

Fleet Decarbonisation and Replacement Strategy

2025-2035



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Abbreviations

BEV	Battery Electric Vehicle
CO2e	Carbon Dioxide Equivalent
EV	Electric Vehicle
FCEV	Fuel Cell Electric Vehicle
HGV	Heavy Goods Vehicle
HVO	Hydrotreated Vegetable Oil
LCV	Light Commercial Vehicle
RCV	Refuse Collection Vehicle
ZEV	Zero Emission Vehicle



1 Introduction

Westmorland and Furness Council is a relatively new unitary authority established on 01 April 2023. The Council covers the areas previously administered by the former district councils of Barrow, Eden and South Lakeland. It also encompasses the former functions of what was previously Cumbria County Council.

The Council, like its predecessors, is committed to becoming carbon net zero and this commitment is reiterated in the organisation's Council Plan, Council Plan Delivery Framework, Climate Action Plan, Carbon Management Strategy and Electric Vehicle Strategy.

The Council operates a fleet of 360 vehicles. These are utilised by a wide range of teams in delivering the Council's many essential services across the district. Unlike some organisations who control a limited range of vehicle types, the Council's fleet is highly mixed which reflects the diverse range of services delivered to the area's residents, businesses and visitors. The services delivered by the Council's vehicles include waste and recycling collections, home to school and adult day opportunities transport, highways maintenance and gritting, community equipment deliveries and home care provision. In addition, the organisation's vehicles are used by staff supporting the operation of internal teams including ICT, finance, legal, people management and fleet.

The majority of the Council's current fleet was inherited from the four legacy local authorities on Local Government Reform Vesting Day, 01 April 2023. The vehicles are a mixture of owned, leased and hired, and are primarily fuelled by standard unleaded and diesel products. The current fleet comprises of standard cars and vans plus a wide range of specialist vehicles including refuse and waste collection trucks, gritters, tipper trucks, road sweepers, coaches and minibuses. The fleet is maintained by the organisation's in-house Fleet Services Team with five vehicle workshops across the Council area staffed by a team of qualified mechanics and technicians.

Local Government Reform and the establishment of Westmorland and Furness Council as a unitary local authority has created an opportunity to review the organisation's fleet of vehicles. The Council covers the third largest area by land size in England and the expanse of this footprint can present challenges in decarbonising the organisation's fleet having regard to current and prevailing fleet capabilities and the associated infrastructure for fuelling vehicles.



Fleet Decarbonisation and Replacement Strategy

The Fleet Decarbonisation and Replacement Strategy provides an evaluation of the Council's current vehicle fleet and makes recommendations for a programme of replacement and decarbonisation between 2025 and 2035.

This report provides a concise and easy to understand summary of the Fleet Decarbonisation and Replacement Strategy.

The detailed analysis and supporting evidence used to produce this report has been provided to Westmorland and Furness Council as a separate technical annex that includes the following documents:

1. Introduction to Zero Emission Vehicles and Renewable Fuels (1)
2. Introduction to Fleet and Infrastructure Review Methodology (2)
3. WFC Fleet Decarbonisation Strategy - Fleet Baseline v1
4. WFC Fleet Decarbonisation Strategy - Stakeholder Engagement v1
5. WFC Fleet Decarbonisation Strategy - Options Review v1
6. Fleet Decarbonisation Strategy - Stakeholder Workshop 1
7. Fleet Decarbonisation Strategy - Stakeholder Workshop 2

2 Methodology

To develop a robust and evidence-based Fleet Decarbonisation Strategy, Westmorland and Furness Council commissioned Cenex to:

- Produce an accurate and up-to-date fleet asset list that each service area can use as a single source of information about their vehicles, depots and operations.
- Determine the current greenhouse gas emissions baseline of the Council's operational vehicle fleet against which fleet decarbonisation progress can be measured.
- Engage with key stakeholders to better understand their specific requirements and to inform the development of the Fleet Decarbonisation and Replacement Strategy.
- Evaluate the technical feasibility of using battery electric vehicles (BEV), hydrogen fuel cell electric vehicles (FCEV) and renewable fuels for the Westmorland and Furness Council fleet.
- Determine what infrastructure would be required to introduce zero emission vehicles and renewable fuels into the Westmorland and Furness Council fleet over the next five to ten years (2025-2035).
- Determine the capital and revenue cost implications of introducing zero emission vehicles and renewable fuels into the Westmorland and Furness Council over the next five years (2025-2030).
- Develop a detailed Fleet Transition Action Plan outlining key milestones, roles and responsibilities, and potential delivery risks and mitigation strategies.

3 UK Government Policy

The Ten Point Plan for a Green Industrial Revolution (November 2020)¹

In November 2020, the UK Government announced a ten-point plan for a green industrial revolution to mobilise £12 billion government investment to create and support up to 250,000 highly skilled green jobs in the UK. This included a target to end the sale of new petrol and diesel cars and vans by 2030¹ and for 100% of new cars and vans to be zero emission vehicles (ZEV) from 2035.

2035 : All new cars and vans sold in the UK to be ZEVs

Heavy Goods Vehicles: Ending the Sale of New Non-Zero Emission Models (July 2021)²

In July 2021, the Department for Transport published the Transport Decarbonisation Plan and launched a consultation seeking views on when to end the sale of new non-zero emission heavy goods vehicles (HGV) in the UK.

Following consultation, all new HGVs up to 26 tonnes sold in the UK must be zero emission vehicles from 2035, and all new HGVs sold in the UK must be zero emission vehicles from 2040.

2035 - 2040 : All new HGVs sold in the UK to be ZEVs

Zero Emission Vehicle Mandate (January 2024)³

The zero emission vehicle mandate, or ZEV Mandate, came into law in January 2024 and sets out the percentage of new zero emission cars and vans that manufacturers will need to produce each year between now and 2035.

The regulation requires that for each non-ZEV sold the manufacturer must have a 'ZEV allowance', if a manufacturer sells fewer ZEVs than their target, there are several ways to comply or alternatively, they must make a final compliance payment of £12,000 per car or £15,000 per van.

2030 : 80% of new cars & 70% of new vans sold in the UK to be ZEVs

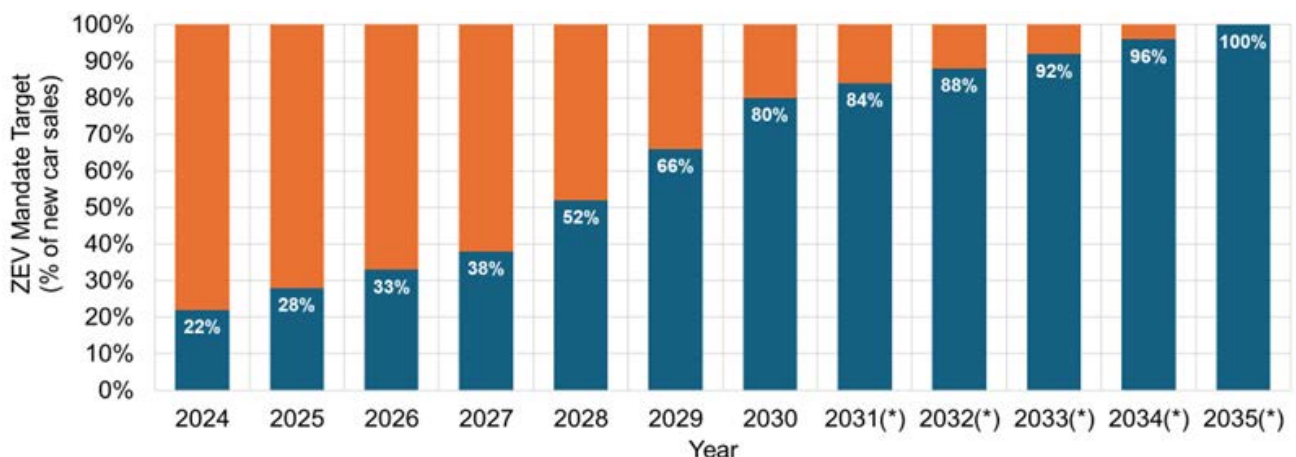


Figure 1 - Zero Emission Vehicle Mandate Targets for Cars (* target will be set out in future legislation)

¹At the time of writing, hybrid cars and vans with internal combustion engines will be allowed to be sold until 2035.

Clean Power 2030 Action Plan (December 2024)⁴

The Clean Power 2030 Action Plan sets out a pathway to a clean power system by 2030. In a typical weather year, clean power sources will be expected to produce at least 95% of Great Britain's generation, reducing the carbon intensity of the grid from 171 gCO₂e/kWh to well below 50 gCO₂e/kWh in 2030.

4 Westmorland and Furness Council Policy

The Council Plan (April 2023)⁵

Westmorland and Furness Council was formed as a new Unitary Authority on 1 April 2023 from the areas previously administered by Barrow, Eden and South Lakeland in Cumbria. The Council Plan sets out the Council's vision, values and priorities for the first five years of its existence.

The Fleet Decarbonisation and Replacement Strategy supports the key priorities, including that:

- 'Westmorland and Furness Council is working hard to ensure that the area we service becomes carbon net zero by 2037, and our organisation, as soon as possible'.

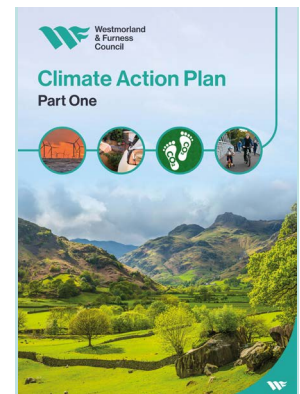


Climate Action Plan Part One (July 2023)⁶

The Climate Action Plan Part One sets out the Council's vision and ambitions to ensure that the Council is carbon net zero as soon as possible. This includes actions in six categories to tackle climate change and achieve net zero.

The Fleet Decarbonisation and Replacement Strategy supports the 'way we work' category which establishes decarbonisation of the Westmorland and Furness Council estate as a key activity covering:

- 'Greenhouse gas emissions from scope one (direct emissions from buildings and fleet), scope two (indirect emissions associated with purchased energy e.g. electricity) and scope three (all other indirect emissions through our supply chain)' e.g. fuel and energy production.

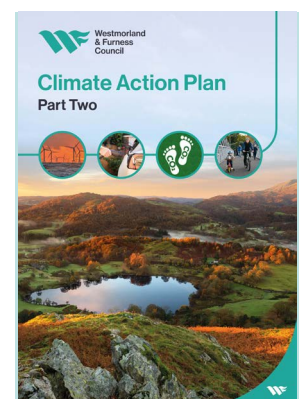


Climate Action Plan Part Two (January 2024)⁷

The Climate Action Plan Part Two reiterates that the Council is committed to:

- 'Demonstrating leadership by becoming net zero as a Council by 2037 for Scope 1 and 2, and 2050 for Scope 3 at the latest, through the decarbonisation of our assets, operations and footprint'.

The Climate Action Plan Part Two also includes a full list of actions that explains how the Council will achieve key steps towards net zero over the five years from 2024 to 2029. This includes implementing a fleet management software across the Council and the development of a Fleet Decarbonisation and Replacement Strategy.



Carbon Management Strategy 2024-2029 (January 2024)⁸

The Carbon Management Strategy provides a baseline of the total greenhouse gas emissions generated by the operations of the Council and provides measures to reduce these emissions.

The Carbon Management Strategy shows that the Council owned fleet accounts for 41% of the scope 1 emissions and 6% of the full carbon emissions inventory.

The Fleet Decarbonisation and Replacement Strategy supports the 'Transport Emissions Reduction Pathways' by providing more detail around the following fleet related measures:

- Switching to hydrotreated vegetable oil (HVO) for all diesel vehicles >7.5 tonnes using existing storage tanks and four additional HVO tanks.
- Introducing electric vehicles (EV) for the remaining 512 vehicles with EV alternatives and 51 charging points (assuming a 1:10 ratio of charging points to EVs).
- Replacement of around 10% of council vehicles with EVs each year over a 10-year period.



5 Fleet Emissions Baseline

Westmorland and Furness Council has an operational fleet of 380 vehicles, excluding grey fleet and plant equipment like telehandlers. This includes everything from cars to 3.5 tonne panel vans and tippers, accessible minibuses for school transport and specialist HGVs like refuse collection vehicles (RCV) and truck mounted sweepers.

Each year the fleet travels **3,100,000 miles**, consumes **900,000 litres** of diesel and petrol, and produces **2,820 tonnes of greenhouse gas emissions** which is equivalent to around 1,410 private passenger cars.

2,820 tonnes of greenhouse gas emissions each year

The top six vehicle types used by the Council account for 84% of the fleet greenhouse gas emissions. Most of these vehicles are specialist HGVs and light commercial vehicles (LCV). These vehicle segments will be most important for the long-term success of the Fleet Decarbonisation and Replacement Strategy as they also determine the overall energy needs of the fleet.

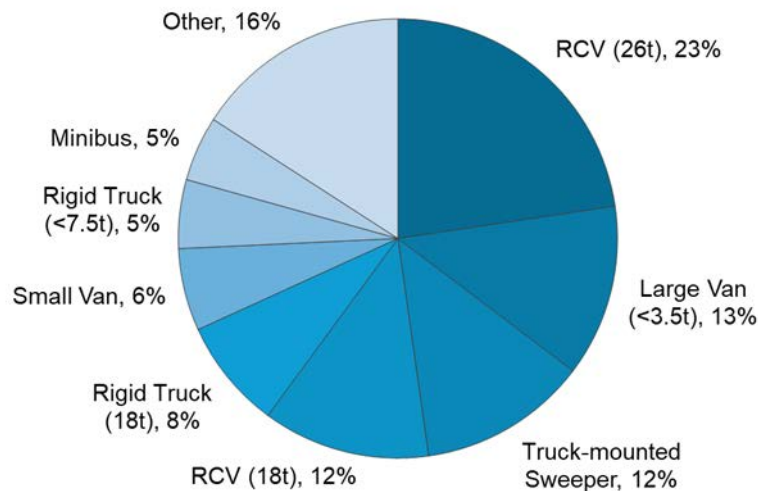


Figure 2 - Greenhouse Gas Emissions Contribution by Vehicle Type

Waste and Environmental Services is the largest emitter on the fleet, accounting for 25% of the vehicles and 50% of the greenhouse gas emissions. Most of these emissions come from 26 and 12 tonne waste and recycling vehicles based at Canal Head North (Kendal), Salhouse Road (Barrow-in-Furness) and other depots.



Highways Delivery is the second largest emitter on the fleet, accounting for 29% of the vehicles and 25% of the greenhouse gas emissions. Most of these emissions come from the winter fleet (gritters, snow ploughs etc.) and 3.5 panel vans based at Skirsgill (Penrith) and Sowerby Woods (Barrow-in-Furness).



Cumbria Transport Operational Team is the third largest emitter on the fleet, accounting for 10% of the vehicles and 7% of the greenhouse gas emissions. Most of these emissions come from large van derived minibuses as well as smaller vans and cars based across several depots, Kendal County Hall (Kendal), driver homes and Mill Lane Adult Centre (Walney).

6 Stateholder Engagement

During the development of the Fleet Decarbonisation and Replacement Strategy, Cenex and Westmorland and Furness Council engaged with key stakeholders from across the Council.

This included gathering data on fleet operations and depots, consulting on the methodology and assumptions used and providing direct input into the Fleet Decarbonisation Strategy and Action Plan during stakeholder engagement workshops held at the start and end of the project.

Key Stakeholders Involved

- Fleet Services
- Waste and Environmental Services
- Highways Delivery
- Cumbria Transport Operational Team
- Community Equipment Service
- Library Services
- Corporate Assets
- Electric Vehicle Infrastructure Team
- Climate and Natural Environment Team

Workshop 1 – Requirements and Concerns

The first workshop took place in Penrith on the 4th of November 2024. The purpose of this workshop was to introduce the project, present the results from the fleet baselining study and to better understand the specific requirements and concerns of each service area.

Workshop 2 – Feedback and Next Steps

The second workshop took place in Carlisle on the 20th of January 2025. The purpose of this workshop was to present the key findings from the development of the Fleet Decarbonisation and Replacement Strategy, get feedback on the specific recommendations and start to put the strategy into action by getting the stakeholders to discuss and develop the immediate next steps.



Key Findings and Recommendations

There is a high level of support for the Fleet Decarbonisation and Replacement Strategy within the service areas, with an average of 5 out of 9 in the stakeholder group (57%) saying that they 'strongly agree' with the proposed strategy and the key recommendations shown below.

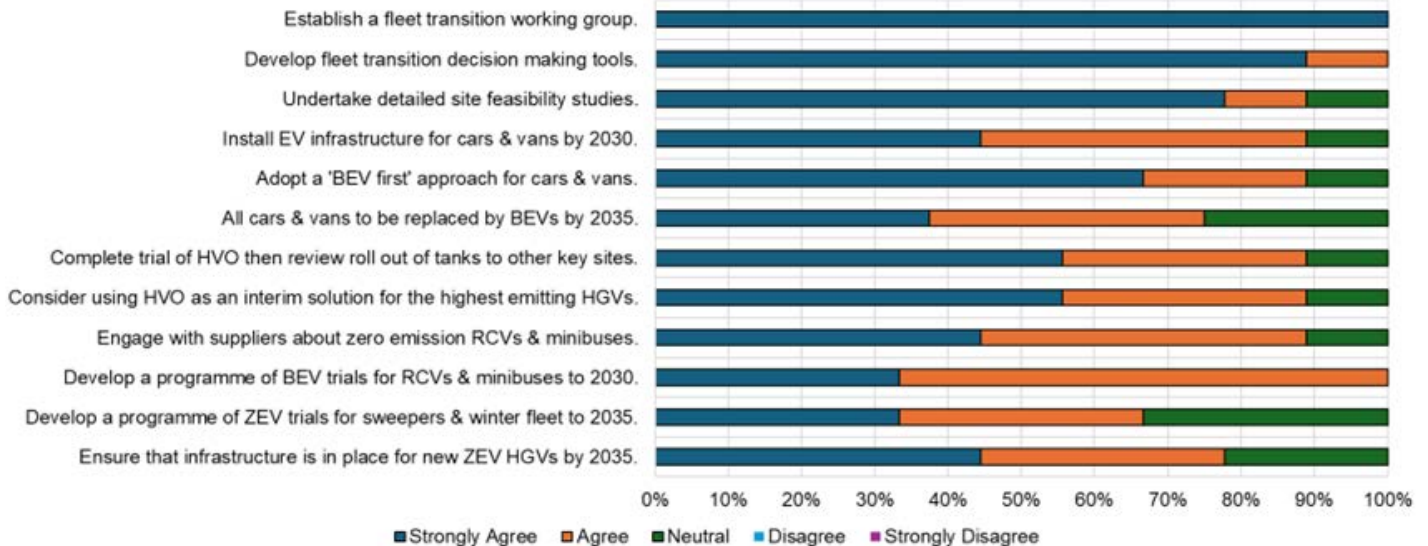


Figure 3 - Support for the Fleet Decarbonisation and Replacement Strategy Recommendations

There is also a clear understanding of the challenges associated with transitioning to a zero emission vehicle fleet, with specific concerns raised about operational suitability, infrastructure and training.

Since the workshops, Westmorland and Furness Council has:

- Appointed a dedicated resource within the Programme Management Office to support the fleet transition programme.
- Established an advisory working group led by the Resources Directorate that will meet quarterly to consult and inform on the progress of the fleet transition programme.
- Developed an initial plan to develop and deliver a programme of zero emission vehicle trials.



7 Fleet Decarbonisation Options Review

To develop the Fleet Decarbonisation and Replacement Strategy, Westmorland and Furness Council and Cenex undertook a detailed assessment of the following technology options:

1. Hydrotreated vegetable oil used in existing diesel engines.
2. Biomethane used in compressed natural gas vehicles.
3. Battery electric vehicles.
4. Hydrogen fuel cell electric vehicles.

Each option was assessed in detail against key criteria:

Metric	Description
Vehicle Availability	Maturity: higher maturity technologies are supported by major manufacturers and can already be deployed at scale. Availability: of the required makes, models and configurations.
Operational Suitability	Specifications: whether vehicles are a direct replacement or not. Range: whether vehicles can complete their average daily mileage and typical maximum daily mileages on one charge or refuel only.
Vehicle Costs	Purchase Costs: upfront purchase cost compared to diesel / petrol. Residual Values: expected residual value based on current market conditions and forecasts.
Running Costs	Fuel: fuel costs over the life of the vehicle based on current fuel and energy prices. Maintenance: expected service, maintenance and repair costs.
Total Cost of Ownership	Now: whether vehicles can already provide total cost of ownership savings or not based on current vehicle and energy prices. Future: whether total cost of ownership is likely to improve or not.
Infrastructure Requirements	Public: the availability and viability of public infrastructure. Depot: the availability and viability of depot-based infrastructure.
Emissions	Greenhouse Gas Emissions: the potential to deliver greenhouse gas emissions savings over the life of the fuel. Air Quality Emissions: the emissions standard (ZEV or Euro VI / 6).
Environmental Impacts	Lifecycle Emissions and Sustainability: any notable concerns around product lifecycle emissions or broader sustainability.

A seven-point scale was used to assess whether each metric has a positive or negative impact on the potential for Westmorland and Furness Council to deploy the technology at scale across the fleet. Separate scores were given to Cars & LCVs, and HGVs in recognition of the different maturities of the technologies.

Key	Score
Large Positive	3
Moderate Positive	2
Slight Positive	1
Neutral White	0
Slight Negative	-1
Moderate Negative	-2
Large Negative	-3

Hydrotreated Vegetable Oil

HVO is chemically similar to regular diesel but is made from more renewable waste feedstocks such as used cooking oil.

HVO that meets the EN 15940 fuel standard is approved for use in the latest Euro VI diesel engines from all major truck manufacturers and some, but not all, van manufacturers.

HVO produces similar emissions from the tailpipe as diesel but can significantly reduce greenhouse gas emissions over the lifecycle of the fuel if using genuine waste feedstocks.



Table 1 - HVO Impact Assessment Table

Metric	Description	LCVs	HGVs
Vehicle Availability	Maturity: diesel engines are a high maturity technology, with HVO considered as a 'drop in' fuel that can be used without modifications. Availability: warranted for use by all major truck manufacturers and some van manufacturers, can only be used in diesel vehicles.	0	2
Operational Suitability	Specifications: direct replacement for fossil diesel with no impact on vehicle or refuelling systems. Range: slight difference in energy density that can have a small but insignificant impact on fuel economy.	1	1
Vehicle Costs	Purchase Costs: same as a diesel vehicle. Residual Values: same as a diesel vehicle.	3	3
Running Costs	Fuel: up to 40 p / litre or a 33% increase depending on market conditions, price could reduce as demand and production increases. Maintenance: same as a diesel vehicle.	-2	-2
Total Cost of Ownership	Now: average increase of ~£2k for each HGV. Future: future HVO prices are uncertain and are dependent on external factors, HVO use should be reviewed accordingly.	-2	-2
Infrastructure Requirements	Public: limited public refuelling, but increasingly available at selected Certas Energy HGV refuelling sites. Depot: compatible with existing fuel bunkers or installed in self-bunded storage tanks.	2	2
Emissions	Greenhouse Gas Emissions: up to a 65% reduction in greenhouse gas emissions across the fleet if used in all HGVs (90% per vehicle based on UK Government emissions factors). Air Quality Emissions: meets Euro VI emissions standards.	2	2
Environmental Impacts	Lifecycle Emissions and Sustainability: best practice is to use International Sustainability and Carbon Certification and Renewable Fuels Assurance Scheme approved suppliers, and to ask for additional evidence that no virgin oils are being used to make HVO.	-1	-1

Recommendation: Westmorland and Furness Council should complete trials of HVO at Skirsgill Depot then consider using HVO as an interim solution for the highest emitting HGVs over the next replacement cycle.

Biomethane

Natural gas vehicles use an internal combustion engine, but instead of using petrol or diesel they use compressed (CNG) or liquefied natural gas.

Natural gas vehicles are refuelled at a growing network of public gas stations or at private depot facilities, mostly on the premises of supermarkets or logistics companies.

Natural gas vehicles produce similar emissions from the tailpipe as a diesel vehicle but can significantly reduce greenhouse gas emissions over the lifecycle of the fuel when using biomethane made from waste feedstocks like food waste.



Table 2 - Biomethane Impact Assessment Table

Metric	Description	LCVs	HGVs
Vehicle Availability	Maturity: natural gas vehicles are a high maturity technology with >2,000 HGVs in the UK, mostly operated by logistics companies. Availability: available from Iveco, Scania and Volvo. No low-entry cab RCVs available and limited options for some specialist HGVs.	-2	-2
Operational Suitability	Specifications: similar to a diesel vehicle. Range: similar to a diesel vehicle.	1	1
Vehicle Costs	Purchase Costs: increase of ~£5k to £25k per vehicle. Residual Values: uncertain but expected to improve as there are more vehicles and public gas stations, assumed to be similar to a diesel vehicle.	-1	-1
Running Costs	Fuel: average of a 50% reduction in annual fuel costs (assuming £1.24 / litre for diesel and £0.70 / kg for compressed natural gas). Maintenance: 10% to 30% increase compared to a diesel vehicle.	3	3
Total Cost of Ownership	Now: average increase of ~£3.5k for each HGV (similar to HVO but with fewer vehicle options and additional capital for vehicles and infrastructure). Future: Not expected to change significantly due to use case.	-1	-1
Infrastructure Requirements	Public: at least 15 public access stations and 17 depot-based stations, no stations currently in the Westmorland and Furness area. Depot: mobile and permanent solutions are available but typically need at least 30 high mileage HGVs to be economically viable.	-3	-3
Emissions	Greenhouse Gas Emissions: 83% reduction in greenhouse gas emissions based on UK Government emissions factors. Air Quality Emissions: meets Euro VI emissions standards.	2	2
Environmental Impacts	Lifecycle Emissions and Sustainability: natural gas is supplied from grid connected stations or by tanker. An equivalent amount of biomethane is produced and injected into the gas grid under the Renewable Transport Fuel Obligation.	1	1

Recommendation: Natural gas vehicles have successfully been deployed by some fleets, but it is currently not a viable option for Westmorland and Furness Council due to the lack of vehicles and infrastructure compared to the required level of investment.

Battery Electric Vehicles

Battery electric vehicles use a battery and electric motor to power the vehicle instead of an internal combustion engine.

Rather than refuelling the vehicle with petrol or diesel, the vehicle must be plugged in to suitable electric vehicle infrastructure to recharge the battery between uses.

Battery electric vehicles produce zero emissions at the tailpipe and when powered by UK grid electricity or renewable energy can significantly reduce greenhouse gas emissions over the lifecycle of the fuel.



Image source: <https://www.vauxhall.co.uk/>



Image source: <https://business.renault.co.uk/van-range.html>



Image source: <https://www.daf.co.uk/en-gb>



Image source: <https://www.dennis-cargo.co.uk/>

Table 3 - Battery Electric Vehicle Impact Assessment Table

Metric	Description	LCVs	HGVs
Vehicle Availability	Maturity: battery electric vehicles are a high maturity technology with over 1.5 million cars and vans on the UK roads. Availability: available across most product ranges but more limited options for specialist applications like RCVs, minibuses and gritters.	0	-1
Operational Suitability	Specifications: direct equivalent for cars but there are compromises in specifications for some large vans and specialist HGVs. Range: 85% of the fleet can complete twice their average daily mileage, but sweepers and minibuses are range constrained.	-1	-1
Vehicle Costs	Purchase Costs: average increase of ~£4.5k for a car, ~£7k for an LCV, and ~£120k to £290k for HGVs. Residual Values: expected to normalise over the next replacement cycle for cars and LCVs, but highly uncertain for HGVs.	-1	-3
Running Costs	Fuel: average of a 15% reduction in annual fuel costs across the fleet (assuming £1.24 / litre for diesel and £0.28 / kWh for electricity). Maintenance: average of a 24% reduction in maintenance costs across the fleet.	2	1
Total Cost of Ownership	Now: 26% of cars and LCVs already provided total cost of ownership parity or savings, total cost of ownership increases for all HGVs. Future: Cars and some vans are expected to reach purchase cost parity over the upcoming replacement cycle (2026-2030).	-1	-3
Infrastructure Requirements	Public: Over 15,800 rapid or ultra-rapid charging devices at over 6,100 different locations in the UK, mostly for cars and some LCVs. Depot: viable to install at depots if there is enough space and power (up to 500 kW for cars, 1,000 kW for LCVs and 2,000 kW for HGVs).	-1	-2
Emissions	Greenhouse Gas Emissions: at least a 67% reduction in greenhouse gas emissions across the fleet using UK grid electricity. Air Quality Emissions: zero emissions at the tailpipe and quieter at low speeds, brake and tyre wear emissions depends on driving style.	3	3
Environmental Impacts	Lifecycle Emissions and Sustainability: greenhouse gas emissions are higher during production, but most studies show they are lower over the lifecycle of the vehicle if well utilised. New battery chemistries are reducing the use of metals like Nickel and Cobalt.	0	0

Recommendation: Westmorland and Furness Council should transition to battery electric cars and LCVs over the next replacement cycle wherever practical and cost effective. This should include limited trials of battery electric RCVs and minibuses.

Hydrogen Fuel Cell Vehicles

Hydrogen fuel cell vehicles combine hydrogen stored on the vehicle with oxygen from the air to produce electricity to power an electric motor. Hydrogen vehicles must be refuelled at a hydrogen refuelling station using compressed (or sometimes liquid) hydrogen.

Hydrogen fuel cell vehicles produce zero emissions at the tailpipe and when powered by green hydrogen can significantly reduce greenhouse gas emissions over the lifecycle of the fuel.

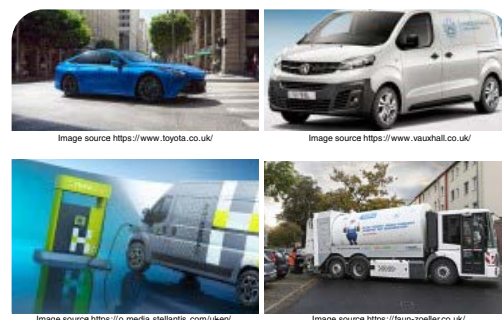


Table 4 - Hydrogen Fuel Cell Impact Assessment Table

Metric	Description	LCVs	HGVs
Vehicle Availability	Maturity: hydrogen fuel cell vehicles are a low maturity technology that is currently in the R&D / pre commercialisation phase. Availability: only two cars and two vans available, low volume suppliers provide HGVs, most truck suppliers have prototypes.	-2	-3
Operational Suitability	Specifications: packaging of hydrogen storage tanks can impact passenger or load space in some applications. Range: can theoretically provide increased range and faster refuelling times compared to battery electric vehicles.	0	0
Vehicle Costs	Purchase Costs: £50k to £100k for a car or van, HGVs cost a similar order of magnitude to an equivalent battery electric vehicle. Residual Values: expected to be poor due to a lack of vehicle and refuelling options in the UK.	-2	-3
Running Costs	Fuel: depends on hydrogen price but can be 2-3 times higher than a diesel vehicle (hydrogen typically becomes viable at £6-7 / kg but has been as high as £10-20 / kg). Maintenance: assumed to be similar to a diesel vehicle (best case).	-3	-3
Total Cost of Ownership	Now: hydrogen fuel cell vehicles are not currently economically viable for deployment and should be considered for trials only. Future: hydrogen vehicle and fuel costs need to reduce significantly before fuel cell vehicles can be considered for fleet wide deployment.	-3	-3
Infrastructure Requirements	Public: the UK does not have a public network of hydrogen refuelling stations and there are none in Westmorland and Furness. Depot: mobile and permanent solutions are available but are not economically viable to install and operate at individual depots.	-3	-3
Emissions	Greenhouse Gas Emissions: 100% reduction if using green hydrogen from renewable electricity, negligible benefit otherwise. Air Quality Emissions: zero emissions at the tailpipe and quieter at low speeds, brake and tyre wear emissions depends on driving style.	3	3
Environmental Impacts	Lifecycle Emissions and Sustainability: hydrogen fuel cell vehicles also use lithium-ion batteries (either hybrid or plug-in), so have similar considerations, and can also increase greenhouse gas emissions if using hydrogen made from fossil fuels.	0	0

Recommendation: Westmorland and Furness Council should continually review and assess zero emission vehicle technologies for the most challenging applications, but hydrogen is not considered a viable option in the short to medium term.

8 Fleet Decarbonisation and Replacement Strategy

Cenex recommend that Westmorland and Furness Council should undertake the following priority actions over the next five years (2025 to 2030)

- Adopt an 'EV first' approach for cars and vans (where practical and cost effective).
- Consider using HVO as an interim solution for the highest emitting HGVs.
- Trial battery electric waste and recycling vehicles, and minibuses on a representative selection of rounds and routes to better understand their operational capabilities and infrastructure requirements across the fleet.

A full list of priority actions can be found in Appendix A – Fleet Transition Roadmap and Action Plan, supported by an initial risk assessment in Appendix B – Risks and Mitigation Strategies.

8.1 Fleet Emissions Reduction Pathway

Adopting the proposed strategy would reduce greenhouse gas emissions over the next replacement cycle by at least 363 tonnes a year (13%). This is achieved by introducing 90 battery electric cars and LCVs, and two battery electric HGVs. A further 1,707 tonnes CO₂e a year (61%) reduction is possible if all remaining HGVs are also transitioned to HVO made from certified waste feedstocks.

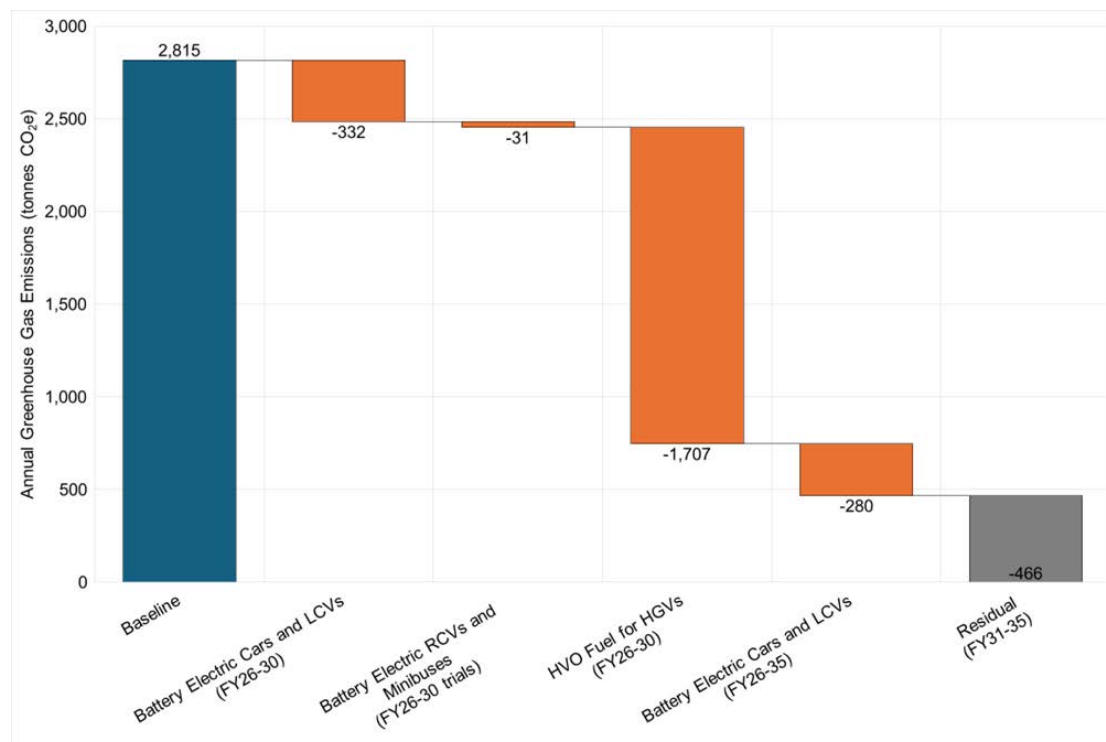


Figure 4 - Fleet Emissions Reduction Pathway

This would leave 1,707 tonnes (61%) of greenhouse gas emissions to be further mitigated as HGVs transition from HVO to zero emission vehicle technologies by 2035 and 280 tonnes (10%) to be removed as the remaining battery electric cars and LCVs reach total cost of ownership parity.

The remaining 466 tonnes (17%) of residual greenhouse gas emissions can only be reduced by introducing zero emission vehicles, either battery electric or hydrogen fuel cell vehicles, using renewable electricity directly from the grid or to produce green hydrogen.

8.2 Fleet Replacement Costs

We estimate that replacing the entire fleet with diesel and petrol vehicles would require approximately £24.100m in capital expenditure, or £3.44 million a year over the next seven years.

The table below shows the capital and revenue cost implications of introducing 90 battery electric cars and vans, 4 battery electric HGVs, and switching to HVO for the remaining HGVs over the next replacement cycle. This is based today's vehicle and energy costs, and a 1:1 ratio of vehicles to charging infrastructure that could be optimised based on operational experience.

Table 5 - Cost and Emissions Impacts of Recommended Measures

Category	Cost and Emissions Impacts	Cars and LCVs (Diesel and Petrol Vehicles)	Cars and LCVs (Battery Electric Vehicles)	RCVs and Minibuses (Battery Electric Vehicles)	HGVs and Minibuses (Diesel Vehicles with HVO)	Total
Vehicle Costs	Number of Vehicles	122	90	4	144	360
	Capital Cost	£2.99m	£2.93m	£1.13m	£18.10m	£25.15m
	Annual Revenue Cost	£0.26m	£0.20m	£0.04m	£1.71m	£2.21m
Infrastructure Costs	Capital Cost	£0.00m	£0.77m	£0.04m	£0.20m	£1.01m
	Annual Revenue Cost	£0.00m	£0.03m	£0.00m	£0.00m	£0.03m
Total Costs	Capital Cost	£2.99m	£3.70m	£1.17m	£18.30m	
	(Vehicles + Infrastructure)	£0.26m	£0.23m	£0.04m	£1.71m	£2.24m
Vehicle Costs vs. Current Fleet	Difference in Capital Cost	£0.00m	£0.42m	£0.62m	£0.00m	£1.04m
	Vehicle Costs vs. Current Fleet	£0.00m	£-0.06m	£0.00m	£0.26m	£0.20m
	Difference in Total Revenue Cost	£0.00m	£-0.42m	£-0.01m	£2.05m	£1.62m
	Difference in Total Cost of Ownership	£0.00m	£0.00m	£0.61m	£2.05m	£2.66m
Emissions vs. Current Fleet	Greenhouse Gas Emissions	0%	-12%	-1%	-61%	-74%

Increase vs. Current Fleet

Same as Current Fleet

Decrease vs. Current Fleet

Introducing 90 battery electric cars and vans, 4 battery electric HGVs, and switching to HVO for the remaining HGVs would require around **£26.160m in capital expenditure**. This equates to a capital requirement of approx. **£3.740m a year over the next seven years**, which is an initial additional **£1.320m per annum** compared to the existing average **£2.420m per annum** in the Capital Programme – Fleet Renewal Programme 2025/26 - 2029/30.

Pursuing this strategy will also result in a forecast £0.240m per annum revenue requirements attributable to fuel, electricity, vehicle maintenance and infrastructure operating costs.

ⁱⁱExcluding conversion costs for the most specialist vehicles on the fleet e.g. winter maintenance vehicles, Westmorland and Furness Council will need to confirm exact costs prior to replacement and subject to an approved business case.

Taking this approach would **reduce fleet greenhouse gas emissions by 74%** and represents good value for money compared to transitioning the entire fleet to zero emission vehicles which would currently cost approximately £45 million in capital alone.

8.3 Fleet Replacement Programme

The Westmorland and Furness Council fleet has an average vehicle age of 7 years, with 29% of the fleet (104 vehicles) being 10 years old or more.

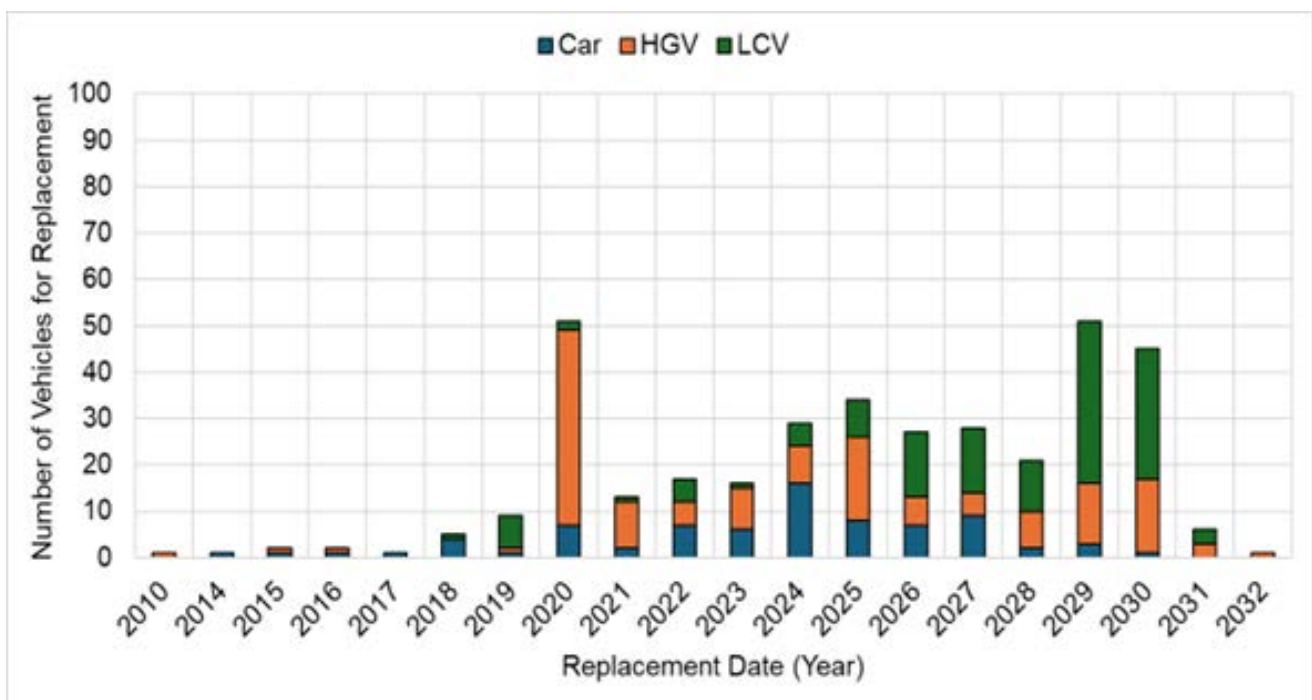
To develop a structured Fleet Capital Replacement Programme, Westmorland and Furness Council need to plan the replacement of the fleet over the next replacement cycle and introduce target ownership periods / replacement dates to ensure that the fleet is modernised and that there are sufficient opportunities to introduce new zero emission vehicles between now and 2035.

Fleet Services estimate that the economic life of a diesel or petrol vehicle is 4 years for cars, 5 years for LCVs and 6 years for HGVs with the option to extend this by two years, depending on the mileage and condition of the vehicle.

Baseline – Current Fleet Replacement Schedule

Based on an ownership period of 6 to 8 years, 50% of the fleet (181 vehicles) is already due for replacement, with the rest due to be replaced by 2030.

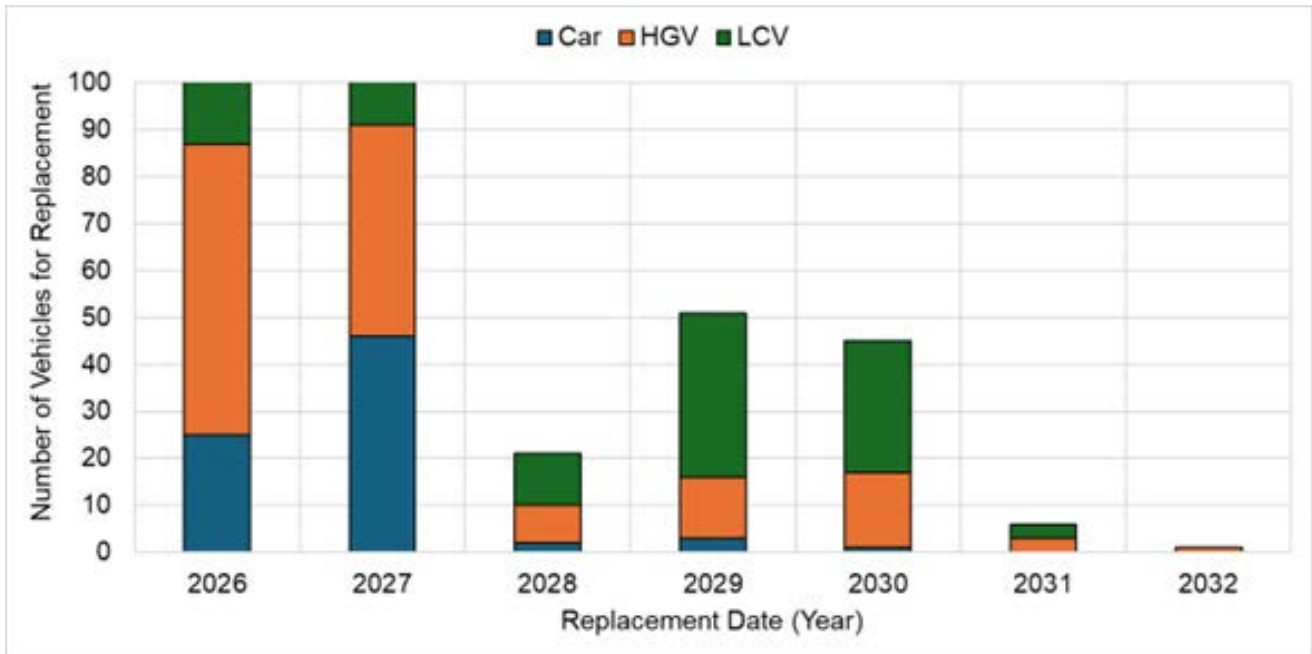
To replace the entire fleet over the next five years (FY26 to FY30), Westmorland and Council would need to replace 72 vehicles each year, instead of the ~15 to 50 vehicles a year that are currently planned.



Option 1 – Front Loaded Fleet Replacement Programme

If all vehicles that are overdue for replacement are introduced at the start of the next replacement cycle, then 112 vehicles would need to be replaced in 2026 and another 124 vehicles would need to be replaced in 2027.

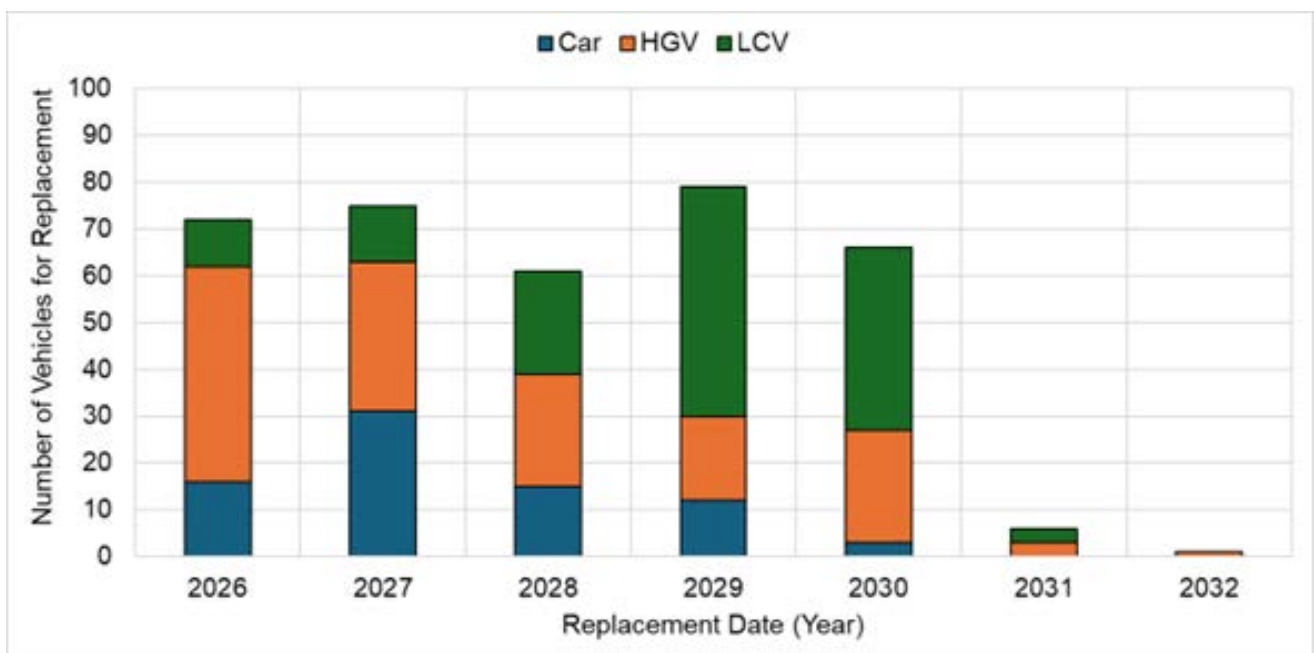
This would result in an average age at replacement of 12 years (2026) and 9 years (2027), respectively.



Option 2 – Evenly Distributed Fleet Replacement Programme

The fleet replacement programme can be further smoothed by extending the life of vehicles that are due for replacement from 2025 to 2028 by two to three years.

From 2029 onwards, any remaining diesel and petrol vehicles would be replaced according to the target replacement dates.



Appendix A – Fleet Transition Roadmap and Action Plan

The Westmorland and Furness Council Fleet Transition Roadmap and Action Plan are presented in two parts below, one for cars and vans and another for HGVs. Each plan is presented in chronological order with actions categorised by whether they relate to vehicles, infrastructure, estates, procurement, operations or the overall programme.

[illegible]

[illegible]

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Appendix B – Risks and Mitigation Strategies

The table below shows the initial risks that have been identified in relation to the actions that are either in progress or considered to be short term. The Programme Management Office will be responsible for continually identifying, assessing and monitoring risks throughout the transition programme.

Ref	Category	Risk	Likelihood	Impact	Level	Mitigation	Team
1	Infrastructure	Lack of space and power at depots could make it difficult to implement electric vehicles.	High	High	Critical	Undertake a detailed feasibility study at each site and investigate options for load management.	EV Infrastructure
2	Operational	Vehicles could be off the road for long periods of time for service, maintenance and repairs.	Medium	High	High	Consider maintenance during procurement and develop contingency plans for a mixed fleet.	Fleet Services
3	Internal	High capital for zero emission vehicles and infrastructure, uncertainty around depreciation.	Medium	High	High	Ensure that Fleet Decarbonisation and Replacement Strategy are financial sustainable.	Finance
4	Technology	Poor quality fleet data will make it more difficult to plan a zero emission vehicle fleet.	High	Medium	High	Standardise fleet management, data and telematics systems in all operational vehicles.	Fleet Services
5	Supplier	Key vehicle, fuel or infrastructure supplier(s) could cease trading.	Low	High	Medium	Consider procuring from several suppliers for 'first of a kind' solutions.	Fleet Services
6	Infrastructure	Resilience of electricity grid when operating a fleet of electric vehicles.	Low	High	Medium	Consider installing renewable energy generation and storage to reduce reliance on grid.	EV Infrastructure
7	Procurement	Long lead times or delays to procurement could lead to vehicles or infrastructure being unused.	Low	High	Medium	Ensure that delivery timescales, warranty and aftersales are considered in evaluation criteria.	Fleet Services

Ref	Category	Risk	Likelihood	Impact	Level	Mitigation	Team
8	Operational	Suitable zero emission vehicles don't become available on time.	Low	High	Medium	Develop and update plans for deploying and operating the latest zero emission vehicles.	Fleet Services
9	External	UK Government makes significant changes to zero emission vehicle policies and regulations.	Medium	Medium	Medium	Prepare to transition to zero emission vehicles in line with latest policy and regulations.	Fleet Services
10	External	Vehicle manufacturers make significant changes to their zero emission vehicle commitments.	Medium	Medium	Medium	Prepare to transition to zero emission vehicles in line with latest product availability and trends.	Fleet Services
11	Internal	Lack of buy in from senior management, operational staff or supporting staff.	Medium	Medium	Medium	Develop a communication and engagement plan. Assign change 'champions' in each department.	Communications
12	Strategic	Fleet Decarbonisation & Replacement Strategy is too ambitious or not ambitious enough.	Low	Medium	Low	Periodically review and update the strategy and plans to make sure that they are still achievable.	Fleet Services
13	Technology	Breakthroughs in vehicle or infrastructure technologies make previous solutions obsolete.	Low	Medium	Low	Assess the business and use case of each solution on merit before implementing at scale.	Fleet Services
14	Environmental	Environmental concerns of decarbonisation options e.g. HVO, batteries, hydrogen.	Low	Medium	Low	Follow latest best practice and guidance when procuring vehicles, fuel and infrastructure.	Fleet Services
15	Environmental	Electricity grid does not decarbonise as quickly as expected.	Medium	Low	Low	Consider installing renewable energy generation and storage to reduce reliance on grid.	EV Infrastructure

References

1. [The ten point plan for a green industrial revolution - GOV.UK](#)
2. [Transport decarbonisation plan - GOV.UK](#)
3. [Phasing out sales of new petrol and diesel cars from 2030 and supporting the ZEV transition - GOV.UK](#)
4. [Clean Power 2030 Action Plan - GOV.UK](#)
5. [Council plan | Westmorland and Furness Council](#)
6. [WFC Climate Action Plan Part One.pdf](#)
7. [WFC Climate Action Plan Part Two.pdf](#)
8. [WFC Carbon Management Strategy 2024-2029.pdf](#)







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