



## **NORTHAMPTON BOROUGH COUNCIL**

### **OVERVIEW AND SCRUTINY COMMITTEE**

#### **SCRUTINY PANEL 4 – EMISSIONS STRATEGY (ACTION PLAN)**

**27 APRIL 2017**

#### **BRIEFING NOTE: BEST PRACTICE ELSEWHERE**

## **1 INTRODUCTION**

- 1.1 The Scrutiny Panel, at its inaugural meeting, agreed that as part of its evidence gathering it would receive details of best practice elsewhere in relation to Low Emissions Strategies.
- 1.2 Under the Environment Act 1995, Local Authorities are required to monitor air quality in their borough.

## **2 INFORMATION**

- 2.1 Desktop research has been undertaken regarding good practice Low Emissions Strategies elsewhere.
- 2.2 Colchester Borough Council, Southampton City Council and Bradford Council have published Low Emissions Strategies.
- 2.3 The West Midlands came together as a collective Group and undertook work regarding Low Emissions.
- 2.4 The Sussex Air Quality Partnership, also as a collective Group, undertook work regarding Low Emissions.

## **3 COLCHESTER BOROUGH COUNCIL**

- 3.1 Colchester Borough Council reports that like most other Districts in the region which do not have large industrial processes, the main source of local air pollution in Colchester is from motor vehicles. These emit, amongst other things, oxides of nitrogen, carbon monoxide, carbon dioxide and fine particulate matter. Particular problems arise locally where traffic is slow moving through old, narrow streets near the historic centre of the town.

- 3.2 From a health point of view, the most important pollutants are the nitrogen oxides (especially nitrogen dioxide - NO<sub>2</sub>), and fine particles (especially the fraction which can be deeply inhaled - called PM<sub>10</sub> and PM<sub>2.5</sub>).
- 3.3 Colchester Borough Council reports that nowhere in the Borough is likely to exceed the EU Limit Value for Particulate Matter (PM<sub>10</sub>), however it goes on to report that there are areas, near to major roads, experiencing concentrations of fine particulates (PM<sub>2.5</sub>) which exceed the World Health Organisation (WHO) Target Level, road transport emissions are a significant source of fine particulates in the urban area and pose significant issues when combined with other trans-boundary pollution. The WHO classifies diesel exhaust emissions as carcinogenic. Colchester Borough Council reports that research by Public Health England<sup>5</sup> shows that PM<sub>2.5</sub> concentrations are estimated to cause over 1 in 20 early adult deaths a year across Colchester. Studies show that road transport emissions of both NO<sub>x</sub> and PM<sub>2.5</sub> have a significant adverse effect on birth weights, lung function and incidence of strokes and heart attacks.
- 3.4 Colchester Borough Council was awarded funding from DEFRA to develop an innovative Low Emission Strategy (LES) to reduce road transport emissions across the Borough. The LES demonstrates how the Council will use municipal powers and partnership working to influence emission reductions over the next 5 years and beyond. The agreed LES will form part of the Colchester Air Quality Action Plan.
- 3.5 The Council has developed an LES that works alongside associated strategies and delivery plans). Colchester Borough Council reports that together they work side by side to improve air quality in Colchester, creating the added benefit of reducing Carbon emissions beyond the Councils' own buildings, services and operations; making Colchester a cleaner and healthier place to live. –
- 3.6 The LES identifies emission issues by vehicle type and provides vision, aims, objectives and actions to address the issues faced in an integrated plan of activity covering a wide range of policies, practices and partnerships. Some measures have already been implemented, the LES provides a delivery plan for the continuing development, implementation, monitoring and review of measures. Colchester Borough Council's studies have shown that there is no single solution to the issues that the Council faces and action to improve air quality will require buy-in from a wide range of Colchester stakeholders. The LES includes a comprehensive package of measures and policy areas and details objectives and actions relating to: - Air Quality & Emissions Assessment - Health Assessment and Behavioural Change - Land-Use Planning and Development Control - Sustainable Procurement - Transport Emissions, including; buses, Commercial Vehicles, Passenger Cars & Taxis and CBC Fleet.
- 3.7 The objectives of the Air Quality Strategy:

Objective 1 – Assess air quality in Colchester and opportunities for road transport emission reductions through the uptake of cleaner vehicle fuels and technologies

Objective 2 – To work with local health professionals to understand and raise awareness of the impacts of vehicle emissions on health

Objective 3 - To build on Travel Planning initiatives to develop measures that can improve passenger car emissions in Colchester by raising awareness of the benefits of low and ultra low vehicle fuels and technologies and provide mechanisms to support their uptake

Objective 4 - To develop and implement measures to encourage taxi emission reductions in Colchester

Objective 5 - To develop and implement measures to reduce emissions from buses in partnership with local bus operators

Objective 6 - To develop and implement measures to reduce emissions from commercial vehicles through the promotion of policies and infrastructure to support the uptake of cleaner fuels and technologies

Objective 7 – To design and implement clear and consistent guidance for the consideration of road transport emissions through the land-use planning system

Objective 8 - To consider opportunities to improve vehicle emissions through public sector purchasing decisions

Objective 9 - To create a platform for partnership working and securing inward investment to support the uptake of low emission vehicles and renewable fuels

Objective 10 - To produce a delivery plan for the implementation of the Colchester Low Emission Strategy measures in partnership with stakeholders

## **AirTEXT**

- 3.8 Colchester Borough Council, launched in March 2016, any Colchester resident as well as those travelling to the borough to work can register at [www.airtext.info/signup](http://www.airtext.info/signup) to receive health-related information. Free updates are available by twitter, text message, voicemail and email.

Free [Android](#) and [iPhone](#) apps are also available for download.

- 3.9 Information on air pollution and particulates (at street-scale for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and ozone) along with UV, grass pollen and temperature (at borough level) are all available for the next three day period. Residents can choose to receive their air quality alerts on the day of or day before elevated pollution levels are expected.
- 3.10 Colchester Borough Council highlights that the service will be particularly useful for anyone with respiratory or heart conditions, enabling them to ensure any medication needed is to hand and to better prepare for any time spent outside.

- 3.11 AirTEXT alerts are based on detailed modelling of local sources of air pollution, European - scale air quality forecasts, local air monitoring sites and national weather forecasts. This ensures that residents can be aware of the impact in Colchester of national or even global occurrences such as particulates from sand storms and volcanic eruptions.

### **Monitoring of air pollution**

- 3.12 Nitrogen dioxide (NO<sub>2</sub>) levels, on busy roads throughout the borough, are monitored using passive diffusion tubes. In addition, there is an automatic monitoring station measuring NO<sub>2</sub> in Brook Street. A list and maps of Air Quality Management Areas (AQMAs) in Colchester and the rest of Essex is available at the [Essex Air Consortium website](#), along with results from monitoring and reports that have been written and submitted to the Department of Food and Rural Affairs (DEFRA).
- 3.13 Emissions from larger petrol stations and many smaller industrial premises in the borough, are regulated by the council under the Environmental Protection Act 1990 and the regulations made under the Pollution, Prevention and Control Act 1999.
- 3.14 Colchester Borough Council reports that this is achieved by a system of permits which allows the operator to carry out their prescribed processes within tightly agreed standards and to a set of national emission limits specific to each type of industry. These processes are regularly inspected and enforcement action taken where deliberate or persistent failure to comply with the authorisation is found.
- 3.15 Colchester Borough Council has been monitoring air quality for Nitrogen Dioxide, a by-product of the combustion of fossil fuels including petrol and diesel for several years. This monitoring has led to the declaration of the following area quality management areas:
- **Area 1** - Central Corridors - High Street, Head Street, North Hill, Queen Street, St Botolph's Street, St Botolph's Circus, Osborne Street, Magdalen Street, Military Road, Mersea Road, Brook Street, St John's Street and East Street.
  - **Area 2** - East Street and the adjoining lower end of Ipswich Road
  - **Area 3** - Harwich Road/ St Andrew's Avenue junction
  - **Area 4** - Lucy Lane North, Stanway

### **Interactive Air Zone**

- 3.16 Children can get involved in the interactive [Air Zone](#) site.

## **4 SOUTHAMPTON CITY COUNCIL**

- 4.1 Southampton City Council, in November 2016, approved its [Clean Air Strategy](#) 2016-2025.

- 4.2 Southampton City Council reports that the strategy includes a commitment to introduce a scheme of measures to support the Southampton Clean Air Zone (CAZ), three years ahead of the mandatory requirement to introduce the CAZ in 2019/20.
- 4.3 DEFRA (Department of Environment, Food and Rural Affairs) published the UK Air Quality Plan in December 2015. This identified Southampton as one of five cities which will be required to implement penalty charges for the most polluting HGVs, buses and taxis when the mandatory zone comes in to force in 2019.
- 4.4 The Government has allocated funding to support those local authorities affected. Southampton City Council is working closely with DEFRA to develop the framework and Southampton's own implementation plan. The council is currently engaged in procuring a feasibility study that will assist in designing how the penalty charging system will operate.
- 4.5 Southampton City Council reports that part of the Council's CAZ plan includes additional actions to complement and support the penalty charging.
- 4.6 These include:

A Clean Air Partnership with city businesses, organisations and neighbouring authorities that will identify and promote good practice and cooperation.

A Clean Air Recognition Scheme to identify those organisations making a difference, provide technical support and advice and provide a measure to gauge their efforts.

New advice and requirements to new developments to promote sustainable/active, uptake of low emission vehicles and improve the standard of non-road construction machinery.

Creation of a dedicated Clean Air website informing vehicle users of the measures they can take to reduce their emissions by travel planning and vehicle choice.

A Communications campaign to raise awareness about clean travel/vehicle choices amongst businesses and the public.

Introduce the concept of a CAZ in the city, prior to any penalty charging, to help raise awareness amongst vehicle users of the measures that can be taken to improve the emissions they produce.

Update the Quality Bus Partnership (QBP) to renew and establish emission standards amongst the bus fleet.

Establish a Freight Quality Partnership (FQP) to promote and support a continuous improvement in emission standards in the CAZ.

Promote businesses and organisations to assess their delivery practices and identify opportunities to introduce cleaner more effective practices including freight consolidation and ultra-low emission vehicles for final stage delivery.

Investigate opportunities to improve the number of ultra-low emission taxis operating within the city and provide infrastructure to promote and incentivise the uptake of such vehicles.

Identify a package of incentives for users of ultra-low emission vehicles and work in partnership with parking providers to establish standards for electric vehicle charging and a strategy for their introduction.

Work with the port owners and operators to identify opportunities to introduce clean technologies amongst their non-road fleet and ships.

Combining the work of the Sustainable Transport project and its “MyJourney” branding with the CAZ to provide clarity on transport options and emissions.

- 4.7 Southampton City Council highlights that although Clean Air Zones will be characterised by the introduction of penalty charges, DEFRA and Southampton City Council are keen to ensure that they are seen as one of a number of measures to improve air quality in cities. The CAZ will be introduced in 2017, consisting of a programme of measures to promote and incentivise actions that will reduce emissions. Access restrictions and penalty charging would then be introduced as part of the mandatory CAZs in 2019, in line with the Council’s legal duties.

## **5 WEST YORKSHIRE LOW EMISSIONS STRATEGY**

- 5.1 It is reported that the West Yorkshire Low Emissions Strategy (WYLES) has been developed through collaboration between the West Yorkshire local authorities (Bradford MDC, Calderdale MBC, Kirklees MDC, Leeds CC and Wakefield MDC); West Yorkshire Combined Authority (WYCA) and Public Health England (PHE), with each organisation having an input and contributing to the content of the Strategy. Funded by the Department for the Environment and Rural Affairs (DEFRA) the WYLES project has been managed by Bradford MBC, with technical support provided by Low Emissions Strategies Ltd. and Public Health England and specific acknowledgements are given for their contribution into the development of this Strategy.
- 5.2 It is reported that the West Yorkshire Low Emissions Strategy demonstrates the commitment of the West Yorkshire local authorities, together with West Yorkshire Combined Authority and other key stakeholders to work together to improve air quality for the benefit of all in the region. This Strategy sets out the overall vision, aims and objectives which the WYLES intends to deliver over the next five years. This Strategy document has four main sections:
- Evidence for Change
  - Creating a Low Emission Future
  - Tackling Transport Emissions
  - Delivery and Funding of the WYLES
- 5.3 It is reported that the Low Emissions Strategy outlines what the key challenges are in relation to air quality within West Yorkshire and how, together, we can deliver cleaner air for all to create a healthier place for people to live, work and visit. The Strategy goes on to state that after considering the evidence which supports the need to improve air quality this Strategy then considers air quality in the context of other key regional plans and strategies and how we can use these to Create a Low Emissions Future, including consideration of the region’s economic and transport plans, changes in energy production and use, land-use planning, supporting walking and cycling and finally how local authorities can lead by example.

- 5.4 The main reported focus of the Strategy is : Tackling Transport Emissions as pollution from transport causes most local air quality problems. All transport modes are considered as each has a part to play, to a greater or lesser extent, in delivering the necessary improvements to air quality. The key aims and objectives are set out early within the Strategy document and will act as a reference point to monitor progress towards achieving cleaner air for all. Finally, the delivery and funding arrangements are considered and set out how, together with its partners, it will make the best use of existing funding and access new funding streams and co-ordinate activity across West Yorkshire to make air quality better now and for future generations.
- 5.5 Public consultation on the draft WYLES was undertaken during November and December 2015 via an on-line survey. The reported key messages taken from the consultation, together with direct feedback from other key stakeholders were:
- A more ambitious Strategy which has more “teeth” to improve air quality using Low Emission Zones / Clean Air Zones.
  - A more focussed Strategy, with fewer, but more targeted objectives that will deliver the greatest benefits to air quality.
  - Tackling emissions from the most polluting vehicles in towns and cities: buses, lorries and taxis.
  - Better public transport and greater support for walking and cycling, not just reducing emissions.
  - Linking in with other initiatives, such as green infrastructure, energy efficiency and carbon reduction to improve air quality.
- 5.6 It is reported that the feedback was used to help shape the final version of the WYLES together with other key developments such as the refresh of the Leeds City Region Strategic Economic Plan 2016 to 2036; the development of the West Yorkshire Transport Strategy 2016 to 2036 and the Government’s Plan for improving air quality in the UK which was published in December 2015.
- 5.7 The Low Emissions Strategy focuses on tackling emissions from transport, but it is also recognised that emissions from energy production and use also contribute to overall air pollution. The energy sector is undergoing significant change, with a commitment to reduce the use of fossil fuels to help tackle CO2 emission reduction targets and tackle climate change. Although these changes are positive for the environment, it is reported that the Strategy is also mindful of potential unintended adverse consequences for air quality which could arise from decentralising heat and power production, for example through Combined Heat and Power (CHP) plant, and Short Term Operating Reserve (STOR) generators which bring emission sources closer to where people live and work and also the use of alternative fuels such as biomass, woodburning and energy from waste facilities. When considering new

energy generating facilities, the potential impact on air quality will be considered through feasibility studies, planning and other regulatory controls.

- 5.8 It is reported this Strategy seeks to reduce emissions from all sectors of road transport, although buses, lorries, taxis and other diesel vehicles operating within towns and cities will be the focus of the Strategy's attention in order to achieve air quality improvements as quickly as possible. Each of the main vehicle categories are looked at in turn, including passenger cars, buses, trains, freight transport, taxis and its own fleet vehicles, and considers what local authorities are able to do as part of a West Yorkshire Vehicle Emissions Plan (WYVeP) through regulatory means, infrastructure development, the Council's influencing role and other support to achieve a reduction in transport emissions than would otherwise occur without such intervention.
- 5.9 It is highlighted that a very important feature of the WYVeP will be the mandatory introduction of the Leeds Clean Air Zone, which will regulate access of certain categories of vehicle to an area of Leeds dependant on the emission standard of the vehicle: targeting buses, coaches, taxis, HGVs and vans. In addition to the mandatory Leeds CAZ, the Strategy will consider whether Clean Air Zones will be necessary to reduce transport emissions in other parts of the region if air quality is found not to be improving through the implementation of the WYLES. Passenger Cars account for 78% of the 9.8 billion miles driven on West Yorkshire roads each year and they are a significant contributor to overall emissions which impact on air quality.
- 5.10 The Strategy reports that in real-world driving conditions it has been shown that diesel cars can produce 22 times more particulate emissions and four times more NOx emissions than petrol cars and this, together with West Yorkshire Low Emissions Strategy 2016 – 2021 with a rapid growth in the number of diesel cars on the roads compared to a decade ago is one of the main reasons why air quality targets have not been achieved across the UK.
- 5.11 It is emphasised that this Low Emission Strategy will focus on reducing emissions from cars, by making it easier for people to switch to ultra-low emission alternatives, such as plug-in electric, hybrid and hydrogen fuel-cell power-trains and developing the necessary infrastructure to support this change. It is reported that although this is the main focus, this will also be supported by the wider strategic ambition to reduce the dominance of cars in towns and cities and to create places which are more pedestrian and cyclist friendly and increasing public transport integration for example with increased park & ride / park & rail schemes. Buses provide a valuable public transport option and are part of the solution to air quality problems. However, buses, which are a type of heavy goods vehicle and predominantly run on diesel fuel, give rise to relatively high NOx and particulate emissions. The Strategy goes on to state that it is also common for buses to be kept in operation for many years and therefore turn-over to newer buses which have more stringent emission standards can be relatively slow. These factors, together with the recognition that buses also operate in towns and cities where air quality needs to improve the most, means that reducing emissions from a relatively small number of buses will yield the

most significant air quality improvements and is therefore a key priority for the delivery of the Low Emissions Strategy.

- 5.12 A Bus Strategy is being developed and supporting the bus industry through a Bus18 project which will accelerate a reduction in bus emissions through investment in new buses, fitting pollution abatement technology where appropriate, introducing the Eco Stars fleet recognition scheme and supporting alternative fuels and technologies including biomethane, electric and hybrid variants. These supportive measures, together with the introduction of a Clean Air Zone in Leeds and elsewhere if needed, will accelerate the reduction in bus emissions than would occur without such intervention. Trains, particularly those driven by diesel engines, can contribute to the overall air pollution, however their contribution is relatively insignificant in the region when compared to other transport modes such as buses, lorries, vans and (diesel) cars, particularly when considered in relation to the emissions per passenger carried. Trains are therefore considered within this Strategy principally as a means of helping to resolve air quality in towns and cities: the more people who are able to move away from cars, even if for part of their journey, will have a positive contribution to air quality.
- 5.13 It is reported that the draft West Yorkshire Transport Strategy 2016 to 2036 will consider in further detail the significant role that trains will have in meeting future transport needs and improving connectivity and capacity on local, regional and national rail network, including integration with HS2, further electrification of the rail network and better integration to facilitate multi-modal travel increased car-parking capacity and electric vehicle charging at railway stations and improving facilities to support cyclists to create door-to-door connectivity. Freight and commercial operations are a significant contributor to the West Yorkshire economy, taking advantage of the excellent links to the strategic highway to deliver goods West Yorkshire Low Emissions Strategy 2016 – 2021 and services nationally and internationally as well as within the region. Consequently, the number of HGVs on the West Yorkshire road network contribute significantly to local and regional air pollution.
- 5.14 The Strategy notes that the Leeds Clean Air Zone will mean that lorries and vans will need to meet newer (Euro VI/6) emission standards where the CAZ applies, which will accelerate a reduction in emissions, but as well as a regulatory approach, this Low Emission Strategy will also support the commercial sector to reduce emissions from their fleet operations, for example by providing advice and training through the ECO Stars fleet recognition scheme, and supporting trials and infrastructure for low emission alternatives including compressed natural gas (CNG), liquefied natural gas (LNG), hybrid, electric and hydrogen fuel options. Taxis (hackney carriage and private hire vehicles) are predominantly diesel cars or vans, with the majority of journeys being within town and city centres and therefore contribute to local air pollution issues. Taxis, like buses, lorries and vans, will be included in the class of vehicles that will need to meet minimum Euro standards as part of the Leeds Clean Air Zone. The West Yorkshire local authorities will also be using their influence when licensing hackney carriages and private hire vehicles and contracting taxi transport services to improve vehicle emission standards. These

measures will accelerate a reduction in emissions coming from taxis, but the role taxis play as part of the integrated transport network, particularly for people with limited mobility, is also important and therefore it will continue to support the role of taxis at transport hubs and encourage the uptake of ultra-low emission vehicle options and the provision of dedicated electric vehicle charging infrastructure and allowing access to bus lanes where appropriate.

- 5.15 The Strategy highlights that public Sector Fleet vehicles also contribute to local air pollution problems and it is important that the Council plays its part and also lead by example by doing all we can to reduce emissions from the fleet vehicles which we operate. All fleet managers in local authorities are signed up to the Eco Stars fleet recognition scheme and will reduce emissions from fleets through a combination of upgrading fleets to the latest Euro VI emission standard and integrating the use of alternative fuels and technologies, such as CNG / LNG, hydrogen fuel cell and electric vehicles where it can.
- 5.16 The Strategy reports that delivery of the WYLES will be overseen by the West Yorkshire Transport & Health Board, which has representation from Public Health England, West Yorkshire Combined Authority and West Yorkshire district Environmental Health professionals and will in turn report on progress through the governance arrangements of the West Yorkshire Combined Authority. Progress in achieving the WYLES objectives will be monitored and reported through each local authority and made available to the public and the WYLES will also be used to inform each local authority's Annual Status Report and development of Air Quality Action Plans as part of their local air quality management duty.

## **6 WEST MIDLANDS LOW EMISSIONS STRATEGY - Low Emissions Towns and Cities Programme (LETCP)**

- 6.1 The Low Emissions Towns and Cities Programme is a partnership comprising the seven West Midlands local authorities, (Birmingham City Council, Coventry City Council, Dudley MBC, Sandwell MBC, Solihull MBC, Walsall Council and Wolverhampton City Council) working together to improve air quality and reduce emissions from road transport.
- 6.2 It is reported that the intention is to do this by promoting the uptake of low emission fuels and technologies, establishing and sharing best practice policies, and developing various tools and resources. The objectives of the programme are to investigate and produce various regional strategies designed to improve air quality, with a view to meeting national air quality objectives.
- 6.3 Funded through a Department of Environment, Food and Rural Affairs (Defra) Air Quality Grant, the aims of the LETCP are to:
- Improve air quality through the reductions in road transport emissions, and simultaneously reductions in carbon emissions;
  - Establish best practice policies and measures for the West Midlands, creating transferable models for other towns and cities;

- Improve health; and
- Maximise opportunities for economic development through the transition to a green economy. .

- 6.4 It is reported that outside of London the West Midlands conurbation suffers the most extensive exceedences of the EU annual Limit Value for Nitrogen Dioxide (NO<sub>2</sub>) in the UK, affecting a population of 122,396. The main air pollutants of concern are nitrogen dioxide (NO<sub>2</sub>) and particulates (PM).
- 6.5 Poor air quality puts people's health at risk, creates an unpleasant environment and places an additional financial burden on local health service providers. In 2009 the Committee on the Medical Effects of Air Pollution (COMEAP) estimated that air pollution in the UK caused 29,000 premature deaths. The Environmental Audit Commission (EAC) estimated that the cost to health from poor air quality in the UK ranges from £8.5 to £20 billion per annum which is equivalent to the economic cost of obesity. Recent research shows that vehicle emissions account for more deaths in the UK than road traffic accidents and passive smoking combined. Local air pollutants are those that have a direct impact on public health, especially that of the young and old, and those with respiratory & circulatory problems. Such pollutants have been linked to lung diseases (asthma, bronchitis, and emphysema), heart conditions and cancer. In the West Midlands, local authority research demonstrates that emissions from road transport are the principal source of elevated concentrations of NO<sub>2</sub> and airborne particles such as PM<sub>10</sub>. Based on national estimates, vehicle emissions account for up to 630 premature deaths in the West Midlands each year.
- 6.6 Since the launch of the LETCP in 2011, LETCP has been working with stakeholders to develop a Low Emissions Strategy and Good Practice Guidance on Planning and Procurement for the West Midlands. These documents underwent a consultation process between April and June 2013 and is currently finalising the documents.
- 6.7 Details of the proposed Strategy:

Proposed West Midlands Low Emissions Vehicle Strategy - October 2016

## **7 Milton Keynes - Go Ultra Low City Scheme**

- 7.1 At its meeting held on 16 March 2017, the Scrutiny Panel was informed of the Milton Keynes – Go Ultra Low City Scheme and requested that further details are provided to inform the evidence base.
- 7.2 Milton Keynes Council reports that it has designed this application for funding under the OLEV Go Ultra Low City Scheme to directly address the challenge of dramatically increasing the numbers of ultra-low emission vehicles (ULEV's) on the city's roads. As a city designed around the premise that cars will be the primary form of transport, the importance of encouraging the uptake of ultra-low emissions vehicles in Milton Keynes is critical. It is the ambition of the local authority that the city will become internationally recognised for its low-emission vehicle uptake, matching the international profile which the city has enjoyed for many years in the

fields of urban design and town planning. It goes on to state that whilst acknowledging that there will be a number of different types of ultra-low emission vehicle powertrains in the future, we have concentrated our efforts around promoting and encouraging the uptake of battery electric and plug-in hybrid vehicles since these vehicles are readily available from most major OEMs. We refer to battery electric and plug-in hybrid vehicles as EVs in our application. A large variety of new battery electric and plug-in hybrid models will be launched during the five year life of the programme, adding to the choice available for private and commercial buyers.

7.3 Further information regarding this Scheme is appended to the briefing note.

## **8 RECOMMENDATION**

8.1 That the information provided informs the evidence base of this Scrutiny Review.

# Milton Keynes Go Ultra Low City Scheme

Our goal is to achieve the highest uptake of ultra-low emission vehicles per capita for any city in the world by 2020.





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**I am delighted to submit Milton Keynes' application for the Go Ultra Low City initiative. The initiative provides a fantastic opportunity to promote a step change in the uptake and use of ultra-low emission vehicles in our city and beyond.**

In Milton Keynes we have an enviable record of delivering innovative transport solutions, this includes our pioneering role in delivering electric vehicle infrastructure through the Plugged in Places and Local Authority Rapids network initiatives. We already have one of the most developed charging infrastructure networks anywhere in the UK, to support the operation and uptake of ultra-low emission vehicles.

We believe we can do more, and with support from this initiative we can and will move to the next steps of achieving significant increases in ultra-low emission vehicles on the road.

As cabinet member with responsibility for economic growth and transport I can wholeheartedly give my support to delivering the programme including the council's commitment to deliver measures such as free parking for EVs – we manage over 20,000 spaces in our city centre, highway priority and supporting planning policies.

I therefore fully endorse this submission, and am truly excited about the scheme and the well thought out initiatives it will deliver.



**Councillor Matt Clifton**  
Cabinet member responsible  
for Economic Growth and  
Inward Investment.

# Executive Summary

Milton Keynes Council has designed this application for funding under the OLEV Go Ultra Low City Scheme to directly address the challenge of dramatically increasing the numbers of ultra-low emission vehicles (ULEV's) on the city's roads. As a city designed around the premise that cars will be the primary form of transport, the importance of encouraging the uptake of ultra-low emissions vehicles in Milton Keynes is critical. It is the ambition of the local authority that the city will become internationally recognised for its low-emission vehicle uptake, matching the international profile which the city has enjoyed for many years in the fields of urban design and town planning.

## **“Our goal is to achieve the highest uptake of ULEVs per capita for any city in the world by 2020”**

Whilst acknowledging that there will be a number of different types of ultra-low emission vehicle powertrains in the future, we have concentrated our efforts around promoting and encouraging the uptake of battery electric and plug-in hybrid vehicles since these vehicles are readily available from most major OEMs. We refer to battery electric and plug-in hybrid vehicles as EVs in our application. A large variety of new battery electric and plug-in hybrid models will be launched during the five year life of the programme, adding to the choice available for private and commercial buyers.

The Borough of Milton Keynes is home to one of the largest and most modern estates of electric vehicle charging facilities in the country. Because of this the Milton Keynes Go Ultra Low City Scheme application is able to concentrate directly on increasing the numbers of EVs that are owned and operated in the borough and its area of influence.

The initiatives described in this submission will be focused on accelerating ULEV uptake by removing the major barriers to EV adoption. These have been articulated by JD Power as:

- Vehicle cost and affordability.
- Widespread lack of awareness of EV benefits and everyday practicality.
- The adequate provision of charging infrastructure at home, at the workplace, at key destinations and rapid charging for longer distances.
- Making EVs attractive from an emotional purchase point of view. Many consumers “buy with their hearts”.

We have further considered the good practice guidance provided by the Low Carbon Vehicle Partnership and their suggested twelve themes of local measures to encourage the uptake of low emission vehicles. Some of the suggested measures have already been addressed in Milton Keynes, further plans exist to address a further set of the measures in other schemes which are in the late planning stage. Together with the measures proposed in this application Milton Keynes will have actively addressed all of the suggested themes to encourage EV uptake.

Within the proposed Milton Keynes Go Ultra Low City Scheme we will deliver a number of significant measures that are directly aimed at creating step change in the uptake of EVs. Provision of these measures constitute the majority of the capital expenditure request. The measures include:

- A full time EV Tsar to act as a visible, high profile, head of the scheme who will promote the scheme and the use of EVs in general.
- The creation of an ‘EV Experience Centre’ to provide a high profile focus for the encouragement of EV adoption. Potential owners will be able to obtain impartial information from expert advisors and borrow EVs under short and medium-term agreements so that they can gain confidence in practicality of the vehicles.
- The acquisition of a fleet of loan vehicles to support the Experience Centre and provide the would-be customer with the necessary experience.
- Electric Vehicle Hubs at the city's Coachway Park and Ride site and in the city centre near to the centre:mk shopping centre, providing rapid charging, EV car club vehicles, EV information and access to nearby refreshment facilities.
- Partnership with leasing companies to provide innovative and attractive leasing deals. The scheme will work with leasing companies to provide competitive leasing arrangements for prospective EV users who do not wish to purchase but who would rather enter into long-term lease arrangements.
- The Milton Keynes Promise that will guarantee the provision of a charge post near to the homes of owners who do not have off-street parking. The promise will see the provision of a 200 night time charging points (many on street) at an early stage of the scheme for the home owners that do not have off-street parking. These will be situated on-street and at other convenient locations for the overnight use of local residents.
- Further support and provision to expand the number of car clubs operating in the borough. Car Club bays will be provided at both Electric Vehicle Hubs and at other strategic points throughout the borough.

# Executive Summary

- The scheme will extend the existing 'Green Parking Scheme' to enable EVs to park free of charge in any of the 20,000 parking spaces in the borough which are controlled by the council.
- Extension of existing reserved parking bays for EVs. There are currently 60 parking and charging bays specifically reserved for EVs in the city centre. This will be increased to 100 during Year 1 of the scheme and will continue to be increased during the remaining period of the scheme to match the growth of EVs and demand for reserved parking.
- The scheme will operate a subsidised workplace charging scheme. Funds will be put into subsidising workplace charging for businesses and public sector organisations in the borough.
- Provision via the Experience Centre of a Fleet Advisory Service. This service will work in conjunction with the workplace charging scheme.
- The introduction of a 'scrappage scheme' whereby owners of internal combustion engine vehicles will be provided with a subsidy against the cost of the purchase of an EV provided that they are willing to scrap their existing car and it is removed from the vehicle parc.
- Milton Keynes Council will set an example by adopting procedures that ensure that all vehicles which are purchased or leased by the authority are low-emission vehicles, where EVs are suitable for the duty cycles to be undertaken. The council's suppliers will be encouraged to adopt a similar approach.
- Milton Keynes is reviewing the planning policy in the borough and will actively seek to require provisions to support the adoption and support of EVs in all new developments.
- Working with an existing commercial partner, who will provide matched funding to this element of the scheme, the scheme will install 50 'destination chargers' at key locations throughout the borough.
- The Milton Keynes Go Ultra Low scheme will provide access to EV electricity time of use tariffs. Lower EV operating costs can be achieved through new electricity tariffs providing lower costs at night. These would be developed in partnership with local electricity providers and promoted to EV buyers.
- The scheme will seek to foster good links with local media. Local radio stations and press will be provided with loan EVs on the basis they raise the profile of their use and demonstrate the everyday practicality.
- The scheme will obtain the services of a PR Agency. The agency will devise and plan events and campaigns to raise the awareness of benefits of owning an EV and increase the public perception that EV ownership is a practical consideration when the consumer is buying a car.

- The Experience Centre and the Tsar will engage with local companies on a continuous basis. This engagement will develop a programme of communication and support to local businesses to promote use and acquisition of EVs with their fleets (including delivery fleets), pool cars and staff cars.

Milton Keynes is already considered to be a national and international exemplar city, which regularly welcomes visitors who are keen to learn from the many innovative activities being carried out within the borough. With a view to promoting the international profile of the city in the new area of low-emission transport, Milton Keynes is currently developing plans to create an international programme of seminars around the world in partnership with other prominent low-emission cities. The first seminar of this series will be held jointly with Singapore in their city in November 2015. We have the aspiration that the second will be held in Milton Keynes in late 2016 and that others will follow in different locations on an annual basis. The initiatives proposed here for the Go Ultra Low programme will provide an important opportunity to raise the city's game in this area, thus providing an instant channel for international dissemination and UK leadership profile.

Milton Keynes will disseminate news of the progress and successes of its scheme and will assist others who may wish to adopt similar initiatives. In particular Milton Keynes will highlight the success of the UK by:

- Attending national and international events, conferences and exhibitions to illustrate what has been achieved. Promotion of the Milton Keynes and UK as a whole as a centre of excellence for EV adoption.
- Offering consultancy services to help others achieve similar results and to teach others to learn from the scheme's experience.
- Providing a high profile website highlighting achievements in increasing uptake of EVs and improving air quality. The website will be designed to link with the OLEV/partners Go Ultra Low websites.
- Inviting overseas visitors to visit the Milton Keynes scheme thereby promoting British innovation.

Milton Keynes regards the maintenance and improvement of air quality within the borough as a key objective within the Milton Keynes Go Ultra Low City Scheme. The city is expected to continue to grow strongly over the next 20 years, with corresponding growth in traffic. The borough's air quality will be threatened if no measures are taken to reduce pollution from vehicles which will remain the principle means of transport in the city of the car.

# Executive Summary

The scheme will significantly change the make-up of the vehicle parc within Milton Keynes, encouragement of low-emission motoring will be directly supported by:

- Linking the Go Ultra Low Cities Scheme to other air quality initiatives already underway in Milton Keynes.
- Installing additional air quality sensors in relevant key areas to monitor and report changes in air quality.
- Considering the introduction of low emission zones in particular areas in the event that air quality is a particular issue.
- Linking the projects on air quality improvement with the promotion of EV uptake to demonstrate impact and improvement of air qualities by widespread adoption of EVs.
- Reporting improvements in air quality by an independent body and correlating the improvements with the increase in EV uptake.

Milton Keynes has always been a city associated with innovation. Milton Keynes Council supports the use of innovation in the application of advanced technologies to improve the quality of life within the borough. The Milton Keynes Go Ultra Low City scheme will continue the strong tradition of innovation and will in particular trial ways in which innovation can increase the uptake and appeal of EVs. As part of this innovation the scheme includes:

- Establishing a programme of between five and ten homes which will be supplied with wireless (inductive) charging together with the provision of wirelessly equipped demonstrator cars. Milton Keynes will equip demonstrator homes and research the benefits of wireless charging compared with conventional conductive charging.
- Establishing a demonstration semi-dynamic wireless charging demonstrator within the borough after the technology has been successfully tested at a local proving ground site. This work will be undertaken in partnership with a UK private sector technology provider.
- Undertaking a programme to research and develop charging systems that can be economically deployed for residents who have no off street parking.
- Demonstrating systems for active network balancing. These systems will be designed to ameliorate the fluctuating network power demands that could result from the widespread introduction of public and domestic charging devices across the city. The local District Network Operator (DNO) has expressed support for this package of work.

Milton Keynes has a very successful history of maximising value from government and private sector supported schemes. From being one of the first PiP schemes to introducing electric buses, rapid chargers and its current programme of driverless cars and partnership with the Transport Catapult, it is proud of its track record of delivery. Full integration of all these schemes will be a key focus of Milton Keynes Council to maximise the benefits. In particular Milton Keynes will link the Go Ultra Low City Scheme with previous and current projects by:

- Leveraging off the existing network of charging points covering standard, fast and rapid chargers which have been introduced under PiP and other OLEV schemes.
- Working with the Milton Keynes Electric Bus project and the planned deployment of a fleet of around 50 private hire cars in spring 2015 the GULCS will complement the overall low carbon Milton Keynes agenda strengthening its position as a national and international exemplar.
- Milton Keynes is planning in participating in both the £20m OLEV taxi scheme and also the £30m bus scheme with a vision to electrify the majority of buses and taxis in the city over the next decade.

It is recognised that accurate recording, monitoring and reporting is crucial to obtaining full benefit of the projects proposed. Monitoring and reporting is particularly crucial to the goal of becoming a regional, national and international exemplar and also in ensuring value for money is fully achieved across the board on all aspects of the scheme.

Monitoring of the scheme will have a number of elements:

- Providing a clear and structured programme with clearly identified milestones against which the progress of the project can be monitored.
- Undertaking an evaluation of the success of the interventions in terms of the prime objective of the scheme which is to accelerate the introduction of EVs in the borough.
- Determining the effects of the increase in low-emission vehicles in the city's vehicle parc in terms of maintenance and improvement of air quality.

It is intended that the scheme's monitoring will provide:

- Bi-annual independent audit reports, provided by the Open University, to monitor the performance of the scheme as a whole, the effectiveness of each individual project and the increased uptake of EVs across the city and local area.
- Regular quarterly reporting will be introduced and published to record progress made against pre-defined milestones and to further enhance the position of the city as an exemplar.

# Executive Summary

- Systems to record both new and used EV sales and usage patterns, these will be published quarterly.
- Systems to record charging patterns in the public locations well as in work place and domestic environments. These will be published quarterly.
- Reports showing improvements in air quality published on a quarterly basis.
- Published research and reports monitoring public and business perceptions on EVs in the city.
- Full data exchange with other cities to encourage take up of successful initiatives pioneered by the Milton Keynes scheme.

Milton Keynes Council has an impeccable record of delivering similar schemes on time. It has a culture of delivery. In particular the delivery of the key elements will be secured by:

- Full commitment by senior council officers and elected members to take achievements already derived from the delivery of existing low carbon strategy to the next ambitious steps through full participation in the Go Ultra Low City Scheme.
- The appointment of the full time “Tsar” to manage the scheme on a day to day basis.
- The creation of a governance board with members who have experience from delivering previous successful schemes in the borough.
- The establishment of the EV Experience Centre giving a clear physical statement of the city’s objectives.

- Working with the private sector partners in the motor industry, technology providers and academia as it has done successfully in the past.
- Careful review and recording of progress.
- Detailed financial planning and control to ensure that projects do not infringe EU state aid regulations.
- The council’s experience of procuring all elements of innovative transport schemes.

**In conclusion, we have developed a deliverable scheme for which we are requesting £13.65m of capital funding over the duration of the five year programme. The capital spend is split annually as shown below:**

<b>2016</b>	<b>£4.602m</b>
<b>2017</b>	<b>£3.160m</b>
<b>2018</b>	<b>£2.270m</b>
<b>2019</b>	<b>£2.110m</b>
<b>2020</b>	<b>£1.510m</b>

Most elements of the scheme are considered to be scalable, with changes to the planned expenditure simply affecting the rate of uptake of EVs over the duration of the programme. There is also some flexibility to change the profile of the capital investment by delaying the delivery of particular interventions, this again will have an effect on the anticipated increases in uptake of EVs.

# Milton Keynes Vision and Track Record

## This application is being led by the Milton Keynes Council

The council plans to partner with a number of local academic and private sector organisations to build on the considerable momentum produced over recent years in making the city and the close region a centre for innovation in ultra-low carbon transport.

The city has a catchment area of 2.8m people and the Milton Keynes shopping centre attracts 27m visits per annum. Eighteen million people live within 90 minutes travel by car. Indeed 71% of visitors travel to the city by car, which makes it an ideal location for becoming a showcase for ultra-low emission vehicles.

Milton Keynes offers a compelling argument for electric road transport, being a city designed for the car and offering unrivalled facilities to car drivers in and around the city centre. The city's Low Carbon Transport Plan, itself part of a wider Low Carbon Living Agenda, aims to be socially inclusive and offer the widest possible opportunity for people in the city to experience and benefit from low carbon electric transportation.

Over the last six years Milton Keynes Council has built a reputation of on-time and on-budget delivery of successful and innovative projects involving the promotion and delivery of low carbon transport and in particular road transport. In 2010 it was awarded the status of one of the first "plugged-in places". Under this scheme it rolled out over 170 electric vehicle charging points which have now been successfully transferred to the private sector, ensuring proper maintenance and expansion. There are now over 300 charging points within the MK post code region creating a fertile environment for the use of EVs.

The Plugged-in Places programme provided infrastructure which has already encouraged some residents and visitors to shift to an electric car parc that has contributed to a reduction in the city's carbon footprint and helped establish Milton Keynes as an international exemplar for innovative low carbon transport. Furthermore, the Plugged-in Places scheme has illustrated the council's ability to secure a long-term, commercial, legacy from innovative central government funded interventions. The proposed Go Ultra Low City Scheme will build on the work already undertaken, concentrating on measures to promote the further uptake of EVs and accelerating Milton Keynes towards becoming an ultra-low emission city.

In 2014 a successful electric bus project was launched involving eight electric buses on Route Seven between Wolverton and Bletchley. The project removes 500 tonnes of tailpipe CO<sub>2</sub> emissions each year and transports over 775,000 passengers over a total of 450,000 miles each year. This council supported project is an illustration how it engages with the

private sector using innovative solutions in carbon reduction. The Milton Keynes buses operate on wireless charging technology demonstrating the city's commitment to leading the way with advanced technology.

In 2014 Milton Keynes was selected by the government as one of the showcase cities to develop driverless cars and trials will be started during 2015. The city is also the home of the Transport Systems Catapult – the UK's centre for intelligent mobility.

In early 2014 the Crosslink rapid charge network of 14 rapid chargers were installed by Milton Keynes Council linking Milton Keynes to other centres such as Cambridge, Oxford and Cheltenham. An electric private hire operation is being launched in 2015 supported by 50 additional rapid chargers within the city – thought to be the one of the largest projects for rapid charging in a city anywhere in the world. The 50 chargers are all within a radius of five miles of the city centre.

Milton Keynes Council has created an environment where it successfully partners with private sector, academia and industry to deliver on-time major projects and a healthy climate to sell and operate EVs. Manufacturers such as Nissan, Renault, BMW, Mercedes Benz, Audi, VW and Mitsubishi have chosen Milton Keynes as a location to set up their dealerships to sell EVs. This local environment is supported by Cranfield University, one of the country's strongest post graduate research establishments linked to the motor industry, Millbrook Test Track (which has recently established an electric vehicle facility), the Nissan European Technical Centre at Cranfield and the Open University. Milton Keynes Council and the Open University, as well as private sector organisations, are currently collaborating on the MK Smart Project.

The city is in a unique position to deliver maximum value from the Go Ultra Low Cities Scheme. It has high ambitions and has the capability to demonstrate it is a world leader in the development of ultra-low emission transport, as has been shown by its achievements so far.

Milton Keynes is confident it can create a step-change in the uptake in EV's from local consumers, private sector companies and public sector organisations. It will use innovation both technically and operationally to maximise value in a number of initiatives. Delivery will be maximised by partnering with local academic organisations and private sector organisations including car manufacturers and distributors.

Whilst acknowledging that there will be a number of different types of ultra-low emission vehicle powertrains in the future, we have concentrated our efforts around promoting and encouraging the uptake battery electric and plug-in hybrid vehicles since these vehicles are readily available from most major OEMs. We refer to battery electric and plug-in hybrid vehicles as EVs throughout our application.

# Milton Keynes Vision and Track Record

Our general principle will be to recommend the lowest emission vehicle which meets the user's needs; starting with actively promoting the adoption of battery electric vehicles, then plug-in hybrids.

Milton Keynes' initiatives will be focused in removing the barriers for EV adoption which are widely recognised as (source JD Power and Associates):

- Vehicle cost and affordability.
- Widespread lack of awareness of EV benefits and everyday practicality.
- The adequate provision of charging infrastructure at home, workplace, destinations and rapid charging for longer distances.
- Making EVs attractive from an emotional purchase point of view. Many consumers "buy with their hearts".

The initiatives will position Milton Keynes as a low carbon living exemplar city, with formal links to other international exemplar cities. Milton Keynes will maintain this position through continuous investment and support of innovative strategies and interventions and by actively seeking to transfer its knowledge to others.

**"Our goal is to achieve the highest uptake of EVs per capita for any city in the world by 2020"**

# The Milton Keynes application structure and contents

## EV UPTAKE

- Creating a step change
- EV Experience Centre
- EV Tsar
- Electric Vehicle Hub
- Electricity tariffs
- Scrappage scheme
- EV Car Clubs
- Destination chargers
- Overnight charging
- Bus lanes and parking bays
- Planning and commercial
- PR and media

## BECOMING AN EXEMPLAR

- Current leadership and activities
- Dissemination
- Long-term commercial sustainability
- Singapore conference co-host
- Smarter Travel conference
- Hosting international delegations

## AIR QUALITY IMPROVEMENT

- Securing the future
- Congestion and pollution
- Regional and local demand
- Holistic Approach
- Links to other programmes

## INNOVATION

- Active network balancing
- On-street charging development
- Charge on-the-move demonstration
- Domestic wireless charging

## LINKING WITH OTHER SCHEMES

- Demonstrable track record of delivery
- Plugged-in-Places
- Rapid charger rollout
- Electric bus project
- Rapid charger scheme

## MONITORING

- Finance
- State Aid
- Governance
- Quarterly Monitoring
- Independent Audit
- Programme

# EV Uptake



# Creating a step change in the uptake of EVs

A core part of the Milton Keynes proposals is focused on demonstrating that the city can achieve a significantly higher uptake in EV adoption by the innovative measures it is proposing than the national average. This will be measured by the Open University on a bi-annual basis.

By 2020 it is expected that EVs will represent between five percent and ten percent of car sales nationally. Through the measures outlined below Milton Keynes is confident that it can achieve over 23% annual penetration of total cars sales by 2020.

## Expected EV Sales in Milton Keynes:

	2016	2017	2018	2019	2020
EV Unit Sales (new registrations)	270	540	972	1,701	2,977
Expected total cars sales in MK	10,346	10,863	11,406	11,976	12,575
Expected % of cars sales EVs	2.61%	4.97%	8.52%	14.20%	23.67%

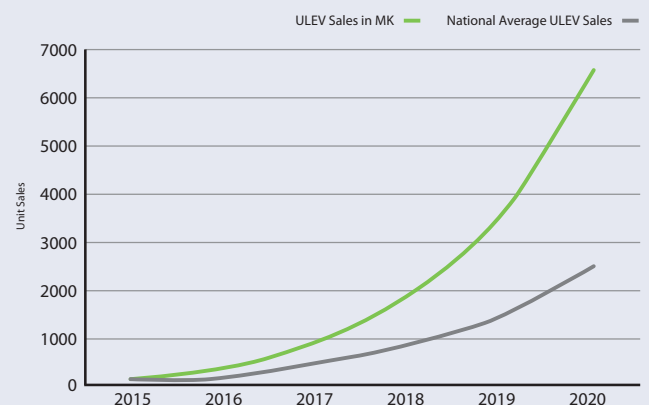
The key factors that will create this step change include:

- An EV Experience Centre in the city centre providing a high profile showroom and advice centre where citizens can learn about the range of EVs available from independent expert advisors as to which EVs are appropriate for them and then for them to borrow an EV for a period of time before they buy.
- A fleet of a range of loan vehicles that facilitate this experience.
- A full time experienced Milton Keynes EV Tsar who will derive new opportunities to assist with the promotion of EVs.
- A high profile Electric Vehicle Hub with ten rapid chargers, EV information centre and coffee bar situated by the M1, J14 enabling EV users to not only charge their cars but to see the commitment that Milton Keynes Council is putting into promoting their use.
- A City Centre Electric Vehicle Hub with multiple rapid chargers supported in 30 other locations with 56 existing rapid chargers across the city centre and over 100 city centre fast chargers. The majority of these parking bays to be specifically reserved for EVs.
- The provision of electricity at 9p per kWh on all charging points (including rapid) supported by a commercial partner. This is a lower cost than charging at home!
- A range of soft measures including the opening up of all 20,000 parking bays in the city to free parking for EVs and the use by EVs of all bus lanes in the city. EVs will be given the same priority as buses at traffic lights. Highly visible signage will be provided to promote these "soft measures".

- The "MK Home charging promise". Promotion of home charging units will be supported under the existing OLEV scheme for those EV buyers that have off-street parking. For EV buyers that do not have off-street parking they will be guaranteed a charging point within easy walking distance close to their home. This removes a significant barrier of acquisition for many buyers.
- Innovative leasing options provided by local company VW Financial Services. These will be available across all car marques.
- Over 50 destination chargers to be installed in restaurants, hotels and sports facilities across the city and surrounding areas using matched funding by a supplier providing highly visible charging facilities.
- A high profile PR Campaign keeping EVs in the public eye. This will include links to local media including local radio campaigns, competitions and a MK Go Ultra Low City Scheme website.
- Promotion by the EV Tsar to local companies including subsidises workplace charging and a free fleet advisory service.
- The full support of Milton Keynes Council demonstrated at senior levels.

It should be noted that the projected uptake of EVs has assumed that the Government's national schemes to promote the uptake of low-emission vehicles (Plug-in Car Grant, fiscal policies, etc.) will remain in place. If these schemes change there is likely to be a knock on effect on the expected total car sales volumes, however the Milton Keynes Go Ultra Low City Scheme can be assumed to continue to deliver proportionally higher uptake than the national expectations.

Graph of Cumulative EV Sales in Milton Keynes.



# Creating a step change in the uptake of EVs



## The Milton Keynes Go Ultra Low City Scheme has been designed to dramatically increase the uptake of low-emission vehicles in and around the city.

The scheme is deliberately focused on battery electric and hybrid electric vehicles, but recognises that future powertrain and fuel distribution sources may introduce other types of vehicles such as hydrogen and fuel cell variants.

The overarching proposition in Milton Keynes recognises that overcoming the barrier of unfamiliarity and the provision of further local ownership benefits above those already being provided by Central Government can make EV ownership a very attractive proposition, both financially and practically.

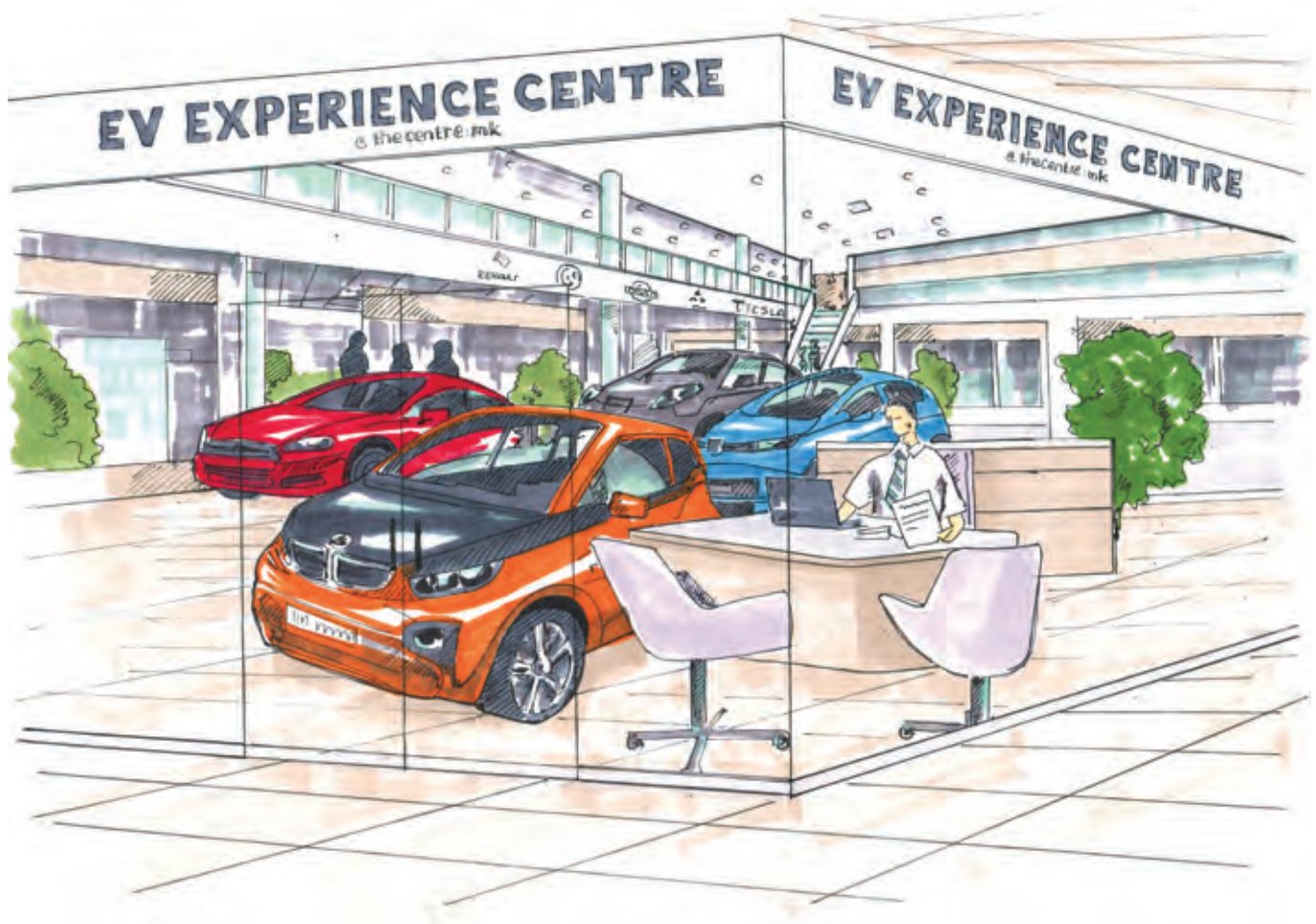
The city recognises that consideration of duty cycles is fundamental and that battery electric vehicles are not suited to all journeys. Our scheme sets out to provide impartial, factual and plain language advice to potential OLEV owners and operators. Through a number of direct contact points the scheme will recommend appropriate vehicles for a given users need, based upon first-hand knowledge of EV operation in the real world.

The scheme has been designed to incorporate specific initiatives which address the requirements of the Go Ultra Low City Scheme Guidance for Bidders and in particular the Design of Bids section of that document. The Vision section of this document outlines how the initiatives in the Milton Keynes proposal relate to the published assessment criteria.

The Milton Keynes Go Ultra Low City Scheme also recognises the guidance provided by the Low Carbon Vehicle Partnership's (LowCV<sup>®</sup>) good practice guide entitled 'Local measures to encourage the uptake of low emission vehicles'. The LowCV<sup>®</sup> document identifies 12 themes which are being addressed directly by this application, or through supporting schemes that are existing or planned as shown in the table.

	Milton Keynes Go Ultra Low City Scheme	Supporting Schemes
Planning	included	
Procurement	additional measures included	
Infrastructure provision	additional	existing
Education and communication	included	
Road access and charging	included	
Parking	additional measures included	existing
Car clubs	included	
Taxis and private hire vehicles		existing / planned
Integration with wider transport network	included	existing / planned
Pilots and trials	included	existing
Financial measures	planned	
Links to economic development and tourism	planned	

# The EV Experience Centre



## Introduction

It is intended to launch an EV Experience Centre in the main city centre area of Milton Keynes which will provide a one-stop shop for customers interested in experiencing, leasing or purchasing a new EV. The purpose of the Experience Centre will be to attract would-be users of EV's and provide them with sufficient information, experience and support to enable a purchase or lease decision to be made.

The centre will occupy a two-storey retail unit located in prime space within the city centre shopping building. The glass-fronted ground floor area will be used to showcase new vehicles, and the upper floor will be fitted out to provide a high quality ambience for the provision of advisory and other customer services. All services will be provided by trained staff who will be capable of giving objective advice on the many different aspects of owning and using an EV, including home charging and the large range of purchase/lease/car-share options which are expected to be available to future EV customers.

The ambition is to make Milton Keynes the leading city for electric car uptake in the world. The target is to build up the rate of EV purchases in the city to 3,000 vehicles per year by the end of the fifth year of operation. At that time, this will represent an annual sales rate of approximately one EV for every 25 households in the city, or ten times the UK national average figure which has been estimated for 2020.

## EV Acceleration Strategy

The purpose of the EV Experience Centre will be to drive the uptake of EV's in Milton Keynes to a level which is world-beating. It will do this by attracting would-be EV owners, exciting them about the possibilities, and removing the recognised major 'blockers' – for example:

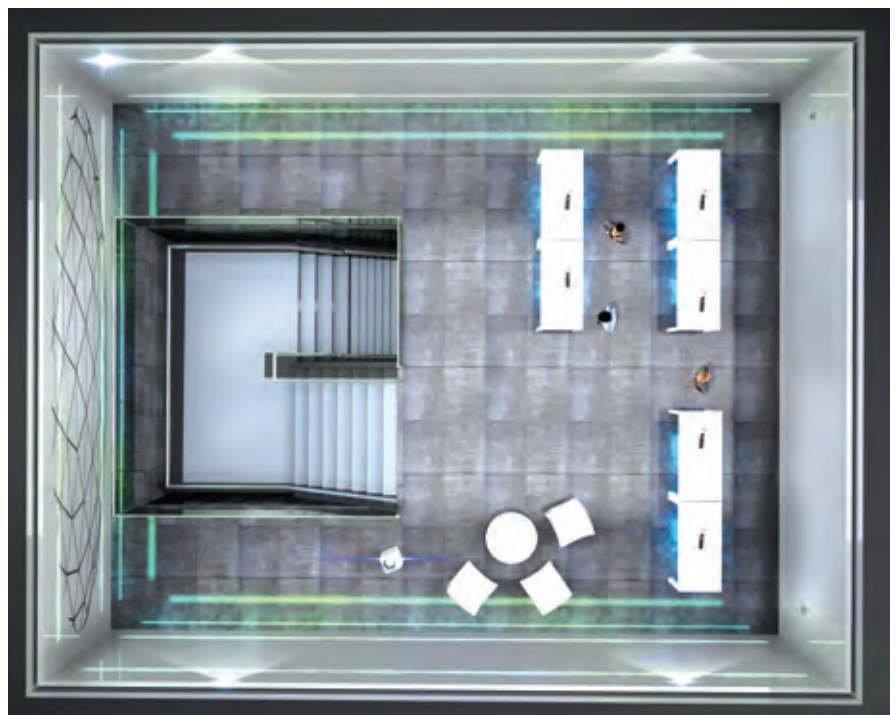
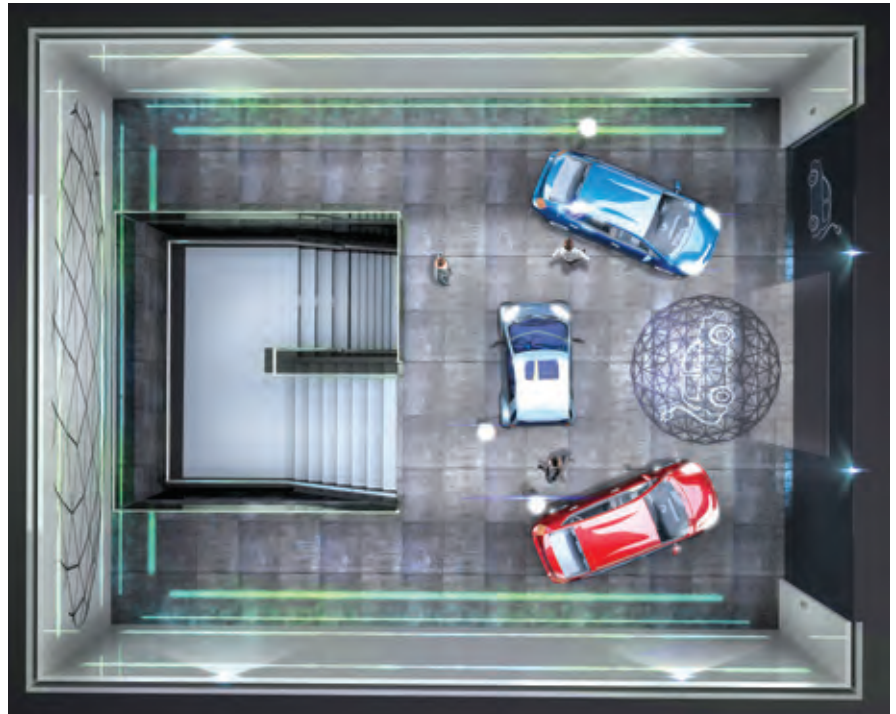
- Range anxiety.
- Battery charging (both at home and in the public domain).
- Vehicle performance.
- Vehicle reliability.
- Customer support.
- Familiarity with the technology.

# The EV Experience Centre

The EV Experience Centre will pursue strategies designed to take away the mystery and uncertainty which currently surrounds EVs. It will do this by making vehicles available in large numbers for potential EV customers to experience and therefore become familiar with.

The Experience Centre will support both prospective private and commercial buyers of EVs. It is envisaged that satellite 'pop-up' centres will be provided at major employer's premises and at other public locations throughout the borough during the life of the scheme. The Experience Centre will also target the owner/operator private hire fleet to demonstrate that adoption of an electric vehicle should not be seen by the owner/driver as a compromise on availability or range, given the city's unique infrastructure of 50kW rapid-chargers. This attention to the private hire and taxi sector will support the city's aspirations under the OLEV taxi scheme since every vehicle deployed during the demonstration phase will become an instant advert for EV uptake, with a very large fraction of the city population thus being exposed to the benefits of EVs (clean, quiet, smooth) every time they take a private-hire journey.

The EV Experience Centre will operate a wide range of showroom display and on-street demonstrator vehicles. These will be used to encourage the public to view and test-drive EVs on a casual basis whilst otherwise browsing the city centre shopping area. (The chosen location for the EV Centre has a very high customer footfall during normal shopping hours). Customer advisory services will be supplemented by a range of very low-cost, short/medium-term experience loan schemes which might range from one week to several months.



# The EV Experience Centre

These experience schemes will be designed to encourage customers to try out EVs within their own private-use environments for meaningful periods of time. At the longest end of the spectrum (six months – one year), the arrangements will allow customers to experience quasi-ownership of the vehicle under relatively stress-free conditions. This is in recognition of the fact that some potential purchasers may require a prolonged period in which to switch from the mind-set of internal combustion engine vehicles.

It should be noted that the EV Experience Centre will not attempt to make direct sales of brand new vehicles to members of the public. This will be a strict policy, designed to avoid conflict with the local vehicle dealership networks. The purpose of the Experience Centre will be to attract would-be purchasers of EV's, provide impartial advice concerning the options which meet their needs, and remove the perceived 'blockers' to long-term ownership. Once an opportunity to sell an EV has been created, the Centre will either pass the customer to the local dealership to close the sale, or organise a long-term lease. In the case of long-term leases the Experience Centre will negotiate favourable commercial lease terms with commercial leasing companies.

## Experience Centre Location and Layout

The Experience Centre will occupy a prime location in the city centre shopping area. Preliminary discussions regarding the lease of premises have already been held with the property managers and provisional arrangements have been made to secure premises with an attractive frontage and an open plan ground floor area in the region of 150 - 180sq.m. The premises will have ease of access for 3 - 4 show vehicles on the ground floor. The vehicles will be constantly rotated so that passers-by will see a wide range of different vehicles over a period of time. Advisory services and tea/coffee/snack facilities will be located in a customer advice centre at the first floor level.

The 'feel' of the Experience Centre will be similar to that of an Apple Store or the recently launched Tesla and Kia shops. The ambience will be one of professional, up-market independent advisory services provided by well-qualified staff in pleasant surroundings.

## Business Approach

The 'Ground Rules' for the business will be as follows:

1. The shop will focus on providing free, objective, advice to would-be EV owners. It will also exhibit new vehicles and operate fleets of 'demonstrator' and 'experience' vehicles.
2. With the support of the local vehicle dealerships, new EV's will be showcased in the Experience Centre's showroom, allowing would-be customers to browse the products. These vehicles will be showcased on a rotating schedule to ensure that the public sees a wide range of constantly changing EVs. No cars will be sold through the EV Experience Centre but all enquiries and sales will be handled by local franchised dealers to maintain their support and goodwill.
3. The Centre will operate two distinct fleets of vehicles. A 'Demonstrator Fleet' and an 'Experience Fleet'.
4. The Demonstrator Fleet will be used to enable would-be customers to experience short drives in EVs on a casual or 'walk-in' basis (just like a normal car showroom). This fleet will be maintained at a constant size of around 20 -30 vehicles, but will be replenished with new vehicles at regular intervals in order to ensure the maximum possible exposure of new EV products as they come onto the market. Older vehicles will be cycled to the Experience Fleet (see 6 below) in order to maintain an ideal size of the Demonstrator Fleet.
5. The Experience Fleet will be much larger, starting with around 40 vehicles this will build to around 130 vehicles by year five. This activity will be the centrepiece of the Experience Centre, enabling would-be customers to experience quasi-ownership of an EV through attractive short, medium, and long-term "experience" arrangements which span from one week to one year.
6. Vehicles from the Demonstrator Fleet will be cycled into the Experience Fleet at a rate which steadily builds-up the latter to the required size over the first two years. Thereafter, older (or less popular) vehicles will be released from the Experience Fleet to maintain freshness without incurring continuous fleet growth.
7. At the end of the 'experience' period, positive customers will be referred to the relevant local vehicle distributorship to finalise a vehicle purchase arrangement. Similarly, the Centre will work with a Partner Leasing Company to offer attractive long-term leasing options.
8. Maintaining the goodwill of the motor vehicle manufacturers will be of paramount importance. Letters of support from a significant number of manufacturers that currently market EVs, or are bringing EVs to market in the near future, are included in this document.

# EV Tsar

Milton Keynes Council will appoint an EV Tsar – a full time expert who will promote the uptake of EVs in and around the city. The Tsar will drive the various initiatives on a day by day basis and monitor the growing month by month uptake of EVs. He or she will be available for consumers, businesses and the public sector to speak to and take advice from.

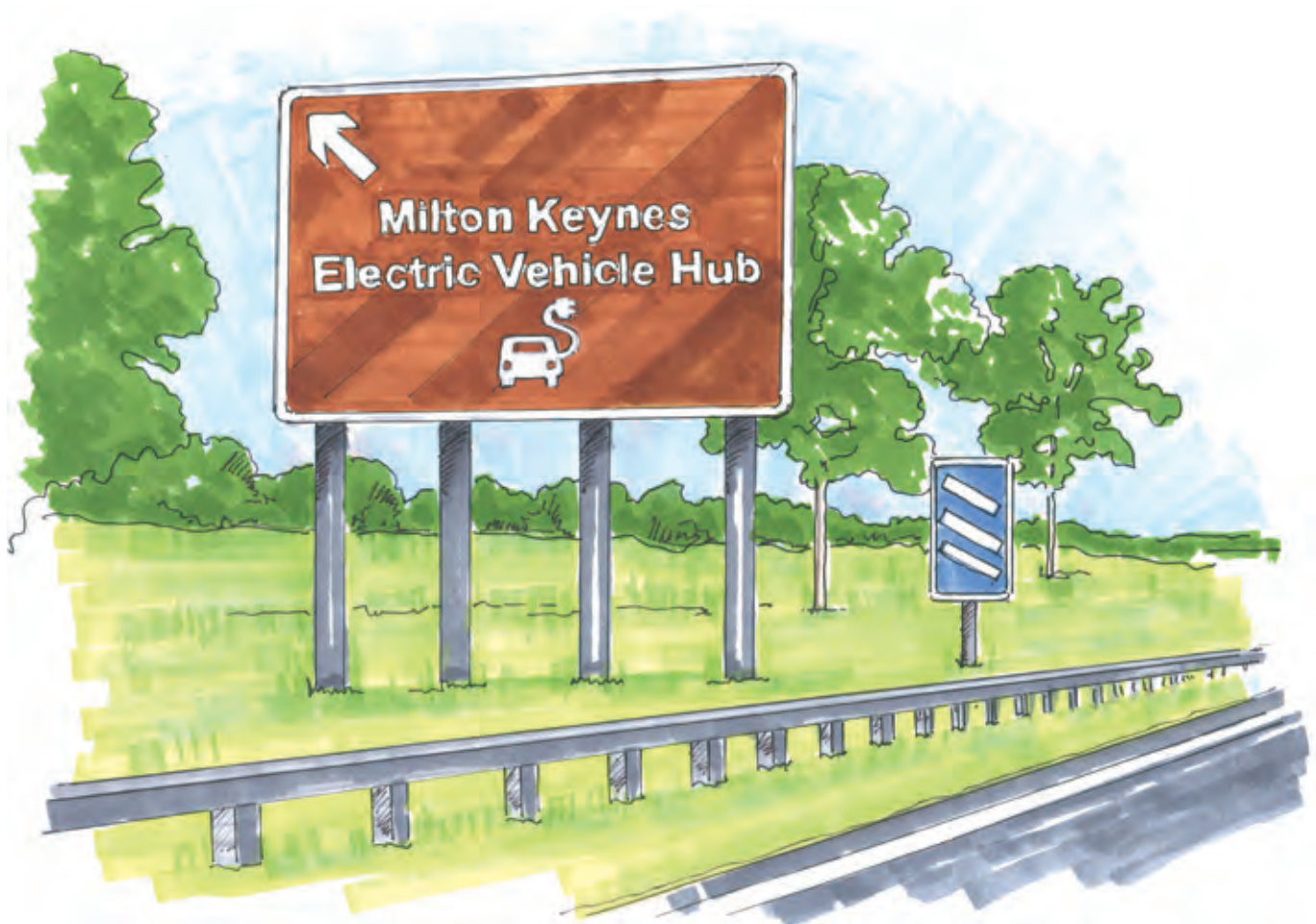
Appointment of the Tsar will be undertaken by the council through a formal procurement process. A number of discussions have taken place with some potential candidates in order to test the market and to ensure that suitable candidates with a proven track record would be interested in the role. These discussions have helped to shape the scope below, ensuring that it is both best practice and deliverable.

This appointment is an important one and the Tsar will be responsible for the day to day delivery of the whole programme. The Milton Keynes activities are comprehensive and far reaching and will see a step change in the uptake of ultra-low emission vehicles, create a showcase of how EVs can be encouraged, improve air quality and demonstrate new technologies. In addition the Tsar will also be responsible for the creation and promotion of Milton Keynes as a high profile exemplar city and will be the central figure responsible for demonstrating to the sponsoring council management and programme partners.

The Tsar will be responsible on a day to day basis for driving forward all aspects of the programme and will have ownership of the defined goals. The Tsar will:

- Establish monthly targets for EV sales growth in the city and agree these with the Council's Management Group.
- Have day to day personal contact with the car manufacturer franchised dealers in the area, to monitor car sales and to work with the dealer network to remove barriers from sales and raise awareness of the benefits of EVs amongst prospective buyers and leasers. The Tsar will visit each of the local dealers on a regular basis, ultimately the franchised dealers will be crucial to the growth of EVs in Milton Keynes and the Tsar will assist them in every way possible.
- Have overall management of the EV showroom. The Tsar will have a showroom manager reporting to him and that that person will spend all their time in the showroom. As detailed elsewhere, the showroom will comprise an impartial centre of information for potential car buyers to learn about and experience the benefits of EVs. The showroom will work very closely with the franchised dealers and after advising potential car buyers as to the range of models will liaise with the franchised dealer who will close the actual sale. The Tsar will be responsible for establishing new initiatives, events, and promotions and monitor the activities of the showroom. The Tsar will also be responsible for the relationship and interface between the showroom manager and the franchised dealers.
- Establish and manage the Milton Keynes Go Ultra Low City website which will be the focal point for information on EVs in the city. He will also manage a programme of social media channels including a Facebook page and Twitter initiatives.
- Work closely with media in the city including local radio stations, local television and press to ensure that EVs are featured regularly in the news. The Tsar will be the figurehead for any journalist who needs EV data and information and will provide regular interviews, working in conjunction with the scheme's PR agency. These activities will include road tests, details of new EV offers and general awareness of the achievement of milestones of the city's Go Ultra Low City scheme.
- Set up and manage a telephone and online advisory service, so anyone who has a query on the aspects of buying and operating an EV has a helpful customer services person available. This will be operated from the showroom.
- Manage new offers including trial periods for borrowing cars and new leasing deals.
- Support and interface with the EV car clubs in the city.
- Ensure that potential car buyers have advice on where to charge their car in particular at any homes that do not have off-street parking.
- Interface with local businesses including frequent visits to support their awareness and uptake of EVs.
- Manage the city's workplace scheme for charging points.
- Establish a programme of attending and speaking at conferences on a national and international basis to promote the UK and Milton Keynes in particular as an exemplar for EV uptake and new technologies.
- Establish a fleet advisory service for any local company considering adopting EVs as part of their fleets.
- Manage all other aspects of the City's Go Ultra Low Programme including liaising with monitoring partners (Open University and Cranfield University), the wireless charging programmes, air quality improvements, and availability of low cost electricity tariffs.
- Meet on a regular basis with senior Milton Keynes Council figures to ensure full communication and support at all levels of Council activities.

# Electric Vehicle Hub



The location of Milton Keynes, adjacent to the M1 motorway, provides an excellent opportunity to provide an electric vehicle facility which will be equally attractive to drivers who are making local journeys and those who are travelling on the motorway network. The Milton Keynes Go Ultra Low City Scheme intends to create an electric vehicle hub at the pre-existing Coachway park and ride centre and in Central Milton Keynes.

The Electric Vehicle Hub will provide an electric 'filling station' to complement the existing charging facilities that are already provided at the Coachway site. It is intended that the site will be sign-posted from the M1 motorway giving a highly visible entrance to the city that will promote ultra-low carbon vehicle usage to drivers using the motorway and to those entering the city.

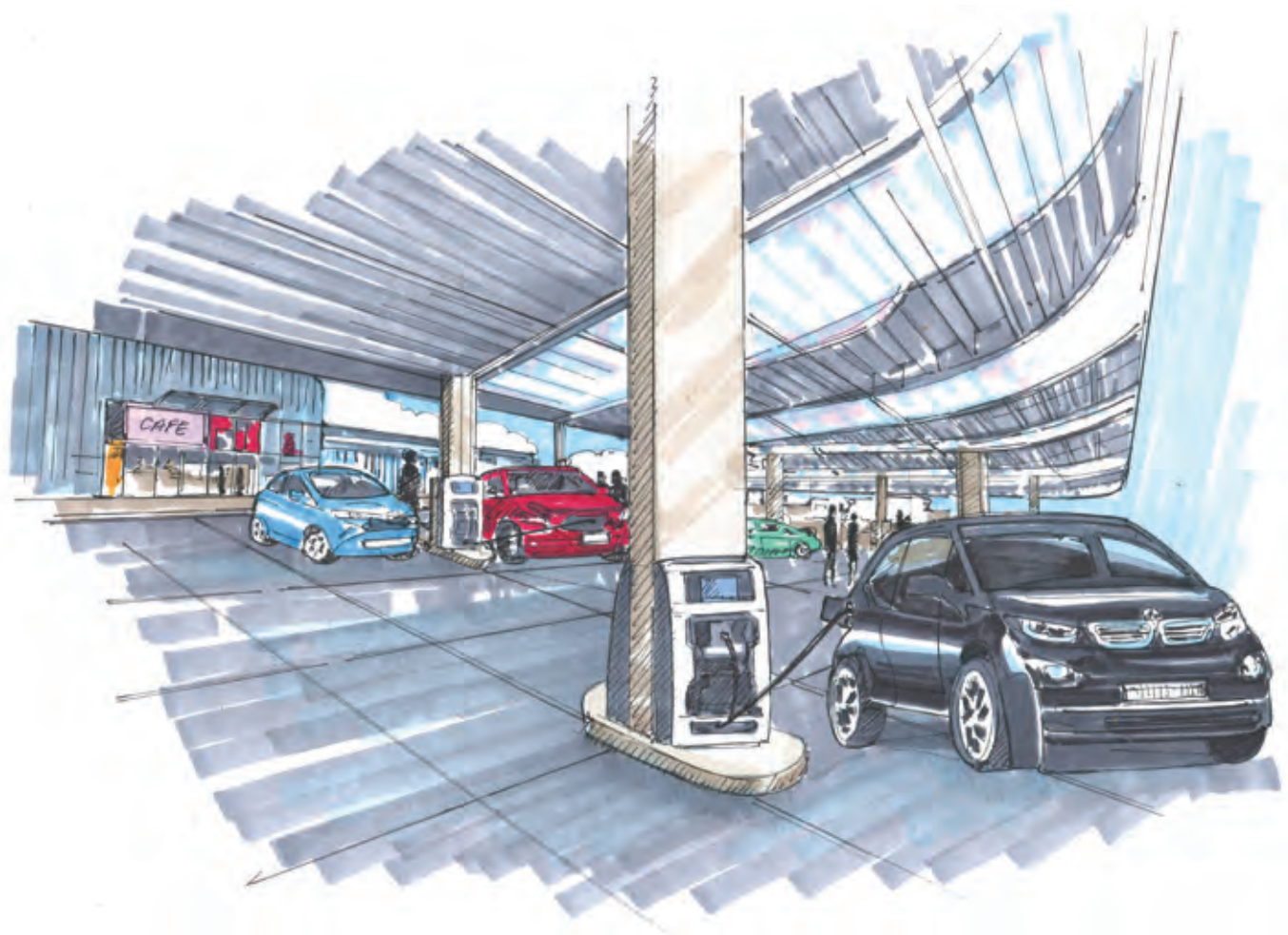
The Electric Vehicle Hub will benefit from the existing café and toilet facilities at the Coachway site. It will be a very visible advertisement for ultra-low carbon motoring to the thousands of express coach passengers who use or pass through the country's busiest coach station. The Milton Keynes Go Ultra Low City Scheme will provide an information

station at the electric vehicle hub, with direct links to the scheme's Experience Centre and to the city's car clubs. The Electric Vehicle Hub will enable visitors to leave their internal combustion engine vehicles at the park and ride and to explore the city of Milton Keynes using an EV from one of the partner car clubs.

The Electric Vehicle Hubs will contribute to the uptake of electric vehicles in the borough in two main ways. The Hubs will provide very visible and accessible public charging facilities that will show prospective EV owners that energy sources are close at hand. The hubs will also add to the places from which prospective owners will be able to obtain data about and experience first-hand the utility of ultra-low carbon vehicles. The illustration shows the proposed outline of the Coachway Electric Vehicle Hub.

In addition to the Coachway Electric Vehicle Hub, the Milton Keynes Go Ultra Low City Scheme will establish a city centre Hub by extending the existing rapid charging facility at the end of the centre:MK shopping centre. The location of these sites are shown on the accompanying map.

# Electric Vehicle Hub



# Electricity Tariffs for EVs in Milton Keynes

It is recognised that low electricity tariffs both at home and at public/destination charging points are likely to encourage people to buy EVs. A further incentive of operation of EVs for some users is the ability to use renewable electricity.

Milton Keynes is therefore working with Good Energy Group Plc (see: <http://www.goodenergy.co.uk/>) to provide time of use tariffs at low cost to charging points in Milton Keynes including domestic charging points.

The public charging points in Milton Keynes are operated by Chargemaster plc and these are either free to use or at a maximum cost of 9 pence per kWh (including rapids) which is significantly below the average cost of electricity across the country. For example the cost of charging a Nissan Leaf or Renault Zoe on one of the city's 56 rapid chargers to 80% of full capacity will cost around £2.00.

These low electricity costs will be widely communicated to existing and potential electric car buyers through signage, PR, the EV Experience Centre, car dealers and by Milton Keynes Council thereby further encouraging the uptake of EVs

***"In particular we acknowledge the pioneering approach already adopted by Milton Keynes in delivering measures and actions to promote sales and use of ULEVs. The proposed measures outlined look very exciting and I would like to confirm that BMW UK will proactively support the increasing uptake of EVs through initiatives you have outlined."***

Carl Sanderson General Manager,  
BMW i and Mobility Services

# Scrappage scheme

Milton Keynes plans to operate a scrappage scheme to remove some of the worst polluting cars from the road and replace them with zero emission vehicles.

Up to £5,000 will be offered to anyone in the designated Milton Keynes city area that trades in a car older than ten years in exchange for a zero emission vehicle. The scheme will be launched with a grant of £5,000 in early 2016 and it is expected that 60 cars will be supplied under this scheme during 2016. A revised rate will be set for 2017 depending on take up. It is expected that 120 scrappage grants will be provided in each of 2017, 2018 and 2019. The scheme will be established to meet state aid regulations; the vehicles taken in will be required to have a MOT certificate and to have been owned by the buyer of the EV for a minimum of 12 months prior to the trade in.

The scheme will be administered by the Milton Keynes EV Tsar and operated through the EV Experience Centre in conjunction with electric vehicle franchised car outlets in the Milton Keynes area.

***“On behalf of the Open University I am pleased to support the Milton Keynes bid for the Go Ultra Low competition. ... the Open University will produce regular independent statements at 6 monthly intervals summarising progress against the key delivery goals (Namely the uptake of Ultra Low Emission Vehicles, patterns of changing behaviour around the city, estimated CO<sub>2</sub> savings and the defence of air quality standards) – we look forward to supporting Milton Keynes on this most exciting project.”***

Prof. Gerd Kortuem, The Open University

# EV Car Clubs

## Introduction

Car clubs that operate a fleet of electric vehicles play an important role in the widespread uptake of EVs and thereby contribute to the improvement in air quality and reduction of harmful emissions. Electric car clubs also enable potential EV car buyers to try the cars on an extended basis before buying and also raise the awareness and promotion of electric vehicles through the visibility of such vehicles on the street and parked at prominent locations.

Milton Keynes has already supported the introduction of such clubs and an existing electric car club (e-car club) is already operating in the city and currently has a fleet of Renault electric cars and vans.

## Expansion and implementation

The council will expand and encourage the introduction of electric car clubs by:

- The expansion of the existing dedicated electric car dedicated free to use bays to a minimum of 30 within 6 months of the commencement of the Go Ultra Low City Scheme programme. This number will be increased as demand increases.
- Every bay to have a charger dedicated to it – supplied by Milton Keynes Council.
- Access by car club fleets to the 56 rapid chargers within the city.
- The provision of a local and national charging access card for each car club vehicle at a preferential rate.
- The encouragement of the introduction of new car clubs with EVs in the MK area through active communication to such businesses.
- The access to council and local business fleet and utilities managers encouraging such managers to replace existing pool cars with the use of EV car clubs.
- The council will negotiate favourable purchase terms with EV manufacturers that will enable electric vehicle car clubs to buy cars at favourable rates.



# Destination Chargers

## Introduction and the need

The provision of 'destination charging' at locations where electric vehicle drivers spend some time (anything from one hour to overnight) is a major initiative to support the growth of EV sales. Charging an electric vehicle is different from going to a petrol station for a combustion engine car. It takes longer and it is best done when the motorist is already at a location and the vehicle is idle. It is therefore highly useful to have many (highly visible) charging points in locations such as station car parks, hotels, supermarkets, sports facilities, restaurants, etc.

## The proposition

A series of charge points will be provided free of charge to facilities that have been identified as appropriate destinations under this initiative. It is proposed that 50% of the capital cost of the destination chargers will be provided by under the Milton Keynes Go Ultra Low City Scheme and 50% from the schemes' private sector partner, Chargemaster. Generally the use of the charging points will be free to the electric vehicle motorist providing a very attractive facility to the prospective user. If the motorist can visit his local golf course, restaurant or railway station when commuting say to London on the train it removes one further barrier of adoption of an electric vehicle.

### Potential sites that have been identified are shown below:

#### Railways stations

- Milton Keynes Central - 6 charge points
- Bletchley - 4 charge points

#### Supermarkets

- Waitrose, Oak Grove
- Tesco, Kingston Extra
- Co-op, Netherfield
- Lidl, Milton Keynes
- Morrisons, Elder Gate
- Sainsbury's, Engaine Drive
- Tesco Express, Heelands
- Co-op, Monkston Park

#### Gyms and Health Clubs

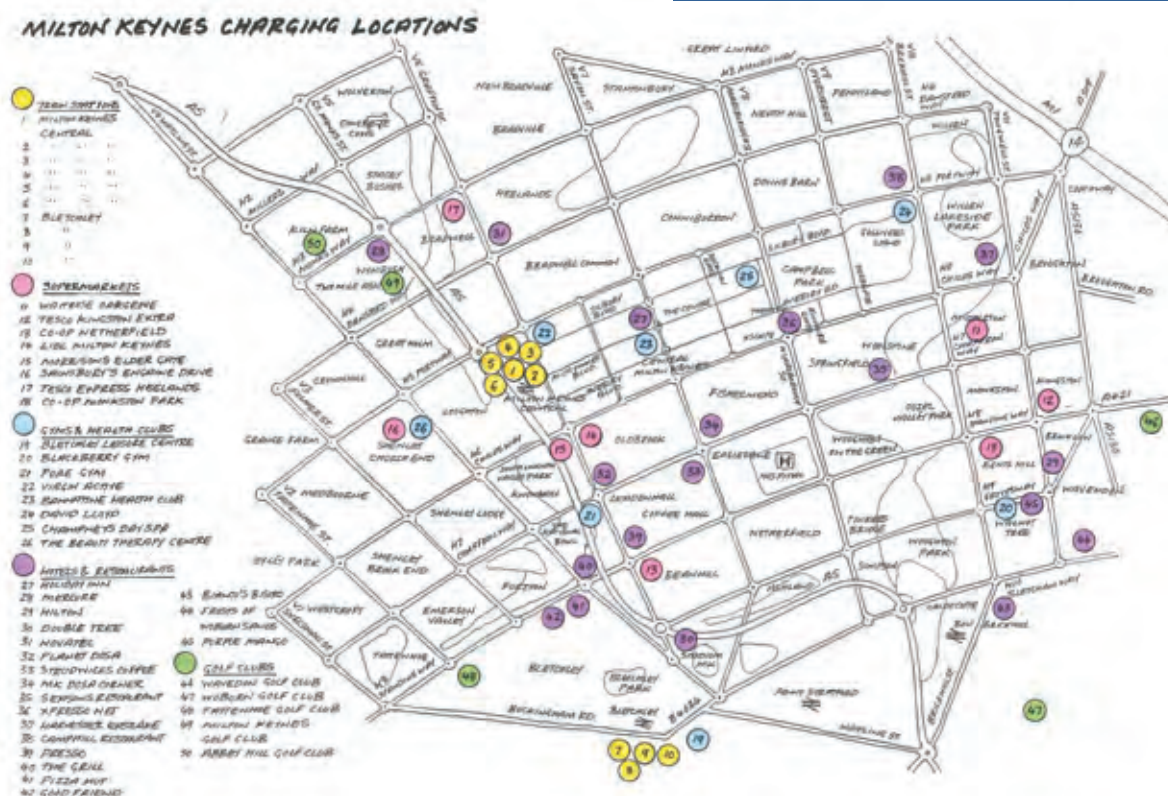
- Bletchley Leisure Centre
- Blackberry Gym
- Pure Gym
- Virgin Active
- Bannatyne Health Club
- David Lloyd Leisure
- Champneys Day Spa
- The Beauty Therapy Centre

#### Hotels and Restaurants

- Holiday Inn Milton Keynes
- Mercure, Milton Keynes
- Hilton, Milton Keynes
- White Hart, Newport Pagnell
- French Partidge
- Double Tree, Milton Keynes
- The Old Stables, Milton Keynes
- Chichley Hall, Newport Pagnell
- Whittlebury Hall Hotel
- Novatel, Milton Keynes
- The Woburn Hotel, Woburn
- Best Western, Moore Place Hotel.
- Ramada Encore Hotel
- Campanile Milton Keynes
- Presso
- The Grill
- Pizza Hut
- Good Friend
- Bianco's Bistro
- Frosts of Woburn Sands
- Purple Mango

#### Golf Clubs

- Wavendon Golf club
- Woburn Golf Club
- Tattenhoe Golf Club
- Milton Keynes Golf Club
- Abbey Hill Golf Club



# Overnight Charging – The Milton Keynes Promise



## The problem:

It is recognised that lack of home charging for residents without off-street parking is a significant barrier of EV adoption. Innovation will be used to provide charging facilities at an economic cost using latest technologies such as the use of street lights and master and slave technologies to provide night time parking for any EV buyer that does not have off-street parking. In addition an EV buyer's guarantee will be introduced that ensures that no local sales are lost due to lack of overnight charging.

Regular charging of EVs is best carried out at night at the user's home when the owner is in bed asleep. An overnight charge is ideal in most respects. The standard time for charging (typically 4 to 8 hours) is perfect for charging at 3.3kW or 7kW which is an economical rate to charge an electric vehicle; this is also ideal for electricity distribution and loading. Overnight charging can also take advantage of preferential night time electricity tariffs and the increasing surplus renewable electricity at off peak times.

For the last three years OLEV have operated a well-established and successful subsidy scheme for the provision of wallboxes at home. This has been very popular and significantly helped the growth of EVs over recent times. Milton Keynes will advise EV buyers on the availability of this scheme (and any future such schemes) and promote the fitment of a wall box

whenever possible. However certain residential dwellings, especially apartment blocks and older terraced housing do not always have dedicated off-street parking for occupants and this is a barrier for an EV purchase for someone living in these dwellings.

## The Milton Keynes solution:

The provision of a 200 night time charging points (many on-street) at an early stage of the scheme for home owners that do not have off-street parking. These will be situated on-street and other convenient locations for the overnight use by residents.

Milton Keynes intends to eliminate the potential barrier of availability of home charging for buying an EV by:

- Implementing the "Milton Keynes Promise". This is an absolute promise to any EV buyer that the council will ensure that there is an overnight charging facility close to his/her dwelling within the city, allowing the buyer to charge overnight. The promise would include a commitment to provide an overnight charging facility as close as possible to the car buyers home, in many cases right outside the home and in any event a guaranteed worst case within a three minute walk. This concept was successfully trialled in Amsterdam. Milton Keynes will undertake to provide a service level agreement which will have a goal that by the time a car buyer has the car delivered their overnight charging will be available.

# Overnight Charging – The Milton Keynes Promise

- Providing an advisory service for the fitment of wallboxes at home particularly in problem areas where cable runs may be long, in certain circumstances the scheme will financially assist the fitment of wallboxes in difficult situations.
- Identifying key short term “problem” areas that do not have adequate off-street parking within the city and installing an initial 200 residents’ charging points on-streets and car parks that are close to the dwellings that do not have off-street parking.
- Developing, showcasing and then introducing technologies that assist in providing economic on-street charging in residents park areas – these include the use of:
  - a) new multi-capability street furniture that comprise street lighting and electric vehicle charging, and
  - b) the implementation of master and slave technologies where a whole street can have charging capability with low cost “mini posts” being installed near the curb with a number of master control units positioned every hundred meters or so to facilitate control of the slaves. This technology is important in the future when a high proportion of cars in many streets will require charging. See Innovation Section for further details on both these solutions.

Milton Keynes will showcase both these technologies within the first 12 months of the Go Ultra Low City Scheme programme.

***“Initiatives including EV only parking bays, EV access to bus lanes and an increase in charging points will make adoption of EVs easier for customers and residents in Milton Keynes. The Council has already implemented a comprehensive charging network including rapid chargers and has transitioned the Plugged in Places network to external operation with a high serviceability record which demonstrates commitment to these new technologies ... Nissan will fully support these Milton Keynes initiatives.”***

Karl Anders, National EV Manager - Fleet, Nissan

# Bus Lanes and Car Park Spaces



It is recognised that as a local authority Milton Keynes is well placed to implement schemes which central government are unable to provide. The Milton Keynes Go Ultra Low City Scheme will introduce a series of measures throughout the Borough of Milton Keynes which are directed at providing direct benefits to owners of EVs in the borough. The planned measures will be implemented from the start of the programme via a permit scheme, which will be operated in conjunction with similar schemes which offer other benefits to other classes of user. The permit system will enable the Milton Keynes Go Ultra Low City Scheme to measure the uptake of the scheme which it is believed will provide a direct analogue to the numbers of individual EVs being used in the borough.

## EV Parking:

There are over 20,000 car park spaces throughout the borough, most of which are concentrated in the business and retail areas of the city. The Milton Keynes Go Ultra Low City Scheme will introduce a scheme that will enable EVs to park free of charge in any of the council's 20,000 parking spaces throughout the borough. The provision of free parking will continue to include parking bays which are equipped with charging facilities, where users will continue to pay a fee for the use of the chargers. Parking in these bays will continue to be restricted to vehicles which are charging to ensure that the bays are not 'blocked' by vehicles which are parked – but not charging thereby preventing an electric vehicle user to charge their vehicle.

Milton Keynes intends to install monitoring equipment at all parking bays which are equipped with vehicle charging facilities that will enable users to locate parking spaces which are not being used. This proposal is described in more detail in the Innovation Section of this document.



## EV Carriageway Priority:

To further improve the EV user experience when driving within the borough, the Milton Keynes Go Ultra Low City Scheme will allow EVs to drive within bus lanes throughout the borough. Signage will be provided to indicate that low-emission vehicles are permitted in the bus lanes. It is envisaged that as the city progresses with its aspirations to electrify all bus services, following the successful trial introduction of a wirelessly charged battery bus service on Route Seven, the bus lanes will be converted to low emission vehicle lanes. It is believed that this will further demonstrate the city's commitment to low carbon living.

In addition to the carriageway priority, EVs which are registered with the Milton Keynes Go Ultra Low Scheme will benefit from the same priority at traffic signal controlled junctions which is currently enjoyed by buses in the borough.

***“The plans outlined would put Milton Keynes in prime position to build on the excellent foundations and experience gained by the city in the “Plugged in Places” Scheme. Beyond driving ULEV uptake, the measures proposed by Milton Keynes will also help produce best practice in the UK. “Non-financial” incentives, such as allowing ULEVs to drive in bus lanes will be really helpful to give learnings on how best to influence driver behaviour and increase ULEV uptake outside the current policies in place. ... You can count on our full support.”***

Ben Fletcher, Product Manager, Renault ZE

# Planning and Commercial Considerations

Local planning regulations and the commercial contracts which the council procures provide a means by which the council can signal its intent to develop Milton Keynes as a Go Ultra Low City. Milton Keynes' proposals under the scheme include plans to leverage planning consents and commercial contracts to encourage the provision of supporting infrastructure for ultra-low carbon vehicles and the uptake of EVs.

## Planning

As part of the Milton Keynes Go Ultra Low City Scheme the council will review local planning policies to maximise the level of encouragement given for the provision of measures which will support the use of EVs in the borough. The review will include an examination of planning obligations under Section 106 of the Town and Country Planning Act to determine what level of support for EVs can be mandated through the local planning process.

Milton Keynes is currently preparing Plan:MK, the new local plan for the borough which will decide how much new development is needed and will additionally include detailed policies that will be used when making decisions on planning applications. Preparation of Plan:MK will be supported by a Sustainability Appraisal which will be drafted to support and encourage the adoption of EVs in the borough.

These new policies are in addition to existing policy interventions that are underway. In particular, the Local Transport Plan objective to reduce transport based carbon emissions to help tackle climate change include ultra-low carbon taxis and private hire cars; smart grid integration; expanded electric vehicle infrastructure; and the promotion of electric and other alternative fuels.

The council is also consulting on new parking standards that include a requirement for the provision of parking spaces and charging points for electric vehicles in all new developments that generate the need for more than 21 parking spaces. Supporting the uptake of alternative fuel vehicles is a key policy aim of the council and consistent with its participation in flagship schemes such as the Government's 'Plugged in Places' initiative. In order to ensure that all new developments are equipped with the infrastructure required by the growing number of electric vehicles and the council's aspirations for future EV ownership, all developments will be expected to provide charging points. Currently the proposals are for 5% of all parking spaces to be EV enabled, however the council is seeking to increase this requirement through the consultation.

## Commercial leverage

The council will actively seek to use EVs where the duty cycle of council owned and operated vehicles can be provided by an ultra-low emission fleet. As a major employer in the borough, the council will additionally encourage its employees to adopt low-emission transport by actively promoting the Milton Keynes Go Ultra Low City Scheme throughout council buildings and in staff communications.

The council will encourage commerce in the borough to utilise low carbon transport by ensuring that all tenders for services which are to be provided to the council include a strong statement around the desire to promote the Milton Keynes Go Ultra Low Scheme. Where appropriate the adoption of EVs will form part of the formal procurement with the highest scores being awarded for EV usage.

Through the Milton Keynes Go Ultra Low City Scheme and existing local business networks, the council will encourage all local businesses to adopt similar staff awareness initiatives and similar procurement principles. The council's own approach setting a key example in this area.

# PR Agency and linking with Local Media

Milton Keynes has established a draft programme of communications activities that will be implemented immediately upon award of a successful Go Ultra Low City bid. The objective of the PR activity, that will continue over the life of the programme, is to support the implementation of the scheme by engaging with local MK media and broader national and specialist media where relevant, in order to raise public awareness and interest and ultimately increase EV sales and to promote the city as an exemplar.

Immediately upon launch of programme the scheme will set up a consumer and local business facing app and responsive website which will offer an impartial guide for people, showing them choices, considerations and decision-making process for buying/considering an EV. This information will include how much money they could save, helping in EV education and making the possibility more accessible for consumers. The website will be accessible at the Experience Centre and at the Electric Vehicle Hubs and will link to relevant government websites and the [goultralow.com](http://goultralow.com) website.

The PR activities will target local print media including Milton Keynes Citizen, MK News, MK Pulse magazine, local broadcast media including BBC Three Counties Radio and Heart Radio as well as EV-specific outlets, local authority publications, automotive publications and other vertical media where prudent. Social media platforms are also likely to play an important part in the overall engagement strategy.

A PR agency will be commissioned to support the programme on a day-to-day basis with press release writing, media visits, award submissions, interview management, feature opportunities, comments on market trends, speaker opportunities, media relationship management and support for client partners, for example, local businesses interested in EVs.

As well as this general PR function the PR agency will create, develop and execute pro-active creative media ideas. Some initial examples for the Milton Keynes Go Ultra Low city Scheme could include:

## Concrete cow stunt

A good photo stunt could be a concrete cow 'plugged into' charging point, linking a key identifier of EVs to MK and showing how EVs help lower greenhouse gases (as emitted by cows). Taking it one step further, the cows could disappear overnight and start a social media campaign: 'Where are the MK cows'? They would then reappear 'electrified', e.g. lit up in blue. Great social potential.

## 'Charge' poster

Recreate iconic Barack Obama 'Change' poster with 'Charge' poster using image of charging point and place it strategically across city, in media, online, etc.

## Conference, exhibition and awards

Conference, exhibition/show and supporting awards ceremony encompassing manufacturers, suppliers, councils and destinations on all things electric, which would receive broad media attraction across press, TV and tech. It could showcase exciting projects such as Electric Bluebird (which attempted electric land speed record). Positive for local economy (hotels etc.) and establish MK and Tsar as centre of excellence for electric vehicles and green living in the UK. Potential for annual event.

## Gumball Rally-type event

An EV distance challenge – how far can you get from MK on a single charge, or how many laps around MK. Build a social campaign around this, following it live, using personalities/celebrities as the drivers, for example MK Dons team. Easily combined with exhibition/awards. Could incorporate Electric Avenue, with pop-up food, music, environmental stalls creating a town festival, possibly as part of showroom launch.

# PR Agency and linking with Local Media

## Interactive video

A split-screen/interactive video with petrol versus electric, showing a typical journey side by side, showcasing all the benefits of EVs, for example easy overnight charge (vs. queues at petrol stations with restless kids), easy free parking (vs. cost of parking and finding a space). Potential interactive video choosing different sorts of journeys – commute, school run, trip to the shops and/or option to switch between petrol/electric journey (cf Honda Type R video which allowed you to press R key on keyboard to switch between sensible businessman driving the car with his kids and same man driving recklessly on a track.).

## Fleet/business case study videos

Two-minute case study videos showing local businesses and how EVs have helped their business save money, raise profile etc., perfect for local business press, as well as broader b2b media.

## Charity pool car

Donating an EV pool car which can be used by local people for worthy causes. A great PR story for local media in giving back to the community, opportunity to create video on social media telling people's stories. Participants could be nominated to receive rides via social media, while a chauffeur could write a blog about his experiences.

## Celebrity taxi driver stunt

Source the mayor/celebrity/influencer to surprise people who have ordered a taxi in MK. Talk about EVs during the ride and film the results (people's surprise at driver, etc. and pushing EV message).

## Education initiative

Replicating school's Science Weeks or similar, creating EV week/day, offering competition to design EV car, or build moving car from sustainable material judged by Tsar/local celebrity. It could also offer opportunity to see EVs in action and understand how they work. A big focus on learning and educating the next generation of buyers. Could involve different levels through primary, secondary and university level.

# Becoming an Exemplar

As we have already stated, over the past 40 years, Milton Keynes has become a world-wide exemplar of a planned city. Visitors come from all over the world to see the city and learn from the original design intent. The council is determined that this reputation will be maintained and enhanced, and that Milton Keynes will become as well known internationally for its leadership in the field of ultra-low carbon vehicles and environmentally friendly transport solutions, as it is in the field of urban design and town planning.

The proposed Go Ultra Low City Scheme provides a further major strand in the overall holistic low carbon living aspirations of the Milton Keynes and will link seamlessly to other plans for city-wide electrification of public transport and taxis. Dissemination around the Go Ultra Low City Scheme will therefore benefit from ongoing activities such as the city's involvement in the UK Autodrive autonomous and connected vehicle programme which already has a strong programme of national and international dissemination activities.

Most of the activities aimed at directly at increasing the EV uptake in Milton Keynes will be directly transferable to other areas, albeit that Milton Keynes has the advantages of a population who are used to and welcoming of innovative schemes together with an established estate of EV charging posts. Similarly the outputs from the innovative elements of the scheme will be directly transferable to other areas with similar needs.

In its work to date with EVs and EV infrastructure Milton Keynes has demonstrated the long-term commercial sustainability of its innovations, with wirelessly charged electric buses and its estate of charge posts successfully migrated from initial innovation to commercial operation.

Milton Keynes plans to co-host an international conference around the theme of innovative urban transport, working with the like-minded cities of Singapore and Ann Arbor (Michigan). The first of a series of annual international conferences will take place in autumn 2015 in Singapore, where Milton Keynes will be able to showcase its plans for the



Go Ultra Low City Scheme and learn from others with similar aspirations. This event will rotate annually between the three co-host cities, with plans in place for Milton Keynes to host the second annual conference in 2016.

Similarly in March 2016, Milton Keynes will begin to host Landor's annual national Smarter Travel exhibition. The exhibition is accompanied by the Sustainable Transport conference which will provide an excellent opportunity for dissemination and demonstration of the Go Ultra Low City Scheme to a wide mostly national audience.

Milton Keynes regularly hosts national and international delegations who visit the city to learn from the council's innovative approach to planning and transport. The city is also regularly invited to take part in formal visits by the UK to other countries. Most recently the council's Director of Strategy accompanied George Osborne on his 5-day visit to China (in late September 2015). The Chinese authorities specifically requested that Milton Keynes was represented on the visit following an earlier visit to the city by a delegation from China.

# Becoming an Exemplar

Milton Keynes wants to ensure that the lessons learnt from its work in the innovative transport area are shared as widely as possible. As one of the three initial Plugged-in Places (PiP) chosen to pioneer public EV charge post installations the city worked with OLEV and the other two initial PiPs to advise areas of the country who were bidding in round two of PiP. The city continued to contribute to the dissemination of learnings from the PiP programmes and to extend the benefits of the Milton Keynes scheme to neighbouring areas such as Buckinghamshire, Oxfordshire and Aylesbury Vale.

The Milton Keynes Crosslink programme of rapid chargers provides another example of the city using its early experiences in encouraging the uptake of low carbon vehicles, by providing a network of rapid chargers which link the major university cities of Oxford and Cambridge.

A final example of the reach of the influence of Milton Keynes can be found in the letter of support from Barbados based Megapower Limited. Megapower is a Barbados company that has successfully established the sale of EVs and the deployment of EV charging infrastructure in the Caribbean area. In addition to selling EVs and installing and operating their own charging infrastructure in Barbados, Megapower sells vehicles and charging points in Dominica and Grenada and are actively expanding their activities on other Caribbean islands. To date the company has installed and commissioned over 80 EV charging points (both residential and commercial) and there are now over 100 electric vehicles on the road in Barbados, which are maintained by Megapower.

***“As business visitors to the UK in the field of electric vehicles we have been enormously impressed by the innovation, achievements, substantial electric vehicle infrastructure and track record of project delivery of the City. Over the months and years to follow we look forward to learning of your success in delivering products, facilities and services that promote and enhance the market for low emission vehicles. In gaining the benefit of your experience we will replicate, modified where necessary to suit local conditions, your initiatives in this regard.”***

Joanna Edghill, Director – Megapower Limited

# Air Quality – Securing the Future

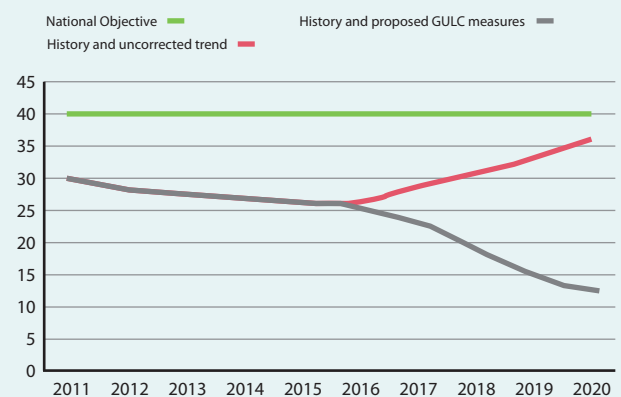
Milton Keynes is a city with a great environmental advantage; it was developed in a rural green field area from an urban plan which incorporated a low density, low-rise, spatial layout supplemented by large green open spaces and a vast amount of tree-planting. The result today is a city of a quarter of a million people with a very green urban environment and excellent record of air quality. Milton Keynes plans to maintain existing high standards that are entirely in keeping with the original urban design aspirations. This is critically important to the council. Three key initiatives that are embodied within this bid will enable further improvements in the already excellent standards of air quality enjoyed by the populous of Milton Keynes:

- **Scrappage Scheme** - The Milton Keynes Scrappage Scheme will result in the displacement of vehicles, likely by reason of age to be major contributors to air pollution, by clean ultra-low emission vehicles.
- **Private Hire/Taxi Initiative** - The aim to replace at least 50% of Private Hire Cars in the city with EVs will remove polluting vehicles, the vast majority of which are diesel engined, from the city's roads.
- **Bus Initiatives** - The success of the trial introducing 100% utilisation of electric buses on Route 7 from Wolverton to Bletchley has led to Milton Keynes Council implementing objectives to "electrify" all non-tendered routes within the city. During the term of the Go Ultra Low City Scheme the goal is to replace some 77 diesel buses with pure electric buses bringing about the consequential improvements in air quality.

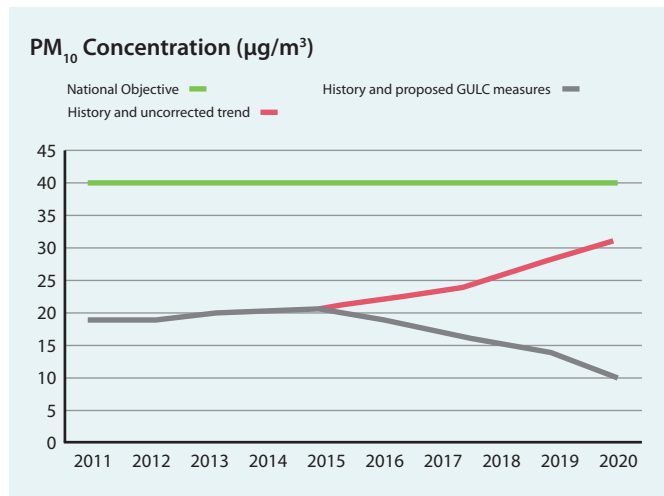
These measures will have a positive impact on the air quality in Milton Keynes and result in improvements beyond maintaining existing good standards. The charts shown below illustrate the potential reduction of Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>10</sub>) pollution:



**NO<sub>2</sub> Concentration (µg/m<sup>3</sup>)**



# Air Quality – Securing the Future



Air Quality in Milton Keynes is carefully monitored and an annual report is prepared and submitted in fulfilment of Part IV of the Environment Act 1995, Local Air Quality Management. The current report, 2014 Air Quality Progress Report for Milton Keynes Council can be seen at:

<http://www.milton-keynes.gov.uk/assets/attach/20576/Milton%20Keynes%20Council%20Progress%20Report%202014.pdf>

The city must confront some significant challenges over the coming decades. Within the transport context, these come primarily from two major sources:

1. Over the past 25 years, increasing concerns over global warming and environmental degradation have led to a disenchantment with the car as a universal means of transport. For a city in which the entire urban infrastructure is postulated around use of the car, this presents a major concern.
2. The success of the city has led to plans for expansion which go well beyond the limits of the vision created by the original urban planners. This will mean that even the ample provision of road space provided in the original spatial plan will become inadequate, and congestion (and the associated pollution) will inevitably rise.

Some years ago, the council became alert to these problems and began to plan for the future accordingly. A central proposition which emerged at that time was that a high degree of continuing car usage is inevitable given the city's existing infrastructure, and a concerted effort must therefore be made to ensure that the vehicles on the city's roads will be as clean as possible. Over the past 40 years, Milton Keynes has become a world-wide exemplar of a planned city. Visitors come from all over the world to see the city and learn from the original design intent. The council is determined that this reputation will be maintained and enhanced, and that Milton Keynes will become as well known internationally for

its leadership in the field of ultra-low carbon vehicles and environmentally friendly transport solutions, as it is in the field of urban design and town planning.

In recent years, Milton Keynes has made a very significant effort to encourage the local take-up of EV's. From an early success in the OLEV-sponsored Plugged-in-Places scheme, the city has gone on to introduce over 200 on-street charging points for users of EV's, along with the nation's largest and most dense fleet of rapid-chargers (there are more than 50 rapid chargers now installed and working within the city limits). The city has also introduced the UK's first wirelessly-charged electric bus service, and has an aggressive plan for introducing electric taxis (there are more than 1,200 private-hire vehicles operating in Milton Keynes).

From this track record, it can be seen that defending the current high standard of environmental quality is very high on the council's agenda, and the active encouragement of ultra-low emission vehicles will continue to be central to that plan. The Go Ultra Low City project represents an ideal opportunity for the city to accelerate its efforts in this direction.

Milton Keynes is expected to grow rapidly over the next twenty years. It is essential that as the borough grows, so does the range of transport choices available to residents and visitors alike. Making better use of existing infrastructure, improving highways and the Redway cycle path connectivity and providing an attractive public transport network are key. This will allow Milton Keynes to continue to prosper and provide an excellent quality of life for all of its residents and a positive experience for visitors.

## Congestion and Pollution

Exhaust emissions and air quality are directly related to traffic levels and, particularly, to congestion and the stop-start nature of traffic flows when volumes come close to road capacity levels. The projections for traffic increase over the next two decades are a very important proxy for the likely degradation of air quality in the absence of any special measures being taken. The Transport Department within the council has therefore invested a great deal of effort in measuring current traffic flows and developing models which can predict future traffic flows as the population expands.

Despite the efforts to encourage alternative forms of transport (walking, cycling, public transport, etc.), it is expected that cars will continue to be the primary provider of mobility in Milton Keynes. Car travel in the city is at present very efficient due to the grid road network and the exceptional level of available parking, but this is potentially unsustainable.

The transport network must accommodate the changing needs of all its residents, as well as changes in need resulting from all other socio-demographic trends. Milton Keynes is a

# Air Quality – Securing the Future

self-contained city, with 78% of those who live in the borough working in the borough. 77% of these residents use a car to get to work on a daily basis despite there being 5,000 jobs which are readily accessible by public transport, cycling or walking. Using the traffic models referred to above and assuming a continuation of the current rates of population growth, there will be a 57% increase in journeys by car at peak travel times within two decades. However, the city will only be able to provide an extra 25% capacity at peak times through junction improvements and other measures. If no action is taken, the resulting gridlock will cause a runaway increase in air quality problems at traffic pinch-points in the city.

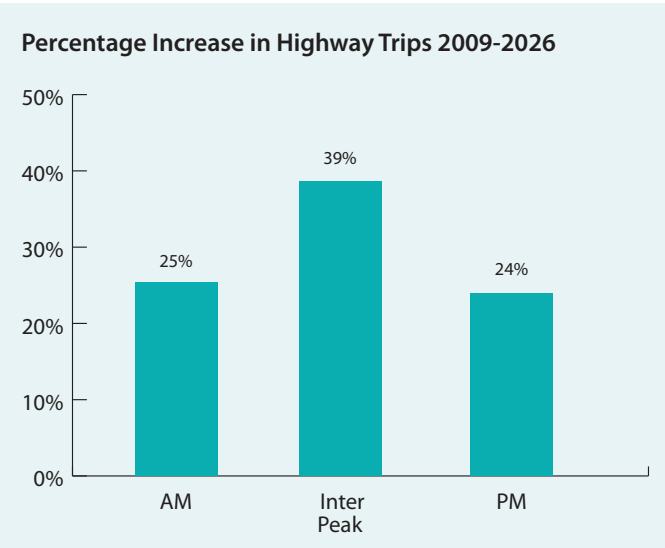
**The link between traffic volumes, road congestion and air quality is well understood. In accelerating the uptake of ultra-low carbon emission vehicles, the Milton Keynes Go Ultra Low City Scheme will ensure that the levels of pollution will remain low in the city of the car.**

The forecast growth in travel demand from 2009 to 2026 is based on the plans for growth for Milton Keynes and the surrounding area. In considering the forecast for growth there are considered to be two main sources of travel demand:

**Regional Demand** – trips external to the Milton Keynes area providing increased growth as Milton Keynes consolidates its position as a significant regional hub.

**Local Demand** – trips to and from the Milton Keynes urban area, which are determined by the local planning data. The local demand model covers the main Milton Keynes Urban area including Newport Pagnell, Bletchley and proposed major development sites.

The impact of this combined local and regional growth is shown in the graph.



The impact on network performance between 2009 and 2026 is summarized in Table below:

Core Strategy Assumptions			
	AM Peak	Inter Peak	PM Peak
Total Distance Travelled	+31%	+49%	+27%
Total Travel Time	+54%	+72%	+48%
Average Network Speed	-15%	-13%	-14%

Forecasts from the Milton Keynes transportation model have identified those locations where congestion will have deteriorated in the period to 2026, as shown in the accompanying maps. The main indicator of congestion at a junction or on a link is the level of ratio of volume to capacity (known as the RFC). Allowing for around 15% operational spare capacity anything over 85% volume to capacity is considered approaching significant levels of congestion. Viewing these plots indicates that in 2009 RFC values over 85% were fairly limited, but the change predicted to occur by 2026 is self-evident and give serious cause for concern because the delays arising as a result of congestion (and, by association, traffic induced air quality problems) are highly non-linear.

## A Holistic Approach

Increasing the proportion of ultra-low emission vehicles will be essential to maintaining mobility and maintaining the excellent air quality which the city currently enjoys, but truly effective action on air quality requires a broader approach. The council is therefore adopting a holistic approach which embraces:

- understanding where the traffic pinch-points are likely to occur,
- developing plans to mitigate those problems (e.g. encouraging alternative means of transport),
- monitoring city-wide air quality parameters over a period of time.

An award of funds through the Go Ultra Low scheme will be used to continue and enhance these activities. In particular the scheme will help to improve the air quality by:

- dramatically increasing the percentage of low-carbon vehicles in the Milton Keynes parc.
- removing older, polluting vehicles through the scrappage scheme.
- encouraging owner/driver private hire vehicle operators to switch to EVs.

# Air Quality – Securing the Future

## Links to Other programmes

The City has been very active in recent years, engaging in a variety of different industry/government schemes which are aimed at reducing emissions and/or improving environmental conditions within Milton Keynes. In particular, the city is currently engaged in a large HEFCE-funded programme of Smart City work titled 'MK:SMART'. This programme is looking at the provision of smart information systems to assist travellers in making better transport choices. Using hand-held technology, it emphasises the availability of environmentally friendly forms of transport, and provides real-time information on transport availability, road congestion and environmental conditions. An important part of this programme includes the roll out of an extensive network of road-side sensors which will be used to measure traffic movements and other essential travel data. Adding road-side air quality measurement instruments to the monitoring programme would represent

a relatively minor addition to the investment package which is currently being planned and would be an excellent opportunity to gain a huge value-for-money benefit.

Other city-wide ULEV initiatives with which the Go Ultra-Low programme would be a natural fit include the EV bus programme (in which a major city bus route is now served exclusively by wirelessly charged electric buses), and an electric taxi initiative (in which the commissioning of 50 x 50kW rapid-chargers at strategic locations across the city represents the first step). The combination of these ambitious initiatives would represent a very valuable UK resource in terms of lessons learned and experience gained which will be transferable to other cities in future.

Other programmes like the creation of a city centre low emission zone (LUTZ) and the plans to electrify all buses in the city will deliver high levels of air quality in parts of the borough where citizens and visitors are in close proximity to traffic.

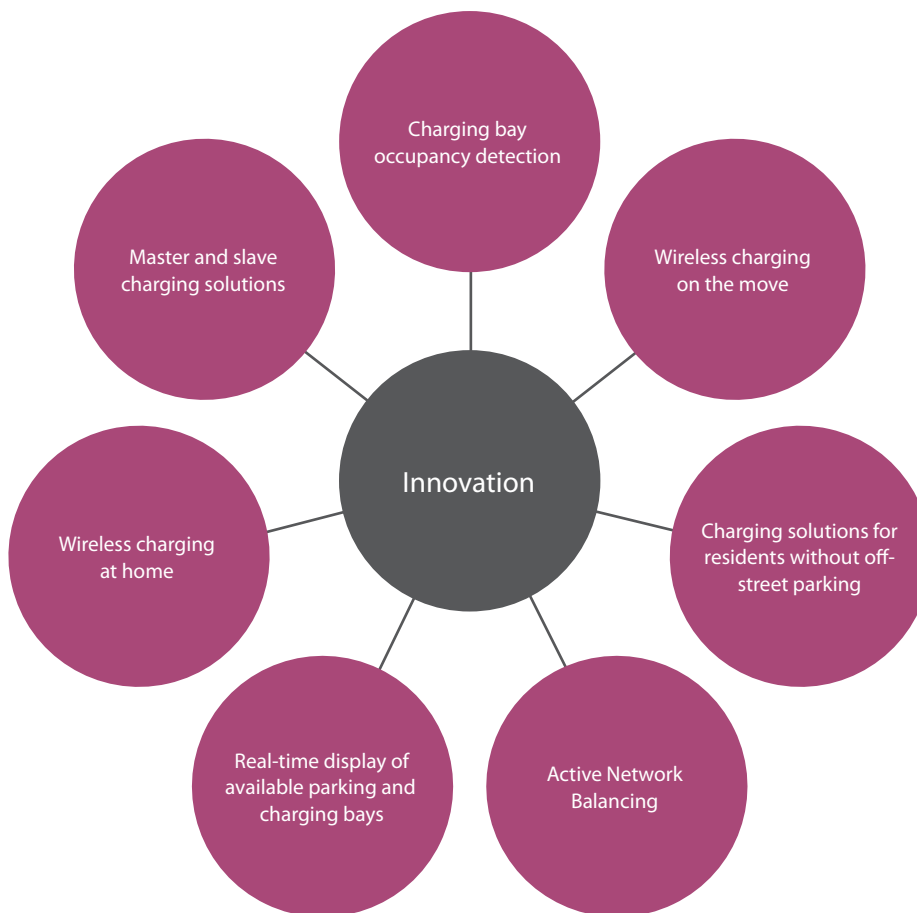


AM Peak 2009



AM Peak 2026

# Innovation



## Active Network Balancing

If the ambition of the Milton Keynes Go Ultra Low City Scheme programme is fulfilled, the EV ownership rate in Milton Keynes will move towards 1 EV per 10 households by the end of the programme (2020). Ideally, EV sales will continue to grow thereafter and, if the trajectory is maintained, 1 in 4 MK households will use EV's by 2025. At these levels of market penetration, there could be significant stress applied to the local electricity networks when large numbers of users wish to plug-in within a short period of each other. This suggests that some form of load balancing or demand-shifting may need to be imposed. The direction of current flow from grid to vehicle leads to this being referred to as a 'G2V' problem and a comprehensive solution requires that the collective demand across an entire neighbourhood is monitored by the district network operator (the DNO) and acted upon in real time.

There can also be demands for current flows in the reverse direction (vehicle-to-grid, or 'V2G'). At times of peak demand on the electricity networks, there may be EVs plugged-in which can afford to relinquish some of their charge. This would enable electricity to be fed from the EVs back into the grid, thus ameliorating the initiating overload problem.

An ideal solution would enable the G2V and V2G flows to be monitored and controlled in a co-ordinated approach to active network balancing. This part of the GULS-MK programme will run trials on an innovative new system which is designed to act in exactly this way. The work described below will be carried out in collaboration with Western Power Distribution (WPD), the local DNO for Milton Keynes and the surrounding area.

***"The suggested proposals made by Milton Keynes are innovative."***

Dean Asplin, Product Planning Manager,  
Mitsubishi Motors

# Active Network Balancing

## Active Network Balancing - the i-DOS Concept

i-DOS (Integrated Demand Optimisation System) is a new concept in active network management technology which will allow real-time network balancing to be achieved using small intelligent electricity storage devices (termed 'Demand Adaptors') which can be installed in domestic premises. The i-DOS system connects and controls all of the Demand Adaptors to produce a co-ordinated array of devices which, collectively, can deliver massive, controllable, network-scale storage capacity. This capacity can then be used by the DNO to deliver the co-ordinated G2V and V2G management functions described above.

### The Technology

The Demand Adaptor is a relatively small unit which can be unobtrusively installed within most domestic premises. It uses a small battery storage system to provide a local energy buffer within each domestic installation. The complete device comprises the battery, the battery management system (BMS), a purpose designed bi-directional grid-tied inverter, and an intelligent controller which communicates with the wider i-DOS system control software. A schematic of the system layout is shown.

The Demand Adaptors are used to control the G2V and V2G flows at each EV property in response to control signals which are received from the i-DOS system. In this way, the local DNO can constantly monitor the balance of supply and demand on the electricity network and control it to maintain satisfactory balance.

### The Proposal

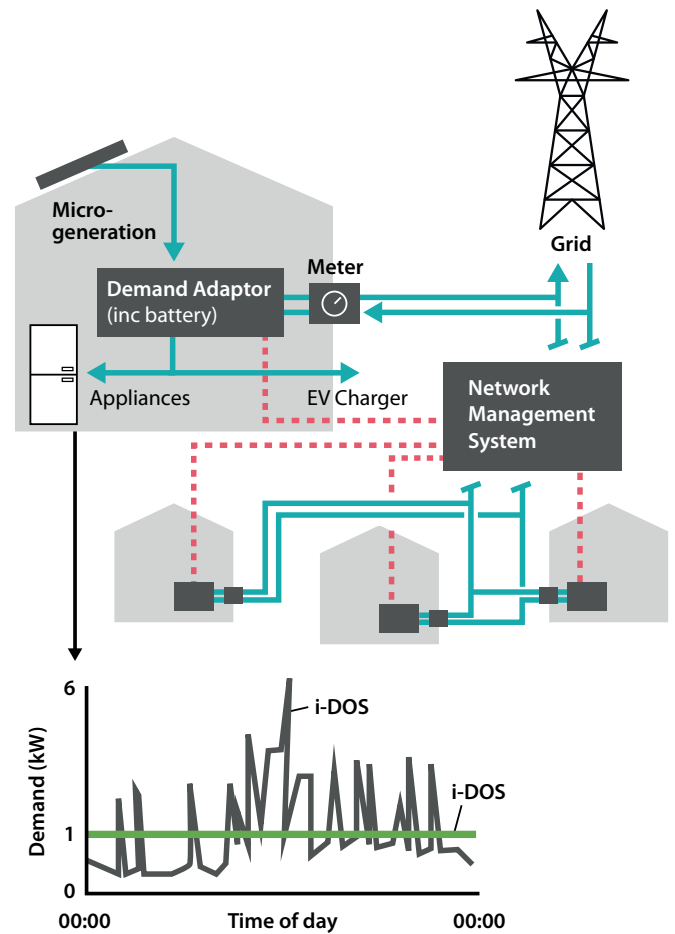
We plan to create a small i-DOS network within the GULS-MK Programme and use it to explore the behaviour of the system under real conditions. This is an innovative new technology for which there is little precedent, but it fulfils an essential pre-requisite for the large-scale roll-out of EV's and the GULS-MK Programme is an ideal theatre in which to undertake this exercise.

The programme of work proposed here will include:

- The installation of up to 5 Demand Adaptors at participating domestic locations
- The installation of the i-DOS Network Management Software at the DNO's control centre
- The controlled exploration of how G2V and V2G flows can be managed using the resulting network of devices.

### Timescale and Budget

The work required will take 18 months and will cost £250,000.



# On-street Charging Development



## Introduction

The most convenient location for charging an electric car is at home, overnight whilst the owner is asleep. This is ideal for the motorist and also ideal for the requirements of electricity demand and the national grid. In the future renewable electricity is likely to be more and more available at night time when other electrical demands such as cooking, power showers, tv etc are at a minimum.

This works when homes have off street parking but charging overnight is problematical for those residents who do not have dedicated off street parking – perhaps living in terraced accommodation or in apartments. This difficulty is particularly severe in many cities with large, dense residential areas.

The Milton Keynes Go Ultra Low City Scheme will include a programme to research and develop charging systems that can be economically deployed to enable residents who have no off street parking to benefit from the adoption of an electric vehicle. This element of the scheme will include innovations such as the adaption of existing street furniture such as street lamps and other cost effective innovative technologies.

## Possible solutions

Whilst the concept of an electrical lead being left over a pathway has been considered in the past – such options, which create trip hazards, are not a viable or safe possibility as safety must always be a prime consideration.

Milton Keynes proposes to embark on a detailed review on the various technological possibilities and practical options to provide economical solutions for the vast majority of dwelling occupants in the future. A full range of possibilities will be considered including the provision of multiple use chargers in communal car parks, the use of public parking adjacent to relevant accommodation and the development of new technologies.

In particular two new technologies will be developed to make them ready for deployment:

- The development of a combined lamp post, charging unit that can be installed on streets at regular intervals. These would reduce street furniture clutter and provide a convenient solution in residential parking areas. It is envisaged that once developed several examples would be deployed in the city to evaluate these new technologies.

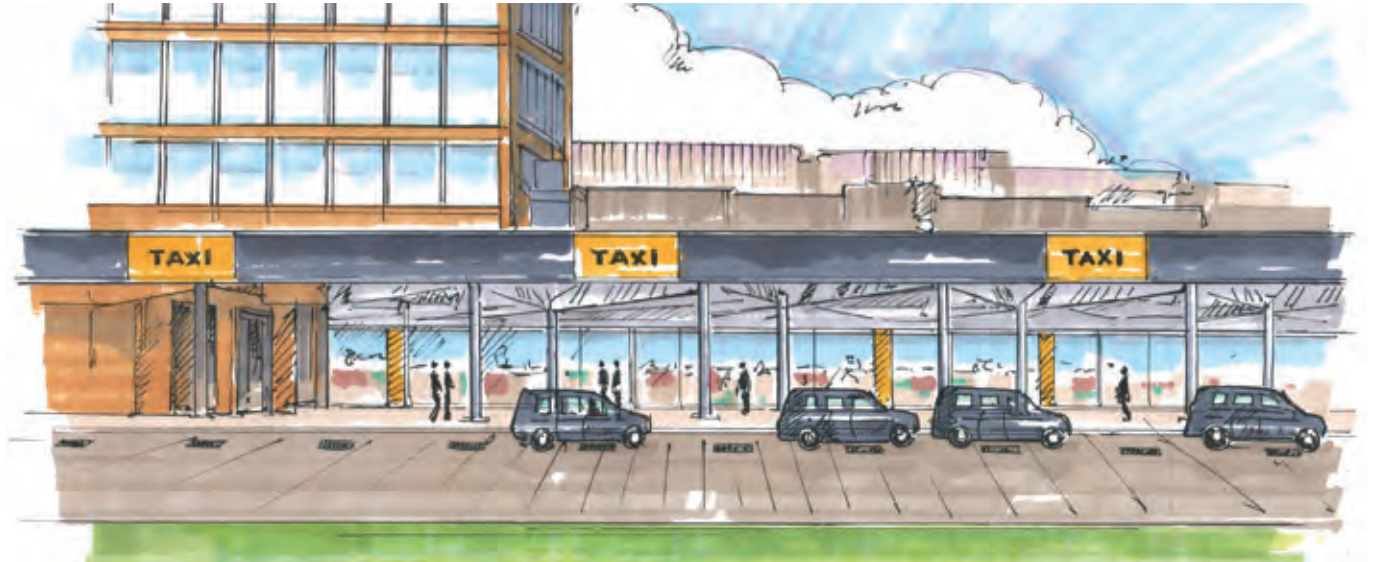
We are preparing a graphic showing combined street lamp and charging unit

Working examples will be developed within 12 months of commencement and deployment on streets follow within a further 6 to 9 months.

- The development of a multi socketed slave and master “full street” system. Within 10 years it is envisaged that perhaps one in five on-street overnight parking bays will need a charging socket to meet the growth of EVs. Existing public charging posts, whilst being much more cost effective than those designed even three years ago, are relatively expensive as they individually contain the card access mechanism, full safety cut outs and electrical current measurement in each post. By splitting these requirements so at each relevant parking bay there is effectively just a Type 2 socket on a small discrete “mini post” significant cost and aesthetic improvements can be achieved.

The “mini posts” will be installed adjacent to the curb and will be pre-manufactured to contain a conduit which runs along the street below the curb and can be installed very easily without digging the whole pavement up. Every hundred metres or so there will be a Master Control Unit (MCU) which contains all the expensive components including access control, communication mechanism, safety cut outs and power termination from the DNO. A typical street may need only two or three MCUs to provide perhaps 30 electric charging bays. It is expected that such an arrangement would reduce the cost of provision of on street charging by up to a factor of 10 fold. The motorist will park at a “mini post” – there may be 30 in the street and then go to the closest MCU to start the charge. It is expected that such a system could be developed ready for deployment in an 18 month timescale.

# Charge on-the-move Demonstration



Within the innovation section of its Go Ultra Low City Scheme application Milton Keynes plans to establish a charge on-the-move dynamic wireless electric vehicle charging (DEVIC) demonstrator at the Millbrook Test Track. Millbrook Proving Ground has close ties to Milton Keynes being within the Milton Keynes postal code area. We proposed to work in partnership with Chargemaster, Qualcomm and Millbrook for this initiative. The demonstrator will evaluate an electric vehicle wireless charging system that is suitable for deployment where vehicles are queued for minutes at a time, such as those found in taxi ranks.

## Introduction

Stationary Wireless EV Charging (WEVC) is close to market readiness and is expected to be launched by car manufacturers on EVs and PHEVs within the next two or three years. In parallel, to stationary wireless charging, quasi-stationary or semi-dynamic wireless charging is being developed for taxis, in preparation for the widespread adoption of zero emission capable taxis slated for 2018.

## The Milton Keynes Dynamic Charging Demonstrator

Full DEVIC is a longer term proposition than stationary WEVC although there are plans to evaluate the technology by Highways England. Milton Keynes wishes to deploy a practical semi-dynamic wireless demonstrator at a new test track at the Millbrook Proving Ground. This will involve an installation of wireless charging hardware which will enable suitably upgraded EVs to pick up power continuously from inductive pads deployed in the road surface, as they slowly move forward over. Such technology will remove the need for vehicles to run their engines in areas which are often close to public dwelling areas and will make the adoption of EVs attractive to operators whose vehicles frequently encounter long waiting times in queues.

## The advantages of dynamic wireless charging

The benefits of DEVIC are considerable. It simplifies charging, reduces range anxiety and enables vehicles to have much smaller batteries thereby saving weight and cost.

## Partnerships

The programme will be conducted in partnership with Chargemaster and Qualcomm a developer of WEVC and DEVIC technology, will support the initiative, via its relationship with Chargemaster. In addition, Millbrook has agreed to make a test track available to allow the technology to be deployed.

## Timescales

It is expected that this programme will take up to three years to complete.

## Deliverables

The key deliverable will be the development of a semi-dynamic charging system, fitment of receiving hardware on a number of mule vehicles with a resulting demonstration of semi-dynamic EV charging of the electric vehicles.

## Benefits for the UK

Much of the development of wireless technology has been developed in the UK and this programme will enable Milton Keynes to demonstrate the advances made in the UK and further extend its capability as an exemplar in advanced low emissions mobility technologies.

# Domestic Wireless Charging

## Introduction

A number of car manufacturers are planning to launch wireless charging technologies on EVs within the next three years. The Milton Keynes Go Ultra Low City Scheme proposes to establish and equip demonstrator homes and research the operational benefits of wireless charging compared with conventional conductive charging.

The programme will involve between five and ten homes fitted with wireless electric vehicle charging (WEVC) equipment together with the provision of wirelessly equipped demonstrator cars. The key purposes of the programme will be to see the readiness of the technology, the feasibility of equipping homes, and the relative convenience of wireless charging over conventional charging in a real world environment. The study will establish whether users perceive the convenience of wireless charging would make it more likely that they purchased an electric vehicle.

## Objective

To develop the technology to enable between five and ten homes in Milton Keynes to be equipped with wireless charging units. In parallel a similar number of cars will be equipped. Development will include refinement of safety systems including Foreign Object Detection (FOD) and Living Object Protection (LOP). A key objective is to establish and demonstrate the key benefits of wireless charging and measure relative efficiencies compared with conventional conductive charging.

## Methodology

Selected households in Milton Keynes with appropriate off-street parking will be invited to participate in the programme. The houses will be surveyed to establish that they have sufficient electricity supplies and parking space to enable the installation to take place.

The initial phase will comprise of lending the household a conventional electric vehicle (Nissan Leaf or similar) with a conventional domestic homecharge unit for three months to enable the drivers to become familiar with the daily operation of an EV and the charging process each night at home associated with it. Towards the end of the three month period the homes will be equipped with a wireless charging pad and associated power supplies of the same electrical power output as the conductive charging previously used. The homeowner will then be asked to operate the wireless charging for a similar period of three months. The user will be asked to prepare a weekly log of their experiences, the benefits of wireless charging and any disadvantages of wireless charging. At the end of the period the homeowner will be asked to prepare a full summary of the household's experiences particularly reflecting whether it is perceived that wireless charging is significantly more convenient and whether the availability of wireless charging would make them more (or less) likely to buy an electric car when they next replaced their car.

## Timescales

Development and refinement of the technology to enable the programme to take place will be started early in year one of the scheme. In parallel up to ten households will be invited to participate, the homes surveyed and conventional homecharge units installed. Cars will be procured and these will be loaned to the households by autumn 2016.

Commencing in Year 1 Q3 the households will be equipped with the wireless technology and when installation is complete the evaluation phase will commence.

The evaluation phase is expect to commence by the end of year one and run for three months. In addition to the homeowners evaluating their own experiences with the wireless technology, tests will be carried out to measure comparative efficiencies between conventional charging and wireless in a real world environment.

# Links to Other Schemes

Milton Keynes Council has an excellent demonstrable track record in delivering innovative sustainable transport solutions. In recent years several projects, many of which have involved some level of third-party funding, have been successfully delivered on time and to budget. These projects have included:

**Milton Keynes Plugged-in Places Project**

**Milton Keynes Extension Project**

**Milton Keynes East – Crosslink Project**

**Milton Keynes Rapid Charger Project**

**Milton Keynes Battery Electric Bus Project**

In 2010 Milton Keynes was one of three successful bidders for funding from OLEV aimed at establishing a network of public, business and domestic charging facilities to support the nascent electric car industry. Recognising that technology was likely to develop quickly throughout the three-year duration of the Plugged-in Places (PiP) project, Milton Keynes adopted an approach to public infrastructure provision that would provide a strong basis for further technical developments. Adoption of modular equipment and careful specification of ground works enabled the scheme to adopt new technologies as they became available.

Subsequent years of the PiP adopted newer charging technologies in response to developments in charging post and electric vehicle battery management systems.

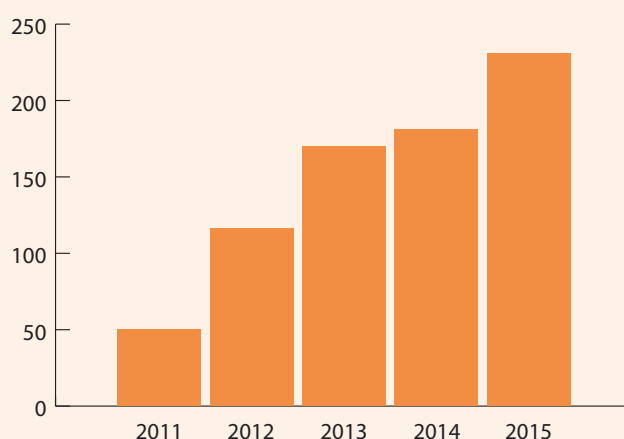
During the period of the OLEV supported PiP scheme, Milton Keynes extended the reach of vehicle charge posts that were available to its visitors and residents with the development of known as the Milton Keynes Extension Project. The Extension project installed further charge posts in Buckinghamshire and Oxfordshire that were interoperable with the central Milton Keynes estate of charge posts.

Further projects continued to increase the number and type of electric vehicle chargers in the city, with the Crosslink project and the Rapid Charger project delivering over 50 multi-protocol rapid electric vehicle charge posts in the city.

Upon completion of the Plugged-in-Places scheme the council undertook a public procurement process which successfully saw the operation and maintenance of the city's electric vehicle charging estate successfully transfer to the commercial sector.



**Growth of Public Chargeposts in Milton Keynes**



## Links to Other Schemes



In addition to the outstanding successes in delivering electric vehicle charging infrastructure, Milton Keynes has also successfully introduced a wirelessly charged all-electric bus service. This ground breaking project has introduced important environmental benefits, removing approximately five tonnes of particulates and noxious tailpipe emissions from the city's streets and approximately 270 tonnes of CO<sub>2</sub> from the atmospheres each year.

This electric bus project further demonstrates the successful track record of the council in delivering innovative low-carbon transport schemes in partnership with government and commercial partners. Key collaborators and supporters of this project are:

- Department of Transport
- Milton Keynes Council
- Mitsui & Co Europe
- Arriva
- Chargemaster plc
- Western Power Distribution
- SSE
- IPT-Technology
- The Wright Group

# Links to Other Schemes



*"We have been very impressed with Milton Keynes' track record of delivery of Low Carbon Projects in the city including the successful implementation of over 50 rapid chargers, over 200 fast charging points in the city area and in addition an impressive wireless electric bus project between Bletchley and Wolverton.*

*... we have no hesitation in supporting this bid and in working with Milton Keynes Council."*

Martin Hughes, Director of Proving Ground and Technology Park, Millbrook



# Monitoring

## Finance

Milton Keynes is seeking a total of £13.65m over 5 years from the Go Ultra Low City Scheme. This represents entirely capital expenditure and is split annually as follows:

<b>2016</b>	<b>£4.602m</b>
<b>2017</b>	<b>£3.160m</b>
<b>2018</b>	<b>£2.270m</b>
<b>2019</b>	<b>£2.110m</b>
<b>2020</b>	<b>£1.510m</b>

The majority of the capital expenditure required is to significantly increase the uptake in EVs. The city expects that nearly a quarter of all cars sold in 2020 will be EVs from the various measures put in place. Some £1.072m is capital expenditure to be spent on innovation projects and the balance on increasing ten uptake rate of EVs, improving air quality and measures taken to assist in becoming an exemplar.

## Revenue

The Milton Keynes Go Ultra Low City Scheme has been designed to be revenue and resource spending self-sustaining once the EV Experience Centre is operational. Revenue and resource spending will be in accordance with Milton Keynes finance policies. Milton Keynes intends to apply for the 2% revenue grant support funding which has been suggested by OLEV could be used to support the scheme in year one.

The finance table shows the capital expenditure split for the project.

## State Aid

In designing the Milton Keynes Go Ultra Low City Scheme, we have been careful to ensure that the measures contained in our bid are compliant with the requirements of state aid rules. At this stage we do not believe that we will need to submit to a state aid assessment.

The programme will be developed and managed to ensure compliance with state aid regulations and with local government procurement rules and processes.

As a local authority Milton Keynes Council has considerable experience of developing innovative programmes within the boundaries of the state aid requirements.



# Monitoring

Milton Keynes Go Ultra Low Cities Plan CapEx Plan		2016		2017		2018		2019		2020	
Creating a stepchange in the uptake of EVs											
Demo car purchases:											
First 6 months	30 Cars	750,000	20 cars	500,000	30 cars	750,000	30 cars	750,000	30 cars	750,000	
Second 6 months	30 Cars	750,000	20 cars	500,000	30 cars	750,000	30 cars	750,000	30 cars	750,000	
Total cars purchased for demo fleet	60		100		160		220		280		
Disposals			20		40		40		40		
Demo fleet size	60		80		100		120		160		
Fitting out the EV Experience Centre		450,000		100,000		50,000		50,000		50,000	
On street overnight charging		350,000		350,000		250,000		250,000		250,000	
Establishing EV Charging Hubs at J14 and city centre with annual updates		950,000		140,000		50,000		50,000		50,000	
Workplace charging		200,000		400,000		200,000		100,000		100,000	
Scrappage Scheme	£5,000 per car-60 cars	300,000	120 cars	600,000	120 cars	600,000	120 cars	600,000		0	
Setting up car club bays		120,000		30,000		0		0		0	
Signage incl Matrix signs		280,000		30,000		30,000		20,000		20,000	
Destination charging	50% of cost	150,000		40,000		40,000		40,000		40,000	
Innovation Programmes											
Home wireless charging		75,000		120,000		0		0		0	
Charging on the move		50,000		350,000		50,000		0		0	
Charging lamp post systems R&D		35,000		60,000		0		0		0	
Hub and spoke charging R&D		42,000		40,000		0		0		0	
Energy storage for homes R&D		100,000		150,000		0		0		0	
		4,602,000		3,410,000		2,770,000		2,610,000		2,010,000	15,402,000
Cash received from sale of demo cars each year assumes £12,500 per car				250,000		500,000		500,000		500,000	1,750,000
<b>Net capital required each year</b>		<b>4,602,000</b>		<b>3,160,000</b>		<b>2,270,000</b>		<b>2,110,000</b>		<b>1,510,000</b>	<b>13,652,000</b>

## Governance

We propose that the delivery and performance the Milton Keynes Go Ultra Low City Scheme will be overseen by a Steering Board, which will be formed by senior representatives from Milton Keynes Council (e.g. the Director of Strategy, the Cabinet Member Responsible for Economic Growth and Inward Investment and the Head of Transport Innovation) together with senior representatives from supporting organisations who have experience gained delivering other innovative transport schemes in the borough. We would also like to invite a representative from OLEV onto the board.

Day-to-day management of the scheme will be the responsibility of the EV Tsar, who will report to the Steering Board. The Steering Board will meet quarterly and will review the schemes Quarterly Monitoring Statements.

## Quarterly Monitoring

A series of milestones will be extracted from the detailed plan against which the programme's progress will be monitored

and reported to OLEV on a quarterly basis. The milestones would typically represent the completion of any planning or procurement activities for a given element of the scheme, the start of operations, etc.

Once the scheme is up and running the majority of the initial milestones related to the increased uptake will have been met until the end of the five-year programme is reached. When this 'fully operational' stage is reached focus of the monitoring will shift to interim performance metrics that will be designed to show the effectiveness of the particular element of scheme as the scheme progresses. As an example for the EV Experience Centre the performance metrics could include:

- Visitors to Experience Centre per quarter
- Vehicle loans per quarter
- Resulting vehicle sales per quarter
- Resulting long-term leases signed per quarter

We will agree a table of quarterly metrics with OLEV as part of the project inception.

# Monitoring

ID	Task Name	Objective	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	EV Experience Centre Planning	Increased EV Uptake																				
2	EV Experience Centre Operational	Increased EV Uptake																				
3	EV Tsar Procurement	Increased EV Uptake																				
4	EV Tsar in Position	Increased EV Uptake																				
5	Development of EV Hubs	Increased EV Uptake																				
6	EV Hub Operational	Increased EV Uptake																				
7	Electricity Tarrif Scheme	Increased EV Uptake																				
8	Scrappage Scheme	Increased EV Uptake																				
9	EV car Club Operational	Increased EV Uptake																				
10	Destination Charger Installation	Increased EV Uptake																				
11	Destination Chargers Operational	Increased EV Uptake																				
12	Overnight Charging - MK Promise	Increased EV Uptake																				
13	Road and Parking Priority Preparation	Increased EV Uptake																				
14	Road and Parking Priority Operational	Increased EV Uptake																				
15	Local Planning Requirements in Place	Increased EV Uptake																				
16	Council Procedures for EV Usage	Increased EV Uptake																				
17	PR Agency Procurement	Increased EV Uptake																				
18	PR Agency Appointed	Increased EV Uptake																				
19	Active Network Balancing	Innovation																				
20	On-street Charging Development	Innovation																				
21	Charge on-the-move Demonstration	Innovation																				
22	Domestic Wireless Charging	Innovation																				

## Independent Performance Audit

As part of the project monitoring programme, the Open University (O.U.) will prepare regular independent audit statements in which all the major programme performance parameters will be assessed. Professor Gerd Koertum is actively engaged in a number of major O.U. research programmes and, over the past few years, has made a study of electric vehicles and their patterns of use within Milton Keynes.

The O.U. will formally review the data coming from the Go Ultra Low Programme at 6-monthly intervals, and comment on the uptake of new EV's within each reporting period. The O.U. will also report on any consequent growth in, or changes in the pattern of use of, public charging infrastructure; changes in projected CO<sub>2</sub> emissions, and estimated/measured changes in air quality.

The independent statements will be produced in a simple pro-forma layout and will be collated over the life of the programme to provide a 'live' independently audited headline record of progress.

## Programme

The Milton Keynes Go Ultra Low City Scheme is a five-year programme during which time the elements of the scheme described in this document will be delivered by the council working in collaboration with their supporting organisations. The outline programme is shown below – which includes an assumed scheme starting date of Q1 Year 1.

Upon award a detailed programme will be developed, expanding on the outline timing plan above. The detailed timing plan will be maintained throughout the programme, and used to monitor progress against the initial plan.

# Supporting Organisations



Milton Keynes Council has an excellent relationship with large and small employers in the borough. The council also holds a strong and active position within the South East Midlands Local Enterprise Partnership (SEMLEP). A number of organisations have indicated their support for this application. These include:

- Millbrook
- Open University
- SEMLEP
- Network Rail

During the preparation of this application, the council has sought and received support from a large number of major EV manufacturers:

- BMW Group
- Renault
- Volkswagen Financial Services
- Mitsubishi Motors

Letters of support which have been received from these organisations are included in this document for reference.

In addition to the UK letters of support, the council has received a letter of support from Megapower Limited – a low carbon transport provider on the Island of Barbados who sees Milton Keynes as an exemplar city in the delivery of clean transport and are keen to learn from the experiences generated by the Milton Keynes Go Ultra Low Scheme.

# Supporting Organisations

**BMW  
GROUP**  
United Kingdom



Mr. Brian Mathews  
Head of Transport Innovation  
Milton Keynes Council  
Saxon Gate  
Milton Keynes  
MK9 3EJ

Your reference:  
Your message dated:  
From: Carl Sanderson  
Telephone: 01252 921073  
Fax:  
E-mail: Carl.Sanderson@bmw.co.uk  
Date: 1 September 2015  
Subject: **Milton Keynes – Go Ultra Low City Scheme bid**

Dear Mr Matthews

We welcome the Milton Keynes 'Go Ultra Low City bid' and having reviewed your proposals can see the level of innovation which is likely to promote the increased use of Electric Vehicles and drive sales of BMW Electric Vehicle's locally. In particular we acknowledge the pioneering approach already adopted by Milton Keynes in delivering measures and actions to promote sales and use of ULEVs. The proposed measures outlined look very exciting and I'd like to confirm that BMW UK will proactively support the increasing uptake of EV's through initiatives such as the ones you have outlined.

We wish you the best of luck with your bid and look forward to hearing more in the near future.

Yours sincerely

Company  
BMW (UK) Ltd  
A BMW Group Company

Postal address  
Summit ONE  
Summit Avenue  
Farnborough  
Hampshire  
GU14 0FB

Telephone  
+44 (0)1252 920000

Fax  
+44 (0)1252 920001

Internet  
www.bmw.co.uk

Registered Office  
Summit ONE  
Summit Avenue  
Farnborough  
Hampshire  
GU14 0FB

Registered in England  
and Wales  
1378137

Carl Sanderson  
General Manager, BMW i and Mobility Services

# Supporting Organisations

## GROUPE RENAULT

Renault UK Limited  
The Rivers Office Park  
Denham Way  
Maple Cross  
Rickmansworth  
Hertfordshire  
WD3 9YS  
Tel: +44 (0) 1923 895000  
Web: [www.renault.co.uk](http://www.renault.co.uk)



Brian Mathews,  
Head of Transport Innovation  
Milton Keynes Council  
Saxon Gate  
Milton Keynes  
MK9 3EJ

**Subject : Milton Keynes Go Ultra Low City bid**

Dear Mr Mathews

Thankyou for the information on the Go Ultra Low City bid, which I've read and reviewed with great interest.

The plans outlined would put Milton Keynes in prime position to build on the excellent foundations and experience gained by the city in the 'Plugged in Places' scheme. Beyond driving ULEV uptake, the measures proposed by Milton Keynes will also help produce real examples of best practice in the UK. 'Non-financial' incentives, such as allowing ULEVs to drive in bus lanes will be really helpful to give learnings on how best to influence driver behaviour and increase ULEV uptake outside of the current central policies in place.

As a ULEV manufacturer, Renault is committed to drive the uptake of ULEVs through a variety of measures, and you can count on our full support and continued enthusiasm for the Milton Keynes initiative.

Yours sincerely

Ben Fletcher  
Product Manager, Renault Z.E.

# Supporting Organisations



Millbrook, Bedford, MK45 2JQ, UK  
www.millbrook.co.uk

Brian Mathews  
Head of Transport Innovation  
Milton Keynes Council  
Saxon Gate  
Milton Keynes  
MK9 3EJ

18<sup>th</sup> October 2015

Dear Brian

Further to our discussions we are pleased to confirm our support of the Milton Keynes Go Ultra Low Cities bid and look forward to working with you as discussed in setting up a "Charging on the Move" demonstrator at the Millbrook Proving Ground. We have been very impressed with Milton Keynes' track record of delivery of Low Carbon Projects in the city including the successful implementation of over 50 rapid chargers, over 200 fast charging points in the city area and in addition an impressive wireless electric bus project between Bletchley and Wolverton.

We have no hesitation in supporting this bid and in working with Milton Keynes Council to demonstrate at Millbrook the capability of the city and its partners to establish an innovative charging on the move demonstrator that breaks new ground in this area of inductive charging. This is a technology that we recognise will be increasingly important in the future of electric vehicles and we believe Milton Keynes and its partners together with Millbrook Proving Ground can establish a demonstrator that illustrates the UK is leading the way in this area.

Millbrook is an ideal location for this programme as it attracts many visitors from around the world and is, as you know, very accustomed to working with all parts of the motor industry.

Yours sincerely

Martin Hughes  
Director of Proving Ground and Technology Park

# Supporting Organisations



## NISSAN MOTOR (GB) LIMITED

The Rings Office Park  
Venture Way, Maple Cross  
Rickmansworth  
Hertfordshire, WD3 9PS  
Phone: +44 (0) 1923 699 999  
Fax: +44 (0) 1923 699 600  
Authorised and regulated by  
the Financial Services Authority

I am writing to add my support to the Milton Keynes bid for the Go Ultra Low Cities Scheme.

We have reviewed the outline proposals from Milton Keynes and are pleased it includes 'significant numbers of electric vehicles' on the Council's own vehicle fleet which shows commitment to adopting EV technologies combined with other measures to influence uptake and increase the market.

Providing advice to the public on EVs through a central showroom, full time staff, dedicated website and and PR campaigns will help us in the industry working to raise awareness of the benefits of both full EVs and other ULEVs.

Other initiatives including EV only parking bays, EV access to bus lanes and an increase in charging points which will make adoption of EVs easier for customers and residents in Milton Keynes. The Council has already implemented a comprehensive charging network including rapid chargers and has transitioned the Plugged in Places network to external operation with a high serviceability record which demonstrates commitment to these new technologies.

Milton Keynes is well positioned to support the objectives of the Go Ultra Low Cities scheme with these proposals.

Nissan will fully support these Milton Keynes initiatives to drive forward an increased uptake of British-built fully electric vehicles.

Best regards,

Karl R Anders  
National EV Manager - Fleet  
Nissan Corporate Sales

# Supporting Organisations

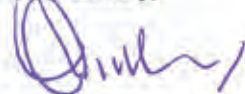
## VOLKSWAGEN FINANCIAL SERVICES UNITED KINGDOM

Dear Sirs,

### MILTON KEYNES – OLEV GO ULTRA LOW COMPETITION SUBMISSION

We are pleased to confirm our support for the Milton Keynes bid for the above competition. VWFS UK is headquartered in Milton Keynes, and we are keen to support the Local Authority in their efforts to become the world's leading city in terms of ULEV ownership per capita. We have been pleased to work closely with the bid preparation team over recent months and, if the bid is successful, we look forward to continuing our relationship with the Council and other members of the team. We believe that ULEV's have an important role to play in helping to ensure the environment is protected for the benefit of future generations, and our engagement bid the bid process to date has been a reflection of this belief.

Yours faithfully,



Ian Tilbrook  
Fleet Director

VOLKSWAGEN FINANCIAL SERVICES  
(UK) LIMITED

REGISTERED OFFICE:  
BRUNSWICK COURT  
YEDMANS DRIVE BLAKELANDS  
MILTON KEYNES MK14 3LR

REGISTERED IN ENGLAND NO. 2835290

VOLKSWAGEN FINANCIAL SERVICES  
(UK) LIMITED IS AUTHORISED AND  
REGULATED BY THE FINANCIAL  
CONDUCT AUTHORITY

# Supporting Organisations



**The Colt Car  
Company Limited**

Watermoor  
Cirencester  
Gloucestershire  
GL7 1LF

[www.mitsubishi-cars.co.uk](http://www.mitsubishi-cars.co.uk)

24<sup>th</sup> September 2015

Mr Brian Mathews  
Head of Transport Innovation  
Milton Keynes Council  
Saxon Gate  
Milton Keynes MK9 3EJ

Dear Mr Mathews,

**Milton Keynes Go Ultra Low City Bid**

We, Mitsubishi Motors in the UK, are committed to the Go Ultra Low initiative which raises awareness of the benefits of ultra-low emission vehicles. As part of our commitment to the Go Ultra Low campaign, we are fully supportive of any measures to increase the uptake of such vehicles.

The suggested proposals made by Milton Keynes council are innovative and likely to promote interest in ultra-low emission vehicles.

Yours sincerely,

**DEAN ASPLIN**  
Product Planning Manager



Registered Office:  
The Colt Car Company Limited  
Watermoor Cirencester  
Gloucestershire GL7 1LF  
Registered in England No 1163954  
VAT No. GB 448 4291 29

# Supporting Organisations



**Faculty of Mathematics,  
Computing and Technology**

Computing and Communications  
The Open University  
Walton Hall  
Milton Keynes  
United Kingdom  
MK7 6AA

Tel: +44 (0) 1908 652692  
Email: [gerd.kortuem@open.ac.uk](mailto:gerd.kortuem@open.ac.uk)

22<sup>nd</sup> September 2015

Dear Sir/Madam

Re Milton Keynes – OLEV Go Ultra Low Competition Bid

As deputy-director of MK:Smart, the Milton Keynes Smart City initiative, and on behalf of The Open University I am pleased to support the Milton Keynes bid for the OLEV Go Ultra Low Competition. I can confirm that the Open University will play a supporting role in collecting and monitoring data if the bid is successful.

MK:Smart is conducting government-funded research into the usage patterns of electric vehicles in Milton Keynes and investigates the energy implications of electric vehicle use. The new Go Ultra Low programme would provide an excellent opportunity both to expand our current work and to develop new lines of enquiry.

Using data generated by the participants in the Go Ultra Low programme, the Open University will produce regular independent statements at 6-monthly intervals summarising progress against the key delivery goals (namely the uptake of Ultra Low Emission Vehicles, patterns of charging behaviour around the city, estimated CO2 savings, and the defence of air quality standards).

We trust this will be a successful bid and we look forward to supporting the delivery team in Milton Keynes on this most exciting project.

Yours Sincerely

Prof. Gerd Kortuem

# Supporting Organisations



24<sup>th</sup> September 2015

Mr Brian Matthews  
Head of Transport Innovation  
Milton Keynes Council  
Saxon Gate  
Milton Keynes  
MK9 3EJ  
United Kingdom

Dear Brian,

We are delighted at the opportunity to form an alliance with Milton Keynes in order to gain from your experience to further promote, encourage and assist the growth of the market for low emission vehicles, and in particular electric vehicles, in Barbados and across the Caribbean.

As business visitors to the UK in the field of electric vehicles we have been enormously impressed by the innovation, achievements, substantial electric vehicle infrastructure and track record of project delivery of the City. Over the months and years to follow we look forward to learning of your success in delivering products, facilities and services that promote and enhance the market for low emission vehicles. In gaining the benefit of your experience we will replicate, modified where necessary to suit local conditions, your initiatives in this regard.

We are also excited to be included in your bid and working with you for the Milton Keynes Go Ultra Low Cities Schemes. Milton Keynes is a multi-cultural city of world-wide repute and is regarded as a leading example in the delivery of clean transport.

Yours sincerely,

Joanna Edghill  
Director

Megapower Limited  
The Edghill Building, Wildey Business Park, Wildey, St Michael, Barbados, BB14006  
246- 255-0449 | 246-230-9621  
[www.megapower365.com](http://www.megapower365.com)

# Supporting Organisations

**SEMLEP**South East Midlands  
Local Enterprise PartnershipInnovation Centre  
Oxford University  
Technology Park  
University Way, MK64 3BT  
T +44 (0) 1234 439 100  
E info@semlep.com  
W www.semlep.com

Brian Matthews  
Head of Transport Innovation  
Milton Keynes Council  
Civic Offices  
1 Saxon Gate East  
MK9 3HQ

**29<sup>th</sup> September 2015**

Dear Brian,

**Go Ultra Low City Application**

Thank you for sharing with me your bid for the Go Ultra Low City bid. I found it most interesting. I commend you and your team for putting together such a comprehensive proposal.

The plan that you have outlined would put Milton Keynes in a prime position to build on the excellent foundations already set by the EV infrastructure programme in place within the city and surrounding area.

As you know SEMLEP works closely with the transport authorities in the South East Midlands area to support initiatives to deliver low carbon transport solutions. The programme you have developed will contribute to delivering more ULEVs, which will in turn support this growing sector of the motor industry.

I wish you well with your application. Please keep us in touch with progress.

Yours sincerely

*H. S. Chipping*

Hilary Chipping  
Acting Chief Executive, SEMLEP

# Supporting Organisations



QUALCOMM Europe, Inc

Building 4  
Chiswick Park  
566 Chiswick High Road  
London W4 5YE  
United Kingdom

Tel: +44 (0) 20 8996 4100  
Fax: +44 (0) 20 8996 4170

[www.qualcomm.com](http://www.qualcomm.com)

Mr Brian Mathews  
Head of Transport Innovation  
Milton Keynes Council  
Saxon Gate  
Milton Keynes MK9 3EJ

30 September 2015

**RE: Milton Keynes Bid in respect of the Go Ultra Low Cities Scheme**

Dear Mr Mathews,

We have reviewed the innovative proposals drafted by Milton Keynes in partnership with Chargemaster Plc to demonstrate, in Milton Keynes, wireless charging of electric vehicles in domestic situations and wireless charging-on-the-move (the Project). We believe that the work proposed will be very useful in driving the commercialisation of wireless charging and help bring this exciting technology to market.

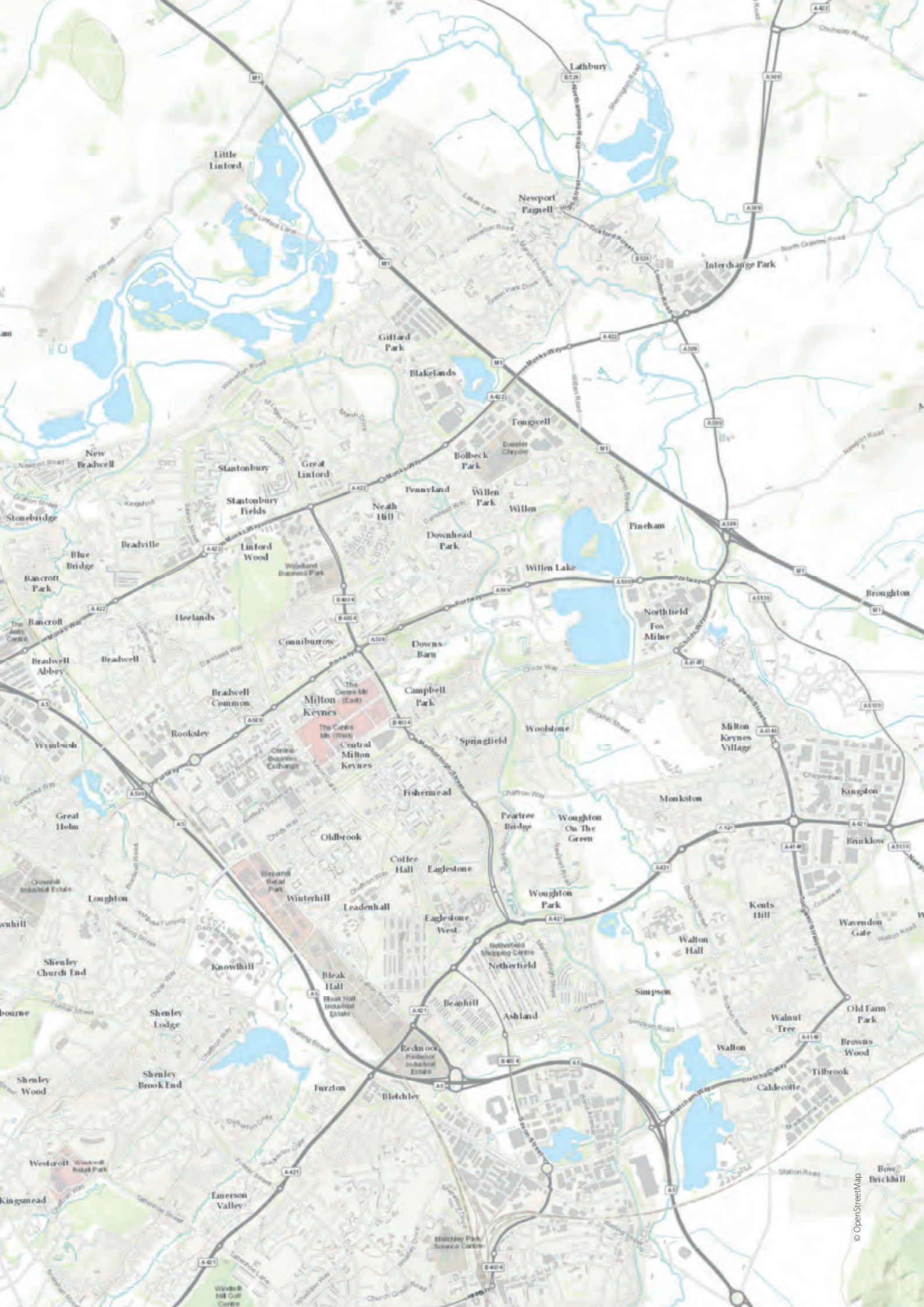
Qualcomm Incorporated has developed technology for wireless electric vehicle charging which it has licensed to various companies including Chargemaster. Qualcomm Technologies, Inc. (QTI), an affiliate of Qualcomm Incorporated is currently assisting Chargemaster to develop wireless electric vehicle charging products. QTI has offered to extend this assistance to include the Project.

We are very impressed with the electric vehicle innovation demonstrated by Milton Keynes and Chargemaster recently and we wish them every success in this bid and the subsequent innovation project.

Best regards

A handwritten signature in black ink, appearing to read 'Dr Anthony Thomson', with a long horizontal line extending to the right.

Dr Anthony Thomson  
VP, Business Development & Marketing  
Qualcomm Halo



For further information about the Milton Keynes  
Go Ultra Low City Scheme please contact:

Brian Matthews, Head of Transport Innovation,  
Milton Keynes Council,  
Civic Offices,  
1 Saxon Gate East,  
Central Milton Keynes,  
MK9 3EJ  
E [Brian.Matthews@Milton-Keynes.gov.uk](mailto:Brian.Matthews@Milton-Keynes.gov.uk)