

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 roll 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 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



Commando - 7-22kW 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.

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.

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

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



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>

We will consider opportunities to expand our bike hire scheme, and also improve/enhance our existing cycle network and where possible expand it inline

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

with out 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.**

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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.**

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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.**

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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 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.**

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 NO_x 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 - BrandsHill, 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.**

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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.