



SHEFFIELD CLEAN AIR ZONE FEASIBILITY STUDY – BEHAVIOURAL RESEARCH – DRAFT



SYSTRA

BEHAVIOURAL RESEARCH REPORT - DRAFT

SHEFFIELD CLEAN AIR ZONE FEASIBILITY STUDY

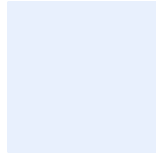
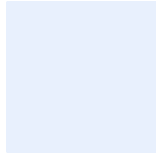
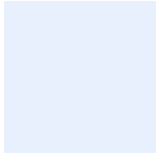
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1. INTRODUCTION

1.1 This report

1.1.1 This document summarises the results of recent research carried out by SYSTRA Ltd on behalf of Sheffield City Council (SCC) that provides evidence-based insights into how drivers in Sheffield and Rotherham will respond to a Clean Air Zone (CAZ) charge in the centre of Sheffield.

1.2 Research context

1.2.1 Sheffield and Rotherham have been identified by the UK government as being one of 29 areas in England where the annual average concentrations of Nitrogen Dioxide (NO₂) exceed statutory limits. This exceedance is projected to continue over the coming years, without an intervention.

1.2.2 SCC and Rotherham Metropolitan Borough Council (RMBC) have been tasked with developing a strategy to ensure the area becomes compliant with statutory limits 'in the shortest possible time'.

1.3 Research aims

1.3.1 As part of the development of a strategy to ensure compliance, the councils are required to consider at least one 'charging Clean Air Zone (CAZ)' which requires drivers of the most polluting vehicles (below Euro 4 petrol and Euro 6 diesel) to pay a daily charge to drive a non-compliant vehicle in the CAZ charging zone.

1.3.2 To test the impacts of a charging CAZ, the Joint Air Quality Unit (JAQU) has provided proportions of non-compliant vehicle kilometres and vehicles in response to the presence of a charging Clean Air Zone. Details of these proportions can be found in Table 13 of the *Options Appraisal Package*. The proportions provided by JAQU are based on unpublished evidence from Ultra Low Emission Zone stated preference research with London motorists and TfL response modelling.

1.3.3 This research aims to provide a more locally relevant estimate of responses to a potential CAZ charging zone, focusing on the following user groups:

- Private car drivers
- Private hire vehicle (PHV) drivers
- Light goods vehicle (LGV) drivers
- Black cab drivers

1.3.4 The research also aims to understand the attitudes of these groups towards vehicle replacement, air quality and the appeal of alternative vehicles.

1.4 Approach

Overview

1.4.1 SYSTRA has undertaken both qualitative and quantitative research to understand the views of the groups outlined in paragraph 1.3.3.

1.4.2 SYSTRA undertook focus groups with PHV, LGV and black cab drivers to gain in-depth understanding of current and likely future behaviours, and insights into the underlying rationale. In parallel to this, SYSTRA undertook quantitative research with all of the user groups mentioned above to understand the majority view and behaviours. The topics researched are summarised below:

- Current vehicle use (mileage, weeks operated, ownership, fuel, maintenance costs, industry-specific costs e.g. taxi license)
- Vehicle replacement (timescales, how the decision is made, which models)
- Empathy for cleaner air
- Hot-spot areas
- Appeal of alternative vehicles (LPG, electric or newer petrol/diesel)
- Likely response to CAZ charging scenarios
 - £5 charge
 - £10 charge
 - £10 charge + subsidy for electric vehicles
 - £20 charge

Qualitative research

1.4.3 SYSTRA conducted seven focus groups as outlined in the table below:

Table 1. Focus group overview

GROUPS	NUMBER OF PARTICIPANTS
1 x Black cab drivers (Sheffield)	10
1 x PHV drivers (Sheffield)	10
1 x PHV drivers (Rotherham)	10
2 x LGV drivers (Sheffield)	20
2 x LGV drivers (Rotherham)	20

1.4.4 A topic guide for the focus groups was designed by SYSTRA and reviewed by SCC and RMBC prior to fieldwork commencing. These are provided in Appendix A, Appendix B and Appendix C.

1.4.5 The qualitative findings have been summarised, with the main points underpinned with verbatim quotes, to complement the quantitative results.

Quantitative research

1.4.6 SYSTRA conducted quantitative research with all user groups as outlined in the table below:

Table 2. Quantitative research overview

GROUP	METHOD	NUMBER OF RESPONDENTS
Private car drivers	Online survey	311
LGV drivers	Computer-Assisted Telephone Interview (CATI)	101
Black cab drivers	Paper survey	50
PHV drivers	Paper survey	50

1.4.7 The questionnaires were designed by SYSTRA and reviewed by SCC and RMBC prior to fieldwork commencing and covered the same topics as the qualitative research.

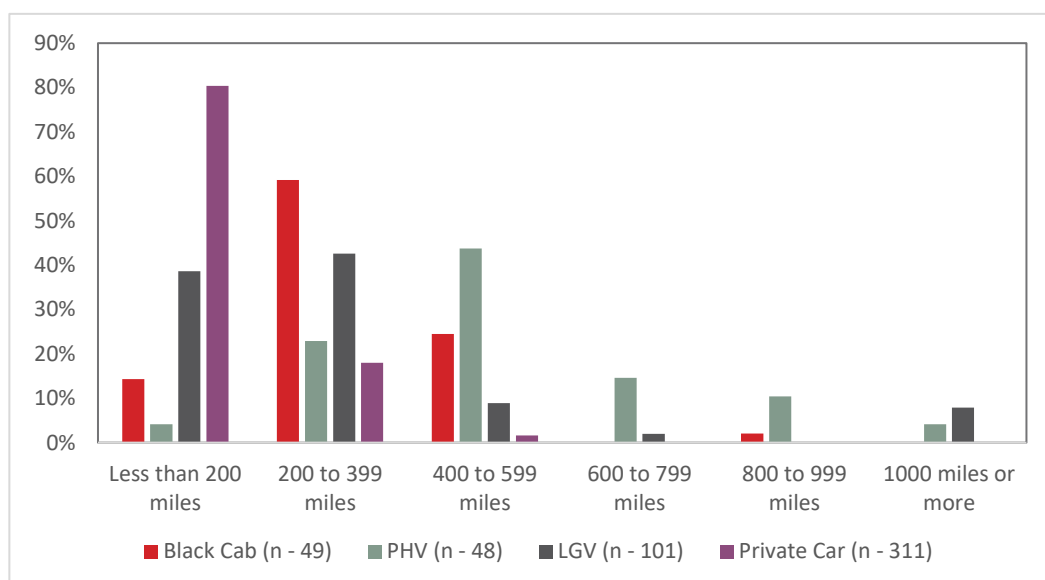
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2. CURRENT VEHICLE USE AND ATTITUDE TO REPLACEMENT

2.1 Weekly usage of vehicle

2.1.1 Figure 1 presents the typical mileage driven by each user type per week.

Figure 1. Miles driven per week



2.1.2 Most private car drivers stated that they drive less than 200 miles per week (approximately 80%).

2.1.3 Black cab and LGV drivers typically drive 200 to 399 miles per week (59% and 43% respectively).

2.1.4 PHV drivers stated that they drove the furthest each week with 44% of PHV drivers stating they drove 400 to 599 miles.

2.1.5 The average distance driven by each group of drivers is given in the table below.

Table 3. Average distance driven by each group

GROUP	AVERAGE DISTANCE (MILES)
Black cab drivers	333
PHV drivers	529
LGV drivers	304
Private car drivers	142

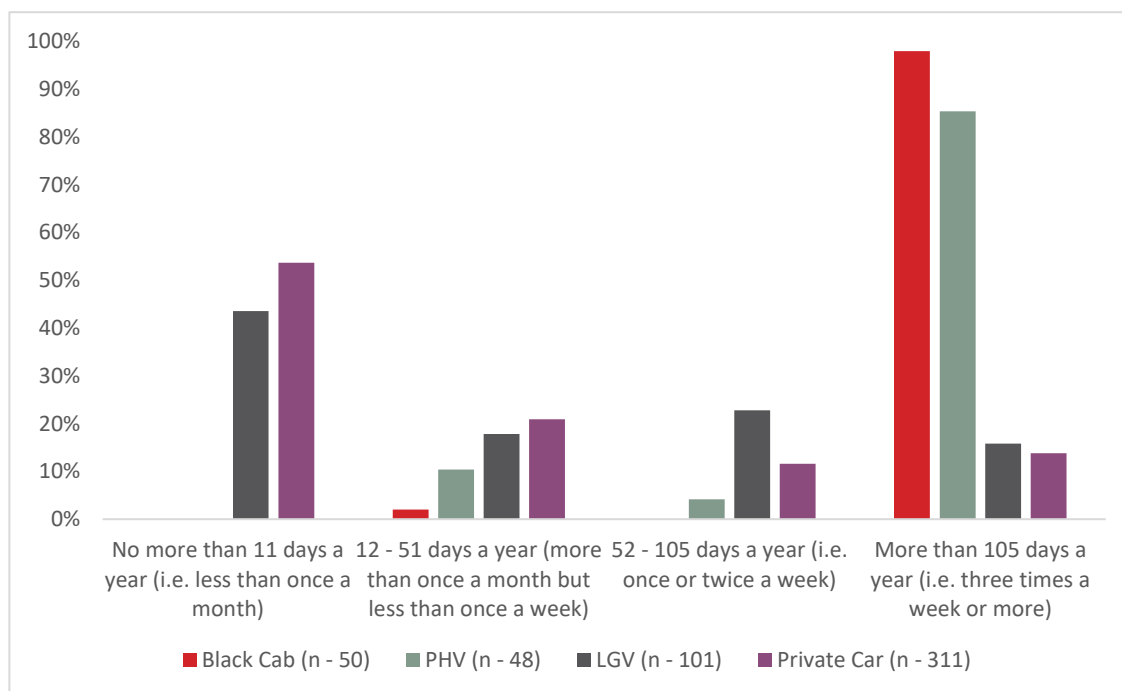
2.2 Frequency of trips into central Sheffield or central Rotherham

2.2.1 All groups of drivers were asked how frequently they make trips into central Sheffield and central Rotherham. The CAZ charging zone scenario results, presented in section 5, have been split across these categories and will be used in conjunction with the Automatic

Number Plate Recognition (ANPR) data trip frequency analysis within the transport modelling.

2.2.2 Figure 2 presents the frequency that the different user groups make trips into central Sheffield or central Rotherham.

Figure 2. Frequency of trips into central Sheffield or central Rotherham



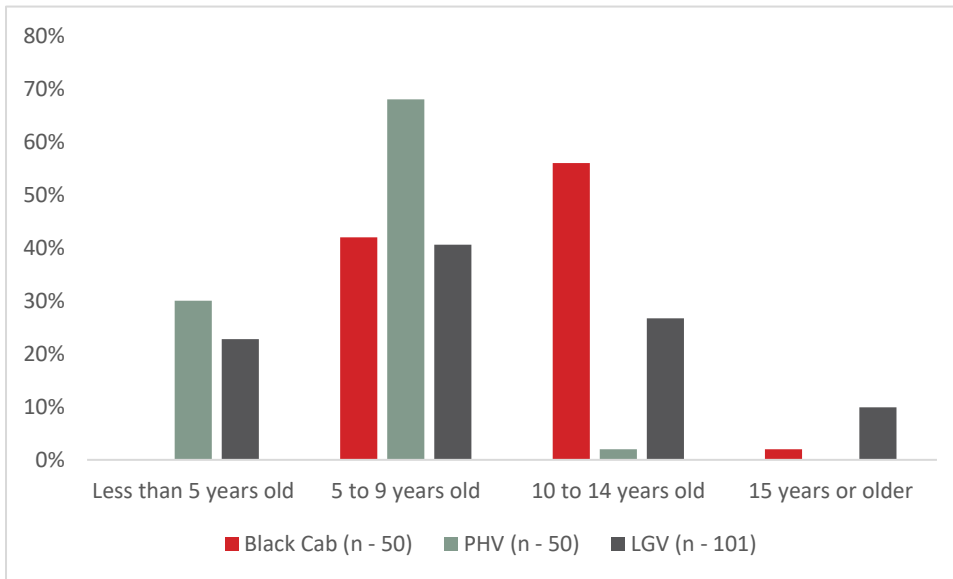
2.2.3 The figure above shows that approximately 98% of black cab drivers and approximately 85% of PHV drivers travel into central Sheffield or central Rotherham more than 105 days a year (i.e. three times a week or more). This is reflective of the focus groups, where black cab drivers and Sheffield PHV drivers suggested they were in central Sheffield every day (particularly to/from the train station).

2.2.4 The results indicate that LGV and private car drivers that completed the survey visit central Sheffield and Rotherham less frequently. Approximately 44% of LGV drivers and 54% of private car drivers travel into central Sheffield or central Rotherham no more than 11 days a year (i.e. less than once a month).

2.3 Vehicle age

2.3.1 Respondents were asked about the age of their current vehicle. Black Cab, PHV and LGV drivers were given an open question and SYSTRA has categorised the answers, as shown in Figure 3 below.

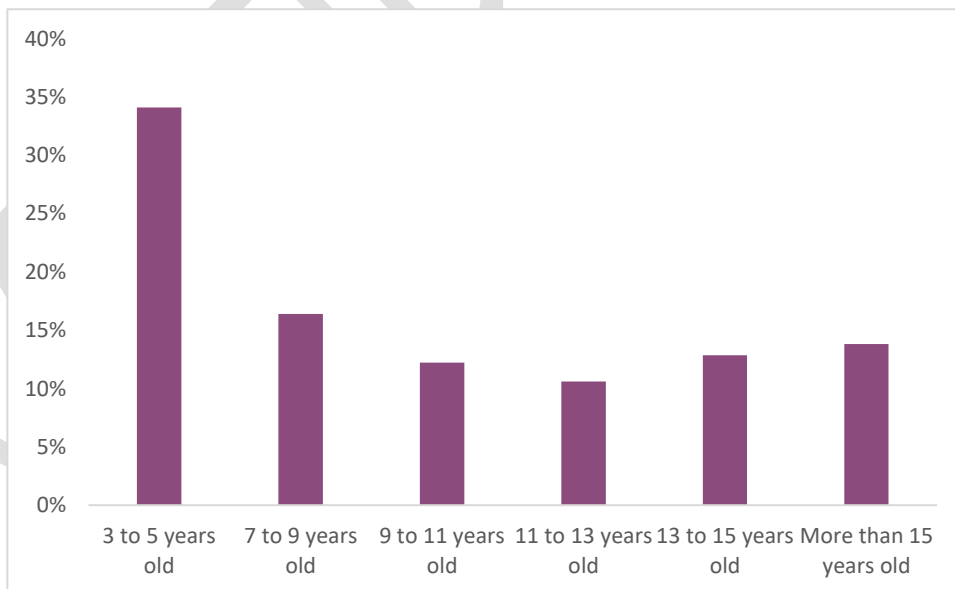
Figure 3. Vehicle age



2.3.2 Most black cab drivers stated that their vehicles were 10 to 14 years old (56%). The most common answer for PHV and LGV drivers was 5 to 9 years old (68% and 41% respectively).

2.3.3 Due to the nature of the online survey that was delivered, private car drivers were given a closed question regarding vehicle age. The results of this are presented in the figure below.

Figure 4. Age of vehicle (private car)

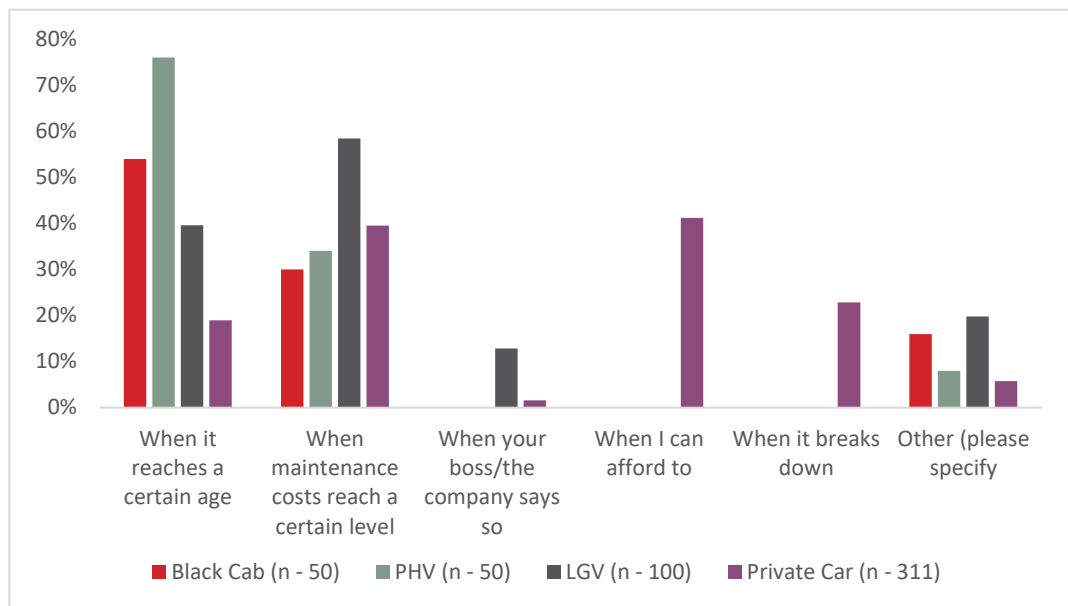


2.3.4 The most common vehicle age selected was 3-5 years, which was chosen by 34% of private car drivers.

2.4 Vehicle replacement

2.4.1 Drivers from all groups were asked to select the likely reasons why they would replace their current vehicle from a list, of which the respondents could tick all responses that applied. The figure below presents the motives for replacement of vehicles.

Figure 5. Vehicle replacement motives



2.4.2 Only private car drivers were given the following options: when it breaks down (which 23% selected) and when I can afford to (which 41% selected and was the most common reason for private car drivers).

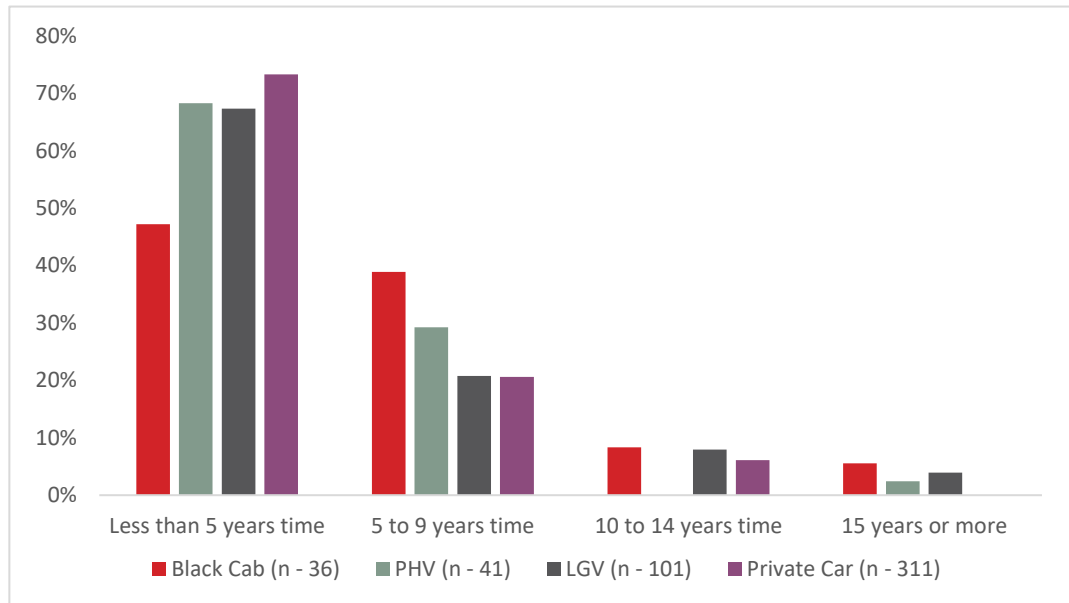
2.4.3 The most common motive for black cab and PHV drivers to replace their vehicle was 'when it reaches a certain age' (approximately 54% and 76% respectively).

2.4.4 The most common motive for LGV drivers to replace their vehicles was 'when maintenance costs reach a certain level' (approximately 58%). The most common motive for replacing your vehicle for private car drivers was 'when I can afford to' (approximately 41%).

2.4.5 For drivers that selected 'other', several drivers stated that they would keep the vehicle until they retired or stated that the level of mileage determined when they would replace their vehicle.

2.4.6 Figure 6 presents an estimate of the amount of time the respondents would continue to use their current vehicle.

Figure 6. Estimated vehicle replacement timescale



2.4.7 The results indicate that a large proportion of respondents for each user type will replace their vehicle in less than 5 years’ time. Private car users recorded the highest proportion in this category (73%).

2.4.8 During the focus groups most participants stated that financial reasons dictated their decision regarding vehicle replacement. This is also shown in Figure 5, where ‘when I can afford to’ is an important category for private car drivers and ‘when maintenance costs reach a certain level’ is an important category for all groups.

“It will go down to cost, because the tax mark in Sheffield is quite high...especially with new companies like Uber” (Sheffield black cab owner)

“When it starts costing me more money than what it’s worth replacing parts all the time” (Sheffield LGV driver)

“I think it depends on peoples livelihoods, say for example if they’ve got an older vehicle... some people may not be able to afford to get new vehicles” (Sheffield LGV driver)

2.4.9 Although cost was an important factor for all groups of drivers there were differences between the groups in terms of vehicle replacement, these differences are discussed in the following sections.

Black Cab

2.4.10 During the focus groups, black cab drivers stated that they felt that the council’s current policy on the type of vehicles they are permitted to use is restrictive. They stated that black cab drivers in Sheffield are required to purchase a larger vehicle, the cost of which must be recovered over 9 years. The drivers felt that this is not comparable to other cities, where drivers are permitted to operate smaller vehicles.

"We normally change them every 9 years...but the prices of the cabs now is quite a lot, quite high, so we can't afford it to change to new cabs" (Sheffield Black Cab Driver)

- 2.4.11 Despite wishing to purchase and operate smaller vehicles, many participants stated that they would expect their next vehicle to be a black cab. Figure 7 shows that 40% of black cab drivers would expect their next vehicle to be a black cab.

"Most of us [Sheffield Black Cab drivers] are just set in our stupid ways, and that's our system we have in our social group – if I didn't have that factor I would definitely sell up and go private hire" (Sheffield black cab driver)

PHVs

- 2.4.12 During the focus groups, some PHV drivers felt that the decision to replace their vehicle was determined by other parties.

"The reason I bought it is a) it's what I can afford, you know before that there wasn't restriction on the age of the vehicles but the last few years they have said you've got to have a car that is no older than 5 years old so...it's not by choice we have to buy these new cars, it's a choice we have to do because we're taxi drivers...Rotherham is a poor community, fares are very low, this is why we've all of us have got diesels. We've been pushed to buy it because otherwise we can't work" (Rotherham PHV driver)

- 2.4.13 Uber drivers also mentioned that they will be required to upgrade their vehicles to electric in the future.

"For us Uber drivers... there will come a time when we will do and whether or not the council bring those stipulations in themselves it could be sooner than Uber you don't know do you?" (Sheffield PHV driver)

"Uber has said 2023 they want to be all electric or hybrid"(Sheffield PHV driver)

"I intended to change mine after 9 year but if Uber bring this thing in I'm not sure if I'm gonna have to change it earlier" (Sheffield PHV driver)

- 2.4.14 The above suggests that, for PHV drivers, the decision to purchase a new vehicle is somewhat out of their control or determined by their employer or the council.

- 2.4.15 Many drivers also stated that they would replace their vehicle when mileage hits a certain level (for Sheffield PHV drivers this was generally around 140,000 miles). Drivers indicated that as mileage increased as did requirements (and costs) for maintenance.

LGV drivers

- 2.4.16 Figure 5 indicates that, for LGV drivers, the most common reason for replacing their vehicle is ‘when maintenance costs reach a certain level’. This was also evidenced in the attitudes of LGV drivers at the focus groups where LGV drivers suggested they would use the vehicle until it was unusable.

“I don’t think I’ll be replacing until I die” (Rotherham LGV driver)

“When it packs in” (Sheffield LGV driver)

“When I run it into the ground” (Sheffield LGV driver)

“Not until you really have to” (Sheffield LGV driver)

“When it dies” (Sheffield LGV driver)

“When you start having to throw money at it” (Rotherham LGV driver)

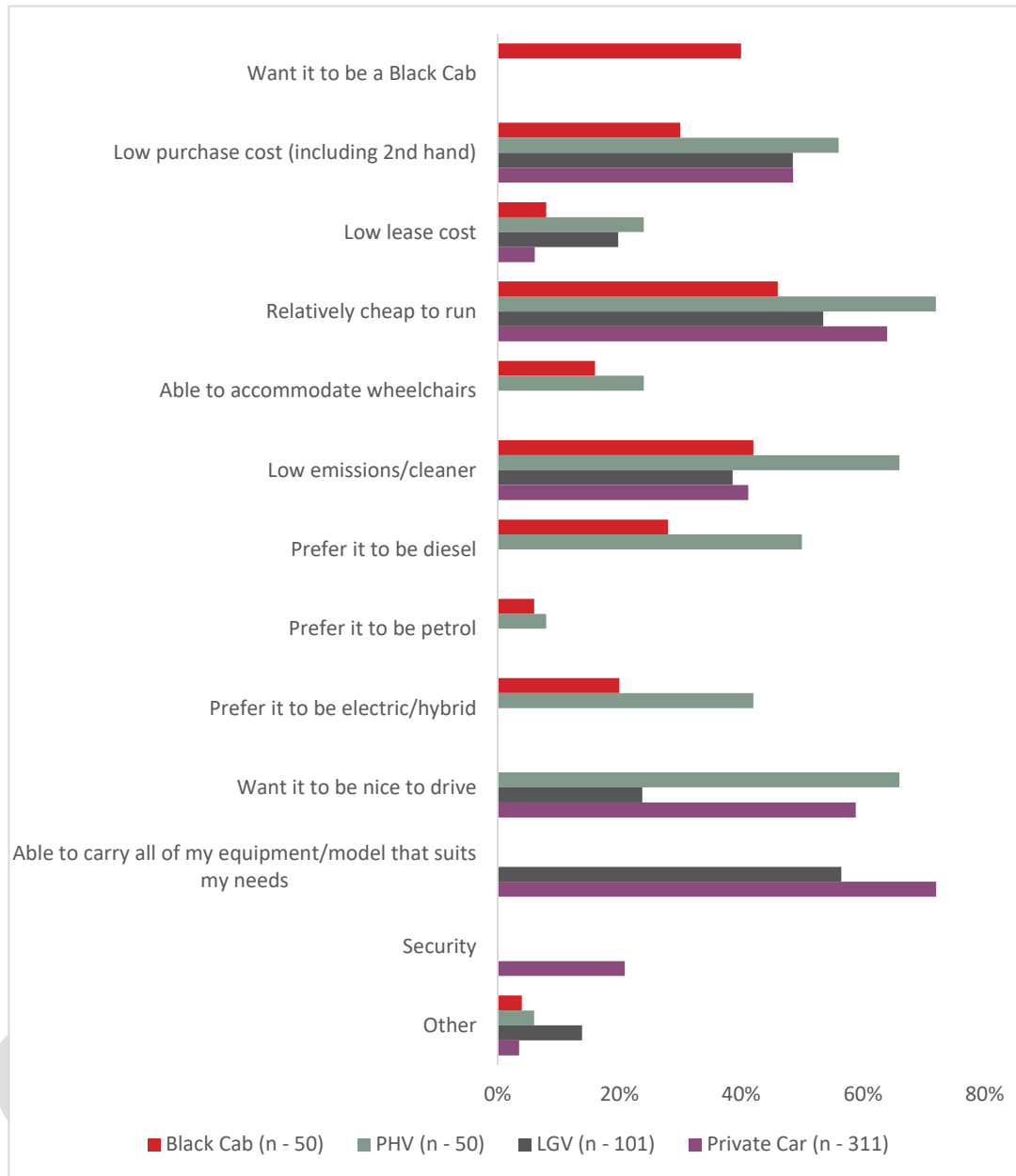
“When the wheels fall off” (Rotherham LGV driver)

“I think when it starts costing too much to fix than what it’s worth then it’s time to get a new one really” (Rotherham LGV driver)

2.5 Attributes for new vehicles

- 2.5.1 In addition to asking respondents about their current vehicle (its age, reasons for replacement and when they would be likely to replace the vehicle), respondents were asked what characteristics they would look for when choosing their next vehicle. For this question, participants could again choose all of the options that applied.
- 2.5.2 Figure 7 below shows the characteristics respondents will look for when choosing their next vehicle.
- 2.5.3 For certain responses only some of the user groups had the option to select this response either due to the response being specific for that user type (for example ‘want it to be a black cab’) or because the response was added for a particular survey after the other surveys were in progress (for example ‘security’ for private car drivers).

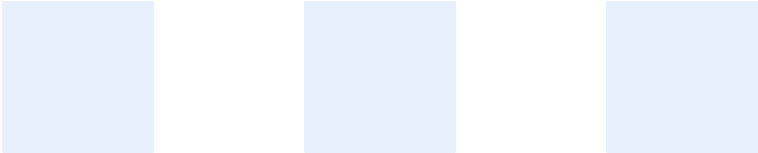
Figure 7. Desired attributes for new vehicle



2.5.4 During the focus groups many participants suggested that they would look to replace their vehicle with a similar vehicle to the one they currently own.

[would get a vehicle similar to previous] “because... I’ve never had any major problems with it, the last one I got rid of at 170,000 and there were nowt wrong with it, just got rid of it for a new one” (Sheffield PHV driver)

2.5.5 Some participants expressed that they would switch to electric if there were suitable choices available.



“I would switch to electric tomorrow if I could afford it... it’s a lot cleaner... quieter... and... value for money really” (Rotherham LGV driver)

“I think if choices were there then great [would switch to electric], but they’re not filtering down to the second hand market” (Rotherham LGV driver)

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3. ATTITUDES TO AIR POLLUTION

3.1 Introduction

3.1.1 One section of each questionnaire and focus group asked participants about their current attitudes to air pollution.

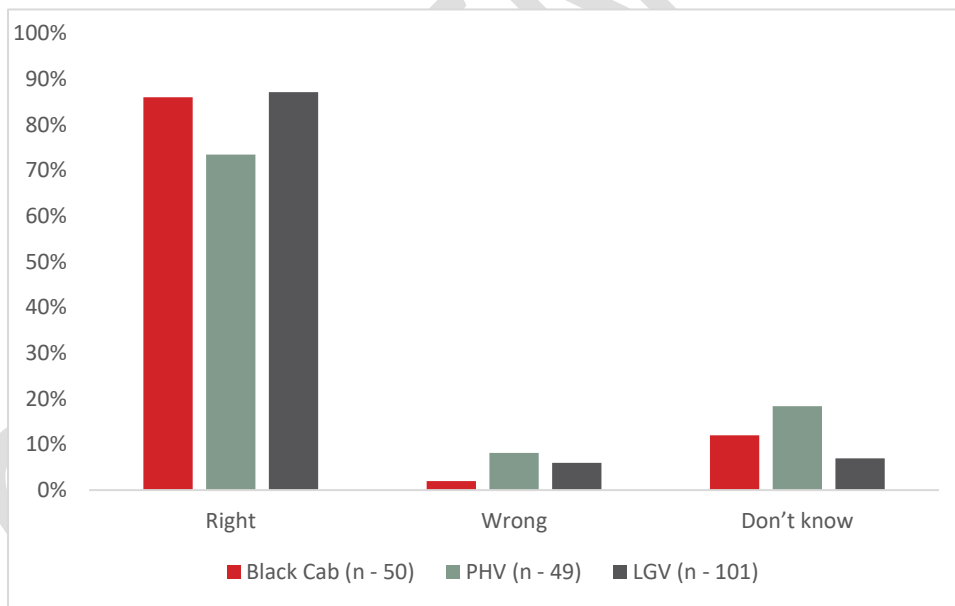
3.2 Reduction of air pollution

3.2.1 Within the questionnaires, participants were initially provided with some information regarding the air quality issue in Sheffield and Rotherham. Participants were told that air pollution levels in some parts of the area were higher than EU and UK health based limits which has significant health impacts and wider social consequences for local communities.

3.2.2 Black cab, PHV and LGV drivers were asked whether they believed that the councils were right to try to reduce air pollution in central Sheffield and central Rotherham.

3.2.3 Figure 8 presents the participants responses to this.

Figure 8. Do black cab, PHV and LGV drivers think that the councils are right to try reduce air pollution?



3.2.4 The majority of black cab, PHV and LGV drivers responded that they believed that the councils are right to reduce air pollution in these areas (approximately 87% of LGV drivers, 86% of black cab drivers and 73% of PHV drivers).

3.2.5 Attitudes to air pollution were explored in more depth in discussions during the focus groups. Participants were asked which groups of people they thought suffered from air pollution and whether they themselves knew that they were exposed to this pollution as part of their jobs.

3.2.6 When asked which people suffer air pollution, the respondents generally provided examples of vulnerable people (those with health conditions, the elderly and children).

When asked whether they themselves are aware of their exposure some expressed concerns:

“If you’re following that vehicle, that van, that lorry or whatever and it’s churning out... you can taste it can’t you” (Sheffield PHV driver)

“You follow a bus and you’ve got your fans on you’re choking. If you follow a taxi it’s the same” (Rotherham LGV driver)

3.2.7 However, others felt that the health risk was a necessary part of their work or were not concerned.

“Gotta earn your living somehow” (Sheffield LGV)

“What can you do? You need to get places don’t you” (Rotherham LGV driver)

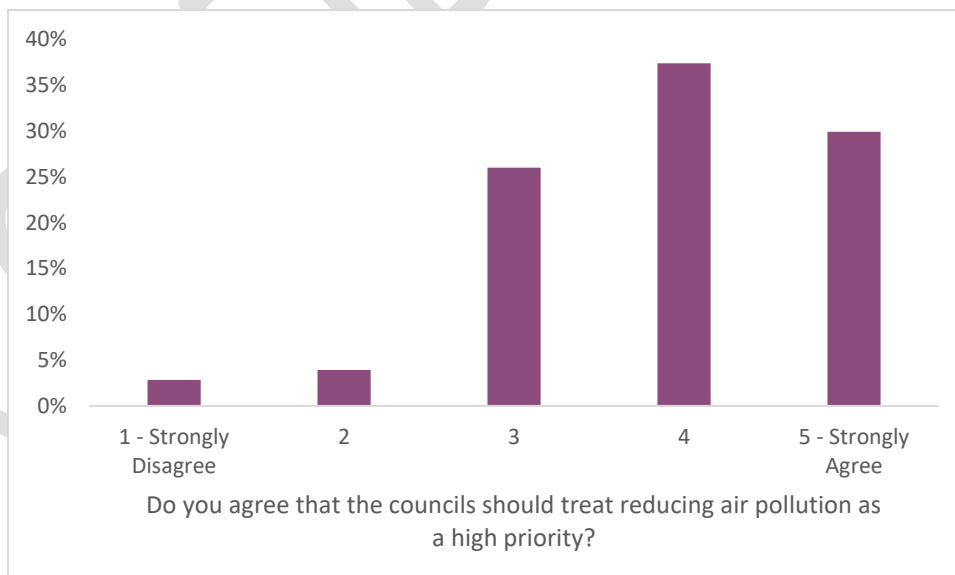
One participant stated that they had:

“just got used to it” (Sheffield LGV driver)

3.2.8 Private car drivers were given a different question to black cab, PHV and LGV respondents.

3.2.9 Figure 9 presents the opinions of private car drivers as to whether they believe that the councils should treat reducing air pollution as a high priority.

Figure 9. Do private car owners agree that the councils should treat reducing air pollution as a high priority (n – 281)



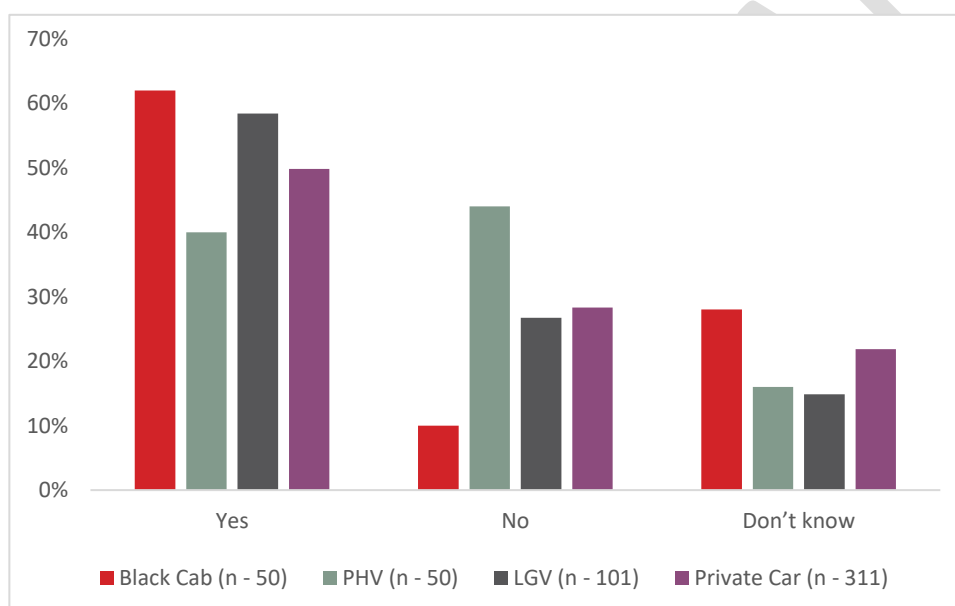
3.2.10 The majority of private car users agree that the councils should treat reducing air pollution as a high priority, with 67% responding either 4 or 5 out of 5 (agree/strongly agree).

3.3 Reduction of polluting vehicles

3.3.1 Focus group participants and survey respondents were provided with some additional information regarding air pollution. Participants were informed that a major threat to clean air is posed by traffic emissions and that older vehicles emit higher levels of air pollutants. Respondents were therefore asked whether they believed that the councils should try to reduce the number of the most polluting vehicles in high pollution areas.

3.3.2 Figure 9 presents the results of this.

Figure 10. Do participants believe that the council should try to reduce the number of the most polluting vehicles in these areas?



3.3.3 At least half of black cab, LGV and private car drivers believe that the councils should reduce the number of the most polluting vehicles in high pollution areas (62%, 58% and 50%).

3.3.4 For PHV drivers, 40% responded 'yes', whilst 44% responded 'no'. The proportion of drives that responded 'yes' is lower than the proportion that agreed the council should reduce air pollution (73%).

3.3.5 Figure 9 and Figure 10 indicate that, whilst most participants agree that the councils should be tackling air pollution some do not think that the council should target reducing the number of the most polluting vehicles to achieve this reduction. This opinion was also expressed during the focus groups where drivers felt singled out and that other vehicles caused a more significant problem. Some drivers felt that they were helping to resolve the issue by reducing private car use:

“to target taxis is going to be detrimental because that means if there are less taxis, if we can't afford to replace them or take mortgages...if there's less black cabs at the station, then you've got more people possibly using their own vehicles, so that puts

more vehicles on the road. What the council should be doing is encouraging public transport..." (Sheffield Black Cab Owner)

"They are targeting black cabs and buses, but we are not the issue, we are the ones that are alleviating the problem" (Sheffield Black Cab Owner)

"Taxis you've got to allow them in the centre, but ordinary vehicles why do they have to come in the centre?" (Sheffield PHV driver)

3.3.6 Many participants also expressed that they felt other issues (as opposed to the quantity of polluting vehicles) were to blame such as infrastructure and road configuration.

"That's a problem of infrastructure as well...[queues are] only because there's no road structure there to get to the other side of the town, you have to go all the way around" (Rotherham PHV driver)

"If you look at where Rotherham and Sheffield are situated. They're parallel to the M1. So I don't know why they always have to look at taxi drivers or vehicles...they think right, these are easy targets, let's make their life difficult...it's a national thing not just Rotherham" (Rotherham PHV driver)

"I don't think they have to [reduce the number of the most-polluting vehicles passing through]. It proves this that if they get the traffic flow right it doesn't happen." (Sheffield PHV driver)

"Taxis, because we're public transport, we're helping reduce congestion, helping getting people to use less vehicles, so we should be exempt just like buses" (Sheffield Black Cab Owner)

3.3.7 Many participants also expressed scepticism regarding transport being the cause of the air quality issue due to the presence of industry.

"It's more industry, travelling around, you're not going to get that travelling through London 'cause they don't go through London do they?" (Sheffield PHV driver)

3.3.8 Whilst other participants stated that Sheffield was a 'green' city and has made significant improvements.

"When I were 15, there was smog, everything were black.. but they've just changed levels haven't they? They've got it better than 30 years ago and now they want it better again" (Sheffield PHV driver)

4. APPEAL OF ALTERNATIVE VEHICLES

4.1 Introduction

4.1.1 Survey respondents and focus group participants were asked about the appeal of alternative, cleaner, vehicles: electric and newer petrol/diesel vehicles.

4.1.2 Black cab and LGV drivers were also asked about the appeal of LPG conversion.

4.2 Appeal of LPG conversion (black cab and LGV)

4.2.1 Black cab and LGV survey respondents were asked to rate, on a 6-point scale, the appeal of LPG conversion. To assist respondents in making this decision, respondents were given some tailored information regarding the electric options available to them as outlined below.

4.2.2 LGV drivers

One way forward which will reduce harmful emissions is for older vehicles to be converted so that they run on liquid petroleum gas (LPG).

In summary, an LPG conversion would cost approximately £1,000 to £2,000; with the vehicle off the road for between 3 and 7 days.

LPG costs are approximately 50p per litre cheaper than petrol/diesel. Miles per gallon is approximately 20% less than petrol.

When answering this survey assume that there will be at least one LPG re-fuelling point in central Sheffield and Rotherham; and several others in the Sheffield/Rotherham area.

4.2.3 Black cab drivers

One way forward which will reduce harmful emissions is for diesel vehicles to be converted so that they run on liquid petroleum gas (LPG) instead of diesel.

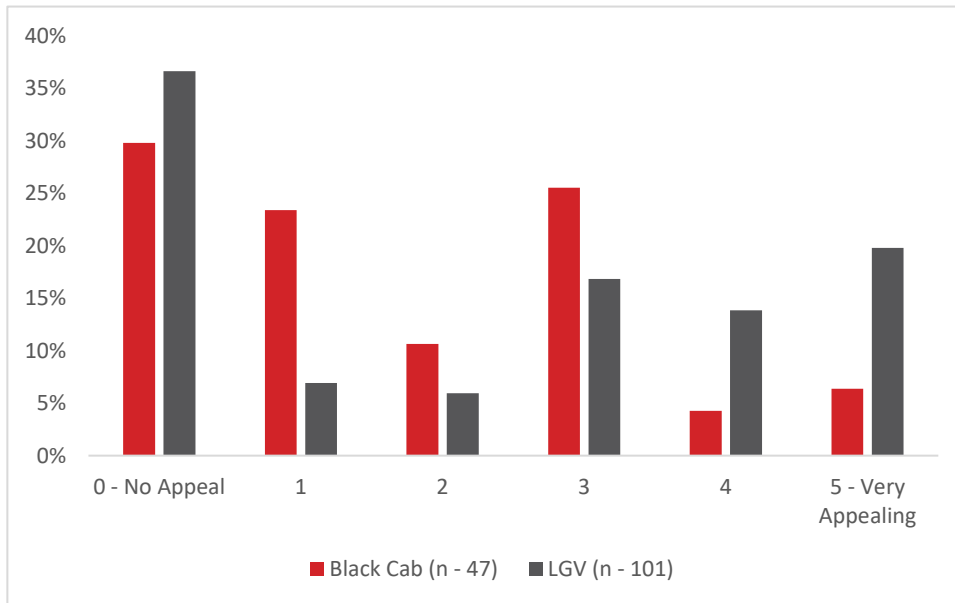
In summary, an LPG conversion would cost approximately £8,000 – £12,500; with the vehicle off the road for typically 3 days.

LPG costs are approximately 50p per litre cheaper than petrol/diesel. Miles per gallon is approximately 20% less than petrol.

There are several places you can re-fuel a vehicle with LPG in Sheffield and Rotherham on existing petrol station forecourts.

4.2.4 Figure 11 summarises the responses to the appeal of LPG conversion.

Figure 11. Appeal of LPG conversion



4.2.5 As can be seen in the table above, most black cab drivers stated that LPG conversion had little to no appeal (64% of black cab drivers gave a score of 0-2). Half of LGV drivers indicated that LPG had little to no appeal (by giving a score of 0-2).

4.2.6 For those that voted positively for LPG (scores of 3-5), LGV drivers tended to favour LPG more with scores weighted towards 5 whilst black cab drivers were less favourable (with more selecting a score of 3).

4.2.7 During the focus groups it was apparent that drivers were concerned about the lack of refuelling sites (as having to travel further could cancel out the saving in fuel cost) and loss of boot space (LGV drivers). Some participants also expressed that conversion was unlikely to be worthwhile for older vehicles.

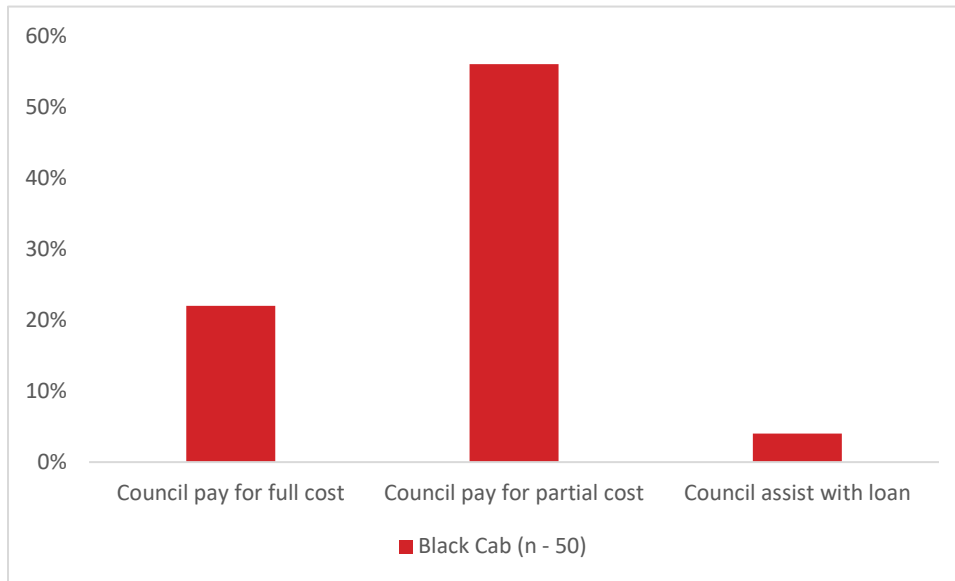
“If [the car]’s got a few years left on it, is it really worth it?” (Sheffield Black Cab Owner)

“For this we don’t really have any information to see what experience is with motorists but I don’t know is this an old technology because now with everything going electric is this something old?” (Sheffield Black Cab owner)

“I always understood that the LPG engine doesn’t last as long” (Sheffield LGV owner)

4.2.8 Black cab respondents were asked an open question to determine what could be done to incentivise them to have their vehicles converted to run on LPG. SYSTRA has coded these open ended responses, this is shown in the figure below.

Figure 12. Incentives for LPG conversion



4.2.9 All participants that gave an answer to this question stated that they would need a financial incentive (pay for full or partial cost or a loan) in order to convert their vehicle. 56% of respondents would like the council to pay for part of the cost of conversion.

4.2.10 Similarly to the responses given regarding reasons for vehicle replacement, cost is a major concern. Many respondents stated that they would need financial assistance to be encouraged to convert their vehicle to run on LPG. 56% of black cab drivers stated that they would like the council to pay for part of the cost of conversion.

“If you could have a grant it would be more enticing” (Rotherham LGV driver)

4.2.11 During the focus groups, some participants felt that funding could be better spent on alternative options as opposed to LPG conversion.

“I would say, if they’re going to give us funding, they should give us funding for newer vehicles, rather than refitting old engines” (Sheffield Black Cab Owner)

4.2.12 In addition, LGV drivers were concerned about the wait time for an LPG conversion during which their vehicle would not be operational and they would not be able to work.

4.2.13 Several participants also expressed that they would require more information before they could fully consider an LPG conversion.

“How cheap is it to maintain?” “How does it affect tax?” “Where can you get it?” (Sheffield LGV driver)

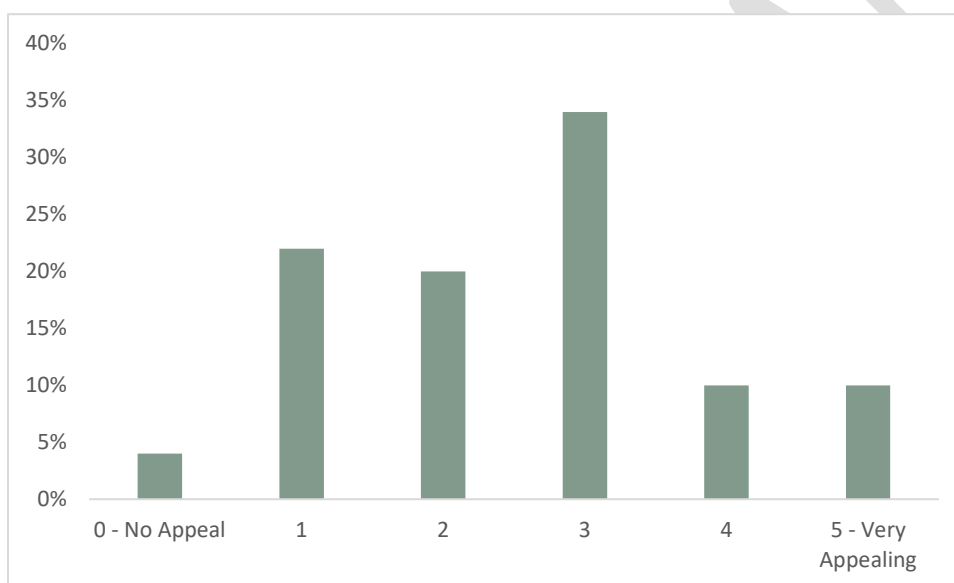
4.2.14 Although PHV drivers were not asked about LPG, one participant stated that:

“We had the perfect thing a few years ago called liquid petroleum gas... I converted an old Merc [elsewhere] and it were accepted... zero emissions liquid petroleum gas, I went with the same car at Sheffield and because it weren’t liquid petroleum gas when it were a new car they wouldn’t accept it” (Sheffield PHV driver)

4.3 Appeal of newer diesel/petrol vehicles

4.3.1 PHV respondents were asked whether purchasing a newer petrol vehicle would appeal to them. The results of this are shown in the figure below.

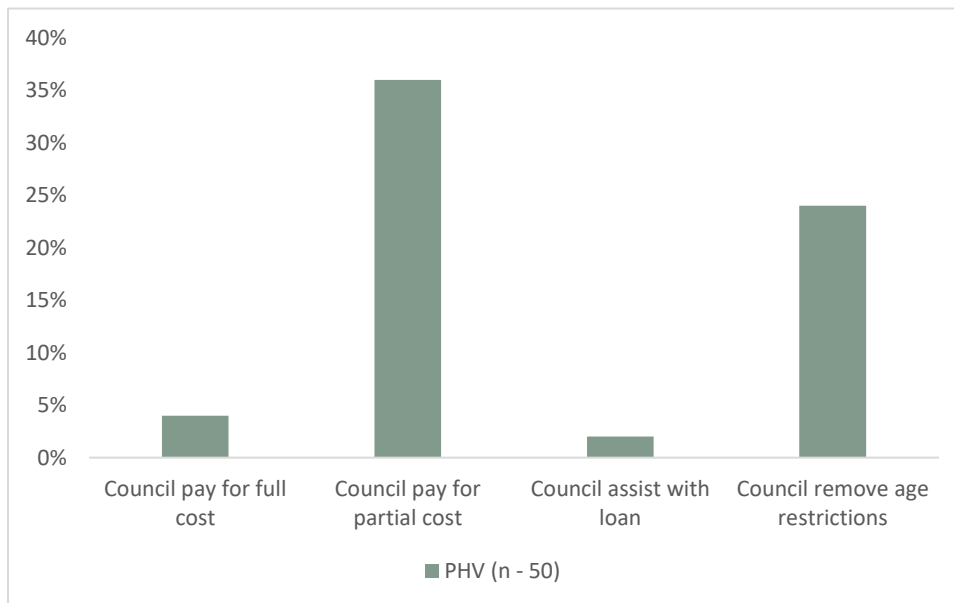
Figure 13. Appeal of new petrol vehicle (n – 50)



4.3.2 Over half of PHV respondents (54%) scored favourably towards purchasing a new petrol vehicle (scores of 3-5).

4.3.3 PHV respondents were asked an open question to determine what could be done to incentivise them to have their vehicles converted to run on LPG. SYSTRA has coded these open ended responses and the results are shown in the figure below.

Figure 14. Incentives for purchasing a newer (compliant) petrol vehicle



4.3.4 As can be seen in the figure above, most respondents stated that a financial incentive would be required for them to consider purchasing a newer petrol vehicle (36% stated that they would like the council to fund part of this cost).

4.3.5 Almost a quarter of respondents (24%) also wanted the council to remove age restrictions on vehicles. This is perhaps linked to respondents motives for replacing their vehicle as the most common motive for replacing a vehicle for PHV drivers was when the vehicle reached a certain age (not necessarily that the vehicle could no longer be used). This was also evidenced at the focus groups:

“My vehicle will be 10 years old in 2020, I will have to replace it. Must do - we’ve got no choice. Before that, could carry on, but now because they’ve imposed these restrictions and your vehicle can’t be over 10 years old, even though they’ve passed the MOTs, they’re fine, they’re road worthy...some people hardly drive their cars, they’re brand new still, but even they will have the same sanction” (Rotherham PHV driver)

4.3.6 Despite this, many PHV drivers were accepting or aware of the advantages of moving back to petrol vehicles

“I think a lot of people are converting back to petrol...too many gadgets in diesel cars...a lot of taxi drivers are going back to petrol...fuel economy, it’s cheaper to buy as well” (Rotherham PHV driver)

“They’re not bad, they’re cheaper to run now, and they’re giving you the same sort of mileage, diesel’s giving you 50 miles/gallon, petrol giving you 48 miles/gallon” (Rotherham PHV driver)

“Petrol is lower emission than diesel, but when you compare them with petrol and electric and hybrid, definitely, hybrid and electric one is less efficient than petrol. It’s affordability” (Rotherham PHV driver)

4.4 Appeal an of electric vehicle

4.4.1 All respondents were asked whether an electric vehicle would appeal to them (on a 0-5 rating scale). To assist respondents in making this decision, respondents were given some tailored information regarding the electric options available to them as outlined below.

4.4.2 Private car

Electric vehicles cost from approximately £25,000 - £26,000 (e.g. Nissan Leaf, Hyundai IONIQ Electric, Kia Soul). The UK government Plug-in Grant will pay for up to 35% off the purchase price for approved electric and hybrid vehicles up to a maximum of £4,500.

Fully charged, an electric vehicle could have a range of up to 235 miles before it needs to be re-charged. A full battery re-charge at home can take up to 8 hours from a wallbox; whilst a rapid charge could recharge 80% in less than 40 minutes.

There are various rapid and slow re-charging sites in and around Sheffield and Rotherham; and opportunities to have a chargepoint at home. The government’s Electric Vehicle Homecharge Scheme will pay for up to 75% off the capital costs of a home chargepoint and associated installation costs.

4.4.3 LGV

Electric vehicles cost from approximately £20,000. The UK government Plug-in Van Grant will pay for up to 20% of the purchase price for approved electric and hybrid vehicles up to a maximum of £8,000.

Fully charged, an electric van could have a range of up to 188 miles before it needs to be re-charged. A full battery re-charge at home can take 7 hours 30 mins from a wallbox; whilst a rapid charge could recharge 80% in less than 40 minutes.

There are various rapid and slow re-charging sites in and around Sheffield and Rotherham; and opportunities to have a charge-up point at home. The government’s Electric Vehicle Homecharge Scheme will pay for up to 75% off the capital costs of a home chargepoint and associated installation costs.

4.4.4 Black cab

Electric Black Cabs cost approximately £56,000 for a new TX vehicle. The UK government Plug-in Taxi Grant will pay for up to £7,500 of the purchase price for approved electric and hybrid vehicles.

Fully charged, an electric Black Cab could have an electric range of up to 533 miles per week. A full battery re-charge at home can take 7 hours 30 mins from a wallbox; whilst a rapid charge could recharge 80% in 20 minutes. Estimated weekly fuel cost is £41.

There are various rapid and slow re-charging sites in and around Sheffield and Rotherham; and opportunities to have a charge-up point at home. The government's Electric Vehicle Homecharge Scheme will pay for up to 75% off the capital costs of a home chargepoint and associated installation costs.

4.4.5 PHV

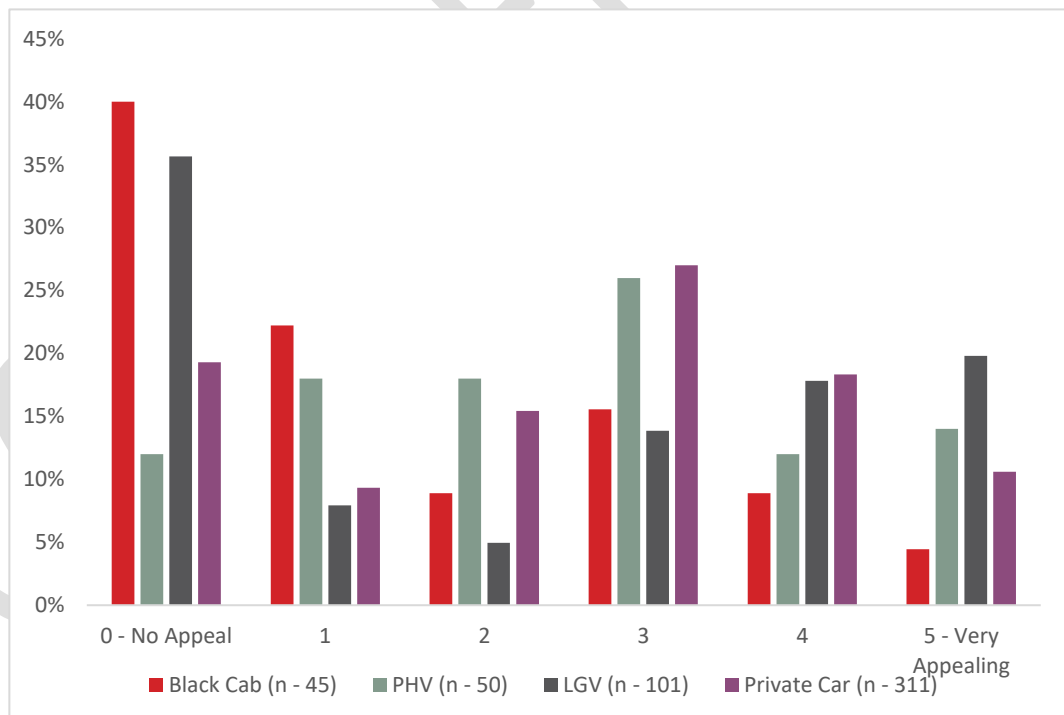
Electric vehicles cost approximately £25,000 - £26,000 [e.g. Nissan Leaf, Hyundai IONIQ Electric, Kia Soul]. The UK government Plug-in Grant will pay for up to 35% of the purchase price for approved electric and hybrid vehicles up to a maximum of £4,500.

Fully charged, an electric vehicle could have a range of 120 miles before it needs to be re-charged. A full battery re-charge at home can take up to 8 hours from a wallbox; whilst a rapid charge could recharge 80% in less than 40 minutes.

There are various rapid and slow re-charging sites in and around Sheffield and Rotherham; and opportunities to have a charge-up point at home. The government's Electric Vehicle Homecharge Scheme will pay for up to 75% off the capital costs of a home chargepoint and associated installation costs.

4.4.6 The responses to the appeal of electric vehicles are shown in Figure 15 below.

Figure 15. Appeal of electric vehicles



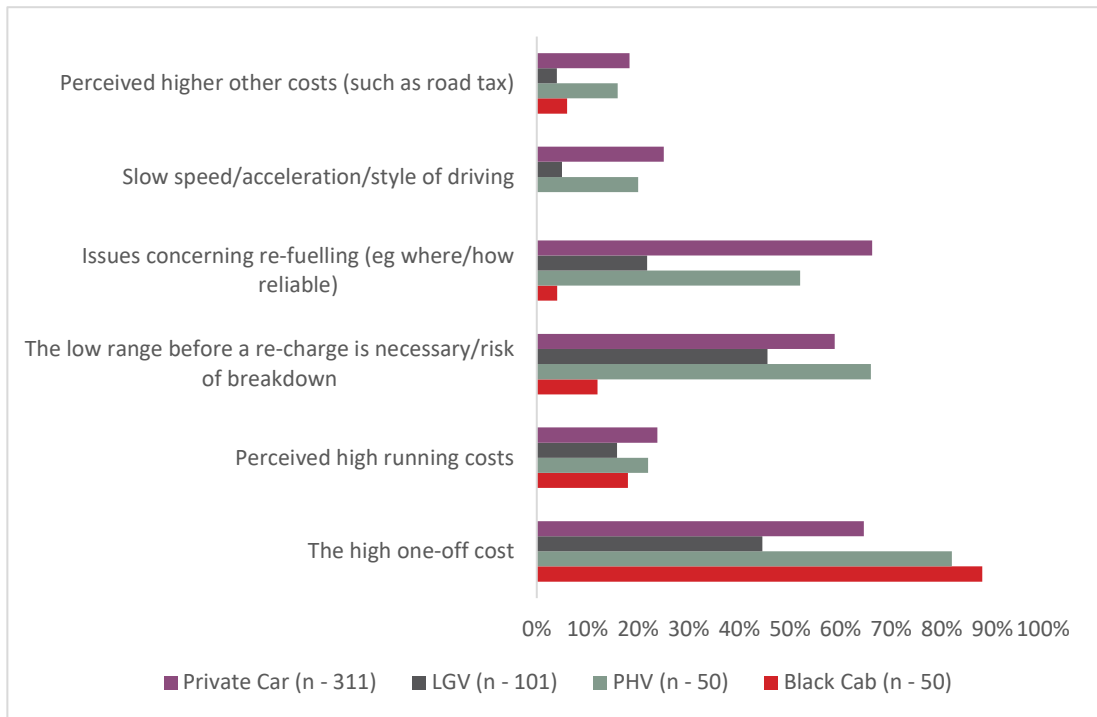
4.4.7 The figure above shows that the majority of black cab (71%) drivers responded between 0 and 2 on the rating scale, indicating that electric vehicles were unappealing.

4.4.8 PHV and LGV drivers were slightly more favourable towards electric (52% of PHV and LGV drivers gave a score of between 3 and 5).

4.4.9 Private car drivers scored most favourably to electric (56% scored between 3 and 5).

4.4.10 In addition to asking respondents about the overall appeal of electric vehicles, participants were also asked to select, from a list of reasons, why they would not purchase an electric vehicle. The results of this are shown in Figure 16.

Figure 16. Reasons for not purchasing an electric vehicle



4.4.11 The majority of respondents (over 50% for all but LGV) stated that the high-one off cost was a reason for not purchasing an electric vehicle, this was highest for black cab drivers (88%). The second most common reasons were re-fuelling concerns and the low range before recharge was necessary.

4.4.12 The questionnaire responses are similar to the views expressed during the focus groups and that drivers generally felt that electric vehicles would be unsuitable for their work. Participants felt that the one off cost was too high, there is a lack of information, there is a lack of testing of vehicles outside of a factory and that, as a result, there are significant uncertainties regarding the range the vehicles. Participants also suggested that the fuel cost savings may not justify the additional up-front cost of the vehicle.

“It’s difficult for drivers to even consider affording something like £55,000, because to do that you going to have to get a mortgage... you can see the fuel savings and everything else, but you still have to have to put that money up front” (Sheffield Black Cab Owner)

“In an 8-hour shift I might have to charge it twice, because even though the vehicle says it’s about 60 miles range with electric, fully charged, it’s not - it’s more around 40! On paper it looks good, ... but, at the moment, the reality is it’s not there - not

unless the Council start putting charging places front of the rank” (Sheffield Black Cab Owner)

“Time is money, we can’t just wait for just an hour [to recharge]” (Sheffield Black Cab Owner)

“I think change in the market as well...that needs to improve somehow... Had we been busy like we were a long time ago...then it’s worth investing because you know you’ve got stability long term...as it stands the future looks bleak” (Sheffield Black Cab Owner)

“You’ve got to have clean pollution. For your futures, your kids and all that you’ve got to have clean pollution...everybody does think about it...but everybody can’t afford to do the things they tell you to do” (Rotherham PHV driver)

“The standard has to be there...we don’t have much choice with the cleaner pollution at all...we agree with clean pollution but the cost is worse than the problem is” (Rotherham PHV driver)

“It’s not just the price it’s the boringness of them... where’s the interest and excitement in driving them?”

“Where’s the charging points?”

“It all comes down to cost. If that’s gonna save me £100 a week I’m having it” (Sheffield PHV drivers)

“They [electric vehicles] don’t seem to go far enough do they” (Rotherham LGV driver)

“It’s alright having these little blippers for florists but if you’ve got a ton of water... like window cleaning what can you do?” (Rotherham LGV driver)

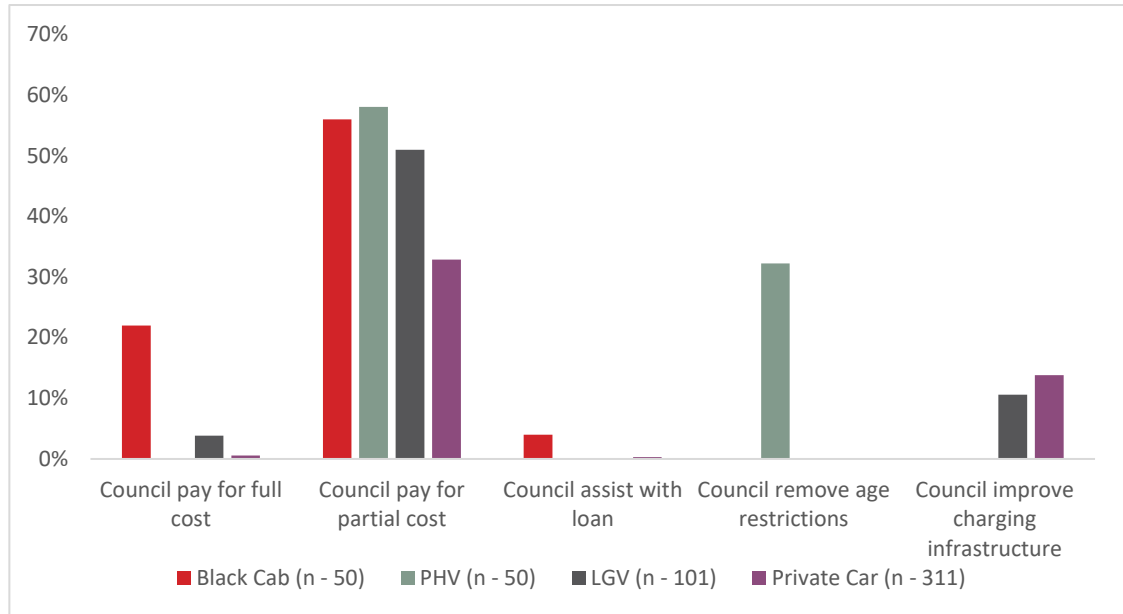
“I’d like to wait until they’ve been a bit more tried and tested before we get one” (Rotherham LGV drivers)

“If you’re spending 10 hours, like we’re limited to 10 hours constant work, so if you’re in your vehicle for 10 hours has to be comfortable, the size of it has to be for whatever - if you’re doing airport jobs.”... “And you might not even be doing that as a private operator yourself but you’ll get the odd one thrown in that you’ll have to go to airport and some of them you might have to turn away because... you can’t get the luggage in” (Sheffield PHV drivers)

“Realistically, they need to allow a year at least, where they give so many cars to so many drivers and then they trial it” (Sheffield PHV driver)

4.4.13 All respondents were asked an open question to determine what could be done to incentivise them to purchase an electric vehicle. SYSTRA has coded these responses and the results are shown in Figure 17 below.

Figure 17. Incentives to purchase an electric vehicle



4.4.14 The figure above shows that most participants would require a financial incentive to consider purchasing an electric vehicle (over 50% of black cab, PHV and LGV respondents would like the council to pay for part of the cost of a vehicle). This reflects the financial concerns expressed by participants in Figure 16 and during the focus groups.

5. RESPONSE TO CLEAN AIR ZONE SCENARIOS

5.1 Introduction

5.1.1 During the focus groups and within the questionnaires, participants were asked to consider four charging clean air zone scenarios:

- £5 per day
- £10 per day
- £10 per day and subsidy for those that use electric vehicles
- £20 per day

5.1.2 Participants were asked to select the likely response they would have to the charging zone.

5.1.3 This section primarily presents a selection of some of the results from the quantitative survey. An example of a scenario the participants were given is set out below:

Petrol-driven private cars that are 11 years or older – such as the one you’ve told us about - are deemed to be heavy air polluters.

As part of the options being considered to address poor air quality certain places like Leeds and Birmingham have announced that they will be introducing charges for non-compliant vehicles that enter into high air pollution areas. Please imagine that, from 1st January 2020, an air pollution charge will be in operation in central Sheffield and central Rotherham, as described thus:

- *Diesel vehicles more than 3 years old, or petrol vehicles over 11 years old, would be charged £5 every day they enter a zone around the centre of either city / town.*
- *Period: 24-hr / 7 days a week; from 1 January 2020*
- *Charge: £5 per day*

5.1.4 Participants were then asked to select their response from a list of options:

- Use same vehicle as now & pay the £5 charge every day*
- Change to a petrol-based vehicle and avoid the charge*
- Change to a Euro 6 diesel vehicle and avoid the charge*
- Change to an electric car and avoid the charge*
- Convert vehicle to run on LPG and avoid the charge (black cab and LGV only)*
- Drive to/work in a different town/city*
- Use an alternative mode of transport (car only)*
- Drive into Sheffield/Rotherham less frequently (car only)*
- Other (please specify)*

5.1.5 When choosing these options, participants had also been given some additional information regarding LPG conversion and electric vehicles as outlined in sections 4.2 and 4.4.

5.1.6 During the focus groups, participants had a negative reaction towards being charged to use their vehicles particularly as they felt they had been encouraged to switch to diesel in the past. Some participants felt that the council were trying to make money.

“I just feel a bit ripped off really as they keep changing their minds on what they think is good and what they think is bad” (Sheffield LGV driver)

“Pollution charge; another burden on the taxi drivers” (Sheffield Black Cab driver)

“Our trade is totally dying anyway, so the worst they’re going to do, is they’re going to finish us off” (Sheffield Black Cab driver)

“£10 seems like a money making scheme. You’d have to plan your work so that you were only going in once a week” (Sheffield LGV driver)

5.2 Scenario 1: £5 charge per day

5.2.1 The table below summarises the responses of private car drivers to a £5 charge per day.

Table 4. £5 charge per day – private car

	n	Use same vehicle	Convert to LPG	Change to euro 4 petrol	Change to euro 6 diesel	Change to electric	Drive to different area	Change mode	Drive to the area less	Leave trade
Less than once a month	163	13%	0%	13%	10%	5%	26%	15%	18%	0%
More than once a month but less than once a week	64	13%	0%	27%	9%	14%	14%	3%	20%	0%
Once or twice a week	35	3%	0%	29%	6%	11%	14%	31%	6%	0%
Three times a week or more	39	15%	0%	33%	10%	10%	5%	8%	18%	0%
TOTAL	301	12%	0%	21%	9%	8%	19%	13%	17%	0%

5.2.2 The table above indicates that 12% of drivers will continue to use the same vehicle and pay the charge each day. This is a little lower than the JAQU proportions which suggest that 16% of drivers would pay the charge.

5.2.3 The table below summarises the responses of LGV drivers to a £5 charge per day.

Table 5. £5 charge per day – LGV

	n	Use same vehicle	Convert to LPG	Change to euro 4 petrol	Change to euro 6 diesel	Change to electric	Drive to different area	Change mode	Drive to the area less	Leave trade
Less than once a month	38	47%	8%	5%	11%	3%	26%	0%	0%	0%
More than once a month but less than once a week	15	40%	20%	0%	13%	13%	13%	0%	0%	0%
Once or twice a week	20	60%	0%	0%	20%	0%	20%	0%	0%	0%
Three times a week or more	14	64%	0%	0%	14%	0%	21%	0%	0%	0%
TOTAL	87	52%	7%	2%	14%	3%	22%	0%	0%	0%

5.2.4 As can be seen in the table above, a higher proportion of respondents (52%) stated that they would use the same vehicle and pay the charge in comparison to private car drivers. This is 10% higher than the proportions provided by JAQU (which suggest that 42% of drivers would pay the charge). The second highest response was to drive to a different area.

5.2.5 The results presented above are similar to opinions expressed at the focus groups.

“All I would do is charge the customer more” (Rotherham LGV driver)

“If I really had to I would do it but I’d fight it the whole way. I couldn’t afford a new vehicle but I could maybe afford a conversion if pushed” (Rotherham LGV driver)

5.2.6 The table below summarises the responses of black cab drivers to a £5 charge per day.

Table 6. £5 charge per day –Black Cab

	n	Use same vehicle	Convert to LPG	Change to euro 4 petrol	Change to euro 6 diesel	Change to electric	Drive to different area	Change mode	Drive to the area less	Leave trade
Less than once a month										
More than once a month but less than once a week	1	0%	0%	0%	100%	0%	0%	0%	0%	0%
Once or twice a week										
Three times a week or more	44	27%	11%	0%	27%	18%	7%	0%	0%	9%
TOTAL	45	27%	11%	0%	29%	18%	7%	0%	0%	9%

5.2.7 The most common option selected for black cab drivers was to change to a Euro 6 diesel vehicle (29%).

5.2.8 The second most common response was to use the same vehicle as now and pay the charge every day (27%). There is no JAQU proportion to compare this against.

5.2.9 For those that have chosen to pay the charge, at the focus groups many drivers stated that they would work more to cover the cost or would not be able to continue working if faced with a charge for operating their vehicle in Sheffield and Rotherham.

“As it’s a working vehicle and we have to work quite a lot, we will end up paying the £5 but it doesn’t alleviate the problem. The problem is still going to be there” (Sheffield Black Cab Owner)

“For these options... it individually depends on what our circumstances are financially, so for example, for me at the moment I would go for option 1 because it’s easier for me to keep the vehicle, pay that fiver extra, maybe do a couple hours extra shift, fund that fiver, that would be an option for me.” (Sheffield Black Cab Owner)

“If I choose option A, that means I’ll have to do 2 more hours extra...so that’s not reducing emissions is it, it’s making it worse, but the council don’t care about that” (Sheffield Black Cab Owner)

“Our trade is totally dying anyway, so the worst they’re going to do, is they’re going to finish us off” (Sheffield Black Cab Owner)

5.2.10 The table below summarises the responses of PHV drivers to a £5 charge every day.

Table 7. £5 charge per day –PHV

	n	Use same vehicle	Convert to LPG	Change to euro 4 petrol	Change to euro 6 diesel	Change to electric	Drive to different area	Change mode	Drive to the area less	Leave trade
Less than once a month	0									
More than once a month but less than once a week	5	0%	0%	0%	60%	0%	40%	0%	0%	0%
Once or twice a week	2	50%	0%	0%	0%	50%	0%	0%	0%	0%
Three times a week or more	36	17%	0%	19%	8%	39%	11%	0%	0%	6%
TOTAL	43	16%	0%	16%	14%	35%	14%	0%	0%	5%

5.2.11 The table above shows that the most common response for PHV drivers is to upgrade to electric (35%). 16% of drivers stated that they would use the same vehicle as now and pay the charge every day.

5.2.12 The results shown in Table 7 are reflective of the opinions participants expressed during the focus groups:

“I think I’d go for electric if they put more charging stations in” (Rotherham PHV driver)

“Cheaper to buy a new car then, £35 a week, how much is that a month? Lot of money...you could have a new car for that” (Rotherham PHV driver)

“When it comes to, you know, you’ve got to buy a new car, compliant...Rotherham Borough Council going to put 90% people out of a job, taxi drivers...people will not be able to afford all that, it’s too much” (Rotherham PHV driver)

“If they’re going to have a charge, have a realistic charge...you pay an annual fee and use it as many times as you want” (Rotherham PHV driver)

“That’s down to knowledge mate it’s no good working in a different city” (Sheffield PHV driver)

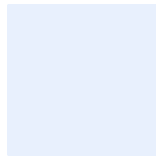
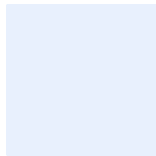
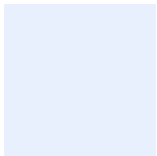
Summary (£5 scenario)

5.2.13 The table below summarises the responses of all user groups to the £5 per day scenario.

Table 8. £5 charge per day

		SHEFFIELD/ROTHERHAM		JAQU	
		PAY CHARGE	DO NOT PAY CHARGE	PAY CHARGE	DO NOT PAY CHARGE
Private Car	Less than once a month	13%	87%	16%	84%
	More than once a month but less than once a week	13%	88%	16%	84%
	Once or twice a week	3%	97%	16%	84%
	Three times a week or more	15%	85%	16%	84%
	TOTAL	12%	88%	16%	84%
LGV	Less than once a month	47%	53%	42%	58%
	More than once a month but less than once a week	40%	60%	42%	58%
	Once or twice a week	60%	40%	42%	58%
	Three times a week or more	64%	36%	42%	58%
	TOTAL	52%	48%	42%	58%
Black Cab	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	0%	0%	0%	0%
	Three times a week or more	27%	73%	0%	0%
	TOTAL	27%	73%	0%	0%
PHV	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	50%	50%	0%	0%
	Three times a week or more	17%	83%	0%	0%
	TOTAL	16%	84%	0%	0%

5.2.14 As can be seen in the table above, LGV drivers are most likely to continue to use the same vehicle and pay the £5 per day charge (52%).



5.2.15

Over a quarter (27%) of black cab drivers would continue to use the same vehicle. A lower proportion of PHV (16%) and private car (12%) drivers would continue to use the same vehicle.

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5.3 Scenario 2: £10 charge per day

5.3.1 The table below summarises the responses of all user groups to a £10 per day scenario.

Table 9. £10 charge per day

		SHEFFIELD/ROTHERHAM		JAQU	
		PAY CHARGE	DO NOT PAY CHARGE	PAY CHARGE	DO NOT PAY CHARGE
Private Car	Less than once a month	6%	94%	16%	84%
	More than once a month but less than once a week	8%	92%	16%	84%
	Once or twice a week	6%	94%	16%	84%
	Three times a week or more	10%	90%	16%	84%
	TOTAL	7%	93%	16%	84%
LGV	Less than once a month	44%	56%	42%	58%
	More than once a month but less than once a week	43%	57%	42%	58%
	Once or twice a week	38%	63%	42%	58%
	Three times a week or more	50%	50%	42%	58%
	TOTAL	43%	57%	42%	58%
Black Cab	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	0%	0%	0%	0%
	Three times a week or more	17%	83%	0%	0%
	TOTAL	16%	84%	0%	0%
PHV	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	20%	80%	0%	0%
	Once or twice a week	0%	100%	0%	0%
	Three times a week or more	3%	97%	0%	0%
	TOTAL	5%	95%	0%	0%

5.3.2 As can be seen in the table above, around 10% fewer black cab and LGV drivers would continue to use the same vehicle and pay the charge. The number of private car drivers willing to pay the charge has reduced to 7% (from 12%) whilst the number of PHV participants willing to pay the charge has more than halved (reduced from 16% to 5%).

5.3.3 During the focus groups participants felt that the £10 charge was not as manageable as the £5 charge and that it would just result in movement of the problem.

“I would literally find a different job at the end of the day.” (Rotherham LGV driver)

“I would go all the way round to avoid the charge area” (Rotherham LGV driver)

“All that is going to do is move the problem” (Rotherham LGV driver)

“£10 seems like a money making scheme. You’d have to plan your work so that you were only going in once a week” (Sheffield LGV driver)

5.4 Scenario 3: £10 charge per day plus subsidy for electric vehicles

Table 10. £10 charge per day + subsidy

		SHEFFIELD/ROTHERHAM		JAQU	
		PAY CHARGE	DO NOT PAY CHARGE	PAY CHARGE	DO NOT PAY CHARGE
Private Car	Less than once a month	4%	96%	16%	84%
	More than once a month but less than once a week	11%	89%	16%	84%
	Once or twice a week	8%	92%	16%	84%
	Three times a week or more	8%	93%	16%	84%
	TOTAL	7%	93%	16%	84%
LGV	Less than once a month	43%	57%	42%	58%
	More than once a month but less than once a week	31%	69%	42%	58%
	Once or twice a week	25%	75%	42%	58%
	Three times a week or more	58%	42%	42%	58%
	TOTAL	39%	61%	42%	58%
Black Cab	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	0%	0%	0%	0%
	Three times a week or more	19%	81%	0%	0%
	TOTAL	18%	82%	0%	0%
PHV	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	0%	100%	0%	0%
	Three times a week or more	0%	100%	0%	0%
	TOTAL	0%	100%	0%	0%

5.4.1 As can be seen in the table above, offering a subsidy to the drivers of electric vehicles has a moderate impact on the percentage of users choosing to pay the charge, for PHV drivers the proportion choosing to use the same vehicle has reduced to 0%.

"If I'm getting £500 a year right plus I'm not paying £10 a day into Rotherham or Sheffield yeah I'd definitely get electric" (Sheffield PHV driver)

5.5 Scenario 4: £20 charge per day

5.5.1 The results for the £20 a day scenario for all user groups are summarised in the table below.

Table 11. £10 charge per day + subsidy

		SHEFFIELD/ROTHERHAM		JAQU	
		PAY CHARGE	DO NOT PAY CHARGE	PAY CHARGE	DO NOT PAY CHARGE
Private Car	Less than once a month	3%	98%	16%	84%
	More than once a month but less than once a week	6%	94%	16%	84%
	Once or twice a week	3%	97%	16%	84%
	Three times a week or more	5%	95%	16%	84%
	TOTAL	4%	96%	16%	84%
LGV	Less than once a month	29%	71%	42%	58%
	More than once a month but less than once a week	38%	62%	42%	58%
	Once or twice a week	20%	80%	42%	58%
	Three times a week or more	38%	63%	42%	58%
	TOTAL	30%	70%	42%	58%
Black Cab	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	0%	0%	0%	0%
	Three times a week or more	15%	85%	0%	0%
	TOTAL	15%	85%	0%	0%
PHV	Less than once a month	0%	0%	0%	0%
	More than once a month but less than once a week	0%	100%	0%	0%
	Once or twice a week	0%	100%	0%	0%
	Three times a week or more	3%	97%	0%	0%
	TOTAL	3%	97%	0%	0%

5.5.2 As can be seen in the table above, increasing the charge to £20 per day reduces the number of respondents choosing to pay the charge for all user groups in comparison to scenario 2. The proportion of LGV respondents choosing to use the same vehicle and pay the charge remains highest at 30%.

5.5.3 During the focus groups participants felt especially negatively towards this scenario.

"This would kill town centres" (Rotherham LGV driver)

5.6 Summary by driver type

5.6.1 The sections below provide a summary of responses for each type of driver regarding the £5, £10 and £20 scenarios.

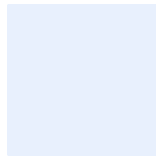
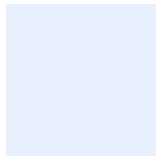
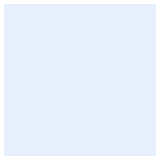
Private car

5.6.2 The figure below shows the responses of private car drivers across three scenarios.

Figure 18. Private car CAZ responses



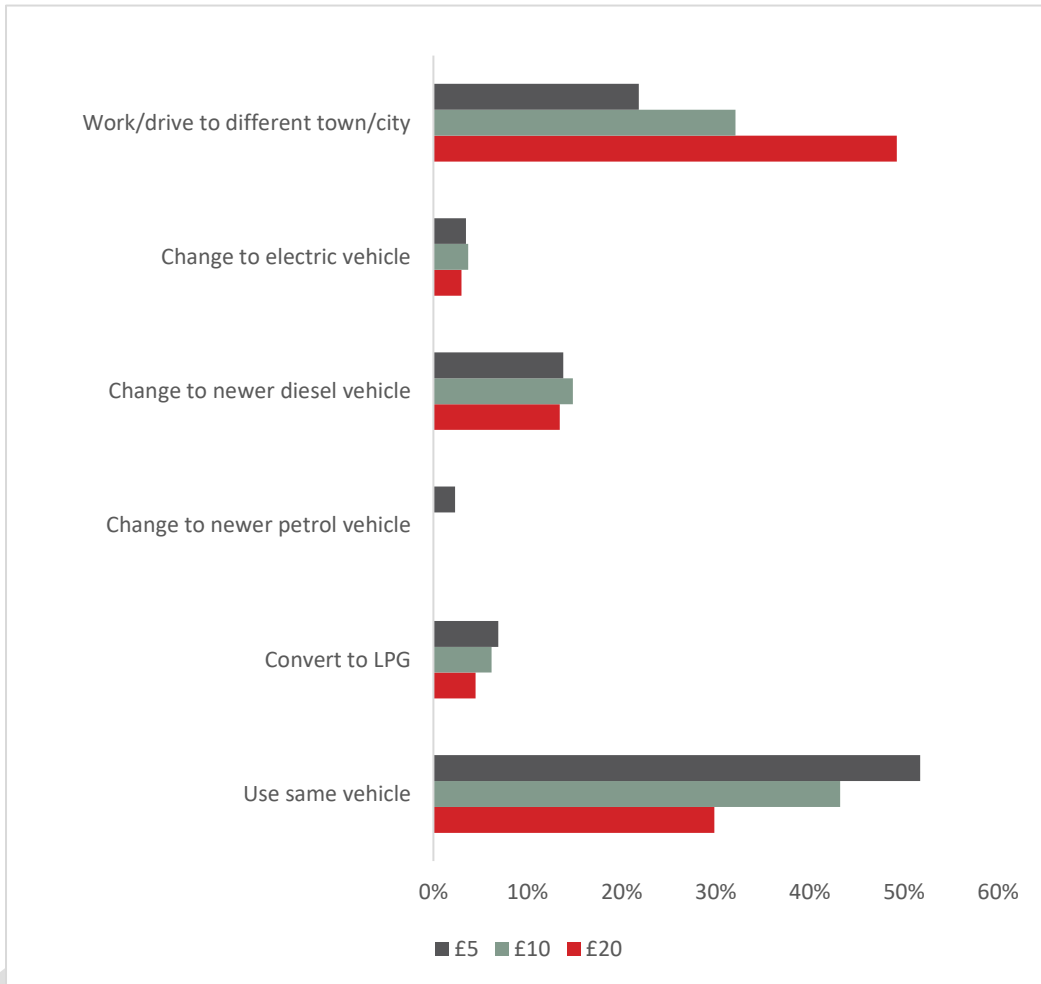
5.6.3 The figure above shows that in the £5 scenario, approximately 12% of all of the private car drivers that answered the survey stated that they would use the same vehicle and pay the charge, in the £20 scenario this has reduced by 8% to 4%. Alongside this decrease, the number of respondents who state that they will drive to a different town or city increases by 11% (from 19% in the £5 scenario to 30% in the £20 scenario).



LGV

5.6.4 The figure below shows the responses of LGV drivers across three scenarios.

Figure 19. LGV CAZ responses

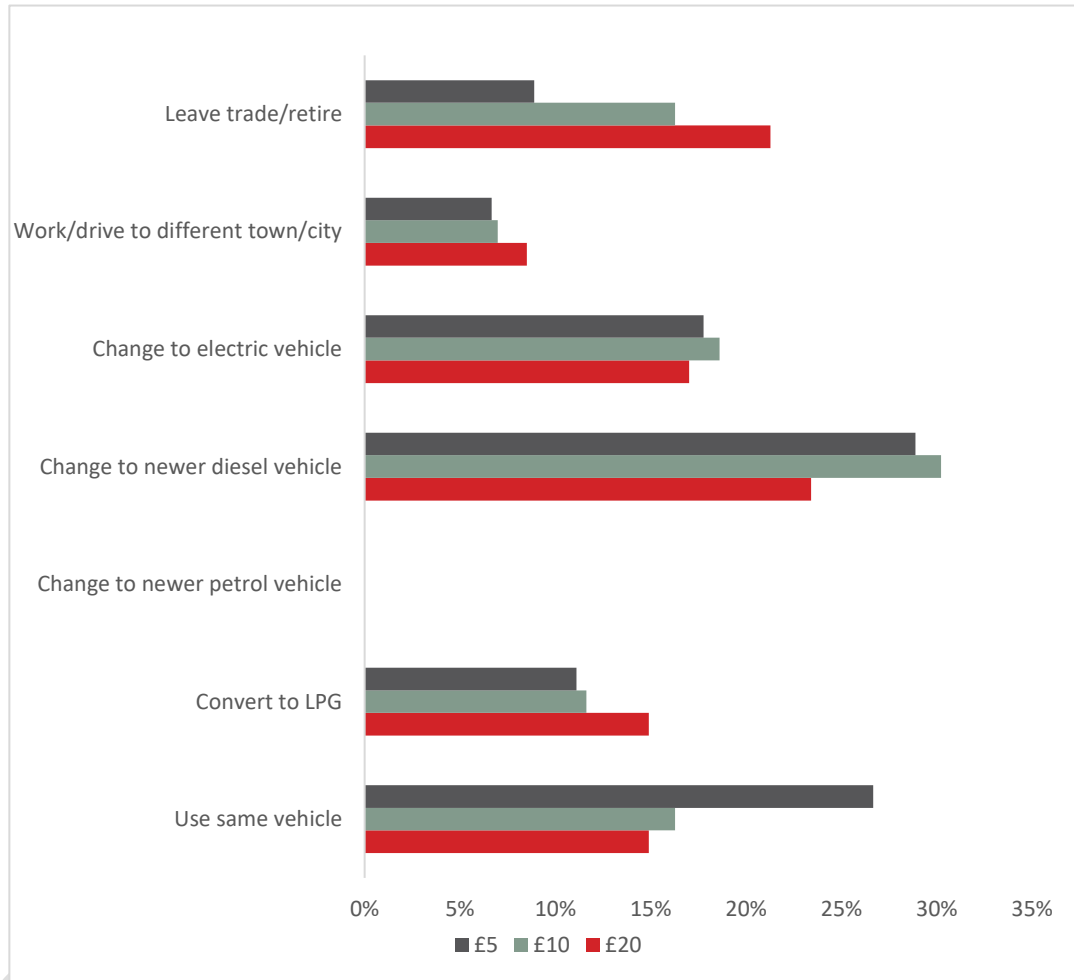


5.6.5 As can be seen in the figure above, over half of drivers responded that they would use the same vehicle in the £5 scenario, this reduces by 22% (to 30%) in the £20 scenario. In parallel to this, the number of responses that state they will drive to a different town or city increases from 22% to 49%.

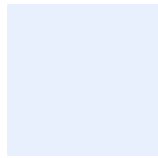
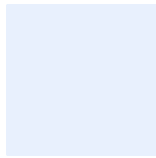
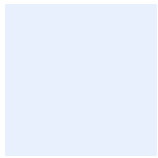
Black cab

5.6.6 The figure below shows the responses of black cab drivers across three scenarios.

Figure 20. Black cab CAZ responses



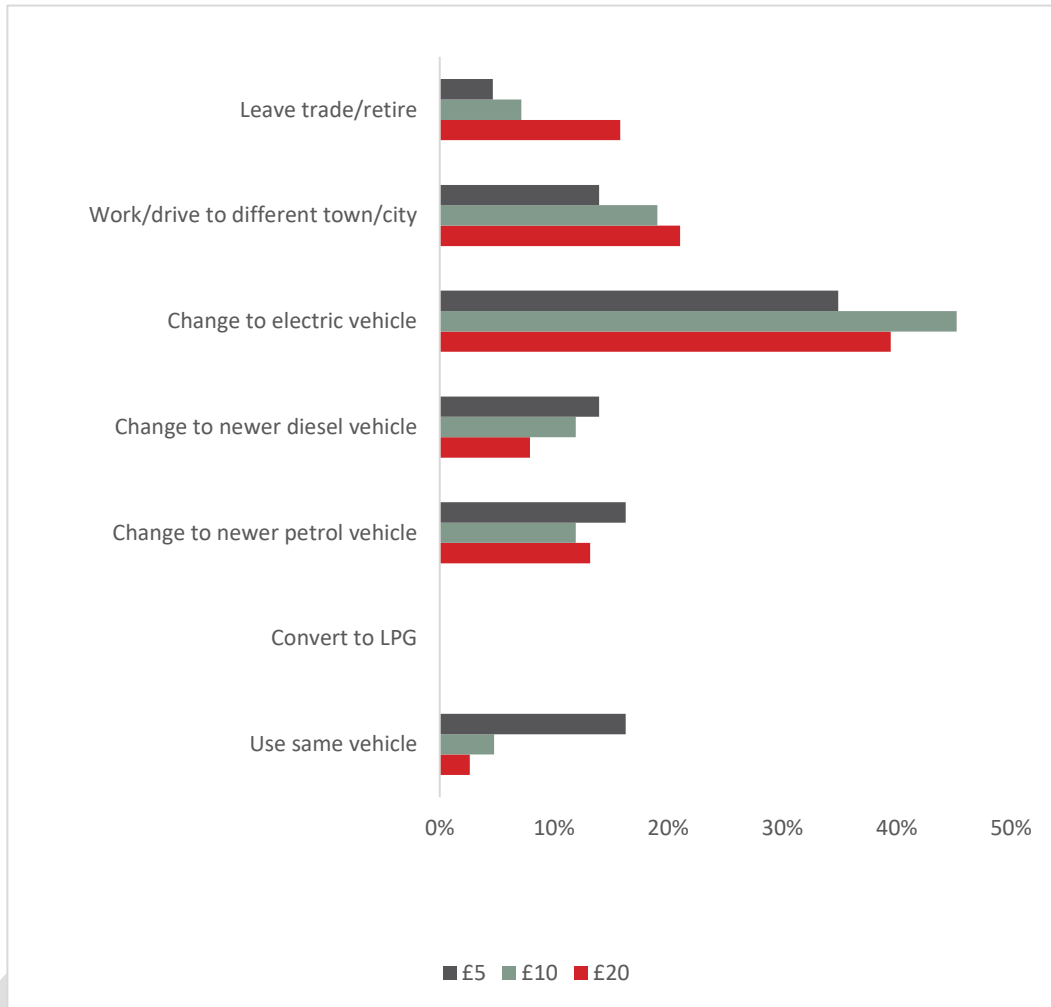
5.6.7 The figure above shows that, in the £5 scenario, 27% of black cab drivers would likely choose to use the same vehicle and pay the charge (this figure reduces to 16% in the £10 scenario and 15% in the £20 scenario). In parallel to this, the proportion of respondents that state they will leave the trade or retire increases from 9% to 21%.



PHV

5.6.8 The figure below shows the responses of PHV drivers across three scenarios

Figure 21. PHV CAZ responses



5.6.9 The figure above shows that, as with black cab drivers, there is a large decrease in the proportion of respondents willing to pay the charge between the £5 and £10 scenarios (16% in the £5 scenario to 5% in the £10 scenario). The proportion of respondents willing to pay the charge reduces to 3% in the £20 scenario.

6. CONCLUSIONS

6.1.1 The findings reported here provide detailed insight into existing attitudes and behaviours of four distinct driver types in Sheffield. In particular, the study successfully obtains the opinions of these key groups in relation to vehicle replacement, air quality, appeal of alternative vehicles and likely responses to CAZ charging scenarios.

6.1.2 The opinions of each of the user groups are summarised in the sections below.

6.2 Private car drivers

6.2.1 Private car drivers tend to have relatively newer vehicles (predominantly 3 to 5 years old) and generally stated that they would replace their vehicles when they could afford to or when maintenance costs reached a certain level.

6.2.2 Two thirds (67%) agreed that the councils should treat reducing air pollution as a high priority and 50% responded that they believed the council should reduce the number of the most polluting vehicles in high pollution areas.

6.2.3 Of all the user groups, private car drivers voted most favourably towards electric vehicles.

6.2.4 The responses of private car drivers to the CAZ scenarios are summarised in the table below:

Table 12. Responses of private car drivers to CAZ charge scenarios

CAZ CHARGE	PAY CHARGE	DO NOT PAY CHARGE
£5	12%	88%
£10	7%	93%
£10 + subsidy for electric vehicles	7%	93%
£20	4%	96%

6.2.5 The table above indicates that between 4-12% of drivers would pay the CAZ charge, this is lower than the proportions provided by JAQU which suggest that 16% of users would pay the charge. However, the average motorist in the capital has a higher salary and higher costs of living than motorists in other parts of the country including South Yorkshire, so the reported additional sensitivity to the £5 charge is, perhaps, expected. Of those that responded that they would not pay the charge, they would primarily change to a petrol based vehicle (Euro 4 or above) or drive to a different town/city.

6.3 LGV drivers

- 6.3.1 The most common vehicle age for LGV drivers is 5 to 9 years old (41%). The LGV drivers generally stated that they would replace their vehicles when maintenance costs reach a certain level.
- 6.3.2 Most (87%) agreed that the councils should try to reduce air pollution whilst 58% agreed that the councils should reduce the number of the most polluting vehicles in high pollution areas.
- 6.3.3 Half of LGV drivers indicated that LPG had little, or no, appeal (by giving a score of 0-2).
- 6.3.4 Over half of LGV drivers (52%) scored positively in terms of appeal of electric (scores of 3-5).
- 6.3.5 In order to upgrade their vehicles, many drivers suggested they would require a financial incentive.
- 6.3.6 The responses of LGV drivers to the CAZ scenarios are summarised in the table below:

Table 13. Responses of LGV drivers to CAZ charge scenarios

CAZ CHARGE	PAY CHARGE	DO NOT PAY CHARGE
£5	52%	48%
£10	43%	57%
£10 + subsidy for electric vehicles	39%	61%
£20	30%	70%

- 6.3.7 The table above indicates that between 30% and 52% of LGV drivers would continue to use the same vehicle and pay the charge, dependent on the charge level. The suggested JAQU proportion for LGV drivers that would pay the charge is 42%. Where respondents have indicated that they would not pay the charge the predominant response would be to work in a different town/city.

6.4 Black cab drivers

- 6.4.1 The most common vehicle age for black cab drivers is 10 to 14 years old (56%).
- 6.4.2 The most common reason for a black cab driver to replace their vehicle is 'when it reaches a certain age' (54%).
- 6.4.3 Most participants (86%) agreed that the councils should try to reduce air pollution whilst 62% believed that the councils should reduce the number of the most polluting vehicles in high pollution areas.
- 6.4.4 More than half of black cab drivers (64%) suggested that LPG conversion had little to no appeal (a score of 0-2).
- 6.4.5 The majority of black cab drivers (71%) suggested that electric vehicles were unappealing (a score of 0-2).
- 6.4.6 In order to upgrade their vehicles, many respondents stated that they would require a financial incentive.

Table 14. Responses of black cab drivers to CAZ charge scenarios

CAZ CHARGE	PAY CHARGE	DO NOT PAY CHARGE
£5	27%	73%
£10	16%	84%
£10 + subsidy for electric vehicles	18%	82%
£20	15%	85%

- 6.4.7 The table above indicates that between 15% and 27% of black cab drivers would continue to use the same vehicle and pay the charge, dependent on the charge level. Where respondents have indicated that they would not pay the charge the predominant response would be to change to a Euro 6 vehicle.

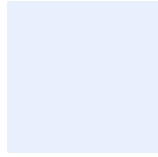
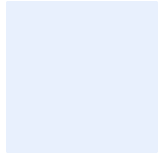
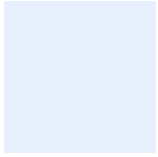
6.5 PHV drivers

- 6.5.1 The most common vehicle age for PHV drivers is 5 to 9 years old (68%). The most common reason for a PHV driver to replace their vehicle is 'when it reaches a certain age' (76%).
- 6.5.2 Most participants (73%) agreed that the councils should try to reduce air pollution whilst only 40% of drivers agreed that the councils should reduce the number of the most polluting vehicles in high pollution areas.
- 6.5.3 Over half of PHV respondents (54%) scored favourably towards purchasing a new petrol vehicle (scores of 3-5).
- 6.5.4 Over half of PHV drivers (52%) scored positively in terms of appeal of electric (scores of 3-5).
- 6.5.5 In order to upgrade their vehicles, many drivers suggested they would require a financial incentive.

Table 15. Responses of PHV drivers to CAZ charge scenarios

CAZ CHARGE	PAY CHARGE	DO NOT PAY CHARGE
£5	16%	84%
£10	5%	95%
£10 + subsidy for electric vehicles	0%	100%
£20	3%	97%

- 6.5.6 The table above indicates that between 0% and 16% of PHV drivers would continue to use the same vehicle and pay the charge, dependent on the charge level. Where respondents have indicated that they would not pay the charge the predominant response would be to change to an electric vehicle.



APPENDIX A

Black Cab Focus Group Topic Guide

CONFIDENTIAL

Topic Guide: Black Cab Drivers

Moderator Introduction [5 minutes]

- Good evening, thank them for coming along, your name, explain 'independent researcher' status.
- Explain nature of the focus group discussion; confirm participant confidentiality and anonymity.
- Explain "rules" (phones off, no right or wrong answers, anonymity, recorder etc) adhering to the code of conduct of the Market Research Society and Data Protection Act.
- Explain the structure of the session – 1 hour long, finishing at
- Explain general subject matter:
 - We're going to be talking about trips you take within Sheffield and Rotherham and the type of vehicle you use.
 - Sheffield and Rotherham have been named as one of 29 areas in England where concentrations of Nitrogen Dioxide exceed statutory limits. Nitrogen dioxide can irritate the airways of the lungs and increase symptoms of people suffering from lung diseases. Therefore, Sheffield City Council and Rotherham Metropolitan Borough Council are undertaking a study to identify a package of measures to reduce nitrogen dioxide in the shortest possible time.
 - There is also a separate survey currently taking place about the Electric Taxi Trial.
 - What I'd like is for you to be as honest as possible. It's important to hear everyone's views. There are no right or wrong answers. We don't expect everyone to have the same opinions or experiences, and it's great to discuss/debate some of the issues that will arise.
 - From time to time I may have to move the discussion on. Apologies in advance!
- A good place to start is for us each to introduce ourselves. I wonder if you would like to speak to your neighbour, to find out their first name; how long they have lived in the area; and how long they have been a taxi driver.

<< Respondents to introduce each other >>

Section A: UNDERSTANDING CURRENT VEHICLE USE & REPLACEMENT [10 mins]

Current Vehicle Use

Q: What model of vehicle do you use (e.g. TX3)?

Q: How many miles do you typically drive per week in your taxi? If you share the use of your taxi with others, how many miles are driven by other users?

Q: Approximately, how many weeks per year do you operate?

Q: Do you own or lease your black cab?

Q: How much does maintenance cost you per year?

Q: Apart from fuel, road tax, vehicle tax, insurance and license fees, are there other costs that you have to cover – eg annual licence costs?

Vehicle Replacement

Q: When do you plan to replace your current black cab?

Q: How did/will you decide this?

Q: What vehicle model are you likely to replace it with? Or what models are you considering?

[PROBE ATTITUDES TO SWITCHING TO SOMETHING OTHER THAN DIESEL (e.g. ELECTRIC) AND PRIVATE CAR-BASED TAXI]

Section B: UNDERSTANDING THE CURRENT SITUATION [10 mins]

Empathy for Cleaner Air (& everyone to do their bit)

[Handout SHOWCARD A] Please read these 3 facts about the air quality in Sheffield and Rotherham.

In some parts of the city, pollution levels are much higher than EU and UK limits. This is believed to have significant health and wider social consequences for local communities; and Sheffield City Council is considering ways of reducing pollution in these areas.

Q: Which locations in Sheffield do you think are the most important to reduce pollution?
[PROBE: SHOULD THE COUNCIL TRY TO REDUCE POLLUTION, OR LEAVE ALONE? ARE THEY AWARE THAT THEY THEMSELVES ARE EXPOSED TO HIGH POLLUTION LEVELS?]

The UK Government (Defra) says "*the major threat to clean air is now posed by traffic emissions*"; and diesel-engined motor vehicles emit a higher level of oxides of nitrogen (NO_x), compared with petrol vehicles; whilst electric vehicles emit none.

Hot-spot Areas

[Handout SHOWCARDS B1 & B2] These areas of Sheffield have the highest levels of pollution.

Q: Do you think the Council should try to reduce the number of diesel vehicles passing through these locations to reduce NO_x pollution levels?

Q Thinking about your typical taxi shifts, how frequently do you currently drive into any of these areas, or central Sheffield generally?

- Less than once per month
- More than once per month, but less than once per week
- Between once and twice per week
- More than twice per week

Q: Approximately, what percentage of your hirings takes you into these most polluted areas?

Q: What sorts of people do you think suffer most from pollution in these areas? [*PROBE: WHAT ABOUT YOURSELVES, A YOU'RE IN THEM A FAIR AMOUNT?*]

Section C: Change Vehicle [15 mins]

Appeal of LPG Retro-fit

One way forward which will reduce harmful NO_x emissions is for diesel vehicles to be re-fitted so that they run on liquid petroleum gas (LPG) instead of diesel. The Council might be able to get funding to pay for this. When answering the following questions, assume there will be at least one place in Sheffield City Centre for you to refuel your vehicle.

Q: [Uninformed] What would you consider when deciding whether to get your vehicle to run on LPG?

- One-off costs & time required for retrofit?

- Running costs?
- Re-fuelling implications?
- Resale value
- Any other implications? *[eg working in a less harmful environment?]*

[Handout SHOWCARDS C1 & C2] These two showcards describe the implications of an LPG Retro-fit, including fixed cost of retro-fit (& typical time when vehicle not used) and running costs.

Q: Does this information change your views, or adds further weight to the views that you previously expressed?

Q: If the Council was to incentivise the retro-fitting of your vehicle, what could they do, or offer, that would encourage you to retro-fit your black cab?

[PROMPTS: FARE SURCHARGE TO PASSENGERS TO COVER COST OF REFIT OVER TIME; A PAYMENT / REWARD OF SAY £50 EACH YEAR FOR LPG-BASED TAXIS; ONE OFF PAYMENT; A RELAXATION OF OTHER REQUIREMENTS (SUCH AS DISABLED ACCESS); A DISCOUNT ON THE COST OF A TAXI LICENCE (IF APPLICABLE)]

Q: What other information would you require, if any, to be able to fully consider the pros and cons of a retro-fit?

Q: Any other comments/observations on the possibility of a retro-fit from diesel to LPG?

Appeal of Electric vehicle

An alternative to reducing harmful NO_x emissions is for people to use electric vehicles.

Q: What electric hackney models are you aware of? Which are you most interested in?

[PROMPT: (HAVE YOU HEARD OF: 'TX', 'Dynamo' OR 'Metrocab'?)]

Q: [Uninformed] What would you consider when deciding whether to buy an electric hackney cab and/or other ultra-low emissions vehicle? *[Note - concerns/perceived barriers]*

- One-off cost(s)
- Running costs
- Range
- Where to charge (i.e. re-fuel)?

- Any other implications? *[eg working in a less harmful environment?]*

[Handout SHOWCARDS D1 & D2] These two showcards describe the implications of owning an electric Hackney taxi, including likely cost, re-fuelling charges and charging points.

Q: Does this information change your views, or adds further weight to the views that you previously expressed?

Q: If the Council was to further incentivise the purchase of an electric vehicle, what could they do, or offer, that would encourage you to purchase/rent an electric hackney cab?

[Prompts: fare surcharge to passengers to help cover cost of electric vehicle replacement over time; a payment / reward of say £50 each year for electric taxis; a one off payment; a relaxation of other requirements (such as disabled access); a discount on the cost of a taxi licence (if applicable); provision of a sufficient charging network]

Q: What other information would you require, if any, to be able to fully consider the pros and cons of replacing your taxi with an electric vehicle?

Q: Any other comments/observations on the possibility of purchasing an electric vehicle?

Section D: Likely Response to Different Charges [15 mins]

CAZ Charging Scenarios

Sheffield City Council is considering introducing charges for non-compliant vehicles that enter into high pollution areas of the city.

Currently, the possible charging zone AREA is not known, so assume for this research that the charge would apply to the journeys you currently make within Sheffield and Rotherham city centres. Please note, all scenarios are entirely hypothetical and for research purposes only.

Please have a look at this 'scenario' [Handout Showcard E1]. Imagine that, from the 1 January 2020 (ie in 1½ years' time), there will be a charge of £5 to enter into either Sheffield or Rotherham ton centres. You would not need to pay (again) until the next day – note any shifts going passed midnight would involve two payments. Payment would be done online by registering your number plate and paying with a credit/debit card.

This showcard [Handout Showcard F] presents the different options for you. Please take a moment to think through what your most likely response would be, and then write it down on the paper provided.

[NOTE WE WILL PROVIDE A SELF-COMplete RECORD SHEET FOR EACH PARTICIPANT TO RECORD THEIR RESPONSE TO EACH SCENARIO]

Q: If the charge was introduced on 1st January 2020, what would you do? How would this affect your vehicle ownership and use?

Response Options:

- Option A - Use same vehicle as now & pay the £5 charge every day
- Option B - Convert vehicle to run on LPG and avoid the charge
- Option C - Change to a compliant car-based taxi and avoid the charge
- Option D - Change to an electric black cab and avoid the charge
 - Option E - Operate black cab in a different town/city

Q: [FOR THOSE ANSWERING ' Option B'] Why Option B?
[PROBE FOR ACCEPTANCE OF HASSLE GETTING A RETRO-FIT DONE; EXPLORE HOW MUCH THEY THINK THE RETRO-FIT WOULD COST]

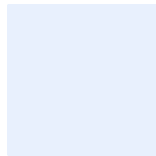
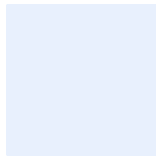
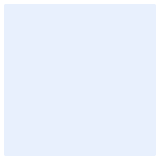
Q: [FOR THOSE ANSWERING ' Option C'] Why Option C?
[PROBE FOR ACCEPTANCE OF DISADVANTAGES OF HAVING A PHV RATHER THAN A HACKNEY CAB; EXPLORE HOW MUCH THEY THINK THE SAVINGS WOULD BE]

Q: [FOR THOSE ANSWERING ' Option D'] Why Option D?
[PROBE FOR ACCEPTANCE OF HASSLE/COST GETTING AN ELECTRIC VEHICLE; EXPLORE HOW MUCH THEY THINK THEY WOULD SAVE IN THE LONG RUN]

Q: [FOR THOSE ANSWERING ' Option E'] Why Option E?
[PROBE FOR IMPACTS OF WORKING IN A DIFFERENT CITY; ADVERSE IMPACTS ON THEIR TIME (& COSTS) TO GET TO NEW WORKING AREA/HOW QUICK GET NEW AREA LICENCE]

Now please consider this new 'scenario' [Showcard E2]:

Q: If this charge was introduced on 1st January 2020, what would you do? Please write down on the sheet what you would do, and how this would affect your vehicle ownership/use?



Q: And what if the charging 'scenario' was like this? [Showcard E3]:

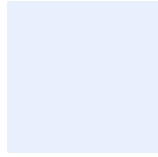
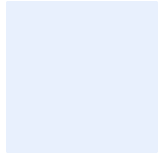
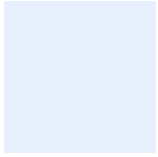
Q: And, finally, what if the charging 'scenario' was like this? [Showcard E4]:

Wrap Up [5 minutes]

Q: What are your overall comments on the issues we have discussed today?

Q: Is anyone interested in receiving information about, or taking part in, the Electric Taxi Trial being managed by the Council?

Thank You



APPENDIX B

PHV Focus Groups Topic Guide

CONFIDENTIAL

Topic Guide: PHV Drivers - Rotherham

Moderator Introduction [5 minutes]

- Good evening, thank them for coming along, your name, explain 'independent researcher' status.
- Explain nature of the focus group discussion; confirm participant confidentiality and anonymity.
- Explain "rules" (phones off, no right or wrong answers, anonymity, recorder etc) adhering to the code of conduct of the Market Research Society and Data Protection Act.
- Explain the structure of the session – 1¼ hour long, finishing at
- Explain general subject matter:
 - We're going to be talking about trips you take within Sheffield and Rotherham and the type of vehicle you use.
 - What I'd like is for you to be as honest as possible. It's important to hear everyone's views. There are no right or wrong answers. We don't expect everyone to have the same opinions or experiences, and it's great to discuss/debate some of the issues that will arise.
 - From time to time I may have to move the discussion on. Apologies in advance!
- A good place to start is for us each to introduce ourselves. I wonder if you would like to speak to your neighbour, to find out their first name; how long they have been a taxi driver in the area.

<< Respondents to introduce each other >>

Section A: UNDERSTANDING CURRENT VEHICLE USE & REPLACEMENT [10 mins]

Current Vehicle Use

Q: What vehicle do you currently use as your taxi?

Q: How many miles do you typically drive per week in your vehicle? If you share the use of your vehicle with others, how many miles are driven by other users?

Q: Approximately, how many weeks per year do you operate?

Q: Do you own or lease your vehicle?

Q: What fuel does your vehicle use?

Q: How much does maintenance cost you per year?

Q: Are there any taxi-specific costs that you have to cover – eg annual licence charges to the Council?

Vehicle Replacement

Q: When do you plan to replace your current vehicle?

Q: How did/will you decide this?

Q: What vehicle model are you likely to replace it with? Or what models are you considering?

[PROBE ATTITUDES TO SWITCHING TO SOMETHING OTHER THAN PETROL/DIESEL (e.g. ELECTRIC)]

Section B: UNDERSTANDING THE CURRENT SITUATION [10 mins]

Empathy for Cleaner Air (& everyone to do their bit)

[Handout SHOWCARD A] Please read these 3 facts about the air quality in Sheffield and Rotherham.

In some parts of the city, pollution levels are much higher than EU and UK limits. This is believed to have significant health and wider social consequences for local communities; and Sheffield City Council and Rotherham Metropolitan Borough Council are considering ways of reducing pollution in these areas.

Q: Which locations in Rotherham do you think are the most important to reduce pollution?
[PROBE: SHOULD THE COUNCIL TRY TO REDUCE POLLUTION, OR LEAVE ALONE? ARE THEY AWARE THAT THEY THEMSELVES ARE EXPOSED TO HIGH POLLUTION LEVELS?]

The UK Government (Defra) says "*the major threat to clean air is now posed by traffic emissions*"; and diesel-engined motor vehicles emit a higher level of oxides of nitrogen (NO_x), compared with petrol vehicles; whilst electric vehicles emit none.

Hot-spot Areas

[Handout SHOWCARDS B1 & B2] These areas of Rotherham have the highest levels of pollution.

Q: Do you agree, or disagree, with the idea that the Council should try to reduce the number of the most-polluting vehicles passing through these locations to reduce NO_x levels?

Q Thinking about your typical taxi shifts, how frequently do you currently drive into any of these areas, or central Rotherham generally?

- Less than once per month
- More than once per month, but less than once per week
- Between once and twice per week
- More than twice per week

Q: Approximately, what percentage of your hirings takes you into these most polluted areas?

Q: What sorts of people do you think suffer most from pollution in these areas? [*PROBE: WHAT ABOUT YOURSELVES, A YOU'RE IN THEM A FAIR AMOUNT?*]

Section C: Change Vehicle [15 mins]

Appeal of Buying a New (Cleaner) vehicle

A cleaner-air alternative for the taxi trade is to use new, cleaner vehicles. [Handout SHOWCARD C].

FOR PETROL VEHICLES:

Most petrol-driven private cars registered after January 2006 (i.e. that are less than 12 years old) are considered by government to be less polluting – these are termed ‘Euro 4 petrol vehicles’. Petrol-driven private cars that are 12 years or older are deemed to be heavy polluters.

FOR DIESEL VEHICLES:

Most diesel-driven private cars registered after September 2015 (i.e. that are less than 3 years old) are considered by government to be less polluting – these are termed ‘Euro 6 diesel vehicles’. Diesel-driven private cars that are 3 years or older are deemed to be heavy polluters.

Q: What would encourage you to have a less polluting taxi in future? And what would be the perceived drawback(s)?

Appeal of Electric vehicle

An alternative to reducing harmful NO_x emissions is for people to use electric vehicles.

Q: What electric models are you aware of? Which are you most interested in?

Q: [Uninformed] What would you consider when deciding whether to buy an electric vehicle and/or other ultra-low emissions vehicle? *[Note – concerns/perceived barriers]*

- One-off cost(s)
- Running costs
- Range
- Where to charge (i.e. re-fuel)?
- Any other implications? *[eg working in a less harmful environment?]*

[Handout SHOWCARDS C1 & C2] These two showcards describe the implications of owning an electric vehicle, including likely cost, re-fuelling charges and charging points.

Q: Does this information change your views, or adds further weight to the views that you previously expressed?

Q: If the Council was to further incentivise the purchase of an electric vehicle, what could they do, or offer, that would encourage you to purchase/rent an electric vehicle

[Prompts: fare surcharge to passengers to help cover cost of electric vehicle replacement over time; a payment / reward of say £50 each year for electric taxis; a one off payment; a relaxation of other requirements; a discount on the cost of a taxi licence (if applicable); provision of a sufficient charging network]

Q: What other information would you require, if any, to be able to fully consider the pros and cons of replacing your taxi with an electric vehicle?

Q: Any other comments/observations on the possibility of purchasing an electric vehicle?

Section D: Likely Response to Different Charges [15 mins]

CAZ Charging Scenarios

Sheffield City Council and Rotherham Metropolitan Borough Council are considering introducing charges for non-compliant vehicles that enter into high pollution areas, as suggested by Government.

Currently, the possible charging zone AREA is not known, so assume for this research that the charge would apply to the journeys you currently make within Sheffield and Rotherham

city centres. Please note, all scenarios are entirely hypothetical and for research purposes only.

Please have a look at this 'scenario' [Handout Showcard D1]. Imagine that, from the 1 January 2020 (ie in 1½ years' time), there will be a charge of £5 to enter into either Sheffield or Rotherham town centres. You would not need to pay (again) until the next day – note any shifts going past midnight would involve two payments. Payment would be done online by registering your number plate and paying with a credit/debit card.

This showcard [Handout Showcard E] presents the different options for you. Please take a moment to think through what your most likely response would be, and then write it down on the paper provided.

[NOTE WE WILL PROVIDE A SELF-COMplete RECORD SHEET FOR EACH PARTICIPANT TO RECORD THEIR RESPONSE TO EACH SCENARIO]

Q: If the charge was introduced on 1st January 2020, what would you do? How would this affect your vehicle ownership and use?

Response Options:

- Option A - Use same vehicle as now & pay the £5 charge every day
- Option B - Change to new compliant diesel vehicle and avoid the charge
- Option C - Change to a new compliant petrol vehicle and avoid the charge
 - Option D - Change to an electric vehicle and avoid the charge
 - Option E - Operate vehicle in a different town/city
 - Option F - Other

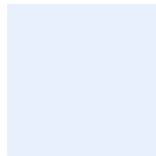
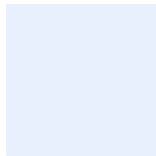
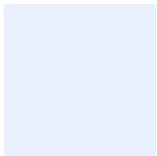
Q: [FOR THOSE ANSWERING 'Option A'] Would this additional charge be passed onto customers?

Q: [FOR THOSE ANSWERING 'Option B'] Why Option B?
[PROBE FOR ADVANTAGES OF CHOOSING DIESEL OVER PETROL]

Q: [FOR THOSE ANSWERING 'Option C'] Why Option C?
[PROBE FOR ADVANTAGES OF CHOOSING PETROL OVER DIESEL]

Q: [FOR THOSE ANSWERING 'Option D'] Why Option D?
[PROBE FOR ACCEPTANCE OF HASSLE/COST GETTING AN ELECTRIC VEHICLE; EXPLORE HOW MUCH THEY THINK THEY WOULD SAVE IN THE LONG RUN]

Q: [FOR THOSE ANSWERING 'Option E'] Why Option E?
[PROBE FOR IMPACTS OF WORKING IN A DIFFERENT CITY; ADVERSE IMPACTS ON THEIR TIME (& COSTS) TO GET TO NEW WORKING AREA/HOW QUICK GET NEW AREA LICENCE]



Now please consider this new 'scenario' [Showcard D2]:

Q: If this charge was introduced on 1st January 2020, what would you do? Please write down on the sheet what you would do, and how this would affect your vehicle ownership/use?

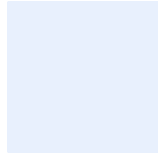
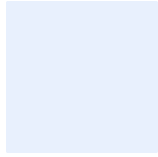
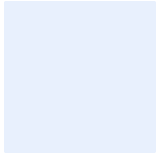
Q: And what if the charging 'scenario' was like this? [Showcard D3]:

Q: And, finally, what if the charging 'scenario' was like this? [Showcard D4]:

Wrap Up [5 minutes]

Q: What are your overall comments on the issues we have discussed today?

Thank You



APPENDIX C

LGV Focus Groups Topic Guide

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Topic Guide: LGV Drivers

Moderator Introduction [5 minutes]

- Good evening, thank them for coming along, your name, explain 'independent researcher' status.
- Explain nature of the focus group discussion; confirm participant confidentiality and anonymity.
- Explain "rules" (phones off, no right or wrong answers, anonymity, recorder etc) adhering to the code of conduct of the Market Research Society and Data Protection Act.
- Explain the structure of the session – 1¼ hour long, finishing at
- Explain general subject matter:
 - We're going to be talking about trips you take within Sheffield and Rotherham and the type of vehicle you use.
 - What I'd like is for you to be as honest as possible. It's important to hear everyone's views. There are no right or wrong answers. We don't expect everyone to have the same opinions or experiences, and it's great to discuss/debate some of the issues that will arise.
 - From time to time I may have to move the discussion on. Apologies in advance!
- A good place to start is for us each to introduce ourselves. Please could you tell us all your name and how long you have been an LGV driver.

<< Respondents to introduce themselves >>

Section A: UNDERSTANDING CURRENT VEHICLE USE & REPLACEMENT [10 mins]

Current Vehicle Use

Q: What vehicle do you currently use?

Q: How many miles do you typically drive per week in your vehicle? If you share the use of your vehicle with others, how many miles are driven by other users?

Q: Approximately, how many weeks per year do you operate?

Q: Do you own or lease your vehicle?

Q: What fuel does your vehicle use?

Q: How much does maintenance cost you per year?

Q: Are there any other costs that you have to cover that a private car driver would not have to pay?

Vehicle Replacement

Q: When do you plan to replace your current vehicle?

Q: How did/will you decide this?

Q: What vehicle model are you likely to replace it with? Or what models are you considering?

[PROBE ATTITUDES TO SWITCHING TO SOMETHING OTHER THAN PETROL/DIESEL (e.g. ELECTRIC)]

Section B: UNDERSTANDING THE CURRENT SITUATION [10 mins]

Empathy for Cleaner Air (& everyone to do their bit)

[Handout SHOWCARD A] Please read these 3 facts about the air quality in Sheffield and Rotherham.

In some parts of the city, air pollution levels are much higher than EU and UK limits. This is believed to have significant health and wider social consequences for local communities; and Sheffield City Council and Rotherham Metropolitan Borough Council are considering ways of reducing air pollution in these areas.

Q: Which locations do you think are the most important to reduce air pollution? *[PROBE: SHOULD THE COUNCIL TRY TO REDUCE AIR POLLUTION, OR LEAVE ALONE? ARE THEY AWARE THAT THEY THEMSELVES ARE EXPOSED TO HIGH AIR POLLUTION LEVELS?]*

The UK Government (Defra) says "*the major threat to clean air is now posed by traffic emissions*"; and all but the newest diesel vehicles, and petrol vehicles that are over 11 years old, emit a higher level of pollutants, compared with petrol vehicles; whilst electric vehicles emit none.

Hot-spot Areas

[Handout SHOWCARDS B1 & B2] These areas have the highest levels of air pollution.

Q: Do you agree, or disagree, with the idea that the Council should try to reduce the number of the most-polluting vehicles passing through these locations to reduce air pollution (NO_x) levels?

Q Thinking about your typical trips, how frequently do you currently drive into any of these areas, or central Sheffield or Rotherham?

- Less than once per month
- More than once per month, but less than once per week
- Between once and twice per week
- More than twice per week

Q: Approximately, what percentage of your trips take you into these most polluted areas?

Q: What sorts of people do you think suffer most from air pollution in these areas?
[PROBE: WHAT ABOUT YOURSELVES, AS YOU'RE IN THEM A FAIR AMOUNT?]

Section C: Change Vehicle [20 mins]

Appeal of Buying a New (Cleaner) vehicle

A cleaner-air alternative is to use new, cleaner vehicles. [Handout SHOWCARD C].

FOR PETROL VEHICLES:

Most petrol-driven vehicles registered after January 2006 (i.e. that are less than 12 years old) are considered by government to be less polluting – these are termed ‘Euro 4 petrol vehicles’. Petrol-driven vehicles that are 12 years or older are deemed to be heavy polluters.

FOR DIESEL VEHICLES:

Most diesel-driven vehicles registered after September 2015 (i.e. that are less than 3 years old) are considered by government to be less polluting – these are termed ‘Euro 6 diesel vehicles’. Diesel-driven vehicles that are 3 years or older are deemed to be heavy polluters.

Q: What would encourage you to have a less polluting vehicle in future? And what would be the perceived drawback(s)?

Appeal of LPG Retrofit

One way forward which will reduce harmful air pollution (NO_x) emissions is for diesel vehicles to be re-fitted so that they run on liquid petroleum gas (LPG) instead of diesel. When answering the

following questions, assume there will be at least one place in Sheffield/Rotherham centres for you to refuel your vehicle.

Q: [Uninformed] What would you consider when deciding whether to get your vehicle to run on LPG?

- One-off costs & time required for retrofit?
- Running costs?
- Re-fuelling implications?
- Resale value
- Any other implications? *[eg working in a less harmful environment?]*

[Handout SHOWCARDS D1 & D2] These two showcards describe the implications of an LPG conversion, including fixed cost (& typical time when vehicle not used) and running costs.

Q: Does this information change your views, or add further weight to the views that you previously expressed?

Q: If the Council was to incentivise the conversion of your vehicle, what could they do, or offer, that would encourage you to convert your vehicle?

[PROMPTS: A PAYMENT / REWARD OF SAY £50 EACH YEAR FOR LPG-BASED VEHICLES UNTIL YOU REPLACE YOUR VEHICLE; ONE OFF PAYMENT]

Q: What other information would you require, if any, to be able to fully consider the pros and cons of an LPG conversion?

Q: Any other comments/observations on the possibility of converting your vehicle to run on LPG?

Appeal of Electric vehicle

An alternative to reducing harmful air pollution (NO_x) emissions is for people to use electric vehicles.

Q: What electric models are you aware of? Which are you most interested in?

Q: [Uninformed] What would you consider when deciding whether to buy an electric vehicle and/or other ultra-low emissions vehicle? *[Note – concerns/perceived barriers]*

- One-off cost(s)
- Running costs
- Range
- Where to charge (i.e. re-fuel)?
- Any other implications? *[eg working in a less harmful environment?]*

[Handout SHOWCARDS E1 & E2] These two showcards describe the implications of owning an electric vehicle, including likely cost, re-fuelling charges and charging points.

Q: Does this information change your views, or adds further weight to the views that you previously expressed?

Q: If the Council was to further incentivise the purchase of an electric vehicle, what could they do, or offer, that would encourage you to purchase/rent an electric vehicle

[Prompts: a payment / reward of say £50 each year for electric vehicles until you replace your vehicle; a one-off payment; a relaxation of other requirements]

Q: What other information would you require, if any, to be able to fully consider the pros and cons of replacing your current vehicle with an electric vehicle?

Q: Any other comments/observations on the possibility of purchasing an electric vehicle?

Section D: Likely Response to Different Charges [15 mins]

CAZ Charging Scenarios

Sheffield City Council and Rotherham Metropolitan Borough Council are considering introducing charges for non-compliant vehicles that enter into high air pollution areas, as suggested by Government.

Currently, the possible charging zone AREA is not known, so assume for this research that the charge would apply to the journeys you currently make within Sheffield and Rotherham city centres. Please note, all scenarios are entirely hypothetical and for research purposes only.

Please have a look at this 'scenario' [Handout Showcard F1]. Imagine that, from the 1 January 2020 (ie in 1½ years' time), there will be a charge of £5 to enter into either Sheffield or Rotherham town centres. You would not need to pay (again) until the next day. Payment would be done online by registering your number plate and paying with a credit/debit card.

This showcard [Handout Showcard G] presents the different options for you. Please take a moment to think through what your most likely response would be, and then write it down on the paper provided.

[NOTE WE WILL PROVIDE A SELF-COMPLETE RECORD SHEET FOR EACH PARTICIPANT TO RECORD THEIR RESPONSE TO EACH SCENARIO]

Q: If the charge was introduced on 1st January 2020, what would you do? How would this affect your vehicle ownership and use?

Response Options:

- Option A - Use same vehicle as now & pay the £5 charge every day
- Option B - Change to new compliant diesel vehicle and avoid the charge
- Option C - Change to a new compliant petrol vehicle and avoid the charge
 - Option D - Change to an electric vehicle and avoid the charge
 - Option E - Convert vehicle to run on LPG and avoid the charge
 - Option F - Operate vehicle in a different town/city
 - Option G - Other

Q: [FOR THOSE ANSWERING 'Option A'] Why option A?

Q: [FOR THOSE ANSWERING 'Option B'] Why Option B?
[PROBE FOR ADVANTAGES OF CHOOSING DIESEL OVER PETROL]

Q: [FOR THOSE ANSWERING 'Option C'] Why Option C?
[PROBE FOR ADVANTAGES OF CHOOSING PETROL OVER DIESEL]

Q: [FOR THOSE ANSWERING 'Option D'] Why Option D?
[PROBE FOR ACCEPTANCE OF HASSLE/COST GETTING AN ELECTRIC VEHICLE;
EXPLORE HOW MUCH THEY THINK THEY WOULD SAVE IN THE LONG RUN]

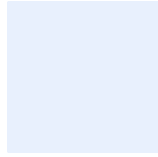
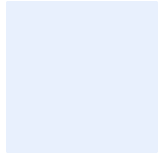
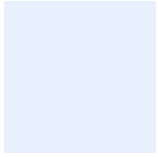
Q: [FOR THOSE ANSWERING 'Option E'] Why Option E?
[PROBE FOR ACCEPTANCE/HASSLE OF LPG CONVERSION; EXPLORE HOW MUCH
THEY THINK LPG CONVERSION WOULD COST]

Q: [FOR THOSE ANSWERING 'Option F'] Why Option F?
[PROBE FOR IMPACTS OF WORKING IN A DIFFERENT CITY; ADVERSE IMPACTS ON
THEIR TIME (& COSTS) TO GET TO NEW WORKING AREA]

Now please consider this new 'scenario' [Showcard F2]:

Q: If this charge was introduced on 1st January 2020, what would you do? Please write down on the sheet what you would do, and how this would affect your vehicle ownership/use?

Q: And what if the charging 'scenario' was like this? [Showcard F3]:



Q: And, finally, what if the charging 'scenario' was like this? [Showcard F4]:

Wrap Up [5 minutes]

Q: What are your overall comments on the issues we have discussed today?

Thank You

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