

**Teignbridge District Council  
Full Council  
Meeting date 5 September 2023  
Part i**

**The Replacement and Decarbonisation of the Council's Vehicle Fleet**

**Purpose of Report**

To seek approval of the approach to be taken on the replacement of the Council's vehicle fleet in relation to decarbonisation aspirations.

**Recommendation(s)**

The Council RESOLVES:

- (1) That the vehicle fleet is replaced as detailed in Option 4, with all suitable small, medium, and large vans switching to Battery Electric Vehicles, and the required Large Goods Vehicles remaining as diesel units.
- (2) That Hydrogenated Vehicle Oil is not introduced as a replacement fuel but options around its use, and other potential alternative fuels, continue to be actively considered in relation to our carbon reduction pathway.

**Financial Implications**

Please see paragraph 3.1 of the report.  
Martin Flitcroft  
Chief Finance Officer & Head of Corporate Services  
Email: [martin.flitcroft@teignbridge.gov.uk](mailto:martin.flitcroft@teignbridge.gov.uk)

**Legal Implications**

Please see paragraph 3.2 of the report.  
Paul Woodhead, Head of Legal Services and Monitoring Officer  
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**Risk Assessment**

Please see paragraph 3.3 of the report.  
Waste & Cleansing Manager  
[chris.braines@teignbridge.gov.uk](mailto:chris.braines@teignbridge.gov.uk)

**Environmental/Climate Change Implications**

Please see paragraph 3.4 of the report.  
William Elliot, Climate Change Officer

## **Report Author**

Waste & Cleansing Manager  
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## **Executive Member**

Cllr Charles Nuttall - Executive Member for Recycling, Household Waste & Environmental Health

### **1. Introduction/Background**

The majority of the Council's fleet is due for renewal during 2024. Vehicles are supplied on a lease basis. The initial term was for 7 years, with the option to extend for 3 years where vehicles remained serviceable. The option to extend was exercised and we are currently in the final year of the extension period for the remaining vehicles initially supplied.

With the increased likelihood of breakdowns and repairs and risks to disruption of front-line services and long lead times on vehicles, the decisions required from this report are time sensitive. Orders need to be placed to ensure the timely provision of vehicles and any infrastructure works required.

The Council declared a Climate Emergency and became a signatory of the Devon Climate Emergency in 2019. An assessment of our in-house carbon footprint confirmed that the vehicle fleet accounts for approximately 50% of our direct carbon footprint.

The Council has engaged external specialist support to help inform decisions and consider a range of options to reduce the carbon emissions of the fleet. Battery Electric Vehicles (BEVs) and the replacement of diesel with Hydrogenated Vegetable Oil (HVO) biofuel have emerged as the most viable options to consider.

### **2. Fleet Replacement and Decarbonisation Details**

#### **2.1 Fundamental Fleet Requirements**

An efficient fleet of vehicles is essential for the effective delivery of front-line waste, recycling, enforcement, parking, and street cleansing functions by the Council's in-house teams.

The Council operate 56 LGV's (also often referred to as HCVs (Heavy Commercial Vehicles) or HGVs (Heavy Goods Vehicles) and 45 Light Commercial Vehicles (LCV's) which in the context of this report relates to vans weighing up to 3,500kg and includes all the 'small', 'medium' and 'large' vans.

#### **2.2 Fleet Decarbonisation**

Committee  
Date of meeting

Recognising that the fleet accounts for about 50% of our direct carbon footprint, the Part 1 Carbon Action Plan contains the two priority actions:

“Action 4: Develop a masterplan to determine the future of our Depot site on Brunel Industrial Estate”.

“Action 5: Develop a vehicle fleet decarbonisation pathway to determine how we can transition away from diesel fuelled vehicles to low carbon alternatives”.

### **Battery Electric Vehicles**

The consensus is that Battery Electric Vehicles (BEV's) are emerging as the only viable alternative technology to a diesel fleet, and that the depot is well placed in relation to the resulting power and charging infrastructure requirements which are considered in more detail in the associated Part ii report.

### **Hydrogen**

Hydrogen vehicles are more expensive, largely unavailable in the specifications required, more complex, harder to maintain, costlier to fuel, have a higher emissions intensity associated to their dominant energy source at present (natural gas) and are inefficient compared to BEVs.

### **Biomethane and Hydrogenated Vegetable Oil (HVO)**

Biomethane is generated from renewable feedstocks, typically through an anaerobic digestion process. Vehicle availability is extremely limited and unit costs are high, however.

There has been growing interest in HVO, a 'drop-in' replacement fuel which diesel vehicles can use without modification. Our current contracted fuel supplier can provide HVO albeit at an increased cost.

Although HVO could be used as a transition fuel to bridge the gap between a diesel and a battery electric fleet, officers have concluded that HVO should be excluded from our decarbonisation pathway for the following reasons:

- **Limited assurance:** Although HVO supply chains are typically accredited under the International Sustainability and Carbon Certification (ISCC) scheme, there is limited assurance on the origin of HVO feedstocks.
- **Divestment:** HVO will tend to divert funding from long-term solutions such as battery electric vehicle technology.
- **Guidance:** The Science Based Targets Initiative recommends that direct emissions produced from the combustion of biofuels should not be discounted from organisational carbon footprints.

### **Carbon Benefits of More Efficient Diesel Vehicles**

Whilst there will be some carbon reduction benefits achieved through the replacement of old with new, more efficient diesel vehicles, these will be relatively minor when compared to that achieved for an equivalent BEV for example.

### **2.3 Market Availability of Battery Electric Vehicles**

There are limited available BEV vehicle configurations that allow appropriate access, sufficient payloads (amount the vehicle can carry) and range (distance vehicles can cover before needing to recharge), particularly whilst carrying heavy loads around our hilly district. Specialist refuse and recycling BEV technology is still in its relative infancy.

Conversely, BEV units to cover the roles many of our small, medium, and large vans undertake, such as street cleansing, restricted access collections and deliveries, supervisory, enforcement and parking functions, are available and capable of performing as required.

### **Examples of Battery Electric Vehicles**

There are a significant number of BEV refuse collection vehicles (RCVs) in operation nationally. These tend to be in large cities with high collection densities, easy access, and less challenging topography, however.

Kerbside sort recycling vehicles are in extremely limited use, with four in operation in total in the UK. As both refuse and recycling LGV BEVs are untested over meaningful timeframes, or in comparable working environments, their procurement would create significant levels of risk.

We have undertaken our own trials using demonstration BEV's from a range of suppliers of waste and recycling vehicles to evaluate their performance against our requirements.

In summary, all the small & medium, and most of the large vans are available as BEVs and within the required lead-times if orders are placed during September 2023. There are, however, limited viable options available for most of the specialist LGV vehicles required. We are not currently recommending the use of BEV LGVs.

### **2.4 Site Masterplan and Infrastructure Requirements**

The Forde Road Depot is well placed geographically to secure the necessary power supply for a complete fleet of BEVs with comparatively low infrastructure investment costs. There is immediate access to the 11kV electricity network, located in Forde Road which has spare capacity.

The site's spatial footprint is sufficient to accommodate the existing fleet, and with partial site remodelling, further capacity can be made available to accommodate additional vehicles that will be required to deliver services for the District's increasing population.

It is possible to procure the required electricity supply and install charging infrastructure to coincide with fleet renewal timescales. The timeframes are challenging however and delays on the decisions required could jeopardise the transition to BEVs at the depot and increase the risk of losing the available free capacity to other users on the industrial estate.

## **2.5 Options, Costs & Timeframes**

Five options are presented in detail in the accompanying Part ii report.

- Option 1 - Replace with Diesel units over a 7-year cycle.
- Option 2 - Replace with Diesel units over a 10-year cycle.
- Option 3 - Replace with Diesel units over a 7-year cycle except for the small and medium vans which would be BEVs.
- Option 4 - Replace with Diesel units over a 7-year cycle except for the small, medium, and suitable large vans which would be BEVs.
- Option 5 - Replace with Diesel units over a 7-year cycle except for the small, medium, and suitable large vans and identified LGV's which would be BEVs.

## **2.6 Recommended Option**

To achieve the greatest balance between operational certainty, costs, and decarbonisation of the fleet's emissions it is recommended that Option 4 is supported.

## **3. Implications, Risk Management and Climate Change Impact**

### **3.1 Financial**

The associated Part ii report provides detailed information on option costs to help inform the decision required.

### **3.2 Legal**

There are no specific legal implications arising out of this report.

### **3.3 Risks**

There are significant risks associated with the decision and resulting actions required from this report. These can be summarised as follows.

- Replacement Vehicle Timeframes
- Infrastructure Timeframes
- Project Costs
- Power Supply Risks
- Flooding
- Health & Safety

### **3.4 Environmental/Climate Change Impact**

The proposed project will reduce the Authority's Scope 1 Carbon Footprint by 58 tonnes CO<sub>2</sub> per annum and provide the infrastructure necessary to support the long-term future needs of a battery electric fleet.

### **4. Alternative Options**

Options 1,2,3 and 5 for fleet replacement were considered in this report. Option 4 provides the greatest reduction in fleet emissions operationally viable.

A range of other low emission vehicle technologies were also considered, including hydrogen, Hydrogenated Vegetable Oil (HVO) and biofuels.

### **5. Conclusion**

The vehicle fleet accounts for approximately 50% of our direct carbon footprint through the consumption of fossil fuels. Efforts to reduce this are therefore crucial to the achievement of the Council's net zero ambitions.

The decision required in relation to fleet replacement and associated infrastructure works is time sensitive if the replacement of all the small and medium sized, and majority of large diesel vans with Battery Electric Vehicles (BEVs) as detailed is to happen in this fleet replacement cycle.

The transition to BEV's should be considered as the start of the journey towards further fleet decarbonisation and will future proof the Forde Road Depot's related energy requirements.

Option 4 provides the greatest reduction in fleet emissions operationally viable and is the recommended approach.