

**NEIGHBOURHOODS AND COMMUNITY SERVICES SCRUTINY PANEL -
THURSDAY 28TH NOVEMBER, 2019**

SUPPLEMENTARY PAPERS

The following papers were tabled at the meeting.

<u>AGENDA ITEM</u>	<u>REPORT TITLE</u>	<u>PAGE</u>
5.	Low Emission Strategy Update (Ev Network And Car Clubs)	1 - 68
	Tabled Document- Appendix B. Outline Low Emission Delivery Plan	

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SLOUGH BOROUGH COUNCIL

REPORT TO: Neighbourhoods and Community Services Scrutiny Panel
DATE: 28th November 2019
CONTACT OFFICER: Jason Newman, Environmental Quality Team Manager
(For all Enquiries) 07860 784526
WARD(S): ALL

PART I NON-KEY

FOR INFORMATION AND FOR COMMENT

Low emission strategy update (particularly on electric car charging points and car clubs)

1. **Purpose of Report**

The Panel have requested an update on the low emission strategy (LES) with particular emphasis on electric car charging points and car clubs.

The report addresses both requests and provides more comprehensive details within the attached appendices.

2. **Recommendation(s)/Proposed Action**

The Committee is requested to note the report (for information). There are no proposed actions.

3. **The Slough Joint Wellbeing Strategy, the JSNA and the Five Year Plan**

3a. **Slough Joint Wellbeing Strategy Priorities**

By tackling air pollution through a co-ordinated programme of vehicle emission improvement measures and policies, the LES seeks to reduce the impact of poor air quality on the health of local residents in line with the Wellbeing Strategy.

The LES supports three key priorities within the Slough Joint Wellbeing Strategy:

- protecting vulnerable children
- increasing life expectancy by focussing on inequalities
- improving mental health and wellbeing

3b. **Five Year Plan Outcomes**

Transport has a major role to play in helping to address the challenges we face with respect to poor air quality. Better transport, and the improved connectivity and accessibility which results, combined with the promotion of a shift to sustainable transport modes and vehicle emission reductions, outlined in the LES, can support some of the important Five-Year Plan Outcomes identified, in particular:

Outcome 2 – Our people will be healthier and manage their own care

- Work with all our partners to improve the health and wellbeing of our residents through improved communication and awareness of the effects of poor air quality on human health and by advising on actions residents can take to reduce their exposure and reduce their emissions.

Outcome 3 – Slough will be an attractive place where people choose to live, work and stay.

- The Low Emission Strategy will promote the acceleration of ultra low emission vehicles, electric vehicle infrastructure, and sustainable travel as well as undertaking a feasibility assessment, if necessary, for implementing a Clean Air Zone/s within Slough to reduce air pollution which will improve the attractiveness of Slough.

4. **Other Implications**

(a) Financial

This report is an update status report on the Councils Low Emission Strategy. They are no direct financial implications relating to this report.

The Low Emission Programme does require significant funding to be secured in order to enable its successful delivery. One of the primary sources of this funding is via developers' s106 contributions.

(b) Risk Management

There are no recommendations contained within the report so there is no risk associated with this report.

This report outlines the current status of the Low Emission Strategy and also outlines the current outline delivery plan, which is subject to further analysis and change before being submitted to Cabinet for formal approval.

(c) Human Rights Act and Other Legal Implications

There are no Human Rights Act issues as a result of this report.

(d) Equalities Impact Assessment

There is no requirement for an equalities impact assessment as there are no recommendations contained within the report.

(e) Workforce

CMT have approved the creation of new posts to enable the delivery of the Low Emission Strategy and Programme.

5. Supporting Information

5.1 The Slough Low Emission Strategy was approved by Cabinet on 17th September 2018 and by Full Council on 27th September 2018. The details of the low emission strategy are contained within the SBC webpage <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>. The strategy forms part of the Councils Air Quality Action Plan.

The principal aim of the LES is to:

- Improve air quality and health outcomes across Slough by reducing vehicle emissions through the accelerated uptake of cleaner fuels and technologies.

5.2 The strategy is detailed and broad. It extends to 2025 and it can be broken down into three key themes:

- Evidence for Change – why are we taking action to improve air quality?
- Creating a Low Emission Future: Leading by Example - what the council can do with its powers to improve emissions.
- Clean Air Zone (CAZ) Framework for Slough: A framework to control emissions delivery in partnership with key stakeholders.

5.3 The CAZ framework also encourages the take-up of ultra-low emission vehicles (ULEV) through a **Slough Electric Vehicle Plan**. This plan includes the expansion of the EV network in Slough and the roll out of the EV car club.

5.5 In total there are 19 LES objectives contained within the strategy. Details and progress relating to these themes and objectives are contained within **Appendix A** and an outline delivery plan is attached to **Appendix B**. Overall we have made progress in the key themes Evidence for Change and Creating a Low Emission Future, but have yet to make significant progress with the Clean Air Zone Framework for Slough. There is a need to finalise our low emission programme and obtain funding to complete a clean air zone feasibility study.

5.6 Slough Borough Council (SBC) has designated 5 Air Quality Management Areas (AQMA) due to elevated levels of nitrogen dioxide (NO₂) which breach the National Air Quality Objective (annual mean NO₂) and where there is relevant exposure to residents. The AQMAs are located around the M4,

Tuns Lane, Bath Road, Town Centre/A4 and Brands Hill/A4 and cover over 2,000 residential properties. We operate both a continuous and passive AQ monitoring regime, and are replacing our older AQ monitors in 2020 with new AQ monitors, as well as proposing to install a new AQ monitor in Langley. Details of the AQMA and comprehensive AQ monitoring network are shown in **Appendix C**.

5.7 We have a statutory duty to prepare an annual report to DEFRA on the progress we are making to address poor AQ in Slough. This report includes AQ monitoring and measures, including low emission strategy measures we are taking to improve AQ. This is known as the annual status report. The latest annual status report 2019 is published on the SBC webpage <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality-reports.aspx>). Air quality is improving in the Borough but at a slow rate, and none of the AQMA can be revoked.

5.8 In order to promote and support the take-up of ultra-low emission plug-in vehicles, including cars, taxis and commercial vehicles, we have implemented a Slough Electric Vehicle Plan.

The Slough Electric Vehicle Plan has a number of objectives and progress on the most relevant objectives is outlined below.

Objective/ Programme	Progress	Status of Programme	Action	Key Issues/Risks/Incentives
1) Support home and workplace EV charging utilising the local planning process, business support and private sector investment	<p>Policies within the LES requires that all new developments must include EV charging provision where parking is provided above 10 spaces.</p> <p>All new homes with dedicated off street parking must provide an EV charging point.</p> <p>The Government offers both residential and workplace charging schemes which we promote through our</p>	Green – on track	<p>We require all new developments that supply more than 10 car parking spaces to adopt these EV standards through the planning process.</p> <p>The type 1 mitigation and EV requirements for planning applications are outlined within the Low Emission Strategy Page 41.</p> <p>The types of EV sockets are outlined in the Low Emission Programme.</p> <p>Any change to EV standards will need to be reflected in a revised LES and programme.</p>	<p>There are energy capacity issues with the grid that are raising resistance from developers due increasing cost of energy supply.</p> <p>The Government are now proposing to make it a national planning policy framework requirement to install EV chargers in all new developments.</p> <p>The Government provides both home and workplace EV charger grant schemes for eligible plug-in vehicles.</p> <p>https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles</p>

	'better by programme'			
<p>2) Creation of a strategic Slough public charge point network that ensures electric car users reach their destination through a simplistic access, usage and payment model</p> <p>EV (rapid and fast) off-street and Car Park Programme</p>	<p>We have recently expanded our EV public network with 5 additional public EV chargers and 1 rapid charger at the new leisure Centre, Farnham Road.</p> <p>We will be installing new public EV chargers at our Chalvey Hub site</p>	Green – on track	<p>The current Slough EV network is shown on Appendix D. We currently operate 22 public EV chargers (46 sockets) which includes 2 rapid chargers.</p> <p>We will continue to seek opportunities to expand the network across all Council sites</p> <p>Also shown on the map are Public EV network Pod Point (Tesco), Chargemaster (Holiday Inn) and Tesla Destination Chargers at Bayliss House Hotel, Stoke Poges and Heathrow Hilton, Poyle.</p>	<p>It is important that the EV public network is built up across the Council sites and that other stakeholders play their role in providing public access to EV charging. We have received interest from EV providers to set up EV hubs in Slough.</p> <p>The Government is proposing an open protocol with public chargers to remove a requirement for membership. This will remove barriers for the EV user requiring a specific RFID membership card to access an EV charger.</p>
<p>3) Ensure charging opportunities are available for residents with and without private driveways.</p> <p>EV (rapid and fast) on-street Programme</p>	<p>We have not yet made progress with on-street EV charging points – we do have public EV provision at our car parks and leisure centres for residents to use.</p>	Amber – more work required to develop on street EV charging programme	<p>Residents with off-street parking are eligible to access the Government Home charger scheme</p> <p>https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#electric-vehicle-homecharge-scheme</p>	<p>The Government are promoting and offering funding towards on-street charging points for plug-in electric vehicles. The programme would require the support of other stakeholders i.e. parking team as it would require enforcement.</p> <p>https://www.gov.uk/government/publications/grants-for-local-authorities-to-provide-residential-on-street-chargepoints</p> <p>The funding would need to be applied for in 2020.</p>
<p>4) In line with our Air Quality & Planning Guidance, we will work with developers to provide practical charging solutions and support plug-in vehicle demonstration</p>	<p>We have LES policies that require 10% of car parking spaces to have EV infrastructure.</p> <p>We have engaged with developers on larger</p>	Green – on Track	<p>We engage at the pre-application process stage, and developed suitable s106 packages and conditions to ensure there is appropriate EV charging solutions in place and secure contributions towards the low emission programme.</p> <p>It is clear that on-site EV charging even at lower</p>	<p>Key issues revolve around access to power and the cost of supply, and providing suitable EV infrastructure to meet future EV demand (phasing).</p> <p>This is difficult to forecast because the number of registrations of new plug-in cars remains relatively low in the UK at just</p>

schemes on new residential and commercial developments	development schemes to provide practical on site EV infrastructure and support for EV car clubs, and will seek where appropriate support for plug-in vehicle demonstration schemes.		power rating (trickle charge over night charge) will play an important role in accelerating the uptake of EVs.	2.3% in 2018, and slightly higher 2.7% in 2019 of all new registrations. The EV charging solution is also evolving with the introduction of more powerful super chargers 125Kw and 350kW which are likely to be located in hubs similar or service stations.
5) Work with bus operators to develop ultra-low emission corridors, including potential for the Slough Mass Rapid Transit (SMaRT) Scheme Slough Electric Bus Programme	We are at very early stages with our bus partner Reading buses, and are currently developing a trial to run an Electric bus from Langley via Colnbrook to Heathrow. We have set down Euro VI standards in the tendering of new bus routes.	Green – on track. This programme is developing a pathway to 2025	Electric Bus Trial in 2020. Operate a Euro VI compliant Mass Rapid Transit Scheme. Look at introduction of Clean Air Zone to require all bus fleet in Slough to meet Euro VI standards. Maintain dialogue with all bus companies, and support where appropriate retro-fit bus scheme to reduce bus fleet emissions. Also consider the installation of electric bus infrastructure.	Funding will continue to remain a significant barrier to adoption. An electric bus costs significantly more to purchase than a diesel bus. Although it is cheaper to operate and run, the charging cycle time also presents a barrier due to the operation of the service, and may require additional buses to operate on a route. Consider opportunities for joint funding applications to DfT for ultra low emission buses when these become available.
6) Install a network of rapid charging hubs to facilitate a high growth rate in plug-in taxis and the use of smart technology to link taxi operators with charging infrastructure and customers Taxi EV Rapid Charger Infrastructure Programme	This programme is 18 months behind schedule. This is due to a lack of dedicated resources being able to deliver the rapid charger network. Low emission standards have been incorporated within the licensing regime which requires all taxis to be	Red – this programme is behind schedule and requires significant resource input	CMT has approved the creation and appointment of a low emission programme/project manager and project officer to deliver this programme, the EV car club programme and the EV (rapid and fast) off-street and Car Park Programme. Discussions have taken place with OLEV to advise there is a delay in delivery of the programme, but a commitment to deliver over 2020 and 2021.	Funding has been secured from Office of low emission vehicles (OLEV) to provide for seven rapid chargers for future take up of electric taxis. This funding has been matched by Slough through its capital programme. The roles will be capital funded so will not stress the revenue budget of the Council. There is a low risk that the OLEV funding will be clawed back if the money has not been spent in

	Ultra Low Emission from 2025.			2020.
7) Develop an Electric Car Club across the Borough Slough Electric Car Club Programme	<p>Informal discussions have been held with car club operators.</p> <p>A high level programme has been developed.</p>	Green – on track. Programme to set up our first EV car club by 2020	<p>Enterprise operates a car club vehicle (Ford Fiesta) on Windsor Road and this forms part of their national network. See Appendix D.</p> <p>Enterprise is very keen to discuss setting up an EV car club with Slough.</p> <p>Appoint Project Manager 2020</p> <p>Conduct market research and meetings with all major car club operators – (early 2020)</p> <p>Set up Car Club Contract with preferred supplier (procurement ITT exercise – (summer 2020)</p> <p>Agreed Branding (i.e. slough e car)</p> <p>Site selection and options (may deploy low emission cars before EV cars to launch the scheme) (Autumn 2020)</p>	<p>An information sheet on car clubs has been prepared for Members. See Appendix E.</p> <p>First phase Town Centre focussed car club – electric chargers and EVs (2021)</p> <p>Second Phase Crossrail Hubs (2022)</p> <p>Third Phase (across Borough) (2023)</p> <p>Major Town Centre developments to provide car club provision and EV infrastructure (within their development – contributions towards Memberships and free EV hours)</p> <p>Significant s106 funding is still required to launch a town centre car club and to expand into future phases.</p>
8) Link and compliment with a potential Ultra-Low Emission Zone at Heathrow Slough Clean Air Zone Framework	Heathrow are currently consulting on their proposed ULEZ	Green – on track	<p>Ongoing dialogue with Heathrow regarding their ULEZ.</p> <p>Slough has expressed concerns regarding potential displaced emissions impacts of their ULEZ, such as airport parking in Slough.</p> <p>Slough has queried why the Heathrow ULEZ does not include Heathrow cargo centre.</p> <p>We will be undertaking our Clean Air Zone feasibility study, subject to funding, in 2020.</p>	<p>The Heathrow ULEZ is planned to be implemented in 2022.</p> <p>There is a need to ensure any proposed Slough CAZ is complementary with the Heathrow ULEZ otherwise we will have a two tier emission system in very close geographical proximity.</p>
9) Tackle the perceived and actual barriers to EV	No progress made on this objectives but this will be	Green – on track	Once the car club is set up we will offer discounts and incentives for residents and businesses to hire EVs.	Current registrations of EV and plug in hybrid in the UK remain low at 2.7% of all new

ownership through targeted marketing, promotion and information;	covered by the EV car club and scheme and its promotion.		We will continue to update the website to advise what EVs are available and any plug-in grant initiatives for new EVs.	registrations. Slough bucks this trend due to the high number of EV and plug in hybrid registrations which suggest a lot of the fleet companies are registering these plug-in vehicles in Slough.
10) Deliver an exemplary public sector ULEV operation – demonstrating to employees, business and the wider community the benefits and savings of ULEV vehicles and related air quality improvements through the SBC Fleet Challenge Fleet Challenge Programme	Fleet Challenge programme has been running on a trial phase for 2 years – more than 31,000 EV business miles have been travelled by Slough employees. Additionally we have secured Euro VI DSO RCVs, and highway fleet. We operate 6 EV pool cars, 4 community EV cars, and are now procuring Euro VI mini buses. Our Housing RMI and Building Management contractors operate 10% EVs with the rest of the fleet operating to Euro 6 standards.	Green – on track	The fleet challenge programme is being expanded in 2020 to include 20 EV operating as pool fleet, the provision of a low emission hire car service for staff that need to undertake longer journeys and also the provision of electric and other low emission vehicles across the Council services and operations, i.e. community fleet. Appointment of a fleet manager and fleet officer to run the programme and identify further efficiencies and savings when rolling out the programme across the Council hubs. Significant progress has been made in improving our direct and indirect fleet emissions. All our operational fleet will be Clean Air Zone compliant by 2022.	Promote the approach to local business once our fleet challenge programme is fully operational and demonstrates both financial and environmental savings.

5.9 A Slough Low Emission Programme currently in **draft form** along with maps illustrating potential locations for ultra low emission infrastructure and AQ monitoring has been developed as part of the approved LES and these can be found in **Appendix F**. The low emission programme is the essential delivery component of the Low Emission Strategy and Slough Electric Vehicle Plan that outlines our vision with respect to accelerating the uptake of low emission

vehicles and technologies within Slough. Delivery of the Low Emission Programme will depend on successfully securing funding and resources.

5.10 The funding for the programme will be secured through a variety of mechanisms, in particular **s106 pooled contributions from major developments. Please see Appendix G for the current s106 status for our Low Emission programme**, Capital Borrowing, LEP funding bids, HAL community funding bids, DEFRA funding bids, OLEV funding bids, and DFT funding bids and private sector investment.

5.11 Once funding has been secured for the delivery of one of our low emission programmes, a project team will be set up and a detailed Project Initiation Document (PID) will be developed in conjunction with the PMO team. The projects will be submitted to CMT and where appropriate Cabinet for approval dependent on funding levels. The governance structures will allow for regular project reporting, and risk management. The programmes will report at operational project level to the PMO through a monthly highlight report. Any issues that require formal escalation will be reported to CMT.

5.12 We currently have one active low emission programme set up with our corporate PMO, the **Fleet Challenge Programme**. This programme was set up in 2016 and reports to the PMO on a monthly basis. We are scaling up this programme, which has been running on a trial phase for just over two years, by procuring additional workplace EV chargers and EVs to operate as pool fleet. The expansion of this programme also requires the recruitment of additional staff (fleet manager and fleet officer to manage Fleet Challenge and Community Transport Fleet (home to school) and this has been approved by CMT. This programme runs until 2025.

5.13 We have obtained government, S106 and capital funding for some of our other low emission programmes:

to prepare, scope, procure (EV charger supplier) and deliver:

- Taxi EV Rapid Charger Infrastructure Programme– 2 year programme (2020 – 2022)

to prepare, scope, and procure (EV charger supplier and car club operator) and where we have sufficient s106 funding to deliver:

- EV (rapid and fast) off-street and Car Park Programme (Capital and s106 funding) – 5 year programme (2020 – 2025)
- Slough Electric Car Club Programme (Capital and s106 funding) – 5 year programme (2020 – 2025)

5.14 However, we still need to secure significant additional s106 contributions for the EV (rapid and fast) off-street and Car Park Programme and Slough Electric Car Club Programme in order to enable expansion of these programmes across the Borough into future phases. CMT have approved two

fixed term (2 years) posts to enable set up and delivery of these programmes, a programme/project manager and project officer and we will be recruiting for these posts in the New Year.

5.15 The Low Emission Programme will be continually subject to further revisions, by its nature it needs to be very adaptable. A good example is the ongoing dialogue with Berkley Homes regarding their Horlicks site. We are currently negotiating that they actually build out the public EV infrastructure and EV car club within their site and provide s106 contribution to incentivise its operation. This means we do not have to find highway land off site, and also obtain all the relevant permissions i.e. traffic orders and new power supply. This may be an evolving theme with some of our larger developments that are coming through the planning system.

5.16 Delivery of the Programme will be included in the final LES Delivery Plan and an outline plan has been enclosed in **Appendix B**. A Delivery and Communications Plan will be developed, detailing how we can communicate key AQ messages through our Public Health team (this has already been completed), set out project delivery roles and responsibilities and timescales for delivery of the programme, while monitoring implementation and updating the strategy when necessary. The final Delivery & Communications Plan will be submitted to the Cabinet for approval early in 2020. The LES will be reviewed within 2 years of implementation.

6. **Comments of Other Committees**

There are no comments from other committees on this status report.

There is a requirement to undertake a full review of the low emission strategy within 2 years. This will be presented to Cabinet in October 2020.

7. **Conclusion**

The Low Emission Strategy (LES) 2018 – 2025 forms part of the Councils Air Quality Action Plan (2012). This report outlines the current status of the LES in particular with respect to the Slough Electric Vehicle Plan.

An outline delivery plan has also been prepared. There is a need to resource the delivery of the low emission programme. CMT has approved the recruitment of additional staff to enable the delivery of the low emission programme with particular focus on:

- The expansion and mandatory adoption of the Fleet Challenge Programme (a programme focussed on the decarbonisation of the Councils grey fleet and service fleet by providing electric and ultra low emission vehicles to conduct business travel). This programme runs until 2025.
- The procurement and delivery of the Taxi EV Rapid Charger Infrastructure Programme between 2020 and 2022.

- The procurement and delivery of EV (rapid and fast) off-street and Car Park Programme between 2020 and 2025.
- The procurement and delivery of the Slough Electric Car Club Programme in partnership with a national car club provider over several phases from 2020 - 2025.
- The procurement and delivery of the EV (rapid and fast) on-street Programme between 2020 – 2025.

Funding and resources continues to remain a significant barrier to the effective delivery of the LES objectives. S106 contributions will continue to remain an important source of funding for the delivery of low emission infrastructure in Slough.

The Delivery and Communication plan will be presented to Cabinet for approval early in 2020.

8. **Appendices Attached**

- 'A' - Low Emission Strategy Objectives Update
- 'B' - Outline Low Emission Delivery Plan
- 'C' - Map of AQMA and AQ monitoring
- 'D' - Map and Table of current Public EV network and car club
- 'E' - Information sheet on car clubs
- 'F' - Draft Low Emission Programme and Maps
- 'G' - Current S106 funding for Low Emission Programme

9. **Background Papers**

- '1' - Low Emission Strategy and associated LES documents (see <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>)
- '2' - ASR 2019 Report (see <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality-reports.aspx>)

Appendix A: Low Emission Strategy Objectives Update

1. General

a. Ensure all relevant Council strategies consider and support measures to improve air quality and health outcomes in partnership with stakeholders

Low Emission Strategy supports a number of Slough strategies in improving air quality.

The Low Emission Strategy (LES) seeks to reduce the impact of poor air quality on health of residents in line with the Wellbeing Strategy. The LES supports three key priorities within the Slough Joint Wellbeing Strategy:

- protecting vulnerable children
- increasing life expectancy by focussing on inequalities
- improving mental health and wellbeing

The LES also supports outcomes within the Five-Year Plan, in particular:

- Outcome 2 – Our people will be healthier and manage their own care
SBC are working with partners to improve health and wellbeing of Slough's residents through improved communication and awareness of air quality impacts, and advising actions to reduce exposure and emissions.
- Outcome 3 – Slough will be an attractive place where people choose to live, work and stay.

The LES promotes acceleration of ultra-low emission vehicles (ULEVs), electric vehicle infrastructure and sustainable travel. The Clean Air Zone feasibility study will aid in the uptake of ULEVs if the feasibility study demonstrates it is a suitable option to improve air quality, which will make the borough more attractive.

A new Local Plan is currently being developed, which includes development of the existing Core Strategy and forms part of the Slough Local Development Framework. The Core Strategy includes policies to minimize and mitigate any development impacts on air quality and also prevent future occupants of developments being exposed to levels of poor air quality.

One of the key challenges which the emerging Local Plan aims to address is how to tackle congestion on Slough's roads. The Transport Vision which ties in with the Low Emission Strategy provides important inputs into the review of the Local Plan and the Centre of Slough Development Strategy, to reduce car use, improve congestion and sequentially, improve air quality in the borough.

Through implementation of the Low Emission Strategy, developments are encouraged to consider air quality improvements through controls on emission standards of construction vehicles, provision of electric vehicle charging infrastructure and contributions towards Low Emission Projects such as the EV car club project, which all aid in reducing poor quality and result in improved health outcomes.

2. Evidence for Change

a. Provide a robust framework for monitoring and modelling air quality across Slough

A key theme of the LES is 'evidence for change – why are we taking action to improve air quality'. Evidence for change can be observed in air quality monitoring data.

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 currently operates 2 indicative particulate monitors these measure (PM_{1.0}), (PM_{2.5}) and (PM_{1.0}). Additionally, the Council has access to air quality data (NO₂), (PM₁₀) and (PM_{2.5}) from a monitoring station operated by Grundon's Lakeside Energy from Waste plant in Colnbrook. Some of these existing air quality monitoring stations require replacement or improvements. Proposed improvements to the network are as follows:

- Replacement of monitors and enclosures at Pippins School, Colnbrook with a new walk-in cabinet.
- Decommissioning of Salt Hill monitoring station due to its close proximity to Windmill monitoring station on Bath Road.
- Replacement of Chalvey monitoring station due to age of the instruments
- Installation of a new continuous roadside monitor in Langley, to observe air quality trends in the area and aid determination of an AQMA in the future for Langley.

The Council also operates a comprehensive (non-automatic) passive diffusion tube network. The Council expanded its diffusion tube network in late 2016 to cover Langley village and the surrounding area, adding a further 5 monitoring sites. The Council has also co-located diffusion tubes with its new air quality monitors in late 2017. Additionally, the Council decommissioned its temporary air quality monitoring station (TRL) and relocated the diffusion tubes to three new sites (Tuns Lane, Windsor Road and Castle Street) in 2017. In 2018, the Council operated 65 diffusion tubes across 53 sites. In October 2019, diffusion tube provision increased to 97 to cover:

- Monitoring commissioned by Highways England to monitor the impact of the Smart M4 Scheme on nearby receptors on Spackmans Way, Winvale and Paxton Avenue (30 tubes).
- New monitoring in residential locations that are affected by high % volume of HGVs on the local road network (one tube on the property opposite proposed HGV access road in the Poyle area).

The Council will commission detailed air quality modelling and source apportionment during 2019, to take account, as far as practicable, 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. Modelling will be used to determine:

- The baseline NO₂ concentrations within Slough (update to 2014 modelling results)
- If any existing AQMAs should be revoked or amended

- If any new AQMAs should be declared within Slough (particularly Langley due to the impact of the Western Rail Link to Heathrow)
- The effectiveness of the Low Emission Strategy/Air Quality Action Plan measures 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 Clean Air Zone/Zones within Slough to deal with poor air quality

b. Use national and local data to assess the impact on health of Slough residents arising from air pollution

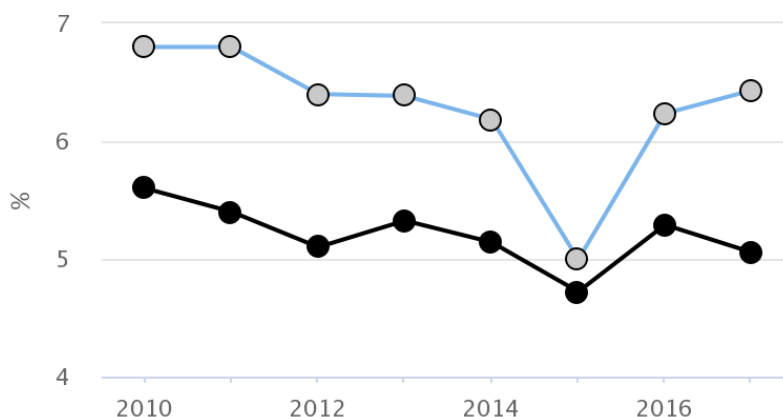
Data recorded from the continuous and passive monitoring locations is presented in Slough’s Annual Status Report (ASR) every June. The most recent report (ASR 2019) presents data from 2018 and trends over the last 5 years. This can be found on the following link: <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality-reports.aspx>.

Although Slough’s concentrations of particulate matter (PM_{2.5} and PM₁₀) are below the EU limit value of 40µg/m³, there are significant health impacts associated with PM in any concentration and must be addressed. PM_{2.5} concentrations are of particular concern due to the impact on health, which includes damage to organs via inhalation and absorption into the blood, resulting in a range of health impacts including respiratory and cardiovascular illness. Slough does not measure PM_{2.5} using reference methods therefore data is supported by national data provided by Public Health England. Information is available from the following link:

<https://fingertips.phe.org.uk/profile/public-health-outcomesframework/data#page/4/gid/1000043/pat/102/par/E06000039/ati/101/are/E06000039/iid/30101/age/230/sex/4>

Work carried out by Public Health England as part of the Public Health Outcomes Framework (PHOF) shows that the fraction of mortality associated with particulate air pollution in 2017 within Slough Borough Council is 6.4%. This is slightly higher than 2016 (6.2%) but is still significantly higher than 2015 when the mortality associated with particulate air pollution within Slough Borough Council was 5%.

The Figure below shows the fraction of mortality attributable to particulate air pollution calculated for Slough Borough Council over the past 5 years and compares this with the England average. It is noted over this 5 year trend the mortality has slightly improved since 2016. The England average in 2017 is 5.1% and the regional average in the south east is 5.6%. Slough continues to remain above these mortality rates, at 6.4% (2017).



Due to the significant health effects associated with exposure to PM_{2.5}, the government is considering adopting the WHO guideline levels for PM_{2.5} (10µg/m³). As stated in the Clean Air Strategy 2019, the government has committed to halve the number of people living in areas above the WHO guideline limits on PM_{2.5} by 2025 and will set a new long-term target to reduce exposure to PM_{2.5}. Evidence to determine the actions required to meet the WHO annual mean guideline limit of 10µg/m³ is available on the following link:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/825472/air-quality-who-pm25-report.pdf

c. Work with local health professionals to promote awareness of the impact of vehicle emissions on health

Collaboration is required between public health and environmental quality to improve local engagement regarding health. This can be achieved by:

- Encouraging educational awareness through council air quality webpages: <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality.aspx>
- Promoting 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/>
- Implementation of the 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>.
- Increasing communications between the council and health professionals, to educate them on the dangers and importance of understanding air quality issues, and inclusion of air quality matters on regular GP newsletters.

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/>

3. Creating a Low Emission Future: Leading by Example

a. Provide measures to improve vehicle emissions through the Transport Strategy and Local Transport Plans

To date, there has been no update of the emerging Transport Strategy 2019, however in support of this strategy, in February 2018 Slough Borough Council's Executive Member for Planning and Transport requested that work commence on a new transport-led vision for the centre of Slough which could guide development and regeneration to 2040 and beyond. The Transport Vision went to Cabinet on 25th February 2019 and was subsequently published. Local Transport Plans tie in with Transport Vision and is supported by the Low Emission Strategy objectives.

The Transport Vision is designed to support a town fit for the 21st Century, one which would improve the quality of life of those living in, working in, and visiting the Borough, and which would support the creation of a stronger, more sustainable and viable centre of Slough. The Transport Vision seeks to deal with congestion problems by reducing traffic volumes, which brings benefits to air quality, road safety, and improved journey times for buses, pedestrians and cyclists.

Currently, the amount of traffic in the Borough (excluding trunk roads such as the M4) has grown by 15% since the mid-1990s. Slough's road network is under significant pressure, particularly at peak times, resulting in congestion and air quality issues, which could hinder the growth proposed in the Local Plan Review.

A key element of the Low Emission Strategy is to improve the vehicle emissions in Slough, through implementation of an electric vehicle car club and installation of electric vehicle charging points across the borough. The aim of the Transport Vision, similarly to the Low Emission Strategy, is to reduce congestion and create a low car urban core. This can be achieved by focusing on the following areas:

Public Transport:

- Elizabeth line services serving Burnham, Langley and Slough create direct services to central London.
- WRLtH, due for completion in 2028, enabling direct link from Slough to Heathrow T5 in 6-7 mins.
- Park and Ride site near M4 junction 5
- Slough Mass Rapid Transit (SMaRT) bus priority scheme east of the centre of slough via the A4 to the airport. Programme will provide quick and reliable bus services.
- Implementation of Mobility as a Service (MaaS): integration of transportation services from public and private providers through a platform that creates and manages a complete journey from start to finish. This can be used to encourage sustainable transport use, causing improvements to air quality and health.
- Planned changes to strategic road network and local road network. M4 smart motorway upgrade between junctions 3 and 12, designed to relieve congestion, improve safety and resilience on the M4. This will take pressure off the A4 through Slough.

Walking and Cycling:

This has been funded through the Local Transport Plan programme, the Government's Local Sustainable Transport Fund and developer contributions. Measures have included the Heart of Slough pedestrian environment, the Salt Hill cycle route, pedestrian crossing and lighting upgrades, Slough Cycle Hire and the Cycle Hub.

The aim is to deliver high quality walking and cycling environments to encourage people to travel between suburbs and centre by walking or cycling. This can be promoted through integration of cycling/walking routes within developments, e.g. use of building layouts and streetscape design to include pedestrian priority and connections between pedestrian destinations such as the station, shopping centre, TVU site and high street. Projects include:

- A northern gateway scheme along Stoke Road / William Street.
- Cycle super-highway style treatments on key radial corridors such as Uxbridge Road and Windsor Road.
- Creation of attractive walking routes, such as via Church Lane towards Herschel Park (making the most of Slough's heritage environments).
- High quality links to new developments (such as the former Horlick's factory).
- New connections to overcome severance features, such as new pedestrian and cycle crossings of the Great Western Main Line and Windsor Branch line.

Highway Network:

- Creation of a low-car zone within the centre of Slough where only motorised vehicles allowed in these areas are public transport vehicles
- Improvements to the northern gateway streetscape into the centre of Slough to make a more attractive gateway to the regenerated Slough centre

Parking Supply:

- Reduce parking in the town centre and locate car parking in areas whereby vehicles avoid the low-car zone by concentrating parking outside the urban core
- Encourage parking outside the urban core with park and ride provision on the periphery. The P&R at the M4 Junction 5 will have ~1000 spaces.
- Consolidate parking at three primary locations on the edge of the low-car zone with 1500 parking spaces each, and removal of temporary car parks and those which are earmarked for development
- Parking reduction as car ownership decreases in favour of car club use (specifically Slough electric vehicle car club).

b. Provide policies to support improvements in air quality through the Local Plan

The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011, requires planning authorities to prepare Local Plans. Currently, a new Local Plan (2016-2036) is being developed, which will act as guidance for development in Slough up until 2036 and will contain policies to guide business and residential development to meet the needs of Slough's expanding population. The Local Plan update will include development of the existing Core Strategy and Site Allocations.

One of the key challenges which the emerging Local Plan aims to address is how to tackle congestion on Slough's roads. The Transport Vision which ties in with the Low Emission Strategy, sets out the core principles based on technical work and stakeholder engagement, as such it provides important inputs into the review of the Local Plan and the Centre of Slough Development Strategy. The overall strategy for the Review of the Local Plan is to deliver balanced cohesive growth which meets local needs as far as possible given all of the constraints to development.

The NPPF states that "Local Plans may need to consider:

- the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments;

- the impact of point sources of air pollution (pollution that originates from one place); and,
- ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution. This could be through, for example, identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable”.

The Local Plan will take account of air quality issues in identifying areas for future development and include development policies relating to local air quality management that will fulfil the NPPF sustainable development criteria. The LES supports the implementation of the strategic and development policy framework provided by the Local Plan.

c. Develop air quality and planning guidance to promote air quality mitigation at design stage and support wider air quality improvements through off-set mitigation

Air Quality Planning Guidance

In Chapter 3.3 of the Low Emission Strategy, there is detailed guidance on the classification of developments regarding their impact on air quality, which is written in line with Institute of Air Quality guidance and the National Planning Policy Framework (NPPF).

Developments can be classified as minor, medium or major. The dominant factor which influences this classification is the amount of traffic that is generated from the development, as proposals which result in large volumes of traffic will contribute to a worsening of air quality and will be in breach of the NPPF, unless mitigation is sought.

Developments which have a major impact on air quality are those which:

- Are within or adjacent to an AQMA or CAZ;
- Are in areas where sustained compliance with EU Limit Values may be at risk;
- Propose to increase traffic in either the construction or operational phase beyond SBC’s specified annual average daily traffic flow limits;
- Involve significant changes to road traffic including speed, congestion and road layout;
- Involve significant demolition or construction works;
- Involve combustion power generation including short term power generation units, all biomass boiler applications and centralised combustion units with >300kWh thermal input.

Minor developments require Type 1 mitigation measures which are to be agreed during the design stage and implemented once permission is granted. This includes mitigation measures to address both the operational and construction phases of the development, to control air quality impact from the start of the development. The

mitigation for minor developments includes 10% EV charging provision for unallocated parking spaces and 100% provision for allocated parking spaces, installation of low NOx boilers and enforcement of emission standards for construction related vehicles. A monitored Travel Plan, commercial fleet emission standards and support for Slough Electric Vehicle Plan is incorporated into type 2 mitigation, for medium impact developments.

The greater the traffic increase and greater the impact that the proposal has on air quality, the greater the mitigation required.

Off-set Mitigation

Developments which do not have mitigation integrated into the proposal or cause greater impacts to air quality which cannot be addressed by the mitigation measures described in the Low Emission Strategy alone, off-set mitigation can be sought. This is secured through S106 agreements and are used to support wider air quality improvements.

Contributions are sought to fund the Low Emission Strategy Projects, which includes:

- Support of the air quality monitoring programme
- Slough Electric Car Club Programme
- EV Infrastructure Programme
- Taxi EV Rapid Charger Infrastructure Programme
- EV (rapid and fast) off-street and Car Park Programme
- EV (rapid and fast) on-street Programme:
- Clean Air Zone Feasibility Programme:
- Cycle Infrastructure and Hire Programme
- Bus Retrofit Programme
- Electric Bus A4 Smart Service
- HDV gas station programme

To date, many developments have incorporated electric vehicle charging facilities into their design proposals to meet the Low Emission Strategy requirements, or contributed towards public charging points. Details of charging point locations are presented in Appendix D.

d. Introduce specifications for electric vehicle charging as part of new development scheme

The specification for charges for both commercial and residential use are described in Chapter 3.3 of the Low Emission Strategy.

These specifications are referred to when developments are required to install electric vehicle charging facilities into the design.

e. Implement vehicle emission standards through Social Value procurement practices

This has been adopted through the implementation of the Low Emission Strategy – information is available in Section 3.4 of the LES: <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>

f. Consider whole life costs and alternatives to diesel in SBC vehicle fleet procurements

The Council's fleet is being expanded in 2020 to include 20 additional vehicles, which will all be electric vehicles. Although the upfront cost of purchasing the electric vehicle will be higher than a diesel vehicle, running costs and therefore whole life costs are considerably lower. Procurement processes ensure value for money is considered, therefore electric vehicles will be more favourable than diesel vehicles.

g. Introduce Clean Air Taxi emission standards and infrastructure to support the take-up of ultra-low emission taxis

SBC have obtained government, S106 and capital funding to support LES programmes, such as the preparation, scope, procurement and delivery of the Taxi EV Rapid Charger Infrastructure Programme (2020 – 2022).

The installation of rapid charging hubs to facilitate growth in electric taxis and smart technology to link taxi operators with EV charging infrastructure is identified as an objective within the Slough Electric Vehicle Plan. To enable the delivery of this project during 2020-2021, a low emission programme/project manager and project officer within the Environmental Quality Team will be appointed.

h. Implement the Fleet Challenge to reduce emissions from the SBC 'grey fleet'

The Fleet Challenge is continuing to encourage staff to carry out work related activity, meetings and site visits using clean vehicles. There are X fleet cars available which are fully electric, reducing the need for staff to bring in their own vehicles for work purposes.

The push towards cleaner vehicles has been supported by the move to 25 Windsor Road, which has restricted parking options. This encourages staff to either travel to work via sustainable travel options, such as bus, cycling or walking, or to park on the outskirts of the town centre and walk in, relieving congestion in the town centre. A prominent issue with the previous headquarters was that parking was available for all staff for free. The introduction of Hatfield car park with charges capped to £6 per week is another incentive to travel in using alternative methods to car use and help Slough Borough Council achieve mode shift goals.

The existing fleet is due to increase to 20 vehicles, to ensure there is adequate provision for staff use.

4. Slough Clean Air Zone (CAZ) Framework

a. Look at the feasible implementation of a Borough-wide Clean Air Zone (CAZ) including emission standards for buses, taxis, lorries and vans, in line with National Air Quality Plans

The Clean Air Zone is designed to target the worst affected areas of the borough. The three main areas of concern where a clean air zone could bring about compliance in the shortest possible timeframe is AQMA 2 (Brands Hill), AQMA 3 (Tuns Lane) and AQMA 4 (Town Centre).

Brands Hill AQMA is of particular concern, as NO₂ concentrations were recorded at 53.2ug/m³ using local diffusion tubes, and the continuous air quality monitoring station has shown an increase in both NO₂ and PM since from 2017 to 2018. Major developments in the area, including Heathrow Expansion proposals, indicate that air quality will worsen in this area due to increased volumes of traffic and HGVs. Introducing a Clean Air Zone is likely to be the most effective method in reducing use of and disincentivising access to the A4 via Brands Hill, and encouraging cleaner vehicles to enter the borough (such as EURO 6 emission HGVs), thus improving air quality in the local area.

Proposed locations to be modelled during the Clean Air Zone feasibility study are as follows:

- Brands Hill gyratory
- Junction 6 of the M4 leading to Tuns Lane
- A4 Bath Road leading to Wellington Street

The Clean Air Zone feasibility study is due to commence imminently, subject to funding. Some funding has been obtained through S106 agreements, however the total cost of the study is in the region of £100,000 so additional funding is required. The Slough Electric Vehicle Plan will support the uptake of ULEVs and ensure that vehicles are Clean Air Zone standard.

b. Implement measures to support the take-up of ultra-low emission vehicles (ULEV) through the development of a Slough Electric Vehicle Plan

In order to promote and support the take-up of ultra-low emission plug-in vehicles, including cars, taxis and commercial vehicles, the Slough Electric Vehicle Plan has been implemented. This plan has a number of objectives, which are as follows:

- Support home and workplace EV charging utilising the local planning process, business support and private sector investment: policies within the LES ensure EV charging infrastructure is incorporated into new developments which have more than 10 parking spaces. Specific details are outlined within the LES Programme.
- Creation of a strategic Slough public charge point network that ensures electric car users reach their destination through a simplistic access, usage and payment model: Slough currently operate 22 public EV chargers (2 of which are rapid chargers). The EV charging network has recently increased to include an addition 5 public chargers and 1 rapid charger at the new leisure centre on Farnham Road.
- Ensure charging opportunities are available for residents with and without private driveways: this is under development, however public EV charging is available at car parks and leisure centres for residential use. Government funding is also available for residents with off-street parking.
- In line with our Air Quality & Planning Guidance, we will work with developers to provide practical charging solutions and support plug-in vehicle demonstration schemes on new residential and commercial developments: in line with the LES,

10% of car parking in new developments must have access to EV charging infrastructure.

- Work with bus operators to develop ultra-low emission corridors, including potential for the Slough Mass Rapid Transit (SMaRT) Scheme: work is ongoing with Reading Buses and a trial of an electric bus route is planned for 2020. Slough will maintain dialogue with all bus companies, and support where appropriate retro-fit bus scheme to reduce bus fleet emissions.
- Install a network of rapid charging hubs to facilitate a high growth rate in plug-in taxis and the use of smart technology to link taxi operators with charging infrastructure and customers: Low emission standards have been incorporated within the licensing regime which requires all taxis to be Ultra Low Emission from 2025. A commitment has been agreed with OLEV for project delivery in 2020-2021.
- Develop an Electric Car Club across the Borough: discussions have been initiated with car club providers (including Enterprise who currently operate in Slough) and a high level plan has been produced.
- Link and compliment with a potential Ultra-Low Emission Zone at Heathrow: dialogue with Heathrow regarding their ULEZ (implemented 2022) is ongoing. The Clean Air Zone feasibility study will compliment Heathrow's ULEZ to ensure they have a consistent approach.
- Tackle the perceived and actual barriers to EV ownership through targeted marketing, promotion and information: once the car club is operational, discounts and incentives will be offered to residents and businesses.
- Deliver an exemplary public sector ULEV operation – demonstrating to employees, business and the wider community the benefits and savings of ULEV vehicles and related air quality improvements through the SBC Fleet Challenge: the Fleet Challenge has been trialled for 2 years and has been successful in recording 31,000 EV business miles across 6 EV pool cars. The council fleet is being expanded in 2020 to incorporate 20 EV vehicles in total.

c. Work in partnership with bus and freight operators to reduce emissions

An objective of the Slough Electric Vehicle Plan is to work with bus operators to develop ultra-low emission corridors, including potential for the Slough Mass Rapid Transit (SMaRT) Scheme. This is at an early stage with Slough's bus partner Reading Buses, and Slough are currently developing a trial to run an electric bus from Langley to Heathrow via Colnbrook in 2020.

Euro VI standards have been specified when tendering for new bus routes. This is supported by implementation of the Clean Air Zone, which will ensure all of Slough's bus fleet will meet Euro VI standards.

d. Work in partnership with Highways England to reduce the impact of vehicles on the Strategic Road Network (M4)

Highways England have commenced works on the Smart M4 Motorway. The Smart Motorway uses traffic management methods to increase capacity and reduce congestion during busy periods, by using the hard shoulder as a running lane and

using variable speed limits to control the flow of traffic. The Smart Motorway is designed to minimise environmental impact, cost and time to construct by avoiding the need to build additional lanes.

Three forms of Smart Motorway exist:

- All lane running schemes
- Controlled motorway
- Dynamic hard shoulder running schemes

Highways England have commissioned air quality monitoring in three areas of Slough where receptors may be at risk from increased emissions during the construction period, to ensure air quality impact is kept to a minimum. This is described in greater detail in Section 2.a.

e. Ensure Heathrow Airport expansion does not impact on pollution levels but help us realise the potential benefits of this opportunity to improve air quality in Slough

The Heathrow Expansion proposals involve the extension of the Heathrow boundary into Colnbrook to accommodate the third runway, and alteration to the surrounding road networks including the A4, A3044 and M25.

Through the Heathrow Expansion proposals, land in Colnbrook and Poyle is to be released for airport related development and gives Slough the opportunity to grow and develop infrastructure investment. Discussions are underway around bus prioritisation lanes and improvements to the cycle network to promote sustainable travel to the airport, aimed primarily at colleagues who work at the airport travelling from Slough.

The proposals have potential to aid Slough in achieving mode share goals and to improve air quality in the borough.

Two key improvements to Heathrow's expansion proposals are as follows:

- M4 Spur:

Air quality in Brands Hill is at risk of worsening due to the expansion proposals, particularly the construction phase, in conjunction with the large quantities of HGVs that already travel through this area. Construction traffic on the A4 and London Road through Brands Hill is likely to peak in 2022/2023 in consequence of the expansion.

The overlapping of several different traffic flows and transport schemes across all modes of transport and during both construction and operation of the Heathrow Airport Consultation suggest that the A4 corridor should be subject to mitigation and improvement measures at an early stage of the project. It is therefore proposed that Heathrow provide direct access from the M4 to ensure that construction traffic originating from the west can easily access the airport and to mitigate unnecessary construction traffic flows through the Slough Borough Council Major Route Network (MRN). A direct access from the M4 to the construction site would ensure air quality in Brands Hill does not continue to worsen.

- Bus Prioritisation on diverted A3044:

During construction, as traffic is predicted to increase on the M4 with knock-on effects impacts on the A4, an early implementation of bus priority measures would ensure that the connectivity between Heathrow airport and Slough Borough Council

is maintained. Provision of bus priority measures will aid in the promotion of sustainable transport modes to the airport and improve air quality in this area.

f. Prepare a Low Emission Programme to deliver measures within the LES

The Low Emission Strategy Programme outlines the different projects which are involved in making the strategy successful in improving air quality for the borough.

5. Communication and Delivery Plan

a. Produce an integrated communications and delivery plan

A communication plan has been designed and is on the SBC webpage.

This communication plan is being developed in conjunction with public health.

Appendix B: Outline Low Emission Delivery Plan

Outline Low Emission Delivery Plan				
Objective	Action	Owner	Start Date	End Date
	1. General			
1a. Ensure all relevant Council strategies consider and support measures to improve air quality and health outcomes in partnership with stakeholders	Ongoing engagement with all relevant strategies and statutory plans that have a direct or indirect impact on AQ., i.e. Local Plan, Transport Visions, Corporate Procurement Strategy, Wellbeing Strategy etc. to ensure AQ impacts are considered and low emission measures are supported through policy adoption within these strategies.	Various	Sept 2018	Dec 2025
	2. Evidence for Change			
2a. Provide a robust framework for monitoring and modelling air quality across Slough	Replace monitors and enclosure at Pippins School, Colnbrook with walk-in cabinet	EQ – Sophia Norfolk	March 2020	August 2020
	Decommissioning of Salt Hill monitoring station	EQ – Sophia Norfolk	January 2020	Feb 2020
	Replacement of Chalvey monitoring station	EQ – Sophia Norfolk	March 2020	August 2020
	Installation of a new roadside continuous air quality monitoring station in Langley, to observe air quality trends. Proposed location is on Langley High Street	EQ – Sophia Norfolk	February 2020	August 2020
	Installation of diffusion tubes in background locations to determine ambient NO2 concentrations	EQ – Sophia Norfolk	January 2020	Feb 2020
	Installation of diffusion tubes to co-locate with Vaisala air quality sensors during Defra funded project	EQ – Sophia Norfolk	December 2019	Jan 2020
	Commissioning of detailed air quality modelling and source apportionment during 2019 to determine pollutant sources and establish baseline NO2 concentrations	EQ – Sophia Norfolk	Jan 2020	May 2020
2b. Use national and local data to assess the impact on	We report annually on Public Health Outcomes Framework (PHOF) 3.1 that illustrates and reports on the fraction of	EQ – Sophia	Annually reported in June within our Annual Status	

health of Slough residents arising from air pollution	mortality associated with particulate air pollution.	Norfolk	Report submitted to DEFRA	
2c. Work with local health professionals to promote awareness of the impact of vehicle emissions on health	Promote educational awareness through council air quality webpages	EQ – Sophia Norfolk	Jan 2020	Dec 2020
	Promote AirTEXT (measure: number of subscribers)	EQ – Sophia Norfolk	Jan 2014	Dec 2025
	Implementation of the communication campaign to raise awareness	EQ – Sophia Norfolk	Jan 2020	June 2020
	Public Health Slough Website – dedicated air quality pages – (completed)	EQ – Sophia Norfolk	Jan 2019	May 2019
	Clean Air Day – Prepare for PR event for Clean Air Day 2020	EQ – Sophia Norfolk	Jan 2020	18 June 2020
3. Creating a Low Emission Future				
3a Provide measures to improve vehicle emissions through the Transport Strategy and Local Transport Plans	Promote modal shift away from cars to sustainable transport modes, including public transport, walking and cycling via the Transport Vision	MIP – Savio DeCruz	Jan 2019	Jan 2020
	Undertake a Clean Air Zone (CAZ) feasibility study in line with the national Clean Air Zone Framework (subject to funding) see details in 4a	EQ – Sophia Norfolk	Jan 2020	Dec 2020
	Promote the uptake of ultra-low emission vehicles (ULEV) in line with the Slough Electric Vehicle Plan	EQ – Jason Newman	September 2018	December 2025
3b Provide policies to support improvements in air quality through the Local Plan	EQ input into the Local Plan process and adoption of AQ policies within the new Local Plan (expected to be completed by 2022)	Planning Policy – Paul Stimpson	Started	Dec 2022
3c Develop air quality and planning guidance to	Adopt Air Quality Planning Guidance to provide clarity to developers through the planning system (Specified within LES –	Planning and EQ	Completed	2 year review

promote air quality mitigation at design stage and support wider air quality improvements through off-set mitigation	revise as part of LES review and Local Plan process)			
	Seek air quality mitigation to be integrated into development schemes at the design stage Require appropriate air quality mitigation, proportionate in scale and kind to development scheme impact, including off-set mitigation on major schemes (s106 contributions)	EQ – Sophia Norfolk EQ – Jason Newman	Sept 2018 Sept 2018	Ongoing Ongoing
	Adopt emission controls for non-road mobile machinery (NRMM) (Major Schemes)	EQ – Sophia Norfolk	Sept 2018	Ongoing
3d Introduce specifications for electric vehicle charging as part of new development schemes	Introduce standards for plug-in vehicle charging on new development schemes (update as necessary specified in the LES)	EQ – Jason Newman	Completed (annual review)	
3e Implement vehicle emission standards through Social Value procurement practices	Introduced through LES and used for procurement of RMI , DSO fleet, and Corporate repairs and Community Transport contracts. (ensure included in any new Corporate Procurement Strategy) Require minimum vehicle emission standards as part of Social Value procurement processes where relevant Set emission standards for all major contracts eg maintenance etc, where vehicle use is inherent in the contract Ensure the Waste and Recycling Fleet complies with the Euro VI Emission Standard from 1st December 2017 (yes full compliance achieved)	EQ – Jason Newman	Completed	2 year review
3f Consider whole life costs and alternatives to diesel in SBC vehicle fleet procurements	Use whole life costs (WLC) in the evaluation of vehicle procurement exercises, including the consideration of alternatives to diesel technology.	EQ – Jason Newman	Completed	As required

	<p>Seek to migrate the refuse collection vehicle (RCV) fleet to natural gas / biomethane as part of the next procurement cycle (Jan 2024) rejected as still fossil fuel based approach – electric drive motor option being considered for next fleet cycle</p> <p>Review the SBC light commercial fleet and pursue opportunities to transfer to plug-in vehicles where feasible (part of Fleet Challenge Programme)</p> <p>All SBC light commercial and community service vehicles will meet the Euro 6/VI Emission Standard (achieved by 2022)</p> <p>SBC will comply with best practice laid down by the Government</p>		<p>Jan 2024</p> <p>Jan 2020</p> <p>Jan 2020</p>	<p>Dec 2024</p> <p>Dec 2022</p> <p>Dec 2022</p>
3g Introduce Clean Air Tax emission standards and infrastructure to support the take-up of ultra-low emission taxis	Set minimum emission standards for both Hackney Carriages and private hire vehicles (PHV) that comply with National Clean Air requirements and also promote the use of ultra-low emission vehicles (ULEV)	EQ – Jason Newman and Mick Sims – Licensing	Completed	ULEV implemented in 2025
	Install a network of dedicated, rapid charging units to support the growth in ULEV taxi take-up	EQ – LES Project Manager	Jan 2020	December 2021
	Encourage the development of SMART APPS for taxi drivers to connect with electric charging infrastructure and for customers to connect to ULEV taxis	EQ – LES Project Manager	August 2020	December 2020
	Facilitate ‘trade’ days for taxi drivers to meet with ULEV taxi manufacturers / retailers, infrastructure providers and other support organisations	EQ – LES project Officer	Jan 2021	June 2021
	Promote the use of ULEV taxis for public sector taxi contracts (post dates the strategy Dec 2025)	Community Transport Manager	June 2025	Sept 2026
3h Implement the Fleet Challenge to reduce emissions from the SBC	Implement a Travel Hierarchy providing access to alternatives to car use to avoid unnecessary journeys and increasing the use of electric pool cars and bikes (completed)	EQ – Jason Newman	Completed	2 year review
	Build on the successful ‘My Electric Avenue’ Project to increase	EQ – Jason	June 2017	March 2020

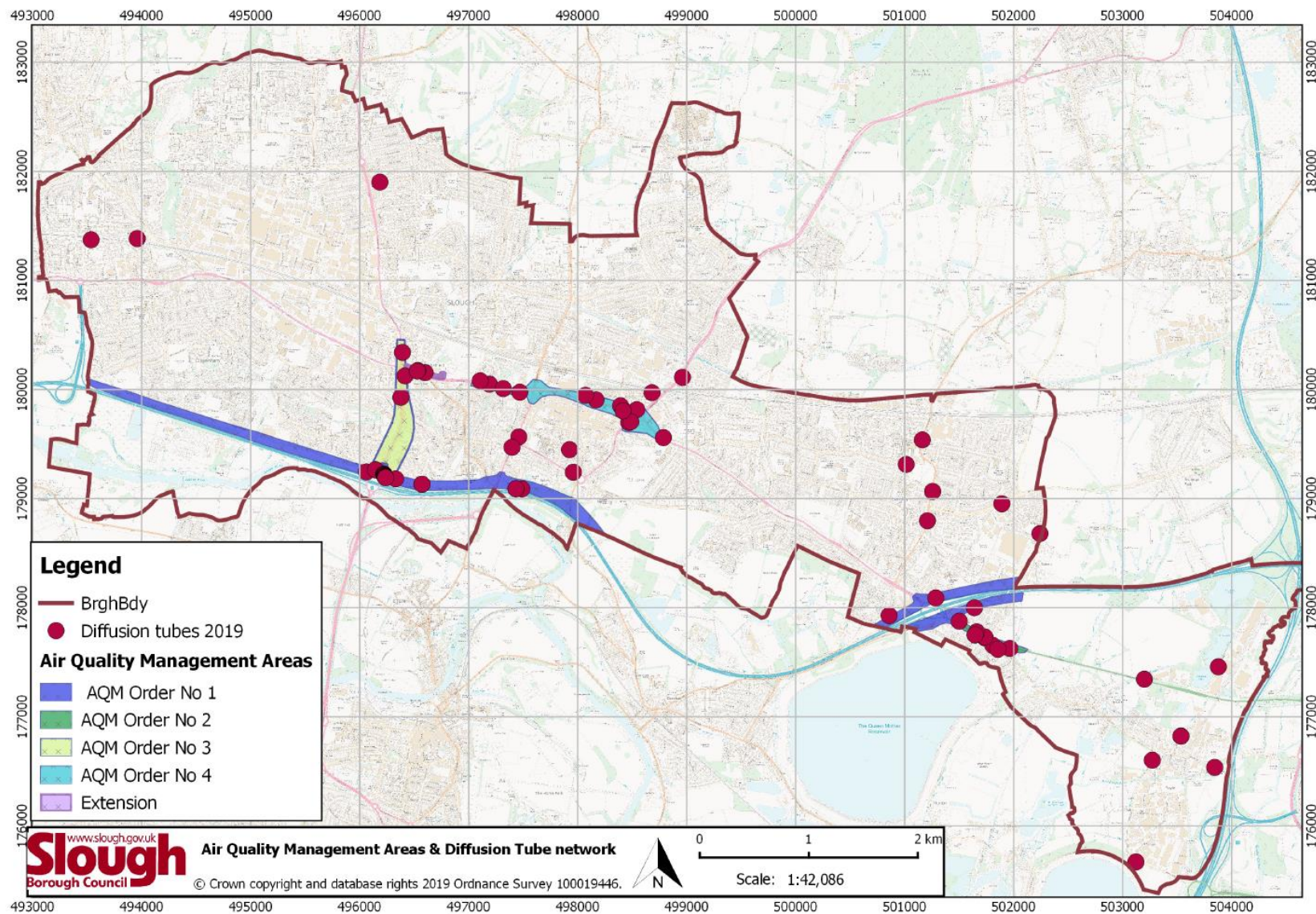
'grey fleet'	the take-up of ULEVs, reduce emissions and save costs for both staff and the Council (Fleet Challenge Programme Trial phase)	Newman		
	Expand the EV Pool Fleet over three phases (HQ, Hubs and Trust) subject to business case demonstrating return of investment (mandatory phase)	EQ – Jason Newman and Fleet Manager	April 2020	Dec 2025
4. Slough Clean Air Zone (CAZ) Framework				
4a Look at the feasible implementation of a Borough-wide Clean Air Zone (CAZ) including emission standards for buses, taxis, lorries and vans, in line with National Air Quality Plans	Appoint Transport and Air Quality modelling specialist: <ul style="list-style-type: none"> - Determine scenarios to run through transport model - Write formal task order for Transport model - Write Air Quality modelling RFQ 	EQ – Sophia Norfolk	Jan 2020	Feb 2020
	Collect Automatic Number Plate Recognition (ANPR) Data <ul style="list-style-type: none"> - Procure ANPR cameras (procurement sign off) - Deal with GDPR regulatory requirements for personal data - Install ANPR - Run ANPR for 2-3 weeks - Analysis of ANPR data 		Jan 2020	April 2020
	Run Transport Model: <ul style="list-style-type: none"> - Scenario 1: 2018 baseline - Scenario 2: 2022 Implementation Date - Scenario 3: 2026 Future Year 		May 2020	August 2020
	Run Preference Survey		September 2020	
	Run Air Quality Model: <ul style="list-style-type: none"> - Scenario 1: 2018 Baseline - Scenario 2: 2022 Implementation Date - Scenario 3: 2026 Future Year (do minimum) - Scenario 4: CAZ B 2022 and 2026 - Scenario 5: CAZ C 2022 and 2026 - Scenario 6: CAZ 2022 and 2026 		October 2020	Dec 2020

	<p>Prepare Feasibility Study Report – internal review</p> <p>Prepare and present recommendation to CMT</p> <p>Prepare and present recommendation to Cabinet</p> <p>Business Plan to be developed if approved by CMT/Cabinet – require Public and Business Consultation. Process is likely to take 18-24 months for full implementation of a CAZ</p>		<p>Dec 2020</p> <p>Feb 2021</p> <p>April 2021</p> <p>June 2021</p>	<p>Jan 2021</p> <p>March 2021</p> <p>June 2021</p> <p>June 2022</p>
4b Implement measures to support the take-up of ultra-low emission vehicles (ULEV) through the development of a Slough Electric Vehicle Plan	<p>Develop a Slough Electric Vehicle Plan – links to the development of the low emission programme and delivery plan</p> <p>Promote ultra-low emission buses through the Slough Electric Vehicle Plan</p>	EQ – Jason Newman	Jan 2020	Feb 2020
4c Work in partnership with bus and freight operators to reduce emissions	<p>Work in partnership with bus and coach operators to identify an emission reduction pathway to 2025</p> <p>Promote alternatives to heavy diesel such as methane/biomethane and electric</p>	MIP– Savio DeCruz	Sept 2018	Dec 2025
	<p>Require a minimum Euro VI emission standard for new, tendered commercial bus route services through Slough from 2018</p>		June 2018	Dec 2025
	<p>Require a minimum Euro VI Standard for all existing commercial bus routes operating in our AQMAs by 2021 (we are meeting significant resistance and may need to extend deadline)</p>		Jan 2020	Dec 2021
	<p>Undertake an electric bus route trial</p>		Jan 2020	June 2020

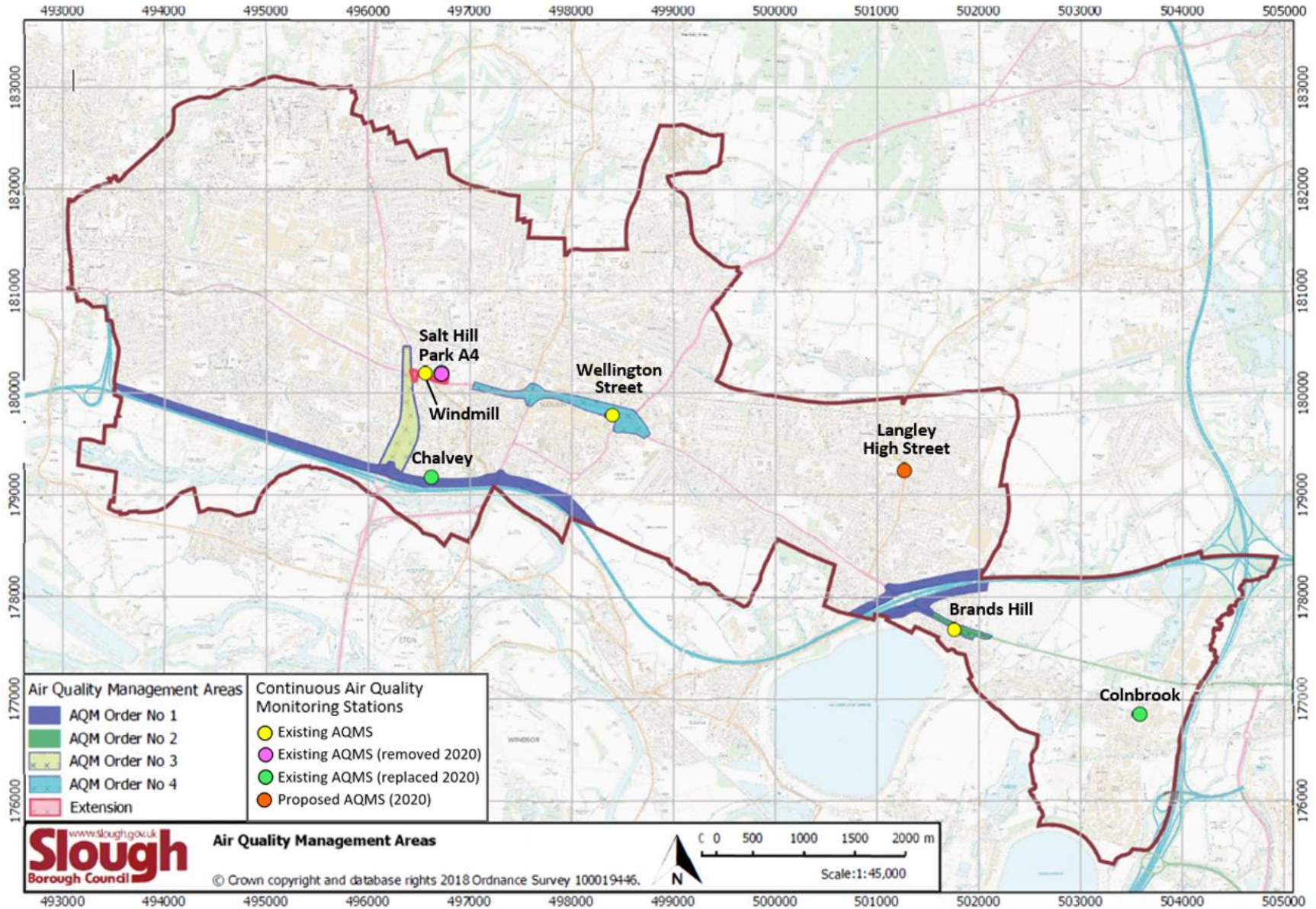
	Support, where possible, funding opportunities to reduce emissions		As required	
	Promote ultra-low emission corridors as part of the Slough Mass Rapid Transit (SMaRT) and Heathrow developments		Jan 2019	Dec 2022
4d Work in partnership with Highways England to reduce the impact of vehicles on the Strategic Road Network (M4)	AQ monitoring being undertaken for the SMART M4 motorway and ongoing AQ mitigation where required	EQ – Sophia Norfolk	October 2019	June 2022
4e Ensure Heathrow Airport expansion does not impact on pollution levels but help us realise the potential benefits of this opportunity to improve air quality in Slough	Ongoing regular meetings with HAL discuss impact and mitigation of Heathrow expansion with respect AQ Dates based on submission of DCO application these may change	MIP – Savio DeCruz and EQ – Jason Newman	June 2019	Dec 2020
4f Prepare a Low Emission Programme to deliver measures within the LES	Draft Low Emission Programme Developed – requires refinement of programme and delivery phases and to be linked to the delivery and communication plan	EQ – Jason Newman	Sept 2018	Feb 2020
5. Communication and Delivery Plan				
5a Produce an integrated communications and delivery plan for measures in the LES	Development of delivery and communication plan present to Cabinet	EQ – Jason Newman	November 2019	Feb 2020

Appendix C: Map of AQMA and AQ Monitoring.

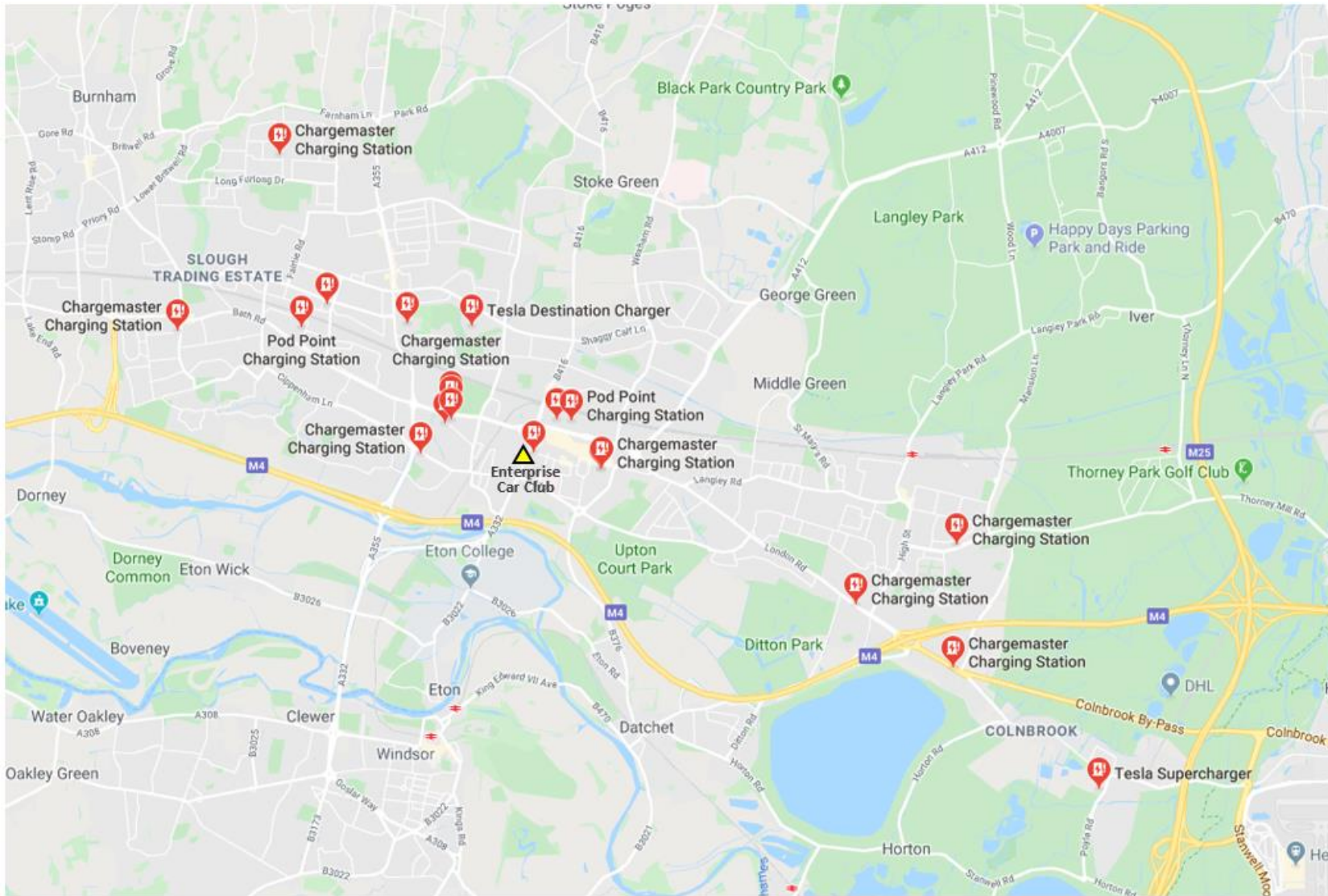
Diffusion Tube Monitoring Locations





Continuous Air Quality Monitoring Stations



Appendix D: Map and Table of current Public EV network and car club



- EV Charging Points 
- Enterprise Car Club 

Appendix E: Information Sheet on Car Clubs

What are car clubs?

- A car club is a rental company but instead of being restricted to offices and opening hours, it allows users to hire a car when required, typically for occasional local use rather than long periods.
- Car clubs provide vehicles (cars and vans) to members on a pay as you drive basis, most suitable to those who drive <8,000 miles per year, 2-3 car households who have non-essential use of extra car, and businesses that can replace pool cars/own staff vehicle with a car club vehicle.
- Car clubs are typically organized on a community basis with cars positioned close to clusters of members (typically within 10 min walk from the nearest car station), with larger cities having several car stations as part of one scheme. The fleet is usually concentrated in high population areas.

How do they work?

- A user must sign up to a Car Club organisation to become a member (online or over the phone).
- To sign up, the user must provide the club with driving license details and declare endorsements, convictions and confirm insurance claims history.
- Many car clubs allow options to hire a vehicle within a few minutes, dependent on availability. This can be done via a dedicated app, text or over the phone.
- Vehicles can be accessed from a car station using smart proximity card that automatically unlocks the vehicle and initiates the booking, or using a dedicated app.
- The smart card or app is used to lock the vehicle at the end of the booking, when the vehicle automatically sends all the user and mileage information back to a central computer for billing.
- Many car club memberships include fuel, insurance, servicing and MOTS – so only pay for vehicle when it is needed.

What are the different car club models?

There are 3 types of car clubs:

- Round-trip car clubs: involve a car club member booking a specific car, located in a dedicated parking bay, for a period of time and then returning the car to the same dedicated parking bay, before the end of the reserved time.
- Fixed one-way car sharing: involves a member starting a reservation in an available car at a designated parking bay and driving to another designated parking bay, where the reservation ends.
- Floating one-way car sharing: involves a member spontaneously identifying an available nearby car, reserving that car and driving it to their destination, wherever that may be. To end their reservation they must park the car within a specified geographical operating area, allowing for one-way trips or round-trips

There are a number of variations on how car club schemes operate. In the UK, the main model to date has been the round-trip scheme. A more recent innovation is the emergence of one-way 'free-floating' schemes, however they can also be used for round-trips.

Why are they useful in sustainable travel?

Car clubs provide many environmental benefits over conventional car ownership. These include:

- Reduction of car use: Car clubs reduce total car miles driven and break the link between car use and car ownership. This encourages the public to travel less and in more sustainable ways i.e. public transport, walking and cycling, whilst improving congestion. In the UK, former car owners increase their use of non-car transport modes by around 40% after joining a car club. This results in traffic related pollution (NOx and PM) to decrease.
- Shift to newer more sustainable vehicles: Car club vehicles are cleaner (lower NOx and PM), more fuel efficient (lower CO2) and better maintained than older privately owned vehicles. Many car clubs are moving to electric or hybrid vehicles to operate with zero tailpipe emissions.
E.g. a car club in UK: 45% of the private cars replaced were more than 10 years old.
- Reduced need for multiple vehicle ownership: Users typically give up additional cars or don't purchase a car in favour of car club use. 72% of members of a car club with locations in Bristol and London have given up one or more of their privately owned vehicles or deferred the purchase of a vehicle. UK studies suggest that each car club car typically replaces at least 6 private cars (up to 20).

How much do they cost?

- Car clubs use a 3 tier pricing model:
 1. Membership: This is paid either monthly or annually. Simply join selecting a rate plans available in the town or city within which you live. This will also enable access to vehicles across the UK.
 2. Rental: For each trip you'll be charged for the vehicle based on the type of car or van you've selected and the length of the reservation. An estimate for your rental will be displayed before you confirm your reservation based on the specific rates of the car or van you've selected. To give you peace of mind, our price guarantee means we charge you the daily rate if it is lower than the hourly rate. This daily cap will only be applied to one reservation per day. You may cancel for FREE up to 5 hours before your reservation starts.
 3. Mileage: This is a per-mile charge that is calculated based on how far you drive during your reservation. This is added to your rental charge and billed at the end of your trip.
- Once a member, the user will pay for the duration of their reservation and mileage (example prices are shown in the table below).

- Most clubs offer day and weekend rates. Some clubs partner with major hire companies to provide long term hire options and ensure car club is available for shorter journeys.
- The cost of membership and journey duration includes fuel, insurance, servicing, MOT, road tax, breakdown cover. Fuel purchased during the reservation is typically refunded by the car club operator.
- Some car clubs memberships include additional benefits. For example, Enterprise Car Club give 10% discount from Enterprise Rent-A-Car, NCS parking discounts, and discount vouchers.

Table 1: Car Club Costs

Service Provider	Joining/annual fee	Per-hour charge	Per-mile charge
City Car Club	£60 per year	From £4.95	23p/mile (EVs 5p/mile)
Co-Wheels	£25 one-off and £5 per month	From £3.75; Daily rate: £17.50	13p/mile (EVs 0p/mile)
E-Car Club	£50 per year	From £5.50	0p/mile
ZipCar	£50 per year	From £4.95	60 miles free, then 23p/mile
Hertz 24/7	Free	From £4.50	20 miles free, then 25p/mile

Slough Membership - Enterprise Car Club example:

Enhanced Plan	Standard Plan	Under 22s
starting from £3.45 /hour	Pay a standard rental rate, with no mileage included For casual users starting from £4.95 /hour	For those aged between 19-21 y.o. with 1 years driving history For young users starting from £5.95 /hour
SELECT THIS PLAN	SELECT THIS PLAN	SELECT THIS PLAN
Monthly membership fee £20	Monthly membership fee £7 or	Monthly membership fee £6
Annual membership fee N/A	Annual membership fee £60	Annual membership fee N/A
MORE DETAILS	MORE DETAILS	MORE DETAILS

Cost includes hourly, membership and mileage fees (21p per mile on cars or 27p per mile on vans). Physical Damage/Liability Protection is included with an excess of £750 as standard. Hourly rental charges are capped at the day rate.

Who can use them?

- Car clubs are available for anyone with full valid license (held for 12 months minimum and including non-UK driving licences), aged 18-75. This may also include those with driving offences.

- Some car clubs may introduce usage caps for drivers under certain ages, for example Enterprise Car Club have an Under 22 Plan, which restricts users under 22 years old to small and medium vehicles from 5am to 10pm.
- Car Clubs with stations across the UK may allow access to all their vehicles and provide a range of vehicle choices (e.g. small city cars, medium hatchbacks, larger estate vehicles, electric vehicles, easy to park small vans and larger vans).
- There are also car club options for businesses. Car club vehicles can replace expensive and time consuming company cars, taxi and grey fleet with access to hundreds of vehicles nationwide. Multiple drivers from a business can be added to the membership and can receive monthly invoices which details all reservations by drivers. This is very beneficial for businesses in London that would be affected by the ULEZ, as they are able to continue operating whilst saving money by avoiding ULEZ fees and reducing emissions in the city.

Why they are economically beneficial for urban/town residents who use cars infrequently?

Car Clubs have multiple benefits. These include:

- Economic benefits: Users can avoid expense and hassle of private car ownership by hiring a vehicle from a car club as and when needed. Car club costs are low when compared to costs of owning a private vehicle (such as running costs, depreciation, insurance, road tax, servicing, parts – estimated to cost £1,731 a year to run a motor of an equivalent size to a Ford Fiesta). Car ownership costs can be calculated on the following link:
<https://www.enterpriseclub.co.uk/gb/en/about/calculator.html>
- Environmental benefits: As car club membership increases, car ownership and use will decrease, resulting in fewer cars on the network, reducing congestion and emissions. Car club vehicles are typically newer and cleaner than older vehicles, as many car clubs are moving to electric or hybrid vehicles to operate with zero tailpipe emissions.

Who are the current national operators?

- City Car Club – the first UK car club.
 - Zipcar – who also operate in the US and Canada.
 - Co-Wheels – a community interest car club.
 - Hertz 24/7 – a service offered by Hertz.
 - E-Car Club – the UK's first entirely electric car club.
 - Easy Car Club – a peer-to-peer car sharing network.
 - HiyaCar – person-to-person car sharing community
- Full details can be found here: <http://www.carplus.org.uk/list-of-car-clubs/>

Appendix F: Draft Low Emission Programme and Maps

Slough Low Emission Programme

The low emission programme is the essential delivery component of the low emission strategy that outlines our vision with respect to accelerating the uptake of low emission vehicles and technologies within Slough. Slough intends to lead by example in e-mobility and will work strategically and operationally with its partners to develop and install the electric and gas infrastructure to maintain its commitment to drive down emissions, improve air quality and improve the public health of our communities.

This programme is aspirational. The maps show the general location of the low emission infrastructure, these will be subject to full site surveys and hence the final locations may change slightly. The programme is designed on the basis of obtaining sufficient funding and resources to enable its delivery from concept to implementation.

The primary focus of the programme is to deliver a dedicated network of public and taxi rapid EV chargers and EV car clubs across Slough over the next 5 years. The programme is fluid, is subject to alteration, change and improvement. The delivery of the programme and its measures and any changes will be reported annually within our statutory annual status report (ASR) to DEFRA and published on our SBC website

The Low Emission Programme supports the:

- Low Emission Strategy
- Air Quality Action Plan
- Slough Electric Vehicle Plan
- Councils Fleet Challenge Programme
- Councils EV Taxi Project (part funded by OLEV)
- Councils Transport Strategy
- Corporate Sustainable Procurement Objectives

The programme also supports the strategic direction of the Government's Road to Zero Strategy, a key element of the Government's Industrial Strategy and Clean Growth Strategy.

The Programmes are broken down as follows:

Air Quality Monitoring 10 year programme:

The air quality monitoring programme is the essential bedrock of the statutory local air quality management (LAQM) regime – allowing us to report to our residents, businesses and developers and DEFRA on our local air quality monitoring and management on an annual basis. The air quality monitoring programme will enable us to monitor the effectiveness of our transport and low emission measures over time. The monitoring allows us to determine:

- compliance with EU Limits and National Air Quality Objectives
- to determine trends in pollution
- the air quality impacts of road traffic schemes
- the air quality impact of low emission schemes
- hot spot pollution areas which will require special focus.

There will be both a need to role out new air quality monitoring stations (replacing older stations) on a permanent and temporary basis within our AQMAs and other hot spot areas within Slough.

The funding requirement is both Capital and Revenue. The capital funding is for the commissioning, purchasing, installation, servicing, replacing, and maintaining the monitors. The Revenue funding relates to the management of the air quality monitoring programme, the data management requirement, the QA/QC process, the running costs of the stations, the costs associated with ratifying of data, the auditing of sites, the publication of real time data on a web platform for the public to access. We will seek S106 funding towards the programme.

Slough Electric Car Club Programme:

Car clubs can help unlock a new model of urban mobility for Slough by offering an alternative to private car ownership. Car clubs provide access to shared vehicles to members on a pay-as-you-drive basis. They provide much of the convenience of owning a car without the hassle or costs of repairs, depreciation, insurance, servicing and parking. Car clubs tend to be organised on an area basis with cars located in clusters so that if one car is not available, a member will only have a short walk to access another car.

Slough is experiencing a sustained period of population growth and there is a need to build up to 20,000 additional residential homes across Slough over the next 20 years, a significant proportion of these residential units will be built in the town centre, which currently experiences elevated air pollution and congestion and has an AQMA declared along the A4 route. Congestion costs the local economy in significant delays and lost productivity. A focus on modal shift to public transport, limiting parking on new developments, and the promotion of car clubs to reduce overall car dependence by making access to cars more flexible, thereby reducing pressure on road space and encouraging sustainable transport is a key priority of the low emissions strategy and transport strategy.

Car clubs can also bring wider benefits such as:

- Freeing up parking spaces – through members selling a car or deferring a planned purchase of a car
- Environmental benefits – including improved air quality, reduced CO2 emissions through use of cleaner vehicles (particularly if electric vehicles are used in the fleet) and greater use of sustainable transport
- Increased familiarity with electric vehicles – making them more visible, desirable and accessible to a wider audience
- Reduced costs of living – the true costs of owning a car (including upkeep, maintenance and depreciation) are often under-estimated by owners. Car club users can make significant savings when switching from private ownership.
- Reduced costs of doing business – car clubs can have financial benefits for businesses through rationalised business travel and reduced commuting by car

Our approach is to set up strategically located car clubs in the town centre, and around our railway hubs (Burnham and Langley railway stations), and our large industrial zones (Slough Industrial Estate/Bath Road), Axis Park and Poyle Industrial Estate) and Wexham Hospital.

We intend to take this a step further by considering the feasibility of setting up an EV car club, and seeking S106 funding contributions towards the setting up the EV car club, building EV car club infrastructure, providing car club bays and signage on the public highway and car parks, and covering associated infrastructure costs. We are looking at pooled S106 contributions across all our different air quality zones and areas to set up and expand the EV car club network. The EV car club forms part of our Slough Electric Vehicle Plan. We will actively tender for a partner EV 'car club provider' during 2019 with a view to setting up our first EV car club in Slough by 2020. The partner will manage the EV car club, bookings and administration of the scheme.

EV Infrastructure Programme

Slough is in a unique position to grow its EV programme, with its fantastic road transport links, and having the 4th highest ULEV (plug-in) registrations in the Country, the embryonic expansion of EVs has truly taken root in Slough. Already across our existing EV infrastructure more than 2000 EV charge events have been recorded since 2014. As part of the Slough Electric Vehicle Plan we intend to rapidly expand our public (both on and off street Rapid EV chargers) across Slough.

This compliments our existing public EV infrastructure, to date we have already secured Office of Low Emission (OLEV) Funding (75% contribution) towards our Rapid EV charger, and four of our Fast EV chargers. We have also been successful in our bid to OLEV for electric taxi funding (£157,000) to install 7 Rapid Chargers to meet the uptake of electric taxis and Private Hire Cars and we will match fund through S106 contributions and capital borrowing.

Types of Chargers

Rapid chargers are the fastest way to charge an EV, often found in motorway services or in locations close to main roads. Units supply high power direct or alternating current – AC or DC – to recharge a car to 80% in 20-40 minutes. All come with the charging cable tethered to the unit, with one of three connectors attached. Rapid charging can only be used on vehicles with rapid-charging capability. With two of the three different connector types available being rapid-charging specific.

Types of Rapid Charger Connectors¹:

Rapid DC chargers provide power at up to 50kW (125A), use either the CHAdeMO or CCS charging standards. Both connectors are typically able to charge an EV to 80% in 20-40 minutes depending on battery capacity and starting state of charge. Once charging reaches 80%, the unit's power output will drop to a slower rate to preserve battery life and maximise charging levels. Users of rapid DC units select the appropriate connector for their vehicle and use the tethered cable to plug the car in, rather than their own cable.

¹ Details taken from <https://www.zap-map.com/charge-points/connectors-speeds/>



CHAdeMO – 50kW DC

CCS – 50kW DC

(Slough Rapid Chargers will include both types of DC connectors)

Rapid AC chargers provide power at up to 43kW (three-phase, 63A) and use the Type 2 charging standard. Rapid AC units are typically able to charge an EV to 80% in 20-40 minutes depending on the model's battery capacity and starting state of charge. Once charging reaches 80%, the unit's power output will drop to a slower rate to preserve battery life and maximise charging levels. Users of rapid AC units select the Type 2 connector for their vehicle and use the tethered cable to plug the car in, rather than their own cable.



Type 2 – 43kW AC (Slough Rapid Chargers will include Type 2 42kW AC)

The rapid chargers we install in Slough will have both DC and AC Type 2 connectors.

Tesla's Supercharger network also provides Rapid DC charging to drivers of its cars, but at a much higher rate of up to 120kW. Like other Rapid DC units, the cable is tethered to the unit, but the connector at the end is Tesla's version of Type 2. While all Tesla models are designed for use with Supercharger units, many Tesla owners use adaptors which enable them to use a 50kW rapid units fitted with a CHAdeMO connector. While these provide less power than a Supercharger, they are far more common in the UK and elsewhere. Other EV car owners are unable to use the Tesla Supercharger network.



Tesla Type 2- 120kW DC (Only Tesla drivers can use these chargers)

Fast chargers most chargers are fast chargers all of which are AC, are typically rated at either 7kW or 22 kW (single- or three-phase 32A). Charging times vary on unit speed and the vehicle, but a 7kW charger will recharge a compatible EV in 3-5 hours, and a 22kW charger in 1-2 hours.

These type of chargers tend to be found at destinations, such as car parks, supermarkets, or shopping centres and on street parking – somewhere that an EV will potentially be parked at for an hour or more.

The majority of fast chargers are untethered, though some home and workplace based units have cables attached. The latter units mean only those vehicles that can use that connector type will be able to charge on them; in contrast to the more common use of a driver's own connector cable. **Untethered units are therefore more flexible and can be used by any driver that has the correct cable. These will be the units we will install in Slough.**

The most common type of fast charger is an untethered 7kW Type 2, though fast chargers can also be found with Type 1 or Commando connectors. Fast charge units commonly have two sockets to charge two cars at the same time, though one is not unusual.

Charging speeds from fast chargers will depend on the car's on-board charger, with not all models able to accept 7kW or more. These models can still be plugged in to the charge point, but will only draw the maximum power accepted by the on-board charger. For example, a Nissan Leaf with standard 3.3kW on-board charger will only draw a maximum of 3.3kW, even if the fast charger is 7kW or 22kW.

All our fast chargers we install in Slough will be Type 2 7Kw or 22kW AC chargers. We will also require larger commercial and industrial developments to install these types of chargers as part of on-site mitigation.



Type 2 – 7-22kW AC (Slough will be installing this type of Fast Charger)



Type 1 – 7kW AC

Slow charging units are rated at 3kW. Charging times vary on unit speed and vehicle, but a full charge for an EV will typically take 6-12 hours.

Commando – 7-22kW AC

Slow charging is the most common method of charging electric vehicles, used by many owners to charge at home overnight. Slow units aren't necessarily restricted to home use, with workplace and public points also able to be found. Because of the longer charging times over fast units, slow public charge points are less common.

Home charge points are commonplace though, largely because those who buy an electric car often find themselves qualified to apply for the Electric Vehicle Homecharge Scheme². This gives buyers money off a fully installed EV home charging unit. **Slough will recommend Type 2 inlet EV chargers to be installed in new residential developments to accelerate the uptake of EVs.**

Slow charging units can be either tethered or untethered, with untethered charge points often using a Type 2 inlet to connect an EV with. Tethered points typically have a Type 1 connector where this type is required by an owners' EV model.

² <https://www.gov.uk/government/publications/electric-vehicle-homecharge-scheme-guidance-for-customers-version-22>

Although termed 3kW units, slow home charge points can actually potentially charge at up to 3.6kW, because they can be rated for 16A, rather than the 13A or less available from the mains.

While slow charging can be carried out via a three-pin socket too using a standard 3-pin socket, because of the higher current demands of EVs and the longer amount of time spent charging, it is strongly recommended that those who need to charge regularly at home or the workplace get a dedicated EV charging unit installed by an accredited installer. **We will not specify 3 pin socket chargers for new residential dwellings.**



3 pin – 3Kw AC (not recommended)



Type 1 – 3kW AC (Nissan and Mitsubishi) tethered



Type 2 – 3kW AC (non tethered) these are the ones we would recommend to be installed in new homes

Taxi EV Rapid Charger Infrastructure Programme:

We have secured 50% of funding from OLEV (£157,000) toward seven dedicated Electric Taxi rapid chargers located close to our Crossrail hubs (Burnham, Slough and Langley) and also Slough Town Centre. The precise geographical location for these chargers may change once the final taxi and site surveys have been updated and completed, the locations are shown on our Low Emission Programme maps. We will be going out to tender later in 2018 to secure our rapid charger EV partner. These rapid chargers will be installed during 2019 and 2020. We intend to match fund this amount through a combination of s106 contributions and capital borrowing.

These rapid chargers whilst dedicated to taxis will also be accessible to the public where they are not located on taxi ranks, but taxis will always be given priority through a booking app. In addition to the taxi rapid chargers we will also be installing public Rapid Chargers at several strategic locations across Slough, both on street and off street within our highway assets and car parks so that they are readily accessible, in most cases 24 hours a day.

EV (rapid and fast) off-street and Car Park Programme:

We will also continue to install both fast and rapid EV infrastructure in our Car Parks and other off-street locations to cater for the increasing demand for EV charging provision. We will secure funding through S106 contributions and capital funding. We will also consider securing funding through an EV charging partner who operates a public EV network and wants to invest in Slough. We are looking to deploy off-street EV infrastructure over the lifetime of the current LES.

EV (rapid and fast) on-street Programme:

The Government recognise that a significant barrier to EV take up is access to EV infrastructure. This is particularly an issue in urban areas, where terrace housing does not have off-street parking and flatted developments does not always have dedicated

parking provision or has limited parking provision, or no parking provision. Whilst we will require through the planning system that new residential developments, included flatted development provide EV charging this will still remain a significant challenge in the adoption of EVs.

Evidence indicates that most plug-in vehicle owners will wish to do the largest proportion of their charging at home. The availability of affordable and accessible domestic charging options is therefore critical to increasing the uptake of plug in vehicle in the UK. To this end the Government currently offers the Electric Vehicle Homecharge scheme (EVHS), for residents to receive a grant towards the installation of domestic chargepoints at their homes. But to be eligible they must have dedicated off-street parking in the form of a garage or driveway. Many areas of the UK, including large parts of our cities, have residential areas where off-street parking is not an option, presenting a barrier to plug-in vehicle adoption.

In order to help their residents overcome this barrier, and prepare for the future, relevant Local Authorities are encouraged to apply for the Governments on-street residential charger point scheme³, to get on the front-foot, and access funding to help with the costs of procurement and installation of on-street charging points for residential use.

Additionally funding will be sought for Rapid Charger on-street infrastructure to cater for residential and business communities, and fast chargers to cater for residents. We will seek funding via OLEV grants and S106 contributions.

Clean Air Zone Feasibility Programme:

We have committed to developing a Clean Air Framework for Slough. As part of this approach we are committed to carrying out a detailed Clean Air Zone feasibility study in consultation with all key stakeholders. This feasibility assessment will require up to date air quality modelling, and will include assessment of the air quality impacts associated with introducing non-charging Clean Air Zones, Charging Clean Air Zones, and different categories of Clean Air Zones. In addition to undertaking stakeholder consultation, awareness campaigns and cost benefit analysis. We will seek to obtain S106 funding towards our clean air zone feasibility study. We intend to carry out the CAZ feasibility in 2019.

Cycle Infrastructure and Hire Programme:

Cycling is the lowest emission form of transport on wheels. As Slough, is flat and small 32.54 km² cycling provides an alternative to the car which makes it flexible, cost effective, quicker, as well as offering significant health benefits.

The low emission programme maps illustrate our existing cycling infrastructure in Slough (green hatched line), it clear there is a need for additional cycling infrastructure and improved connectivity.

Additionally, we have set up docking stations in 11 locations across Slough, and operate more than 70 bikes on our bike hire scheme. <http://www.slough.gov.uk/parking-travel-and-roads/cycle-hire-slough.aspx>

³ <https://www.gov.uk/government/publications/grants-for-local-authorities-to-provide-residential-on-street-chargepoints>

We will consider opportunities to expand our bike hire scheme, and also improve/enhance our existing cycle network and where possible expand it inline with our cycling strategy. <http://www.slough.gov.uk/parking-travel-and-roads/cycling-in-slough.aspx>

The funding will be sourced through Government DfT grant schemes, LEP Funding, Capital Borrowing and S106 from larger infrastructure projects.

Bus retrofit programme:

As part of our Clean Air Zone Framework we work with bus operators to achieve continuing improvements in bus emissions and consider alternatives to diesel technology. There is the potential opportunity to develop a bus retrofit programme for our existing bus operators. As a number of our bus fleet still operate to Euro III, IV, V standards. A retrofit programme would have significant environmental benefits.

In order to implement such a programme it will require legal agreements with the bus operators to keep their retro-fitted buses operating within Slough. There are potential Government grant funding opportunities for bus retro-fitting, such as future rounds of the Clean Bus Technology Fund and where relevant we can seek S106 contributions towards funding the retrofit programme.

Electric Bus A4 Smart Service:

As part of our Slough Electric Vehicle Plan, we will work with bus operators to develop ultra-low emission corridors, including the potential for the Slough Mass Rapid Transit (SMaRT) Scheme. It is the ambition of the Council to work in partnership with our preferred bus operator to operate ZE (zero emission) capable buses on the A4. Reading Buses undertook a 2 week trial of an electric bus in July 2018, which was supported by Slough Borough Council. We believe electric buses are likely to become more financially viable as technology improves. The cost of the bus is a significant factor as well as building out the EV infrastructure.

We have started dialogue with bus operators, bus manufacturing companies and EV bus charger installation companies to determine the appetite, the feasibility, cost and benefits associated with operating ZE buses. We will prepare a business case, and seek Government funding, where appropriate to develop the electric bus service. We may also consider pooling S106 contributions towards installing electric bus infrastructure. This is a longer term strategic low emission project.

HDV gas station programme:

We have already undertaken a Local Government Association funded study into operating Refuse Vehicle Fleet on gas. We have identified two potential sites which could be developed to operate as compressed natural gas stations. One is our waste transfer site in Chalvey and the other is the AkzoNobel site which has a gasometer and significant high pressure gas infrastructure. **This site is currently identified in the local plan for residential development, so it may not be feasible to operate as a gas station.** This project will be developed during the lifetime of the plan.

Low Emission Programme Funding

The funding for the programme will be secured through a variety of mechanisms including s106 pooled contributions from major developments, Capital Borrowing, LEP funding bids, HAL community funding bids, DEFRA funding bids, OLEV funding bids, and DFT funding bids.

The programme has been designed in a way that it flexible in its delivery, prioritising available funding streams to enable implementation in a timely fashion. The primary focus will be on implementation of the Taxi and Public EV Rapid Chargers programme and the Slough Electric Car Club Programme as well as working with our bus partners to delivery an electric bus route on the A4 Smart lane.

Strategic Partners

We will work closely with our strategic partners (Segro, HAL, Reading Buses, Osborne and Bouygues etc.), with our businesses who are open to low emission adoption, the freight industry, Highway England, the LEP and NHS Trust. We will also work closely with the Taxi Trade, both Private Hire and Hackney Carriage to enable adoption of ULEVs within the trade. We will continue to explore opportunities for strategic and operational partnerships with low emission businesses i.e. car clubs and EV infrastructure.

Low Emission Programme Delivery

Once funding has been secured, project teams will be set up and a detailed PID will be developed in conjunction with the PMO team. The projects will be submitted to CMT and where appropriate Cabinet for approval. The governance structures will allow for regular project reporting, and risk management. The programmes will report at operational project level, within the Carbon Management Board and other/or strategic Boards.

Low Emission Innovation

The LES and the LES programme are designed to be fluid, current, and open to innovation. It is adaptable and will respond to market trends and forces, new technologies, and Government Policy. We will also take on board our partners approach to low emissions technologies, and we are keen to develop best practice.

Low Emission Programme Maps

The low emission programme is split into 8 strategic zones (called Air Quality Mitigation Zones, including Wexham Hospital). These zones are not necessarily in areas where air quality is poor (AQMA), but are in areas where there is significant traffic generation. Each Programme has an attached pdf Map which will also be published on the Low Emission Strategy Webpage. Some of the infrastructure will be located outside these Air Quality Mitigation Zones, i.e. Burnham Station and Bath Road. The icons on the map represent different programmes. It is important to understand the icons are only representative locations, which may change subject to full site surveys and other project considerations.

Low Emission Programme Map Icons



Potential sites for HDV CNG gas station



Potential sites for EV Car Club Bays + EV infrastructure



Rapid Chargers ULEV Taxis



EV Infrastructure (Rapid Charging Points and Fast Charging)



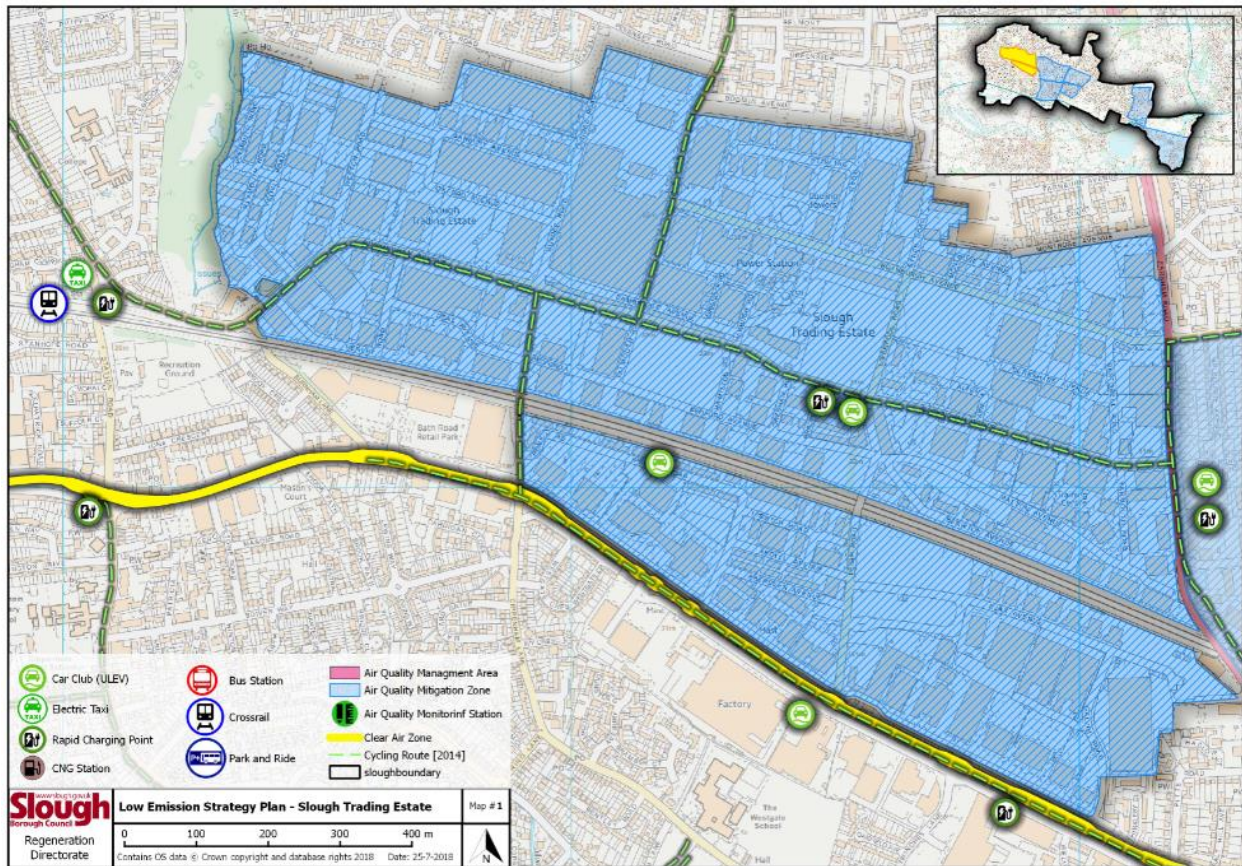
Existing Air Quality Monitoring Stations



Yellow line – represents the potential Clean Air Zone this is not currently in place.

Low Emission Programme

Map 1 – Slough Trading Estate Air Quality Mitigation Zone, Burnham Station Hub and Bath Road



Burnham Station Hub

Taxi EV infrastructure

Project 1: Provision of a dedicated EV Rapid charger for EV Taxi/Licensed Private Hire Vehicle. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

Public Rapid Charger Infrastructure

Project 2: Development of Public rapid Charging Infrastructure for Burnham Station Car Park (A total of 1 rapid charger will be installed within or close to the Burnham Car Park) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Bath Road

Public Rapid Charger Infrastructure

Project 3: Development of Public rapid Charging Infrastructure for Elmshott Lane Car Park (A total of 1 rapid charger will be installed within or close to the Burnham Car Park) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Public Rapid Charger Infrastructure

Project 4: Development of Public rapid Charging Infrastructure for on street Bath Road (A total of 1 rapid charger will be installed on the Bath Road) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Bath Road EV Car Club

Project 5: Bath Road EV Car Club to set up 2 bays with one electric charging point on Bath Road (5 year contract with EV Car Club Provider as part of overall procurement of Electric Car) Club. **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Slough Trading Estate Air Quality Mitigation Zone

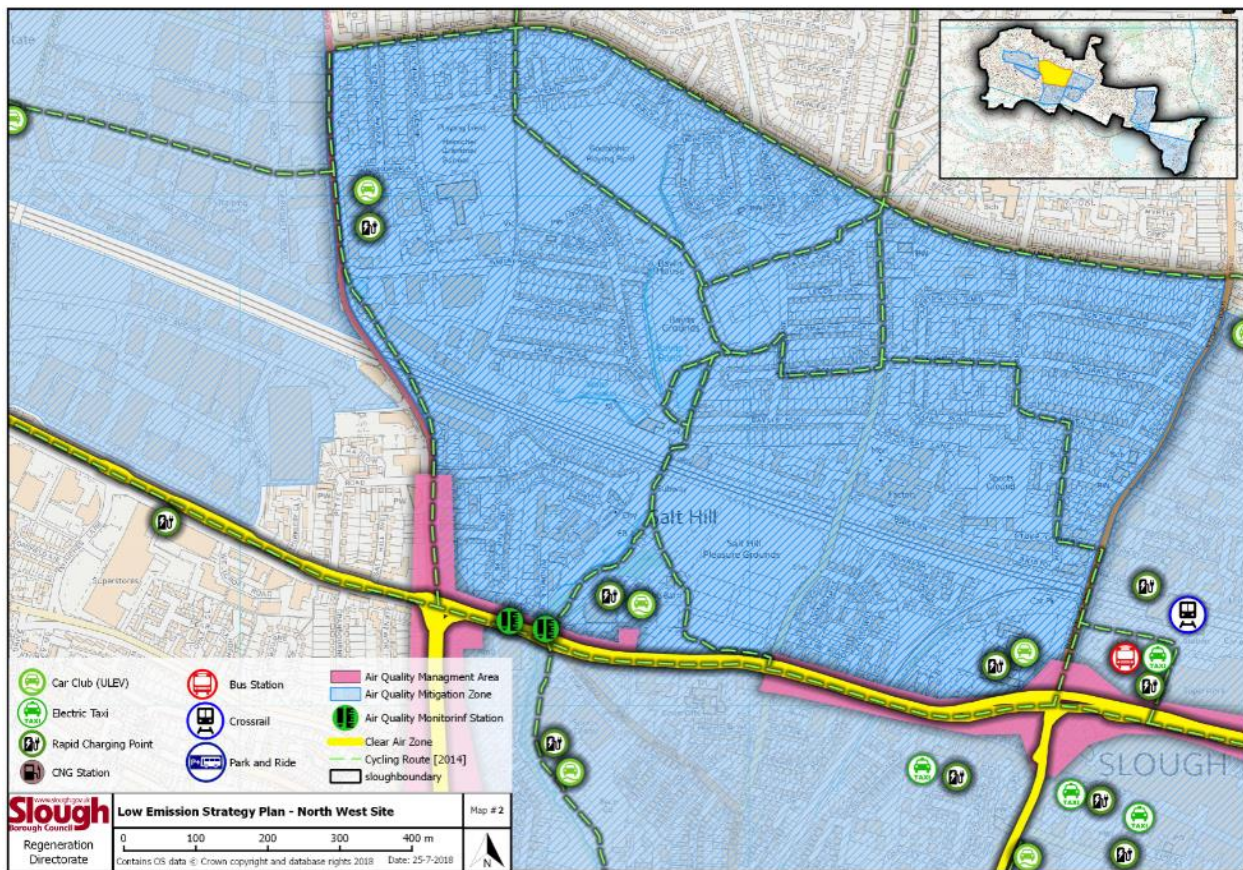
Slough Trading Estate EV Car Club

Project 6: Slough Trading Estate EV Car Clubs to set up 4 bays in two locations within the Slough Trading Estate. The bays will have an electric charging point. (5 year contract with EV Car Club Provider as part of overall procurement of Electric Car) Club. **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £150,000**

Public Rapid Charger Infrastructure

Project 7: Development of Public rapid Charging Infrastructure for Slough Trading Estate (A total of 1 rapid charger will be installed within the Trading Estate) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Map 2 – North West Town Centre Air Quality Mitigation Zone



Air Quality Monitoring Station

Project 8: Air Quality Monitor in NW of Town Centre within AQMA – contributions sought to purchase a continuous air quality monitor/analyser (monitoring NOx Concentrations, MCERTS approved), maintain, service, audit, repair and ratify air quality data over 10 years (2020 – 2030) and maintain fully functional air quality website. **The total cost profile for this project over 10 years is £110,000.**

Public Rapid Charger Infrastructure

Project 9: Development off-street rapid Charging Infrastructure for the new Leisure Centre, Farnham Road (A total of 1 rapid charger will be installed within the Centre car park) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Project 10: Development off-street rapid Charging Infrastructure for Salt Hill Park (A total of 1 rapid charger will be installed within the Salt Hill Car Park) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Project 11: Development of Rapid and Fast Charging Infrastructure Hub on the TVU development (An EV Charging Hub with at least 5 Rapid Charger and 5 Fast EV Chargers to be installed within the new TVU development) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO Connection, installation and commissioning, data and revenue management systems is £250,000**

North West Town Centre EV Car Club

Project 12: Farnham Road EV Car Club to set up 2 bays and one electric charging point on Farnham Road (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

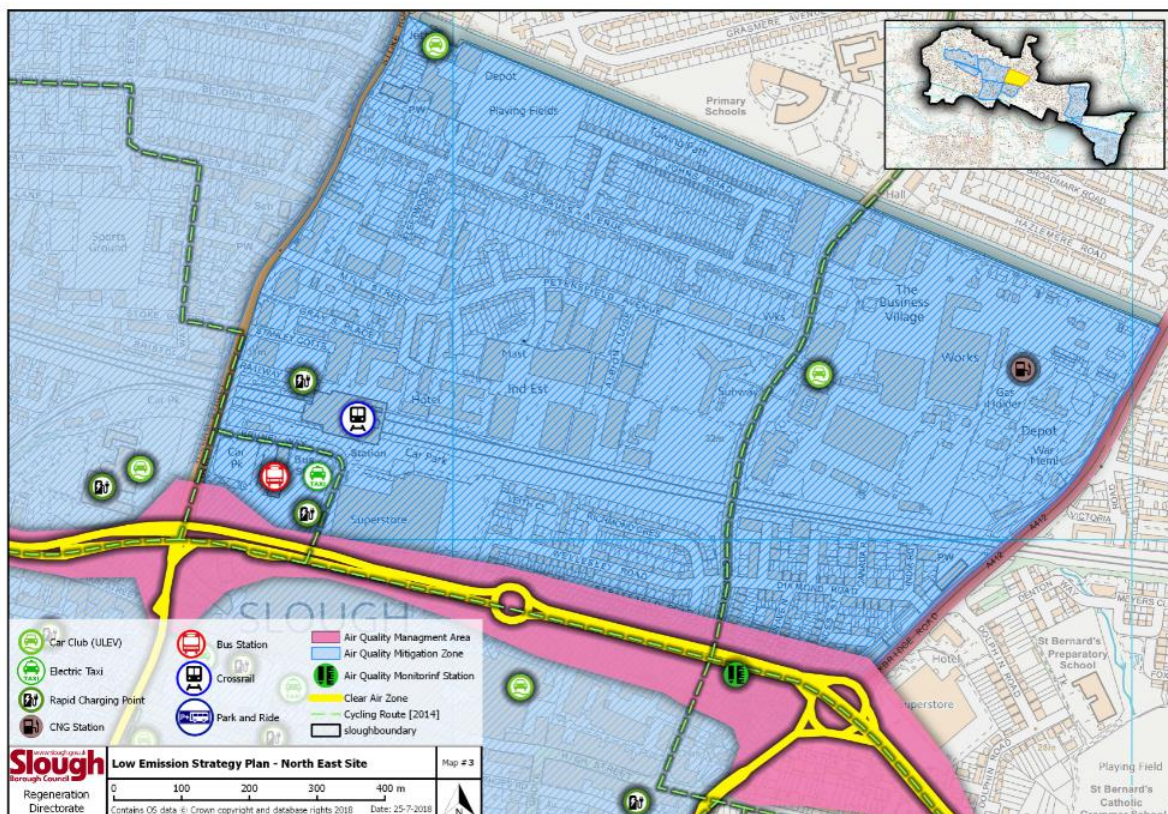
Project 13: Salt Hill EV Car Club to set up 2 bays and one electric charging point in Salt Hill Area (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Project 14: TVU EV Car Club to set up 20 bays and 10 electric charging points within the TVU Development (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £500,000**

Cycle Provisions

Project 15: Expansion of existing Slough Bike Hire Scheme – Tuns Lane/A4 Hub, 10 bikes, maintenance, and operation of scheme. **The total cost profile for 3 year contract plus installation of dedicated hub, 10 bikes, signage, civil works, maintenance, operation and monitoring of scheme £60,000.**

Map 3 – North East Town Centre Air Quality Mitigation Zone



Air Quality Monitoring Station

Project 16: Air Quality Monitor in NE of Town Centre within AQMA – contributions sought to purchase a continuous air quality monitor/analyser (monitoring NOx Concentrations, MCERTS approved), maintain, service, audit, repair and ratify air quality data over 10 years (2020 – 2030) and maintain fully functional air quality website. **The total cost profile for this project over 10 years is £110,000.**

Taxi EV infrastructure

Project 17: Provision of dedicated EV Rapid charging infrastructure for EV Taxi/Licensed Private Hire Vehicle on Station Square/Brunel Way. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £100,000**

Public Rapid Charger Infrastructure

Project 18: Development rapid Charging Infrastructure in Station Square/Brunel Way (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Project 19: Development off-street rapid Charging Infrastructure for Railway Terrace or nearby road (A total of 1 rapid charger will be installed within Railway Terrace) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Town Centre EV Car Club

Project 20: Station Square/Brunel Way EV Car Club to set up 2 bays and one electric charging point in Brunel Way Area (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Project 21: Canal Basin EV Car Club to set up 2 bays and one electric charging points as part of the Canal Basin Development (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

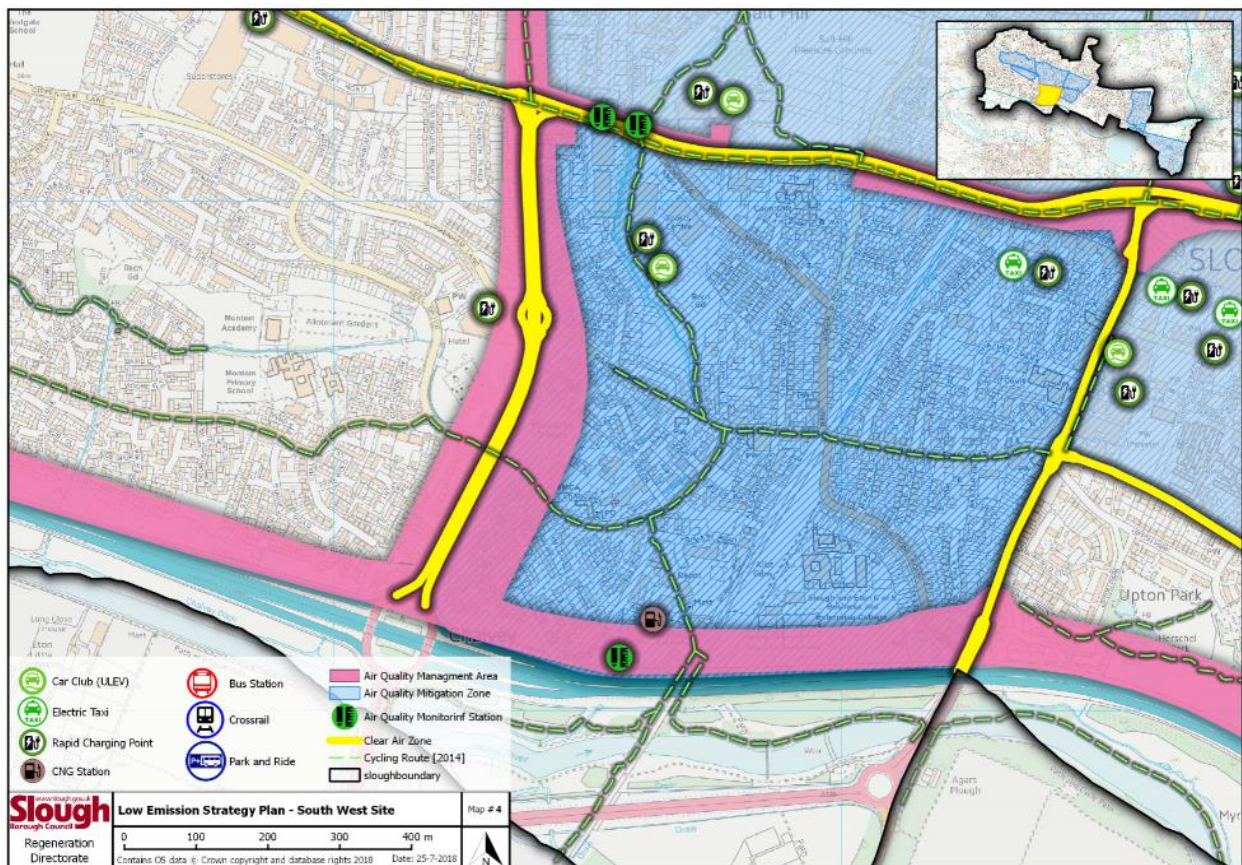
Project 22: AkzoNobel re-development to set up 6 bays and three electric charging points as part of the AkzoNobel redevelopment (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £200,000**

Bus/Freight Town Centre (CNG) Gas Station AkzoNobel Site*:

Project 23: Development of a commercially operated CNG gas station to power Gas buses, Gas HDVs and other CNG vehicles. **The estimated total capital cost profile for the installation of the gas station from feasibility, permission, commissioning and installation to completion is £2,500,000.**

***note the AkzoNobel site has been designated for residential redevelopment under our Local Plan process and it may not be feasible to allocate land to operate a gas station. A full business case would need to be developed and approved before the implementation of this low emission project.**

Map 4 – South West Town Centre Air Quality Mitigation Zone



Public Charger Infrastructure

Project 24: Development on-street rapid Charger Infrastructure in cul-de-sac off Cippenham Lane (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Project 25: Development off-street public rapid Charger Infrastructure close to or on the Montem re-development Site (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this**

project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000

Project 26:** Development Burlington Car Park Rapid Charger Infrastructure (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Taxi EV infrastructure

Project 27:** Provision of dedicated EV Rapid charging infrastructure for EV Taxi/Licensed Private Hire Vehicle at Burlington Road Car Park. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

****Burlington Road Car Park may be redeveloped and therefore the Rapid Charger infrastructure may need to be move to on-street locations close to the town centre car park**

Town Centre EV Car Club

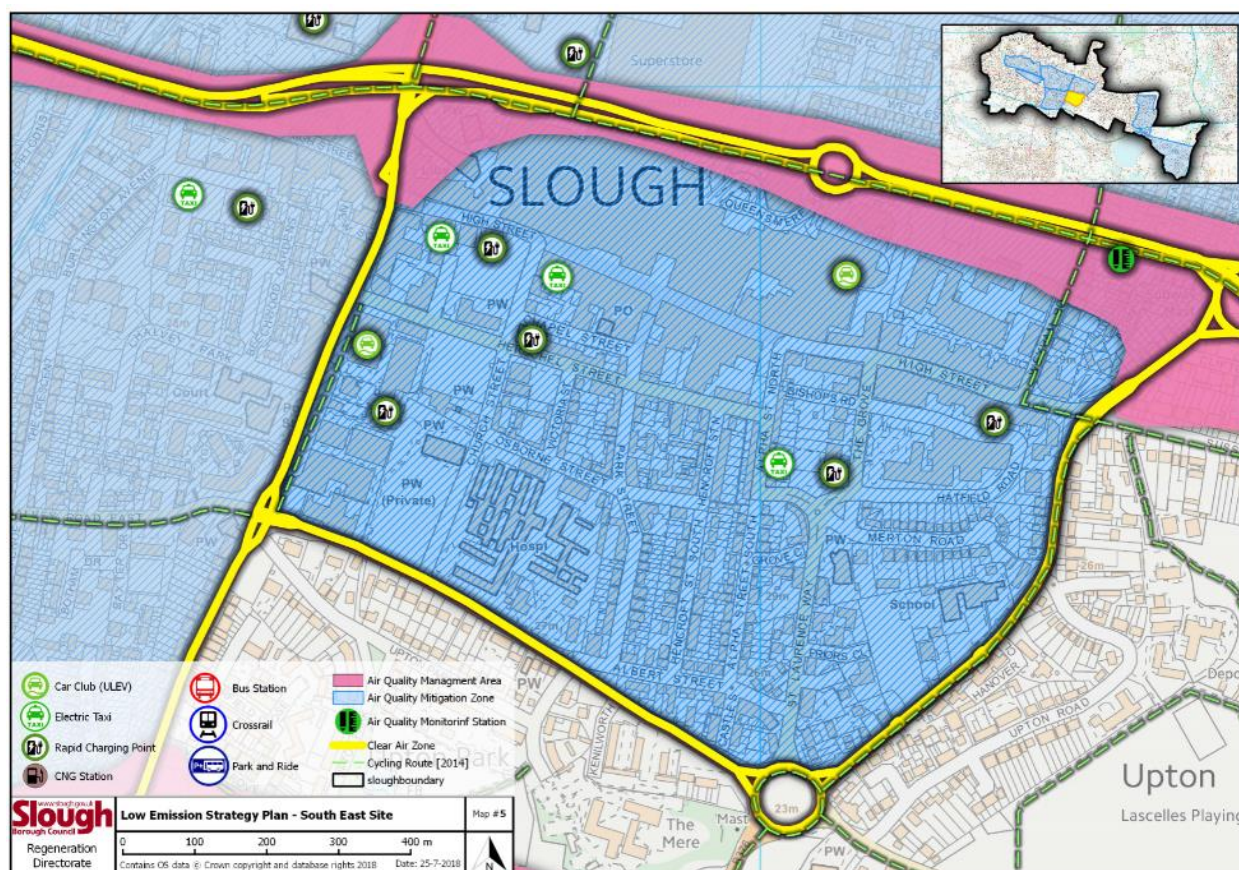
Project 28: Montem EV Car Club to set up 2 bays and one electric charging point in Montem Road re-development (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

HDV Gas Station (waste vehicles)

Project 29*:** Development of a compressed natural gas station and operation within Chalvey Depot to operate a low emission waste service with potential to expand out to other HDV gas operators. **The estimated capital total cost profile for the implementation of this infrastructure, including all associated planning and DNO consents, civil works, pipeline works, station installation and certification is £1,500,000.**

*****note a business case has already been developed for the waste transfer station. However, with emerging low emission technologies it may be this project will consider electric waste vehicles. The procurement of the gas/electric waste vehicles is an additional one off cost during the next phase of fleet upgrades due from 2023.**

Map 5 – South East Main Town Centre Air Quality Mitigation Zone



Town Centre Air Quality Monitoring

Project 30: Town Centre Air Quality Monitoring – contributions sought to purchase a continuous air quality monitor/analyser (monitoring NO_x Concentrations, MCERTS approved), maintain, service, audit, repair and ratify air quality data over 10 years (2020 – 2030) and maintain fully functional air quality website. **The total cost profile for this project over 10 years is £110,000.**

Town Centre Ultra Low Emission Vehicle Recharging Infrastructure

Project 31: Development of Comprehensive low emission on-street rapid Charging Infrastructure for Town Centre (A total of 2 rapid chargers) will be installed within and around the town centre to promote ultra low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £100,000**

Project 32: Development of Comprehensive low emission on-street fast Charging Infrastructure for Town Centre (A total of 10 fast chargers will be installed within and around the town centre to promote ultra low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £100,000.**

Project 33: Development of Comprehensive low emission off street (Council Car Parks) Charging Infrastructure for Town Centre (A total of 10 additional fast chargers and 2 rapid chargers) will be installed within and around the town centre council car parks to promote ultra low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £150,000.**

Project 34**:** Development of SBC work place EV infrastructure for our Town Centre Office site (A total of 5 Rapid Chargers (pool fleet use) and 15 Fast Chargers (staff and pool fleet) will be installed to cater for staff EVs and Pool Fleet EVs). This will be a phased in programme to align with the office move and expansion on the Fleet Challenge Programme. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, DNO permission and potential DNO upgrading, data and revenue management systems is £500,000.**

****** This will be funded through the Councils Fleet Challenge Programme via Capital Funding.**

Town Centre EV Car Club

Project 35: Windsor Road EV Car Club –to set up 2 bays and one electric charging point on Windsor Road Area (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Project 36: High Street EV Car Club to set up 2 bays and one electric charging point on High Street Area (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Project 37: Alpha Street EV Car Club to set up 2 bays and one electric charging point on Alpha Street Area (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Taxi EV infrastructure

Project 38: Provision of a dedicated EV Rapid charger for EV Taxi/Licensed Private Hire Vehicle in High Street. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

Project 39: Provision of a dedicated EV Rapid charger for EV Taxi/Licensed Private Hire Vehicle in Church Street Taxi Rank. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

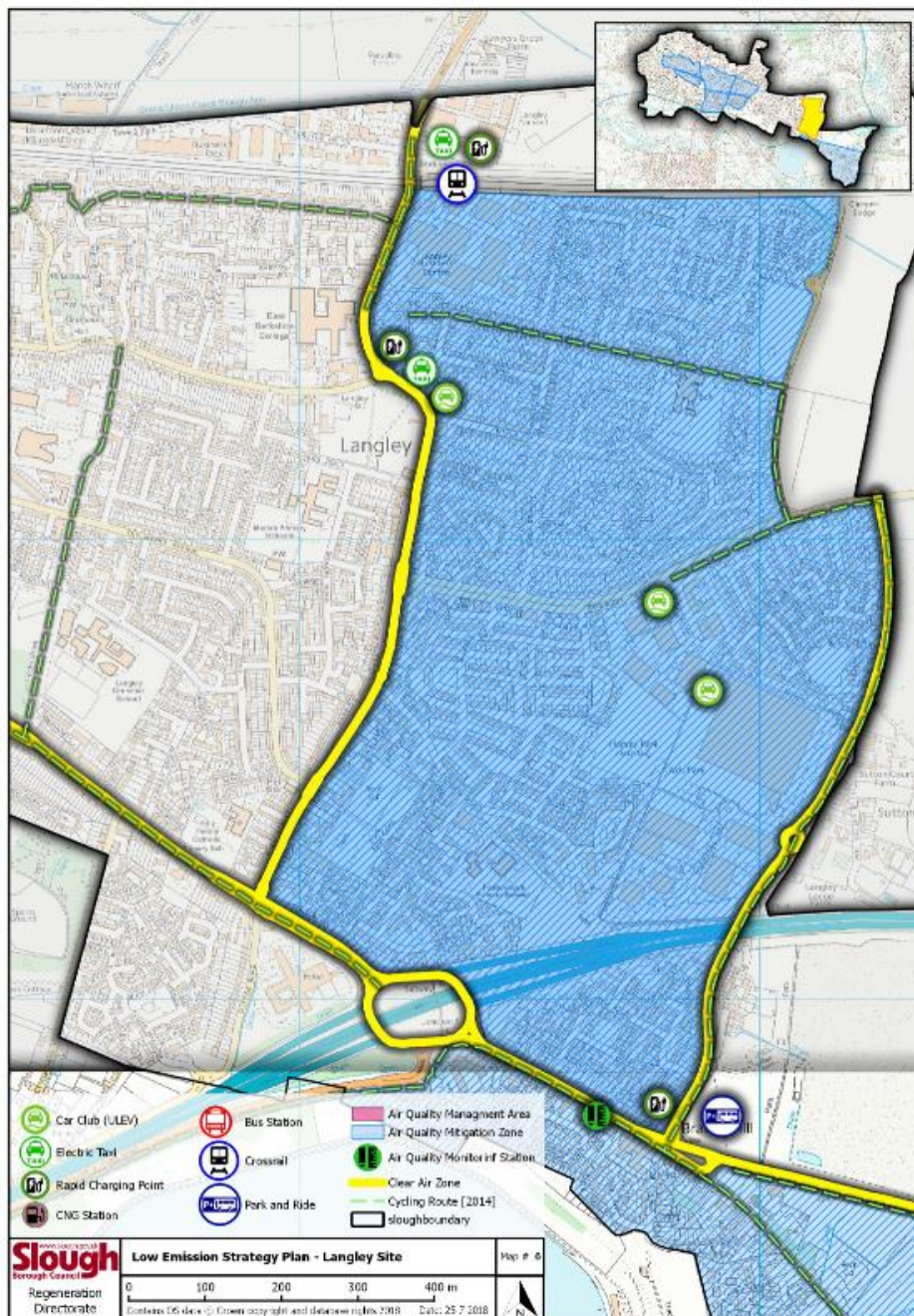
Project 40: Provision of a dedicated EV Rapid charger for EV Taxi/Licensed Private Hire Vehicle in Grove Road Car Park. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

Cycle Provisions

Project 41: Town Centre E-Bike Hire Scheme - set up an E-Bike hub (consisting of a minimum of 10 e-bikes and safe secure parking facility for public access based on membership scheme (3 year contract period competitive tendering procurement for Town Centre E-Bike). **The total cost profile for 3 year contract plus installation of dedicated hub, 10 E-bikes, signage, civil works, maintenance, operation and monitoring of scheme £80,000.**

Project 42: Expansion of existing Slough Bike Hire Scheme - Town Centre hub, 20 bikes, maintenance, and operation of scheme. **The total cost profile for 3 year contract plus installation of dedicated hub, 20 bikes, signage, civil works, maintenance, operation and monitoring of scheme £100,000.**

Map 6 – Langley Air Quality Mitigation Zone



Air Quality Monitoring

Project 43: Brands Hill Air Quality Monitoring – contributions sought to purchase a continuous air quality monitor/analyser (monitoring NOx Concentrations, MCERTS approved), maintain, service, audit, repair and ratify air quality data over 10 years (2019 – 2029) and maintain fully functional air quality website. **The total cost profile for this project over 10 years is £110,000.**

Taxi EV infrastructure

Project 44: Provision of dedicated EV Rapid charger for EV Taxi/Licensed Private Hire Vehicle at The Harrow Market. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

Project 45: Provision of dedicated EV Rapid charger for EV Taxi/Licensed Private Hire Vehicle at Langley Station. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

Public Charger Infrastructure

Project 46: Development off-street rapid Charger Infrastructure at Harrow Market (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Project 47: Development off-street public rapid Charger Infrastructure at Langley Railway Station (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Project 48: Development Sutton Lane Rapid Charger Infrastructure (A total of 1 rapid charger will be installed) to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, DNO connection, installation and commissioning, data and revenue management systems is £50,000**

Langley EV Car Club

Project 49: High Street/Harrow Market EV Car Club – to set up 2 bays and one electric charging point in Harrow Market Car Park (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Project 50: Parlaunt Road EV Car Club to set up 2 bays and one electric charging point on Parlaunt Road (5 year contract period part of overall procurement of Town Centre

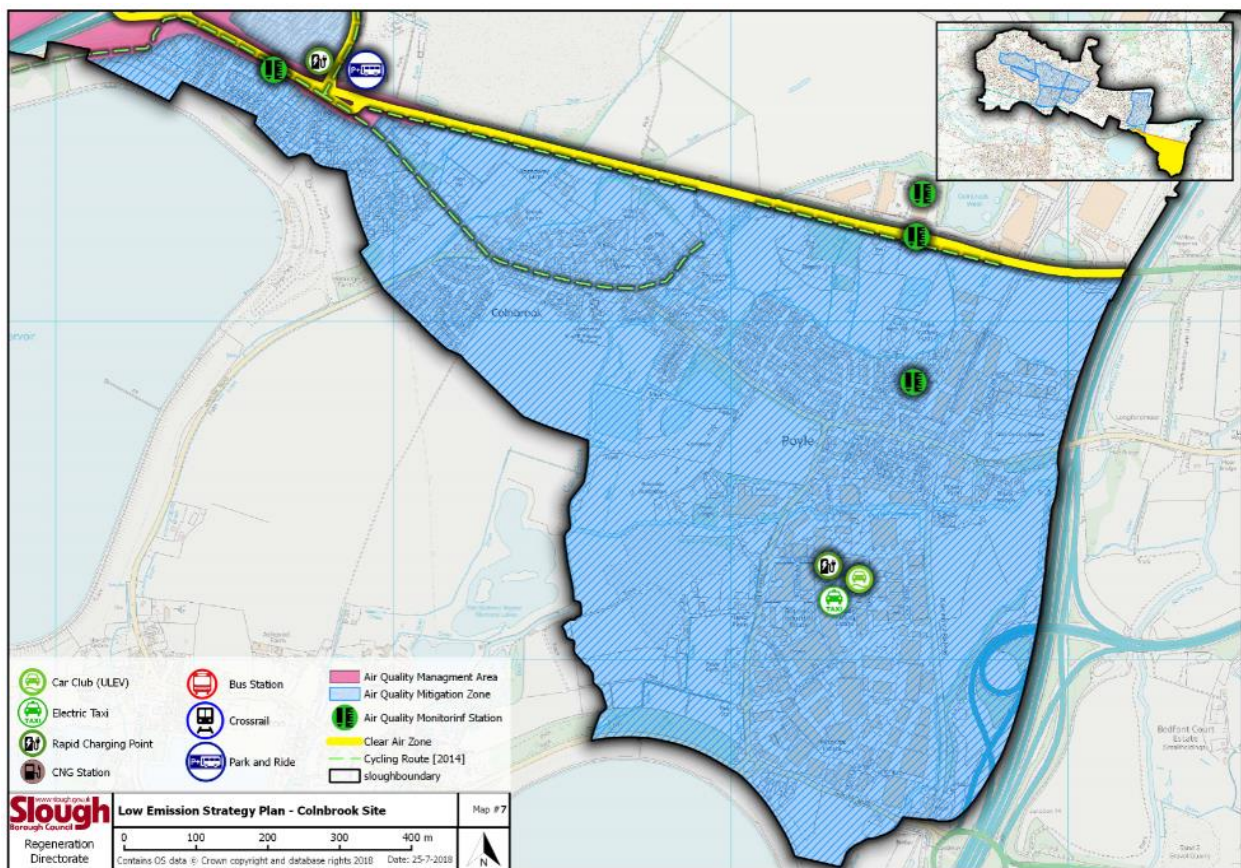
Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Project 51: Axis Park EV Car Club to set up 2 bays and one electric charging point on Axis Business Park (5 year contract period part of overall procurement of Town Centre Electric Car Club). **The total cost profile for 5 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Cycle Provisions

Project 52: Langley E-Bike Hire Scheme - set up an E-Bike hub (consisting of a minimum of 10 e-bikes and safe secure parking facility for public access based on membership scheme (3 year contract period competitive tendering procurement for Town Centre E-Bike). **The total cost profile for 3 year contract plus installation of dedicated hub, 10 E-bikes, signage, civil works, maintenance, operation and monitoring of scheme £80,000.**

Map 7 – Brands Hill, Colnbrook and Poyle Air Quality Mitigation Zone



Air Quality Monitoring

Project 53: Brands Hill Air Quality Monitoring – contributions sought to purchase a continuous air quality monitor/analyser (monitoring PM2.5, MCERTS approved), maintain, service, audit, repair and ratify air quality data over 10 years (2020 – 2030) and maintain fully functional air quality website. **The total cost profile for this project over 10 years is £110,000.**

Project 54: Pippins School Air Quality Monitoring – contributions sought to purchase a continuous air quality monitor/analyser (monitoring NOx and PM10, MCERTS approved), maintain, service, audit, repair and ratify air quality data over 10 years (2020 – 2030) and maintain fully functional air quality website. **The total cost profile for this project over 10 years is £110,000.**

Public Charger Infrastructure

Project 55: Development of on-street rapid Charging Infrastructure in Colnbrook Village (A total of 1 rapid charger) will be installed within and around the Colnbrook Village Area to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £50,000**

Project 56: Development of on-street rapid Charging Infrastructure in Poyle Village (A total of 1 rapid charger) will be installed within and around the Poyle Village Area to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £50,000**

Project 57: Development of rapid Charging Infrastructure within Poyle Industrial Estate (A total of 2 rapid chargers) will be installed within and around the Poyle Industrial Estate to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £100,000**

Taxi EV infrastructure

Project 58: Provision of dedicated EV Rapid charging infrastructure for EV Taxi/Licensed Private Hire Vehicle at Poyle Industrial Estate. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

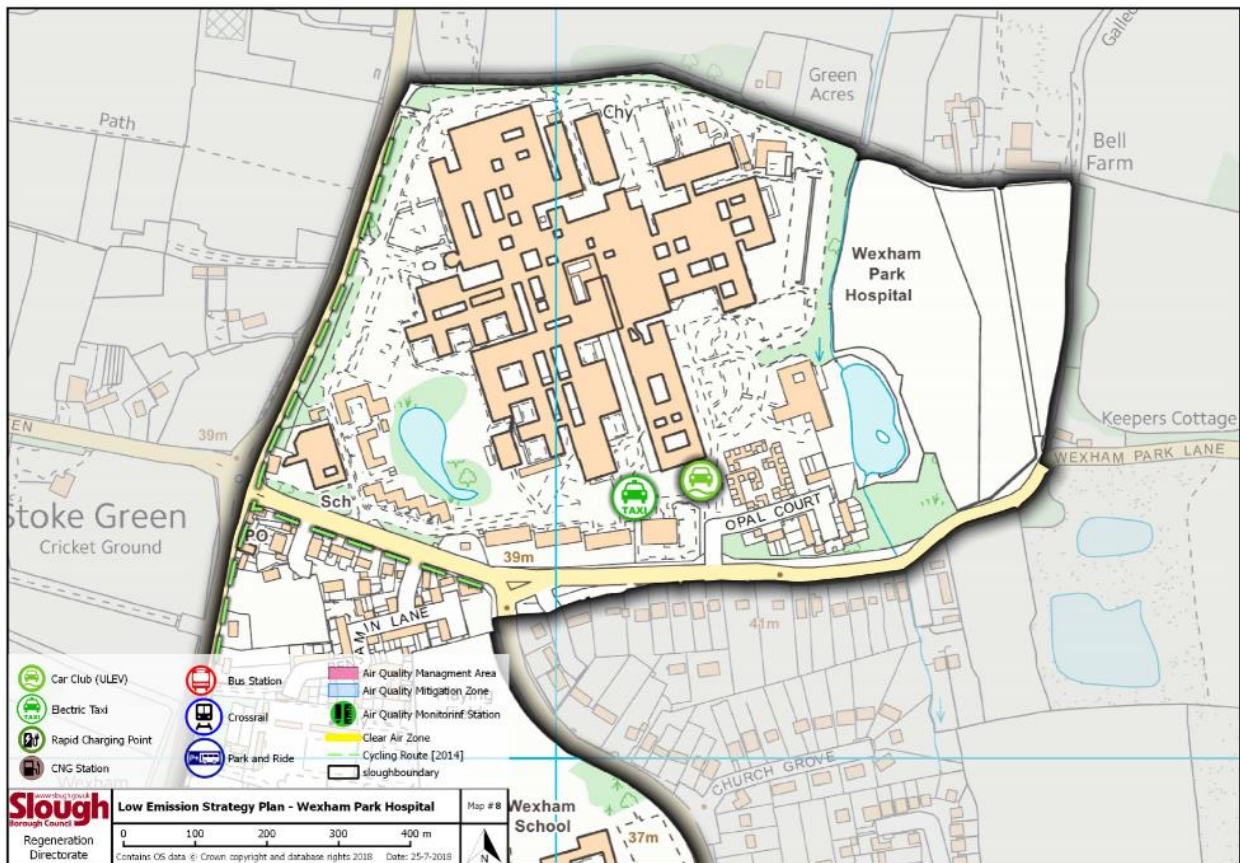
Poyle Estate EV Car Club

Project 59: High Street/Harrow Market Electric Car Club –to set up 2 bays and one electric charging point in Harrow Market Car Park (5 year contract period part of overall procurement of Town Centre Electric Car Club. **The total cost profile for 3 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Cycle Provisions

Project 60: Expansion of Slough Bike Hire Scheme – into Colnbrook Village Hub, 10 bikes, maintenance, and operation of scheme. **The total cost profile for 3 year contract plus installation of dedicated hub, 10 bikes, signage, civil works, maintenance, operation and monitoring of scheme £60,000.**

Map 8 Wexham Park Hospital Air Quality Mitigation Zone



Public Charger Infrastructure

Project 61: Development of Rapid Charging Infrastructure at Wexham Park Hospital (A total of 2 rapid chargers) will be installed within and around the hospital to promote ultra-low emission vehicle take-up to improve air quality. **The Total cost profile for this project to cover procurement, civil works, installation and commissioning, data and revenue management systems is £100,000**

Taxi EV infrastructure

Project 62: Provision of dedicated EV Rapid Charger for EV Taxi/Licensed Private Hire Vehicle at Wexham Park Hospital. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data and revenue management systems is £50,000**

Wexham Park EV Car Club

Project 63: Wexham Park EV Car Club –to set up 2 bays and one electric charging point in Harrow Market Car Park (5 year contract period part of overall procurement of Town Centre Electric Car Club. **The total cost profile for 3 year contract plus installation of dedicated EV charging point, TRO, Signage and civil works is £100,000**

Cycle Provisions

Project 64: Expansion of Slough Bike Hire Scheme – into Wexham Park Hospital, 10 bikes, maintenance, and operation of scheme. **The total cost profile for 3 year contract plus installation of dedicated hub, 10 bikes, signage, civil works, maintenance, operation and monitoring of scheme £60,000.**

Borough Wide Low Emission Programmes

Electric Bus Programme (A4 SMaRT)

Project 65: Development of Electric Bus service for A4 SMaRT service to Heathrow, including provision of dedicated Bus rapid EV charging systems at the Town Centre Bus Station and Park and Ride in Brandshill, civils and DNO connections and subsidising the provision of the electric buses for SBC nominated operator. **The Total cost profile for this project to cover procurement, DNO Connection, civil works, installation and commissioning, data management systems is £1,000,000**

Bus Retrofit Programme

Project 66: Development of Bus retro-fit programme for all Euro III, IV, and V buses operating in Slough in collaboration with bus operators to retro fit older buses with SCR (Selective Catalytic Reduction). **The total cost profile for this Programme over 5 years is £500,000.**

Clean Air Zone Feasibility Programme:

Project 67: Development of Clean Air Zone/s in Slough to reduce air pollution. The project relates to undertaking a clean air zone feasibility business case, including air quality modelling, non-charging and charging CAZ, different categories of CAZ, business and public surveys, outlining of clear business case for implementing a CAZ and costs associated with its implementation. **The total cost profile for this project is £100,000**

Cycle Infrastructure Programme

This programme needs to be developed and a number of projects will be added to the low emission programme over the next year to improve the cycle infrastructure within the Borough.

Monitoring of the Low Emission programme

The Low Emission Programme will be monitored on an annual basis, and reported within our Annual Status Report to DEFRA. Projects will be removed on completion and new projects will be added to the programme on a quarterly-basis to maintain the currency of the programme. Some projects by their nature and scale will run over several years before completion. Where funding for a project has been secured for a project these will be highlighted within this programme.

Appendix G: Current S106 Funding for Low Emission Programme

S106	Development	Contribution for	Total Deposited	Total Spent	Balance	Available	Total Committed	Total Spent	Remaining Committed
106/127	1-7 High Street	Towards a nitrogen dioxide monitoring project on Bath Road within vicinity of the site until 2010 plus index linking.	5,091.94	5,091.94	0.00	0.00	0.00	5,091.94	0.00
106/140	Land to the East of Horton Road	Towards the installation and subsequent operation of a solar powered traffic loop to monitor vehicle movements in the Brands Hill AQMA.	8,912.70	8,912.70	0.00	0.00	0.00	8,912.70	0.00
106/140	Land to the East of Horton Road	Towards the purchase installation operation and maintenance of a NOX monitor within the Brands Hill AQMA.	14,854.50	14,854.50	0.00	0.00	0.00	14,854.50	0.00
106/141	78 Uxbridge Road, Slough	The owner shall pay the Air Quality Contribution to the council prior to carrying out or permitting the carrying out of A Material Operation.	45,000.00	7,988.36	37,011.64	37,011.64	37,011.64	7,988.36	37,011.64
106/201	1 Brunel Way, Slough	Air Quality monitoring contribution to be paid before occupation	10,000.00		10,000.00	10,000.00	10,000.00		10,000.00
106/205	Cornwall House, 67 High St	Towards a new air quality monitoring network	10,000.00		10,000.00	10,000.00	10,000.00		10,000.00
106/217	9 to 15 High Street, Slough	Air Quality Monitoring Contribution towards a new air quality monitoring network, reporting and action planning	7,750.00		7,750.00	7,750.00	7,750.00		7,750.00
106/245	Observatory House, Windsor Road, Herschel Street, Slough	Air Quality Monitoring Contribution towards Town centre air quality monitoring	10,000.00		10,000.00	10,000.00	10,000.00		10,000.00
106/243	Land at Brunel Bus Station site	Air Quality Contribution	15,000.00		15,000.00	15,000.00	15,000.00		15,000.00
TOTAL			111,609.14	36,847.50	74,761.64	74,761.64	74,761.64	36,847.50	89,761.64

106/201	1 Brunel Way, Slough	Charging infrastructure towards development of comprehensive low emission on street rapid charging infrastructure in the town centre	30,000.00	30,000.00	0.00	0.00	0.00	30,000.00	0.00
106/243	Land at Brunel Bus Station site	Phase 1 Electric Vehicle Infrastructure	21,407.69	10,635.64	10,772.05	10,772.05	10,772.05	10,635.64	21,407.69
106/245	Observatory House, Windsor Road, Herschel Street, Slough	Public Rapid Chargers Infrastructure Contribution towards the development of comprehensive low emission on street rapid charging infrastructure serving the Windsor Road area	10,000.00		10,000.00	10,000.00	10,000.00		10,000.00
TOTAL			61,407.69	40,635.64	20,772.05	20,772.05	20,772.05	40,635.64	31,407.69

106/201	1 Brunel Way, Slough	Brunel Way Car Club contribution towards the provision of 2 bays and 1 electric charging point on Windsor Road	10,000.00		10,000.00	10,000.00	10,000.00		10,000.00
106/225	Northgate House, 1A Stoke Road	Car Club Contribution	14,405.72		14,405.72	14,405.72	14,405.72		14,405.72
106/273	83-127 Windsor Road	Car Club contribution towards the provision of a car club for the period of 3 years from first occupation of development, with free membership for each occupier of the development	37,500.00		37,500.00	37,500.00	37,500.00		37,500.00
106/286	Relating to land at Windsor House, Mathisen Way, Colnbrook SL3 0HB	Car club contribution due towards the Poyle industrial estate car club	17,500.00		17,500.00	17,500.00	17,500.00		17,500.00
M518-2019-16	2 Stoke Gardens	Contribution towards local infrastructure improvements which include £30,000 towards Stoke Road Car Club and £2,250 towards the shortfall of amenity space.	32,350.00		32,350.00	32,350.00	32,350.00		32,350.00
TOTAL			111,755.72	0	111,755.72	111,755.72	111,755.72		111,755.72

- Air Quality Programme
- Electric Vehicle Network
- Car Club