Leeds CITY COUNCIL

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Report of Director of Resources and Housing

Report to Executive Board

Date: 13th February 2019

Subject: Fleet Improvement Plan

Are specific electoral Wards affected? If relevant, name(s) of Ward(s):	☐ Yes	☒ No
Are there implications for equality and diversity and cohesion and integration?	☐ Yes	☒ No
Is the decision eligible for Call-In?	☒ Yes	☐ No
Does the report contain confidential or exempt information? If relevant, Access to Information Procedure Rule number: Appendix number:	☐ Yes	☒ No

Summary of main issues

1. The council has received confirmation that Highways England will provide just under £2 million of funding to enable a two year programme, supporting businesses in the city to trial electric vehicles, especially vans, for two months to increase their confidence in switching away from diesel. The scheme will commence in spring 2019 but will be fully launched on 20th June on Clean Air Day.

2. This scheme will enable Leeds to continue to be a focus for electric technology growth, building on the recent news that Leeds has experienced the highest growth of electric vehicles from October 2017 to September 2018, with a 48% growth.

3. As well as supporting businesses in the city, the council continues to focus on greening its own fleet. As part of this, we signed the clean van commitment along with 16 other organisations, including Yorkshire Ambulance Service and Yorkshire Water. The aim is to drive the increase of electric van use throughout the UK, with the organisations collectively investing £40 million into electric vans till 2020.

4. The council already has the largest number of electric vehicles of any local authority with 95 electric vans on fleet. The fleet replacement programme detailed in this report will see this number increase rapidly in 2019 to 343 and will ensure that all of the council's fleet will be compliant with the standards set out in the clean air zone (CAZ). However, there will still be a requirement to buy 91 diesel vehicles for those vehicle types where the technology is not sufficiently developed or where they have not reached the point of commercial viability. This represents circa 35% of this year's fleet replacement programme and although these vehicles will be diesel, they will meet the

new Euro 6 emission standards which are significantly cleaner than those vehicles that they will replace.

5. As part of this commitment to electric, the council intends to trial the repowering of four old Refuse Collection Vehicles (RCVs) to enable a long term trial of electric within the waste service. This will be an opportunity to showcase the 're-use' principle as the vehicles that are repowered would have been scrapped so there will be carbon savings from the extension of life of otherwise obsolete vehicles as well as reducing carbon and NOX emissions through running electric rather than diesel vehicles.

6. The council is also developing an alternative fuel strategy that aims to set a vision for the city as a low emission centre over the short, medium and long term. The strategy aims to identify how the city can look towards wider adoption of zero and lower emission vehicles, sets out the council's role in facilitating this and how ultra-low emission vehicles need to be seen as part of the wider transport strategy.

7. The council currently has over 100 charge points to support its fleet of electric vehicles and 38 publically available slow chargers spread across the two park and ride sites and Woodhouse car park as well as a rapid charger located at the Elland Road park and ride site. This will be supplemented by 30 rapid chargers by March 2020 in Leeds through an OLEV funded project, plus additional charge points to be delivered through CAZ 'Early Measures funding' across council sites and a larger provision of points at the planned Stourton Park & Ride.

8. The council is procuring up to 25 e-bikes for the use of both staff and businesses to trial. E-Bikes can make cycling more accessible to users, particularly in a city with many inclines such as Leeds. The scheme will seek to encourage staff and businesses to consider the viability of active travel as part of commuting, or business travel to tackle the impacts of grey mileage (business mileage completed in vehicles not owned by the council).

Recommendations

9. The Executive Board is recommended to:

    - Note that there is a separate report on the Revenue Budget Proposals and Capital Programme for 2019/2020, on the agenda of this meeting seeking an injection of £1.98m into Capital Scheme 32834/HEL/000

    - Provide the authority to spend the £1.98m capital received from Highways England into the capital programme

    - Provide the authority to procure for the electric vehicle scheme for:

        - up to 75 vehicles

        - the external partner to support mobilisation of the electric van scheme

    - Provide the authority to procure for the electric retrofit of four of the refuse collection vehicles using the capital funding previously allocated for CNG vehicles

- Approve the fleet replacement programme for 2019/20, including the accompanying electric infrastructure for our own fleet

- Provide authority to procure for the additional public electric charging infrastructure, funded through grant funding

- Support the development of the alternative fuel strategy.

1 Purpose of this report

1.1 The report to Executive Board will provide:

- a summary of the progress to date of the upgrade of the council's fleet
- detail of the next phase of the council's fleet replacement plan
- details of the electric vehicle scheme for the city
- an overview of the roll out of electric infrastructure across the city.

2 Background information

2.1 NO2 concentrations at some specific locations across Leeds are exceeding the annual average limit of 40 µg/m3, making Leeds non-compliant with the UK objectives. As a result the council submitted a full business case (FBC), setting out proposals for a scheme to achieve compliance in the shortest possible time, consistent with other legal obligations and this FBC has just received government approval. The council has now received a further ministerial direction to implement the air quality plan as per our approved FBC.

2.2 Parts of the M621 passing through the city have also been reported by Defra as exceeding the annual limit value. Highways England (as the organisation responsible for the Strategic Road Network) is also working to achieve compliance in the shortest possible time and is keen to invest ring-fenced Air Quality Designated Funding in schemes that can help support achieving this.

2.3 The CAZ and the electric vehicle scheme will improve public health by addressing the issue of air quality in the city. Both long- and short-term exposure to air pollution are known to adversely affect health. Short-term exposure (over hours or days) to elevated levels of air pollution can cause a range of negative effects including exacerbation of asthma, effects on lung function, increases in hospital admissions and mortality. Epidemiological studies have shown that long-term exposure (over several years) reduces life-expectancy, mainly due to increased risk of mortality from cardiovascular and respiratory causes and from lung cancer.[1]

2.4 However, in a report to Executive Board in July 2018, the council acknowledged that we should seek to go beyond achieving compliance and outlined some additional measures that it would seek to implement, including the electric vehicle scheme and an anti-idling campaign.

2.5 A report was brought to Executive Board in April 2018 that set out 2018/19 fleet replacement programme and also set out the following principles in terms of fleet strategy:

- Where possible, the fleet will be rationalised, ensuring that vehicle utilisation is maximised whilst balancing operational needs
- If a vehicle is required long term, it will be purchased rather than hired to ensure better value for money

[1] National Institute for Health and Care Excellence (NICE) - Expert testimony from Public Health England to inform NICE 'Air pollution: outdoor air quality and health' guideline 2017 https://www.nice.org.uk/guidance/ng70

- When a vehicle is due to be replaced, it will be replaced with an ultra-low emission vehicle (ULEV) as the vehicle of preference
- When a ULEV isn't available or economically viable, the replacement vehicle will as a minimum be CAZ compliant
- Once vehicles are CAZ compliant, where possible the lifecycle will be extended whilst balancing the day to day maintenance costs
- The roll out of telematics across the fleet will enable better vehicle utilisation, reduced fuel consumption and improved vehicle safety.

2.6 There is an ambition for the fleet to be comprised fully of ULEVs, primarily full electric or hybrid by 2025.

2.7 There are many benefits to electric vehicles, including:

- No tailpipe emissions
- Lower CO_2 emissions than petrol or diesel vehicles even if powered through the grid rather than by renewables
- Reduced noise pollution
- Lower running costs as both maintenance and fuel costs are significantly less than a petrol or diesel vehicle

2.8 There are presently external barriers to achieving our ambition to have a totally ultra-low emission fleet by 2025. These barriers are becoming less significant over time as the market is rapidly maturing:

- Maturity of the market – there are not sufficient numbers of vehicles available on the market and certain themes of vehicles are not available although over the past year development of the larger type of vehicle has expanded the market
- Price – due to the recent development of ULEVs the price of replacing certain vehicle theme types is very high in comparison to vehicles currently on the market that would also be compliant in the CAZ. As technology and manufacturing techniques improve it is thought that the price of an electric vehicle and an internal combustion engine vehicle will become comparable by 2024/25. However, at present, these differences in price are not even offset by the savings that can be realised by switching to alternative fuel types, reduction in maintenance cost, using available grants etc.
- Range – the electric vehicles that are available on the market in some vehicle types have insufficient range and payload to undertake their daily duties within a full working day and would require refuelling part way through the day which would impact upon service delivery. Again over the past year battery technology has developed which has seen the range of the Nissan e-NV200, the most popular of the electric vans, has increased from 70 miles on a full charge to 174 miles[2].

3 Main issues

Council's Fleet - Overview

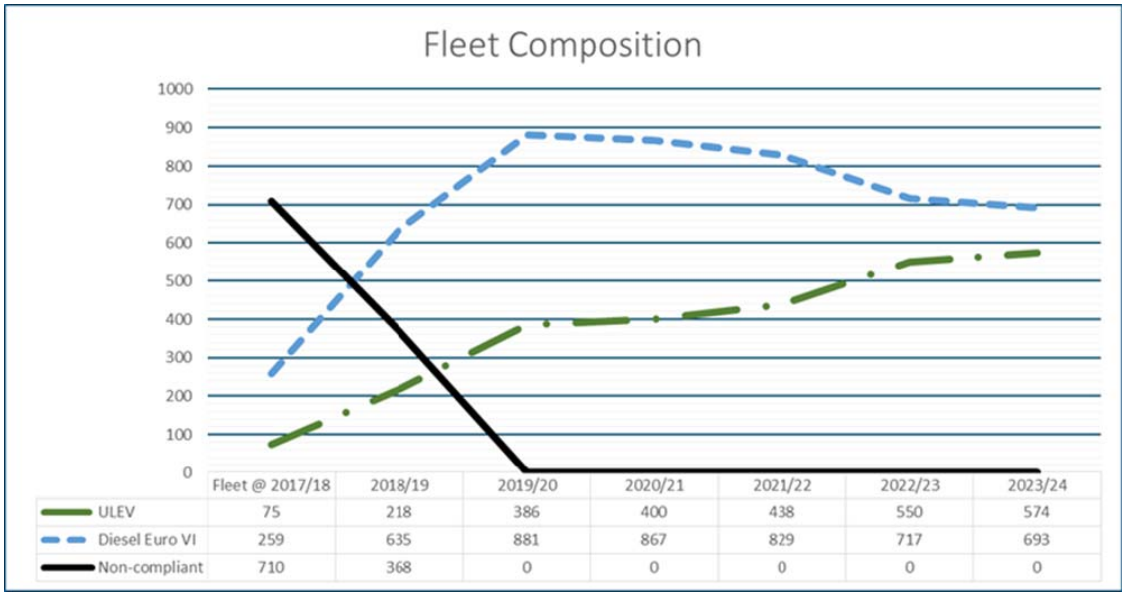
3.1 The council embarked on an extensive programme of replacement of its fleet over the past financial year following Executive Board approval in April 2018. This year's proposed fleet replacement programme will ensure that all the council's

[2] Parkers Review August 2018

vehicles will be compliant with the emission requirements of the CAZ by December 2019.

3.2 The fleet replacement programme, along with an expansion of Leeds Building Services which had a requirement for additional fleet, has seen the council's fleet of electric vehicles become the largest of all UK local authorities. By the end of this financial year there will be 176 electric vehicles within the fleet or on order awaiting delivery.

3.3 The following graph indicates how the profile of the council fleet is intended to change, over time, showing a decrease in reliance on diesel and an increase in primarily electric and hybrid vehicles. The move to alternative fuels may be more substantial than currently forecast as new vehicles are brought to market and become more affordable over time.



	Fleet @ 2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
ULEV	75	218	386	400	438	550	574
Diesel Euro VI	259	635	881	867	829	717	693
Non-compliant	710	368	0	0	0	0	0

3.4 The fleet that requires replacement is primarily older diesel vehicles which creates problems due to their tailpipe emissions. By replacing the fleet with the most up-to-date diesel (Euro VI), petrol (Euro IV) and electric these emissions are drastically reduced.

3.5 The fleet replacement programme will deliver 5 tonnes of NOX savings per year– that is the equivalent of taking 2,500 diesel cars off the road.[3]

3.6 There is a requirement for a strategy to be developed to ensure that the new electric vehicles have the appropriate charging infrastructure in place. An infrastructure of charging points across the council's portfolio of assets will be delivered to ensure that there is an available charging point in appropriate locations

Refuse Vehicles

3.7 The council had intended to transition its refuse fleet to Compressed Natural Gas (CNG) and has been working to secure a site that was located close to the high pressure gas main. In February 2018 Executive Board approved the decision to

[3] This calculation is based on EURO 4 diesel cars that travel 10,000km/year.

purchase land for CNG within a pre-determined budget but we have been unable to reach agreement within that financial envelope. As a result we have reassessed our options and have determined that CNG is no longer the best option for the council's RCVs.

3.8 Although CNG offers environmental improvements against the older diesel large vehicles, the environmental benefits are not as marked against the new EURO 6 diesel vehicles.

3.9 During the period of delay experienced as a result of the land issues, the market for refuse vehicles has moved on much quicker than anticipated and electric is becoming a much more realistic option. The key benefit of fully electric vehicles is that NOX emissions are zero. They are also far quieter than diesel variants and thus reduce noise pollution markedly in urban areas. In addition, the embodied carbon within the grid electricity mix is likely to equate to a CO2 equivalent reduction between 25% and 50% against CNG. The national grid will continue to decarbonise over time, meaning that CO2 performance will improve for pure EVs; conversely, CNG will always be a fossil fuel with relatively fixed CO2 impacts, unless significant advances can be made in proliferating the use of anaerobic digestion technology.

3.10 Although electric refuse trucks are available and viable, they are still expensive compared to diesel vehicles, even when taking into account the whole life cost benefits of electric. However, developments have been made in the field of 'repowering' old refuse collection vehicles where they are 'electrified' and their lives extended far beyond their original operational cycles. There are instances where this work has already been done using Innovate UK funding. There is also a proven application in city sightseeing tour buses, where this technology has been used successfully. The process essentially involves stripping out old diesel engines and transmission systems and replacing this infrastructure with an electric drivetrain and batteries. Concurrently, there is a deep refurb of all mechanical and electrical components undertaken so as to maximise the potential of the vehicle to last a further 5 years.

3.11 Given the ambition that the council has to move to a complete ultra-low emission fleet and the fact that electric vehicle technology is moving so fast (towards commercial viability), repowering old RCVs is a good interim opportunity to test electric RCVs. The council has already trialled a fully electric RCV for a short period and the experience was considered positive by both our fleet and waste collection services. Since even that time the capacity of batteries has improved, meaning that the vehicles are able to handle a greater diversity of demands in terms of route length, number of bin lifts, and topography of roads (in terms of gradients).

3.12 Ahead of the upcoming implementation of the Clean Air Zone, the council needs to replace 40 Euro V diesel RCVs as:

- they have reached end-of-life, and
- they wouldn't be compliant against the CAZ's charging structure if they were to be retained beyond the CAZ go-live date.

3.13 This creates a large stock of potential vehicles for repowering. Ordinarily, obsolete RCVs would be sold for scrap but the residual value is very low (circa £5K). Repowering provides an opportunity to repurpose a handful of those vehicles, which would be a good example of ‘re-use’ and something that could underline the Council’s commitment to clean transport. The proposal is to buy 36 EURO 6 diesel RCVs and to repower a further four so that electric technology can be properly tested in operation to provide the council with the confidence to move more RCVS to electric at the next replacement cycle in 2020/21.

Promotion of Electric Vehicles in the city

3.14 The council have secured funding from Highways England to give local businesses the opportunity to try out an electric vehicle (EV) for free, helping to overcome barriers in understanding around the advantages of electric vehicles and increasing their take-up amongst business users. The vehicles procured will include primarily light vans, cars suitable for licensing as taxi and private hire vehicles and potentially larger vans. Participating businesses as well as current licensed taxi and private hire drivers will be able to loan a vehicle for around two months, giving them the chance to test an EV in the context of their everyday fleet operations and enabling them to make far more informed fleet purchasing decisions than they otherwise would be able to. The scheme will launch in spring 2019 and run for an initial two years.

3.15 Each vehicle will be equipped with a telematics device that records and transmits GPS and charging data whilst the vehicle is in use. This information will be used to give the customer an in-depth understanding of how they have been using the vehicle to help them make an informed purchase decision, including daily mileage and routes, opportunities for charging and the difference in running costs between a diesel and an EV.

3.16 A dedicated council team will support the scheme, advising customers on the operation and maintenance of electric vehicles and the advantages of different models, running a programme of engagement events, providing assistance in accessing government funding and providing reports to customers based on telematics data to help inform their purchase decision. Assistance with understanding how electric vehicles can work as private hire or taxis will also be provided in liaison with the licensing service. There will also be cross-over with the team providing support with CAZ compliance through the Clean Air Fund.

3.17 An external partner will be engaged to support the set-up of the scheme and to ensure that the staff have sufficient technical knowledge to allow them to advise businesses.

3.18 A fleet of up to 45 electric vehicles will be available at launch to offer to customers for trial, consisting mostly of small vans but also some larger vans and various models of electric car. The cars will include models that are suitable for use as Leeds licensed taxi or private hire vehicles as well as larger seven seater vehicles that can also be used for this purpose, helping taxi and private hire drivers looking to upgrade their vehicles the opportunity to benefit from the scheme. The fleet will then be expanded progressively to an estimated total of 70 vehicles. When vehicles aren’t out on loan, they will be secured in a council site and maintained by the council’s fleet services team. As well as electric cars and vans, we will also

offer electric bikes for trial, which have a lot of potential as a quick and inexpensive way to travel short distances within the city whilst avoiding many of the perceived drawbacks of conventional pedal bikes.

3.19 The van loan scheme will be of particular value to SMEs and microbusinesses (including self-employed licensed drivers) who do not have the means of larger companies to assess the viability of electric vans for their fleet or to trial such vehicles at their own expense. Leeds is especially well placed to target a scheme at this sector. Leeds has 28,000 SMEs and micro businesses employing more than half of the city's 480,000 total employees, and we would utilise the strong links and knowledge of this sector already forged by the Leeds City Region Economic Partnership and the council's own economic development team to drive uptake amongst this group of businesses.

3.20 The Aire Valley area, to the south of Leeds City Centre and in close proximity to a potential base for the van scheme, is one of the biggest regeneration areas in Europe. It is already home to 400 businesses, including major employers like Arla Foods, Hesco Bastion, Veolia, Allied Glass, Mitsubishi PES and Siemens.

3.21 Research conducted by the Energy Savings Trust estimates that a 10% conversion rate is realistic for a scheme offering vans for a loan period of up to one month, whilst a scheme offering longer term loans of three to six months will likely increase this rate to an estimated 30%. Our proposal is to offer a default loan duration between these estimates of two months, although we are keen to be flexible to accommodate the needs of potential customers. We are therefore assuming a conversion rate of 20% as the midpoint between the two EST estimates.

3.22 It is difficult to assess how many additional vehicles purchased each conversion may result in, as this will depend on the size of the business and their individual fleet needs. An estimate of three per business seems a reasonably conservative estimate in the absence of any concrete data on which to base a more precise forecast. Taking into account that the fleet won't be at its full capacity of 70 until the second year of the scheme we estimate there will be 210 vehicle loans in the first year of the scheme and 420 in the second, leading to a total of 378 additional purchases of electric vehicles as a direct result of participation in the scheme.

3.23 As well as this initial increase in the number of electric vans and cars in use, we anticipate that once they are established in everyday fleet use, companies would then have the confidence to upgrade more of their fleet over time, further adding to the number of EVs on the road as well as licensed by the taxi and private hire trade.

3.24 In addition to the electric vehicle loan scheme, a number of e-bikes are also due to be procured to facilitate a similar loan scheme. Bikes will be available for use by Council staff to trial as well as a number available to be loaned to businesses. The scheme is designed to raise awareness of e-bikes as an accessible method of travel and encourage businesses to trial their use and then look to purchase e-bikes and supporting infrastructure for their own staff use. Supporting active travel options and reducing grey mileage (business mileage undertaken by vehicles not owned by the Council) in conventional engine vehicles will support the objectives of both the CAZ and the Transport strategy.

Alternative Fuel Strategy

3.25 An Alternative Fuel Strategy is in development that aims to set a vision for the city as a low emission centre over the short, medium and long term. The strategy aims to identify how the city can look towards wider adoption of zero and lower emission vehicles, set out the council's role in facilitating this and how ultra-low emission vehicles need to be seen as part of the wider transport strategy so that there is more than a like-for-like replacement, with modal shift, support for active travel and encouraging uptake of public transport to ease congestion as well as air pollution.

3.26 The strategy will focus on how alternative fuel infrastructure needs to develop, the links to national strategies and how the council can play a role in leading and supporting the city wide move to lower emission vehicles. This will also set expectations for the council's plans to support installation of electric vehicle charge points as well as longer term visions for other fuels, such as hydrogen.

Electric Charging Infrastructure

3.27 The council currently has over 100 charge points to support its fleet of electric vehicles and 38 x 7kw publically available outlets spread across the two park and ride sites and Woodhouse car park as well as a rapid charger located at the Elland Road park and ride site.

3.28 This will be supplemented by 14 rapid chargers by summer 2019 and a further 16 by March 2020 in Leeds through an OLEV funded project, with Engie as the delivery partner. There is a 2 bay design for these rapid charge point installations; one bay is dedicated for Taxi and private hire (T&PH) use with the other bay open to the public. Each charge point will effectively be available to the public whilst also providing for the T&PH sector which is necessary for 3 years to satisfy the OLEV funding criteria. After 3 years (the OLEV criteria period) the bays will be re-designated to be fully available for public use, whilst still being available to T&PH but on a non-preferential basis. The initial three year period makes the charge points available on a free/zero cost basis.

3.29 The Council was also allocated a grant of £197,825 through Innovate UK as an EV-Elocity project. The funding awarded to LCC will facilitate the council to be at the forefront of using cutting-edge technologies in the form of Vehicle-to-Grid (V2G) charging infrastructure. Nine locations will benefit from this grant funding include vehicle depots such as Henshaw, Farnley Hall, Westland Road and the Arium.

3.30 The EV-Elocity project supports the installation of electric vehicle infrastructure in locations that can be accessible to the general public – contributing to the building of a public electric vehicle charging infrastructure network across council sites. Moreover, the project enables LCC to address charging capacity issues at a number of council owned sites via the use of V2G technology.

3.31 V2G allows LCC the potential to create income streams from LCC's own fleet due to the ability to discharge the residual charge held in vehicles back to the electricity grid from an electric vehicle. Charge can be 'sold' from vehicles at peak (high cost) periods and then charge and store electricity within electric vehicles

when demand and cost on the electricity grid is low – the difference in the price of electricity during these two periods creates a potential revenue opportunity. This project's objective is to use these points to capture data on this process and determine the commercial opportunities of this technology to potentially create lower whole life costs for EV ownership, support grid balancing and determine if renewables linked to vehicle battery storage can be used to lower the cost of fleets.

3.32 The Council has secured additional funding from government to develop local charge hubs across the local authority estate. A working group is currently determining optimum sites for charge point installation. This group is also supporting the OLEV/Engie project to ensure that the most appropriate charge solution is being considered for each site based on typical customer dwell times, site power supply and geographical fit. A list of sites where lease arrangements can be determined to allow for 10 year agreements with a third party charge operator will be finalised and a tender for a concession-based supplier will be procured. These locations are designed to align with and complement existing and planned charge point provision to further provide for fast and rapid charge point provision, with a focus on supporting areas that lack the ability for off-street parking and therefore support those without drives or garages to transition to plug in vehicles.

3.33 A soft market exercise has determined that there is an appetite for this opportunity amongst charge point operators, and as such the council will be seeking a delivery partner to install, maintain and operate these points on the basis of providing charge points at a competitive rate to users.

4 Corporate Considerations

4.1 Consultation and Engagement

4.1.1 The fleet replacement strategy (including the proposed RCV repowering) has been developed in conjunction with the services who will be the end users, fleet management and finance.

4.1.2 The electric vehicle scheme involves cross-working with a number of council services who have been consulted with as the project has been developed. These include fleet services who will be involved in the maintenance and valeting of the fleets and who have also advised on appropriate vehicles to acquire and asset management who have provided advice on site requirements/ budgets for vehicle storage when they aren't on loan to customers. The Executive Member for Resources and Sustainability has also been appraised of the scheme during its development.

4.1.3 Communications and engagement will form a key part of the electric vehicle scheme, with events being held across the city to promote the opportunity to businesses.

4.1.4 There has been consultation with a range of key stakeholders with regards to locations and provision of electric vehicle charge points. Parking Services have engaged with ward members on plans for charge points in district council car parks, with further engagement planned as new sites are identified as suitable for installations to take place across car parks, sports and recreation locations. There is also ongoing engagement with the Taxi and private hire sector on preferences

for the type of locations for rapid charge points that commenced as part of the Clean Air Zone consultations and continues through forums and planned direct engagement by Engie with the trade.

4.1.5 Further there is ongoing, cross-council engagement on the alternative fuel strategy to ensure that it is appropriate across all directorates and aligns with existing council policies. There will be wider consultation on this strategy with additional key stakeholders as it is further developed.

4.2 Equality and Diversity / Cohesion and Integration

4.2.1 An equality, cohesion, diversity impact assessment has been undertaken as part of the business case development phase. This showed that there were no equality, diversity or cohesion issues with this fleet replacement programme.

4.2.2 Due to the large number of vehicles involved, along with the number of staff who will be using these vehicles there may be a requirement to apply appropriate reasonable adjustments for the use of vehicles and this will be identified and addressed by the service upon order and receipt of the vehicle on a vehicle by vehicle basis.

4.3 Council policies and the Best Council Plan

4.3.1 The importance of air quality as an issue is reflected in the council's vision under our Best Council Plan. Our vision is for Leeds to be a healthy city in which to live, work and visit and we are working with partners to reduce emissions which will bring about health and wellbeing benefits including reducing premature deaths, improving health, promoting physical activity and reducing obesity levels. All the work streams outlined in this report also support the council's carbon reduction aims.

4.4 Resources and value for money

4.4.1 The grant from Highways England will be used to fund the vehicles, property set up costs, charging infrastructure, project management, an external partner to support the set-up of the scheme and charging grants for businesses.

4.4.2 Initially only around half of the vehicles will be procured, including up to 30 vans and up to 15 cars. This will allow the scheme to flex the further fleet purchases dependant on the demand from businesses once the scheme is up and running.

4.4.3 There are 40 RCVs which require replacement to ensure compliance with the CAZ. Thirty six will be replaced by a diesel Euro VI and four will be replaced with repowered electric engines. The total cost of this element of the replacement programme will be £7.755M.

RCV Replacement 2019/20

Directorate	Number of vehicles	Replacement Cost	ULEV additional cost	Total
Communities and Environment	40	£7,585,000	£170,000	£7,785,000
Grand Total	**40**	**£7,585,000**	**£170,000**	**£7,785,000**

Repowering of RCVs

4.4.4 The cost of a repowered RCV is budgeted to be £225K; this figure includes an assumed cost for the non-EV refurbishment. This compares to a cost of circa £190K for a new diesel Euro VI RCV. For comparison, the cost of a new EV RCV is circa £350K and the cost of leasing – set over a 7 year fixed period – is £500K (although this would include maintenance).

4.4.5 The extra upfront cost is offset through the reduced fuel and maintenance savings associated with electric vehicles. Fuel costs are around a third of those for a diesel RCV and when monetised the annual saving is calculated to be approximately £10K. There is an additional saving as no AdBlu (additive) is required.

4.4.6 There will be some indirect costs in terms of buying charge points and increasing the rating of the power supply coming into the new depot. However, for 4 RCVs the charging infrastructure required is relatively minimal, with the chargers costing an estimated £5k each and the grid 'upgrade' would be relatively negligible at around £10K. The 5 year model will be able to absorb these costs as well.

4.4.7 The costs associated with repowering 4 RCVs are estimated to be £960k. This is broken down as follows:

- £750K for electrification by a 3rd party
- £180K for refurbishment of vehicles
- £30K for RCV charge points and associated power upgrade.

4.4.8 Four standard diesel Euro VI vehicles would cost in the region of £760K. It is anticipated that the extra outlay (£200K) – repowered versus standard diesel Euro VI purchases – will be paid back within a standard vehicle lifespan, i.e. 5 years, and there may be a net benefit overall within that time period if relative maintenance costs are less.

4.4.9 There are a further 217 vehicles to be replaced in the 2019/20 financial year with a total cost of £4.1M.

Fleet Replacement 2019/20

Directorate	Number of vehicles	Replacement Cost	ULEV additional cost	Total
Adults and Health	1	£25,000		£25,000
Children and Families	4	£90,000	£8,000	£98,000
City Development	9	£84,500	£48,000	£132,500
Communities and Environment	57	£1,001,000	£199,000	£1,200,000
Resources and Housing	146	£1,893,500	£754,000	£2,647,500
Grand Total	**217**	**£3,094,000**	**£1,009,000**	**£4,103,000**

4.4.10 Of the above, 55 will be diesel and they are of vehicle types where either an alternative fuel model does not exist or where they have not reached the point of being commercially viable.

4.4.11 In contrast the additional upfront costs (as set out in the table above) for small electric vans will be offset by the reduced running costs, primarily through reduced fuel costs and maintenance.

4.4.12 Following soft market testing a guide price for the charge units required to support the expansion of the electric fleet has been obtained which has enabled us to

estimate the cost of installing the require infrastructure. These costs do not include the cost of installation nor any requirements on site to increase capacity if required. It is anticipated the grants obtained through OLEV for the installation of the home charge units can be re-invested to cover the installation and site capacity costs. The total required to install the required infrastructure is £215,085.

4.4.13 The electric vehicle loan scheme will be cost a total of £2.9 million. £1.98 million of this will be grant funded by Highways England from their ring-fenced clean air projects fund. It will also draw on £915,000 of the council's clean air zone early measures government grant which was initially allocated to deliver similar electric vehicle loan schemes that will now be brought into the larger project.

4.4.14 There is also a total budget (from government and Innovate UK grant funding) of £500,700 to support work to develop the Council's charge point network through the early measures schemes and EV-Elocity project.

4.5 Legal Implications, Access to Information and Call In

4.5.1 The authority to spend the capital from Highways England is a key decision as it is over £250,000. However, as the funding notification has only just been received, it was not possible to include this matter on the List of Forthcoming Key Decisions for the required 28 days in advance of the Board meeting. Given the priority to improve air quality in the city in the shortest possible time, it is felt that this report cannot wait until the next scheduled meeting of the Board, and as such, this report is being submitted under the 'General Exception' provisions, as this scheme will accelerate the replacement of diesel vehicles.

4.5.2 The vehicles for both the fleet replacement programme and the electric vehicle scheme will be procured through the TPPL framework that was used for 2018/19 replacement programme. This framework has already been approved by legal services in accordance with CPRs.

4.5.3 Electric Vehicle infrastructure to be funded through the Early Measures budget will be procured through a tender process to appoint a delivery partner on a concession basis. This will be informed by soft market testing that has already been undertaken and the experience of the tender process for the OLEV project.

4.5.4 The repowering of the RCVs will be subject to an open procedure procurement process. An analysis of the sector has shown that whilst there are few active operators in this area, there is a market and hence, competition is required.

4.5.5 The procurement of an external partner to support the set-up of the electric vehicle scheme will also be subject to an open procedure procurement process.

4.6 Risk Management

4.6.1 It is critical that orders are placed for 2019/20 fleet replacement plan as quickly as possible to ensure that the council's fleet is compliant with the CAZ. Lead-in times for the manufacture and delivery of larger vehicles and electric vehicles can be elongated.

4.6.2 When trialling any new technology there is always a risk that it may not work as effectively as anticipated but the size of the repowering trial is very small and all of the installed EV equipment would be warranted, which would reduce some of the risks around possible performance issues.

4.6.3 However, whilst confidence in the EV tech is generally high, there is a potential unknown in terms of quantifying the costs of the initial vehicle refurb, which might

be higher than expected. The council has estimated this cost to be around £40K to £50K but technical officers are firming this up via analysis of existing information and by working with industry experts. Part of the risk mitigation is making sure we only choose the 4 best vehicles to repower, i.e. the ones that appear most likely to survive in the long-term, without hidden costs emerging.

5 Conclusions

5.1 The electric vehicle scheme and all the planned electric vehicle infrastructure present an exciting opportunity for the city to establish itself at the forefront of electric vehicle growth, helping local businesses to adopt to the latest technologies whilst supporting further improvements in air quality.

5.2 The council's own forward thinking fleet replacement plan also shows that as a council we are prepared to show environmental leadership.

6 Recommendations

6.1 The Executive Board is recommended to:

- Note that there is a separate report on the Revenue Budget Proposals and Capital Programme for 2019/2020, on the agenda of this meeting seeking an injection of £1.98m into Capital Scheme 32834/HEL/000
- Provide the authority to spend the £1.98m capital received from Highways England into the capital programme
- Provide the authority to procure for the electric vehicle scheme for:
    - up to 75 vehicles
    - the external partner to support mobilisation of the electric van scheme
- Provide the authority to procure for the electric retrofit of four of the refuse collection vehicles using the capital funding previously allocated for CNG vehicles
- Approve the fleet replacement programme for 2019/20, including the accompanying electric infrastructure for our own fleet
- Provide authority to procure for the additional electric charging infrastructure, funded through grant funding
- Support the development of the alternative fuel strategy.

7 Background documents[4]

7.1 None.

[4] The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.