

Low Emission Vehicle Infrastructure (LEVI) Strategy 2019-2029

**Derbyshire County Council
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Forward

Derbyshire County Council recognises that demand for low emission vehicles is beginning to increase significantly, as the benefits in relation to air quality and public health, become increasingly evident.

This strategy aims to set out the Council's plans, in partnership with other stakeholders, as to how it intends to support the development for a growing public charge network that will provide confidence to residents and visitors to use LEV's in Derbyshire.

Councillor Tony King
Cabinet Member for Economy Development and Regeneration

1. Introduction

1.1 Background

A low emission vehicle or LEV is defined as a motorised vehicle which emits lower levels of harmful emissions, this can include Battery Electric Vehicles (BEVs), Plug in Hybrid Electric Vehicles (PHEV) and Hydrogen Fuel Cell Electric Vehicles (HFCEV).

Whilst the majority of vehicles currently on our roads are powered by petrol or diesel fuel, this trend is expected to change rapidly in the coming years. Overwhelming evidence has demonstrated that emissions from road transport, and in particular diesel powered vehicles, are causing pollution which contributes to poor air quality and is harmful to public health. It is estimated that around 70% of the harm to health linked to poor air quality, originates from transport emissions. With transport emissions also being a significant contributor to climate change, the government has committed to end the sale of new conventional petrol and diesel cars and vans by 2040 and to accelerate the shift to low carbon transport. Policy makers, vehicle manufacturers, transport innovators and national and local governments are therefore working to advance technologies and adoption in the use of alternative fuels. Currently the sector employs 15,000 people in the UK and one in eight zero emission cars brought in Europe are made in the UK. It is estimated the global market for low emission vehicles could be worth £1-2 trillion per year by 2030.

1.2 A Strategy for Derbyshire

As transport users make the transition to low emission vehicles over the next few years, there is a growing need for Derbyshire County Council to adopt a Low Emission Vehicle Infrastructure (LEVI) Strategy. A strategy for Derbyshire will demonstrate a local commitment to promote the uptake and deployment of LEV's, including electric, hybrid, hydrogen and e-bikes. This LEVI Strategy and accompanying action plan sets out how, locally, we will meet the need for a network which represents good value for money, responds to changing demands and embraces new technologies.

Whilst the expectation is that most LEV users will choose to charge at home, development of a public charging network will provide the confidence for residents, businesses, public transport operators, community groups, tourists and leisure industries to use LEV's in Derbyshire.

This strategy will therefore form a fundamental part, in the wider context, of the Council's longer term policy and project work.

2. The Policy Context

2.1 National Policy

There has been a range of national policy and strategy announcements to facilitate the shift to low emission transport in recent years including;

- The Carbon Plan (2011), the Clean Growth Strategy (2017), the Industrial Strategy (2017): these include Government plans for the reduction of greenhouse gases and identify that transport has a critical role in meeting the Climate Change Act 2008 obligations.
- Queens Speech (2017) and Automated Electric Vehicles Bill (2018): announcing a fund of £800m for investment into new driverless and zero-emission vehicle technology to boost the Industrial Strategy. The Government will set a target for almost every car and van to be zero emission by 2050, require motorway service areas and large petrol stations to install electric vehicle charge points, and ensure common infrastructure standards. It will also invest £200m in researching and testing driverless car infrastructure (Connected Autonomous Vehicles or CAV) and £600m during this parliament to support ultra-low emission vehicles.
- United Nations Paris Agreement on Climate Change (2015): The UK Government is determined to turn this challenge into an opportunity by setting the lead and standard for future transport technologies and to limit global warming to well below 2°C.
- Air Quality Plan for nitrogen dioxide (NO₂) (2017): outlining the UK's plans for reducing roadside NO₂ concentrations. In addition, the Government announced its plans to ban new diesel and petrol vehicles from sale in the UK from 2040. Ministers also unveiled a £255m fund to help councils tackle emissions, including proposals for clean air zones to tackle pollution issues caused by traffic in some of the country's most congested cities.
- Road to Zero Strategy (2018): confirming the Government's ambition to see at least half of new cars to be ultra-low emission by 2030 as part of plans to make the UK the best place in the world to build and own an electric vehicle.

2.2 Regional Context: The East Midlands

The East Midlands' automotive expertise is globally renowned. The region is at the forefront of developing the next generation of road vehicles and is a world-leading centre for advanced manufacturing, technology and low carbon technology.

The East Midlands is fast becoming an electric region with more charge points being installed than ever before, thanks to projects such as;

- Plugged-in Midlands,
- Nottingham City's Go Ultra Low initiative
- Office of Low Emission Vehicle grants.

Government agencies and local authorities have a role in supporting the next generation of vehicles by developing policies to ensure provision of LEVI in the region as well as also providing for the potential for hydrogen fuel cell infrastructure (HFCI).

Regional organisations, such as Midlands Connect, are now revising their own strategies to include provision to encourage further development of LEVI in the region.

2.3 Local Context: Derbyshire

At a local government level, collaboration with Boroughs and Districts will be key to maximising the development of LEVI and ensuring a consistent approach across the County which meets local needs.

As the local planning authority and as managers of off street car parks, the Districts and Boroughs will be instrumental, in partnership with the Highways Authority, in securing LEVI through new developments and providing LEVI in the car parks they own and manage.

2.4 Current and emerging policies to support LEVI

Building on the Derbyshire Climate Change Charter 2014-2019, the Council is currently developing an Environment and Climate Change Framework covering energy, transport, waste, air quality, good growth and natural capital. When combined these strategies will provide the building blocks that will facilitate the delivery of the pledges contained within the Derbyshire Climate and Carbon Reduction Manifesto, published in May 2019.

The LEVI Strategy and Action Plan is a key component of this Framework and the diagram below details the structure behind this Framework, demonstrating how each strategy is linked to individual themes that, in turn, feed into the Manifesto pledges and Framework

<i>Overarching Strategy</i>	Environment and Climate Change Framework						
<i>Action Plan</i>	High Level Action Plan (2019-XXXX) based on Climate and Carbon Reduction Manifesto Pledges and carbon budgets						
<i>Theme</i>	↑ Energy ↓	↑ Transport ↓	↑ Resources ↓	↑ Air Quality ↓	↑ Economy ↓	↑ Natural environment ↓	↑ Partnership working ↓
<i>Relevant policies, strategies & plans</i>	Energy Strategy (2019-2022)	LEVI Strategy (2019-2029) Local Transport Plan 4 (2021 – 2033)	Derbyshire's Waste Strategy (Dealing with Derbyshire's Waste 2013-2026)	Air Quality Strategy (2020-2030)	Good Growth Strategy (2020 – 2030)	Natural Capital Strategy (2020 – 2030)	District & borough area-wide policies and plans e.g. housing, planning

Within the Districts and Boroughs, policies are currently being developed to include provision for supporting the advance of electric/hydrogen vehicles in the market. This is summarised in Appendix A. At a local level, communities are being encouraged to support the provision of LEVI through the inclusion of policies in their Neighbourhood Plans.

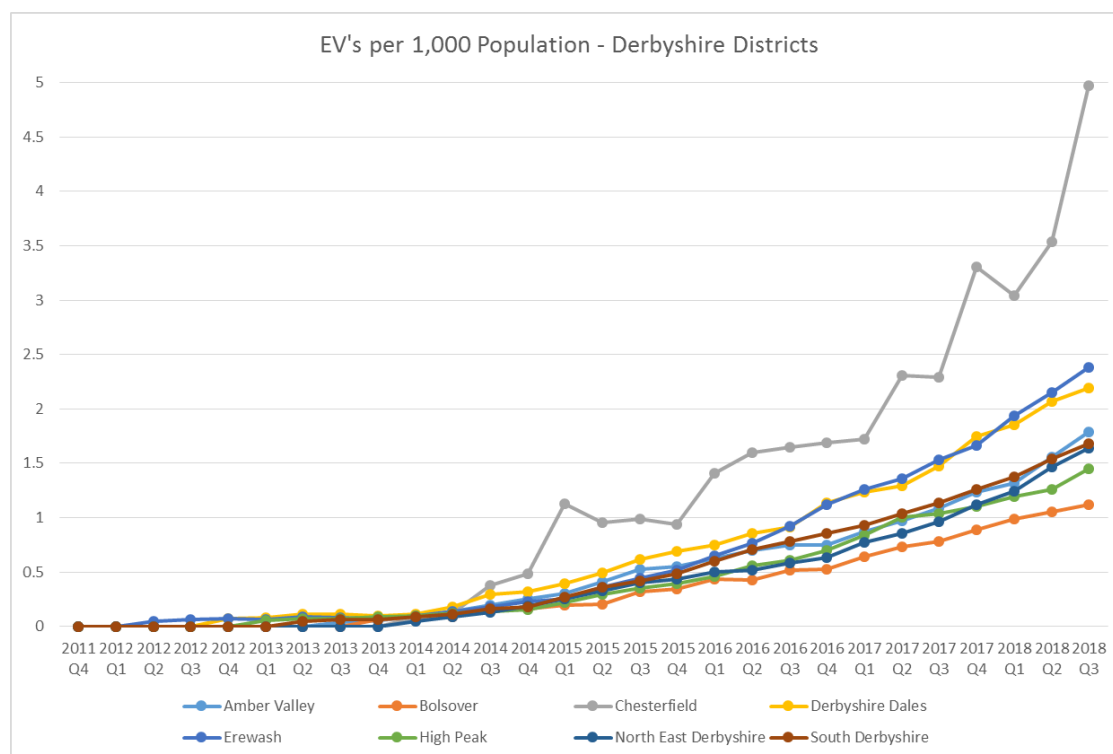
3. Overview of Current Situation

3.1 Ultra-Low Emission Vehicles

The UK has seen a surge in demand for ultra-low emission vehicles. In 2017 Ultra-Low Emission Vehicles (ULEVs) accounted for a small proportion of UK vehicles, just over 100,000, by the beginning of 2019 this has increased to over 200,000 vehicles, registered in the UK. The pace of demand and advancing technology means that by 2025 this is expected to have increased significantly to around 1 million (OLEV).

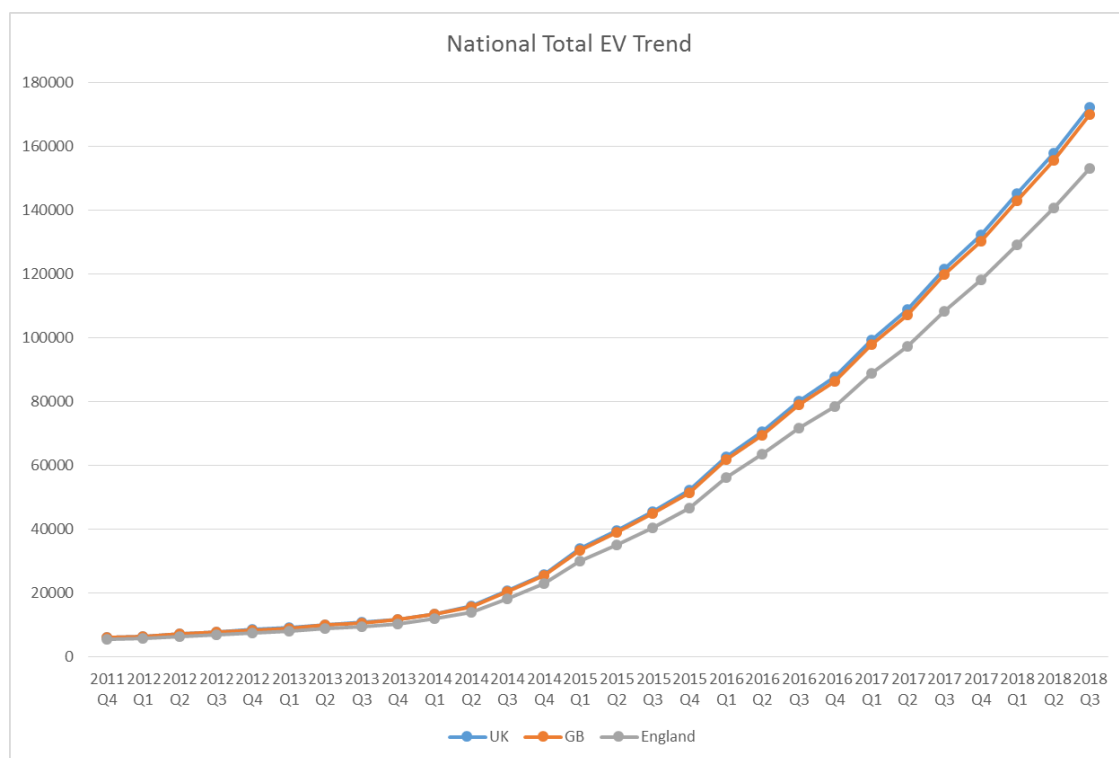
Battery electric provides substantially lower greenhouse gas emissions even when taking into account the electricity used to fuel and produce the battery, and provides the lowest greenhouse gas fuel source (66% lower than petrol cars). Figures suggest the growth of EV car ownership in Derbyshire is increasing at a rate higher than many other areas (see Figure's 1 and 2 below). From October 2017 to September 2018 the number of registered plug-in vehicles in Derbyshire increased by 69%. It is now estimated that the number of registered electric or plug-in hybrid vehicles has grown to 1,720 as at September 2018. As the number of registered electric, or plug-in, vehicles continues to rise sharply in coming years, it is important that the Council, in collaboration with partner organisations, develops a Strategy to ensure infrastructure is in place to meet changing demands of Derbyshire residents, business and visitors.

Figure 1: EV's per 1,000 Population – Derbyshire Districts



Department for Transport VEH0131; Plug in cars and vans and quadracycle's licensed at end of quarter.

Figure 2: National Total EV Trend



Department for Transport VEH0131; Plug in cars and vans and quadracycle's licensed at end of quarter.

Within the private domestic vehicle market, plug in hybrid electric vehicles are growing at the fastest rate (Information about the various forms of electric vehicles can be found in Appendix B).

LGV, HGV and other more specialised forms of transport (public transport, taxi's etc) are referred to later in this strategy.

3.2 Current charging/fuelling infrastructure in Derbyshire

There are a number of private and public charge points across Derbyshire, these can be found through [Zapmap](#). Zapmap can also be used to search for charge point locations within individual districts and boroughs.

- [Amber valley](#)
- [Bolsover](#)
- [Chesterfield](#)
- [Derbyshire Dales](#)
- [Erewash](#)
- [High Peak](#)
- [North East Derbyshire](#)
- [South Derbyshire](#)

The majority of current charge points are found within private locations including leisure facilities such as hotels and private employers. In terms of electric vehicles there are currently four power levels associated with EV charging. These are slow, fast, rapid and super chargers (details can be found in Appendix C).

A number of suitable locations are currently being assessed within District, Borough, County Council and National Park owned car parks, in partnership through the [Go Ultra Low Charge Point Project](#).

Residents and businesses with a postcode in Nottingham, Nottinghamshire, Derby or Derbyshire, can currently register for a [D2N2 card](#) to take advantage of reduced charging tariffs.

3.3 Increasing the LEVI in Derbyshire

To increase infrastructure availability in the most cost effective way, it will be important to map current provision and expected demand; take account of the commercial market; consider grid capacity; ensure provision meets the needs of the various ULEV types and ensure systems are standardised and user friendly.

To achieve a well-balanced and well used provision, a number of factors need careful consideration;

- Traffic Regulation Orders and parking restrictions
- District Network Operator (DNO) engagement
- Grid connection and the possible need for buffer battery storage where the existing grid is not capable of supporting a charge point e.g. in more isolated rural areas
- Liaison with providers of private or limited public access charge points e.g. shopping centres – and the potential to include such units within a Derbyshire charge point network
- Preliminary requests for pre-qualification offers from charge point and back office operators / suppliers to identify the most suitable partnership model(s) that could support a councils-led network.

Residential On Street

Across Derbyshire there is a need to develop Residential on-street charging facilities, to meet the needs of both residents, without private parking, and visitors. There are a number of considerations required to develop effective residential on street parking systems, including;

- Ensuring provision is targeted effectively
- Mechanisms to ensure fair usage such as Controlled Parking Zones to ensure flexible use of parking
- Innovative charging technologies to maximise space, including street light column and kerbside charge points.
- Undertake soft market testing exercises to assess and explore on-street provision.
- Work with local district and borough councils to identify public facing car parks, close to residential areas where off-street parking is not an option and where demand is evident, so that residents without off-street parking can access electric vehicle charge points close to their homes.

Where on-street residents charge vehicles from their own home electricity supply, the Council would not accept any liability for any claims arising as a result of charging cables being located on any part of the highway. Ultimately it will be the legal responsibility of the vehicle owner to make sure that they are not creating a danger or nuisance to other highway users.

3.4 Specialist Transport Sectors

Taxis

From 1 January 2018, all taxis licensed for the first time must be zero emission capable (ZEC). For Private Hire Vehicles (PHVs) the requirements are staggered, with the ZEC requirement for all new PHVs presented for licensing being applied from 2020. Regardless of age, all vehicles granted a private hire licence for the first time after 1 January 2023 will be zero emission capable. These vehicles are in use for long periods and so require high-speed charging facilities in strategic or central locations that are convenient for railway stations, town centres and the main highway network.

Light Commercial Vehicles (LCV)

Light Commercial Vehicles (LCV) have grown in use across Derbyshire over the last decade. This may be because of the growing service economy in the area, including an increase in demand for deliveries to homes as a result of internet shopping; often referred to as 'last mile delivery'. This represents a need to provide rapid 'top up' charging which supports the commercial LGV market.

Other fleet or essential user car drivers in small-medium enterprises (SMEs) adopting EVs/PHEVs and HFCEVs will also require the ability to rapidly charge their cars, for example if their occupation involves driving between many different destinations each day. In such cases rapid charge points on motorways and major trunk roads may not service their requirements – and alternative 'in town' rapid charging hubs may be a consideration.

The Strategy will therefore need to consider the provision of off-street rapid charging facilities in areas of high anticipated demand, in addition to a standard fast charging network.

Freight

The technology to support freight is less advanced than the domestic market in terms of low emission vehicles. Hydrogen is currently expensive within the consumer market, however may well be suited to the HGV and fleet markets. Hydrogen vehicles emit around 10% less greenhouse gases than a diesel HGV and 43% lower than a petrol car. Within Derbyshire a Hydrogen generating station is proposed for Colliery Close, Staveley S43 3QE. This was granted planning consent by North East Derbyshire District Council (NEDDC) on 9th November 2017, subject to conditions. The proposal provides a single, publicly accessible fuelling point which it is proposed be open before the end of November 2020. It is likely that gas may provide an interim solution for the freight industry.

At this time there are no other proposals for publicly accessible hydrogen fuelling stations in the county.

Public Transport - Bus

Exhaust emissions from buses have been improving steadily for a number of years due to the increasingly stringent limits set on the new Euro emissions standard engines. The introduction of new vehicles fitted with these engines, has meant there are currently now a number of bus services within Derbyshire operating these lower emission vehicles. There are, however, currently no alternative-fuelled vehicles operated by the major operators on their commercial services or by the County Council in Derbyshire.

Case Study

There has been considerable investment in electric and bio gas bus technology in the region. In Nottingham the City Council has 58 electric buses in operation on its network of supported bus services, representing the largest electric bus fleet in the UK outside of London. Nottingham City Transport, the main city bus operator in Nottingham, has chosen to invest in Bio Gas as an alternative clean bus technology. Currently 53 Bio Gas double decker buses are being introduced onto their services and they are developing a gas fuelling facility. Stagecoach Yorkshire who provided services in the north east of the county have introduced a limited number of electric hybrid buses in the Sheffield area. These take their power from a combination of diesel and electricity, recycling the energy created from braking and storing it in batteries to power the vehicles.

With this considerable experience of using alternative fuelled buses in the region there is real potential for bus companies in Derbyshire to learn from local experience and best practice. This will be particularly important for operators who's services begin their route in Derbyshire and then travel onto Derby and Nottingham, which are both considering the introduction of clean air zones.

Electric Car Clubs

There is currently one car club operator within the County, which has been successfully operating since 2015 by Derbyshire Community Health Services (DCHS). The Council will need to consider support to be offered to develop the car club sector and provide appropriate infrastructure.

E-Bikes

E-bikes provide the lowest emission mode of powered transport. E-Bikes are becoming increasingly popular within Derbyshire for both leisure and utility journeys, and are particularly well suited to support cycling in more rural areas, providing pedal assistance to the rider for hills and longer distances. E-bikes can be used on cycle pathways, cycle ways and used in the same way as regular pedal cycles. E-bikes can provide a viable solution to replace short journeys. For the majority of short journeys and days out, E-Bikes will not generally require re-charging during the day. Provision within businesses, cafes, hotels and bed & breakfast accommodation, could provide suitable infrastructure for short journey users to re-charge E-Bike batteries (this will sometimes be by allowing access to a standard 3-pin 13 Amp socket).

For longer journeys range anxiety is an issue, particularly in hilly areas. Infrastructure will therefore be required to meet the needs of these users. Charging can take approximately 2 hours, however 80% power charge can be achieved within shorter periods of time, with costs to the electricity provider of around 7p for a full charge.

The purchase cost is higher than that of a regular bike and therefore it will be important to share best practice around workplace salary sacrifice schemes. Adequate storage is also an important consideration due to the cost of E-bikes. The strategy will therefore need to consider the importance of ensuring suitable storage at appropriate locations.

Hire schemes can provide an important mechanism to increase accessibility and reduce barriers of initial cost. Such schemes can facilitate users to convert to E-bikes for short journeys in urban areas.

3.5 Sources of funding

Depending on the type of electric vehicle charge point, the initial cost of purchase, installation and maintenance of the units and installation works are likely to be substantial, especially if electrical works are required to meet the energy demands required. In addition, there are the statutory order costs for equipment siting, bay designation and enforcement. Sources of funding will also need to consider wider infrastructure identified in this strategy for hydrogen-powered vehicles and e-bikes. The Council will consider a wide range of potential funding sources. These will include assessing:

- Private partners and other commercial deals
- Office for Low Emission Vehicles (OLEV) grant funds
- Development levies such as Section 106 funding or Community Infrastructure Levy
- Corporate Capital funding
- Other

4. The Strategy

4.1 Our Vision:

Derbyshire County Council will work collaboratively with local partners to accelerate the adoption of low emission vehicles across the county, and in doing so make a major contribution to improving local air quality and to reducing greenhouse gas emissions.

5. Policies

Ten strategic policy statements will guide the implementation of Derbyshire County Councils Low Emission Vehicle Infrastructure strategy. These policy statements have been developed following consultation with a range of partner organisations and stakeholders. A working group will ensure the implementation of the strategy through the development of broad actions covering the 10 year period of the strategy and an annual action plan with defined and measurable actions and leads. Governance and monitoring of the strategy will be undertaken through the Environmental Sustainability Group, through quarterly reporting of progress on the annual action plan.

LEVI 1 Derbyshire County Council (DCC) will work with partners on the provision and delivery of low emission vehicle infrastructure across the county

Outcomes	Performance Measure
<ul style="list-style-type: none">Derbyshire will have a network of mixed speed public charging infrastructure which is affordable, consistent, accessible and user friendly for residents and visitors.Derbyshire will support the uptake of low emission vehicles in the commercial sector.Residents with no off-street parking will be able to charge their electric vehicle through provision of on-street charge points.The use of LEVs and LEVI across the county will be monitored and evaluated.Annual monitoring and evaluation processes in place.Maximised opportunities available through the procurement process to achieve the best possible outcome for Derbyshire.Derbyshire will be a 'safe haven' for e-bike users.	<ul style="list-style-type: none">Number of low emission charging facilities.Number of e-bike charging facilities.

LEVI 2 DCC will adopt a partnership approach to trial new LEV technologies and explore opportunities to innovate

Outcomes	Performance Measure
<ul style="list-style-type: none"> Innovate and use best available techniques in order to maximise the opportunities for Derbyshire considering both the vehicle and the infrastructure required. Opportunities to trial new approaches and technology will be explored. 	<ul style="list-style-type: none"> Number of opportunities for innovation engaged with.

LEVI 3 DCC will work through the planning system and with private developers and landowners to provide LEVI

Outcomes	Performance Measure
<ul style="list-style-type: none"> Number of developments with low emission vehicle infrastructure installed. 	<ul style="list-style-type: none"> LEVI provision will be included at the planning stage of all developments.

LEVI 4 DCC will adopt a partnership approach to review current parking management policies

Outcomes	Performance Measure
<ul style="list-style-type: none"> There will be a consistent and effective approach to the policies and practice of parking management for EV chargepoint locations to provide a positive customer experience and remove uncertainty for end users whilst allowing flexibility to adapt to future market demands and changes. 	<ul style="list-style-type: none"> Number of local planning authorities with consistent parking management policies.

LEVI 5 DCC will work with partners to raise awareness of low emission travel

Outcomes	Performance Measure
<ul style="list-style-type: none"> Residents, businesses and visitors will be aware of the low emission vehicle market and of the infrastructure provided to support their use. 	<ul style="list-style-type: none"> Progress against LEVI Communications Action Plan.

LEVI 6 DCC will provide LEVI for its employees

Outcomes	Performance Measure
<ul style="list-style-type: none">• Derbyshire County Council will provide infrastructure required to support the use of LEV amongst employees.• Derbyshire County Council will facilitate the take up of LEVI amongst employees.	<ul style="list-style-type: none">• Number of LEV chargepoints installed• Number of LEV initiatives deployed

LEVI 7 DCC will deploy LEV's within its pool fleet

Outcomes	Performance Measure
<ul style="list-style-type: none">• Derbyshire County Council will accelerate deployment of LEVs within its pool fleet.	<ul style="list-style-type: none">• No. of LEV's within County Council pool fleet.

LEVI 8 DCC will work with partners to support private industry and public sector organisations to deploy LEV's within fleets

Outcomes	Performance Measure
<ul style="list-style-type: none">• Derbyshire County Council in collaboration with partners will support private industry and public sector organisation to accelerate the deployment of LEVs within fleets.	<ul style="list-style-type: none">• Number of partner organisations engaged with

LEVI 9 DCC will work in partnership to support public transport and taxi operators embrace alternative fuel technologies and infrastructure

Outcomes	Performance Measure
<ul style="list-style-type: none">• Derbyshire County Council will maximise opportunities to support public transport and taxi operators to embrace alternative technologies and infrastructure.	<ul style="list-style-type: none">• No. of public transport and taxi operators engaged with.

LEVI 10 DCC will embed the LEVI Strategy and Action Plan within the context of an umbrella Derbyshire Clean Growth Strategy

Outcomes	Performance Measure
<ul style="list-style-type: none">• Derbyshire County Council will provide strategic leadership in the implementation of the LEVI strategy.	<ul style="list-style-type: none">• LEVI Strategy embedded within the Derbyshire Clean Growth Strategy

