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Note 3: Analysis of the Freight Market

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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.

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Terminologies

Vans(LGVs, LCVs)= Vehicles below 3.5 tonnes

HGVs = Vehicles above 3.5 tonnes

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Vehicle Numbers Assumptions

Based on MCR-Theory

- The goods vehicles transportation is part of the transportation service sector
- Providing transportation service to the population of Greater Manchester
- Estimation of the number of vehicles based on population ratio

	Population	Unit
UK population	66.04	million
Greater Manchester	2.799	million
Factor	4.2%	
UK	HGV	500,000
	vans	4,000,000
Greater Manchester	**HGV**	**21,192**
	vans	**170,071**

Vans Market (≤3.5 tonnes)

The LCV's contribution to the UK economy

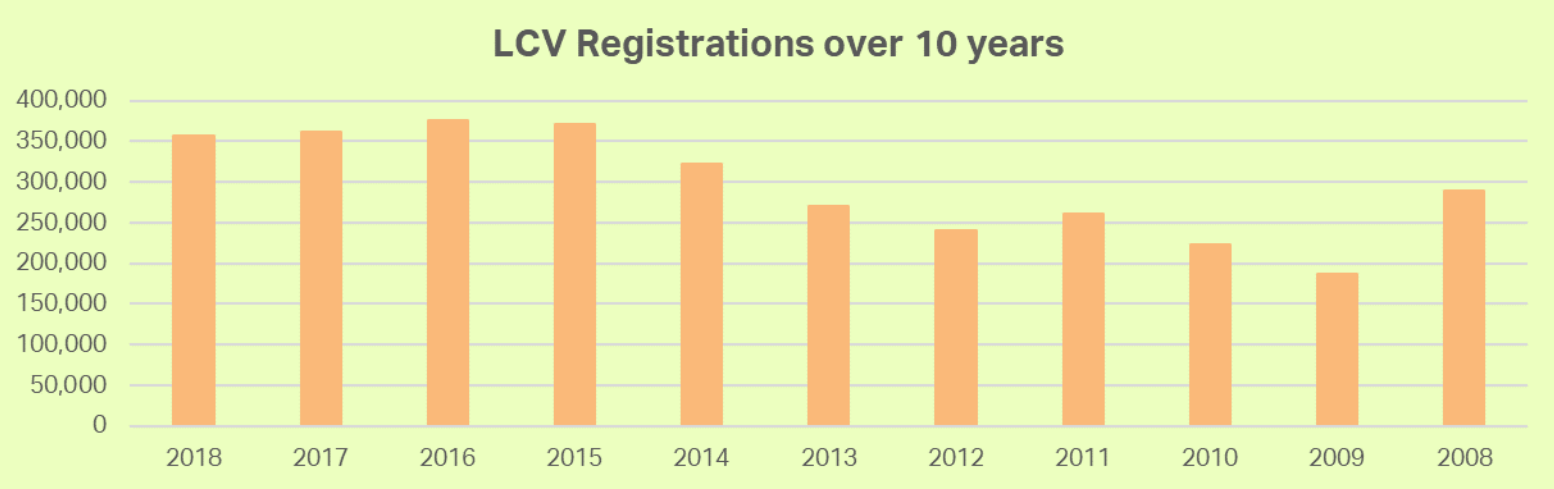
- 3.4 million people use or depend on vans for their work
- 500,000 people drive a van as the main part of their job
- Vans support 10% of the UK's workforce, delivering a combined wage bill of £56 billion, or 11% of UK GDP

The LCV parc

- Large LCVs were the dominant type of van to be registered from 2003-2017, tripling in number
- LCVs only represent 15.4% of total UK traffic. But they are most affected by congestion at a cost of £6.5 billion.
- By pro rata implications congestion costs van users £273m/year in Greater Manchester

Source: Mainly from SMMT 2019 Van Report

LCV Sector Growth



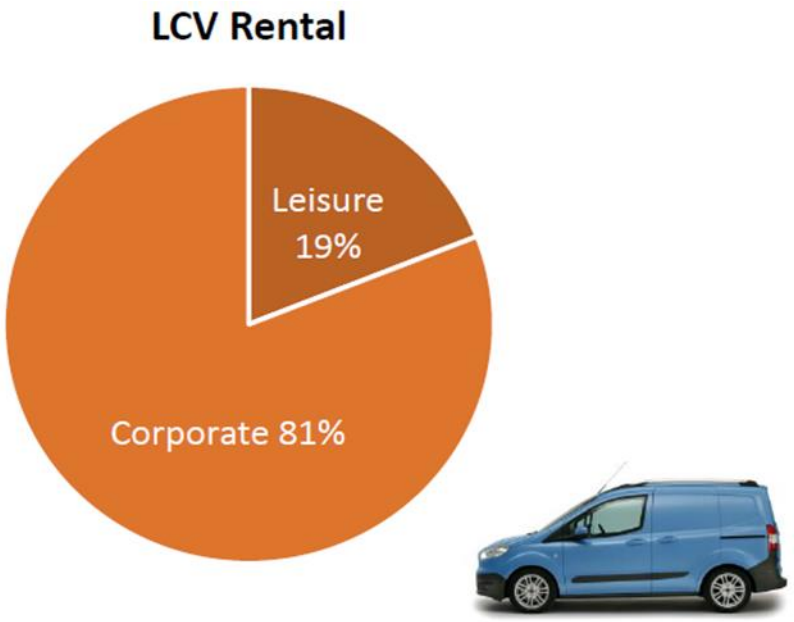
Year of First Reg	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
No of vans(000s)	357	362	376	372	322	271	240	260	223	186	289
% of Vans	9%	9%	10%	10%	9%	8%	7%	8%	7%	6%	9%
Euro Standard	Euro 6			Euro 5 and below							

In numbers

59% growth in the LCV sector since 2000, mainly in the 2.6 to 3.5 tonne market. This demand for larger vans is driven by increase in the number of self-employed tradesmen and the rapid rise in online-shopping.

Leasing Market Statistics for LGVs in 2018

	Av. Age	Euro 6	Diesel	CAZ Compliance
	YEARS	%	%	%
Rental Van Fleet	1.7	56%	100%	56%
UK Van Fleet	8.1	13%	97%	13%



Source: BVRLA

Types of Vans

By Weight

1.6t van

3.5t van

Removals 3.5 tonnes GVW

Food 3.5 tonne GVW

Communications Pick-up

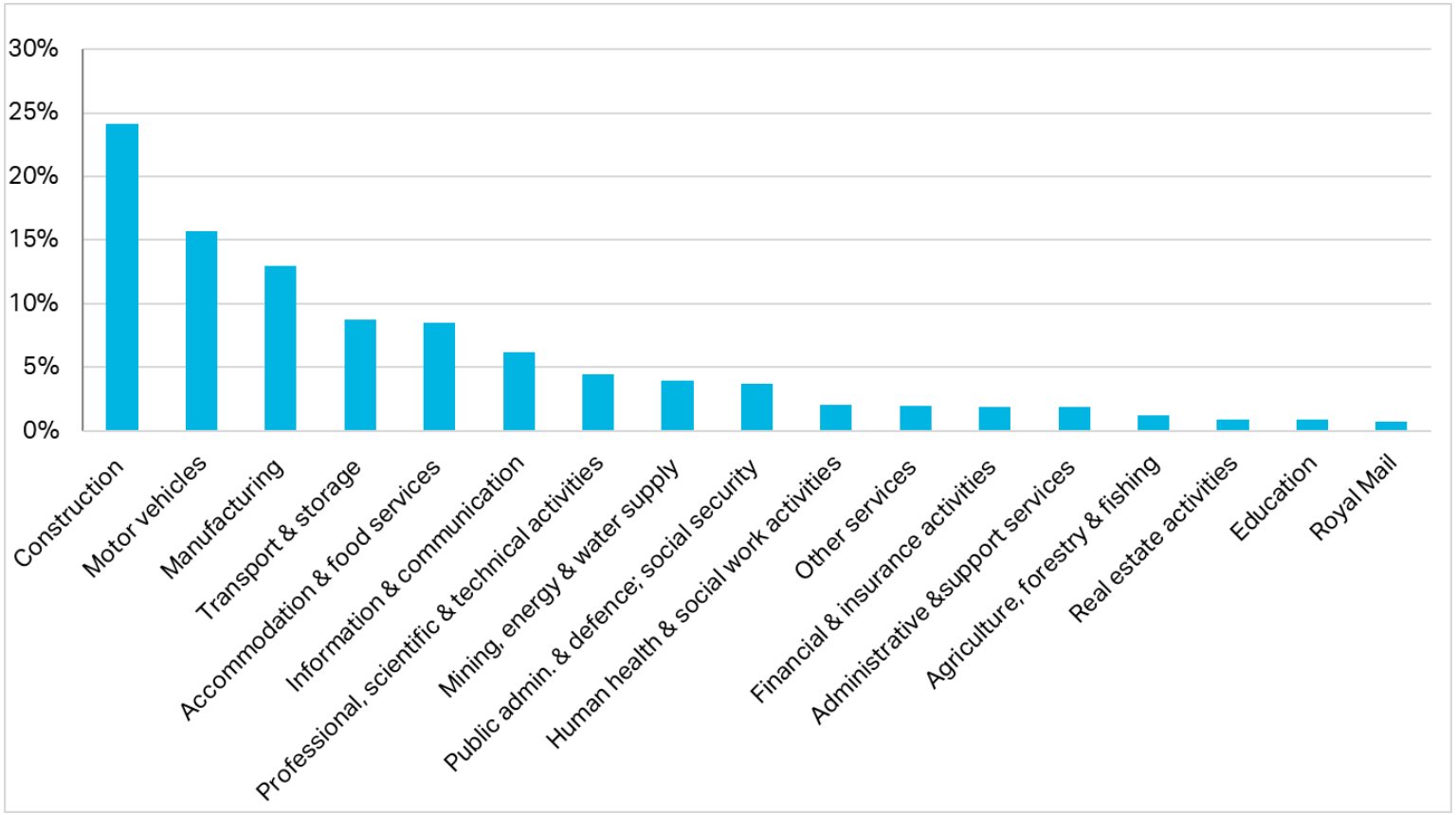
SSE Energy company Pick-up

Parcel Home Delivery

Supermarket Home Delivery

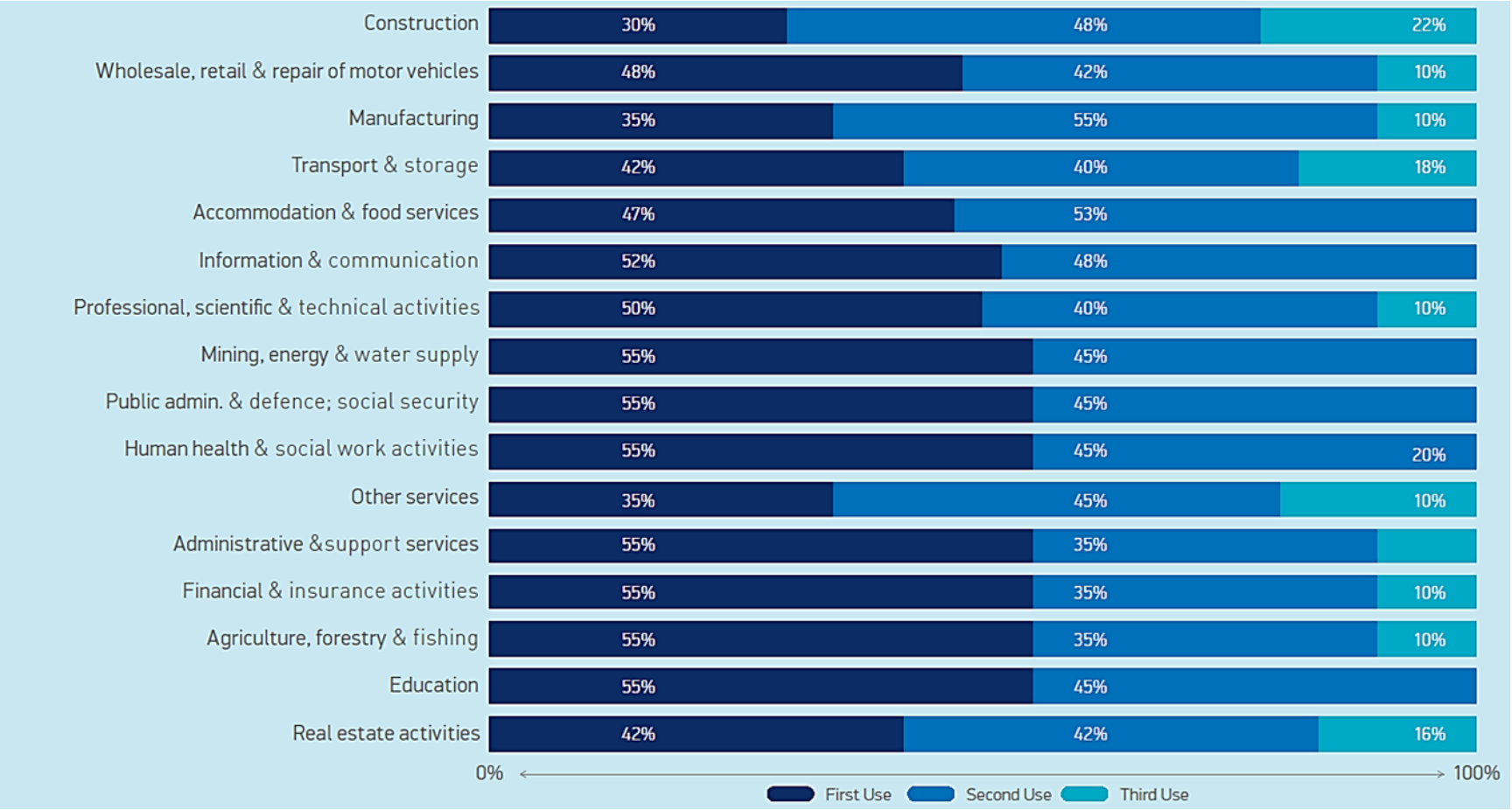
NW Emergency Ambulance

Van Sector Market SMMT



- 60% of LCV parc is driven by: construction, wholesale, retail and repair of motor vehicles, manufacturing (transport and storage)
- Construction is the biggest single user of LCVs with 1 million vans in construction

Vans Used Market



The second (and third) life of the LCV

- 900,000 used vans change hands each year
- Second and third life vans play a key role in the UK economy where they are typically operated by SMEs and sole traders

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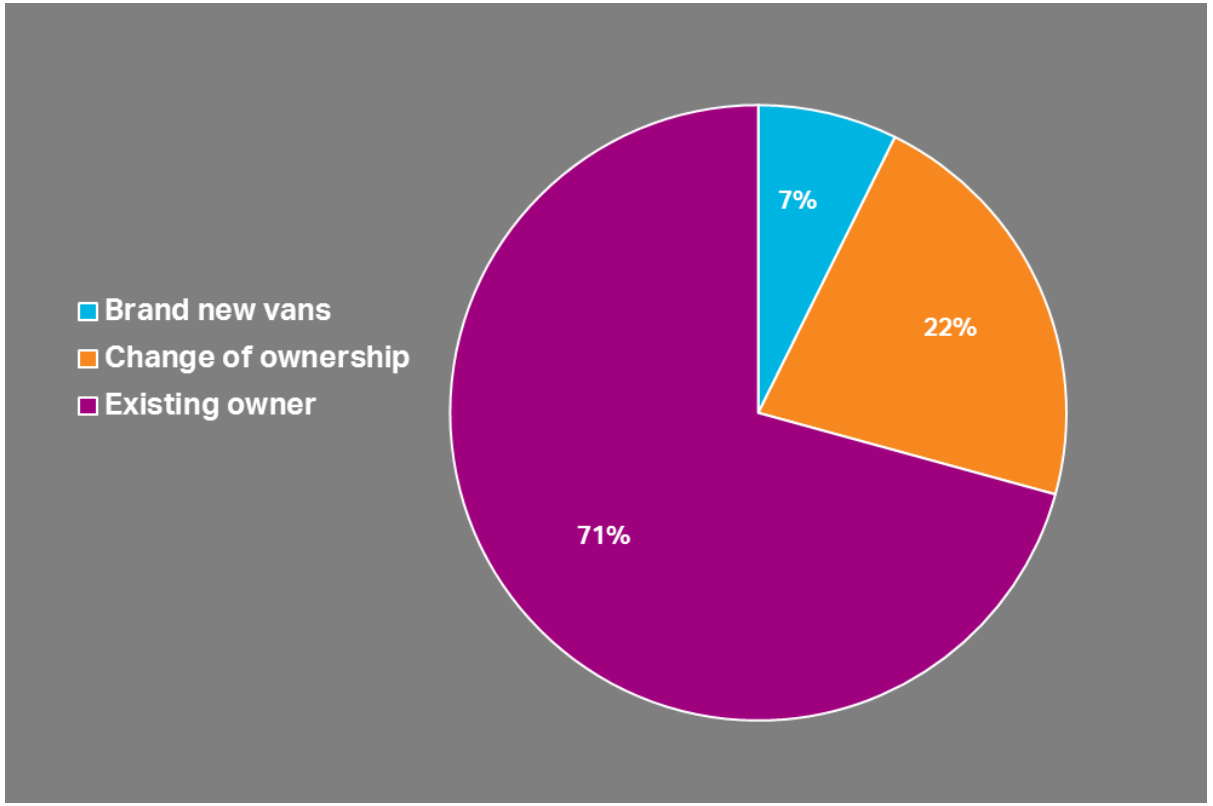
Vans Used Market



The van market consists of approximately 4.1 million vans of which:

- 300,000 are brand new per year
- 900,000 change ownership every year
- Thus, 2.9 million are retained by their owner

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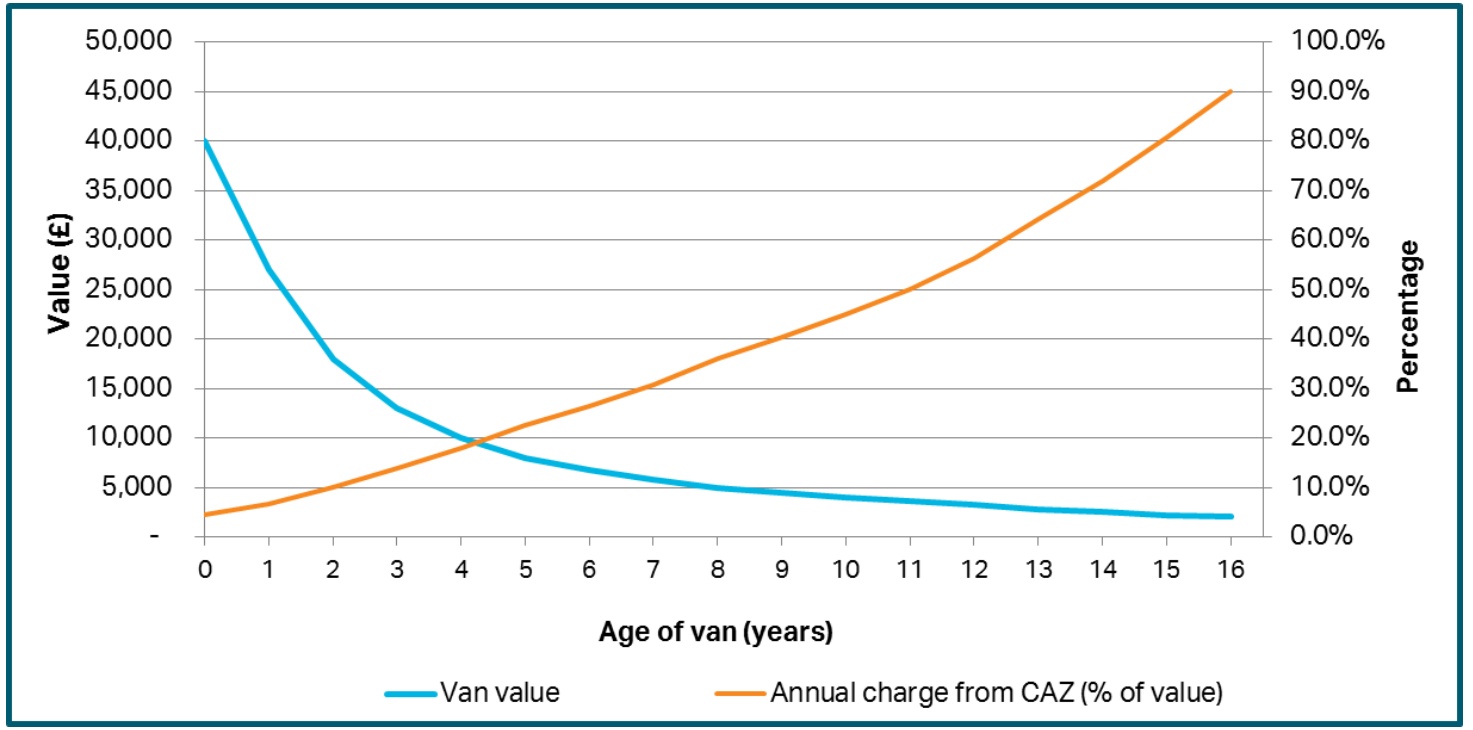
Vans Used Market



Sectors with an active second hand van market are more directly impacted (i.e. construction – 70% second hand, manufacturing – 65% second hand)

The impact of the CAZ charge has been calculate by assuming vans will be used five days per week, 48 weeks per year. It is expressed as a percentage of the van value.

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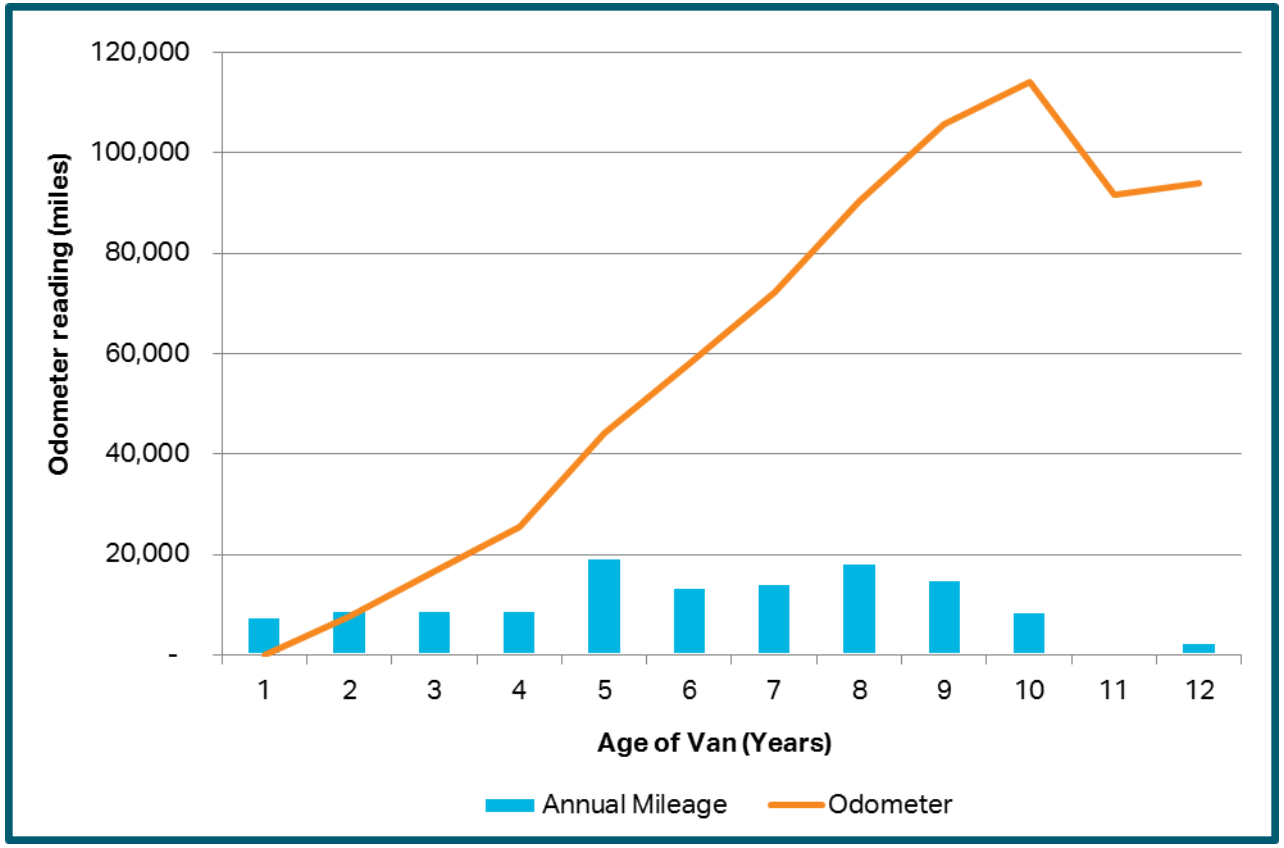
Case study – 12 year old van



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Royal Mail

Key Information

Estimated vans in Manchester: **1,300**; Vans% in Manchester: **1%**

Annual Mileage: **8,000**; Vehicle Utilisation: **Very Low**

Vehicle Operation Time: **9 years**

Estimated Percentage of vans to be affected by 2023:**0%**

Numbers of vans to be affected by 2023:**0**

Key Concerns

- Delivering on time
- Getting to all drops in time to do collections
- Knowing delivery points if not on a regular run
- Meeting up with colleagues if doing a 2 person round(s)
- Where to park in certain busy areas

Method of Communication

- Internal notice-board
- Personal data assistant
- Daily de-brief
- Weekly updates
- In-house magazine

Comments

The Royal mail has 41,000 vans used for domestic and commercial post. The 1,300 vans in Manchester are based in the local areas e.g., Altrincham. Vans are typically kept for 9 years. Royal Mail has introduced around 300 electric vehicles in other places. Their response to the London ULEZ was to re-locate 600 vehicles so that the entire London fleet was complaint. They may not to do much/any re-location to be compliant in Manchester.

Vulnerability

Scale 1: Very Low

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Methodology

- Created persona sheet for each van sector
- Used elements of data from the sheets to populate the assessment table
- Vulnerability of business mainly depends on how long vehicles are kept
- The longer the vehicles are typically kept, the more vulnerable business sectors are
- The lower the utilisation of vehicle is, the more of an issue it is to the owner

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Van: Vulnerability Assessment

	Estimated Vehicles in Greater Manchester	Market Share %	Annual mileage	Vehicle Utilisation	Vehicle Operation Life Time	% of Sector affected	Vehicles Affected	Vulnerability
Construction	41112	24%	20,000	Medium	15	51%	21104	Very High
Wholesale, retail & repair of motor vehicles	26702	16%	20,000	Medium	10	27%	7209	Medium
Manufacturing	22039	13%	30,000	High	10	27%	5951	Medium
Transport & storage	14834	9%	30,000	High	10	27%	4005	Medium
Accommodation & food services	14410	8%	20,000	Medium	9	19%	2722	Low
Information & communication	10596	6%	35,000	High	9	19%	2001	Low
Professional, scientific & technical activities	7629	4%	20,000	Medium	10	27%	2060	Medium
Mining, energy & water supply	6781	4%	20,000	Medium	10	27%	1831	Medium
Public admin. & defence; social security	6358	4%	20,000	Medium	12	39%	2490	High
Human health & social work activities	3475	2%	10,000	Low	12	39%	1361	High
Other services	3391	2%	10,000	Low	12	39%	1328	High
Financial & insurance activities	3179	2%	10,000	Low	9	19%	600	Low
Administrative &support services	3179	2%	10,000	Low	12	39%	1245	High
Agriculture, forestry & fishing	2119	1%	10,000	Low	15	51%	1088	Very High
Real estate activities	1483	1%	10,000	Low	9	19%	280	Low
Education	1483	1%	10,000	Low	10	27%	401	Medium
Royal Mail	1,300	1%	8,000	Low	9	0%	0	Very Low
Total	**170071**	**100%**	-	-	-	**33%**	**55677**	-

Vulnerability Criteria	
10% and below	Very Low
10%-20%	Low
21%-30%	Medium
31%-40%	High
40% above	Very High

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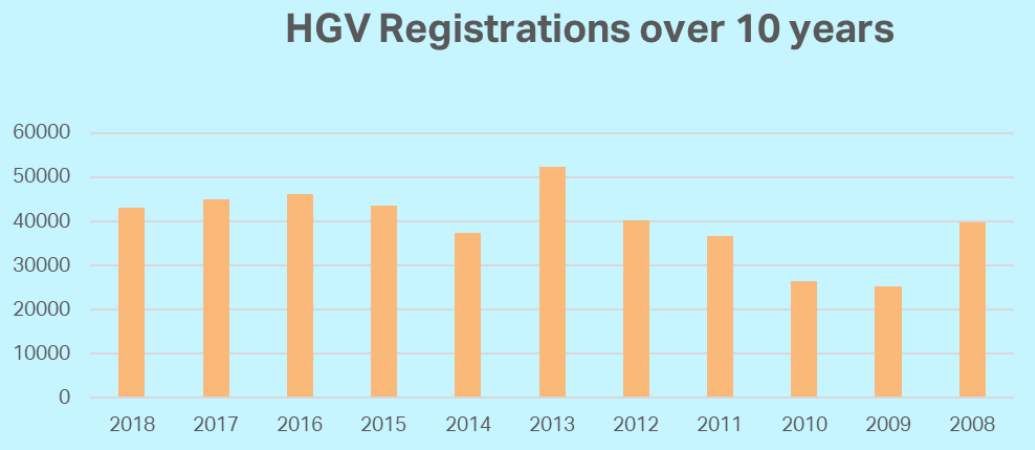
HGV Market



Year of First Reg.	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
No. of HGVs (000's)	43.1	45	46.2	43.5	37.3	52.2	40.1	36.6	26.5	25.3	39.7	32.8	31.5	27.8
% of HGVs	8.6	9	9.2	8.7	7.5	10.5	8.1	7.4	5.3	5.1	8.0	6.6	6.3	5.6
Euro Standard	Euro 6					Euro 5					Euro 4			

- Since 2000, total HGV numbers have been relatively stable (2% reduction overall)
- The chart and table above show fluctuations in new vehicle registrations by year
- There is also evidence of downsizing from HGVs to LCVs = more agile supply chains

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Types of HGVs

7.5 tonne GVW Box vehicle 4 wheeler

18 tonne GVW Skip lorry 6 wheeler

26 tonne GVW Fuel Tanker

8 wheeler 32 tonne GVW Construction tipper

6 axle Artic 44 tonne GVW Curtainsider

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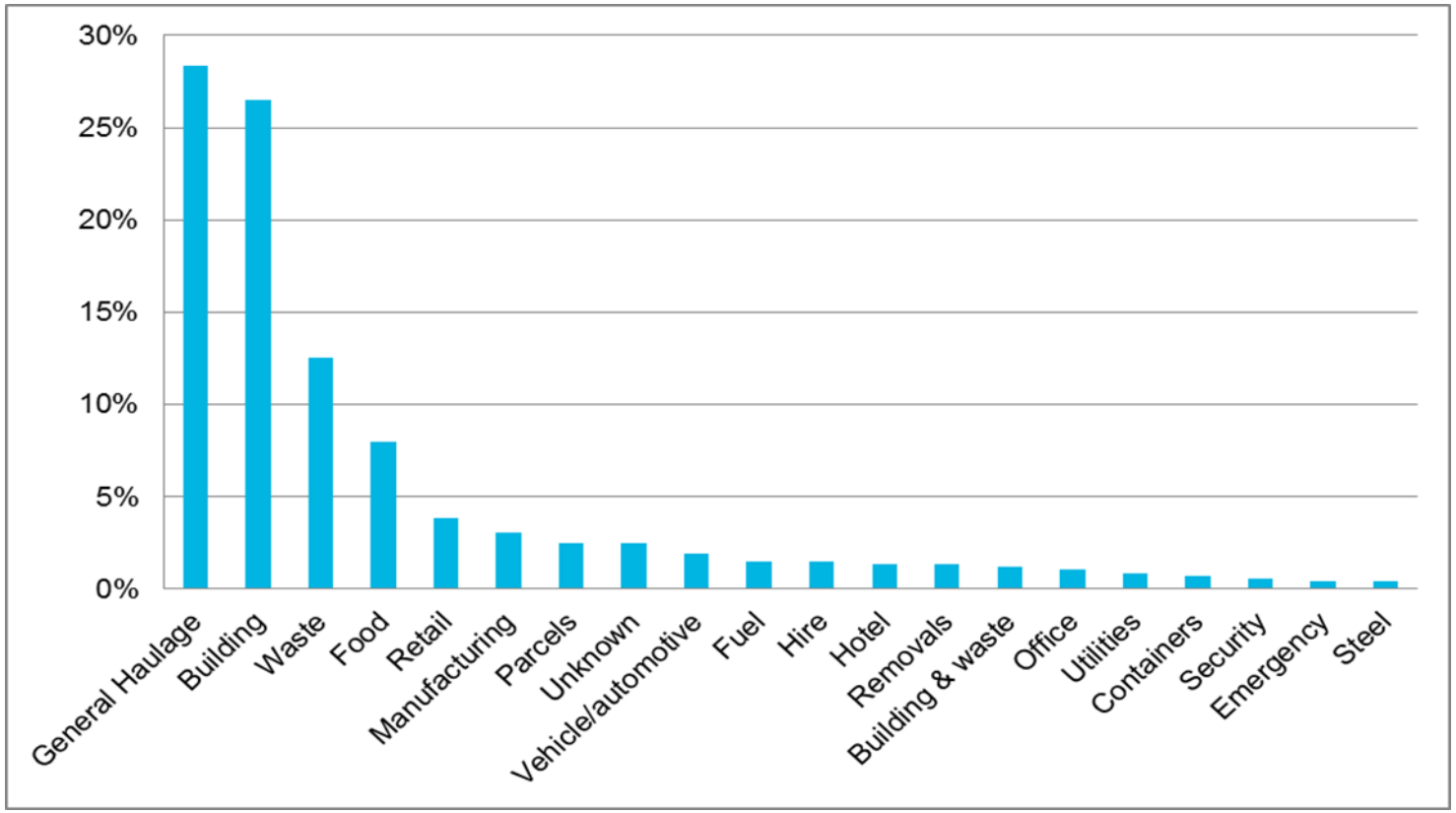
HGV Sector Summary



- 55% of freight operators are from general haulage and building industries
- Waste and food related freight operators make up around 13% and 8%

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HGV: Vulnerability Assessment

Sector	Estimated Vehicles in Greater Manchester	Sector%	Typical Vehicle Weight	Annual mileage	Vehicle Utilisation	Vehicle Operation Life Time	% of Sector affected	Vehicles Affected	Vulnerability
General Haulage	6171	29.1%	**44t**	100,000	High	12	33%	2057	High
Building	5610	26.5%	**32t**	40,000	Low	12	33%	1870	High
Waste	2649	12.5%	**26t**	40,000	Low	14	43%	1135	Very High
Food	1683	7.9%	**18t**	60,000	Medium	10	20%	337	Low
Retail	810	3.8%	**18t**	60,000	Medium	10	20%	162	Low
Manufacturing	748	3.5%	**44t**	80,000	Medium	10	20%	150	Low
Parcels	530	2.5%	**7.5t**	40,000	Low	10	20%	106	Low
Unknown	530	2.5%	**7.5t**	60,000	Medium	11	27%	144	Medium
Vehicle/automotive	405	1.9%	**44t**	100,000	High	10	20%	81	Low
Fuel	312	1.5%	**44t**	80,000	Medium	10	20%	62	Low
Vehicle Rental and Hire	312	1.5%	**18t**	60,000	Medium	10	20%	62	Low
Hotel& office supplies	499	2.4%	**18t**	40,000	Low	10	20%	100	Low
Removals	280	1.3%	**7.5t**	40,000	Low	15	47%	131	Very High
Scrap metal & building waste	249	1.2%	**18t**	40,000	Low	12	33%	83	High
Utilities	405	1.9%	**18t**	40,000	Low	12	33%	135	High
Total HGVs:	**21192**	**100%**	-	-	-	-	**31.2%**	**6615**	-

Vulnerability Criteria	
10% and below	Very Low
10%-20%	Low
21%-30%	Medium
31%-40%	High
40% above	Very High

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Cost Impact of the current proposal

£100 - HGV & £7.50 - vans

- Total costs = 60% Fixed Cost + 40% Running Costs
- Fixed Costs include drivers' wages, overheads, vehicle insurance, depreciation and profit allowance (5%)
- Running Costs include fuel, tyres and maintenance

	HGV: Artic	HGV: Rigid			Vans	
Maximum Gross Weight (MGW)	44t	26t	18t	7.5t	3.5t	1.6t
Fixed cost	372	322	294	225	171	163
Trailer cost	15	0	0	0	0	0
Total Fixed Cost	387	322	294	225	171	163
Fixed cost percentage	60%	60%	60%	60%	60%	60%
The total cost (incl. variable costs)	645	537	490	375	285	272
Clean Air Zone Charge in £	100	100	100	100	7.5	7.5
Charge% of Total Cost	**15.5%**	**18.6%**	**20.4%**	**26.7%**	**2.6%**	**2.8%**

Impact:

- The charge represents on average 2.7% of daily total cost for vans
- The charge represents over a quarter of the daily cost for a 7.5t Rigid
- The lighter the HGVs is, the greater % of the daily cost represented by the charge, due to relatively lower daily costs

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Cost impact/ tonne

Analysis of CAZ charge on each unit of goods delivered

- Vans are assumed to make 5 full payload runs per day
- Rigid HGVs are assumed to make 2 full payload runs per day
- 44t articulated HGV with a trailer are assumed to make 1 full payload run per day

	HGV: Artic	HGV: Rigid			Vans	
Maximum gross weight	44t	26t	18t	7.5t	3.5t	1.6t
Payload (tonnes)	28	15.5	10	3.2	1.5	0.6
Number of deliveries per day	1	2	2	2	5	5
Daily load (tonnes)	28	31	20	6.4	7.5	3
Total cost without charge (from previous)	645	537	490	375	285	272
Cost per tonne without charge (£)	23.0	17.3	24.5	58.6	38.0	90.6
Cost of charge (£/ tonne)	**3.6**	**3.2**	**5.0**	**15.6**	**1.0**	**2.5**

Impact:

- In terms of cost per tonne of goods, larger vans incur £1 and smaller vans £2.50
- 7.5t rigid HGVs take the highest additional charge (£15.60 per tonne of payload) due to the limited payload
- 44 and 26t HGVs incur lower costs per tonne of goods due to the greater capacity (£3.60 and £3.20 respectively)

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Cost Impact on SMEs with 2nd life vehicles

- Small and medium-sized enterprises (SMEs) and sole traders tend to operate second or third life vans
- SMEs, such as shop owners, often get their main income from other sources other than just delivering goods
- Fixed cost is based on ¼ of normal drivers' wages and ½ of first-life vehicle related cost (including depreciation, insurance finance costs, etc.)
- Running cost remains the same

	HGV: Artic	HGV: Rigid			Vans	
Maximum Gross Weight (MGW)	44t	26t	18t	7.5t	3.5t	1.6t
Fixed cost	150	124	112	79	58	54
Trailer cost	15	0	0	0	0	0
Total Fixed Cost	165	124	112	79	58	54
Running Cost	258	215	196	150	114	109
The total cost including fuel and maintenance	423	339	308	229	172	163
Clean Air Zone Charge in £	100	100	100	100	7.5	7.5
Charge% of Total Cost	**23.64%**	**29.50%**	**32.47%**	**43.67%**	**4.36%**	**4.60%**
Original Charge% of Total Cost	15.50%	18.60%	20.40%	26.70%	2.60%	2.80%
Increase% from Scheme 4	53%	59%	59%	64%	68%	64%

- This shows that the cost increase experienced by SMEs running second life vehicles would be around 50-70% higher than that of larger businesses running first life vehicles in many cases

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Vulnerability Analysis Summaries

- Estimated 33% of vans (55.6k) and 31% HGVs (6.6k) in GM will be affected by CAZ, assuming 2021 implementation of CAZ B and 2023 implementation of CAZ C

Vans Sectors

- Nearly half of affected vans are from construction sector
- Construction, Agriculture, forestry & fishing industries are the most vulnerable van sectors, based on the criteria applied here

HGVs Sectors

- The majority of affected HGVs are from the general haulage, building and waste industries
- HGVs in removals and the waste sector are assessed as ‘highly vulnerable’ based on the criteria used here

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Cost impact analysis Summary

- For businesses operating first life vehicles, the cost increase imposed by the charge represents between around a 3% increase for vans and between 25-28% increase for HGVs

- On a per tonne carried basis, this represents a cost increase of between £1 and £16, depending on the size of vehicle, with 7.5t HGVs facing the greatest increase in costs per tonne of goods

- For businesses operating second life vehicles, typically SMEs, the cost increase imposed is around 50-70% higher than that of larger businesses running first life vehicles in many cases

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Next steps

- GM is investigating further sources of freight data, as listed in this table.
- GM has also commissioned four Specialised Goods Vehicle Surveys at key local exceedance sites with high freight flows
- GM is developing a survey of small businesses operating LGVs, to better understand their usage patterns, limitations and possible behavioural responses
- Further analysis is required to better understand the implications of the CAP for freight

Data Source	Key Information
DVLA sample data	Vehicle types, age and fuel type
Real-Time Origin Destination Analysis Tool (RODAT)	Vehicle type
DfT Annual Average Daily Flows (AADF)	The level of traffic by vehicle types
Continuous Survey of Road Goods Transport (CSRGT)	Activity of GB-registered HGVs (vehicles weighing 3.5+ tonnes) operating in the UK with commodity types contained
Specialised Goods Vehicle Survey (SGVC)	Data on commercial vehicle age, size, type, industry category, commodity and direction of travel
SMMT	Data on national vans and HGV growth trend
Vehicle Booking Management Systems (VBMS)	Vehicle numbers, types and commodities
ANPR data - Air Quality	Comprehensive vehicle information
DVSA/ATF – MOT data	MOT data from DVSA on detailed vehicle information including age, model and emission standards, etc.
British Vehicle Rental and Leasing Association (BVRLA)	Data on rental vehicles
Trade Associations – FTA, RHA	Data about the number operators and number of vehicles in GM
Unliveried Non-Compliant Vehicles Review	Data on unliveried goods vehicles on the roads
Traffic Commissioners (TOs)	Data on licensed operators and their fleets
List of Local Authority Fleet Registrations	Data on fleet operated by LAs in GM