

Report to:	Overview and Scrutiny Committee (Regulatory, Compliance and Corporate Services)	Date of Meeting:	14 th January 2020
Subject:	Air Quality Update		
Report of:	Head of Highways and Public Protection	Wards Affected:	(All Wards);
Portfolio:	Regulatory, Compliance and Corporate Services		
Is this a Key Decision:	No	Included in Forward Plan:	No
Exempt / Confidential Report:	No		

Summary:

To provide an update regarding air quality management and recent air quality developments in Sefton

Recommendation(s):

The report be noted

Reasons for the Recommendation(s):

To update members on current Air Quality Management developments within the Borough

What will it cost and how will it be financed?

(A) Revenue Costs – this report is an update only; all associated revenue costs will be contained within allocated budgets.

(B) Capital Costs - None

Implications of the Proposals:

Resource Implications (Financial, IT, Staffing and Assets):

There are no additional resource implications associated with this report.

Legal Implications:

There are no legal implications

Equality Implications:

There are no equality implications.

Contribution to the Council's Core Purpose:

Protect the most vulnerable: Poor air quality can have a major impact on health particularly for those already vulnerable e.g. young children, the elderly and those with existing respiratory problems. Measures being implemented to improve air quality therefore contribute to this core purpose

Facilitate confident and resilient communities: The interventions undertaken by the Local Authority and its partners to improve air quality and mitigate against poor air quality, include informing, educating and enabling behavioural change within our communities.

Commission, broker and provide core services: Local Authorities have a statutory duty to review and assess air quality in their area and Local Air Quality Management is a specific function undertaken as part of our environmental health/public protection responsibilities.

Place – leadership and influencer: The monitoring and publishing of air quality data, allied with specific interventions and educational initiatives to improve air quality and quality of life, are key Place Leadership and influencing activities

Drivers of change and reform: Many of the interventions referred to are important contributors to the behavioural and system change necessary to improve air quality and health.

Facilitate sustainable economic prosperity: There is established evidence of the impact of poor air quality on health and growing evidence of the impact of poor health on productivity, consequently the management of air quality is relevant to sustainable economic prosperity.

Greater income for social investment: N/A

Cleaner Greener - Poor air quality is an indication of environmental damage and any mitigation measures reduce the impact of this damage.

What consultations have taken place on the proposals and when?

(A) Internal Consultations

The Head of Corporate Resources (FD5913/20) has been consulted and notes the report indicates no financial implications for the Council. The Chief Legal and Democratic Officer (LD4097/20.) has been consulted and any comments have been incorporated into the report.

(B) External Consultations

'not applicable'

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Background

1. The concept of Local Air Quality Management (LAQM) was introduced under the Environment Act 1995. Evidence has shown that certain atmospheric pollutants are linked to poor health. The Environment Act places a statutory duty on all Local Authorities to review and assess air quality in their areas at regular intervals. The Air Quality Regulations made under the Environment Act 1995 specify the pollutants that must be considered and sets standards and objectives for each of the pollutants, which are referred to as National Air Quality Standard (NAQS) Objectives. Some NAQS are the measurement of a pollutant averaged out over a particular period of time. With any averaged standard there will be peaks and troughs in the pollutant level over the given time period. Additionally whilst NAQS are the Government's measurement of acceptability, there may still be health impacts associated with levels below this standard. Therefore, it is important not to view the standard as a target but to introduce mitigation measures which reduce levels of pollution as much as possible.

2. The NAQS are detailed below with the 2 pollutants still of concern shown in red text.

The pollutants that must be considered are:

Pollutant	Description	National Air Quality Standard Objective (NAQS)	Date to be Achieved
Benzene	An organic chemical compound emitted by some industrial processes and a constituent of petrol	5 µg/m³ (Annual Mean)	31.12.2010
1,3 Butadiene	A Hydrocarbon based gas released from car exhausts	2.25µg/m ³ (Annual Mean)	31.12.2003
Carbon Monoxide	An odourless colourless gas produced by incomplete combustion	10mg/m³ (8 hour mean)	31.12.2003
Lead	A heavy metal emitted by certain industrial processes	0.25µg/m³ (Annual Mean)	31.12.2008
Nitrogen Dioxide	A gas produced by internal combustion engines	200µg/m³ (1hr mean) not to exceeded more than 18 times per annum 40µg/m³ (Annual mean)	31.12.2005
Particulate Matter PM₁₀	Particulates less than 10µm in diameter produced by industry and road traffic.	50µg/m³ (24hr mean) not to be exceeded more than 35 times per annum 40µg/m³ (Annual mean)	31.12.2004

Sulphur dioxide	A gas which can be produced when burning fossil fuel and or heavy fuel oil	266µg/m³ (15 min mean) Not to be exceeded more than 35 times a year 350µg/m³ (1hr mean) Not to be exceeded more than 24 times per year 125µg/m³ (24hr mean) Not to be exceeded more than 3 times a year	31.12.2005
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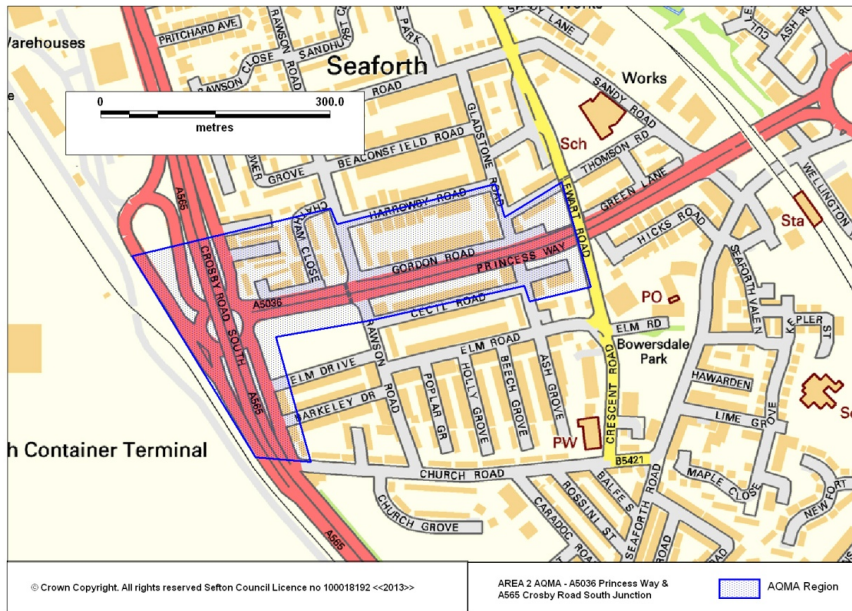
3. As part of this review and assessment of air quality, Sefton must prepare an Annual Status Report (ASR) each year. If it has been determined as part of this process that if any of the health-based air quality objectives detailed above are unlikely to be met, the Local Authority must declare Air Quality Management Area(s) (AQMA) for that defined area and produce an action plan to work towards compliance with the objective(s).
4. Sefton has undertaken several Reviews and Assessments since the Environment Act placed this duty on Local Authorities. As part of these previous assessments it has been determined that for the following pollutants, Benzene, 1,3 Butadiene, Carbon Monoxide, Lead and Sulphur Dioxide, the NAQS objectives will **not** be exceeded in Sefton and as such, no AQMAs have been declared for these pollutants. These pollutants will however be kept under regular review as part of the Review and Assessment process.
5. The ongoing review and assessment process has confirmed that in most of Sefton Air Quality is of a good standard and complies with the National Air Quality Standard Objectives given above.
6. This report provides Members with details of the 4 current Air Quality Management Areas (AQMA); a summary of air quality monitoring findings and implications; and air quality improvement actions implemented or currently being implemented. When Members considered the previous update report they requested a more detailed report, hence the additional content in this report. Subject to Member's comments the level of detail can be adjusted as required in future reports.

Air Quality Management Areas (AQMAs)

7. Four localised areas in South Sefton have been identified where levels of Nitrogen Dioxide (NO₂) have exceeded or are close to the annual average standard of 40 µg/m³. Air Quality Management Areas have been declared in these locations (see table below) and are discussed in more detail below.

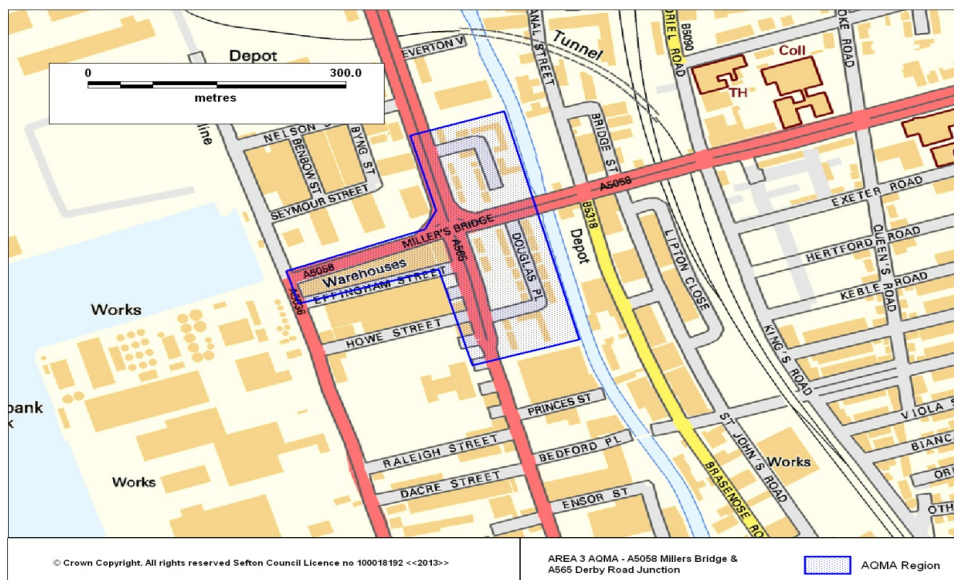
AQMA 2	A5036 Princess Way and Crosby Road South Junction, Seaforth.
AQMA 3	A5058 Millers Bridge and Derby Road Junction, Bootle.
AQMA 4	A565 Crosby Road North and South Road Junction, Waterloo
AQMA 5	B5422 Hawthorne Road and Church Road Junction, Litherland.

AQMA 2-Princess Way, Seaforth.



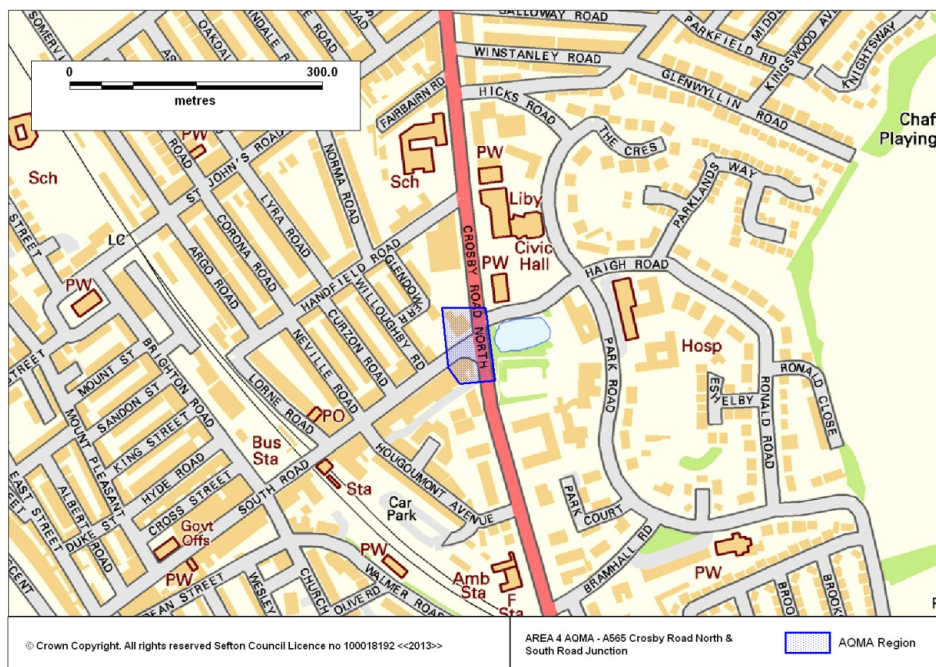
8. AQMA 2 was identified for NO₂ exceedances. The boundaries of the AQMA were defined as part of the Further Assessment process. The main source of NO₂ in this AQMA is emissions from HGV's. The deep-water berth at the Port of Liverpool is now complete and HGV traffic is predicted to increase as a result. A major highways improvement intervention is currently being considered by Highways England to accommodate the increase in road traffic as a result of the port expansion. Sefton has already tried to reduce levels of NO₂ in this area by implementing and assisting in the design of several Air Quality interventions, including port booking systems, ECO Stars fleet recognition scheme and the redesigned 'hamburger' roundabout improvements. It is recognised, however, that dealing with road traffic related emissions in this area with the potential increase in HGV port traffic is extremely challenging.

AQMA 3 Millers Bridge



9. AQMA 3 was identified for exceedances of the PM₁₀ and NO₂ NAQS objectives. The main contributors to the emissions in this area were found to be HGVs and industrial processes on the dock estate. Several successful measures have been implemented in this area as part of the action plan to reduce emissions. Intensive road and footpath cleaning have been undertaken previously to reduce the quantity of particulates being re-suspended. A HGV hurry call system has also been introduced which gives priority to HGV's heading up Millers Bridge, reducing the need for stopping at the traffic lights thus reducing emissions.
10. Air Quality and Pollution Officers continually work with operators and the Environment Agency to ensure industrial emissions are monitored and controlled effectively in this area. The measures described above are having consistent positive effects on lowering emissions in the area.
11. As a result of these measures the NAQS objective for PM₁₀ has consistently been met for the last 7 years. However, this will be kept under review as the port expands in the future. With regard to NO₂ the results of monitoring show some exceedances of the annual NAQS objective in this AQMA. Dealing with NO₂ exceedances in this area is again challenging.

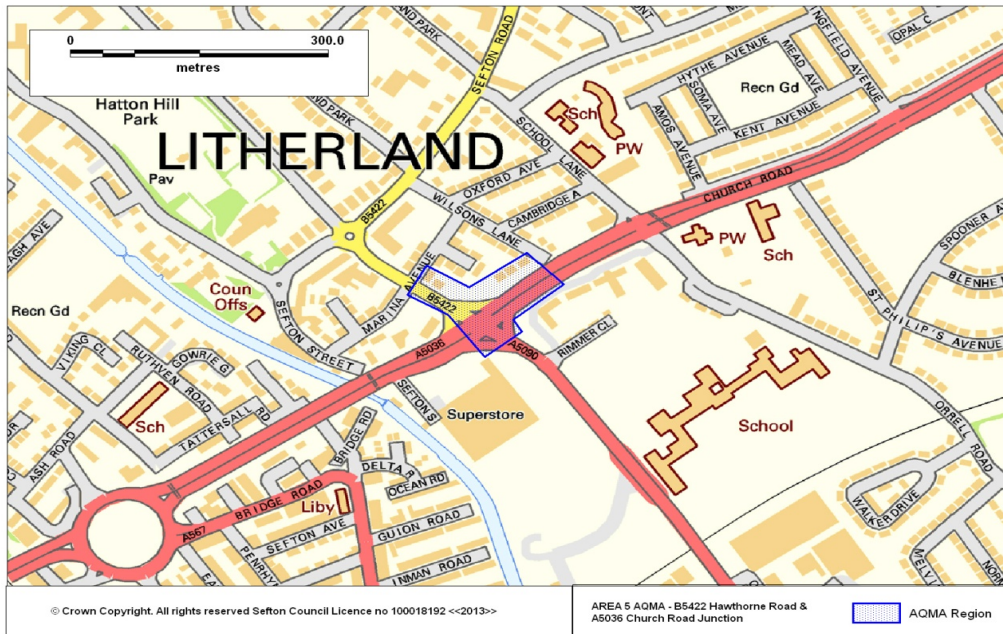
AQMA 4 Crosby Road North, South Road Waterloo



12. AQMA 4 was identified for exceedances of the NO₂ NAQS objective. As part the Action Plan to address this exceedance, improvements to the South Road and Haigh Road junction were agreed to improve traffic flow. The junction improvement works have now been completed and the effectiveness of these in terms of reducing levels of NO₂ in the AQMA is currently being monitored using diffusion tubes. The latest results show that levels of NO₂ in the AQMA have now reduced to below the national

limit. Further monitoring will be undertaken before the decision to revoke this AQMA is made to ensure consistent compliance.

AQMA 5 Hawthorne Road, Church Road Junction Litherland



13. AQMA 5 was identified for NO₂ NAQS objective exceedances. The main source of the emissions at this location is road traffic. In 2016, 2017 and 2018 this AQMA showed compliance with the annual NAQS objective for NO₂. However as with AQMA 2, this site may be affected by the increased emissions due to HGV traffic as a result of the port expansion and will remain in place.

Monitoring

Real Time Automatic Monitoring Stations

14. To assist and provide relevant data for the ongoing Air Quality Assessment process, Sefton currently monitors air quality in 5 locations in the South of the Borough measuring particulates (PM₁₀ and PM_{2.5}), Nitrogen Dioxide (NO₂) and Sulphur Dioxide (SO₂) using sophisticated, real time automatic monitors. They are in areas that represent relevant public exposure and are either in areas identified as AQMA's or areas where further data is required to support the ongoing review and assessment process. They are constantly recording levels of these pollutants to enable direct comparison with hourly, daily and annual mean NAQS objectives detailed above. The location of all 5 monitors is described in the table 1.

15. Ongoing review of Sefton's monitoring requirements takes place and as result of the latest review several old monitors have been replaced with new to ensure accuracy of

results. Additionally, a new dual particulate monitor has been installed at Millers Bridge which monitors both PM₁₀ and PM_{2.5}. To assess levels of particulates at Hawthorne Road / Church Road junction a PM₁₀ monitor has also been installed.

Table 1-location of Automatic Air Quality Monitors

Monitor Location	Justification for Location	Pollutants Monitored
Waterloo Primary School, Crosby Road North, Waterloo.	Within previous AQMA1 Crosby Road North. Proximity to Road/Sensitive Receptor	PM ₁₀ NO ₂
Hawthorne Road opposite KFC, Litherland	Within AQMA 5 Church Road Junction- Proximity to Road Junction/Sensitive Receptor	NO ₂ , PM ₁₀
Lathom Close, Seaforth	Within AQMA 2. Proximity to Road/Docks/Sensitive Receptor	PM ₁₀ NO ₂
Millers Bridge, Bootle	Within AQMA 3. Proximity to Road Junction/ Docks and Sensitive Receptor.	PM _{10/2.5} NO ₂
A565, Crosby Road South previously located at St Joan of Arc School	Proximity to Road /Docks and Sensitive receptor.	PM ₁₀ NO ₂ SO ₂

Diffusion Tubes

16. In addition to the real-time monitors, Sefton measures monthly NO₂ levels at approximately 100 sites across the Borough using diffusion tubes.

17. The diffusion tubes are in areas that have already been identified as AQMA's or are in areas, near sensitive premises where additional data and monitoring is required into assess current/future NO₂ levels as part of the ongoing Review and Assessment process. The monthly results from these tubes are combined to enable comparison with the annual mean NAQS objective for NO₂. Several sites have also been added to assess the impact the port expansion and subsequent highway improvement will have on NO₂ levels. The location of these is reviewed annually to ensure all areas of concern are monitored.

18. A number of diffusion tubes have shown exceedances of the NAQS objective in 2018. These results are discussed on the next page.

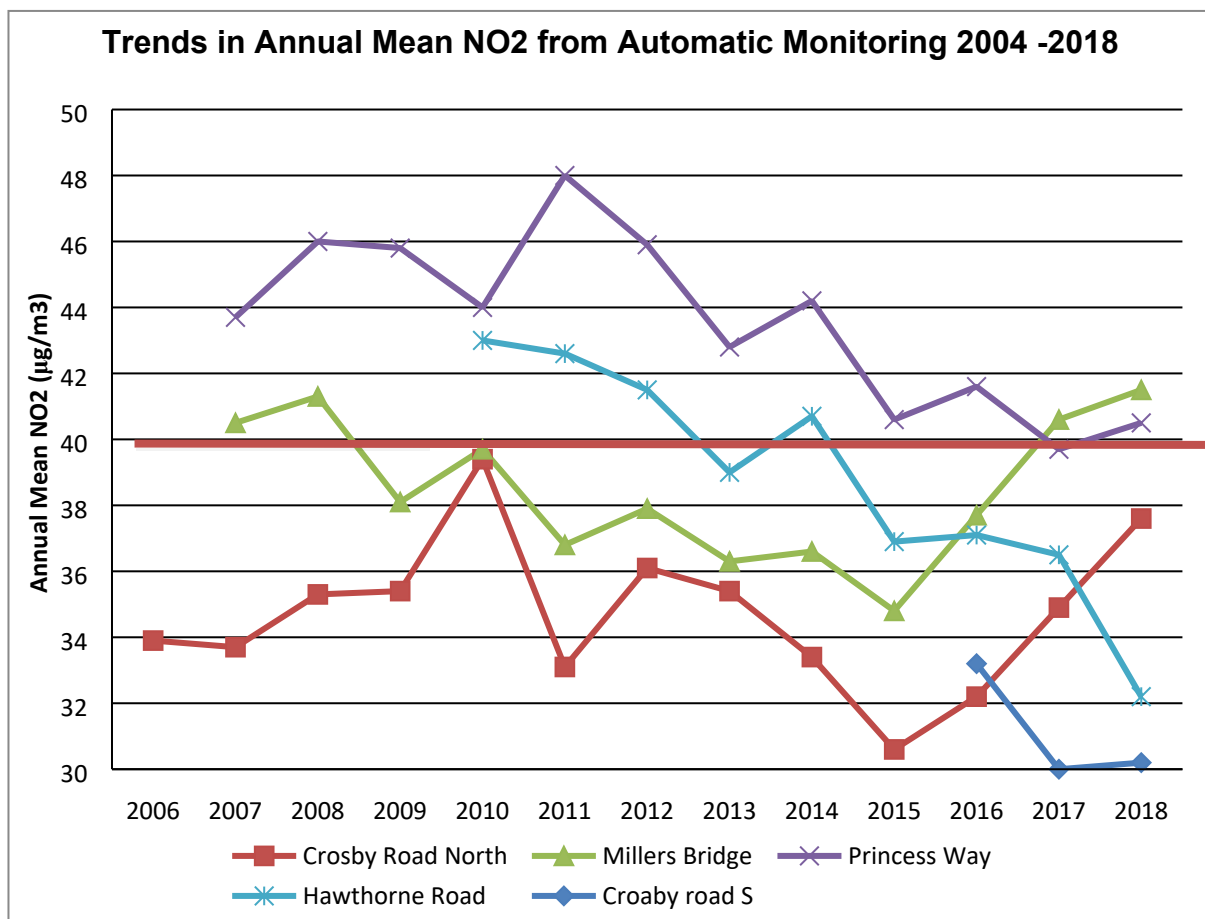
Monitoring Results

Nitrogen Dioxide

NO₂ Annual Mean 2012 - 2018 (limit 40 µg/m³)

Site	NO ₂ Annual Mean µg/m ³						
	2012	2013	2014	2015	2016	2017	2018
Crosby Road North	36.1	35.4	33.4	30.6	32.2	34.9	37.6
Millers Bridge	37.9	36.3	36.6	34.8	37.7	40.6	41.5
Princess Way	45.9	42.8	44.2	40.6	41.6	39.7	40.5
Hawthorne Road	41.5	39.0	40.7	36.9	37.1	36.5	32.2
Crosby Road South				34.6	33.2	29.6	30.2

19. The table above shows the measured levels of NO₂ at each of the continuous monitoring sites since 2012. The national limit is 40 µg/m³ and whilst the monitors are not located exactly at the receptor location, they provide an accurate indicator of NO₂ levels in the locality.



20. The graph above shows the trends in Annual mean NO₂ levels between 2006 and 2018 at each of the continuous monitoring sites.

21. Princess Way monitor which is located within AQMA 2 showed levels in exceedance of the NO₂ annual mean objective of 40µg/m³ in 2018 This represents an increase in levels compared to 2017. Monitoring will continue in this location so future trends can be determined.
22. Hawthorne Road monitor which is located within AQMA 5 continues to show a downward trend since monitoring commenced in 2010 and since 2014 showed compliance with the annual objective. Due to the port expansion this monitor is ideally placed to assess any future increases.
23. The trend from automatic monitoring at Millers Bridge which is located within AQMA 3 has been one of compliance with the annual mean objective from 2009 – 2016, however levels generally appear to be rising since 2015 with exceedances observed in 2017 and again in 2018 against the annual mean standard.
24. Trends at Crosby Road North automatic monitoring site continue to show compliance with the annual standard, however levels do appear to be increasing again from the lowest level recorded in 2015. This will continue to be monitored closely to determine if any further actions are required in this area.
25. Levels at Crosby Road South were well within the NAQS objective and remain fairly constant.

Particulate Matter

PM₁₀ Annual Mean 2012-2018 (Limit 40 µg/m³)

Site	PM ₁₀ Annual Mean µg/m ³						
	2012	2013	2014	2015	2016	2017	2018
Crosby Road North	25.4	28.3	23.6	23.7	17.0	21.1	19.9
Millers Bridge	26.1	28.1	28.8	28.7	25.4	23.9	20.1
Princess Way	24.9	26.5	26.5	26.7	23.8	23.1	22.6
Crosby Road South				25.3	22.4	19.5	23.7
Hawthorne Road						23.9	21.2

26. The table above shows the measured levels of PM₁₀ at each of the continuous monitoring sites since 2012. The national limit is 40 µg/m³ and whilst the monitors are not located exactly at the receptor locations, they provide an accurate indicator of PM₁₀ levels in the locality.
27. All areas are now consistently compliant with the PM₁₀ NAQS objective with annual levels well within the standard. The number of daily exceedances is also consistently below the standard of 35 exceedances per year. Monitoring of PM₁₀ will however continue to assess the impact the port expansion may have on particulate emissions.

PM_{2.5} Monitoring

28. Although Sefton Council monitors PM₁₀ at a number of locations in the Borough, there is now clear evidence that even smaller particles with an aerodynamic diameter of 2.5µm or less, known as PM_{2.5}, have a significant impact on human health. A new dual PM₁₀ / PM_{2.5} monitor was installed in July 2017 at the Millers Bridge monitoring site with data being used to provide accurate levels of PM_{2.5} in the area to assist in providing data for the Council's new role in reducing levels of PM_{2.5}. results indicate that for the period monitored, levels were 7.1 µg/m³ in 2017 and 8.9 µg/m³ in 2018 which is significantly below the current PM_{2.5} annual mean limit value of 25µg/m³.

Diffusion tube Results

29. Fourteen non-automatic (passive) diffusion tube monitoring sites showed exceedance of the NO₂ annual mean objective in 2018 at the monitored location. The results are discussed below:

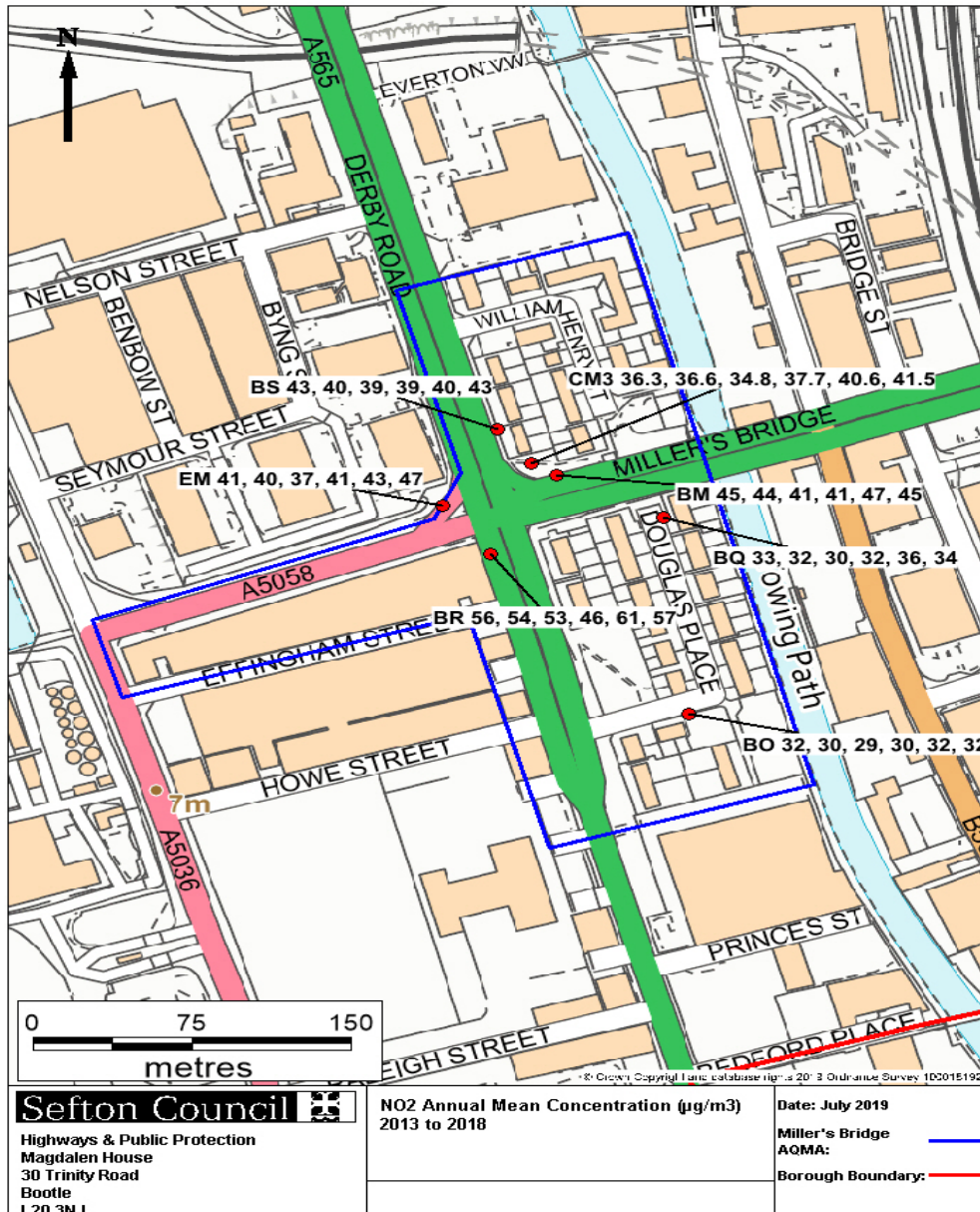
Millers Bridge/Derby Road Area

30. Around the Millers Bridge area these were at:

- Site ID: BM Derby Road, Bootle - NO₂ annual mean of 45µg/m³ recorded,
- Site ID: BR Derby Road, Bootle - NO₂ annual mean of 57µg/m³ recorded,
- Site ID: EM Millers Bridge Bootle - NO₂ annual mean of 47µg/m³ recorded, and
- Site ID: BS Derby Road - NO₂ annual mean of 43µg/m³ recorded.

31. All four sites are located within existing AQMA 3 Millers Bridge. As these sites recorded a 2018 NO₂ annual mean concentration in exceedance of the air quality objective at a monitoring site which is not representative of exposure, the concentration at the nearest receptor for these locations was estimated using the Defra NO₂ fall off with distance calculator. This showed the estimated concentrations at receptor locations to be 35.8 µg/m³, 50.7µg/m³, 32.3µg/m³ and 36.9µg/m³ for NBM, NBR, NEM and NBS respectively. Therefore, Site ID: BR, within AQMA 3, was the only diffusion tube location that showed exceedance of the NO₂ annual mean objective at a relevant public exposure location in this area. AQMA3 will continue to remain in place.

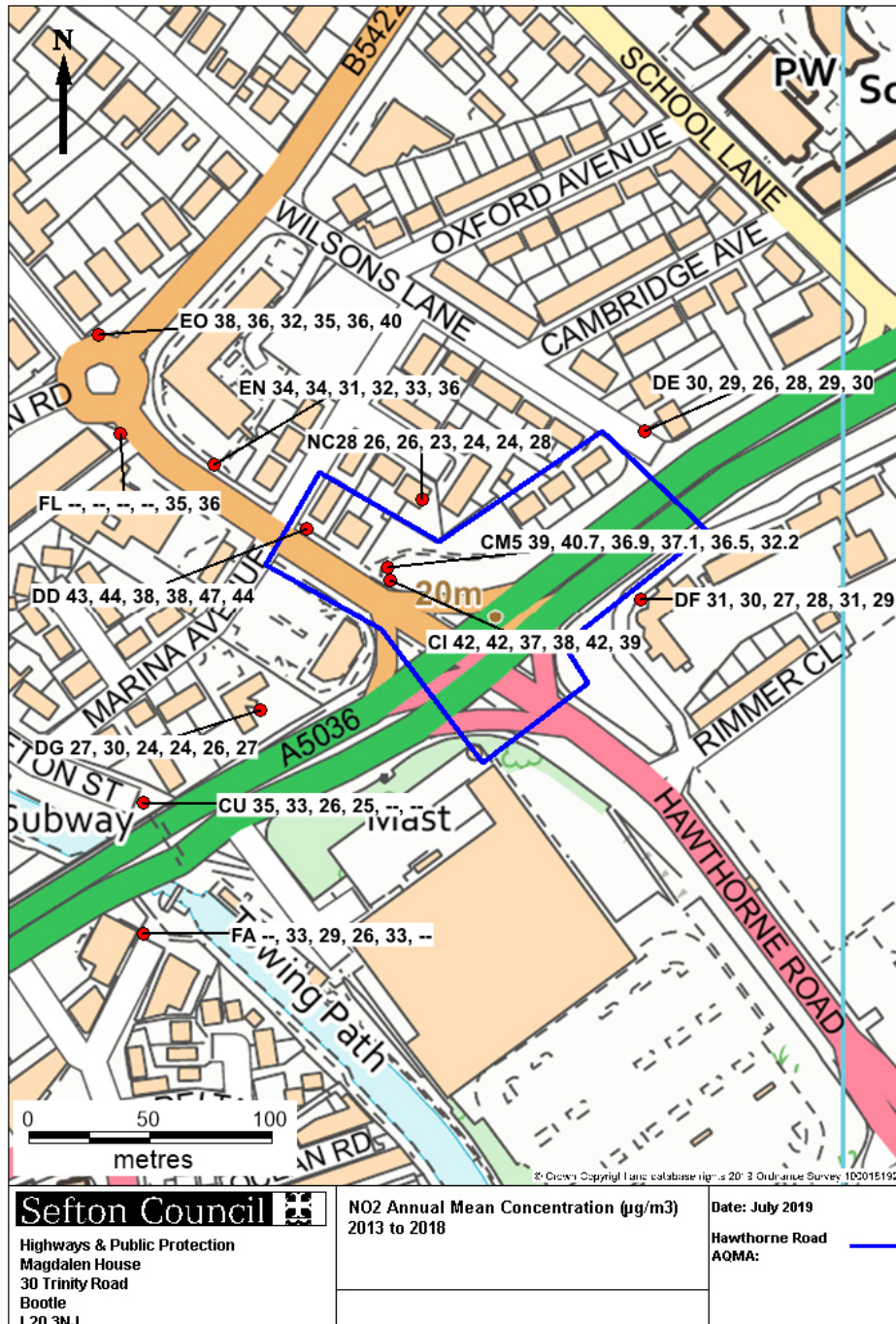
Map showing Millers Bridge AQMA boundary and monitoring results



Hawthorne Road/Church Road Area

32. Around the Hawthorne Road AQMA site ID DD Hawthorne Road, Litherland showed annual average NO₂ level of 44 µg/m³. When adjusted for distance the levels at the receptor were estimated to be 36.4 µg/m³, within the annual standard. This tube is located within AQMA 5 which will continue to remain in force due to concerns regarding the predicted increase in port traffic. Site ID NFH Church Road showed an annual mean of 43 µg/m³ in 2018. When adjusted for distance the level at receptor was estimated to be 27.6 µg/m³ well within the annual standard.

Map showing Hawthorne Road AQMA boundary and monitoring results



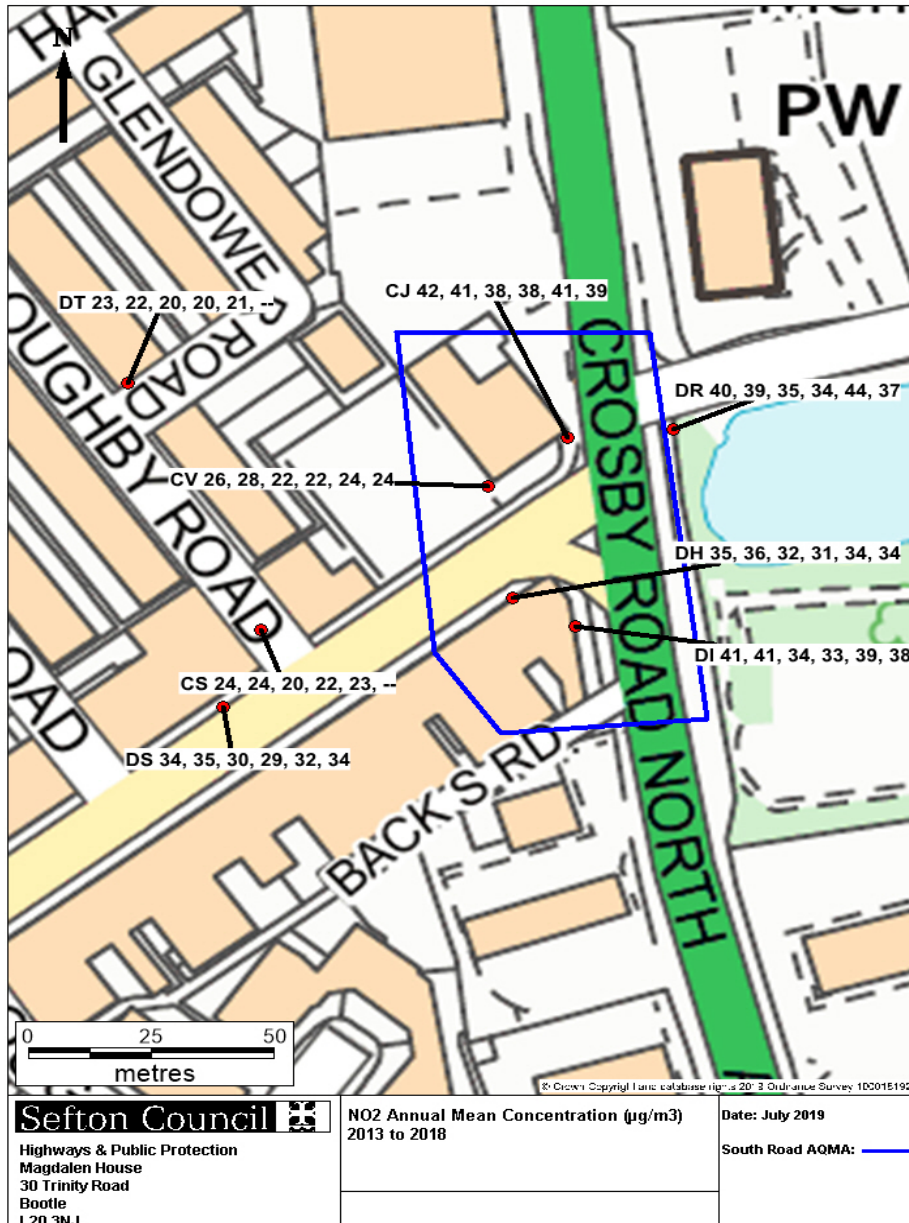
South Road/Crosby Road North Area

33. Around and within the South Road AQMA no exceedances of the NAQS objective were found in 2018. Results from diffusion tubes within the AQMA are as follows:

- CJ: 39 µg/m³ (adjusted at receptor 37.7 µg/m³),
- CV: 24 µg/m³ (adjusted at receptor 24 µg/m³),
- DH: 34 µg/m³ (adjusted at receptor 34 µg/m³),
- DI :38 µg/m³ (adjusted at receptor 38 µg/m³) and
- DR :37 µg/m³ (adjusted at receptor 25.1 µg/m³).

Whilst all levels are now below the NAQS objective it is not considered appropriate to revoke AQMA4 at this current time due to only having 12 months post improvement monitoring data. Notwithstanding this it does suggest that the junction improvement works have had a positive effect on reducing levels of NO₂ in this area and AQMA. Monitoring will continue during 2019.

Map showing South Road AQMA boundary and monitoring results



Hawthorne Road/ Linacre Lane

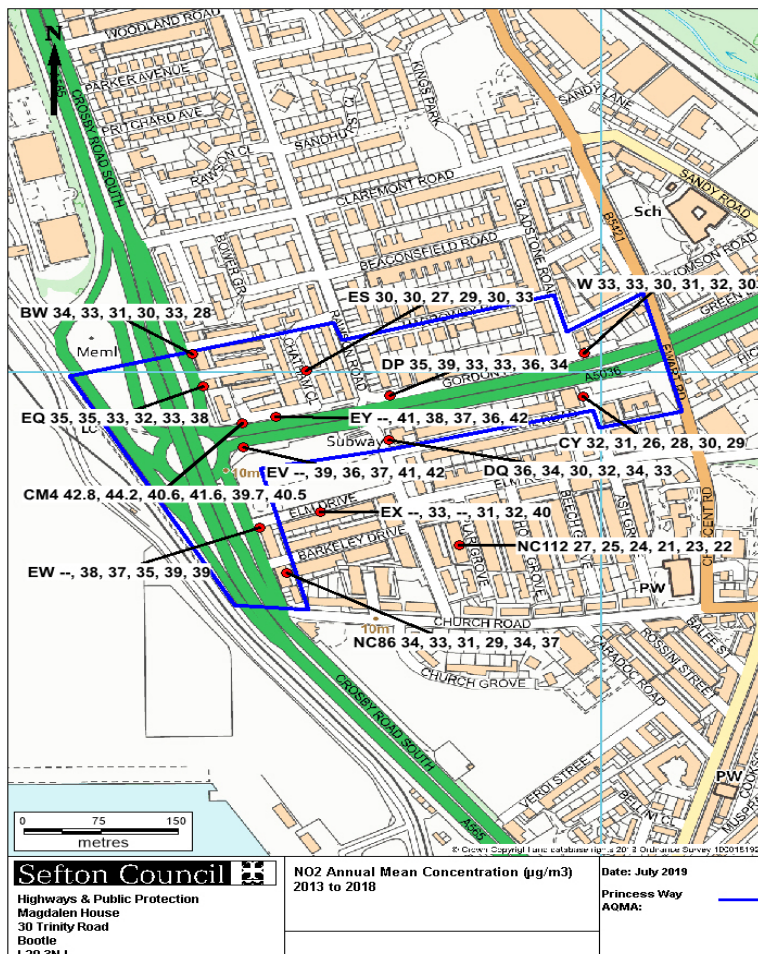
34. Site ID DO Hawthorne Road, Litherland showed annual average NO₂ levels of 45 µg/m³. When adjusted for distance the levels at the receptor were estimated to be 35.4 µg/m³

Breeze Hill Area

35. Site ID EL Breeze Hill showed an annual mean of $44 \mu\text{g}/\text{m}^3$ in 2018. When adjusted for distance the level at receptor was estimated to be $34.7 \mu\text{g}/\text{m}^3$ well within the annual standard.

Princess Way Area

36. Site ID EV Princess way showed an annual mean of $42 \mu\text{g}/\text{m}^3$ in 2018. The tube is located with AQMA 2 but not currently close to any relevant receptors. Site ID EY showed an annual mean of $42 \mu\text{g}/\text{m}^3$ in 2018. At the nearest receptor levels were estimated to be $33.6 \mu\text{g}/\text{m}^3$ within the NAQS. Site ID EX Elm Drive was found to have an annual mean of $40 \mu\text{g}/\text{m}^3$ in 2018 with estimated levels of $38.7 \mu\text{g}/\text{m}^3$ at receptor.



Heman Street

37. Site ID FI Heman Street showed an annual mean concentration of $42 \mu\text{g}/\text{m}^3$ in 2017. This tube is installed at a location deemed to be representative of public exposure. Historically annual results have been below the NAQS objective. Additional diffusion

tube monitoring in the area commenced in late 2018 in response and to determine if the exceedance was continuing and the extent of the exceedance. Diffusion tube FI Heman street showed levels of $38 \mu\text{g}/\text{m}^3$ in 2018 within the NAQS and a reduction on 2017 levels. The new Diffusion Tubes in the area GG, GH and GI showed levels of $39 \mu\text{g}/\text{m}^3$, $48 \mu\text{g}/\text{m}^3$ and $33 \mu\text{g}/\text{m}^3$ in 2018. These when corrected for fall off showed levels at the receptor of $35.2 \mu\text{g}/\text{m}^3$, $37 \mu\text{g}/\text{m}^3$ and $30.2 \mu\text{g}/\text{m}^3$ respectively, all within the NAQS, however, monitoring at these locations only commenced in late 2018 with some sites only having 3 months data. The results may not be representative of the full year and annualisation was not considered appropriate given the small number of months data present. Whilst the results show compliance with the NAQS objective, monitoring will continue into 2019 and a further review will take place at the end of 2019 to determine if AQMA declaration is required.

Air Quality Impacts Associated with Traffic redistribution due to Broom's Cross Road

38. Committee members have requested information about the air quality impact on local communities associated with displaced traffic following the opening of Broom's Cross Road.
39. The A5758 Broom's Cross Road opened in August 2015. The scheme consisted of the provision of a new single carriageway highway link between the A565 Southport Road, Thornton and the M57, M58, A59 and A5036 Switch Island junction, bypassing the local communities of Netherton and Thornton.
40. The consultancy company Atkins were commissioned to prepare a 1-year post-opening monitoring and evaluation report which provides a summary of the monitoring and evaluation undertaken to date, including how the scheme was delivered and the initial outcomes of the scheme.

Scheme successes

41. Initial studies showed that traffic volumes along the B5207 (Lydiat Lane, Northern Perimeter Road) through the local communities of both Netherton and Thornton decreased following the opening of the scheme. Specifically, the B5207 Lydiat Lane experienced a 70% reduction in traffic volumes. This, in combination with the complimentary traffic management measures that were implemented along this corridor, including mini roundabouts, signalised pedestrian crossings and pedestrian refuge islands have improved conditions for local vehicular traffic, public transport, walking and cycling on the existing routes.
42. The associated reduction in traffic volumes along the B5207 corridor as a result of the scheme has led to an overall improvement in air quality and noise for local communities in Netherton and Thornton. This is due to the transfer of traffic on to the scheme, which is located further away from the residential areas than the B5207.
43. The reduction in traffic volumes along the B5207 corridor has also resulted in a reduction in congestion at some key junctions, which will also contribute to a

reduction in both air pollution and greenhouse gas emissions. At the Green Lane/ A565 junction, the Green Lane leg of this junction now operates within capacity throughout the day, only suffering from congestion at school pick up time. Similarly, the Lydiate Lane/ Buckley Hill Lane junction now only experiences minor delays on the Buckley Hill Lane leg for a short duration during the afternoon peak. The Copy Lane eastbound arm of the junction with Dunnings Bridge Road also now operates with an improved performance, albeit with delays occurring for a short time during the afternoon peak.

44. The improved access from the national motorway network at the M57/ M58 Switch Island to the A565 via the scheme, provides a faster journey time to/ from Southport, thus contributing to the economic development and performance of the town.

45. The success of the new link in improving access to Switch Island has resulted, as anticipated, in additional traffic being attracted to the route from the Crosby area, increasing traffic flows along Moor Lane. This has led to concerns being expressed by the local community about traffic flows and congestion along the A565 corridor through Thornton. The Thornton Corridor Study carried out by the Council assessed traffic management, accessibility and safety through the Thornton area and an action plan was developed and implemented. The work is ongoing and a further review of the traffic management issues in the area will be undertaken in 2020, once the current works at the Buckley Hill Lane/Edge Lane junction have been completed.

46. Officers from Environmental Health continue to monitor levels of air quality in this area to determine compliance with national health-based standards and if any specific additional air quality actions are required. The table below shows the results of air quality monitoring in the area. (**please note 2019 data may be subject to slight change as December's diffusion tube is due to be analysed and has not been included in the result)

Diffusion Tube Site	2017 level (ug/m³)	2018 level (ug/m³)	2019** Level (ug/m³)
Quarry Road Thornton	33	34	31
Moor Lane Crosby (roundabout)	36	40	35
Moor Lane Crosby (opposite playing fields)	N/A	N/A	27
Liverpool Road Crosby	N/A	34	32
Green Lane Thornton	22	23	20

47. Results from the monitoring indicate that current air quality levels in the area are of a good standard and remain within national limits. Additional traffic along the A565 Moor Lane as a result of the opening of Broom's Cross Road does not appear to be having a significant impact on air quality in the area and the most recent monitoring in 2019 is showing reduced levels of NO₂ compared to previous years. Air quality monitoring will continue and appropriate actions undertaken if levels exceed national standards.

Air Quality Improvement Actions

48. Air Quality officers have developed and implemented Action Plans for all AQMAs and implemented several measures to try and improve air quality. (details of all measures and those planned are contained in appendix A)
49. Examples of successful site-specific measures that have been implemented already 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 PM₁₀ levels.
 - Redesigned roundabout system on Princess Way A5036 to improve traffic flow
 - HGV Port booking system to reduce queuing and congestion of HGVs entering and leaving 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.
50. Many of the site-specific measures detailed above have already been successful in reducing pollutant levels within the AQMAs. Air Quality officers recognise, however, that dealing with air pollution is an ongoing challenge and continue to invest significant resource in this area as detailed below.

Additional Air Quality Improvement Actions/Developments

Air Quality Members Reference Group

51. The AQ Members Reference group continues to act as the main strategic forum for Air Quality Matters in the Borough, its purpose is summarised below:
- To develop a Sefton One Council approach to air quality that includes an air quality strategy/position statement and overarching action plan.
 - To act as the main forum for strategic discussions about air quality, including receiving and responding to consultations, approaches to work jointly with other organisations, and ideas for local action.
 - To contribute to and develop the Local Air Quality Management Policy including ongoing oversight of:
 - The content of the Annual Status Report
 - Declaration, action plans and revocations of Air Quality Management Areas

- To commission pieces of work in line with the action plan, as appropriate.
- To assign responsibility for operational issues and delivery of elements of the action plan, with the formation of task and finish groups as appropriate.
 - To develop an appropriate communications strategy that will engage with the public and communicate accurate and effective messages in relation to local air quality.

Clean Air Zone Feasibility Study

52. Because there are still significant challenges ahead regarding reducing levels of NO₂ in some of Sefton's AQMAs particularly those impacted by traffic entering and leaving the Port of Liverpool. Officers from Environmental Health, Public Health and Transport teams, overseen by the Members reference group, commissioned Environmental consultants AECOM to undertake a Clean Air Zone (CAZ) feasibility study to assess the feasibility of implementing CAZs in Sefton to reduce traffic related emissions. The report has now been completed. A copy of the report can be found here <https://www.sefton.gov.uk/media/1611489/Sefton-Clean-Air-Zone-Feasibility-Study.pdf>
53. Clean Air Zones are specific areas where action is required to improve air quality. They can be confined to a single road or a localised area and can be either charging or non-charging. A charging CAZ restricts the type of vehicles that can enter the zone and requires the payment of a levy should a restricted vehicle wish to enter. Government guidance recognises 4 types of charging CAZ (CAZ A, B, C, D) which target different types of vehicles. As part of the study all charging CAZ types were predicted to reduce emissions if implemented in Sefton, however CAZ type B - targeting buses, coaches, taxis, PHVs and Heavy Goods Vehicles (HGVs) had the most significant impact on reducing NO₂ exceedances
54. The AECOM study considered what the traffic makeup in Sefton was like, what the current baseline levels of air quality are in the Borough, what would happen in future to these levels if no further air quality improvement actions were implemented and whether implementing a CAZ would improve air quality. Predictions indicated that in 2020 if no further improve actions took place there would still be 70 NO₂ exceedances in the South of the Borough.
55. In summary, AECOM's report concluded that given the current and projected make-up of the traffic in the area of Sefton's 4 AQMAs a Charging CAZ could be effective in reducing NO₂ emissions and the number of exceedances predicted.
56. Cabinet have now given approval for officers to progress the development of an outline business case (OBC) for the creation of a Sefton Based CAZ in line with the approach recommended by DEFRA. The formal business case will include the

development of a project plan, risk register, resource costings using recognised project management frameworks, and a communications and engagement plan.

57. A more detailed report specifically on the development of the business case for a Sefton Clean Air Zone will be brought to a future meeting of this committee.

Schools Air Quality Project

58. Work on the school's air quality project has continued in 2019.

59. Educational resources have been further developed including;

- Air Quality Website (CLEAN AIR CREW) containing;
 - information on the gases (sulphur dioxide, carbon monoxide, ozone, carbon dioxide and nitrogen dioxide) which have all been characterised according to the features of each gas.
 - Individual pages for each of the schools we have worked with allowing them to showcase their work.
 - Activities for children which can be shared with parents etc. at home.
 - Lesson Plans for teachers
 - Links to further information e.g. Clean Air day 2018 resources, BBC 'so I can breathe' videos, Sefton's Breathing Space web site.



Characters from the Clean Air Crew Schools Website

DEFRA Air Quality Grant Fund

60. Ongoing research indicates that the increase in the use of domestic solid fuel as a means of heating homes (Log Burners /Coal Fires) contributes significantly to ambient levels of PM_{2.5} in urban areas. An application to DEFRA under the 2018/19 Air Quality Grant fund for £100,000 to investigate this issue was successful. The grant is being used to purchase an additional PM_{2.5} monitor and to fund temporary project officer to undertake a domestic solid fuel awareness raising/behaviour change project with a view to reducing particulate emissions in the Borough from the use of domestic solid fuel.

61. An application for grant support has also been submitted recently under the DEFRA 2019/20 grant fund. The bid if successful, would fund a joint air quality enforcement project with the Driver and Vehicle Standards Agency (DVSA) aimed at identifying HGV's and PSV's using Sefton's roads that are operating with emissions cheat devices fitted. The project would utilise a mobile air pollution monitoring vehicle to identify HGV's/PSV's that were emitting high levels of pollutants and where found, take appropriate enforcement action against the driver/operator with the overall aim of reducing emissions of NO₂ and PM from non-compliant vehicles.

Taxi Electric Vehicle project

62. Officers from Environmental Health and Licensing are working with Electric Blue Environmental Consultants to undertake a behaviour change project with Taxi operators. The project aims to encourage operators to change from traditional combustion engine type vehicles to Electric Powered Vehicles. An additional 3 electric vehicle charging points will also be installed as part of this partnership.

Conclusions

63. Air Quality in the majority of Sefton is within NAQS Objectives, however, the on-going review and assessment has identified localised areas where NAQS Objectives will not be met and Action Plans are in place to work towards compliance in these areas. Action plan measures have shown significant success and levels of pollution have reduced with levels of PM₁₀ at all monitoring locations below the NAQS objectives and resulted in the de-declaration of AQMA 1 near Waterloo primary school.

64. There are however areas where there are major challenges to air quality as detailed within the report. Port expansion and the associated increase in HGVs may lead to an increase in emissions that will affect air quality in the AQMAs and surrounding areas around the A5036, A565 and A5058.

65. Officers will continue to develop and implement air quality improvement actions under the direction of the Air Quality Members Reference Group with additional focus on holistic approaches and engagement with all key stakeholders. The Clean Air Zone Feasibility study is complete and work on the development of the Outline Business case has been sanctioned by Cabinet.

66. A more detailed report specifically on the development of the business case for a Sefton Clean Air Zone will be brought to a future meeting of this committee.

Appendix A - Air quality Improvement Actions

Air Quality actions already implemented

Action	Detail	Status
Development and implementation of Port Booking system. All vehicles destined for port have specific arrival time slot which is staggered.	vehicle booking system introduced and completed. New L2 terminal operating Autogate technology.	System operational -Reduced HGV waiting times entering the port. Reduced pollutant emissions from the port estate affecting AQMAs
ECOSTars Vehicle fleet Efficiency recognition scheme	Sefton funded scheme to recruit 50 large fleet operators. Environmental assessment undertaken of operators and vehicles. Improvement plans developed.	58 operators (approx. 3000 vehicles) now part of scheme with 4 and 5 star ratings. Scheme funded for a further 2 years to recruit a further 15 operators
SCOOT- Traffic light optimisation system	Continued liaison with Highways team to ensure traffic light system in Sefton is optimised for maintaining vehicle flows and minimising congestion.	Reduced emissions as traffic optimised and congestion minimised.
Hurry Call System- Millers Bridge	HGV priority system – Allows HGV priority through Millers Bridge Junction.	Reduced HGV emissions as a result of system operating reducing stop start of HGV's
Roundabout improvement/redesign work Princess way	Redesigned roundabout system at Princess way to give traffic heading to and from the port priority.	Reduced emissions as a result of less congestion and stop start of traffic.

Air Quality actions and initiatives currently underway/being developed

Action	Detail	Status
HGV Emissions Cheat Device Project	Enforcement Project Carried out at Switch Island to identify HGV's operating with emission control systems deactivated. 10 % vehicles stopped were fitted with cheat devices and required to rectify issue	Further joint Sefton /DVSA enforcement project being developed with DVSA to target HGV's running without emission control systems operating. Project planned to commence late 2019- Looking to utilise mobile air monitoring vehicle to assist in the detection of vehicles fitted with cheat devices. Meeting arranged with DVSA Officers to agree project parameters.
Anti-Vehicle Idling Project	Anti-idling project being developed to target idling of vehicles around schools/sensitive areas / busy road junctions. Monitoring of NO2 levels before and after project	Project launched around Clean Air Day. Social media used to publicise good practice. Further enforcement activities currently being considered including use of signage and posters.
Evolve e-Taxi Project	Working with Consultant to promote the use of	Project completed. Journey tracking devices used to determine if normal taxi journeys could be undertaken using an Electric vehicle.50 taxis took part in trial. Analysis

	electric taxi vehicles and increase number of electric vehicle charging points	completed -Debrief session arranged for the 3 rd Oct. Presentation taking place to LCR Task Force
Schools air quality engagement project	Schools air quality project developed along with classroom material and Clean air Crew Website	Delivered to approximately 15 schools. Looking at funding to continue this work. Schools AQ engagement day delivered. Schools Clean Air crew website launched as part of event https://www.southportecocentre.com/cleanaircrew
Intensive Road Cleaning Project	Sefton using DEFRA grant funding to develop an Intensive road cleaning project to reduce particulate levels in Sefton's AQMA's and surrounding area. Millers Bridge/Princess Way/Hawthorne Road/A5036 will be targeted	Project to commence Spring 2020. Currently awaiting completion of junction improvement works to Millers Bridge prior to commencement of project.
Sefton Funded Clean Air Zone Feasibility Study	Consultants appointed to undertake a CAZ feasibility study in Sefton to determine if implementation of a CAZ in and around our AQMA's would have a positive effect on reducing air pollution and what the socio-economic effects would be	Project completed. Results presented to Sefton Councillors. Internal Multi-disciplinary group has been convened to explore CAZ options
Additional variable matrix Message signs (VMS)	Sefton utilising DEFRA grant funding to install further VMS signs to expand our existing network of signs. Allows positive air quality messages to be provided and current AQ levels to be shown. Traffic messages also can be shown to provide diversion or congestion information	Procurement of signs now progressing- installation date to be arranged.
Millers Bridge/Derby Road Junction improvements	Junction improvements to the Derby Road/Millers bridge junction currently underway to improve traffic flow through this junction.	On completion of the works traffic flow though the junction and towards Liverpool will be improved resulting in reduced vehicle emissions in this area. Road improvement works ongoing completion expected early 2020

<p>Communication strategy</p>	<p>Communications plan developed to help people take steps to reduce the impact of lower air quality on health and increase use of active travel options, for example the upcoming Clean Air Day Campaign in June</p>	<p>Plan currently ongoing- examples: Social media used to promote/support clean air day Radio interviews- Cllr Lappin/Matt Ashton Public Health Annual Report – Now completed - on topic of Air Quality. Link to Sefton’s Public Health Annual Report https://www.sefton.gov.uk/public-health/public-health-annual-report.aspx</p>
<p>Solid Fuel use behaviour change Project / Additional PM monitor</p>	<p>Successful in obtaining £100K DEFRA grant. project will Assess the level of solid fuel use for domestic heating in the Borough. -Engaging with fuel and appliance suppliers -Engaging with solid fuel users -Development of good practice guides /information - Installation of new pm2.5 monitor to assess current levels in more suburban areas - Development of behaviour change project - Implementation of behaviour change project -Assessing any reduction in pm2.5 following implementation of project</p>	<p>Currently shortlisting project officer interviews taking place October Commencing procurement process for pm2.5 monitor</p>
<p>Automatic Monitoring systems software upgrade</p>	<p>Currently upgrading Sefton’s AQ Monitoring systems Software to improve reliability and reduce risk of connection/data loss issues</p>	<p>Currently testing new system at 1 station before rolling out to 4 other stations</p>
<p>Annual Air Quality Status Report 2019</p>	<p>LA required to submit a detailed account of air quality in their area every year.</p>	<p>Sefton’s ASR 2019 now formally submitted. Awaiting results of formal review of report from DEFRA</p>

