Greater Manchester's Clean Air Plan to tackle Nitrogen Dioxide Exceedances at the Roadside

Note 19: Taxi and PHV Fleet Research

Post-OBC approach

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COVID-19 Pandemic Statement

This work has not considered the impact of the COVID-19 pandemic. Whilst we are continuing, where possible, to develop the Greater Manchester Clean Air Plan, the pandemic has already had an impact on our ability to keep to the timescales previously indicated and there may be further impacts on timescales as the impact of the pandemic becomes clearer.

We are also mindful of the significant changes that could result from these exceptional times. We know that the transport sector has already been impacted by the pandemic, and government policies to stem its spread. The sector's ability to recover from revenue loss, whilst also being expected to respond to pre-pandemic clean air policy priorities by upgrading to a cleaner fleet, will clearly require further thought and consideration.

The groups most affected by our Clean Air Plan may require different levels of financial assistance than we had anticipated at the time of writing our previous submission to Government.

More broadly, we anticipate that there may be wider traffic and economic impacts that could significantly change the assumptions that sit behind our plans. We have begun to consider the impacts, and have committed to updating the government as the picture becomes clearer over time.

We remain committed to cleaning up Greater Manchester's air. However, given the extraordinary circumstances that will remain for some time, this piece of work remains unfinished until the impact of the COVID-19 pandemic has been fully considered by the Greater Manchester Authorities.

1 Introduction

1.1 The ten local authorities of Greater Manchester (GM) have been instructed by the government to produce a Clean Air Plan (CAP) to set out how they will target and mitigate areas of poor air quality within their boundaries. GM has decided to coordinate a Combined Authority response to this request, which is being managed on behalf of the 10 districts by Transport for Greater Manchester (TfGM).

1.2 Currently, the CAP includes plans for a Clean Air Zone (CAZ) which would apply a charge (Table 1) to commercial vehicles (buses, minibuses, coaches, Heavy Goods Vehicles (HGVs), Light Goods Vehicles (LGVs), taxis and private hire vehicles (PHVs)). To help mitigate the adverse effects of this charge, the CAP will include a number of 'Clean Vehicle Funds' and a Loan Finance Scheme. These will provide grants and affordable loans (respectively) to eligible businesses affected by the charge.

1.3 To determine the scope and definition of these funds, and the eligibility criteria, a wide range of policy development processes are being undertaken. Working Groups have been established to ensure the proposals that emerge can be stress-tested with those they will apply to. This research is designed to contribute to this body of evidence.

1.4 This technical note provides an overview of the market for the taxi and PHV vehicle category and an impact assessment of the proposed CAZ charge. It provides information on market characteristics including vehicle types, a breakdown of owners and operators, information on the second-hand and new vehicle sales markets and details of opportunities to purchase compliant vehicles or retrofit to achieve compliance. The research also identified key impacts and risks for different types of owner and operator, which will contribute to an understanding of the specific role the Clean Vehicle Funds can play in supporting these commercial sectors when the CAZ comes into force.

1.5 This information will primarily be used to assist the Taxi Working Group, Governance and Policy Workstream (WS11) and other relevant Working Groups in developing suitable policy proposals for the Funds (Freight; Taxi and LGV[1]) and Loan Finance. Depending on the type and quality of information available, it may also feed into the Data, Evidence and Modelling (DEM) Workstream (WS1) in which a lack of commercial vehicle evidence has already been identified as a project risk.

1.6 The objectives of this research are defined below.

[1] The Bus Fund will be limited to operators running commercial bus route services in GM. These vehicles are not included in the scope of this research.

Research Objectives

1. Define general market characteristics for the vehicle types in a GM context where available information allows.
2. Segment these markets by setting out the owner/user breakdown of each of these markets. Illustrate these users by providing in-depth profiles of some of the users in these markets. These case studies, or 'personas', will assist the WS11 and WS1 workstreams in developing and testing suitable policies for these sectors.
3. Provide a high-level assessment of the extent of impact (how significant/widespread), and level of risk (according to the vulnerability of the user) upon each of the defined segments, if a charging Clean Air Zone were introduced in GM.

2 Study Background

2.1 Air Quality

2.1.1 Poor air quality is one of the largest environmental risks to the public's health. It is recognised that long-term exposure to elevated levels of Nitrogen Dioxide (NO_2) and microscopic particles of matter suspended in the air we breathe contributes to the development of cardiovascular or respiratory disease and reduce life expectancy. In particular, the youngest, oldest, those living in areas of deprivation and those with existing respiratory or cardiovascular disease are most likely to develop symptoms due to exposure to air pollution.

2.1.2 Whilst air quality has been generally improving over time across the United Kingdom, particular pollutants remain a serious concern in many urban areas. Since 2010, the UK has been found in breach of the legal limits of levels of NO_2 in major urban areas and in 2015 it was found that compliance with the legal limits of levels of NO_2 had still not been achieved. In response, the UK Government was held to be in breach of its legal obligations and was required to take action by the UK Supreme Court.

2.1.3 In the case of Greater Manchester, the city region has been highlighted as an area of concern with an urgent need to address air quality issues. Eight of the ten GM local authorities were identified by the Government as having roads which are expected to continue to exceed the maximum legal limits of NO_2 in 2021. Subsequently, each have been directed by Government to conduct studies to identify measures for reducing NO_2 concentrations to compliant levels in the 'shortest possible time'.

2.1.4 In response, the ten authorities of Greater Manchester, supported by Transport for Greater Manchester (TfGM), have collectively developed a draft package of measures that complies with the Government guidance for tackling NO_2 pollutants. An Outline Business Case (OBC) for these proposals was submitted to Government in early 2019[2].

[2] Greater Manchester's Outline Business Case to tackle Nitrogen Dioxide Exceedances at the Roadside

2.2 Greater Manchester's Clean Air Plan

2.2.1 The primary aim of the GM CAP is to enable Greater Manchester to reduce NO_2 concentrations to below the EU Limit Value in the shortest possible time. As outlined in the Outline Business Case (OBC), an initial package of measures that would allow the city region to meet compliance in the shortest possible time, at the lowest cost, with the least risk and with the least negative impacts, has been put forward. Key measures within the package include:

- A Clean Air Zone (CAZ) comprising charges for the most polluting commercial vehicles;
- Clean Vehicle Funds to help businesses and commercial vehicle operators to purchase compliant vehicles;
- A Loan Finance scheme, which would provide affordable loans to assist with compliant vehicle purchases;
- Investment in infrastructure, such as electric vehicle charging points; and
- Supplementary schemes such as behaviour change campaigns, Local Authority (LA) Fleet upgrades and targeted parking policy.

2.2.2 A key feature of the proposal is the CAZ charge, which targets the most polluting commercial vehicles by imposing a charge on the most polluting HGVs, LGVs, buses, coaches, minibuses and taxis and PHVs from the summer of 2021.

2.2.3 It is anticipated the charge will provide a financial incentive to the owners of commercial vehicles to invest in cleaner vehicles. At the OBC stage it was proposed that the CAZ charge would be £7.50 per day for taxis, PHVs and LGVs and £100 per day for HGVs, buses and coaches, as reflected in **Table 2-1**. The owners of vehicles that are subject to the charge who do not pay would be issued with a Penalty Charge Notice (PCN) and would be required to pay both that and the original charge.

Table 2-1 Proposed Greater Manchester Clean Air Zone Charges (as stated in the OBC)

Vehicle Group	CAP Charge (per day)
Buses, Coaches and HGVs	£100 (from 2021)
Taxis and Private Hire Vehicles	£7.50 (from 2021)
Vans and Minibuses	£7.50 (from 2023)

2.2.4 Although the charges and dates outlined in the table above are those submitted as part of the OBC, recent developments within the wider CAP project has led to a proposed change in date the CAZ will come into effect. Of relevance to this study, in July 2019 a Ministerial letter providing feedback on the proposals and a Ministerial direction were received. As part of this, Government has requested that the £7.50 charge for taxis and PHVs be brought into effect in 2021 in line with other vehicle types. While this development has not been formally agreed at the time of writing this report, for the purpose of this study the new working assumption is that the charge will come into effect from 2021 rather than 2023.

2.2.5 Additionally, while the charges outlined above are again from the OBC submission, these are not formally agreed at this stage. Therefore, there is a possibility these chargers could change going forward. For the purpose of this study, the working assumption applied is the charges stated above.

2.3 The Need for the Study

2.3.1 The proposals to introduce a Clean Air Zone would affect taxis and PHVs, with noncompliant vehicle users required to pay the charge, upgrade their vehicle or change their behaviour. Currently there is limited data on the exact volume of taxi and PHV traffic on the local road network, in particular those PHVs registered outside GM, though operating within GM. There is also limited detailed information with regards to market size and user categorisations and behaviours.

2.3.2 To ensure GM understands more clearly the impact of a CAZ on the taxi and PHV market, including owners, operators and users (i.e. passengers), this study intends to improve the knowledge of the market. This will enable a better assessment of the extent to which any potential support may be appropriate to mitigate negative impacts.

2.3.3 Leading this study is the Taxi Working Group (TWG). The group comprises TfGM staff and consultants, such as Arup and AECOM, and reports to the GM Clean Air Steering Group. The CMWG members are responsible for ensuring that the impact of the proposals across the industry are fully understood. This involves designing the detail of the measures proposed to support the taxi and PHV market and industry and assessing the use of external funding to help renew and upgrade fleets and reduce harmful emissions. It is also envisioned that data collected on the taxi and PHV market may address the existing data gap on the sector to better inform future studies.

3 The Sector

3.1 This section will provide an overview of the taxi fleet registered to the Local Authorities in Greater Manchester.

3.2 Taxi and PHV Definitions

3.2.1 The Taxi and PHV licensing Councillors' handbook states how a taxi (also referred as 'Hackney carriages') and PHVs are licensed separately and highlights the differences between the two. The key difference being that PHVs cannot ply for hire, meaning that that all PHVs have to be pre-booked in advance through a licensed operator. Also, local councils can regulate fares charged by taxis, where as they have no power to do so with PHVs[3].

3.2.2 Looking at the vehicle categories provided by Department for Transport's (DfT) Vehicle Certification Agency, taxi's and PHVs are classed as Category M, defining them as 'Motor vehicles with at least four wheels designed and constructed for the carriage of passengers'. As shown in **Table 3-1**, category M is split into three sub categories with taxis and PHVs categorised as M1, these are defined as 'Vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat'[4].

Table 3-1 Categorisation of vehicles with at least four wheels and used for the carriage of passengers

Classification	Description
M1	Vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat.
M2	Vehicles designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tonnes.
M3	Vehicles designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 tonnes.

3.3 Data Availability

3.3.1 To gain the registered taxi data for GM, the local authorities provided their records of registered taxis and PHVs. From this, the data was processed and cleaned to remove any possible outliers and then matched with the Automatic Number Plate Recognition (ANPR) data to gain an accurate number of taxis operating within GM. Following on from the cleaning process the data was then analysed to provide a clearer picture of the fleets including a breakdown of taxi licenses and PHV licenses, the age of the fleet, fuel types, and the most common vehicle make used.

3.4 Market Overview

3.4.1 A number of taxis and PHVs were found to be registered to more than one LA, but for the purpose of this note they have all been included as they account for an insignificant amount in comparison to whole fleet. The true number of registered vehicles in GM will be just under 200 hundred less than what is recorded in this note.

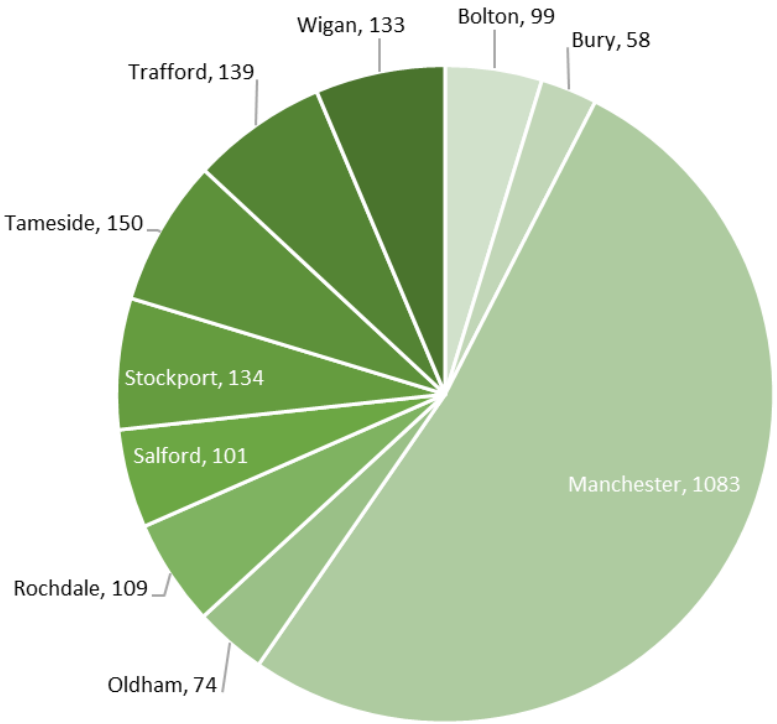
[3] Taxi and PHV licensing Councillors' handbook (England and Wales)
[4] Definition of vehicle categories, Vehicle Certification Agency

3.4.2 It is also important to note that there are taxis and PHVs that operate within GM that are not registered to any GM LAs that would be affected by the CAZ. Research has identified there are 1,017 vehicles registered with Sefton Council and 1,993 vehicles registered with Wolverhampton Council that are actually based within GM. We are aware that there may be other authorities whose licensed vehicles are based in GM but are unable to confirm the exact scale of the issue at this point.

3.4.3 Data provided by DfT shows that in 2018 the total number of licensed taxi and PHVs in England stood at 285,400, a rise of 1.7% from 2017. In regard to the North West there was a total of 35,900 taxis and PHVs registered, an increase of 0.5%. GM has a total of 14,481 which represents 40% of the North West fleet and 5% of the taxi and PHV fleet in England[5].

3.4.4 There was a total of 73,100 licensed taxis across England in 2018, 26% of the combined total. For PHVs there was 212,300 registered, this accounts for 74% of the combined total. In the NW, there are 8,300 taxis and this figure represents 11% of the taxi market in England. Whereas there are 27,600 PHVs in the NW, representing 13% of the overall figure in England. In GM there are a total of 2,080 taxis representing 3% of the market in England and 25% of the NW. There are 12,401 licensed PHVs in GM accounting for 6% of the market in England and 45% of the NW.

Figure 3-1 Total Registered Taxis by LA

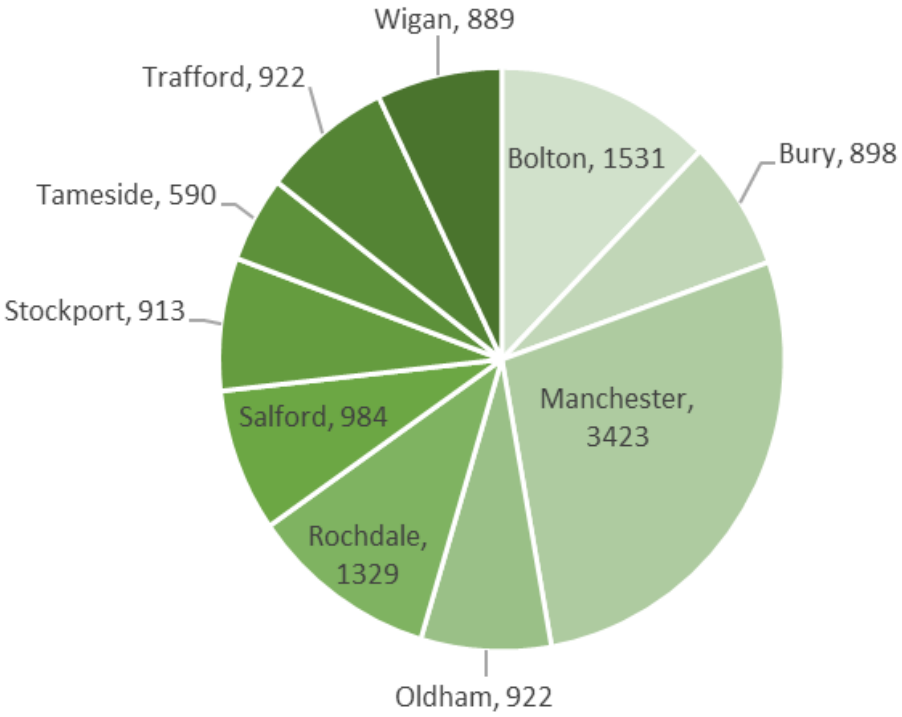


[5] Taxi and Private Hire Vehicle Statistics, England: 2018

3.4.5 As shown in **Figure 3-1**, Manchester has the largest amount of taxi licenses across all ten LAs with 1083 out of a total of 2,080, this represents a 52% share of the taxi market in GM and a 13% in the NW. The second largest figure of 150 comes from Tameside representing a 7% share of the GM market and 2% of the NW. These figures indicate that the larger customer market in Manchester makes it a more appealing place for taxis to operate.

3.4.6 The smallest fleets are from Bury with 58 registered taxis, 3% of the GM fleet and 1% of the NW fleet, whilst Oldham has the second smallest fleet of 74, 4% of the GM fleet and 1% of the NW. The average fleet size across all LAs is 208.

Figure 3-2 Total Registered PHVs by LA

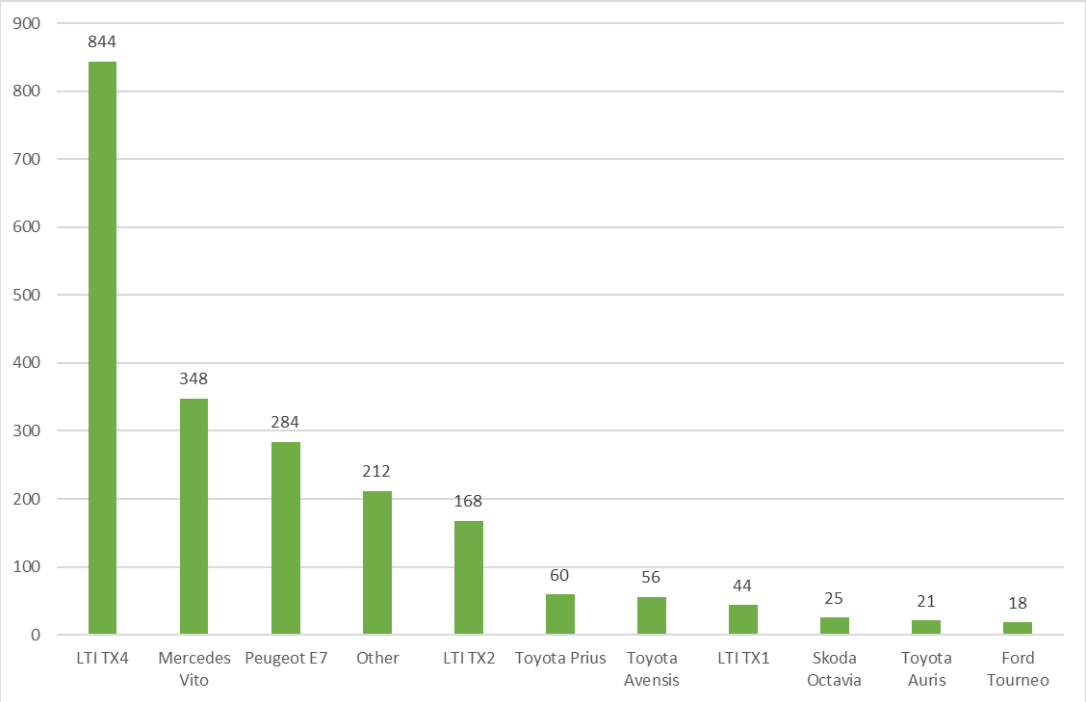


3.4.7 **Figure 3-2** highlights the registered PHVs across the 10 LAs and like the taxi fleet Manchester has the largest with 3,423, this represents 28% of GM and 12% of the NW. The second largest fleet of PHVs comes from Bolton with a total of 1,531, in GM this accounts for 12% and 6% in the NW. Rochdale have a slightly smaller fleet than Bolton but still have a significant proportion with 1,329, accounting for 11% across GM and 5% in the NW.

3.4.8 The smallest fleet of PHVs comes from Tameside where there are only 590 registered, this represents 5% of the total GM fleet and 2% of the NW. Wigan and Bury both have similar sized PHV fleets with 889 registered in Wigan and 898 in Bury, these figures account for 7% of the GM fleet and 3% of the NW.

3.5 Vehicle Make and Models

Figure 3-3 Taxi Vehicles used in GM



3.5.1 **Figure 3-3** above displays the most common vehicles used in the taxi fleet across GM. The most popular vehicle is the London Taxi Company TX4 (LTI TX4) with 844 registered vehicles, this represents almost half of GM's fleet with 41%. The LTI TX4 is the second newest instalment of the LTI range and was manufactured between 2007-2017 and operates off a diesel fuelled engine. LTI have released a Euro 6 standard TX4, however the majority of TX4s in operation were manufactured before 2015 with 763 out of 844, accounting for 90% of those vehicles.

3.5.2 The Mercedes Vito is the next most popular vehicle used with 348, this accounts for 17% of the GM fleet. In 2008 Manchester City Council allowed the Mercedes Benz Vito Taxi to be awarded a hackney carriage license if slight modifications were made to those with PHV licenses, these include a taxi roof sign, separate driver/passenger compartment and wheelchair accessibility as standard[6]. 260 of the 348 (75%) were manufactured before 2015 indicating that three quarters would not comply with EU engine standards.

3.5.3 The Peugeot E7 comprises 284 registered vehicles, representing 14% of the GM fleet. The E7 is purpose built for hackney carriages and is an adaption to the Peugeot Expert designed in collaboration with Cab Direct. The E7 is fuelled by diesel engines and with 236 of the 284 (84%) registered as being manufactured before 2015 it is likely that the majority would not comply with Euro 6 standards.

[6] Manchester City Council Report for Resolution, Licensing Policy Mercedes Vito Taxi

Figure 3-4 Most common vehicles used in Taxi fleet

LTI TX4

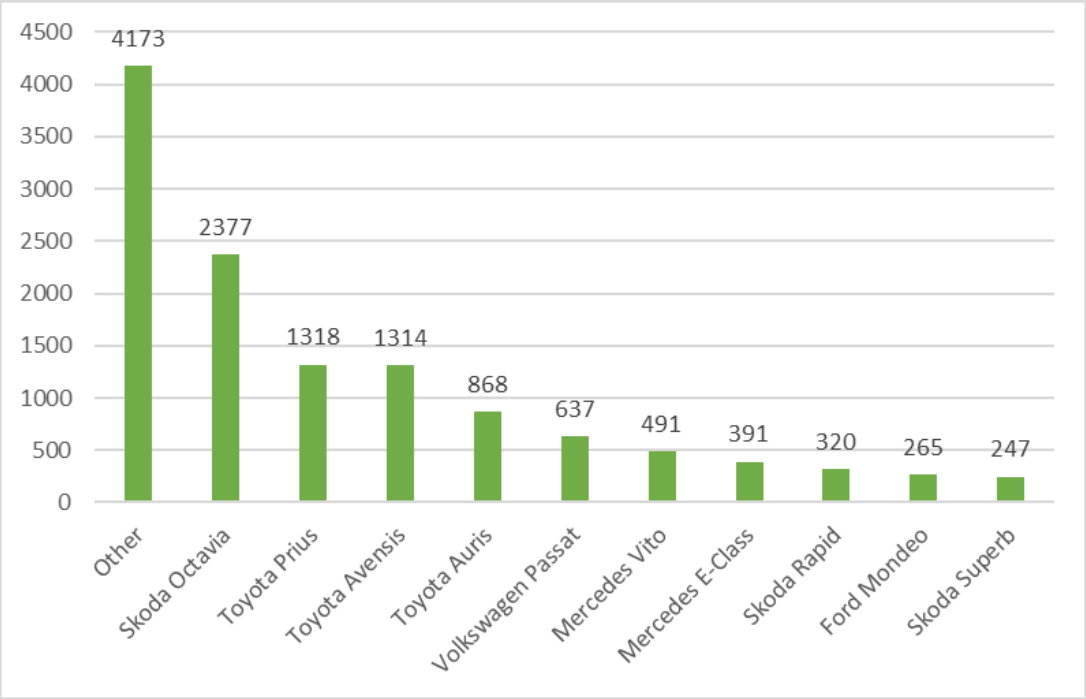
Mercedes Vito

Peugeot E7

LTI TX2

3.5.4 **Figure 3-4** above provides images of the four most common vehicles used in the taxi fleet.

Figure 3-5 PHV Vehicles used in GM



3.5.5 As shown in

3.5.6

3.5.7

3.5.8 Figure 3-5, the 'Other' category has the highest number of vehicles registered, this was due to the size of the PHV fleet (12,401) and the large variances of vehicle makes and models registered in GM. Some of the larger amounts include the Vauxhall Astra with 219, Renault Megane with 196, and 148 Seat Toledos. There were 505 Ford vehicles registered (131 Ford Focus, 103 Tourenos, and 147 Transits), as well as 465 Vauxhalls (173 Insignias, 123 Zafiras, and 95 Vivaros).

3.5.9 However, the most common PHV used in greater Manchester with 2377, accounting for 19% of the fleet is the Skoda Octavia. The second most common is the Toyota Prius, accounting for 11% of the fleet with 1318.

3.5.10 The Toyota Avensis is in a close third position with 1,314, representing 11% of the PHV fleet. Although unlike the Toyota Prius, the engines run off either petrol ranging from 1.6 to 2.0 litre or a 2.0 litre diesel. It is therefore likely that those driving this vehicle could be affected by the CAZ.

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3.5.13

3.5.14 Figure 3-6 below provides images of the four most common vehicles used in the PHV fleet.

Figure 3-6 Most Common vehicles used in PHV fleet

Skoda Octavia

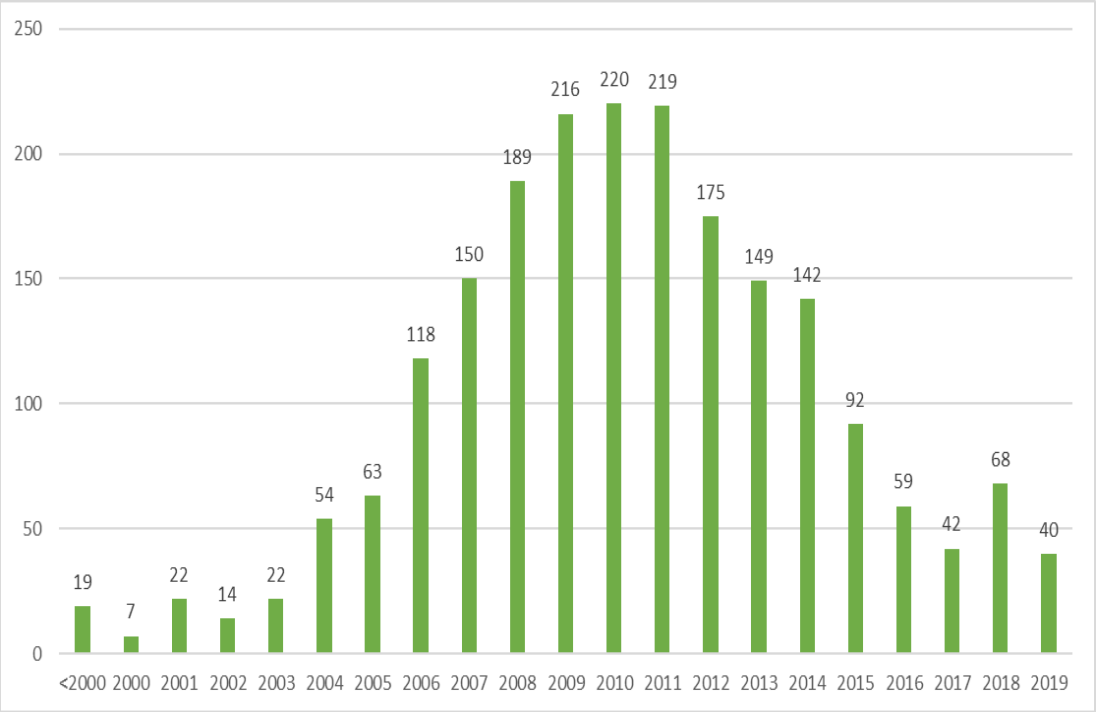
Toyota Prius

Toyota Avensis

Toyota Auris

3.6 Age of Fleet

Figure 3-7 Age of Taxi Fleet in GM



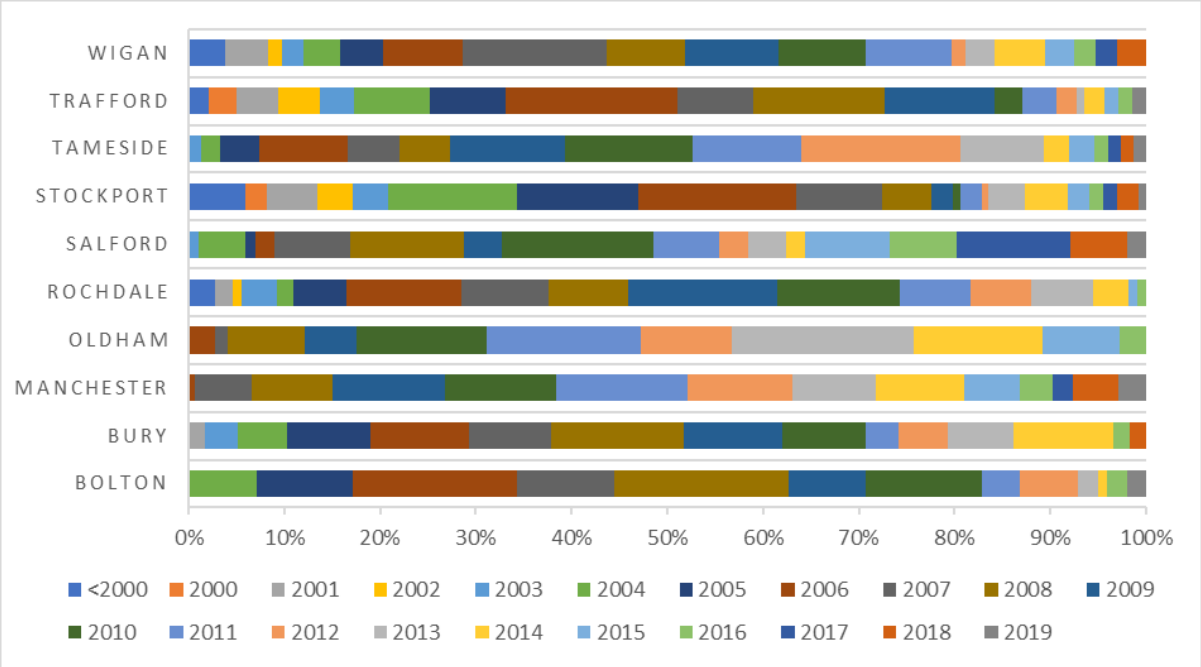
3.6.1 **Figure 3-7** provides an insight into the age of registered taxis across GM. The most common age of a vehicle are those registered in 2010 with a total of 220, accounting for 11% of taxis in GM. However, both 2009 and 2011 have a similar count to 2010 with a count of 216 and 219 respectively, these three years combined total 655 which account 31%.

3.6.2 Combining the years from pre-2000 up to 2009 which represents vehicles 10 years or older from the present, there are a total of 874 taxis, this figure represents 42% of the GM fleet.

3.6.3 When considering the European Union engine compliance of Euro 6 for diesel engines implemented in 2015 and Euro 4 for petrol engines in 2006, there are 1578 that are registered within that time period representing 76%. When looking at the fuel type section below 90% of taxis have diesel engines which implies that the vast majority of those vehicles would not comply with EU engine standards and therefore be affected by the CAZ.

3.6.4 The proposed Minimum Licensing Standards (MLS) set by GM whereby vehicles that are older than 5 years old will not be granted a license and therefore will not be able to operate within GM, currently 443 out of 2,080 (21%) would qualify meaning that 79% would have to change their vehicles. It is important to note however that these figures are subject to change as the MLS is not set to be introduced until 1st April 2020 for new vehicles licensed and 1st April 2021 for all other vehicles, also the conditions of the MLS may change as it is still in the consultation stage.

Figure 3-8 Age of Taxi Fleet by LA



3.6.5

3.6.6 **Figure** 3-8 and

3.6.7

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3.6.9 ***Table*** 3-2 Age of Taxi Fleet by LAprovides a breakdown of the age of the taxi fleet by year and LA. When looking at Manchester's fleet from 2005 to 2014, 877 out of 1,083, giving a proportion of 81%, suggesting that over three quarters of Manchester's fleet may not comply with EU engine standards. Whilst, 778 (72%) are manufactured before 2014 meaning they would be affected by the proposed MLS if it was introduced in 2019. Although these figures will change by the time it is actually introduced in 2020 and 2021.

3.6.10 In contrast, the age of Stockport's taxi fleet seems to be much older when compared to the likes of Manchester's as 123 out of a possible 134 are from pre-2000 to 2014, accounting for 92% of Stockport's taxi fleet. This implies that a vast majority of Stockport's fleet would not achieve compliance against the EU's euro standard. Further to this, 117 (87%) of Stockport's fleet would be affected by the proposed MLS if it was introduced in 2019.

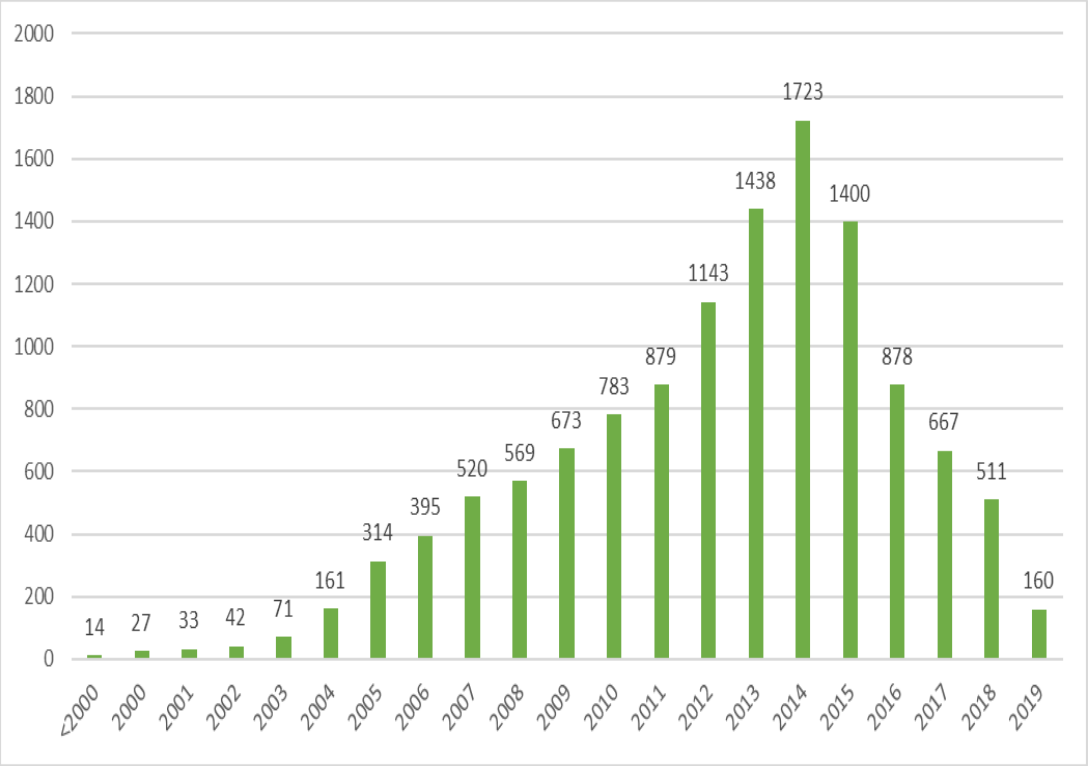
3.6.11 Similar to Stockport, Bolton's taxi fleet has a large majority of licensed taxis that would be considered old vehicles. 95 out of 99 are registered before 2015, representing 96% of Bolton's fleet, again highlighting that almost all of Bolton's taxi fleet may not meet EU standards and would not comply with the proposed MLS.

3.6.12 Salford appear to have to newest taxi fleet when it comes to proportions as 36 out 101 vehicles were manufactured from 2015 onwards, representing 36% of the fleet. However, the remaining 64% were manufactured pre-2015 which suggest they would not meet EU standards. If the proposed MLS were introduced in 2019 63 (62%) of Salford's fleet would not comply.

Table 3-2 Age of Taxi Fleet by LA

Year	Bolton	Bury	Manchester	Oldham	Rochdale	Salford	Stockport	Tameside	Trafford	Wigan	Total
<2000	0	0	0	0	3	0	8	0	3	5	**19**
2000	0	0	0	0	0	0	3	0	4	0	**7**
2001	0	1	0	0	2	0	7	0	6	6	**22**
2002	0	0	0	0	1	0	5	0	6	2	**14**
2003	0	2	0	0	4	1	5	2	5	3	**22**
2004	7	3	0	0	2	5	18	3	11	5	**54**
2005	10	5	1	0	6	1	17	6	11	6	**63**
2006	17	6	6	2	13	2	22	14	25	11	**118**
2007	10	5	65	1	10	8	12	8	11	20	**150**
2008	18	8	91	6	9	12	7	8	19	11	**189**
2009	8	6	127	4	17	4	3	18	16	13	**216**
2010	12	5	126	10	14	16	1	20	4	12	**220**
2011	4	2	149	12	8	7	3	17	5	12	**219**
2012	6	3	118	7	7	3	1	25	3	2	**175**
2013	2	4	95	14	7	4	5	13	1	4	**149**
2014	1	6	99	10	4	2	6	4	3	7	**142**
2015	0	0	63	6	1	9	3	4	2	4	**92**
2016	2	1	37	2	1	7	2	2	2	3	**59**
2017	0	0	23	0	0	12	2	2	0	3	**42**
2018	0	1	52	0	0	6	3	2	0	4	**68**
2019	2	0	31	0	0	2	1	2	2	0	**40**
Total	**99**	**58**	**1083**	**74**	**109**	**101**	**134**	**150**	**139**	**133**	**2080**

Figure 3-9 Age of PHV Fleet in GM



3.6.13 The ages of the PHV fleet in GM are displayed in

3.6.14

3.6.15

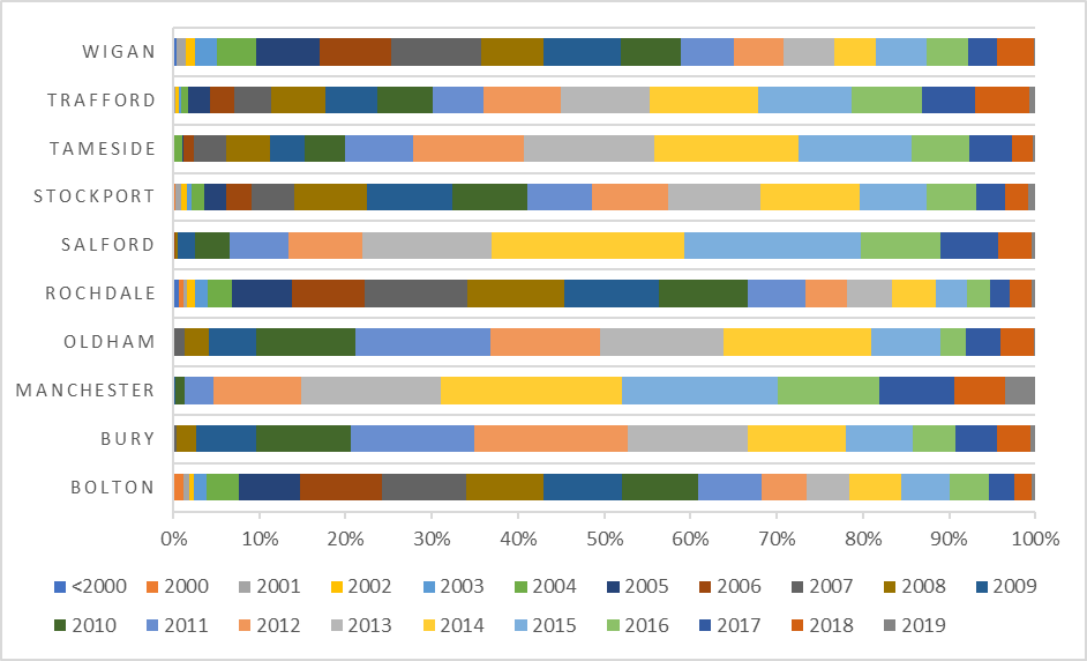
3.6.16 Figure 3-9. It shows that the most common age for a vehicle is 2014 with 1,723 (14%). The years from 2012 to 2015 have a total of 5,074 out 12,401 giving a proportion of 41%, this represents almost half of the whole GM fleet.

3.6.17 Combining the years from pre-2000 up to 2009 which represents vehicles 10-years or older from the present, there are a total of 2,819 PHVs, representing 23% of the GM fleet.

3.6.18 There are 8,785 PHVs registered from the years 2006 to 2014, which is the period of implementation of the Euro 4 petrol engine (2006) and the year before the Euro 6 diesel engine implementation (2015), this accounts for 71% of the fleet. Relating this to the fuel type section below, whereby 73% of the PHV fleet have diesel engines, indicating that almost three quarters of those PHVs may not comply with EU standards and will subsequently be affected by the CAZ.

3.6.19 With the MLS that are set to be introduced in 2020 and 2021 whereby taxis and PHVs must be no older than 5 years old, there are currently 7,062 out of 12,401 (57%) that would be affected by this policy. This would mean that over half of the PHV fleet would be required to change their vehicles in order to comply. It is important to note that these figures are set to change by the time the MLS is implemented.

Figure 3-10 Age of PHV Fleet by LA



3.6.20

3.6.21 **Figure** 3-10 and **Table 3-3** provide a breakdown of the PHV fleets by year and LA. Manchester appears to have one of the youngest fleets compared to the rest of the LAs, the oldest vehicles dating back to 2008 whereby there are only 4 registered, whilst the median age of the fleet is 2013. There are 1,782 that account for 52% of the fleet that were manufactured before 2015 which provides an indication that they may not comply with the EU regulation on engine standards. If the proposed MLS came into effect in 2019 1042 (31%) would not comply.

3.6.22 Bolton's fleet has an older age profile with the most common year of registration being 2007 with 150 vehicles, this represents 9% of Bolton's PHVs. 1,293 out of 1,531 are vehicles that were manufactured before the Euro 6 engine standard was introduced in 2015, this means that 84% of Bolton's fleet may not comply with EU standards. Also, 1200 (78%) of Bolton's fleet would not comply with the proposed MLS if introduced in 2019.

3.6.23 Rochdale has the third largest PHV fleet in GM with a total of 1,329 registered vehicles. The most common age of vehicle in the fleet is 2007 with 157, 12% of the Rochdale fleet. Although, 2008, 2009 and 2010 all have similar numbers with 149,147 and 136 respectively. Similar to Bolton the vast majority of its fleet may not comply with Euro 6 standards 1176 were manufactured before 2015, this represents 88% of the Rochdale fleet. If the proposed MLS came into effect in 2019 then 1,107 (83%) of Rochdale's fleet would not comply.

3.6.24 In contrast, Salford appear to have a much newer fleet in proportion than the other LAs. Of the 984 PHVs registered, 401 were manufactured from 2015 onwards, this figure accounts for 41% of Salford's PHV fleet. Whilst 620 (63%) would comply with MLS if it was introduced in 2019 as they were manufactured from 2014. Although more than half may not comply with Euro 6 standards, the proportion is much greater compared to the rest of the LA fleets.

Table 3-3 Age of PHV Fleet by LA

Year	Bolton	Bury	Manchester	Oldham	Rochdale	Salford	Stockport	Tameside	Trafford	Wigan	Total
<2000	2	0	0	0	9	0	0	0	0	3	14
2000	16	0	0	0	7	1	2	0	0	1	27
2001	10	0	0	0	5	0	7	0	2	9	33
2002	9	0	0	0	13	0	6	0	4	10	42
2003	22	0	0	0	20	0	5	0	2	22	71
2004	57	0	0	0	36	0	13	6	8	41	161
2005	109	0	0	0	93	0	23	1	23	65	314
2006	145	1	0	1	113	1	27	7	26	74	395
2007	150	2	0	11	157	0	45	22	40	93	520
2008	137	21	4	26	149	3	77	30	58	64	569
2009	140	62	4	51	147	20	91	24	55	79	673
2010	135	99	39	106	136	40	79	28	59	62	783
2011	112	129	115	144	89	66	68	46	55	55	879
2012	81	160	344	117	65	85	81	76	83	51	1143
2013	75	124	556	133	68	148	98	89	94	53	1438
2014	93	102	720	157	69	219	105	99	117	42	1723
2015	86	70	619	74	48	202	71	77	100	53	1400
2016	69	45	402	27	35	90	52	40	75	43	878
2017	45	43	299	38	30	66	31	29	57	29	667
2018	32	35	202	35	34	38	24	14	58	39	511
2019	6	5	119	2	6	5	8	2	6	1	160
Total	**1531**	**898**	**3423**	**922**	**1329**	**984**	**913**	**590**	**922**	**889**	**12401**

3.7 Fuel Type

3.7.1 The fuel types of all taxis registered in GM is shown in

3.7.2

3.7.3

3.7.4 Figure 3-11 Fuel types for GM Taxi Fleet. The graph shows that a significant proportion of taxis are fuelled by diesel with 1,881 out of 2,080, this represents 90% of all taxis.

3.7.5 The second largest fuel types come under ‘Other’, these fuels include, VPD Heavy Oil, Bi-fuels (which allow vehicles to run on two fuels, usually petrol and a natural gas), Liquefied Petroleum Gas (LPG), and finally biofuels, these represent 5% of the taxi fleet.

Figure 3-11 Fuel types for GM Taxi Fleet

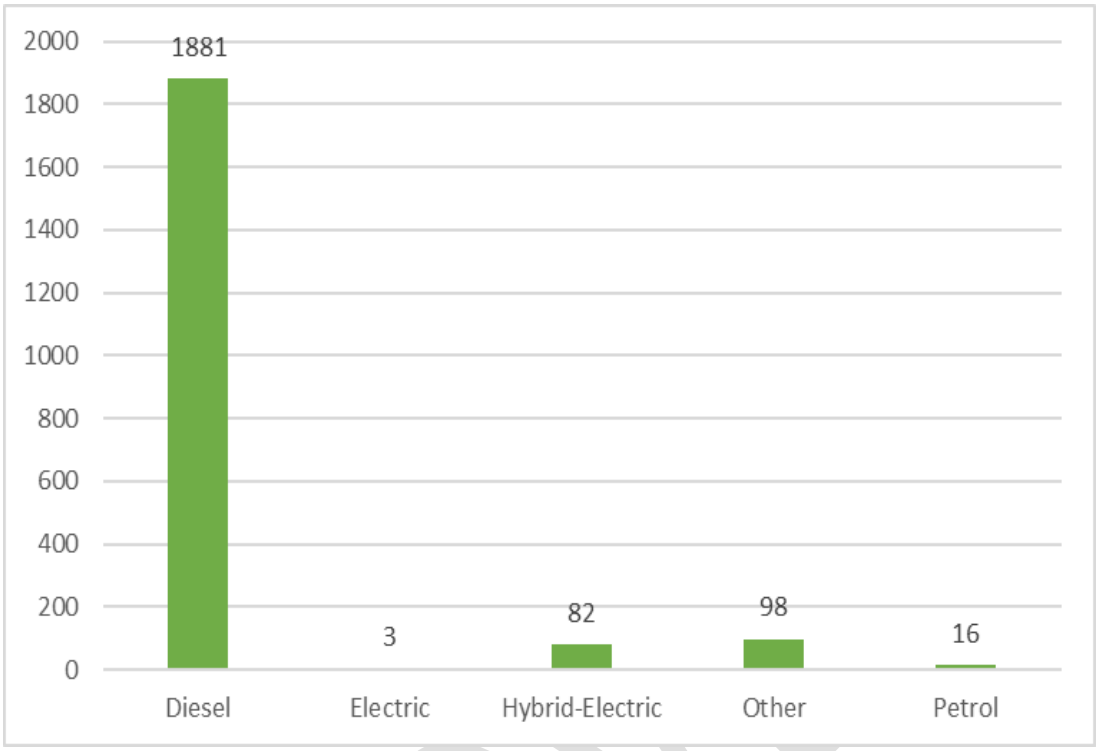
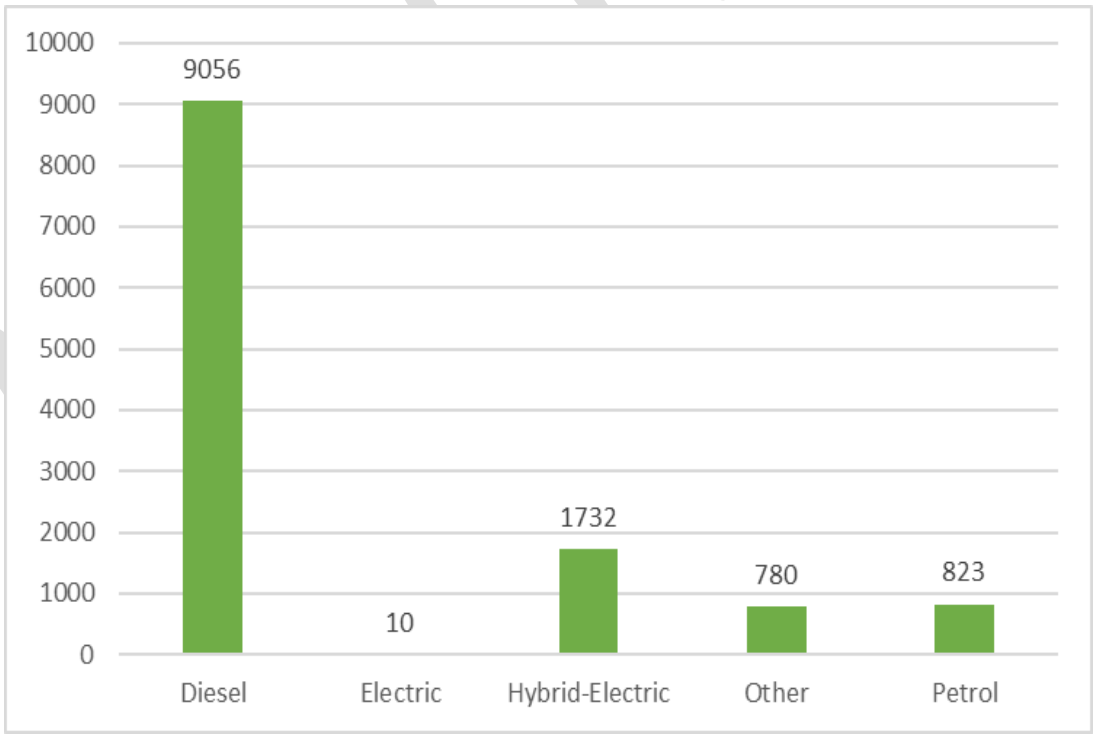


Figure 3-12 Fuel Type for GM PHV Fleet



3.7.6

3.7.7 **Figure** 3-12 Fuel Type for GM PHV Fleet displays the fuels types for PHVs in GM and shows that the vast majority of PHVs use diesel fuel with 9,056 out 12,401, representing 73% of the PHV fleet. Similarly to the taxi fleet, the majority of all the LA fleets had vehicles manufactured before 2015 which indicates that a large majority of GM's PHVs would not meet Euro 6 standards.

3.7.8 However, unlike the taxi fleet there is a significant proportion of PHVs that run on a hybrid-electric engine with 1,732, this accounts for 14% of all PHVs. Although there are still much fewer hybrid-electric PHVs in GM compared to diesel this data indicates more of shift to cleaner vehicles when compared to the taxi fleet.

3.8 Compliance

3.8.1 In relation to the GM CAZ, compliant vehicles are determined by whether the engine standards comply with those set by the EU. As shown in the previous section taxis and PHVs use both diesel and petrol engines, so for the purpose of this study Euro 6 diesel engines (2015) and Euro 4 petrol engines (2006) will be considered as compliant.

3.8.2 The compliance rates were determined by sectioning the years the euro standard was implemented, for instance Euro 5 was categorised from 2010 to 2014. Then using the vehicle's registration plate id, the year of registration was matched to the euro standard year which then provide the euro class.

3.8.3 **Figure 3-13** highlights the compliance rates for taxis across GM. As shown 85% of taxis do not comply with current Euro standards, meaning 15% do comply. This demonstrates that a significant proportion would be affected by the CAZ charge.

Figure 3-13 Taxi Compliance Rate

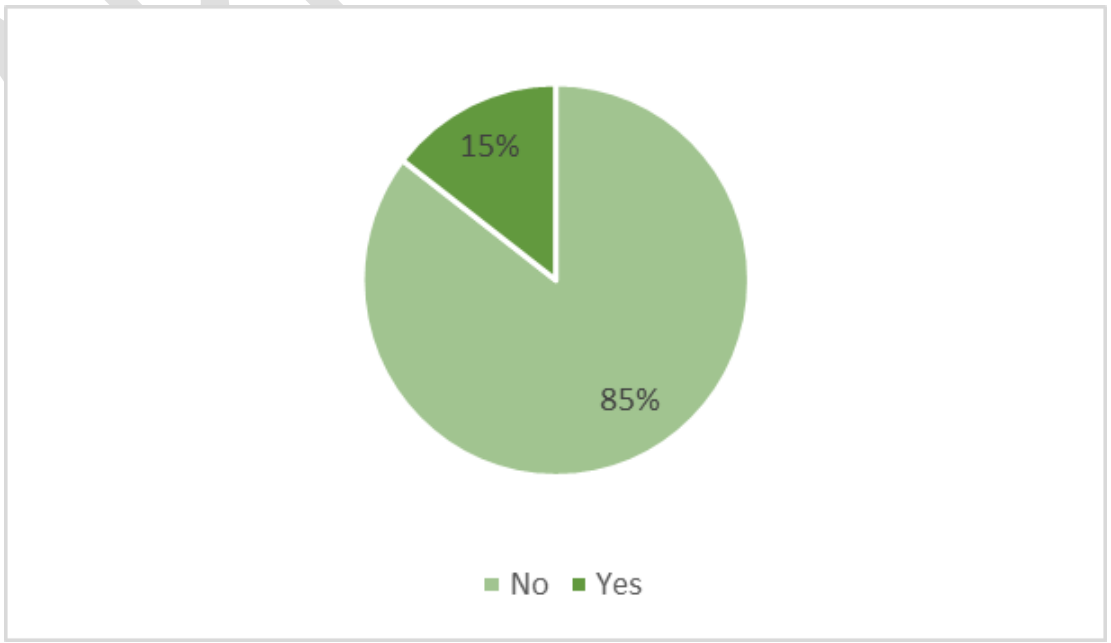
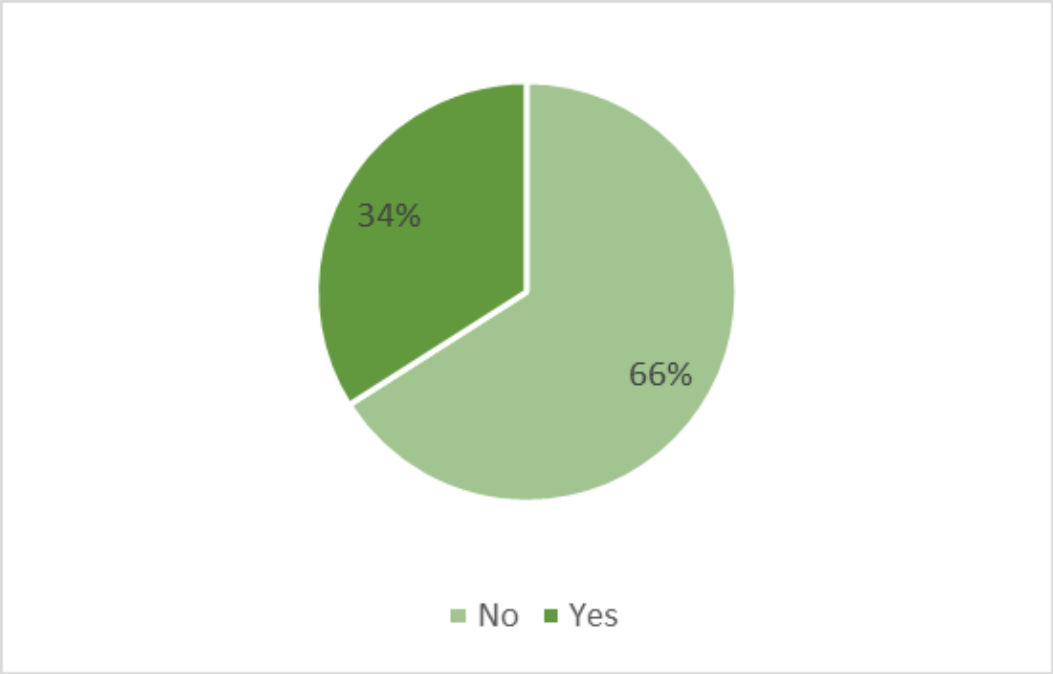


Figure 3-14 PHV Compliance Rate



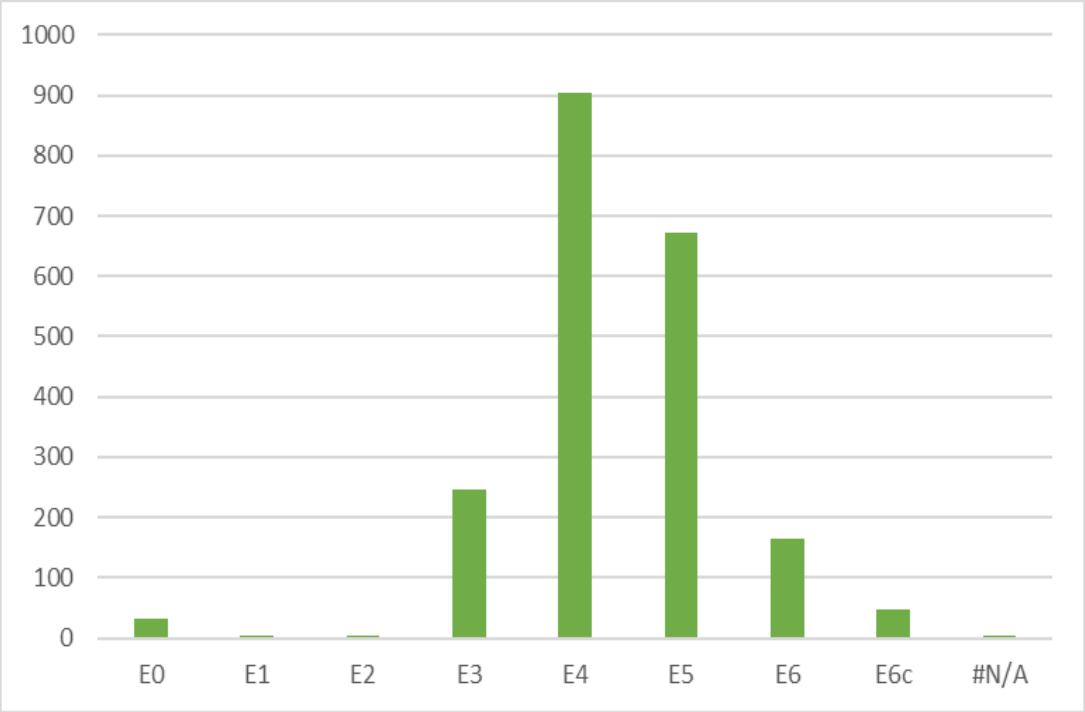
3.8.4

3.8.5

3.8.6

3.8.7 Figure 3-14 shows that PHVs have a greater percentage of their fleet that complies with Euro Standards compared to taxis with 34% in compliance and 66% non-compliant. Although PHVs have a higher percentage of compliant vehicles, 66% represents a significant proportion of non-compliant vehicles.

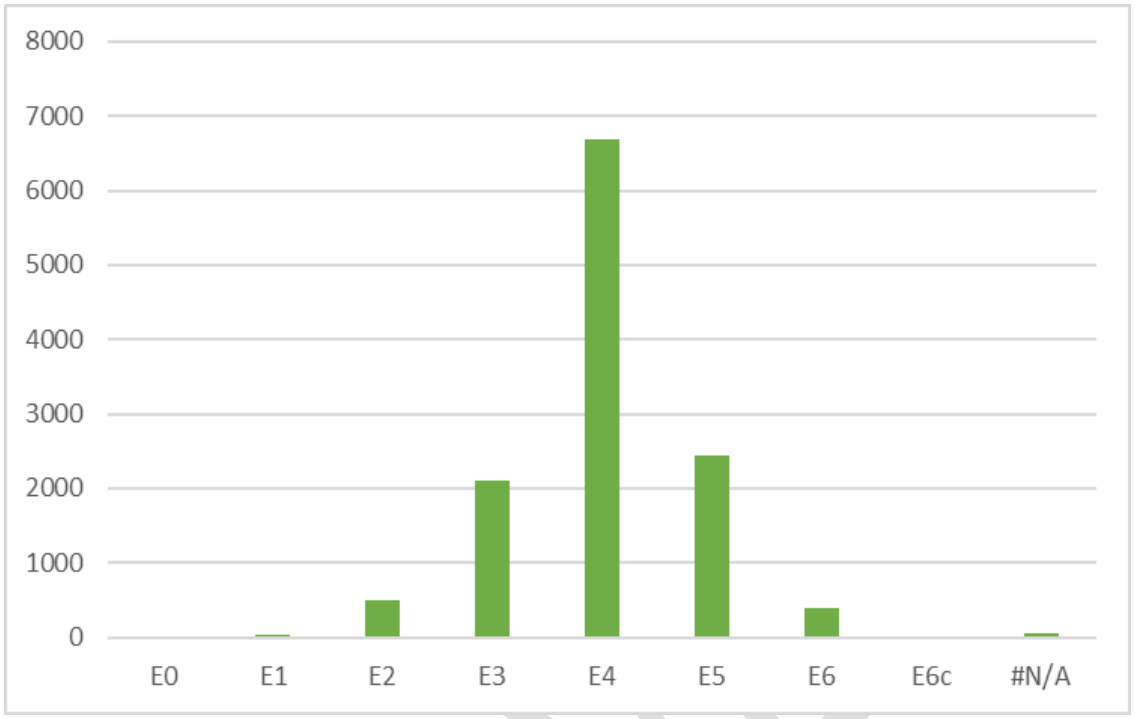
Figure 3-15 Taxi Euro Classification



3.8.8 The Euro classification for taxis in the GM fleet is displayed **Figure 3-15**. As shown the most common Euro class is Euro 4 with 904, representing 43% of the GM taxi fleet. The second most common Euro class is Euro 5 with 673 (32%).

3.8.9 There is a total of 213 that are Euro 6 standard (Euro 6/6c) that would comply with the CAZ, this represents 10% of the taxi fleet in GM. However, it is worth noting that 9% of GM's taxi fleet have alternative fuels to diesel and petrol meaning that there will be a larger number of taxis that comply.

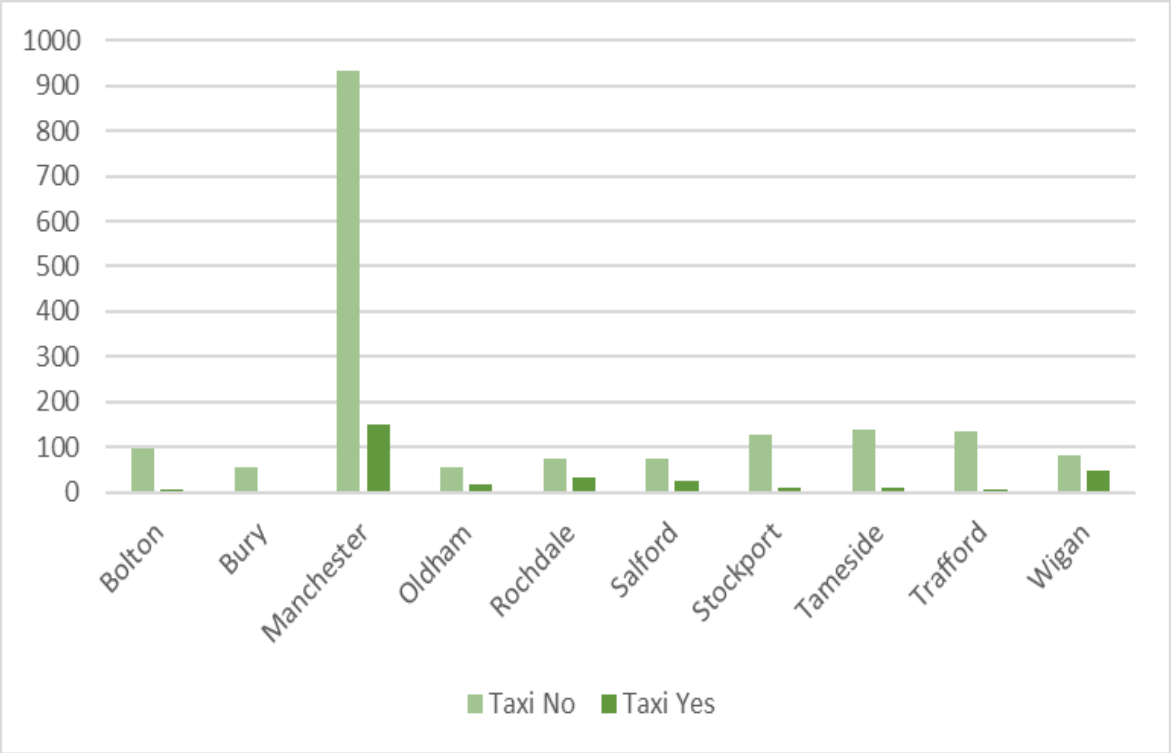
Figure 3-16 PHV Euro Classification



3.8.10 **Figure 3-16** displays the Euro classification for PHVs in GM. Comparable to taxis, the most common Euro standard engine is Euro 4 with 6,683, 54% of the GM fleet. Euro 3 and Euro 5 have similar numbers with 2111 (17%) and 2,437 (20%) respectively.

3.8.11 In comparison to the taxi fleet, there is a smaller proportion of Euro 6 and 6c engines with a total of 393, accounting for 3% of the GM fleet. This highlights a significant proportion that would not comply with EU standards and would likely be affected by the CAZ. Again, similar to the taxi fleet, 20% of vehicles use alternative fuels to diesel and petrol so there will be a greater number of vehicles that comply.

Figure 3-17 Taxi Compliance by LA



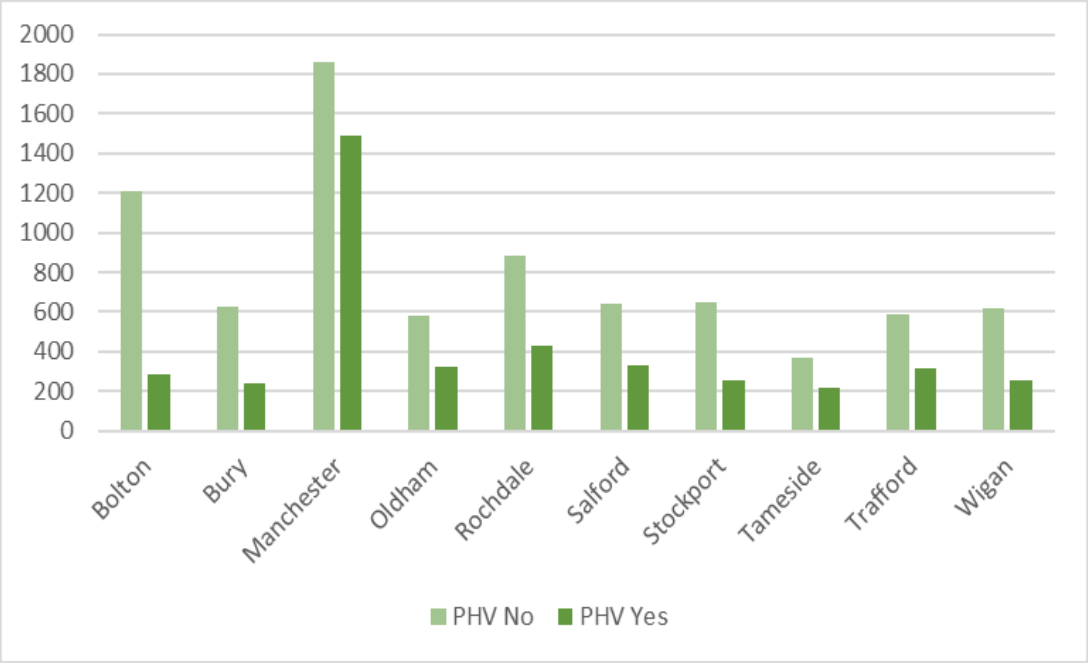
3.8.12 **Figure 3-17** shows the number of compliant and non-compliant taxis within GM by LA. Manchester have the largest number of non-compliant taxis with 932, representing 86% of the taxi fleet in Manchester. Tameside have the second largest non-compliant fleet with 140, this accounts for 94% of their taxi fleet.

3.8.13 Bolton, Trafford and Bury are the three worse performing LAs with the highest proportion of non-compliant taxis. 95 out of 99 (96%) of Bolton's fleet are non-compliant, 135 out of 139 (97%) of Trafford's fleet are non-compliant, and 56 out of 58 (97%) of Bury's taxis are also non-compliant. Although these three fleets are not the largest in GM they represent a significant imbalance between compliant and non-compliant taxis within GM.

3.8.14 Although Manchester have the largest non-compliant taxi fleet in GM, they also have the largest compliant fleet with 150 taxis, this represents 14% of Manchester's fleet. Wigan have one of the smaller taxi fleets in GM but also one of the best compliant rates proportionally with 48 out of 133 taxis compliant, accounting for 36% of their taxi fleet.

3.8.15 Rochdale, Salford and Oldham also have some of the better taxi compliant rates in GM. 34 of 109 (31%) of Rochdale's taxi fleet are compliant, 25 of 101 (25%) of Salford's taxi fleet are compliant, and 18 out of 74 (25%) of Oldham's fleet are compliant.

Figure 3-18 PHV Compliance by LA



3.8.16

3.8.17

3.8.18 **Figure** 3-18 shows that comparable to the taxi fleets Manchester have the largest non-compliant fleet in GM with a total of 1,857, this accounts for 57% of the PHVs in Manchester. With 1,212 (79%) non-compliant PHVs, Bolton have the second largest non-compliant PHV fleet in GM and also the least compliant proportionally across all LAs.

3.8.19 Bury and Stockport have the same proportion of non-compliant PHVs in their fleets with 72%. There are 627 non-compliant vehicles in Bury's fleet, whilst Stockport have 646.

3.8.20 As is the same with the taxi fleet, Manchester have the largest compliant fleet with a total of 1,489, representing 43% of Manchester's PHVs. Rochdale have the second largest number of compliant PHVs with 429, accounting for 33% of their fleet.

3.8.21 Unlike their taxi fleet Tameside have one of the better proportions of compliant PHVs with 217 compliant vehicles, representing 37% of their fleet. Oldham and Trafford have the same proportion of compliant vehicles with 320 and 318 respectively both representing 35% of their fleets.

3.8.22 After Bolton who have the lowest proportion of compliant vehicles with 19%, Bury and Stockport equally have the lowest proportion with 239 and 253 respectively, these represent 28% of their fleets.

4 Purchasing, Leasing and Retrofitting

4.1 This section aims to provide an understanding on the taxi and PHV market price in order to give a clearer picture on potential costs of upgrading for those affected by the introduction of the CAZ. As there is no information provided by DfT or any other external body a search of range of prices from online websites has been carried out[7].

4.2 It is important to note that due to the nature of purchasing a vehicle from various sites and companies, there are no set prices for vehicles even of the same make/model and manufacturing year. This means that prices can vary depending on the condition of the vehicle such as the mileage. The figures provided are simply estimates and guides of potential costs for purchasing a new or used vehicle.

4.3 New Taxis and PHVs

4.3.1 In regard to the taxi fleet, LTI TX4s are the most common vehicle used in GM with 844 registered, however the TX4 is no longer in production so therefore only second-hand vehicles are available. If a taxi operator wanted to upgrade to a new LTI they would have to purchase a London Electric Vehicle Company (LEVC) vehicle, as LTI was relaunched as LEVC in 2017.

4.3.2 Due to the large variety of possible taxis and PHVs on offer, the top 5 affected for each license as type as they represent the ones most likely affected. **Table 4-1** provides a summary of costing estimates for the top 5 taxi vehicles.

Table 4-1 Estimated Cost for Top 5 Taxi vehicles

Vehicle Make	Upgrade	Estimate Cost for Vehicle
LTI TX4	LEVC TX Electric Taxi	Prices starting from £55,599
Mercedes Vito	Euro 6 Upgrade	£41,995
Peugeot E7	Euro 6 Upgrade	£30,000
LTI TX2	LEVC TX Electric Taxi	Prices starting from £55,599
Toyota Avensis	Euro 6 Upgrade	£19,540 - £27,595

4.3.3 For new vehicles, car companies do not release their prices online and require individual enquiries to gain a quote, for this reason alternative websites were used to get prices. However, when researching for prices for Peugeots E7s there were few sites offering the taxi version as these are specially adapted versions of the of the Peugeot Experts, therefore the range of prices were limited.

4.3.4 During the research process it was discovered that the Toyota Avensis is no longer in production and was discontinued in 2018. With this in mind the estimated cost for a Toyota Avensis upgrade is based on the purchase of a new Toyota Prius as that was another popular Toyota make.

[7] For example, CabDirect https://www.cabdirect.com/

4.3.5 Like the taxi fleet there is a large variety of vehicles used for PHVs meaning only the top 5 were selected as examples as they represented the highest proportion of PHVs in GM. **Table 4-2** provides a summary of the costing.

4.3.6 The prices for the Skoda Octavia were able to be sourced from the Skoda website, therefore a more accurate and reliable price could be provided.

4.3.7 As was the same with the Toyota Avensis model for taxis, both the Avensis and Auris have been discontinued therefore the pricing for those models are based on new Toyota Prius models. Like the Skoda, Toyota provide their prices online meaning a more in-depth price range could be provided.

Table 4-2 Estimated Cost for Top 5 PHV vehicles

Vehicle Make	Upgrade	Estimate Cost for Vehicle
Skoda Octavia	Euro 6 Upgrade	£18,600 - £31,400
Toyota Prius	Euro 6 Upgrade	£19,500 - £27,600
Toyota Avensis	Euro 6 Upgrade	£19,500 - £27,600
Toyota Auris	Euro 6 Upgrade	£19,500 - £27,600
Mercedes Vito	Euro 6 Upgrade	£42,000

4.4 Second Hand Compliant

4.4.1 During the desktop search for second-hand compliant LTI TX4 it was discovered that there was only one vehicle listed that would comply, the vehicle had a 2017 registration plate and was listed for £31,495. Given the lack of listed TX4s, it was more worthwhile to search for the second-hand compliant Mercedes Vito as it is the second most common vehicle model used. It was apparent during the price search that there was no large variance in price aside for the odd vehicle, all vehicles had similar sized engine of 2000cc and all had diesel engines. Table 9 provides a simple price range of all Vitos listed with no variance in specifications or year of manufactured.

Table 4-3 Second Hand Compliant Mercedes Vito

Year of Manufacture	Price Range
2015-2019	£15,500 - £43,000

4.4.2 **Table 4-3** shows a price range of £15,500 to £42,995, however it is worth noting that the £42,995 vehicle is a 2019 whist the rest of the models ranged from 2015 to 2017. The most common price tended to be around £20,000.

Table 4-4 Second-Hand Compliant Skoda Octavia

Year of Manufacture	Fuel Type	Price Range
2015 – 2019	Diesel	£5,500 - £32,100
2005 – 2019	Petrol	£1,500 - £32,700

4.4.3 **Table 4-4** displays the price range for the Skoda Octavia due to its popularity among PHV drivers. Unlike the Mercedes Vito the Skoda Octavia is available with both a diesel or petrol engine. As there are different manufacturing years for the compliance of the Euro 6 for diesel engines and Euro 4 for petrol engines, the table provides the price ranges for both in order to give a clearer picture on the difference in the second-hand market.

4.4.4 Both engine types have roughly the same maximum price of just over £32,000, both of these prices were for 2019 models. However, there were cheaper vehicles available with petrol engines, the cheapest viable option being £1,450 whilst the cheapest diesel option was £5,490. It is however important to consider that the petrol cars date back to 2005 so are likely to be in worse condition and have a higher mileage than the oldest compliant diesel vehicle.

4.5 Second Hand Non-Compliant

4.5.1 Using the LTI TX4 as an example **Table 4-4**Table 4-5 highlights the cost of a non-compliant vehicle. Due to the differences in engine size and mileage there were clear variances in prices therefore a range of these have been provided. With the TX4 model being manufactured from 2007 to 2017 a range of 5-9 years and 9-12 years has bene provided.

Table 4-5 Second-Hand Non-Compliant LTI TX4

Age (Years)	Price
5-9	£3,800 - £20,995
9-12	£1,000 - £5,000

4.5.2 For the years 5-9 there was a minimal amount TX4 models for sale which limited the depth of the search and price variety. The cheapest vehicle found was £3,800 with the most expensive being £20,995, although the median price was £6350.

4.5.3 There was much greater choice for the years 9 to 12 which allowed for greater variety in prices. The cheapest TX4 model of that age range was £1000 with the most expensive being £5000, however the median price of vehicles found was £1900. As **Table 4-5** shows it's much cheaper for a driver or operator to buy an older vehicle of 9 to 12 years old than one that is 5 to 9 years old.

Table 4-6 Second-Hand Non-Compliant Skoda Octavia

Age	Price
5-9 years	£990 - £13,990
9-12 years	£595 - £7,988

4.5.4 For the PHVs the Skoda Octavia was used as an example to use as it is the single most popular vehicle of choice for PHV drivers and there for will be the most affected. **Table 4-6** provides a summary of the costs for a Skoda Octavia.

4.5.5 There is a large variance in price for the Skoda Octavia due to the factors mentioned previously in this section with differences in mileage, age and general condition of the vehicle. As expected the new cars of 5 to 9 years were overall more expensive with the most expensive being £13,990, whilst for 9 to 12 years the most expensive was £7,988. The cheapest vehicle for years 5 to 9 was £990, slightly more expensive than years 9 to 12 at £595.

4.6 Leasing

4.6.1 Leasing entails agreeing a contract with a provider to use an asset for a particular period of time. The user never owns the asset and typically pays the provider a monthly fee until the asset is returned at the end of the contact. There are alternative methods of leasing, these include:

- Hire purchase – This usually includes paying a deposit and fixed monthly instalments typically ranging between 12-72 months. When the contract is finished the vehicle is owned by the lessee.
- Lease Finance – A contract whereby the lessee pays for the use of the asset but never owns the asset. The lessee is responsible for maintenance, repairs and running costs.
- Operating Lease – Similar to lease financing the lessee pays to use the asset for a fixed period of time, however, the leasing party are responsible for maintenance and repairs.

4.6.2 It is considered that leasing may be a feasible option for operators or divers that need to upgrade their vehicles but may not have the immediate capital to do so.

4.6.3 Accurate pricing was limited at this stage as many companies required a personal enquiry into prices and contract conditions, and due to the number of variables that are specific to the leaser and lessees accurate prices would be difficult.

4.7 Retrofitting

4.7.1 A possible solution for drivers and operators is to retrofit their vehicles with technology that would make their vehicles compliant. The Energy Saving Trust website states that taxis are able to be retrofitted under the Clean Vehicle Retrofit Accreditation Scheme (CVRAS) that will enable CAZ compliance of fleet vehicles. Retrofitting a petrol engine that can run off LPG is the only retrofitting technology available for taxis and PHVs according to Energy Saving Trust[8].

[8] Energy Saving Trust - https://www.energysavingtrust.org.uk/transport/freight-and-retrofit/clean-vehicle-retrofit-accreditation-scheme-cvras

4.7.2 Only the technologies approved by the CVRAS are CAZ compliant therefore for the purpose of this study the prices provided by the CVRAS will be considered. LTI TX1, TX2 and TX4 are the only vehicles that are approved by the CVRAS to be retrofitted to be powered from LPG. A list of certified technologies and companies are provided on the Energy Trust website.

4.7.3 From the desktop search 'Vehicle Repowering Solutions Ltd' (VRS) appeared to be only CVRAS approved LPG Repower and LPG conversion company that provided a service of converting TX1, TX2 and TX4 taxis. In order to get a vehicle retrofitted the vehicle must be taken to their facility in Alcester approximately 20 miles south of Birmingham. This is an important point to consider due to the distance drivers would have travel in order to retrofit their vehicle.

4.7.4 **Table 4-7** provides the cost for retrofitting TX1, TX2 and TX4 taxis based on the prices provided by the Vehicle Repowering Solutions Ltd website[9]. The costs are for the retrofit of the new engine, fuel tank as well as other essential parts, although costs may vary depending on the condition of the vehicle.

4.7.5 The website states that they accept grants from LAs of up to £5,000 which would almost half the cost of the retrofit for the driver or operator. Currently London, Birmingham and Edinburgh are the only cities signed up to provide this grant, but it is a possibility for GM.

Table 4-7 Taxi Retrofitting Costs

Vehicle	Cost
LTI TX1/TX2	£11,760
LTI TX4	£12,480

4.8 Greater Manchester Minimum Licensing Standards

4.8.1 The Minimum Licensing Standards (MLS) is still in draft for consultation so the conditions are subject to change, however with the current proposed conditions the taxi and PHV market in GM are likely to be affected by this as well as the CAZ. This section aims to provide an overview on some of the key measures that are proposed to be implemented in the next couple of years[10].

4.8.2 To fit in line with the EU Euro standards for vehicles all taxis and PHVs must comply with Euro 4 standard for taxis, and Euro 6 standard for diesel engines. As well as comply with engine standards, vehicles must not be older than 5 years old. Using the age data in the previous section of this note, 79% of the taxi fleet and 57% of the PHV fleet would be affected Although those figures would change by the time the minimum standards come into effect.

[9] Vehicle Repowering Solutions Ltd - https://www.vehiclerepoweringsolutions.com/repowering-process
[10] Taxi & Private Hire Minimum Standards Consultation, April 2019

4.8.3 It is also stated that the vehicle colour of all PHVs must be white and all taxis must be in black. The justification for this policy is to provide a unified appearance of the vehicle fleet across GM to remind customers of the consistent brand and what to look out for. The figures of vehicle colours for taxi and PHVs are not known at this stage so an indication on the impact cannot be provided, but there will be a number of drives and operators that will have to pay for either a new vehicle or pay for their current one to be repainted in order to comply.

4.8.4 If taxis or PHVs wan to retrofit emissions technology in order to comply with the CAZ they must have been approved as part of the CVRAS.

4.8.5 All vehicles must conform to M1 vehicle standards either via manufacture or if converted must be inspected to attain M1 status.

4.8.6 These measures are due to be introduced on the 1st April 2020 for all new vehicles being licensed, whilst all other vehicles will be required to meet these standards by 1st April 2021. With the CAZ implantation date set to come into force in 2021 these measures may cause added complications for compliance in the taxi and PHV market.

5 Owner and Operators

5.1 This section provides personas of the major types of taxi and PHV operators, operating within GM. The purpose of the persona is to outline the characteristics of the operator to better inform the risk and effect analysis.

5.2 Operator Personas

5.2.1 Unlike other fleet-based transport industries, the majority of taxi and PHV drivers are self-employed (81%) [11]and own or rent the vehicles they use. Often drivers will work for a taxi firm who have an established customer base and will send out jobs to the nearest available driver. As most drivers own or rent their vehicles and cover the costs of fuel, drivers prefer a vehicle with good fuel economy, but are equally restricted by the substantial initial cost of a vehicle.

5.2.2 The taxi and PHV profession is predominantly male, with males accounting for 96% of the workforce. The average age of a driver is 48 years, with 26% of drivers aged under 40[12]. As the majority of drivers are self-employed, the hours and shifts worked are flexible and often determined by the individual, with one in four drivers reporting that they work part time. The majority of drivers usually work 5 days a week (40%), however it is common for drivers to work 6 days (22%) or 7 days a week (23%).

[11] Taxi and Private Hire Vehicle Statistics, England: 2018 (DfT, 2018) – pg12
[12] Taxi and Private Hire Vehicle Statistics, England: 2018 (DfT, 2018) – pg11

5.2.3 Taxi drivers operate on a 24-hour basis working in shifts, with Friday and Saturday evenings being the busiest period for custom. In 2017 nearly half (46%) of taxi or PHV trips were between 2 and 5 miles, and over a quarter (26%) were less than 2 miles. Relatively fewer taxi journeys are made over longer distances, with approximately 16% of journeys between 5 and 10 miles, and 9% between 10 and 25 miles. Due to the reduced cost efficiency of long-distance taxi travel to the customer, only 3% of total taxi trips are further than 25 miles[13].

5.2.4 Whilst many of the taxis and PHVs that operate in GM are licensed from one of its boroughs, it is common for vehicles licenced in other areas to operate within the region. There are many reasons why this would be necessary, for instance if a driver from outside GM accepts a fare to travel into the region, or that travels through the GM boundary to access a destination. Although PHV drivers and their vehicles have a right to roam in different licensing areas, PHV operators may only accept a booking in the area for which they are licensed. 'Cross-border hiring' of vehicles has attracted increased attention in recent years, due to the emergence of ride-hailing and ride-sharing platforms such as Uber. New mobility technologies have raised questions over who technically receives a booking and the implications for licensing legislation, as the driver communicates directly with the customer, bypassing a traditional taxi operator. 'Cross-border hiring' is particularly common in GM's town centres and urban areas where there is a higher density of fares.

5.2.5 Due to the individual and flexible manner in which the taxi industry functions, operators have been categorised into three personas which broadly cover the different types of operator; taxi, PHV and Uber. Whilst Uber vehicles are technically PHVs, they are distinguished from other traditional PHV operations by their use of a digital platform used to connect driver and customer.

5.2.6 Arguably, a further persona affected by a CAZ would be an operator who leases vehicles to their drivers and would therefore need to consider the types of vehicles they provide.

5.3 <u>Taxi</u>

- There is a total of 8,300 taxis registered in the NW of which 2,080 are licensed in GM. Whilst the majority of GM taxis will operate within the region, drivers from other areas of the NW may enter the CAZ to complete a fare.
- May own or lease a vehicle from an operator or other third party.
- Taxis can be hailed from the streets, collect fares from taxi ranks or take pre-bookings.
- Rates are and regulated by local council.

[13] Taxi and Private Hire Vehicle Statistics, England: 2018 (DfT, 2018) – pg15

- Permitted to drive in bus lanes.
- More likely to be found in urban areas where taxi ranks or passing fares are more frequent.
- Authorised vehicle types may be specified by the licencing authority. The most common taxi vehicle used in Greater Manchester is the LTI TX4.
- 15% of taxis comply with CAZ engine requirements.
- As a specialist vehicle, new taxis generally cost more to purchase than a vehicle that could be used as a PHV.
- Drivers may work for taxi companies or be self-employed.
- Drivers may own their vehicle or rent from a taxi company or a vehicle renting company.
- Some authorities require drivers to pass a test before a licence is awarded.

5.4 PHV

- There are 27,600 PHVs registered in the NW of which, 12,401 are licensed in GM. There may be additional PHVs operating in the region under 'cross-border hiring'.
- May own or lease a vehicle from an operator or other third party.
- PHV bookings must be made in advance of travel and vehicles cannot be hailed in the street or from taxi ranks.
- Traditionally, PHV bookings are made by phone or by entering the office of a taxi company.
- Local authorities do not have the jurisdiction to regulate PHV fares but may authorise the fares used by licensees.
- More likely to be found in urban areas but also provide a vital service to more rural areas of GM with less public transport connectivity.
- The most common PHV vehicle used in Greater Manchester is the Skoda Octavia.
- Greater percentage of PHV fleet is compliant with the CAZ in comparison to taxis, with 34% meeting the requirements.
- Drivers may work for taxi companies or be self-employed.
- Drivers may own their vehicle or rent from a taxi company or a vehicle renting company.

5.5 Uber

- Whilst technically a PHV, Uber drivers operate using an app to connect to a customer, accept a fare and receive payment.
- The platform uses a dynamic pricing model based on the supply and demand for the service at the time it is requested. 'Surge prices' are enforced during busy periods.
- Drivers are only able to use the app within the region in which they are licensed (e.g. North West, Yorkshire, Midlands); however there may be a significant number of drivers operating from outside GM under 'cross-border hiring'.
- Compliance of vehicles operating in GM is unknown as drivers may be licensed from an external authority but is likely to be similar to PHVs Uber's vehicle requirements state that vehicle model year must be 10 years or newer.
- More likely to be found in urban areas where there is a higher density of customers to connect to.
- Although Uber drivers were previously classed as self-employed, in 2019 the Court of Appeal upheld the decisions of the Employment Tribunal which concluded that drivers are workers employed by Uber and entitled to minimum wage and holiday pay. It is likely that Uber will appeal this decision.
- Drivers may own their vehicle or lease from a vehicle renting company.

6 Conclusions

6.1 Registered Taxi and PHV Vehicles

6.1.1 The analysis has shown that in total there are 14,481 registered taxis and PHVs in GM, representing 40% of the NW market and 5% of the fleet in England. Of the GM fleets Manchester has the largest for taxi and PHV with 52% and 28% respectively, whilst Bury has the smallest taxi fleet in GM with 3% and Tameside has the smallest PHV fleet with 5%.

6.1.2 In regards to the most common vehicle make and model the LTI TX4 is used the most for taxis representing 41%, the Mercedes Vito is the second most common representing 17%. For PHVs the Skoda Octavia is the most common accounting for 19% of the fleet, the Toyota Prius and Avensis both represent 11%.

6.1.3 The vast majority of taxis and PHVs use diesel engines with 1881 out of 2080 (90%) of the taxi fleet using diesel, whilst 9056 out of 12,401 (73%) of PHVs use diesel.

6.1.4 The most common age of taxi vehicles is 2010 with a count of 220, accounting for 11% of taxis. The most common year for PHVs is 2014 at 1723 which represents 14% of the PHV fleet. Another finding was that 76% of taxis and 71% of PHVs were manufactured before 2015, the year the Euro 6 standard was implemented for diesels. Although this does not mean that all of the 76% of taxis and 71% of PHVs would not have EU standard engines as there are some petrol, electric-hybrid, and alternative fuel engines used, it does provide an indication of the number they may be affected.

6.1.5 Stockport and Bolton had the highest percentages of taxis that are unlikely to comply with the EU engine standards with 92% of Stockport's fleet aged older than 2015 and 96% of Bolton's also older than 2015. Proportionally Salford had the newest fleet with 36% being manufactured after 2015.

6.1.6 Bolton and Rochdale have two of the oldest PHV fleets with 84% of Bolton's fleet being manufactured before 2015 and 88% of Rochdale's fleet also being manufactured before 2015. Like the taxi fleet, Salford have the newest fleet with 41% of the fleet being manufactured post 2015.

6.2 Purchasing and retrofitting

6.2.1 In a general review via a desktop search the following assumptions were found:

- For new purchases that would comply with the new Euro standards drivers and operators could expect to pay from £19,420 to £55,599 for taxis and £18,610 to £41,995 for PHVs.
- For taxis, there are a are a limited market for second-hand non-compliant LTI TX4s 5 to 9 years old with prices ranging from £3,800 to £20,995. Whilst for vehicles 9 to 12 years there were more vehicles available at prices from £1,000 to £5,000.
- Whereas for PHVs there were more Skoda Octavias available for all ages with vehicles ranging from 5 to 9 years costing between £990 and £13,990 and 9 to 12 years from £595 to £7,988.
- Second-hand compliant vehicles for taxis using the Mercedes Vito as example would cost drivers and operators between £15,500 and £42,995.
- Whilst second-hand compliant vehicles for PHVs using the Skoda Octavia as example would cost drivers and operators between £5,490 and £32,175 for diesel vehicles and £1,450 and £32,685 for petrol vehicles.
- Retrofitting a Taxi to run LPG costs £11,760-£12,480 depending on the model.

6.3 Owners and Operators

6.3.1 Informed by desktop research and previous studies, three typical market segments were found across the market sector. These include:

- Taxi Drivers: Self-employed, often driving Hackney-style vehicles that are able to pick up passengers without a booking. This can be from anywhere, although most frequently from taxi ranks at busy locations such as train stations or the airport.
- Private Hire Vehicle drivers: Working for a taxi operator, who provides the means for taking bookings via in-car technology in return for a fee (e.g. monthly). Passengers can only be carried if a booking is made in advance
- Uber-style driver: Quasi-self-employed, driver takes bookings via an app and pays a percentage to the operator.

6.4 Summary

6.4.1 From the data available, the taxi market is seen to have a high level of non-compliance in line with the proposed CAZ charge. As a result, the majority of drivers within GM are seen to have some level of vulnerability to the proposed charge.