

Slough Borough Council



2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

June 2020

Slough Borough Council

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Executive Summary: Air Quality in Our Area

Air pollution levels within the Borough of Slough continue to remain a significant environmental and public health concern and Slough Borough Council, the 'council', continues to work hard to improve air pollution and to comply with national air quality objectives (AQOs) and EU limits.

Good air quality is not only important to improving health outcomes of our residents, but also for enhancing the natural and built environment and for attracting residents, visitors and businesses to Slough.

The Low Emission Strategy 2018-2025 (LES) was taken by Cabinet on 17th September 2018 and subsequently adopted as a council Strategy, therefore Slough Borough Council are committed to the objectives contained within the Strategy. The wellbeing of those living in Slough are the highest priority and implementation of the LES and its programmes over the next few years will improve air quality and therefore health for all of those living and working in the Borough. The LES programmes have progressed since adoption in 2018, which includes:

- Slough Electric Car Club Programme
- Electric Vehicle (EV) Infrastructure Programme (rapid and public chargers for public and taxis)
- Taxi EV Rapid Charger Infrastructure Programme
- Bus Fleet Programme (retrofit and electric bus routes)
- Cycle Infrastructure and Hire Programme
- Clean Air Zone (CAZ) Feasibility Programme

As the LES is now accepted as council strategy, it is a requirement that air quality is taken into consideration when assessing impact of developments. This ensures mitigation is secured to reduce impact on air quality as much as possible. For example, since implementation of this strategy, every new residential unit is required to have access to EV charging infrastructure, which will help improve air quality in the Borough, as residents transition into ultra low emission vehicles (ULEVs).

The Transport Infrastructure Strategy (TIS) and update to our Local Transport Plan (LTP4) are to be completed this year. These plans focus on increasing public transport

infrastructure, to reduce car dependency and encourage a modal shift away from cars and reduce congestion, whilst supporting the aims of the LES. This will be done by promoting sustainable travel such as use of E-bikes and EVs in transition to a low emission economy. The Government are also developing a Green Recovery Plan in response to the COVID-19 pandemic, which has a focus on active travel.

Slough currently has five Air Quality Management Areas (AQMAs), which exceed the EU limit for nitrogen dioxide (NO₂ (40µg/m³)). In response to this, Air Quality Action Plans (AQAPs) were established for AQMA 1 and AQMA 2 (2006) and also AQMA3 and AQMA 4 (2012)¹. The most recent update to these AMQAs was in 2017, when AQMA 3 was extended to include a section of Bath Road.

During 2020, these action plans will be updated under one comprehensive AQAP to address air quality issues in all of our AQMAs. The AQAP will determine existing NO₂ and particulate matter (PM₁₀ and PM_{2.5}) concentrations, test the effectiveness of the measures outlined in the LES programme in achieving compliance with AQOs, and identify additional measures to tackle air pollution in the Borough. The updated plan will reflect regeneration of the town centre and impacts posed by upcoming major infrastructure schemes including the Heathrow expansion and Smart M4.

Refreshed baseline modelling will be used to determine the status of our AQMAs and if any new areas will be declared. It is predicted that Langley will be designated as an AQMA in the future due to existing air quality trends and committed infrastructure schemes in the area, resulting in greater traffic volumes.

The AQAP will also address sources of local particulate pollution from construction sites and combustion processes. Industrial processes are currently regulated by the Local Authority and Environment Agency under the Environmental Permitting Regulations.

The AQAP will support the aims of the LES, primarily to design additional measures to reduce NO₂ emissions from road transport and improve health outcomes. Programmes such as the Slough EV Plan will help to achieve this aim, by implementing electric public infrastructure such as fast and rapid electric charging points and promote the operation of electric and ultra-low emission vehicles, including electric car clubs and electric taxis.

¹ <https://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality-reports.aspx>

A Clean Air Zone (CAZ) is defined as an area where targeted action is taken to improve air quality from traffic sources – it can be a single road or part/ all of a town or city. A feasibility study for the implementation of a CAZ in Slough will be conducted in 2020/2021. It would set emission standards to encourage the uptake of EVs and ULEVs which meet the latest European Emission Standard, applicable to public transport vehicles, HGVs and LGVs. The CAZ may be charging or non-charging. Should the feasibility study demonstrate that a charging CAZ is necessary in Slough to improve air quality in the shortest possible time, an application may be made to the Secretary of State to introduce such a zone.

The CAZ feasibility study, AQAP and LES will be consolidated under a new Clean Air Plan (CAP) during 2021, which will set out all of the council's aspirations for improving air quality, including measures to address PM_{2.5}, supplementary planning guidance to support air quality considerations in the planning process, the air quality communication plan and updates to the air quality network.

Air quality cannot be tackled alone by the Council. The public, businesses and other public and third party sectors need to also play a significant role; either through changes of lifestyle to reduce dependency on the car (modal shift away from the car), increased walking and cycling, adoption of sustainable travel plans, and adoption of EV infrastructure and operation of lower emission vehicles. The Council will lead by example, by adopting policies to increase its EV fleet, reduce grey fleet emissions, and promote modal shift amongst its workforce.

Air Quality in Slough

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^{2,3}.

² Environmental equity, air quality, socioeconomic status and respiratory health, 2010

³ Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

The annual health cost to society of the impacts of PM alone in the UK is estimated to be around £16 billion⁴. Full details of damage costs can be found on the government website⁵.

Sources of Poor Air Quality

The principal source of poor air quality within Slough relates to road traffic emissions, but local construction activities (there is significant regeneration taking place in Slough), diesel trains operating on the Great Western Mainline (some of these are being changed to electric), the town centre bus station (as fleet is relatively old), local industrial processes, larger combustion processes (Energy from Waste Incinerators), airport emissions (affect our receptors in Colnbrook and Poyle), and back-up diesel generators (data centres), as well as transboundary pollutants (e.g. pollutants outside Slough) also contribute to the background pollution levels, and will continue to do so. The Borough has declared 'smoke controlled areas' across Slough's wards, and wood burning and smoke is not known to be a significant source of emissions within Slough, however updated baseline modelling will determine this.

Future significant sources of air pollution may arise from permitted local developments and Nationally Significant Infrastructure Projects in the wider area planned over the next 5-10 years, including::

- Construction and operation of M4 Smart Motorway - this is designed to allow up to 15,000 additional vehicle movements a day during its operation from 2022 (peaking by 2030) and re-routing of traffic through Slough at times during the construction phase (2019-2021) (Impacts: M4 AQMA, Tuns Lane AQMA, Town Centre AQMA and Brands Hill AQMA)
- Construction of M4 construction compound 9 at Sutton Lane on the edge of the Brands Hill AQMA (2019-2021)
- Operation of Sand and Gravel extraction 'Cemex' sites at Riding Court Road and North Park Road (up to 450 HGV movements a day through Brands Hill/M4 AQMAs and Langley area) (2018 – 2030)

⁴ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

⁵ <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance#annex-a-updated-2019-damage-costs>

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- Rail Borne Aggregate Distribution Depot and Concrete Batching Plant at Thorney Mill Sidings, Thorney Mill Road, Iver, (up to 82 HGV movements a day through Brands Hill AQMA and Langley) (2019 onwards)
- Significant Town Centre regeneration (construction HGV movements and operational vehicle movements) up to 6,000 residential properties, new offices and commercial and retail uses (Town Centre/Tuns Lane AQMA)(2016 – 2030)
- Western Rail Access to Heathrow significant construction HGV movements through Langley and Brands Hill AQMA (2022 – 2027)
- Heathrow Expansion - a legal challenge to the Airports National Policy Statement has paused the Development Consent Order process for permission to expand, though an appeal is due to be heard in Autumn 2020. An application for expansion could still be made in the next couple of years for Heathrow's 3rd runway (runway located within Slough) and changes to associated airport operations, with impacts also including the re-routeing of the A4 and diversion of the A3044 into Slough, together with construction HGV and operational movements (2023 – 2040) (All AQMAs).
- Demolition, and construction of the new Grundons Energy from Waste facility 200m north of the current site to accommodate the 3rd runway, including a 55m stack (20m lower than the current stack) (currently on hold, potentially 2022-2024) (Iver AQMA and Brands Hill AQMA)
- Slough Northern Extension – a shortfall is predicted in Slough being able to meet its housing allocation within the local plan term, and a proposal for at least 5,000 (and up to 10,000) new homes on Green Belt land within Buckinghamshire is being explored. If pursued this urban extension could generate significant additional vehicle movements in both the construction and operational phases. (2026 – 2036) (All AQMAs).

Air Quality Modelling

Detailed air quality modelling and source apportionment (e.g. which vehicles are mostly responsible for air pollution) was commissioned in 2015⁶ to assist with the development of the Councils LES (the modelling used 2014 air quality data, road traffic

⁶ <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>

data and Heathrow weather data). The modelling determined that local road traffic **contributes around 50% towards NO₂ concentrations** at relevant receptors (i.e. those modelled within the AQMAs and surrounding area).

The remainder is due to background levels that prevail in the area. Light passenger diesel cars are the main source of air pollution in the Borough accounting for between (7% and 30% of the total NO₂ concentrations). HGVs; artic and rigid HGVs and buses also contribute significantly to poor air quality in the Brands Hill AQMA.

The Council will commission further detailed air quality modelling and source apportionment during 2020, to take account, as far as practicable, the above significant development schemes and future traffic growth forecasts in Slough, as well as baseline monitoring data, air quality monitoring, traffic count data and weather data. In addition to running transport and LES scenarios, updated modelling will determine:

- The baseline NO₂, PM₁₀ and PM_{2.5} concentrations within Slough
- If any existing AQMAs should be revoked or amended
- If any new AQMAs should be declared within Slough (particularly Langley due to the potential impact of the Western Rail Link to Heathrow)
- The effectiveness of the LES measures and additional measures brought up in the AQAP study, in addressing poor air quality
- The effectiveness of implementing transport measures (e.g. dedicated bus lane, junction re-design etc.) in addressing poor air quality
- The effectiveness of implementing a CAZ(s) within Slough to deal with poor air quality

Air Quality Monitoring and Future Monitoring Proposals

The Council has monitored air quality for over 20 years and operates both passive (diffusion tubes) and continuous air quality monitoring stations in the Borough. The Council is continually looking to extend and improve the air quality network. An overview of both the continuous monitoring network, passive diffusion tube network and new air quality sensor network is given below.

Continuous Monitoring

The Council continuously monitors air quality at six locations: 6 monitoring stations monitor nitrogen dioxide (NO₂) concentrations; 4 monitoring stations monitor particulates (PM₁₀) concentrations, using established reference methods (TEOM or BAM). The Council also operated 2 Osiris indicative particulate monitors which measured PM_{1.0}, PM_{2.5} and PM_{1.0}, which ceased January 2020.

The Council upgraded its air quality monitoring network by adding 3 new air quality monitoring stations within the AQMA 4 (Wellington Road, Town Centre), AQMA 2 (London Road, Brands Hill) and AQMA 3 extension (Windmill, Bath Road) in October 2017. Additionally, the Council has access to air quality data (NO₂, PM₁₀ and PM_{2.5}) from a monitoring station operated by Grundons Lakeside Energy from Waste plant in Colnbrook. Access to real-time and historic monitoring data can be found in the following hyperlink <http://sloughair.aeat.com/>.

The air quality monitoring stations at Salt Hill (SLH 4) and Pippins Colnbrook (SLH 3) are long serving monitors and frequently suffered from water leaks. Due to this, operation of Salt Hill monitoring station ceased November 2019. Data for this area of Slough will continue to be collected at the nearby Windmill monitor (SLH 12), which is more representative of roadside NO₂ concentrations. At Pippins a short-term repair has been done until a replacement station, measuring NO₂ and PM₁₀, can be installed later in 2020/21. A future ambition for this site is to install a certified PM_{2.5} monitor (such as a BAM), to begin collecting reliable PM_{2.5} data in response to concerns over PM_{2.5} health related impacts and reports indicating high PM_{2.5} concentrations in Slough.

Chalvey monitoring station (SLH 7) is also due to be replaced. Currently, the Chalvey station is positioned in a waste depot. Although this area is within AQMA 1 (M4 corridor), it does not represent residential exposure well, therefore it is being relocated on Spackmans Way, to represent exposure at the nearest residential receptor to the M4.

Finally, a new continuous roadside monitor will be located in Langley. Due to passive monitoring results since 2016 showing increases in NO₂, there is a need to monitor continuous daily NO₂ and PM, to produce an evidence base of air quality trends, to

support the declaration of Langley as an AQMA. This monitor will also allow the Council to observe the impact of planned and proposed infrastructure projects, which may influence traffic volumes and subsequently worsen air quality.

Passive (diffusion tube) monitoring

The Council also operates a comprehensive (non-automatic) passive diffusion tube network. The Council operated 65 diffusion tubes across 53 sites for the majority of 2019, however the network was expanded in October 2019 to 96 tubes; to accommodate monitoring commissioned by Highways England to monitor the impact of the Smart M4 Scheme on nearby receptors with triplicates (3 tubes) at 10 residential locations close to the M4, and monitoring at a residential location in Poyle potentially impacted by a high % of HGV traffic to the Poyle Industrial Estate area. The diffusion tubes monitor NO₂ concentrations only.

The 2019 ratified data is reported within the **Appendix A.3** of the report. Please refer to **Appendix D** to see maps of all the air quality monitoring sites in the Borough.

The network was further expanded in early 2020 to co-locate diffusion tubes with monitors in the Slough Sensor Project (see below), additional urban background monitoring and new monitoring locations on congested roads (Albert Street/Upton Court Road). This will be reported on further in the next ASR with the 2020 monitoring results.

Slough Sensor Project

One of the key objectives within Slough's 5-year plan is to protect the livelihood and wellbeing of children. As the health impacts related to poor air quality are becoming more apparent, the need to monitor the impact of vehicle emissions outside of schools is increasing. Evidence obtained through monitoring can be used to support the aims of the LES, encourage behavioural change of parents to use sustainable travel methods and aid engagement with public health campaigns.

An application was made in November 2018 to the Defra AQ Grant Fund to trial low-cost air quality sensors. We were notified in March 2019 that our bid had been

successful and the funding of £99,125 (with £46,625 match funding) was received in late September 2019. Contracts with suppliers were signed in November 2019.

The project will focus on monitoring NO₂ emissions originating from idling vehicles and congestion around four local primary schools over 8-12 months, including Cippenham, Claycots, Pippins and Penn Wood Primary Schools. In the original project plan, monitoring was to cease in November 2020, however due to the disruption caused by COVID-19, this project will extend into 2021. Data obtained during this period will be reported to the Department for Environment, Food and Rural Affairs (Defra) within 6 months of monitoring completion.

Data collected over the monitoring period will be used to produce an evidence base, from which implementation of sustainable travel measures can be used to encourage behavioural change. The monitoring network will consist of 15 Vaisala air quality sensors, installed on lamp posts close to school boundaries, to monitor the impact of idling vehicles during peak school pick up and drop off times. One Vaisala sensor will be co-located with the continuous monitoring station and diffusion tubes in Colnbrook (SLH 3) and each sensor will be co-located with one diffusion tube, to allow sensor accuracy to be determined.

Continuous monitoring of air quality outside of schools will also allow the impact of air quality awareness and public health campaigns to be observed. One such campaign is to implement school streets alongside the schools which are being monitored. Currently, this is planned to be short term (days) rather than a permanent basis. This will affectively be a school street trial, to determine the impact on air quality and the feasibility of implementing schools streets Borough wide. This campaign is due to commence 8th October (to coincide with Clean Air Day), however it may have to be postponed further into 2020 due to COVID-19 disruptions.

The Slough Sensor Project is a key component of increasing awareness of air quality issues in the Borough. Work is ongoing to improve awareness and understanding on air quality for both residents and staff working in Slough

Air Quality Management Areas (AQMAs)

AQMAs are defined geographical areas where air pollution levels are, or are likely to, exceed national AQOs at relevant locations (where the public may be exposed to

harmful air pollution over a period of time e.g. residential homes, schools etc.). These are also shown within **Appendix D**.

Five AQMAs have been declared within Slough due to breaches of the annual mean concentrations for NO₂ (**40µg/m³**). Details of the AQMAs can be found on <https://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality-reports.aspx> and more detailed maps can be found on the Defra Website <https://uk-air.defra.gov.uk/aqma/maps>.

AQMA1: including land adjacent to the M4 along the north bound carriageway (junctions 5-7) and southbound carriageway (junction 5 – Brands Hill) up to a distance of approximately 100m from the central carriageway. **In June 2019, there were 559 residential properties located within AQMA1.**

AQMA 2: incorporates A4 London Road east of junction 5 M4, 300m past Sutton Lane along the Colnbrook by-pass and covers the entire gyratory system on A4 and both side of the A4 carriageway. **In June 2019 there were 28 residential properties located within AQMA 2.** A new residential development (Rogans) is being developed opposite the A4 gyratory (within the AQMA 2) will at least double the number of residential properties exposed.

AQMA 3: incorporates the A355 Tuns Lane from junction 6 of the M4 motorway in a northerly direction to just past its junction with the A4 Bath Road approximately 200m north along A355 Farnham Road, the area is known as the "Three Tuns". **In June 2019 there were 351 residential properties located within the AQMA 3.**

AQMA 4: incorporates the A4 Bath Road from the junction with Ledgers Road/Stoke Poges Lane, in an easterly direction, along Wellington Street, up to the Sussex Place junction. **In June 2019, there were 823 residential properties located within the AQMA4.**

AQMA Order 3 Extended: The Council declared the new extended AQMA 3 on 10th May 2018 and formally submitted this to DEFRA. **In June 2019, there were 227 residential properties located within the extended AQMA3.**

In June 2019, **1988 residential properties** were located within one of Slough's AQMAs. There are no schools located within Slough's AQMAs. The playing grounds of Foxborough Primary School just skirts the edge of the AQMA1 M4. The number of residential properties is set to increase as more residential units will be built within the Town Centre and along the A4 Bath Road.

Air Quality Concentrations 2019

This report covers the air quality results obtained during 2019 and compares these results over the past five years (or less time if sites are new) at the same sites to determine if there are any clear trends in pollution levels. These rolling trends must be treated with caution as they do not include statistical confidence, and air quality can change significantly from one year to the next due to metrological conditions and pollution episodes.

The air quality trend across the majority of sites shows a decrease in concentrations in 2019 when compared with the previous years' data, which is also the case with the trend from 2016 to 2018, however pollution concentrations need to be continually monitored over the next few years to determine if air quality is improving in the Borough, or if the improvement is caused by favourable meteorological or climatic conditions.

Additionally, the national trend has tended to show a decrease in pollution concentrations (both PM and NO₂) in 2019. The DEFRA air quality statistics reported that in 2019, the lowest average annual mean concentrations since the start of the time series for both roadside and urban background monitoring sites were recorded and there were on average fewer hours of moderate or higher levels of NO₂ pollution in 2019 compared with 2018 at roadside sites⁷.

The headlines of the 2019 Slough monitoring results (see **Appendix A, Table A.3** and **Appendix B, Table B.1** for all results) are that:

- Similarly to ASR 2019, there are breaches of the AQO at residential receptors within AQMA 2 (SLO 18, Brands Hill (A)) and AQMA 4 (SLO 29, Yew Tree Road). Generally, there are improvements across most residential receptor

⁷ <https://www.gov.uk/government/statistics/air-quality-statistics>

monitoring locations, however isolated areas have shown a worsening of NO₂ concentrations, namely SLO 8 (Grampian Way, +0.7µg/m³), SLO 4 (Lansdowne Avenue, +0.1µg/m³) and SLO 53 (High Street Langley (A), +1.3µg/m³). To determine if this is a continuous worsening of air quality, these areas will be closely monitored during 2020.

- 8 residential receptor locations across all AQMAs are exposed to NO₂ concentrations within 10% of the AQO, therefore there is no evidence to suggest that any of the AQMAs should be revoked.
- AQMA 1 has shown improvements at all locations excluding Grampian Way (SLO 8). As the construction phase of the Smart Motorway is progressing, periods of closure and speed restrictions are being implemented, which may have an influence on pollution arising from the M4. As SLO 8 represents the closest receptor to Junction 5 of the M4, it is expected that NO₂ concentrations would be higher at this location, however it is a concern that concentrations have risen by 0.7µg/m³ at this receptor in the last year. This area will be closely monitored over 2020.
- Residential receptors have experienced improvements in air quality across AQMA 2. The biggest NO₂ improvement is observed at SLO 28 (Rogans, Colnbrook By-Pass), which has reduced by 4.6µg/m³ from 2018 to 2019.
- Similarly to AQMA 2, AQMA 3 has experienced an improvement in air quality (SLO 50, Tuns Lane (B), 2.3µg/m³ decrease).
- Within AQMA 4, receptors have experienced no or minimal change in concentrations at SLO 46 (Cornwall House, Bath Road) and SLO 4 (Lansdowne Avenue), however the remaining receptor monitoring locations in this AQMA have shown improvement in air quality, with the greatest improvement observed at SLO 29 (Yew Tree Road), reducing from 43.7µg/m³ to 40.5µg/m³. SLO 26 (Yew Tree Road (B)) has shown an increase in NO₂ by 3.2µg/m³, however this is due to the monitoring location being relocated part way through 2019. A full dataset for this location will be observed in ASR 2021.

- Receptors located outside of AQMAs with NO₂ concentrations within 10% of the AQO are SLO 49 (Windsor Road (B)) and SLO 53 (High Street Langley (A)). SLO 49 has experienced an improvement of NO₂ since 2018 (0.6µg/m³ decrease), whereas SLO 53 has worsened by 1.3µg/m³.

Air Quality Trends Over 5 Years

Over the last 5 years, there is generally a downward trend in NO₂ and PM across the Borough, with isolated hotspots where a persistent air quality issue exists. This is not unusual as some years will show variations in pollution levels due to weather and climate. This tends to follow the general trend in the UK.

The average reduction in concentrations of annual mean NO₂ over the past 5 years across all diffusion tube monitoring sites and two continuous monitoring sites (Chalvey and Salt Hill), across the Borough is **1.82µg/m³ per year** (4.73% of the AQO). This figure of average annual reduction in mean NO₂ levels over 5 years has increased since previous calculations in the 2018 and 2019 ASRs – i.e the average annual decrease is getting greater, suggesting possible acceleration of air quality improvement.

However, the rate of improvement required to meet the AQOs is still relatively slow and air pollution remains a significant issue for Slough residents and will continue to do so for some years to come as there are clearly some stubborn hotspots of air pollution, as well as potential for new areas of relevant exposure (Windsor Road and Langley) to be declared.

Concentrations vary significantly between diffusion tube monitoring sites located within our AQMAs. And, there is no conformity to the change in concentrations from one monitoring site to the next even within the same AQMA. This could be down to how traffic is managed on the road network, and where queueing of traffic occurs. It could also be due to how traffic growth has affected some parts of network more than others.

It is recognised that air quality hotspots are going to become even more localised and importance of action at a local level will increase. The effort to reduce NO₂ also needs to be targeted on the sources that make the biggest contribution to the problem: as road vehicles contribute about 80% of NO₂ pollution at the roadside and the growth in the number of diesel cars has exacerbated this problem.

Actions to Improve Air Quality

The Council reported to Defra in 2018 on 41 measures that are aimed at improving directly or indirectly air quality in Slough. The number of measures reported within this 2020 ASR stands at 40. A number of these measures are still ongoing, some have yet to start, and others that were completed in 2018 were removed in ASR 2019. Whilst these measures may have had some positive effects on air pollution concentrations and contribute towards the downward trend, there is a need for more robust measures to be co-ordinated through a live strategy (e.g. refreshed AQAP, the LES and emerging TIS).

It is also clear, that improving air quality requires a multi-disciplinary approach across all Council Services and its Partners and across the wider residential and business community.

The Council has developed AQAPs for AQMAs 1-4, however there is a need to update these action plans and make them more relevant to reflect the significant regeneration of town centre development, as well as considering the transport impacts of major permitted infrastructure schemes (Smart M4) and potentially the expansion of Heathrow Airport and Western Rail Access to Heathrow.

Slough Borough Council has taken forward a number of direct measures during 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in **Table 2.1**.

Key completed measures are:

- Successful implementation of the Slough LES (2018-2025) with significant development and funding towards the LES programmes, such as the Slough Electric Vehicle Plan, by ensuring provision of EV charging infrastructure at new developments
- Securing on-site mitigation at major developments, to accelerate uptake of ULEVs, such as on-site EV Car Club Hub at Horlicks development (in place 2022/2023)
- Completed transport schemes:

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- Local Enterprise Partnership (LEP) funding secured for SMaRT phase 2 and construction is in progress (continuation of wider SMaRT programme – phase 1 completed in 2018)
- Introduction of electric bus trials to promote Low Emission Public Transport
- Ongoing Council transformation and relocation to town centre office with no parking available on site, encouraging staff to travel to work in alternative travel methods. The Council are demonstrating good example for the rest of the Borough. This is supported by increase EV charging provision expansion of staff EV fleet for the office move, including 13 fast chargers, 1 rapid charger and a fleet of 20 EVs.
- Installation of 4 fast and 1 rapid charger at a new leisure site on Farnham Road, promoting sustainable transport.



Rapid Charger at the Council's new leisure centre on Farnham Road in 2019 – Charges Electric Car in 30 minutes. The Council is looking to expand its rapid charger network to 10 rapid chargers by the end of 2021.

Slough Borough Council expects the following measures to be completed over the course of the next reporting year:

- AQAP taken to Cabinet March 2021
- CAP draft ready for consultation by summer 2021
- CAZ feasibility study to be completed summer 2021
- Completion of the Slough Sensor Project monitoring
- Upcoming transport schemes:
 - A4 lane segregation for bus and cycle prioritisation
 - Reduction in town centre parking from 5000 to 3000 spaces
 - Introduction of park and ride scheme connecting west Slough to the trading estate

Slough Borough Council's priorities for the coming year are to develop the new AQAP and produce the CAP.

More detail on progress with these measures can be found in section 2.2 of the main report, with further background in their respective action plans and in the LES, available on the following link: <http://slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx> .

Conclusions and Priorities

Air Quality continues to breach national AQOs in Slough's AQMAs and for some sites outside the AQMAs. The Council has prepared a LES to co-ordinate and outline robust measures to address poor air quality. The AQAPs for all five AQMAs will be updated in 2020 under one consolidated plan. Air quality is a priority for the Council to address.

The key challenges Slough faces in addressing poor air quality are:

- Our population is growing at a significant rate. We are expected to build nearly 20,000 new homes over the next 20 years within a heavily populated and congested urban Borough (Slough is only 32.54 km²). We will need to reduce the amount of parking allocated to town centre residential developments and ensure significant EV charging infrastructure is installed and EV/ULEV car clubs are operating to enable residents to have a low emission car option.

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- The main challenges are non-conforming EURO 6 light passenger diesel cars and vans coupled with the significant growth in diesel vehicles over the past 20 years, although these are now showing a significant decline in sales following the VW emission scandal. The Government needs to ensure newer diesel vehicles entering the market will meet the tougher real-world emission standards. There needs to be more promotion and awareness of EVs and their air quality benefits over diesel cars. The Government has announced the ban of sale of all petrol and diesel cars from 2035.
- A lack of public awareness and understanding of air pollution is a significant barrier to change. There is a need for a public awareness campaigns at national level and at a local level, and Slough will work collaboratively with Public Health and all its stakeholders and officers on local communication and awareness of air quality.
- Over the next 10 years – significant traffic growth locally, associated with the operation of M4 Smart Motorway, Town Centre Development, and potentially the expansion of Heathrow airport will place significant strain on the highway network and will adversely impact air quality.

How to Get Involved – Local Engagement

Slough residents can find out more about air quality by visiting the Councils Webpages: <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality.aspx>.

Slough residents have access to the free app, AirTEXT, which provides accurate air quality alerts, and health advice for at-risk groups and the general population, on <http://www.airtext.info/>.

The LES has its own dedicated web page on the Slough Borough Council website. <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>.

Slough has prepared a communication Campaign in 2018 to raise awareness of poor air quality and to advise what actions can be taken at a local level to address air

pollution. This will be published on the website. <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>.

In May 2019, Public Health Slough launched a new website. A dedicated air quality page has been set up and will be populated with information on air quality, how members of the public can reduce their impact on air quality and the health benefits. This can be found on the following link.

<https://www.publichealthslough.co.uk/campaigns/air-quality/>

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ²⁵	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

²⁵ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
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
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
LES	Low Emission Strategy (2018-2025)
AQO	Air Quality Objective
CAZ	Clean Air Zone
EV	Electric Vehicle

ULEV	Ultra Low Emission Vehicle
TIS	Transport Infrastructure Strategy
LTP	Local Transport Plan
CAP	Clean Air Plan