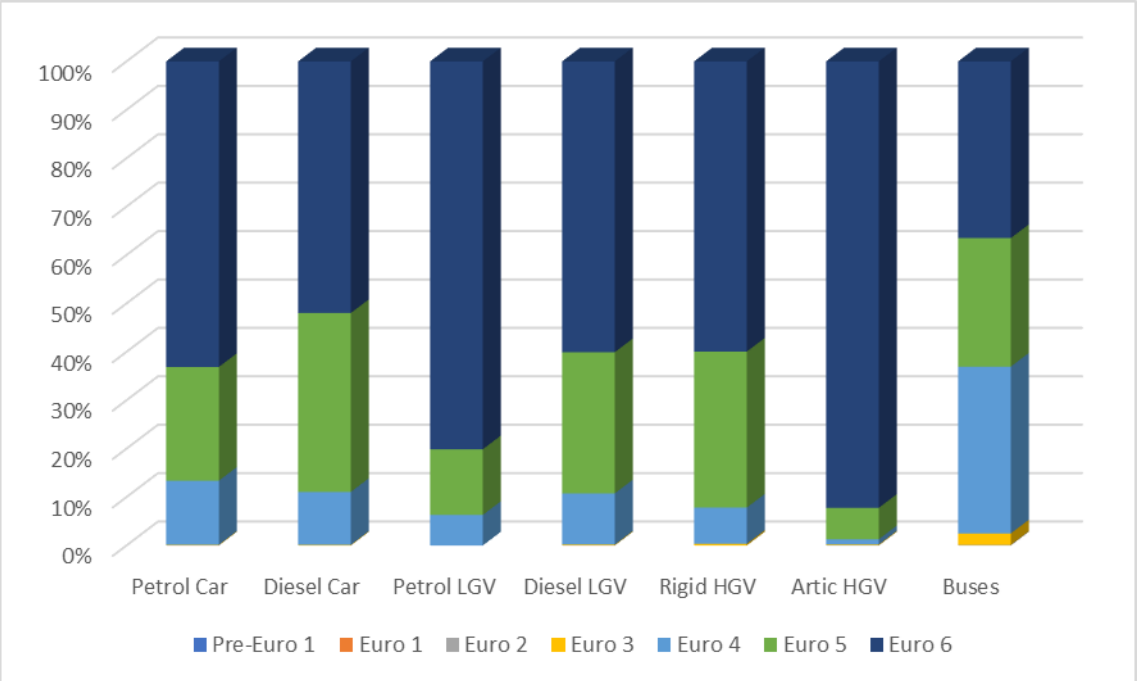


Figure 14 2022 Euro classification by vehicle type within Sefton.



Source Apportionment within AQMA 2

- The percentage contribution of NO_x, PM_{10} and $PM_{2.5}$ along Princess Way was determined for years 2018 and 2022. The results of this analysis are presented below.

NO_x emissions

- During 2018, Figure 15Figure 15 shows that artic HGV emissions contributed 31.6% of total NO_x emissions within AQMA 2, with diesel car emissions being responsible for the second highest contribution to NO_x emissions at 30.8%. Figure 15 Figure 16 shows that during 2022, diesel car emissions now make the highest contribution to total NO_x emissions at 37%, with diesel LGV emissions now presenting as the second highest contributor to NO_x emissions during 2022 at 29%.

Figure 15 2018 NO_x Source Apportionment at Princess Way (AQMA 2)

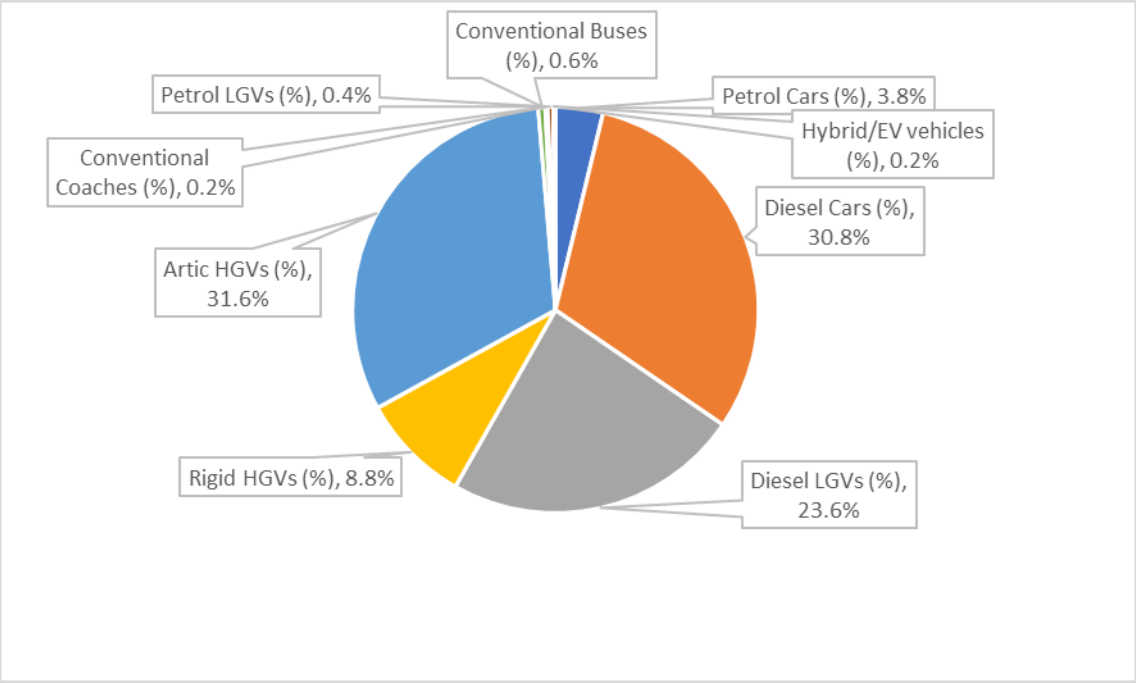
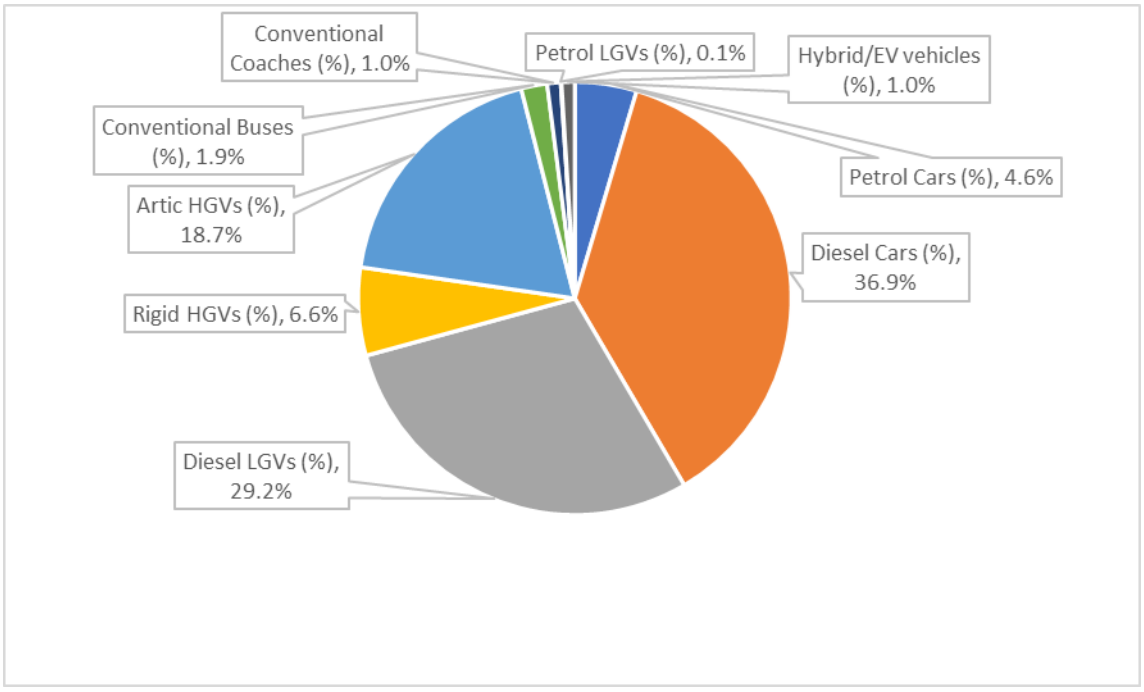


Figure 16 2022 NO_x Source Apportionment at Princess Way (AQMA 2)



PM_{10} emissions

- Figure 17 and Figure 18 show that artic HGVs, diesel car and petrol car emissions were responsible for the greatest contribution to PM_{10} emissions within AQMA 2 during 2018 and 2022. During 2018, artic HGV emissions contributed towards 34% of total PM_{10} emissions within AQMA 2 and 40% of total PM_{10} emissions during 2022.

Figure 17 2018 PM_{10} Source Apportionment at Princess Way (AQMA 2)

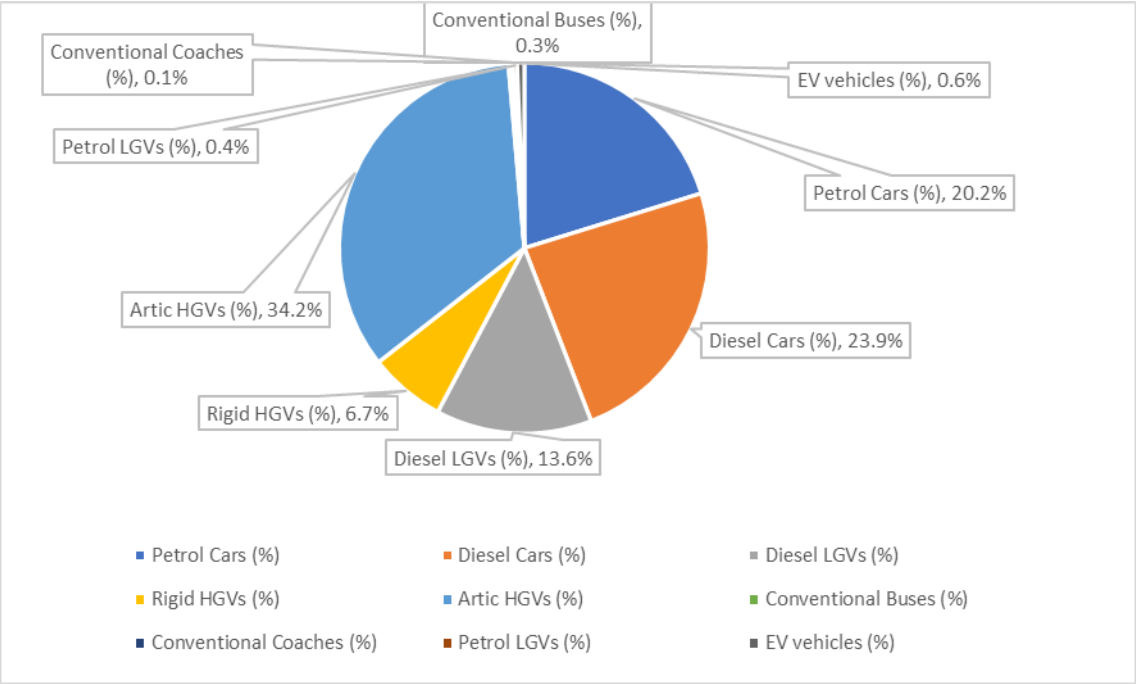
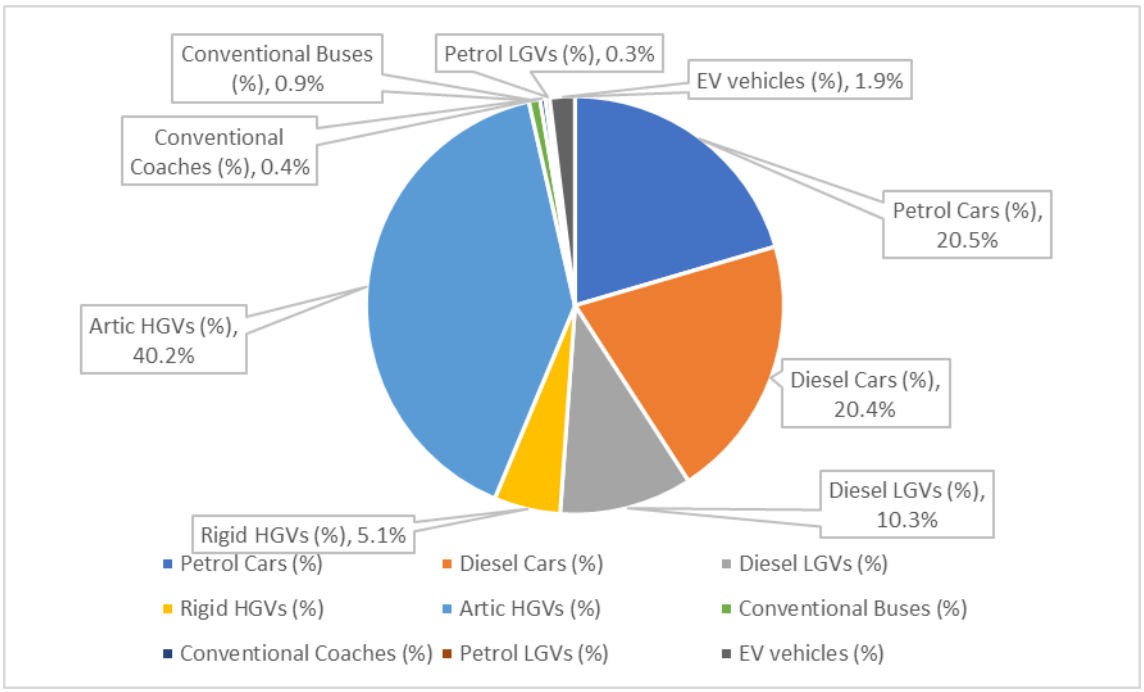


Figure 18 2022 PM_{10} Source Apportionment at Princess Way (AQMA 2)



$PM_{2.5}$ emissions

- As shown in Figure 19 and figure 20, during 2018 and 2022 artic HGVs emissions were responsible for the highest contribution to $PM_{2.5}$ emissions, with diesel car emissions responsible for the second highest contribution to $PM_{2.5}$ emissions, and petrol cars responsible for the third highest contribution to total $PM_{2.5}$ emissions. During 2018, the contribution from artic HGV emissions was 35.6%. This contribution from artic HGVs emissions increased in 2022 to 41.5%. The contribution to $PM_{2.5}$ emissions from diesel car emissions reduced in 2022 compared to 2018.

Figure 19 2018 $PM_{2.5}$ Source Apportionment at Princess Way (AQMA 2)

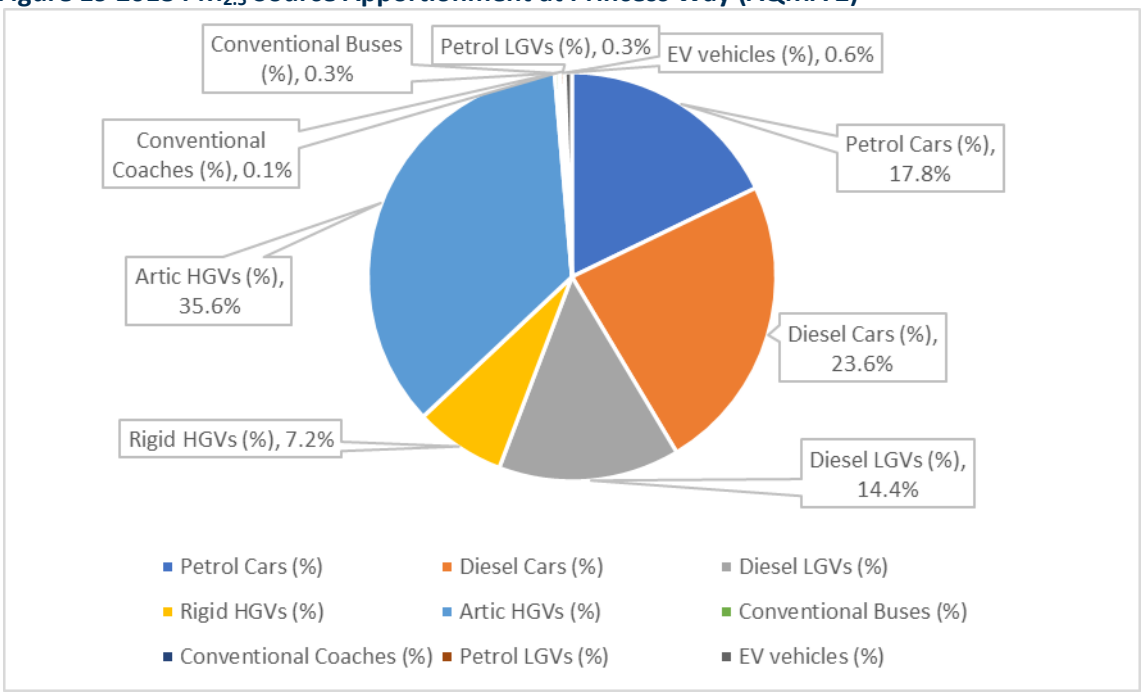
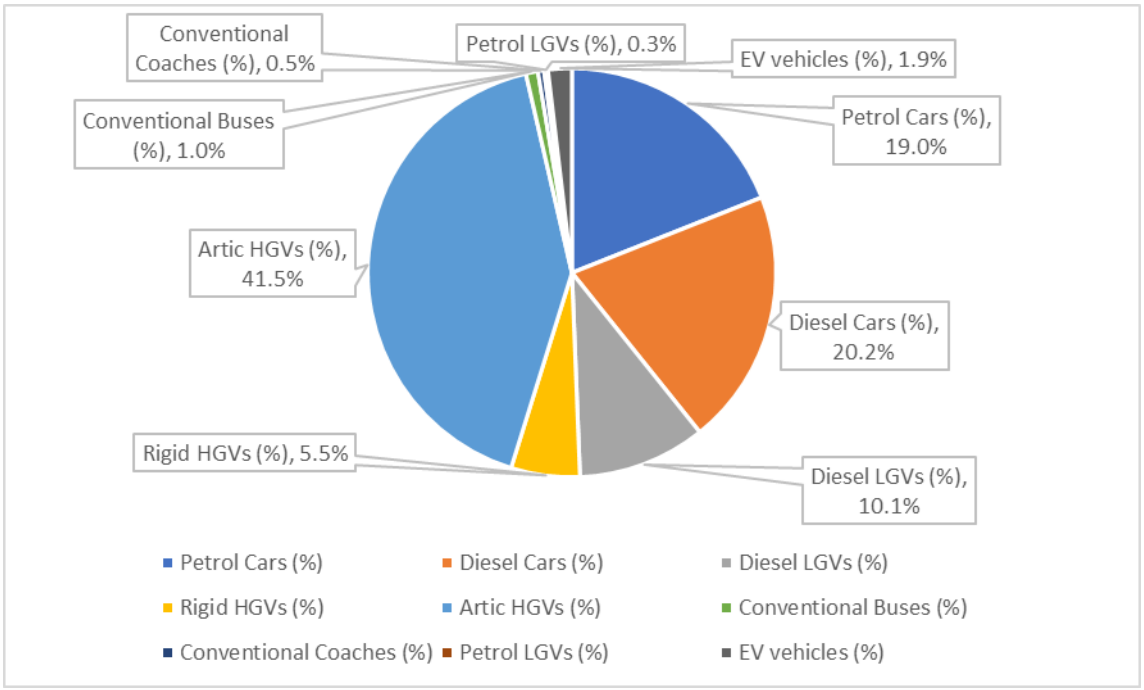


Figure 20 2022 $PM_{2.5}$ Source Apportionment at Princess Way (AQMA 2)



Source Apportionment within AQMA 3

- The percentage contribution of NO_x, PM_{10} and $PM_{2.5}$ along Millers Bridge was predicted for years 2018 and 2022. The results of this analysis are presented below.

NO_x emissions

- During 2018, Figure 21Figure 15 shows that HGV emissions contributed 48.1% of total NO_x emissions within AQMA 3, with diesel cars emissions being responsible for the second highest contribution to NO_x emissions at 21%. Figure 22Figure 22 shows that during 2022, HGV's still make the highest contribution to total NOx emissions at 38.7%, with diesel cars again presenting as the second highest contributor to NOx emissions during 2022 at 28%.

Figure 21 2018 NO_x Source Apportionment at Millers Bridge (AQMA 3)

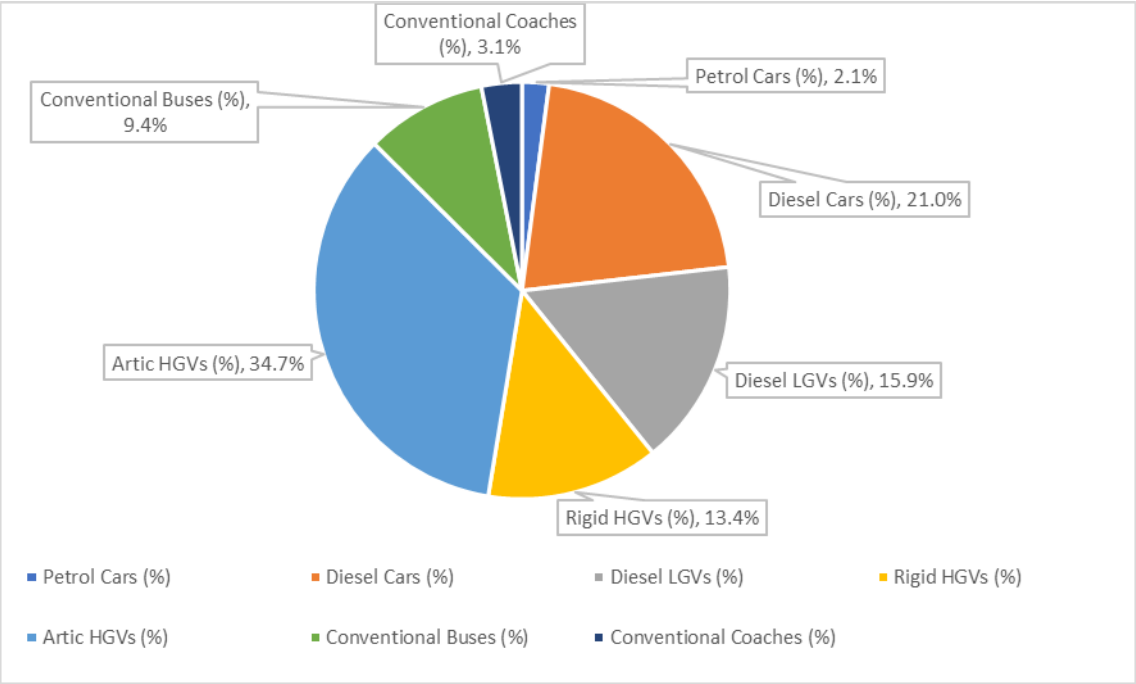
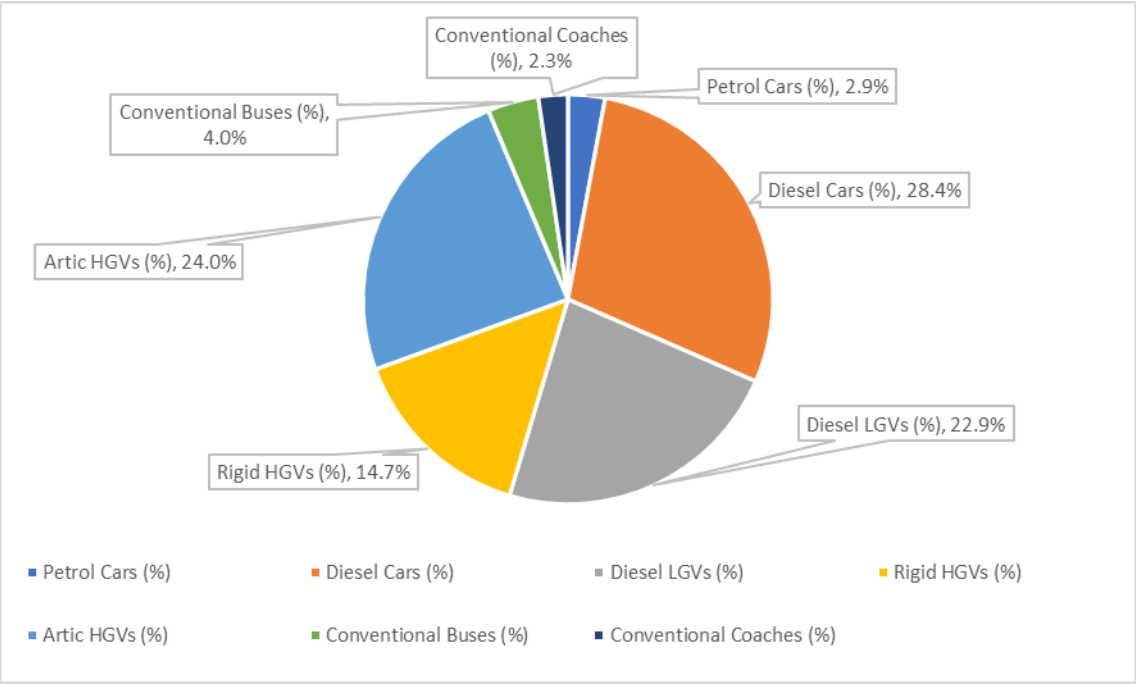


Figure 22 2022 NO_x Source Apportionment at Millers Bridge (AQMA 3)



PM_{10} emissions

- Figure 23 and Figure 24 show that artic HGV, diesel car and petrol car emissions were responsible for the greatest contribution of PM_{10} emissions within AQMA 3 during 2018 and 2022. During 2018, artic HGV emissions contributed towards 29% of total PM_{10} emissions within AQMA 3. The contribution from artic HGV emissions is predicted to increase to 34% of total PM_{10} emissions during 2022.

Figure 23 2018 PM_{10} Source Apportionment at Millers Bridge (AQMA 3)

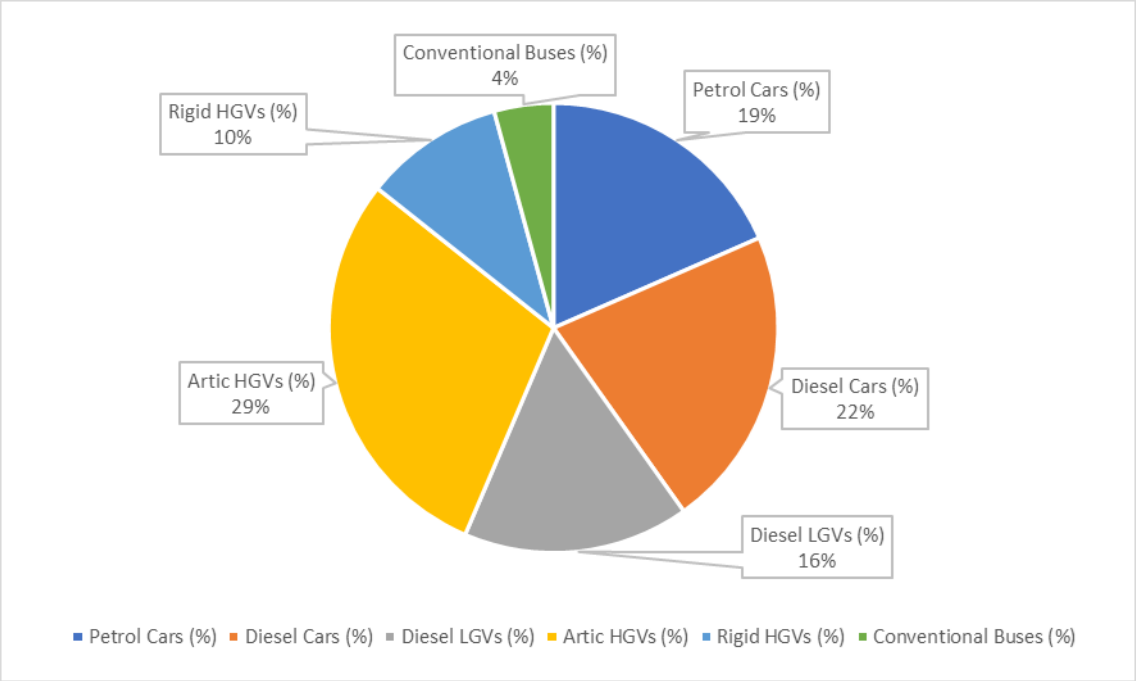
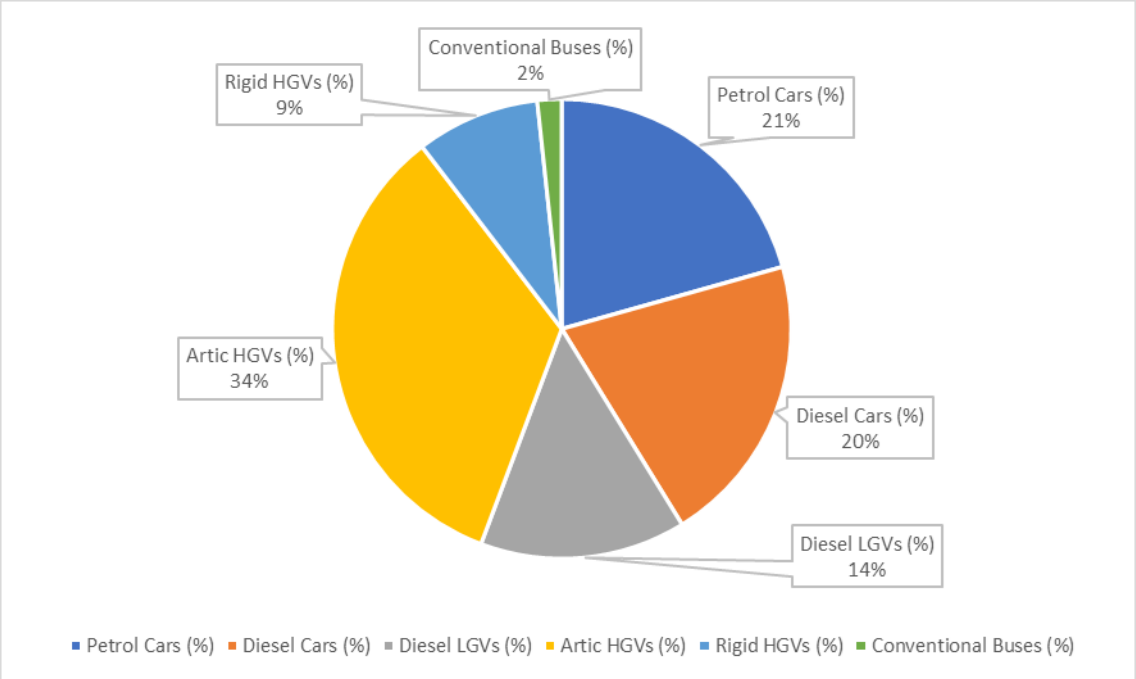


Figure 24 2022 PM_{10} Source Apportionment at Millers Bridge (AQMA 3)



$PM_{2.5}$ emissions

- As shown in Figure 25 and Figure 26, during 2018 and 2022 artic HGVs emissions were responsible for the highest contribution to $PM_{2.5}$ emissions, with diesel car emissions responsible for the second highest contribution to total $PM_{2.5}$ emissions. During 2018, the contribution from artic HGV emissions was 29.1%. This contribution from artic HGVs emissions increased in 2022 to 34%. The contribution to $PM_{2.5}$ emissions from diesel car and diesel LGV emissions reduced in 2022 compared to 2018.

Figure 25 2018 $PM_{2.5}$ Source Apportionment at Millers Bridge (AQMA 3)

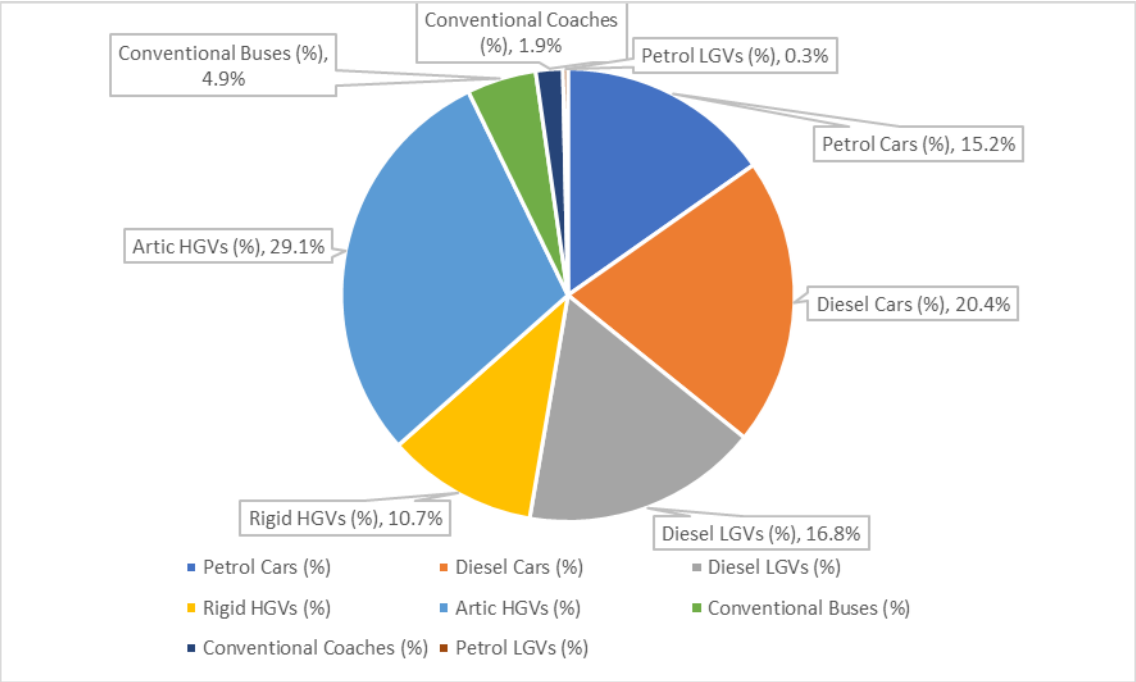
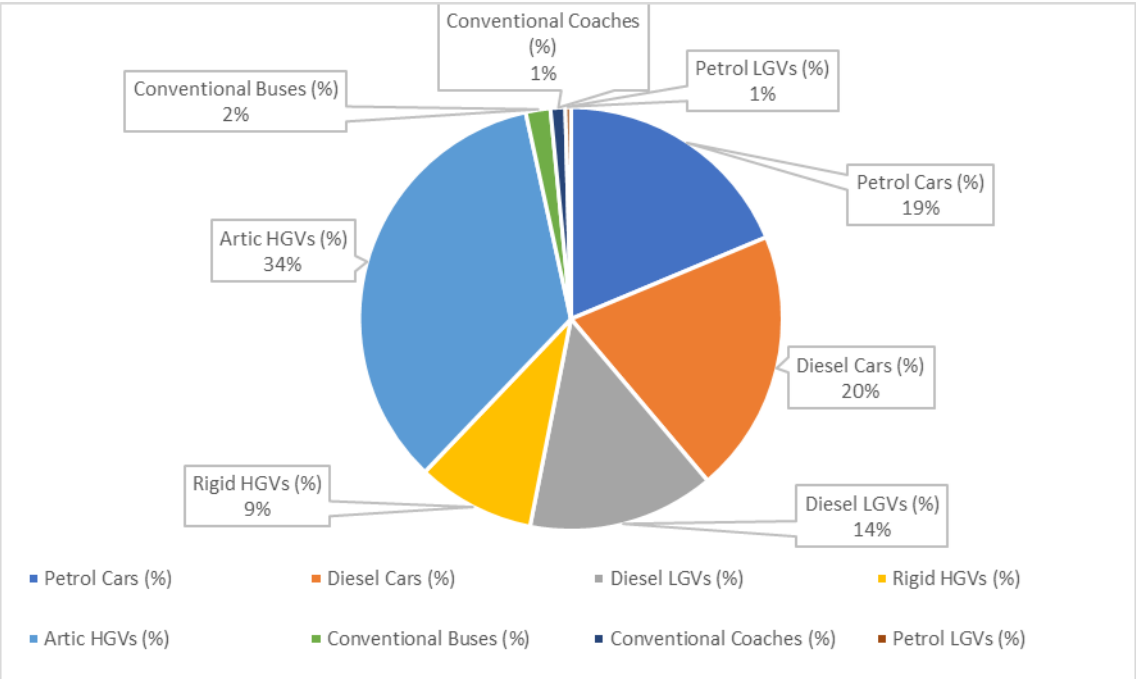


Figure 26 2022 $PM_{2.5}$ Source Apportionment at Millers Bridge (AQMA 3)



Required Reduction in Emissions

- To show the comparison between the air quality situation in Sefton's AQMA's in 2018/2019 compared to 2022 an assessment has been carried out following the methodology set out in the LAQM Technical Guidance 2022 (TG22) which indicates the improvement in road NO_x emissions required to meet the annual mean objective.
- Table 3-1 reports the percentage decrease in road NOx emissions that was required to meet the annual mean objective in 2018 in AQMAs 2-4. No monitored exceedances were reported within AQMA 5 during 2018, therefore monitoring results for 2019 have been used.
- Monitoring data recorded in 2022 is reflective of pollutant concentrations within Sefton without the impact of the COVID-19 pandemic restrictions. The pandemic resulted in a national lockdown which reduced the amount of road traffic movements across the country. Monitoring data from 2022 has therefore been used in this analysis to report any improvements in road NO_x emissions that may have occurred post pandemic.
- During 2022, there was an exceedance of the annual mean objective for NO_2 recorded at only one monitoring location. Table 3-2 gives the percentage decrease in road NO_x emissions required to meet the annual mean objective at Sefton Council monitoring location 'BR' which reported an exceedance of the annual mean objective.

Table 3-1 – Percentage decrease in road NO_x required to meet annual mean NO_2 objective in 2018 and 2019.

Diffusion tube ID	2018 monitored NO_2 concentration	2019 monitored NO_2 concentration	Monitored road NO_x concentration	Required road NO_x concentration	Required reduction in road NO_x	% reduction in road NO_x
AQAM 2 ES	42.0	-	53.2	48.6	4.6	8.6
AQMA 2 EW	42.0	-	28.2	23.8	4.3	15.4
AQMA 3 BQ	57.0	-	58.6	19.5	39.2	66.8
AQMA 3 BR	43.0	-	25.9	19.5	6.5	25.0
AQMA 4 DI	45.0	-	66.9	55.1	11.8	17.6
AQMA 5 CI	-	40.8	46.6	44.8	1.8	3.9

Table 3-2 – Percentage decrease in road NO_x required to meet annual mean NO_2 objective in 2022.

Diffusion tube ID	2022 monitored NO_2 concentration	Monitored road NO_x concentration	Required road NO_x concentration	Required reduction in road NO_x	% reduction in road NO_x
AQMA 3 BR	41.0	25.6	23.4	2.2	8.5

- As can be seen above in 2018/2019 (pre-covid) NO_2 levels in each of Sefton's four AQMAs were above the National Air Quality Standard objective at the monitored location and significant reductions in road related NOx were necessary to bring them into compliance.
- Since 2020 levels of NO_2 have fallen across all AQMAs. This has been as result of the ongoing fleet turnover, the changes to commuter habits as a result of the pandemic and air quality action measures that have implemented by Sefton.
- In 2022 levels of NO_2 in AQMA2, 4 and 5 all fell below the national limit and as such are not shown in Table 3-1 – Percentage decrease in road NO_x required to meet annual mean NO_2 objective in 2018 and . Whilst levels are below the national limit in AQMA 2 and 5, they are not being considered for revocation at the current time as increased traffic related emissions associated with the expansion of the Port of Liverpool may still impact on NO_2 in these AQMAs.
- AQMA 3 –Millers bridge is the only site where the national limit was exceeded in 2022 and a reduction of 2.2 μgm^3 NOx is required to comply with the legal limit.

Key Priorities

Sefton's key priorities taking into account the technical assessments undertaken as part of the previous OBC, recent ANPR study and source apportionment work is summarised below:

- Encourage and support continued HGV Fleet turnover/improvement with a focus on Rigid HGV's
- Work with Key Partners to explore opportunities to implement measures which will reduce HGV emissions from within the Port of Liverpool
- Work with Key partners to explore opportunities to reduce non-HGV related emissions from the Port of Liverpool
- Explore opportunities for freight decarbonisation.
- Ensure traffic flow is optimised and congestion managed effectively.
- Encourage and promote active travel.
- Ensure that future proposed developments will not have negative impacts on air quality and explore mitigation measures to improve local air quality where possible.

Development and Implementation of Sefton AQAP

Consultation and Stakeholder Engagement

- The development of this Draft AQAP has followed on from (and been informed by) the significant work which has been undertaken by Sefton as part of its CAZ Outline Business Case. Following the completion of the detailed and highly technical OBC work, a HGV charging CAZ on 2 key corridors (A565 and A5036) was identified as the preferred option to take forward to the next stage of the process which involved engagement and consultation with key stakeholders.
- Comprehensive and detailed engagement has taken place with key stakeholders including JAQU, National Highways and Peel Ports. A number of observations and technical challenges were put forward/raised by the key stakeholders on the preferred option which required further consideration by Sefton.
- In response to the stakeholder engagement, additional studies and assessments were undertaken including an updated ANPR study to determine the current make up and age of Sefton's vehicle Fleet and an updated natural compliance assessment to determine when the predicted exceedances would become naturally compliant.
- The outcome of the stakeholder engagement and analysis of the additional studies indicates that progression to Full Business Case for a HGV Charging CAZ would be extremely challenging without substantial government funding, additionally more targeted alternative air quality measures could provide similar improvements. A package of targeted actions has therefore been developed which are intended to improve air quality in Sefton's remaining AQMAs and surrounding Borough and are detailed in table 6-1.

The table below summarises the engagement that has taken place as part of the OBC process, which along with the recent technical studies has led to the development of the proposed actions and measures contained in this draft AQAP.

Table 4-1 – Stakeholder Engagement Undertaken

Key Stakeholder	Summary of Consultation
Joint Air Quality Unit - Defra	Written exchanges of OBC Technical information have taken place between Sefton and JAQU. JAQU have reviewed this information and acknowledged the work taking place with regard to the OBC and proposal to implement a Charging CAZ. JAQU, have however, reiterated the fact that Sefton were not mandated and as such would not be eligible to apply for support funding for the CAZ implementation or subsequent mitigation.

Key Stakeholder	Summary of Consultation
National Highways (NH)	Detailed consultation has taken place with NH with regard to Sefton's proposals and rationale for the implementation of a Charging HGV CAZ in Sefton as detailed in the OBC. NH have raised a number of technical queries and questions as part of this process including: • Queries on non-complaint HGV fleet proportions in Sefton and justification to target HGV's. • Queries on A5036 monitoring data. • Further rationale on overall validity of modelled exceedance results Following the initial engagement further technical assessments were undertaken by Sefton including an updated ANPR survey (Nov 2022) to determine Sefton's current Fleet make up and a natural compliance assessment to determine when the predicted NO_2 exceedances would be compliant naturally (i.e. without any intervention) Further engagement took place with NH where Sefton provided additional information and justification following the additional assessments undertaken. Whilst NH acknowledged this additional work, they did not consider there was sufficient technical justification for the CAZ and advised that they would not support the proposal to implement a Charging Clean Air Zone in Sefton.
Liverpool City Council (LCC)	Extensive Engagement has taken place with LCC on our respective Clean Air Plans throughout their development. A number of recent technical exchanges have taken place, but we have yet to receive a formal response with regard to Liverpool's final position in terms of the OBC CAZ proposal.
Peel Ports	A number of engagement sessions have taken place with Peel Ports to share our proposals with regard to Sefton's OBC. Peel have raised a number of queries related to the justification for targeting HGV's and rationale for implementing a charging Clean Air Zone. Additional evidence and technical information have been presented to Peel in response to the technical queries. Peel acknowledges our work with regard to the OBC and CAZ proposal however still have concerns regarding the justification and economic impact.

- Notwithstanding the above stakeholder engagement, it is acknowledged by Sefton that there is still some consultation and engagement work that needs to take place prior to the finalised AQAP being submitted for approval. The Council will ensure that the statutory consultation requirements are adhered to and engagement with other stakeholders including neighbouring LA's, businesses and the local community will take place to ensure they have the opportunity to comment on the proposed actions. The responses from this imminent engagement and consultation exercise will be assessed and reported in the final AQAP.

Steering Group

- Within Sefton Council an Air Quality Members Reference Group acts as the strategic steering group to oversee the work being undertaken in respect of Air Quality within the Borough including the development of this AQAP.
- The cross-Council group is co-chaired by Cabinet Members for Health and Wellbeing and Regulatory, Compliance and Corporate Services.

  Other members of the Steering Group include:

  - Cabinet Member - Locality Services
  - Cabinet Member – Education
  - Assistant Director of Place -Highways and Public Protection
  - Environmental Health and Licensing Service Manager
  - Principal Environmental Health Officer
  - Transport Planning Manager
  - Strategic Infrastructure Planner / Clean Air Plan Manager
  - Senior Communications Officer
  - Senior Planning Officer
  - Public Health Consultant – Wider Determinants
- The Steering group meets every month and is responsible for setting priorities in respect of Air Quality in the Borough, ensuring the Council meets its statutory LAQM obligations, developing innovative actions and ensuring effective progress is made with regard to Sefton's Clean Air Plan and AQAP.
- The group regularly work with external partners outside the Council to progress action plan measures these include Liverpool City Region Combined Authority, The Environment Agency, Public Health England, Merseytravel, National Highways, and Peel Ports (who operate the Port of Liverpool).
- In addition, Sefton Council's Air Quality Officers attend regular scheduled meetings with air quality officers from other local authorities within the Merseyside & Cheshire region, through the Merseyside and Cheshire Air Quality Management Group, to discuss air quality issues and how to improve air quality within the wider Liverpool City Region and Cheshire. This group includes air quality officers from Sefton Council, Liverpool City Council, St Helens Council, Knowsley Council, Wirral Council, Halton Borough Council, and officers from Cheshire East, Cheshire West and Chester Councils.

AQAP Measures

Table 6-1 shows the Sefton Council AQAP measures. It contains:

- a list of the actions that form part of the plan.
- the responsible individual and departments/organisations who will deliver this action.
- estimated cost of implementing each action (overall cost and cost to the local authority)
- expected benefit in terms of pollutant emission and/or concentration reduction.
- the timescale for implementation
- how progress will be monitored

More detail and rationale for the measures proposed by Sefton and shown in table 6.1 are provided below:

APM1 - Emissions Enforcement -Joint Sefton/DVSA emissions monitoring enforcement project.

- To target HGV related emissions in key areas, officers from Sefton working in collaboration with Driver and Vehicle Standards Agency (DVSA) Inspectors developed and have now undertaken 3 joint vehicle emissions monitoring/enforcement activities between December 2021 and September 2023 to identify HGV's travelling along the A5036, A565 and motorway network which were emitting unacceptable levels of air pollution thus potentially indicating emission control system tampering or faults.
- During the most recent exercise in September 2023 sophisticated air pollution monitoring equipment was installed in DVSA stop cars and levels of NOx and PM were monitored in live traffic to detect suspect vehicles. The DVSA were also testing a new Particulate Monitor (Total Particle Count) in anticipation of bringing in HGV particulate emission limits as part of the HGV MOT.
- Exhaust plume emissions from 230 vehicles were monitored over the 2-day project. 11 suspect vehicles were stopped at the switch Island DVSA inspection site and subject to further detailed examination by DVSA inspectors.
- Compared to previous years very few HGVs were identified for High NOx emissions and those stopped did not show faults. More HGVs were identified for high PM emissions when followed but when tested using the DVSA MOT Particulate monitor they were found to be within acceptable parameters for the age of the vehicle.
- The recent study confirms that less HGV's are operating with cheat devices/emission control faults than previous years which is obviously positive and likely to be one of the contributing factors that has led to the reductions in NO_2/PM observed when analysing the monitoring data in these key areas.
- To ensure this trend continues further joint work is being developed with DVSA, which will continue to target HGVs but also include LGV's and private cars as these now represent the largest non-complaint (i.e. Euro 5 or older) element of Sefton's Vehicle fleet.

APM2 - Traffic Management - Optimisation of Traffic Light Strategies on key Routes

- To ensure traffic flow is optimised and thus road traffic emissions minimised as far as practicable in our AQMA's and wider borough, Officers from Environmental Health are currently developing a joint project with Highways and Yunex Traffic consultants. This will entail the revalidation of the SCOOT (Split Cycle and Offset Optimisation Technique) urban traffic light control system at 20 key traffic light-controlled junctions and 9 crossings in the Borough situated on Moor Lane, Crosby Road North, Derby Road, Dunnings Bridge Road, Southport Road and Northway.

- Surveys are due to be carried out at each of the key junctions/crossings to determine how effectively the junction is currently functioning in terms of traffic flow, congestion levels and minimising air pollution.

- Based on the outcome of the surveys new strategies will be developed aimed at improving traffic flow/congestion and managing the air quality issues in the locality. The new strategies will be incorporated into Sefton's SCOOT/STRATOS system and then tested for effectiveness.

APM3 - Traffic Management - Explore feasibility of using Air Quality Sensors to trigger traffic light strategies.

- As part of a City Region traffic light LED signal upgrade project, funding for 7 air quality sensors (Earthsense Zephyr) was secured which are now operational. The sensors are located at 7 key traffic light junctions in the Borough and integrated into Sefton's Stratos traffic signal control system.

- Real time air pollution data is now available from the sensors at these key locations, which can also be used to trigger specific traffic signal strategies to alleviate congestion if levels of localised pollution are of concern.

- Officers from Highways and Environmental Health are currently working together to develop potential traffic light strategies based on the sensor outputs. The strategies are being designed to alleviate congestion and therefore reduced vehicle emissions.

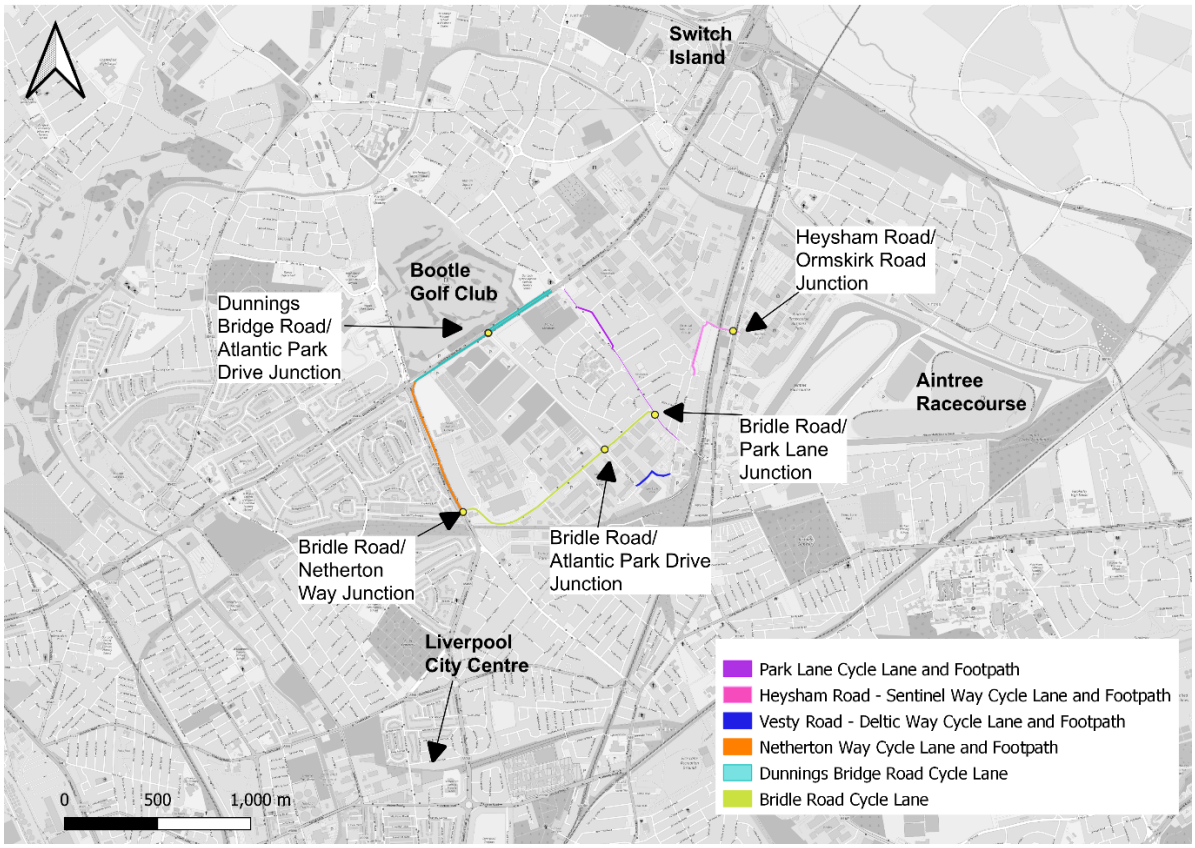
- The effectiveness of the strategies will be measure directly in terms of pollutant levels and traffic flow/congestion.

APM4 Maritime Corridor Improvement Project

- The Maritime Corridor is the area spanning from Switch Island to Netherton Way (A5038). It links to Atlantic Park and the wider area to the Port of Liverpool.

- Sefton's Maritime Corridor improvement scheme is focused on improving transport links throughout this area by improving junctions and introducing walking and cycling routes along Dunnings Bridge Road (A5036), Netherton Way (A5038), Bridle Road, Park Lane, Heysham Road and Atlantic Park Drive. The scheme is intended to make it easier for vehicles, cyclists and those walking to move around the area.

The map below shows the walking and cycling improvements as well as the junctions which are going to be improved.



- The Maritime Corridor is recognised as an area for existing employment, education and leisure opportunities, as well as being directly linked to local residential areas. In addition, both Sefton Council and the Liverpool City Region Combined Authority recognise the Maritime Corridor as a key area for potential future growth.

- Currently the area experiences high volumes of traffic and limited routes for walking and cycling. This can lead to congestion, travel time delays, air and noise pollution, as well as limiting the accessibility of employment and other opportunities for those unable to travel by car or choosing more sustainable modes of travel.

- The aim of the scheme is to therefore tackle these issues and create connected active travel routes throughout the wider area, whilst improving traffic conditions. We are also looking to improve the public space and overall attractiveness of the area. Our plan is that this scheme will help to promote and enable the growth of the wider region and bring further opportunities for local residents and businesses.

- Following the Liverpool City Region Combined Authority's (LCRCA) securing of funding from the Central Government's Levelling Up Fund and City Region Sustainable Transport Settlements Fund, Sefton Council are now working towards developing a Full Business Case to progress the scheme with updates on progress being reported in our future ASR's.

APM5 - Targeting local non-compliant HGVs (particularly rigids) to encourage vehicle upgrade.

- An Automatic Number Plate Recognition study was undertaken in late 2022 to understand the current fleet composition in Sefton, in response to questions raised during stakeholder engagement on Sefton's Clean Air Zone proposals. The ANPR study provided up to date information on the age and Euro standard composition of the fleet and highlighted a number of vehicle categories that were significantly older (and thus more polluting) in Sefton than the national fleet. Rigid HGVs were identified as a vehicle type that overall was much older and as such worth targeting in terms of encouraging vehicle upgrade.

- This action is currently in the development phase but will include engaging with fleet operators to obtain a better understanding of the composition of the local fleet and help understand the challenges to upgrade.

- Exploration of possible grant opportunities in collaboration with external partners and agencies will also be a key element of this action.

APM6 - Working with Peel Ports to explore further opportunities to reduce HGV related emissions.

- Emissions from HGV traffic going to and from the Port of Liverpool impact significantly on a number of Sefton's AQMA's. Working in partnership with Peel Ports and the wider Port Access Steering Group to explore opportunities to reduce HGV related emissions has been identified as a key action in this AQAP.

- This action is currently in the development phase however, Specific project elements are likely to include:

    - Refining Port Booking System to ensure minimal waiting / queuing of HGV's.
    - Management of waiting/rest areas/vehicle idling on site for HGVs
    - Exploring opportunities to restrict non-compliant (Euro 5 and Older) vehicles.
    - Supporting Port AQ & Carbon Reduction Strategy

APM7 - Working with Peel Ports to explore further opportunities to reduce non-HGV related emissions.

- Working with Peel Ports to explore opportunities to reduce non-HGV related emissions has been identified as a key action due the proximity of the port to 2 of Sefton's AQMA's.

- Work undertaken as part of the previous CAZ outline business case has identified non-traffic sources of pollution having a notable impact on air quality levels in the nearest AQMA's. As such Sefton is currently working in partnership with Peel to develop this action further.

- Opportunities include exploring the use of electric portside vehicles i.e. cranes and tugs, investigating the use of electric ship-to-shore power (cold ironing) and installation of renewable energy generators (solar, wind, tidal) to replace CHP derived electric/power.

APM8 and APM9 Working with the LCRCA, Bus Operators and LCRCA Bus Alliance to concentrate compliant fleet in areas with worst AQ and improve the bus fleet.

- The ANPR study undertaken in Nov 2022 provided information on the age and Euro standard of the bus fleet in Sefton.

- Like the rigid HGV fleet, the Bus fleet was notably older than the national average with proportionally more non-compliant buses (Euro 5 and older) travelling within Sefton and through our AQMA's.

- As part of its Bus Reform programme, the LCRCA is committed to phasing in zero-emission electric and hydrogen powered buses, and phasing out diesel engines from the bus fleet. LCRCA has also committed to introducing a new bus franchising model, under which the Combined Authority will have greater control over fares, routes, timetables and fleet. This presents an opportunity to work with them to maximise positive impact on AQ in Sefton's AQMAs

- As such working in partnership with the LCRCA, bus operators and the bus alliance to concentrate the compliant bus fleet in our areas with the worst Air quality along with exploring opportunities to improve the bus fleet operating in these areas has been identified as a key air quality improvement action.

- This action is currently in the development phase, but activities are likely to include working with LCRCA, Bus operators and LCRCA Bus Alliance to explore opportunities for fleet improvements including:

    - Use of hybrid and electric vehicles
    - Hydrogen buses
    - Implementation of Green Bus Corridor
    - Retrofit grants

APM10 - Detailed AQ study around Millers bridge to understand significant non-traffic background sources contributing to NO_2 exceedances.

- Work undertaken as part of the previous CAZ outline business case has identified some non-traffic sources of pollution are impacting on levels of NO_2 and PM in the Millers Bridge AQMA.

- A detailed air quality study around Millers bridge to understand significant non-traffic background sources contributing to NO_2 exceedances (and also PM levels) is planned as an AQAP action.

- This will assist in Identifying the key issues/contributors to the high NO_2 background concentrations (non-traffic) and enables targeted proposals to be developed for tackling emissions from industry operations/shipping and internal fleet.

APM11 - Intensive Road and footpath cleaning in AQMA's

- Whilst levels of PM_{10} within the AQMAs are well below the national air quality limit, levels of $PM_{2.5}$ are very close to the new upcoming standard and the build-up of fine debris and detritus in road gullies and footpaths within the AQMA's has been observed.

- As such a second phase of intensive road and footpath cleaning in the AQMA's is being developed with colleagues in Sefton's Cleansing Department and will form a specific action within the proposed AQAP.

- This work is anticipated to start in spring/summer 2024.

APM12 - Use of the planning system to mitigate AQ impacts.

- Sefton continues to use the planning system to mitigate the air quality impacts of any new development likely to have an impact on the AQMAs through the use of planning conditions and Section 106 Agreements.

- All planning applications received are reviewed and where an AQ concern is identified an Air Quality Assessment will be required. Measures to mitigate impacts will be included as part of planning approval where AQA concludes the development will impact Air Quality negatively.

APM13 - Develop and promote active travel initiatives and campaigns.

- Sefton has already developed and implemented a number of successful active travel campaigns and initiatives.

- A key action within this proposed AQAP is to continue to explore opportunities to develop active travel options including workplace travel plans and improving the associated infrastructure.

Table 6-1 – Air Quality Action Plan Measures

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
APM1	Sefton/DVSA Emissions Monitoring and Enforcement Project – targeting high emission HGVs/LGV's	Traffic Management	Testing Vehicle Emissions	2024	2026	Sefton/DVSA/Police	Sefton/DVSA	No	Not Funded	£10K-£50	Planning	Reduced Vehicle emissions	Number of Vehicles found with high emissions	Currently in Planning Phase	Currently in discussions with DVSA following completion of a successful project in 2023. Unable to progress without out support form DVSA
APM2	Traffic signal strategies optimisation	Traffic Management	UTC, Congestion management, traffic reduction	2024	2025	Sefton/Consultants	Internal Funding	No	Fully Funded	£10K-£50K	Implementation	Reduced Vehicle emissions	Measured concentration of NO2 within AQMA's	Traffic consultant engaged work plan in development	SCOOT revalidation taking place at key 20 Junctions and 9 Crossings in Sefton Upon Completion of Validation, the consultancy service team will agree preferred locations. and set up strategies at the appropriate junctions to assist with managing the air quality. issues in the area.
APM3	Explore feasibility of using Air Quality Sensors to trigger traffic light strategies	Traffic Management	UTC, Congestion management, traffic reduction	2024	2026	Sefton/Consultants	Internal Funding	No	Not funded yet	£10-£50K	Planning	Reduced Vehicle emissions	Measured concentration of NO2 within AQMA's	Currently in Planning Phase	Currently in discussion with Traffic Engineers and consultants to explore possibility of using existing AQ sensors to trigger specific traffic light strategies during periods of congestion.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
APM4	Maritime Corridor (A5036) improvement Project	Traffic Management	Strategic Highway improvement	2025	2027	Sefton, Combined Authority, National Highways	External Funding	No	Funded	£1-£10 million	Planning	Improved traffic Flow, reduced vehicle emissions	Measured concentration of NO2	Currently in planning/ development phase	Scheme is currently moving to Full Business Case Phase and is focused on improving transport links along the corridor area by improving junctions and introducing walking and cycling routes along Dunnings Bridge Road (A5036), Netherton Way (A5038), Bridle Road, Park Lane, Heysham Road and Atlantic Park Drive.
APM5	Targeting local non-compliant HGVs (particularly rigids) to encourage vehicle upgrade	Vehicle Fleet Efficiency	Other	2024	2026	Sefton/Fleet operators / Peel / Port Access SG / Freeport, LCRCA / DfT / JAQU	External Funding required	No	Not funded	£100k - £500k >	Planning	reduced vehicle emissions/Number of non-compliant HGV's	Measured concentration of NO2 within AQMA's	Currently in planning/ development phase	Currently developing this action to target most polluting pre-Euro 6 HGVs (particularly rigids)
APM6	Working with Peel Ports to explore further opportunities to reduce HGV related emissions	Freight and Delivery Management	Delivery and Service Plans	2024	2026	Sefton/Peel, Port Access SG / haulage companies / Freeport	External funding required	No	Not Funded	£100K-£500K	Planning	Reduced Vehicle emissions	Measured concentration of NO2 within AQMA's	Currently in planning/ development phase	Currently developing this action -
APM7	Working with Peel Ports to explore further opportunities to reduce NON-HGV related emissions	Promoting low emission transport	other	2024	2026	Sefton/Peel Ports, Shipping Companies, Energy supply companies, Peel Ports tenant businesses	Some external funding	No	Not funded	£10K-£50K	Planning	Reduced vehicle emissions	Hard to quantify	Currently in planning/ development phase	Currently developing this action
APM8	Working with LCRCA, Bus Operators and LCRCA Bus Alliance to concentrate compliant fleet in areas with worst AQ	Transport Planning	Other	2024	2026	Sefton, LCRCA, Bus operators	Some external funding	No	Not Funded	£10K-£50K	Planning	Reduced bus emissions	Measured concentration of NO2 within AQMA's	Currently in planning/ development phase	Currently in development stage Barriers include. Willingness of operators to locate fleet on key Sefton routes.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
APM9	Working with LCRCA, Bus operators and LCRCA Bus Alliance on fleet improvements: - retrofit grants - Use of hybrid vehicles -Implementation of Green Bus Corridor Hydrogen buses	Promoting Low Emission Transport	other	2024	2027	Sefton, LCRCA, Bus operators	Some External Funding	No	Not Funded	£10K-£50K	Planning	Reduced Bus emissions	Measured concentration of NO2 within AQMA's	Currently in planning/ development phase	Action currently in development phase Barriers include Funding for newer fleet. Assume not all vehicles will be compliant with this technology
APM10	Detailed study around Millers bridge to understand significant non-traffic background sources contributing to NO2 exceedances	Environmental Permits	other	2024	2026	Sefton, Peel / Port Industries, Environment Agency.	External Funding	No	Not Funded	£10K-£50K	Planning	No direct impact	No direct impact	Currently in planning/ development phase	Study currently in development phase. Barriers include Willingness of Port industries to engage / consider improvement measures. Agreeing a feasible scope for the study.
APM11	Intensive road and footpath cleaning in AQMA's	Other	Other	2024	2026	Sefton	Sefton	No	Funded	£10K-£50K	Planning	Reduced PM in AQMA's	Reduced PM in AQMA	Currently in planning/ development phase	
APM12	Use the planning system to mitigate the air quality impacts of any new development likely to have an impact on the AQMAs through the use of planning conditions incorporating Low Emissions Strategy measures from developers and the use of Section 106 Agreements.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2024	ongoing	Sefton	Sefton	No	Funded	N/A	Implementation	Hard to quantify	No of Planning applications consulted on/No of AQA reviewed	ongoing	All planning applications received are reviewed and where an AQ concern is identified an AQA will be required. Measures to mitigate impacts will be required as part of planning approval where AQA concludes the development will impact AQ negatively

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
APM13	Develop and promote Active travel initiatives and campaigns	Promoting Travel alternatives	Intensive active travel campaign & infrastructure	2024	ongoing	Sefton	Sefton	No	Funded	N/A	Development /implementation	Hard to quantify	Number of campaigns and initiatives undertake	Ongoing/in development	A number of successful active travel initiatives campaigns already underway others being developed

Appendix A: Response to Consultation (to be completed following consultation)

Table A.1 – Summary of Responses to Consultation and Stakeholder Engagement on the AQAP

Consultee	Category	Response

Appendix B: Reasons for Not Pursuing Action Plan Measures (to be completed following consultation)

Table B.1 – Action Plan Measures Not Pursued and the Reasons for that Decision.

Action category	Action description	Reason action is not being pursued (including Stakeholder views)
<Select from the categories in the blue instruction box above>	<Insert description of measure>	<Insert text here>

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less