

**GREATER MANCHESTER AIR QUALITY ADMINISTRATION
COMMITTEE**

DATE: Wednesday, 17th August, 2022

TIME: 11.00 am – 12.00 pm

VENUE: Council Chamber, Manchester Town Hall Extension,
M2 5DB

SUPPLEMENTARY AGENDA

5. **GM CLEAN AIR PLAN - AUGUST 2022 UPDATE** 1 - 394

Report of Councillor Andrew Western, Portfolio Lead for Clean Air.

BOLTON	MANCHESTER	ROCHDALE	STOCKPORT	TRAFFORD
BURY	OLDHAM	SALFORD	TAMESIDE	WIGAN

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GM Air Quality Administration Committee

Date: 17 August 2022

Subject: GM Clean Air Plan – August 2022 Update

Report of: Councillor Andrew Western, Portfolio Lead for Clean Air

Purpose of Report

This report provides an update on the Case for a new Greater Manchester Clean Air Plan.

Recommendations:

The Air Quality Administration Committee is requested to:

1. Note that those authorities that wished to consider the Case for a new Greater Manchester Clean Air Plan through their local governance arrangements have now done so.
2. Agree to submit the 'Case for a new Greater Manchester Clean Air Plan' attached as Appendix 1 and associated appendices A to E to the Secretary of State as a final Case for a new Greater Manchester Clean Air Plan;
3. Approve the *Case for a New Plan - Air Quality Modelling Report* attached as Appendix 2 for submission to the government's Joint Air Quality Unit; and
4. Note the targeted engagement being undertaken with key stakeholders to inform the policy development process.

Contact Officers

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Equalities Impact, Carbon and Sustainability Assessment:

The GM CAP is a place-based solution to tackle roadside NO₂ which will have a positive impact on carbon.

Risk Management

Initial risk register set out in Clean Air Plan OBC (March 2019).

Legal Considerations

On 8th February 2022 *The Environment Act 1995 (Greater Manchester) Air Quality Direction 2022* was issued. The new direction requires that the GM local authorities:

- review the measures specified in the existing Plan; and
- determine whether to propose any changes to the detailed design of those measures, or any additional measures.

The GM authorities must ensure that the Plan with any proposed changes will secure that:

- compliance with the legal limit value for NO₂ is achieved in the shortest possible time and by no later than 2026; and
- exposure to levels above the legal limit for NO₂ is reduced as quickly as possible.

This new direction revoked the direction dated March 2020 which required the ten Greater Manchester Local Authorities to implement a Category C Clean Air Zone to achieve compliance with the legal limit value for NO₂ in the shortest possible time and by 2024 at the latest.

This report seeks agreement to submit the 'Case for a new Greater Manchester Clean Air Plan' document attached as Appendix 1 and associated appendices A to E to the Secretary of State as a final document.

Financial Consequences – Revenue

Initial Financial Case set out in Clean Air Plan OBC (March 2019), with all development and delivery costs to be covered by central Government.

Financial Consequences – Capital

Initial Financial Case set out in Clean Air Plan OBC (March 2019), with all development and delivery costs to be covered by central Government.

Number of attachments to the report: eight

Comments/recommendations from Overview & Scrutiny Committee

Not applicable.

Background Papers

- 1 July 2022, Report for AQAC: GM Clean Air Plan – July 22 Update
- 23 March 2022, Report for AQAC: GM Clean Air Plan – March 22 Update
- 28 February 2022, Report for AQAC: GM Clean Air Plan – February 22 Update
- 2 February 2022, report to CACC: GM Clean Air Plan – update to the temporary exemption qualification date for GM-licensed hackney carriages and private hire vehicles
- 20 January 2022, report to AQAC: GM Clean Air Plan – A628/A57, Tameside – Trunk Road Charging Scheme update
- 20 January 2022, report to AQAC: GM Clean Air Plan – Financial Support Scheme Jan 22 Update
- 20 January 2022, report to AQAC: GM Clean Air Plan – Clean Air Zone Discount & Exemptions Applications
- 18 November 2021, report to AQAC: GM Clean Air Plan – GM Clean Air Funds assessment mechanism
- 18 November 2021, report to CACC: GM Clean Air Plan – GM Clean Air Plan Policy updates
- 13 October 2021, report to AQAC: GM Clean Air Plan – Operational Agreement for the Central Clean Air Service

- 13 October 2021, report to CACC: GM Clean Air Plan – Showmen’s Vehicle Exemption
- 13 October 2021, report to CACC: GM Clean Air Plan – Clean Air Zone daily charge refund policy
- 13 October 2021, report to CACC: GM Clean Air Plan – A628/A57, Tameside – Trunk Road Charging Scheme
- 21 September, report to AQAC: GM Clean Air Plan – Clean Air Zone: Camera and Sign Installation
- 21 September, report to AQAC: GM Clean Air Plan – Bus Replacement Funds
- 25 June 2021, report to GMCA: GM Clean Air Final Plan
- 31 January 2021, report to GMCA: GM Clean Air Plan: Consultation
- 31 July 2020, report to GMCA: Clean Air Plan Update
- 29 May 2020, report to GMCA: Clean Air Plan Update
- 31 January 2020, report to GMCA: Clean Air Plan Update
- 26 Jul 2019, report to GMCA: Clean Air Plan Update
- 1 March 2019, report to GMCA: Greater Manchester’s Clean Air Plan – Tackling Nitrogen Dioxide Exceedances at the Roadside - Outline Business Case
- 11 January 2019, report to GMCA/AGMA: Clean Air Update
- 14 December 2018, report to GMCA: Clean Air Update
- 30 November 2018, report to GMCA: Clean Air Plan Update
- 15 November 2018, report to HPEOS Committee: Clean Air Update
- 26 October 2018, report to GMCA: GM Clean Air Plan Update on Local Air Quality Monitoring
- 16 August 2018, report to HPEOS Committee: GM Clean Air Plan Update
- UK plan for tackling roadside nitrogen dioxide concentrations, Defra and DfT, July 2017.

Tracking/ Process

Does this report relate to a major strategic decision, as set out in the GMCA Constitution

No

Exemption from call in

Are there any aspects in this report which means it should be considered to be exempt from call in by the relevant Scrutiny Committee on the grounds of urgency? No

GM Transport Committee – Not applicable

Overview and Scrutiny Committee – Not applicable

1 Background

- 1.1 The Government has instructed many local authorities across the UK to take quick action to reduce harmful Nitrogen Dioxide (NO₂) levels following the Secretary of State (SoS) issuing a direction under the Environment Act 1995. In Greater Manchester, the 10 local authorities, the Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM) are working together to develop a Clean Air Plan to tackle NO₂ Exceedances at the Roadside, herein known as Greater Manchester Clean Air Plan (GM CAP).
- 1.2 The development of the GM CAP is funded by Government and is overseen by Joint Air Quality Unit (JAQU), the joint DEFRA and DfT unit established to deliver national plans to improve air quality and meet legal limits. The costs related to the business case, implementation and operation of the GM CAP are either directly funded or underwritten by Government acting through JAQU and any net deficit over the life of the GM CAP will be covered by the New Burdens Doctrine, subject to a reasonableness test¹.
- 1.3 The GM CAP is a package of measures to deliver NO₂ reductions to within legal limits within the shortest possible time and by 2026 at the latest.
- 1.4 Throughout the development of the GM Clean Air Plan the ten GM local Authorities have made clear the expectation that the UK Government would support the plans through:
- Clear arrangements and funding to develop workable, local vehicle scrappage / upgrade measures;
 - Short term effective interventions in vehicle and technology manufacturing and distribution, led by national Government;
 - Replacement of non-compliant buses; and

¹ The new burdens doctrine is part of a suite of measures to ensure Council Tax payers do not face excessive increases. [New burdens doctrine: guidance for government departments - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/new-burdens-doctrine-guidance-for-government-departments)

- A clear instruction to Highways England² to implement measures which deliver compliance with legal limits for NO₂ on the strategic road network, for which they are responsible, in the shortest possible time³.
- 1.5 The GMCA Clean Air Update report of 29 May 2020² detailed that in March 2020 the government provided initial funding of £41m for clean vehicle funds to award grants or loans to eligible businesses: £15.4m for bus retrofit, £10.7m for Private Hire Vehicles, £8m for HGVs, £4.6m for coaches and £2.1m for minibuses. These figures include Joint Air Quality Unit (JAQU) estimated delivery costs at 5%.
 - 1.6 The GMCA – Clean Air Final Plan report detailed that GM had been awarded £14.11m for Hackney Carriages and £73.5m for Light Goods Vehicles. The Hackney Carriage award comprises £10.61m to support grants and loans to upgrade vehicles. These figures include JAQU estimated delivery costs at 5%.
 - 1.7 The GMCA – Clean Air Final Plan report on 25 June 2021⁴ endorsed the GM Final Clean Air Plan and policy following a review of all of the information gathered through the GM CAP consultation and wider data, evidence and modelling work. This included the GM Clean Air Plan Policy, that outlined the boundary, discounts, exemptions, daily charges of the formerly proposed Clean Air Zone (CAZ) as well as the financial support packages offered towards upgrading to a compliant vehicle, including the eligibility criteria to be applied. The aim of the funding is to support an upgrade to a compliant vehicle and to mitigate the negative socio-economic effects of the former GM CAZ.
 - 1.8 The 25 June 2021 GMCA report set out that the Air Quality Administration Committee has the authority to establish and distribute the funds set out in the agreed GM Clean Air Plan policy.
 - 1.9 On 21 September 2021, the Air Quality Administration Committee approved the establishment and distribution of the bus replacement funds.

² On 19 August 2021 it was announced that Highways England changed its name to ‘National Highways’ reflecting the new focus the company has on delivering the government’s £27bn strategic roads investment programme, while also continuing to set highways standards for the whole UK.

³ GM Authorities are directed to take action on the local road network. Those roads managed by National Highways, such as motorways and trunk roads are excluded from the Clean Air Plan.

⁴ Also considered by the GM authorities through their own constitutional decision-making arrangements.

- 1.10 On 13 October 2021, the Air Quality Administration Committee agreed the distribution of Clean Air funds set out in the agreed GM Clean Air Plan policy as follows:
- From 30 November 2021 applications for funding would open for HGVs.
 - Opened the funds to applications from LGV, Hackney, PHV and Minibus owners who were detrimentally impacted by the decision of the AQAC to defer the wider opening of the Financial Support Scheme.
- 1.11 On 18 November 2021, the Air Quality Administration Committee agreed the assessment mechanism to allow for Clean Air Funds to be adapted, if necessary (including a process for considering whether additional funding is required), if the impacts of the Clean Air Zone prove to be more severe than forecast once opened.
- 1.12 On 20 January 2022, the Air Quality Administration Committee considered the findings of an initial review of conditions within the supply chain of Light Good Vehicles which is impacting the availability of compliant vehicles. The Committee agreed that a request should be made to the Secretary of State (SoS) for Environment, Food and Rural Affairs to agree to pause the opening of the next phase of Clean Air Funds to enable an urgent and fundamental joint policy review with Government to identify how a revised policy can be agreed to deal with the supply issues and local businesses' ability to comply with the GM CAP.
- 1.13 On 28 February 2022, the Air Quality Administration Committee noted the submission of a report "*Issues Leading to Delayed Compliance Based on the Approved GM CAP Assumptions*", attached as Appendix 3. The report concluded that on balance, the latest emerging evidence suggests that with the Approved Plan [Summer 2021 Clean Air Plan] in place, it is no longer more likely than not that compliance would be achieved in 2024. The Government subsequently issued a new direction which stated that a revised plan was required to be submitted to the SoS by 1st of July, requiring the achievement of compliance with the legal limit value for NO₂ in the shortest possible time and by no later than 2026. The committee also noted the interim arrangements for delivery arrangements for the Clean Air Zone in the meantime, including signage, funding, and discount/exemption applications.
- 1.14 On 23 March 2022, the Air Quality Administration Committee noted the scope of the review of the Clean Air Plan and the participatory policy development approach, as well as delivery arrangements, including signage and funding.

1.15 On 1 July 2022 the Air Quality Administration Committee noted the 'Case for a new Greater Manchester Clean Air Plan' document and associated appendices would be submitted to the Secretary of State on the 1 July as a draft document subject to any comments of Greater Manchester local authorities.

2 Overview

2.1 The primary focus of the 'Case for a new Greater Manchester Clean Air Plan' is to achieve compliance in a way that considers the current cost of living crisis and associated economic challenge faced by businesses and residents. An investment-led approach will be combined with all the wider measures that GM is implementing and aims to reduce NO₂ emissions to within legal limits, in the shortest possible time and at the latest by 2026. Unlike the previous charging-led scheme defined by Government guidance, the investment-led scheme seeks to factor in the cost-of-living crisis, it will actively consider the impacts of the pandemic and wider global economic instability on supply chains, can be delivered from summer 2023, and crucially considers the significant beneficial effects that the delivery of electric bus can have along key routes. In particular:

- The **cost-of-living crisis** means that businesses are less able to afford to invest in vehicle upgrades, whilst households are less able to absorb any costs that may be passed on to them.
- This is exacerbated by **rising vehicle prices** and – for some vehicle types – lower residual values of non-compliant vehicles. There is evidence that illustrates the demand for new and compliant second-hand vehicles is exceeding supply, leading to longer wait times and rising prices.
- A charging Clean Air Zone could therefore cause **unacceptable financial hardship** and contribute to business failures.
- In addition, **new opportunities have arisen** – via the approval of bus franchising and new funding for electric buses – this means that GM has the opportunity to tackle emissions in a different way.
- The exceedances become more localised in 2025 and 2026, therefore **action can be targeted** at those locations suffering the worst air quality.
- It is clear that the GM-wide Clean Air Zone category C as approved in summer 2021 could lead to hardship in GM and that implementing a materially revised charging

CAZ, for example with a different boundary, vehicles in scope or discounts and exemptions, would take time to design and consult upon and then implement.

- 2.2 The 'Case for a new Greater Manchester Clean Air Plan' will use the £120 million of Clean Air funding that the Government has awarded to Greater Manchester to deliver an investment led approach to invest in vehicle upgrades, rather than imposing daily charges and in particular through the delivery of zero emission buses in the Bee Network (a London-style integrated transport network). The new plan will ensure that the reduction of harmful emissions is at the centre of GM's wider objectives.
- 2.3 As set out in the July 2022 report whilst Greater Manchester has put in place governance arrangements to enable the joint discharge of relevant GM local authority and GMCA functions in respect of the Greater Manchester Clean Air Plan via the Air Quality Administration Committee, local authorities have had the opportunity for the 'Case for a new Greater Manchester Clean Air Plan' document to be considered, through the local governance arrangements of the individual authorities where they have wished to do so.
- 2.4 Those authorities that wished to consider the case through their local governance arrangements have now done so. The committee are therefore now recommended to submit the 'Case for a new Greater Manchester Clean Air Plan' attached as Appendix 1 and associated appendices A to E to the Secretary of State as a final document.

3 Feedback from Government

- 3.1 Greater Manchester Authorities are awaiting Ministers passing a view on the drafted documents provided.
- 3.2 In line with AQAC recommendations noted at the July meeting, GM is continuing to progress the policy development for the new GM CAP in support of a non-charging, investment-led approach, subject to Government feedback.

4 Air Quality Modelling

- 4.1 In July's report, members noted that GM has forecast expected NO₂ exceedances in each future year to 2027, if no further action is taken. The forecasts show that the number of sites in exceedance reduces over time, moving from a GM-wide problem in 2023 to a localised problem from 2025 focussed on the regional centre.
- 4.2 The document a *Case for a New Plan - Air Quality Modelling Report*, attached as Appendix 2, sets out the results of modelling carried out in Summer 2022 to forecast air quality in Greater Manchester (GM) in future years, taking into account the impacts of Covid-19 on vehicle fleet renewals and new investment in the bus fleet in GM.
- 4.3 The report documents minor refinements that have been reflected within the modelling methodology to reflect the impacts of the Covid-19 pandemic on air quality, and other changes that have been made to reflect the newest evidence on investment in ultra-low emission buses, as well as any other methodological changes that have been made to the 'Do Minimum'⁵ modelling methodology. These changes to the modelling apply the assumptions and methodology developed in agreement with JAQU (in Spring 2021) and the TIRP, based on the extant JAQU guidance for assessing the impact of Covid-19 provided to GM in 2021.
- 4.4 The report sets out how the relevant methodological changes have been reflected within the modelling to forecast the air quality without the GM CAP in place. The modelling has been conducted for 2025.

⁵ The 'Do Minimum' forecast, is a forecast of future air quality if no action was taken to improve air quality (i.e.: without a GM Clean Air Plan), but if other schemes that are planned, funded and committed were implemented.

- 4.5 The report concludes as a result, there is an increase in the number of points of exceedance from the previous GM CAP model Do Minimum as modelled in spring/summer 2021 (from 71 to 79 in 2023, and from 11 to 13 in 2025). However, this Do Minimum scenario is considered pessimistic, because the GM CAP has already delivered a significant amount of support funding to buses and HGVs to help them upgrade. Much of the approved funding in the Clean Bus Fund is already out on the GM network, with further funding still to be deployed. This is considered the most representative scenario of future air quality that the New Plan needs to tackle.
- 4.6 Under the Do Minimum with Clean Bus Fund (CBF) Grants scenario, there is a predicted decrease in the number of points of exceedance in 2023 from the Do Minimum from 79 to 44. This is primarily associated with the regional centre inside the IRR, where bus emissions comprise a greater proportion of total emissions, alongside the arterial routes that lead into the IRR on wider road network outside of the regional centre.
- 4.7 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet. Compared with the Do Minimum scenario, there would be a decrease in the overall number of exceedances from 13 to 5 as a result of the CBF.
- 4.8 By 2025, whilst there are fewer exceedances predicted, the key locations remain as per the Do Minimum scenario:
- Inside the IRR, including the A34 Bridge St /John Dalton St;
 - A57 Regent Rd, Salford; and
 - A58 Bolton Road, Bury.
- 4.9 The modelling indicates that exceedances would only remain in 2026 at one site, on the A57 Regent Road. All sites are predicted to be compliant by 2027 in the Do Minimum with CBF Grants scenario.
- 4.10 A further scenario has been run to investigate what the potential improvement to air quality would be if electric buses were in operation. This information can be used to prioritise where the CRSTS funding would deploy electric buses to assist in delivering the maximum improvements to air quality and work towards compliance in the shortest possible time.

- 4.11 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet. Compared with the Do Minimum with CBF Grants scenario, there could be a decrease in the overall number of exceedances from 5 to 1 as a result of prioritised electric bus deployment, with the only remaining exceedance at the A57 Regent Road, Salford.
- 4.12 Whilst electric buses will be targeted for this location, GM is developing an additional package of measures aimed at further improving air quality at the A57 Regent Road, such that all of GM is predicted to be compliant in 2025.
- 4.13 GM's investment-led approach will develop, assess, and agree a package of measures forming a proposed new GM CAP. This package of measures will be consulted upon in early 2023 and implemented in the summer of 2023.
- 4.14 On 29 July 2022 the GMCA approved, and delegated authority to deliver, a number of key components of the Bee Network including affordable bus fares, zero emission buses, the acquisition of a number of bus depots, and the allocation of City Region Sustainable Transport Settlement (CRSTS) funds into the capital programme. [Delivering the Bee Network \(greatermanchester-ca.gov.uk\)](https://www.greatermanchester-ca.gov.uk)
- 4.15 In contrast a charging CAZ would take time to design and consult upon and then implement, including the reconfiguration of ANPR cameras, signs and completion of the integrated technology platform, that will also be connected to the payment and vehicle checking services which have been established by central government. In addition, the operational teams of both TfGM, the Local Authorities and the chosen supplier will need to be recruited, trained, and mobilised.
- 4.16 Whilst much of this technology is tried and tested, implementation of a scheme that has been fully developed, consulted upon and all of the component parts tested is a minimum of autumn 2023 and therefore the earliest date that any charging CAZ in GM could launch would be winter 2023, which would be considerably later than the investment-led approach set out in the 'Case for a new Greater Manchester Clean Air Plan'.

5 Participatory approach to the development of a new plan

- 5.1 GM leaders have committed to a participatory approach to the development of the new Plan to ensure that GM's proposals are well-grounded in evidence in terms of the circumstances of affected groups and possible impacts of the Plan on them, and therefore the deliverability and effectiveness of that Plan.
- 5.2 Following submission of the draft Case for a new Clean Air Plan on 1st July GM is now undertaking targeted engagement with key stakeholders – vehicle-owning groups and other impacted individuals, such as community and equality-based groups. This engagement consists of:
- Stakeholder engagement sessions – all groups
 - An online survey and supporting qualitative research activity – vehicle-owning groups only
- 5.3 Input from those engaged will inform the policy development process and GM will develop a package of measures forming a proposed new GM CAP. A public consultation on the new Clean Air Plan proposals will take place in early 2023.
- 5.4 GM will then review the responses to the consultation and, if needed, make any adaptations to the proposals, as necessary. It is anticipated that a decision could be made to proceed with the new GM CAP thereafter.

6 Recommendations

- 6.1 The recommendations are set out at the front of the report.

7 Appendices

- 7.1 Appendix 1 – Case for a New GM Clean Air Plan – attached as a supplementary paper.
- 7.2 Appendix A – Technical Note: Vehicle Sector Review – HGV Sector – attached as a supplementary paper.

- 7.3 Appendix B – Technical Note: Vehicle Sector Review – Taxis (Hackney Carriages and Private Hire Vehicles) – attached as a supplementary paper.
- 7.4 Appendix C – Technical Note: Current issues in the Van Sector – attached as a supplementary paper.
- 7.5 Appendix D – Technical Note: Vehicle Sector Review – Coach and Minibus – attached as a supplementary paper.
- 7.6 Appendix E – Changes in economic context since July 2021 – attached as a supplementary paper.
- 7.7 Appendix 2 – Case for a New Plan - Air Quality Modelling Report – attached as a supplementary paper.
- 7.8 Appendix 3 – Issues Leading to Delayed Compliance Based on the Approved GM CAP Assumptions Report – attached as a supplementary paper.

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

Case for a New GM Clean Air Plan



Oldham Council

Trafford Council



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Version Status:	DRAFT FOR APPROVAL	Prepared by:	Transport for Greater Manchester on behalf of the 10 Local Authorities of Greater Manchester
Authorised by: Date:	Simon Warburton June 2022		

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Appendix A – Technical Note: Vehicle Sector Review – HGV Sector

Appendix B – Technical Note: Vehicle Sector Review – Taxis (Hackney Carriages and Private Hire Vehicles)

Appendix C – Technical Note: Current issues in the Van Sector

Appendix D – Technical Note: Vehicle Sector Review – Coach and Minibus

Appendix E – Changes in economic context since July 2021

DRAFT FOR APPROVAL

1 Executive Summary

1.1 Background

- 1.1.1 The Government has instructed many local authorities across the UK to take quick action to reduce harmful roadside levels of Nitrogen Dioxide (NO₂) following the Secretary of State (SoS) for Environment, Food and Rural Affairs issuing a Direction under the Environment Act 1995 in 2017 requiring them to undertake feasibility studies to identify measures for reducing NO₂ concentrations to within legal limit values in the “shortest possible time”. In Greater Manchester, the 10 local authorities, the Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM) are working together to develop a Clean Air Plan to tackle NO₂ exceedances at the roadside, herein known as Greater Manchester Clean Air Plan (GM CAP).
- 1.1.2 In March 2019 the GM Authorities agreed the submission of the Outline Business Case (OBC) that proposed a package of measures that was considered would deliver compliance in Greater Manchester in the shortest possible time, at the lowest cost, least risk and with the least negative impacts. This involved a Charging Clean Air Zone Class C with additional measures.
- 1.1.3 In July 2019 the SoS issued a Direction under section 85 of the Environment Act 1995 requiring the 10 Greater Manchester local authorities to implement the local plan for NO₂ compliance for the areas for which they were responsible, including a Charging Clean Air Zone Class C with additional measures, but with an obligation to provide further options appraisal information to demonstrate the applicable class of Charging Clean Air Zone and other matters to provide assurance that the local plan would deliver compliance in the shortest possible time and by 2024 at the latest.
- 1.1.4 The SoS subsequently issued a Direction to the ten Greater Manchester local authorities in March 2020 that required them to take steps to implement the local plan for NO₂ compliance so that compliance with the legal limit for NO₂ is achieved in the shortest possible time, and by 2024 at the latest, and so that exposure to levels above the legal limit for NO₂ is reduced as quickly as possible.
- 1.1.5 A statutory consultation on the proposals took place in Autumn 2020.

- 1.1.6 The GMCA – Clean Air Final Plan report on 25 June 2021¹ endorsed Greater Manchester’s Final CAP and policy following a review of all of the information gathered through the GM CAP consultation and wider data, evidence and modelling work. Throughout the development of the previous Plan, JAQU reviewed and approved all technical and delivery submissions. The Plan was agreed by the ten Greater Manchester local authorities. Within this document, this is referred to as the Previous GM CAP.
- 1.1.7 On 20 January 2022 the Air Quality Administration Committee considered the findings of an initial review of conditions within the supply chain of Light Good Vehicles (LGVs) in particular which were impacting the availability of compliant vehicles. The Committee agreed that a request should be made to the SoS to pause opening of the next phase of Clean Air Funds to enable an urgent and fundamental joint policy review with Government to identify how a revised policy can be agreed to deal with the supply issues and local businesses’ ability to comply with the GM CAP.
- 1.1.8 On the 8th February 2022, a new Direction was issued by the SoS² which confirmed that the March 2020 Direction to implement a Class C charging Clean Air Zone (CAZ) had been revoked and required that a new plan be submitted to the SoS by 1st July 2022 which should:³
- review the measures specified in the local plan for NO₂ compliance and associated mitigation measures; and
 - determine whether to propose any changes to the detailed design of those measures, or any additional measures.
- 1.1.9 The Direction also states that compliance with the legal limit value for nitrogen dioxide is achieved in the shortest possible time and no later than 2026 and exposure to levels above the legal limit for nitrogen dioxide is reduced as quickly as possible.
- 1.1.10 Within this document, this new plan, and any subsequent further development of the new plan, is referred to as the New GM CAP.

1.2 Overview

- 1.2.1 Breathing in polluted air contributes to the equivalent of 1,200 premature deaths a year in Greater Manchester⁴. Both long- and short-term exposure to air pollution are known to adversely affect health. Some of the most vulnerable in society are hit hardest – children, older people and those already in poor health. Greater Manchester has a particular imperative to improve health, as the region has one of the lowest life expectancies at birth in England and significant health inequalities between areas.

¹ Also considered by the Greater Manchester authorities through their own constitutional decision-making arrangements.

²

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1054931/Environment_Act_1995_Greater_Manchester_Air_Quality_Direction_2022.pdf

³ In addition to recommendations about interim arrangements for changes to delivery arrangements for the CAZ in the meantime, including signage, funding and discount/exemption applications.

⁴ Public Health England – Air Quality in Greater Manchester – from a Public Health Perspective (September 2018)

1.3 Why a New Greater Manchester Clean Air Plan?

1.3.1 it is proposed that the Previous GM CAP developed pre-pandemic and agreed in Summer 2021 (comprising a blanket measure across the city-region in the form of a Class C charging CAZ) is no longer the right solution to achieve compliance with Legal Limits for NO₂ on the local road network in Greater Manchester. The most significant reasons in summary are:

- The **cost-of-living crisis** means that businesses are less able to afford to invest in vehicle upgrades, whilst households are less able to absorb any costs that may be passed on to them.
- This is exacerbated by **rising vehicle prices** and – for some vehicle types – lower residual values of non-compliant vehicles. There is evidence that illustrates the demand for new and compliant second-hand vehicles is exceeding supply; leading to longer wait times and rising prices.
- A charging CAZ could therefore cause **unacceptable financial hardship** and potentially contribute to business failures.
- In addition, **new opportunities have arisen** – via the approval of bus franchising and new funding for electric buses – that mean that Greater Manchester has the opportunity to directly tackle a major source of emissions in a different, more targeted way.
- The exceedances become more localised from 2025 onwards, therefore **action can be targeted** at those locations suffering the worst air quality.

1.3.2 It is clear that the GM-wide Class C charging CAZ as approved in Summer 2021 could lead to hardship in Greater Manchester and that to develop and deliver a revised charging CAZ would take time to design, consult upon and implement.

1.3.3 Unlike the previous charging-led scheme, the New GM CAP will attend to the emerging cost-of-living crisis and other factors set out in this section. It will actively consider the impacts of Covid-19 and wider global economic instability on supply chains, aims to be delivered in 2023, and crucially takes into account the significant benefits that the delivery of electric buses can have along key routes with persistent exceedances.

1.4 Core objectives

1.4.1 The core objectives of the New GM CAP are as follows:

- To reduce NO₂ concentrations to below the legal limits in the shortest possible time and by 2026 at the latest;
- Achieve compliance in a way that is fair to businesses and residents, and does not damage business or cause financial hardship to people in Greater Manchester; and

- Ensure the reduction of harmful emissions is at the centre of Greater Manchester 's wider objective for delivering the Bee Network's core objectives.

1.4.2 An investment-led non-charging GM CAP will aim to encourage upgrade to cleaner vehicles, leading to better air quality, by providing funding packages to those most polluting vehicles travelling in locations experiencing NO₂ exceedances.

1.5 Why is Greater Manchester not proposing a revised charging Plan?

1.5.1 The primary focus of the new GM CAP is to achieve compliance in a way that considers the current cost of living crisis and associated economic challenge faced by businesses and residents. Through an investment-led approach, that together with all the wider measures that Greater Manchester is implementing as part of its efforts to create a safe, integrated, clean and sustainable transport network, aims to reduce NO₂ emissions in the shortest time possible, and at the latest by 2026. Unlike the previous charging-led scheme defined by Government guidance, the investment-led non-charging GM CAP also seeks to attend to the cost-of-living crisis – through avoiding the use of charging.

1.5.2 In particular, it will actively consider the impacts of the pandemic (particularly given the shape of the remaining NO₂ problem over time) on the regional centre, where GM needs to support its ongoing recovery as a result of changes in economic activity and wider global economic instability on supply chains. The investment-led non-charging GM CAP can be delivered from 2023.

1.5.3 The updated modelling summarises the existing areas of exceedance that are likely to remain unless action is taken through the New GM CAP during the period from now until 2026. Targeting these areas of exceedance will form the basis of the New GM CAP and Greater Manchester's local authorities are now making the case to Government that this should take the form of an investment-led non-charging GM CAP, which aims to achieve compliance in the shortest possible time and by 2026 at the latest but without creating additional financial hardship for local businesses and families.

- 1.5.4 Without the need to mitigate a Greater Manchester-wide charging CAZ, a new investment-led non-charging GM CAP can target resources more effectively at the most persistent exceedances. For example, at the city centre locations sites that are forecast to remain non-compliant in 2025, buses account for over 70% of emissions, meaning that electric buses could be very effective in improving air quality. In contrast, Regent Road has very few buses running on it and acts as a major strategic route for commercial vehicles – with particularly high volumes of HGVs – and cars heading to the city centre and inner relief road. With supported funding through the City Region Sustainable Transport Settlement (CRSTS), targeted investment in electric bus could feasibly enable Greater Manchester to reduce the number of last exceedances. Regent Road is still expected to remain in exceedance without other action by 2026.
- 1.5.5 Importantly, this plan is not just a request of Government funds. Greater Manchester will also review local policy changes, such as local servicing plans, alongside regulatory measures such as licensing standards to accelerate fleet upgrades.

1.6 Nitrogen Dioxide (NO₂) exceedances forecast

- 1.6.1 The results of the updated modelling demonstrate there are more points of exceedance (71 to 79 in 2023) from the 'Approved GM CAP' model Do Minimum with exceedances in all districts in 2023 with the exception of Wigan. By 2025, exceedances are only predicted in Manchester, Salford, and Bury, which is consistent with the Consultation and 'Approved GM CAP' modelling scenarios. The majority of the last points of exceedance are located within the regional centre and within or near the Inner Relief Route (IRR). By 2025, there are 13 exceedances in the core scenario and 5 exceedances in the Clean Bus Fund (CBF) test which reduces to 5 sites in the core scenario and 1 site in the CBF test in 2026.

1.7 Changes to the economic context

- 1.7.1 The economic context in the UK has changed dramatically in the period since July 2021. A range of factors associated with the pandemic, impact from war in Ukraine, increased costs of energy and fuel, changes to Bank of England base rates and forecasts, global supply chain challenges, and the cost-of-living crisis have combined to create a context of increased financial hardship for businesses and families. UK inflation reached a 40-year high of 9% during April 2022, up from 2% in July 2021. It is widely accepted that inflation will increase to higher levels still during the remainder of 2022, with evidence already pointing to consumer demand being dampened.

1.7.2 Greater Manchester is not insulated from the impacts of high inflation and higher interest rates, in fact in some respects it is particularly vulnerable - noting its relatively high volume of small businesses, and a higher than average (vs.UK) proportion of residents who typically have below average disposable household incomes. Any intervention that could see businesses forced to pay additional charges and potentially pass costs on to the consumer, could have severe consequences for those groups who are already struggling to cope with the cost of living crisis. A charging CAZ could therefore cause unacceptable financial hardship and potentially contribute to business failures.

1.8 Changed conditions within the vehicle market

- 1.8.1 Research was commissioned in late 2021 to analyse and report on the market conditions. It found evidence that the used van market had materially changed, with evidence suggesting that second-hand van prices had increased by between 13% and c.60% since the modelling for the Previous GM CAP had been undertaken.
- 1.8.2 Advisors concluded that at that level, fewer van owners would choose to (or be able to) upgrade in response to the charging CAZ and that this price inflation devalues the funding offer for vans, with the Previous GM CAP being particularly sensitive to van prices given their number in Greater Manchester.
- 1.8.3 For Heavy Goods Vehicles (HGVs), the evidence illustrated that record-breaking price rises are being reported of around 40% for Euro 6 vehicles, with the price gap between Euro 6 vs 5 vehicles increasing. The price rises reflect these shortages as well as increases in the cost of materials (for new vehicles).
- 1.8.4 The evidence also illustrates that the coach sector was badly affected by the pandemic, many were forced to stop operating for long periods. Additionally, demand from tourism and events remained constrained during 2021, and the recovery is expected to be slow.
- 1.8.5 For taxis, both Hackneys and Private Hire Vehicles (PHVs), the evidence indicates that they lost a substantial proportion of their trade during the pandemic. The number of vehicles licensed has reduced and drivers report that demand has not returned to pre-pandemic levels. The number of new vehicles entering the Hackney and PHV licensed fleets was much lower than normal in 2020 and 2021, so that the age of the fleet has increased.

1.8.6 The air quality Do Minimum (without scheme) modelling forecast has been updated because the evidence presented to the Government in February 2022 showed that business as usual (BAU) car sales were lower than expected in 2021, meaning that the fleet was older than forecast, and that this was likely to delay compliance with legal limits of NO₂ with the scheme as planned. Additionally, a sensitivity test has been conducted to forecast the impact on bus emissions of bus retrofits and upgrades already funded and approved via the Clean Bus Fund (CBF).

1.9 Equality considerations

1.9.1 Under Section 149 of the Equality Act (2010), public bodies are subject to the Public Sector Equality Duty, which requires that they give due regard to the need to eliminate unlawful discrimination, harassment and victimisation, advance equality of opportunity and foster good relations between people from different groups. In terms of the New GM CAP, this will be evidenced through the development of an Equality Impact Assessment (EqIA) to identify whether people with protected characteristics could be affected by the New GM CAP disproportionately or differentially.

1.9.2 An initial screening has been undertaken to assess which protected characteristics are likely to be impacted by the New GM CAP, and in scope for the EqIA.

1.9.3 Some groups are more sensitive to changes in air quality and will therefore benefit more quickly from improvements in air quality. The five protected characteristics, identified in **Table 1** are likely to be disproportionately or differentially impacted by changes in air quality and NO₂ levels and will therefore be considered within the EqIA for the New GM CAP:

Table 1 Equality Considerations - Protected Characteristics

Protected characteristic	Likely to be disproportionately affected by improved air quality	Likely to be differentially affected by improved air quality
Age		x
Disability (includes all forms of physical and mental disability)		x
Pregnancy and maternity		x
Gender (male drivers)	x	
Race	x	
Low income / socio-economic deprivation	x	

1.9.4 The New GM CAP aims to reduce the health impacts of air pollution as well as reduce NO₂ concentrations to below legal limits in the shortest possible time and by 2026 at the latest whilst minimising any negative socio-economic impacts. The EqIA will consider the impact of this New GM CAP on the groups above.

1.10 Government asks

1.10.1 The New GM CAP includes one new specific 'ask' from Government – to remove out-of-area operation by private hire drivers/vehicles. Greater Manchester Authorities are keen to work with the Department for Transport to consider an appropriate regulatory device that would require that all private hire journeys within Greater Manchester to be undertaken by a driver and vehicle which are both licensed by one of the ten Greater Manchester local authorities. In context of the GM CAP, this measure would provide local authorities with stronger regulatory tools to improve the emission standards of all private hire fleets operating in Greater Manchester.

1.10.2 Greater Manchester will continue to seek to ensure that the Government takes appropriate action to address exceedances on the A57/A628 a stretch of Strategic Road network, managed by National Highways that cuts through the villages of Hollingworth and Mottram.

1.10.3 Under an investment-led non-charging GM CAP the ANPR cameras installed for the Class C charging CAZ could be used to inform and support the development of investment-led solutions. GM also wants to work with Government to agree the use of the GM CAP ANPR cameras to support identification of vehicles that could be upgraded, and also for potential law enforcement activity related to the detection of crime.

1.11 Participatory Policy Development

1.11.1 The approach to Participatory Policy Development will include engagement with GM based groups representing the protected characteristic groups potentially impacted by the New GM CAP.

1.11.2 Any plan should be developed in conjunction with the residents and businesses in Greater Manchester. The ten Greater Manchester authorities are currently working to develop the New GM CAP, in conjunction with a range of stakeholders. Further participatory approach will ensure that the New GM CAP works for the residents and businesses of Greater Manchester. Greater Manchester will test with vehicle owners their plan that where non-compliant vehicles are identified as contributing to locations where NO₂ exceedances have been modelled, Greater Manchester Authorities will have funding packages to incentivise upgrades to the cleanest possible vehicle, in order to get the greatest emissions reduction.

1.12 Next steps

- 1.12.1 Before the Air Quality Administration Committee can confirm the submission as an agreed document there needs to be an opportunity for the 'Case for a New Greater Manchester CAP' document and associated appendices attached as **Appendix A-E** to be considered, as required, through the local governance arrangements of the individual authorities. This will take place in the next month and before the next Air Quality Administration Committee who can then formally confirm the submission as final.
- 1.12.2 Following the Participatory Policy Development process, Greater Manchester will develop, assess and agree a package of measures forming a proposed New GM CAP. This package of measures will be consulted upon in early 2023.
- 1.12.3 Greater Manchester will review the responses to the consultation and make any adaptations to the proposals as necessary. It is anticipated that a decision could be made to proceed with the New GM CAP in July 2023.

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2 Introduction

- 2.1.1 The Government has instructed many local authorities across the UK to take quick action to reduce harmful roadside levels of Nitrogen Dioxide (NO₂) following the Secretary of State (SoS) issuing a Direction under the Environment Act 1995. In Greater Manchester, the 10 local authorities, the Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM) are working together to develop a Clean Air Plan to tackle NO₂ exceedances at the Roadside, herein known as Greater Manchester Clean Air Plan (GM CAP).
- 2.1.2 The GMCA – Clean Air Final Plan report on 25 June 2021⁵ endorsed Greater Manchester’s Final CAP and policy following a review of all of the information gathered through the GM CAP consultation and wider data, evidence and modelling work. Throughout the development of the previous Plan, JAQU reviewed and approved all technical and delivery submissions. The Plan was agreed by the ten Greater Manchester local authorities. Within this document, this is referred to as the Previous GM CAP.
- 2.1.3 On the 8th February 2022, a new Direction was issued by the SoS⁶ which confirmed that the March 2020 Direction to implement a Class C charging Clean Air Zone (CAZ) had been revoked and required that a new plan be submitted to the SoS by 1st July 2022 which should:⁷
- review the measures specified in the local plan for NO₂ compliance and associated mitigation measures; and
 - determine whether to propose any changes to the detailed design of those measures, or any additional measures.
- 2.1.4 The Direction also states that the local plan for NO₂ compliance must ensure the achievement of NO₂ compliance in the shortest possible time and by 2026 at the latest. It should also ensure that human exposure to concentrations of NO₂ above the legal limit is reduced as quickly as possible.
- 2.1.5 Within this document, this new Plan, and any subsequent further development of the new Plan, is referred to as the New GM CAP.

⁵ Also considered by the Greater Manchester authorities through their own constitutional decision-making arrangements.

⁶

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1054931/Environment_Act_1995_Greater_Manchester_Air_Quality_Direction_2022.pdf

⁷ In addition to recommendations about interim arrangements for changes to delivery arrangements for the CAZ in the meantime, including signage, funding and discount/exemption applications.

2.1.6 The development of the GM CAP is funded by Government and overseen by the Joint Air Quality Unit (JAQU), a joint DEFRA and DfT unit established to deliver national plans to improve air quality and meet legal limits of NO₂ concentrations. The costs related to the business case, implementation and operation of the GM CAP are either directly funded or underwritten by Government acting through JAQU and any net deficit over the life of the GM CAP will be covered by the New Burdens Doctrine, subject to a reasonableness test.⁸

2.2 What does this document set out?

2.2.1 This document sets out the case for Greater Manchester's proposal for a New GM CAP. It sets out why the ten local authorities of Greater Manchester believe that an investment-led non-charging GM CAP is the best solution to address the region's NO₂ problem, highlighting:

- A summary of the background to the GM CAP to date;
- What the Greater Manchester authorities are already doing to improve air quality through the work undertaken to date on the GM CAP and via other strategies and investments;
- How economic conditions have changed over the last year, both globally and locally, and how this has impacted Greater Manchester's residents and businesses;
- The current position and the way forward, to include a further submission to Government later in the year;
- Equality impact considerations; and
- Next steps.

2.2.2 This document does not provide the detailed design of a New GM CAP. In conjunction with a range of stakeholders, as detailed within **Section 15**, the ten Greater Manchester authorities are currently working to develop that detail collaboratively and will submit this to Government in due course. The collaborative approach is referred to in this document as the 'participatory policy development' approach.

⁸ The new burdens doctrine is part of a suite of measures to ensure Council Taxpayers do not face excessive increases.

3 Why are Greater Manchester and the Government taking action on NO₂?

- 3.1.1 Poor air quality has a real and significant effect on people's health. Air pollution is the largest environmental risk linked to deaths every year. Pollutants such as NO_x, principally NO₂, and PM (PM_{2.5} and PM₁₀) that are not visible to the naked eye are found at harmful levels in many urban areas across the UK and particularly on busy roads.
- 3.1.2 Breathing in polluted air contributes to the equivalent of 1,200 premature deaths a year in Greater Manchester.⁹ Both long- and short-term exposure to air pollution are known to adversely affect health. It affects people's lungs in the short and long term, worsening respiratory issues such as asthma or bronchitis, as well as cardiovascular problems, and reduces life expectancy¹⁰. Health damage caused by air pollution can begin as early as a baby's first few weeks in the womb and exposure over a long time can lead to heart and lung disease. Some of the most vulnerable in society are hit hardest – children, older people and those already in poor health.
- 3.1.3 There has been analysis conducted by the Office for National Statistics (ONS) to understand whether exposure to air pollution increases the risk of dying from Covid-19. Although there is caution expressed regarding the link between air pollution and Covid-19 and consideration of other factors, early evidence from the pandemic showed that Covid-19 deaths were more common in highly polluted areas. In total, it is estimated that the health and social care costs of air pollution in England could reach £5.3bn by 2035 unless action is taken.¹¹
- 3.1.4 Greater Manchester has a particular imperative to improve health, as the region has one of the lowest life expectancies at birth in England and significant health inequalities between areas. For example, there is an 18-year gap for men and a 13-year gap for women in healthy life expectancy across Greater Manchester when comparing those areas of highest healthy life expectancy with the lowest.¹² Low-income communities are more affected by air pollution. Achieving a major improvement in air quality across Greater Manchester will not only be important for improving human health but will also help to make Greater Manchester a more attractive place to live, visit and invest. Alongside this, there is a growing body of evidence that relates poor air quality with a secondary set of health impacts arising from spending less time outside, which can lead to more sedentary lifestyles and negative psychological effects on our mental health.¹³

⁹ Public Health England – Air Quality in Greater Manchester – from a Public Health Perspective (September 2018)

¹⁰ <https://www.local.gov.uk/air-quality-briefing-directors-public-health>

¹¹ <https://www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality>

¹² <https://blog.policy.manchester.ac.uk/posts/2016/10/life-on-the-line-life-expectancy-and-where-we-live/>

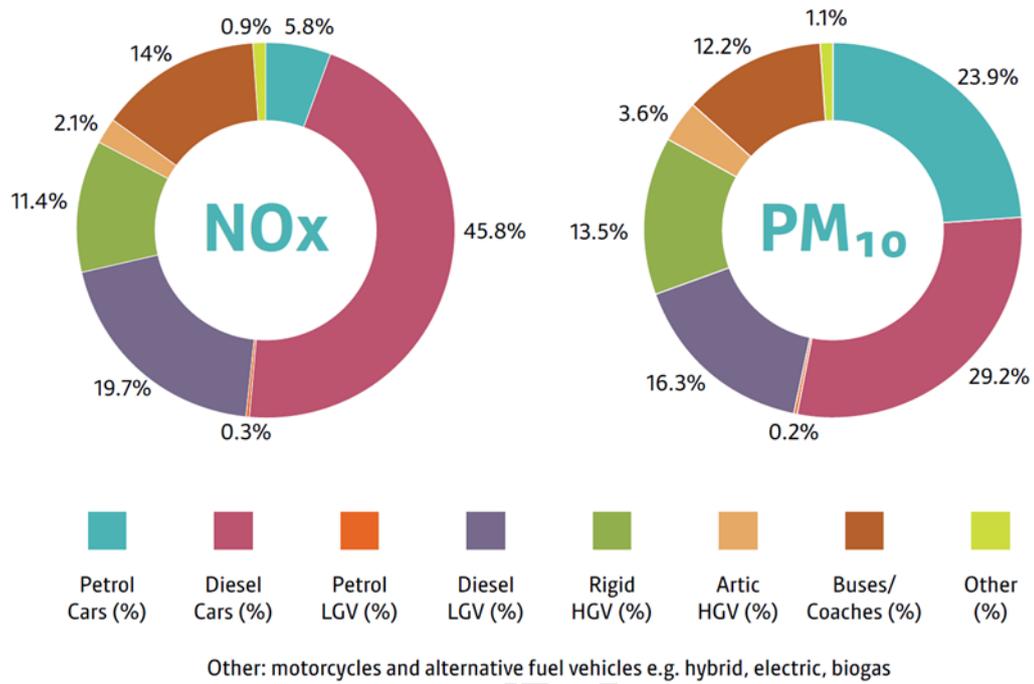
¹³ https://paa.confex.com/paa/2017/mediafile/ExtendedAbstract/Paper13493/IndividualPsychologicalDistress_April7.pdf

- 3.1.5 The people living in places with the dirtiest air are often those least likely to drive, and some of Greater Manchester's most deprived communities suffer the worst air pollution, living close to busy roads. A Public Health England review in 2019 described air pollution as the largest environmental risk to the public's health, reporting strong evidence of the association between air pollution and cardiovascular and respiratory disease and emerging evidence of other possible health effects such as dementia, low birth rates and diabetes. Around 7% of Greater Manchester's population, nearly 200,000 people, live in areas with roads that are close to or in exceedance of the Limit Value for NO₂ and many more people regularly spend time visiting these areas and travelling on these roads.
- 3.1.6 In our society, the youngest, oldest, those living in more deprived places, and those with existing heart or lung problems are at the greatest risk of developing symptoms due to exposure to air pollution.^{14,15} Greater Manchester contains some of the most deprived communities in the country, often living in urban areas with high levels of traffic. Conditions caused or exacerbated by air pollution may significantly reduce quality of life and can result in affected people being less able to work, attend education or carry out their normal daily lives. These impacts in turn widen the health inequality gap further. Further discussion of these equalities considerations is provided in **Section 13** and it is planned that a full Equalities Impact Assessment (EqIA) will be published based on the New GM CAP.
- 3.1.7 Diesel vehicles are the main source of road-based NO_x emissions in Greater Manchester, as shown in **Figure 1**, and older vehicles are typically more polluting than newer vehicles.

¹⁴ Air Quality – A Briefing for Directors of Public Health (2017), <https://www.local.gov.uk/air-quality-briefing-directors-public-health>

¹⁵ RCP and RCPCH London, Every breath we take lifelong impact of air pollution (2016), <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>

Figure 1 Vehicles responsible for emissions damaging to health in Greater Manchester¹⁶



¹⁶ <https://www.greatermanchester-ca.gov.uk/media/1276/low-emission-strategy-dec-2016.pdf>

4 What has led to Greater Manchester revising its approach to the GM CAP?

- 4.1.1 Since 2010, the UK has been in breach of the legal limits for concentrations of NO₂ in major urban areas. The Air Quality Standards Regulations 2010 implemented the Ambient Air Quality Directive (2008/50/EC), which sets legally binding limits for concentrations of major air pollutants that affect human health, including NO₂ and particulates, into English law, and requires the SoS to draw up and implement a national air quality plan to achieve the relevant limit within the 'shortest possible time'.
- 4.1.2 In 2015 compliance with the legal limits of NO₂ 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.
- 4.1.3 In July 2017 the UK Government published its Air Quality Plan requiring local authorities with persistent exceedances to undertake local action to consider the best option to meet the legal NO₂ Limit Value in the shortest possible time. In the same month, the SoS issued a Direction under the Environment Act 1995 requiring seven Greater Manchester local authorities to produce a feasibility study to identify the option which will deliver compliance with the requirement to meet legal limits of NO₂ in the shortest possible time¹⁷.
- 4.1.4 Oldham Metropolitan Borough Council (MBC) was not directed along with the other Greater Manchester local authorities (alongside Rochdale MBC and Wigan MBC) in 2017, however following a court ruling in 2018¹⁸ the UK Government was ordered to produce supplements to the UK 2017 Air Quality Plan.
- 4.1.5 Consequently, Oldham MBC was directed to conduct a feasibility study and provide the SoS with a document setting out the measure(s) that would achieve compliance with the Legal Limits in the shortest possible time.
- 4.1.6 In October 2018 the UK Government produced a supplemental plan,¹⁹ which acknowledged that, as Oldham MBC is part of the Greater Manchester Plan, the Oldham exceedances were being considered as part of the GM CAP. Local modelling in the Target Determination exercise also identified exceedances in Rochdale and Wigan.

¹⁷ Environment Act 1995 (Feasibility Study for Nitrogen Dioxide Compliance) Air Quality Direction 2017. Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746095/air-quality-no2-plan-directions-2017.pdf

¹⁸ Client Earth (No3) v (1) Secretary of State for the Environment, Food & Rural Affairs; (2) The Secretary of State for Transport and (3) Welsh Ministers [2018] EWHC 315.

¹⁹ Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations October 2018.

- 4.1.7 The Greater Manchester authorities have collaborated on the preparation of the GM CAP since 2017, with the clear intention of securing a Plan in agreement with Government that best reflects both the impact of NO₂ roadside emissions at a city-region level and the wider strategies for social, economic and environmental improvement in Greater Manchester.
- 4.1.8 Throughout the development of the GM CAP the local authorities have made clear the expectation that the Government would support the plans through:
- Clear arrangements and funding to develop workable, local vehicle scrappage / upgrade measures;
 - Short term effective interventions in vehicle and technology manufacturing and distribution, led by national Government;
 - Replacement of non-compliant buses; and
 - A clear instruction to Highways England²⁰ to implement measures which deliver compliance with legal limits for NO₂ on the strategic road network, for which they are responsible, in the shortest possible time.²¹
- 4.1.9 In March 2019, all ten Greater Manchester local authorities collaboratively submitted an Outline Business Case (OBC) for the GM CAP to JAQU outlining a package of measures (including a Class C charging CAZ) to deliver regional compliance with the Limit Value for NO₂ concentrations. The OBC and associated documentation are available to view on the Clean Air Greater Manchester website.²²
- 4.1.10 Ministerial feedback was received in July 2019 along with a further Direction under the Environment Act 1995 requiring all ten of the Greater Manchester local authorities to implement a Class C²³ charging CAZ across the region.
- 4.1.11 This was superseded by a further Direction issued in March 2020 which required the ten Greater Manchester authorities to implement the GM CAP so that:
- (a) compliance with the legal Limit Value for NO₂ is achieved in the shortest possible time and by 2024 at the latest; and
 - (b) exposure to levels above the legal limit for NO₂ are reduced as quickly as possible.

²⁰ On 19 August 2021 it was announced that Highways England changed its name to 'National Highways' reflecting the new focus the company has on delivering the government's £27bn strategic roads investment programme, while also continuing to set highways standards for the whole UK.

²¹ Greater Manchester Authorities are directed to take action on the local road network. Those roads managed by National Highways, such as motorways and trunk roads are excluded from the CAP.

²² Accessible at: <https://cleanairgm.com/technical-documents/>

²³ The following vehicle types would be charged under a charging CAZ Class C: Buses, coaches, taxis, private hire vehicles, heavy goods vehicles, vans, minibuses. Source: <https://www.gov.uk/guidance/driving-in-a-clean-air-zone>

- 4.1.12 Throughout 2020/2021, progress was made by Greater Manchester in preparing to implement a Class C charging CAZ across the region with Government, including the procurement of operational services, operational readiness and implementation of infrastructure to support a Class C charging CAZ to be operational from 30 May 2022.
- 4.1.13 The GMCA – Clean Air Final Plan report on 25 June 2021²⁴ endorsed Greater Manchester’s Final CAP and policy following a review of all of the information gathered through the GM CAP consultation and wider data, evidence and modelling work. Throughout the development of the Previous GM CAP, JAQU reviewed and approved all technical and delivery submissions. The Previous GM CAP was agreed by the ten Greater Manchester local authorities. This included the GM CAP Policy, that outlined the boundary, discounts, exemptions, daily charges of the Class C charging CAZ as well as the financial support packages offered towards upgrading to a compliant vehicle, including the eligibility criteria to be applied with an agreement to keep funding arrangements under review. The aim of the funding was to support an upgrade to a compliant vehicle and to mitigate the negative socio-economic effects of a Class C charging CAZ.
- 4.1.14 Concurrently, Greater Manchester has already begun to implement measures to improve air quality across the city-region, launching the Clean Bus Fund and Clean Heavy Goods Vehicle (HGV) Fund in December 2020 and November 2021 respectively as well as expanding the network of Electric Vehicle chargers across Greater Manchester. Since May 2021, over 1,000 buses have been awarded funding to upgrade their vehicles by either retrofit or replacement. Additionally, over 300 HGVs have been awarded funding through the Clean HGV Fund. Greater Manchester is also implementing a number of additional schemes that will have a positive impact upon air quality across the region and further detail on this is set out in **Section 6**.
- 4.1.15 In Summer 2021 when the Previous GM CAP was agreed by the Greater Manchester Authorities, there was only evidence of a temporary disruption in vehicle supply due to the pandemic in 2020, which was assumed to be addressed by the market, with the Society of Motor Manufacturers and Traders (SMMT) predicting some level of ‘catch up’.²⁵ Greater Manchester sought a number of measures to address this, including negotiating improved vehicle replacement funding with Government in early 2021 to reflect our understanding of the impact of the pandemic at that stage.

²⁴ Also considered by the Greater Manchester authorities through their own constitutional decision-making arrangements.

²⁵ https://assets.ctfassets.net/tlpgbvy1k6h2/2ZMJ3DJXiv7p3xOeZu4CYQ/247196ef60e33ac89f7f8938e1e16418/Appendix_6D_GM_proposed_approach_to_representing_the_impact_of_Covid-19_in_core_modelling_scenarios.pdf

- 4.1.16 Consultants Arup and AECOM were commissioned in late 2021²⁶ to analyse and report on the market conditions within the LGV sector in particular. The investigation found evidence that the used van market had materially changed, with evidence suggesting that second-hand van prices had increased by between 13% and c.60% since the modelling for the Previous GM CAP had been undertaken.
- 4.1.17 GM concluded that at that level, fewer van owners would choose to (or be able to) upgrade in response to the Class C charging CAZ, devaluing the funding offer for vans, with the Previous GM CAP being particularly sensitive to van prices given their number in Greater Manchester.
- 4.1.18 At the same time, in early 2022, analysis carried out as part of GM's ongoing commitment to review vehicle sales trends also found that sales of new private cars had been lower than expected in 2021, reducing the natural rate of fleet upgrade, indicating that the impacts of an older fleet of private cars based on recorded sales would be expected to lead to a delay in the predicted year of compliance for the Previous GM CAP, irrespective of any other changes to the assumptions.
- 4.1.19 GM concluded that independently either factor could be sufficient to delay compliance beyond 2024 and that this risk would be amplified if both factors are occurring simultaneously. In light of the above, the Greater Manchester Air Quality Committee requested that the SoS agreed to pause opening of the next phase of the Clean Air Funds at the end of January to enable an urgent and fundamental joint policy review with Government to identify how a revised policy can be agreed to deal with the supply issues and local businesses' ability to comply with the GM CAP.
- 4.1.20 Following this, the Greater Manchester Mayor met the SoS for Environment to relay the issues set out above and the formal request for suspension. It was agreed that further evidence would be shared between officials and a report was prepared by Greater Manchester, *Issues Leading to Delayed Compliance Based on the Approved GM CAP Assumptions*.²⁷
- 4.1.21 This report was shared with JAQU on 2 February 2022. It concluded that the Previous GM CAP could no longer be expected to achieve compliance in 2024.
- 4.1.22 On 4 February 2022 Jo Churchill, Parliamentary Under-SoS at the Department for Environment, Food and Rural Affairs, Andy Burnham, Mayor of Greater Manchester and Cllr Andrew Western, GMCA portfolio lead for clean air met to find a solution. Subsequently, a new Direction was issued to Greater Manchester, requiring a review of the GM CAP with any revised proposals to achieve compliance in the shortest possible time and by 2026 at the latest.²⁸

²⁶ [https://democracy.greatermanchester-ca.gov.uk/documents/s18685/ARUP Technical Note.pdf](https://democracy.greatermanchester-ca.gov.uk/documents/s18685/ARUP%20Technical%20Note.pdf)

²⁷ [https://democracy.greatermanchester-ca.gov.uk/documents/s19330/Appendix 3 Issues leading to delayed compliance report.pdf](https://democracy.greatermanchester-ca.gov.uk/documents/s19330/Appendix%203%20Issues%20leading%20to%20delayed%20compliance%20report.pdf)
(greatermanchester-ca.gov.uk)

²⁸ [The Environment Act 1995 \(Greater Manchester\) Air Quality Direction 2022 \(publishing.service.gov.uk\)](#)

4.1.23 This new (2022) Direction revoked the Direction dated March 2020 which required the ten Greater Manchester local authorities to implement a Class C charging CAZ so as to achieve compliance with the legal Limit Value for NO₂ in the shortest possible time and by 2024 at the latest.²⁹

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²⁹ [Appendix 2 - 200316 Greater Manchester NO2 Plan Direction.pdf \(greatermanchester-ca.gov.uk\)](#)

5 What has changed since Summer 2021?

- 5.1.1 The Previous GM CAP was developed based upon the best evidence available at the time and following prescribed Government guidance. After the initial OBC submission, a series of technical notes were published setting out the results of analysis and research carried out to better understand the vehicles in scope for the scheme. This evidence formed the basis of the development of the Option for Consultation.
- 5.1.2 From March 2020, it became clear that the pandemic would affect the GM CAP; a programme of work was carried out in 2020/2021 to better understand the possible impacts of the Covid-19 pandemic on the Plan, published as the *Impacts of Covid Report* in June 2021.³⁰ This evidence, alongside feedback from the Consultation, was used to inform the GM CAP following consultation as approved by the ten Greater Manchester local authorities in June/July 2021.
- 5.1.3 At that time, Greater Manchester identified a number of possible risks to the GM CAP, which included concerns about the risk of vehicle price increases and the impact of any further lockdowns in the UK or countries in the supply chain. To evaluate the case for a New GM CAP, analysis into the changed economic environment has been conducted to determine whether the Previous GM CAP remains fit for purpose (**Appendix E**). Additionally, a series of vehicle evidence papers have been developed, as set out in **Appendix A to D**, to evaluate the ability of affected vehicle owners to upgrade their vehicles following the impacts on the global supply chain and the cost-of-living crisis.

5.2 Economic context

- 5.2.1 The economic context in the UK has changed dramatically in the period since July 2021. A range of factors associated with the pandemic, global supply chain challenges, and the cost-of-living crisis have combined to create a context of increased financial hardship for businesses and families. As a result of these changed conditions since Summer 2021 and the Previous GM CAP, Greater Manchester has undertaken research to understand the size and scale of the impacts. It should be noted that these factors continue to evolve, and the economic forecast is currently extremely difficult to predict. These levels of uncertainty only exacerbate the negative impact on businesses and households.
- 5.2.2 A summary of the outcomes of this research are set out as follows:
- National / international drivers;
 - Regional (North West) drivers; and
 - Factors specific to Greater Manchester.

³⁰ Accessible at: <https://cleanairgm.com/technical-documents/>

(1) National / international drivers

War in Ukraine (commenced late February and on-going)

5.2.3 Global inflationary pressures have intensified sharply following Russia's invasion of Ukraine. This has led to a material deterioration in the economic outlook for world and UK growth.³¹ In addition, Consumer Price Index inflation is expected to rise further over the remainder of the year, to just over 9% in 2022 Quarter 2 and averaging slightly over 10% at its peak in 2022 Quarter 4.³²

5.2.4 The war in Ukraine is also influencing the cost of energy and food as summarised below:

- Russia is a prominent exporter of energy, producing 17% of the world's natural gas supply and 12% of its oil³³. 8% of UK oil demand is directly imported from Russia, this is to be phased out by end of 2022, a move which could serve to place extra stress on prices; and
- Russia and Ukraine are major agricultural exporters in grain, impacting food community prices with a 30% increase in the price of wheat and c.20% in the price of maize/corn since the war started.^{34,35}

Increases in the cost of energy

5.2.5 The energy price cap calculated by Ofgem increased by 12% in October 2021 to £1,277. Additionally, an increase to the price cap in April 2022 resulted in approximately 17 million households seeing their annual bill raise by 54% to £1,971, equating to a £693 increase (difference due to rounding). A further increase to the price cap is expected in October 2022 of c.£700-£850.³⁶

5.2.6 Unlike residential households, businesses on commercial energy tariffs are not protected by any price cap and tariff prices have been rising in reaction to the spike in wholesale energy prices around the world. Small businesses have a greater tendency to operate on tighter margins and have cashflow restrictions and are therefore more susceptible to increases in running costs. Furthermore, they are more likely to be forced to pass on their running cost increases to consumers through price hikes, just in order to survive. This has potential to put them at a competitive disadvantage.

³¹ <https://www.bankofengland.co.uk/-/media/boe/files/monetary-policy-summary-and-minutes/2022/monetary-policy-summary-and-minutes-may-2022.pdf>

³² <https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/consumerpriceinflation/april2022>

³³ <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/country-and-regional-insights/russia.html>

³⁴ <https://www.fao.org/3/cb9236en/cb9236en.pdf>

³⁵ <https://tradingeconomics.com/commodities>

³⁶ https://obr.uk/docs/dlm_uploads/CCS0222366764-001_OBR-EFO-March-2022_Web-Accessible-2.pdf

Increases in the cost of fuel for motorists

- 5.2.7 Fuel prices have risen by 42% for petrol and 44% for diesel vehicles between July 2021 and June 2022, costing consumers an additional £0.55 for petrol and £0.59 for diesel per litre³⁷. Fuel price increases will particularly affect vehicle-operating businesses with high mileage such as the logistics and delivery sectors, with press reports that the annual cost to fuel an HGV has risen up to £20,000 per year.³⁸

Increasing cost of food and other products

- 5.2.8 Inflationary pressures have pushed up grocery prices by an additional £271 (5.9%) for each household per year.³⁹ This is likely to have a disproportionate impact on the poorest in society with their ability to absorb any additional costs comparatively diminished.

Ongoing global impacts of Covid-19

- 5.2.9 Shanghai, which is home to the world's largest container port, has been the subject of city-wide lockdown during April 2022 related to the Omicron variant. Global supply chains that were already stretched are being hampered further⁴⁰.
- 5.2.10 The global semi-conductor shortage is still impacting consumer products with retailers expected to increase costs.⁴¹ Intelligence from the Bank of England's Agency network suggests that shortages of semi-conductors have been exacerbated by recent lockdowns in China. Contacts also reported difficulties in obtaining components and other inputs owing to the war in Ukraine, and were seeking alternative suppliers or running down existing stockpiles to support output.⁴²

How the impact of inflation is distributed across society

- 5.2.1 Evidence from an independent think tank, the Resolution Foundation, has stated that the poorest tenth of households (by income) spend three times as much as a share of expenditure on gas and electricity bills as the richest tenth. This means the lowest income tenth of people are facing an inflation rate at least 1.5 percentage points higher than the richest tenth. The Bank of England has warned the UK could see double-digit inflation later this year.⁴³

³⁷ <https://www.rac.co.uk/drive/advice/fuel-watch/>

³⁸ <https://www.bbc.co.uk/news/business-61716039>

³⁹ <https://www.kantar.com/inspiration/fmccg/2022-wp--uk-shoppers-look-out-value-as-grocery-inflation-hits-11-year-high>

⁴⁰ <https://www.controlrisks.com/our-thinking/insights/china-lockdowns-prompt-domestic-shortages>

⁴¹ <https://www.popsci.com/technology/global-chip-shortage/> :-:text=What%20is%20the%20chip%20shortage,rippled%20up%20the%20supply%20chain.

⁴² <https://www.bankofengland.co.uk/-/media/boe/files/monetary-policy-report/2022/may/monetary-policy-report-may-2022.pdf>

⁴³ <https://www.resolutionfoundation.org/publications/cap-off/>

Interest Rate Changes

- 5.2.2 In response to rising inflation, the Bank of England has increased interest rates from 0.25% in January 2022 to 1.25% in June 2022. This has had a direct impact on the cost of borrowing with rates on lending to small and medium-sized enterprises rising by around 110 basis points between January and March this year and are now slightly above their 2019 levels. While larger firms' ability to access credit is broadly unchanged, credit conditions have tightened slightly for smaller firms since January 2022.⁴⁴

Removal of Government Covid-support schemes

- 5.2.1 The UK Government has withdrawn funding for Covid-19 support schemes such as the job retention (furlough) scheme, enhanced sick pay, business rates pauses, and the Universal Credit uplift across end of 2021 and Q1 of 2022.^{45,46}

Revised Projections for UK GDP Growth

- 5.2.2 The Bank of England estimates that quarterly UK Gross Domestic Product (GDP) growth was 0.9% in 2022 Q1. Growth slowed sharply over the first half of the year, reflecting the significant adverse impact of higher global commodity and tradable goods prices on UK demand. GDP is projected to fall in 2022 Q4, driven largely by the decline in households' real incomes, including that stemming from the projected rise of around 40% in retail gas and electricity prices when the Ofgem price caps are next reset in October. Calendar year GDP growth is forecast to be broadly flat in 2023. Q4 GDP growth picks up to around 0.75% by the end of 2023 as the pressures on household incomes ease somewhat, although this is still below pre-pandemic rates.⁴⁷

(2) Regional (North West) drivers

- 5.2.3 Regionally, the biggest driver in terms of the economic factors that influence the GM CAP, is the labour market, which shows a mixed picture as the economy recovers from the Covid-19 pandemic.
- 5.2.4 Whilst labour market data released by the ONS showed that the employment rate in the North West continued to fall, with the gap between the North West and the UK at its widest in two years in the Jan-March 2022 data (a gap of 2%). Nationally, the employment rate for the UK was 75.7% - up from 75.5% in the three months to February. The North West therefore seems to be on a different trajectory from wider UK patterns.⁴⁸

⁴⁴ <https://www.bankofengland.co.uk/-/media/boe/files/monetary-policy-report/2022/may/monetary-policy-report-may-2022.pdf>

⁴⁵ <https://commonslibrary.parliament.uk/examining-the-end-of-the-furlough-scheme/>

⁴⁶ <https://www.gov.uk/guidance/claim-back-statutory-sick-pay-paid-to-employees-due-to-coronavirus-covid-19>

⁴⁷ <https://www.bankofengland.co.uk/-/media/boe/files/monetary-policy-report/2022/may/monetary-policy-report-may-2022.pdf>

⁴⁸ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/regionallabourmarket/latest>

5.2.5 An increase in working age economic inactivity has attracted national attention. In the North West of England, the Covid-driven rise is more marked than the national average. As well as the inactivity rate returning to a pandemic high of 23.5% in the most recent data, the gap with the UK has widened once more (2.1ppts).⁴⁹

(3) Factors specific to Greater Manchester

Greater Manchester business composition

5.2.6 Based on 2021 data, Greater Manchester has more small businesses (+c.15,000) compared to other areas of comparable total and working age populations such as the West Midlands.⁵⁰

Outlook for Greater Manchester businesses

5.2.7 A report by the Growth Company in May 2022 collated 246 surveys with businesses (almost all who responded were based in Greater Manchester) undertaken during April 2022.⁵¹ The report stated that a growing concern was the proportion of businesses facing business finance challenges (43% vs 33% March 2022) and increasingly impacted by the rising costs of raw materials - April 2022 reported a value of 28% vs. 16% for July 2021.

5.2.8 Recruitment has been a key challenge for businesses, with total vacancies across all sectors having been at high levels over 2021/2022 – resulting in some businesses facing significant challenges in staffing their operations - Manchester Airport being a key example. Transport operators such as bus, coach and taxi operators have faced driver shortages as the economy emerges out of the pandemic. This has in part been driven by an increase in economic inactivity brought about by the pandemic with the size of the workforce available to Greater Manchester businesses likely having shrunk (in the North West during Jan-March 2022 the working age inactivity rate (the number of people who are not in work and not looking for a job) was 23.5% vs. a national inactivity rate of 21.4% - this is higher than it was at the beginning of 2020).⁵²

Wages in Greater Manchester

5.2.9 Median pay in Greater Manchester is over £100 a month below the UK median based upon ONS 'experimental' data (note: this data is unadjusted for inflation and indicates the trend only).⁵³ The wage gap was at its widest in January of 2022 (£127 a month).

⁴⁹

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/regionallabourmarket/latest>

⁵⁰ <https://www.nomisweb.co.uk/sources/ukbc>

⁵¹ <https://www.businessgrowthhub.com/coronavirus/business-survey>

⁵²

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/may2022>

⁵³

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/realtimeinformationstatisticsreferencetableseasonallyadjusted>

Understanding the Greater Manchester residential population

- 5.2.10 53% of Greater Manchester's residential population is classified as either 'Financially Stretched'⁵⁴ or 'Urban Adversity'⁵⁵ based on the Acorn segmentation tool categories, whereas across the UK this figure stands at just 40%. This disparity demonstrates the comparative economic vulnerability of the Greater Manchester population to inflation associated with non-discretionary spend.⁵⁶
- 5.2.11 For 'Financially Stretched' and 'Urban Adversity' households, disposable income is typically well below average, and often below £10,000. This means that those with limited disposable income are likely to be even more vulnerable to any costs that may be passed onto them. It also serves as a reminder that Greater Manchester businesses that predominately serve local markets could be particularly vulnerable to weakening consumer demand.
- 5.2.12 Launched in October 2020 during the Covid-19 pandemic, the Greater Manchester Independent Inequalities Commission undertook a six-month analysis of inequalities across the city region, resulting in the *Good Lives for All in Greater Manchester report*.⁵⁷ Amongst the findings, the report highlights the health inequalities experienced across the city region and recommended that wellbeing and equality goals sit at the heart of the Greater Manchester Strategy, and that universal basic services are accessible to the most disadvantaged groups. The findings of the report will inform the planned EqIA for the New GM CAP.

Economic conditions summary

- 5.2.13 UK inflation reached a 40-year high of 9% during April 2022, up from 2% in July 2021. It is widely accepted that inflation will increase to higher levels still during the remainder of 2022, with evidence already pointing to consumer demand being dampened. Inflationary pressures are already having a significant impact on household bills with the average annual grocery bill on course to rise by £380 according to research conducted by Kantar.⁵⁸
- 5.2.14 Greater Manchester is not insulated from the impacts of high inflation, in fact in some respects it is particularly vulnerable - noting its relatively high volume of small businesses, and a higher than average (compared to the UK) proportion of residents who typically have below average disposable household incomes.

⁵⁴ This category contains a mix of traditional areas of Britain. Incomes tend to be well below average. Although some have reasonably well paid jobs more people are in lower paid administrative, clerical, semi-skilled and manual jobs. Apprenticeships and O levels are more likely educational qualifications. Unemployment is above average as are the proportions of people claiming other benefits.

⁵⁵ This category contains the most deprived areas of large and small towns and cities across the UK. Household incomes are low, nearly always below the national average. The level of people having difficulties with debt or having been refused credit approaches double the national average. The numbers claiming Jobseeker's Allowance and other benefits is well above the national average. Levels of qualifications are low and those in work are likely to be employed in semi-skilled or unskilled occupations.

⁵⁶ Source: Acorn 2021. CACI Limited. The applicable copyright notices can be found at <http://www.caci.co.uk/copyrightnotices.pdf>

⁵⁷ <https://www.greatermanchester-ca.gov.uk/media/4605/the-next-level-good-lives-for-all-in-greater-manchester.pdf>

⁵⁸ <https://www.kantar.com/uki/inspiration/fmcg/2022-wp-uk-grocery-bills-to-rise-by-380-per-year-but-inflation-fails-to-dampen-iubilee-joy>

- 5.2.15 The Bank of England has already responded by increasing the base rate to 1.25% (up from 0.1% in July 2021) - signalling that further rate rises are likely. This in turn will increase the cost of borrowing to both businesses and residents who require finance and are not protected by fixed rates. Meanwhile the Bank of England's Monetary Policy Report (May 2022) points to an expectation that GDP will fall in Q4 2022 and may be 'broadly flat' during 2023.
- 5.2.16 In summary, any intervention, such as a charging CAZ, that could see businesses forced to pay additional charges and potentially pass costs on to the consumer, could have severe consequences for those groups who are already struggling to cope with the cost of living crisis.

5.3 Vehicle sector impacts

- 5.3.1 Greater Manchester has undertaken research to understand the changed conditions within the vehicle market and subsequent impacts from the economic factors, as discussed in **Section 5.2**, and lasting impacts from the Covid-19 pandemic. The research has been structured into a set of vehicle evidence papers which are provided within **Appendix A – D** and include total vehicle numbers, vehicle type apportionment and non-compliant proportions. The findings are summarised below:

LGV

- 5.3.2 A summary of the LGV sector impacts has been provided below:
- Pre-pandemic, there was significant growth in LGV mileage and LGV stock over a number of years and the expectation was that both growth trends would continue.
 - However, whilst the early phases of the pandemic and subsequent lockdowns and restrictions in 2020 constrained demand, it appears that this effect was temporary and has been offset by growth in demand from some LGV-owning sectors.
 - The pandemic had a major impact on the number of new LGVs sold in the UK, initially due to the halting of production lines and local lockdowns around the world.
 - Whilst new LGV sales recovered to some extent in 2021, they are still not back to 2019 levels and so there is a substantial 'lost supply' that has not been recovered equating to 80,000 vehicles on a conservative assumption that 2019 levels had been maintained.
 - The global semiconductor (an element of electronic circuits) shortage has also impacted the automotive industry and its effects are ongoing.
 - The industry is reporting significant supply issues with extended lead times for new orders.

- It is anticipated that the introduction of CAZs at particular locations in the UK will introduce some regional disparity in terms of the availability of certain vehicles and place additional demand pressure on the market in general.
- Reliable data on the variation in the price of new LGVs as a consequence is not available as it is commercially sensitive.
- There is substantial evidence of significant price increases in the second-hand LGV market – the scale of those rises has a high degree of variability depending on the particular vehicle. The extent of the reported rise varies between 13% and almost 60%.
- Overall, the evidence suggests that demand for new and second-hand LGVs remains strong, and therefore that the loss of supply caused by lockdowns in 2020 and more recently by the semiconductor shortage is leading to price rises in the new and second-hand markets, and to long lead times for new vehicle orders.

HGV

5.3.3 A summary of the HGV sector impacts has been provided below:

- Whilst HGV traffic was significantly reduced in the early lockdown of spring 2020, the overall volume and usage of HGVs recovered quicker than other modes and has generally returned to pre-pandemic levels.
- HGV purchasing patterns were atypical in 2019 and 2020 as a result in a change in regulation, which meant that 2019 saw much higher than normal HGV sales as vehicle owners brought forward sales to avoid the impact of new vehicle regulations. Therefore, sales in 2020 were expected to be lower than normal and it is difficult to disaggregate this impact from that of the pandemic. Overall, between 2019 and 2020, sales were similar on average to sales in previous years.
- The HGV sector is experiencing significant issues in relation to demand and supply of new vehicles. HGV production has been hampered by the shortages in components, particularly semi-conductors. This shortage has impacted on the ability of manufacturers to meet the increased demand as demand from some sectors grows and the requirement to 'catch up' with lower production in Q2 2020. The issue is so significant that some major manufacturers are not taking new orders for this year.
- Significant price increases have been observed, particularly in the second-hand compliant market. For new vehicles, the more significant issue is availability and lead times as noted above.

- Whilst the situation is fluid, responses from vehicle manufacturers and dealerships suggest that the issue will not be resolved until 2023. This means that higher prices for new and used vehicles and a lack of availability of HGVs are likely to continue throughout 2022.

Taxi (Hackney Carriage and Private Hire Vehicle (PHV))

5.3.4 A summary of taxi sector impacts has been provided below:

- Industries served by the taxi industry have suffered heavily through Covid-19. Leisure trips comprised of over half of all taxi journeys in 2019 with Government restrictions having a significant impact on the leisure market, particularly bars, pubs, restaurants and nightclubs. Equally, other important taxi markets have been constrained during the pandemic, stemming from Government restrictions on commuting, shopping and tourism. Emerging from the pandemic, taxis are older and more non-compliant than previously assumed and there are fewer taxis and taxi drivers operating in Greater Manchester compared to pre-pandemic levels.
- The number of new Greater Manchester-licensed Hackney Carriages and PHVs was significantly lower during the pandemic compared to pre-pandemic levels. The number of Greater Manchester licensed taxis decreased from 2019 to 2022 by 5.4% for PHVs and 7.7.% for Hackney Carriages.
- The average age of Hackney Carriages and PHVs has grown older in 2020 and 2022 compared to pre-pandemic levels (2019) with taxi fleets estimated to be one year older than pre-pandemic.
- There has been no significant shift in fuel types for Hackney Carriage with 89% still fuelled by diesel. However, there has been a shift from diesel to hybrid-electric for PHVs, rising from 14% in 2019 to 29% in 2022. The EV uptake remains very low at less than 1% for both Hackney Carriages and PHVs.
- Hackney Carriages, in particular, are likely to have faced a more significant impact from the Covid-19 pandemic, compared to PHVs, due to their dependency on Manchester City Centre where sectors have been hit the hardest. Both Hackney Carriage and PHV owners are likely to have lower cash reserves to upgrade their vehicles than prior to the pandemic.
- Hackney Carriages are older, more non-compliant and are being upgraded at a slower rate compared to PHVs.

- The ability for Hackney Carriage owners to upgrade their vehicles is likely to be more constrained compared to PHV owners due to the higher cost of replacement vehicles and the likelihood of more substantive Covid-19-related impacts. However, there is some evidence to suggest that whilst Hackney Carriage vehicle prices are stable, and even falling for certain vehicle types (although this is based on very limited evidence), the vehicle prices for new and second-hand compliant PHVs are increasing in-line with rising wider car market vehicle prices. For example, Toyota models increased in price by 21% in 2022 compared to 2019 prices and Skoda Octavia prices increased by 14% in 2022 compared to 2019 prices.

Coach/Minibus

5.3.5 A summary of the coach and minibus sector impacts has been provided below:

- The first UK national lockdown in March 2020 had a significant impact on the coach and minibus market, with many coach and minibus operators either having to stop their services altogether or only operate at a significantly reduced capacity.
- Coach operators can be categorised as offering three types of services:
 - Special regular services (e.g. school travel provision);
 - Regular services; and
 - Occasional services, for example for tourism, leisure and events.
- Other than school services, which are largely back to normal, the ongoing impact on the coach market is dependent on how soon tourism and general travel returns to 'normal' levels. At the present time, that remains uncertain though there has been a general increase in leisure travel in recent months.
- Low margin or not-for-profit minibus operators, such as charity transport providers, rely on customers in order to operate and are likely to have reduced demand during the pandemic due the customers they serve being older and government restrictions, reducing already limited cash reserves to upgrade their vehicles.
- The impact of the pandemic has generally reduced prices for both new and second-hand coaches due to the reduced demand in the sector.
- Conversely the price of new and second-hand minibuses has increased other than for second-hand non-compliant vehicles.

- There is a wider range of organisations / businesses that use minibuses. Local authority, community transport and education related are all likely to be relatively unaffected as they are less demand dependant. But local bus and coach operators and leasing companies will be subject to the same travel demand uncertainties associated with the bus and coach sector.

Conclusion

- 5.3.6 Current economic conditions present new challenges, requiring changes to the GM CAP necessary to mitigate against additional costs to Greater Manchester residents and businesses. Since the Previous GM CAP, agreed in Summer 2021, external factors associated with the pandemic, global supply chain challenges, and the cost-of-living crisis are resulting in additional financial challenges for local residents and businesses.
- 5.3.7 In particular, rising inflation, falling consumer confidence, lack of GDP growth and rising cost of borrowing mean that Greater Manchester's businesses and households are more vulnerable to the impact of increased costs and less able to invest in vehicle upgrades than in July 2021. This has been exacerbated by rising vehicle prices and constraints on the supply of new vehicles, with demand for compliant second-hand vehicles outstripping supply in many sectors.
- 5.3.8 For some sectors, the pandemic is still affecting their businesses with demand not having returned to pre-pandemic levels.
- 5.3.9 Overall, it is clear that current economic conditions mean that imposing a charging CAZ would be an additional cost for local residents and businesses at a time of existing financial challenges, and could potentially lead to job losses and business closures.

6 What is Greater Manchester already doing about poor air quality?

6.1.1 This section sets out:

- What the GM CAP has already delivered to improve air quality; and
- Other ways Greater Manchester is investing in schemes and action to deliver air quality improvements.

6.1.2 Some, but not all, of these developments have occurred since the Previous GM CAP was originally approved in Summer 2021. Therefore, this wider action needs to be taken into account when considering an appropriate New GM CAP for the region.

6.2 What has the GM CAP delivered already?

6.2.1 The GM CAP has already taken steps to improve air quality across the city-region, launching the Clean Bus Fund and Clean HGV Fund in December 2020 and November 2021 respectively. As of May 2022, over 1,000 buses have been awarded funding to upgrade their vehicles. Additionally, over 300 HGVs have been awarded funding through the Clean HGV Fund. This has been supplemented by £3.5m of GM CAP funding to deliver a 30 rapid charging points to encourage the transition to Zero Emission Capable vehicles with installation due to commence in late 2022 and continue throughout 2023.

6.2.2 Greater Manchester has secured £3m of early measures funding in advance of submitting the GM CAP. These funds are being used to promote electric vehicles (EVs) and cleaner choices – this includes:

- **The installation of EV charging points:** These funds are being used for the installation of 24 dual-headed rapid EV charging points. The project is nearing completion with 22 charging points having been installed since 2019 up to May 2022, including the first dedicated taxi charging point. The remaining charging points are scheduled to be complete in 2022. The Greater Manchester Electric Vehicle network, comprising approximately 140 charging points, has transitioned to the Be.EV network, an electric vehicle charging infrastructure provider appointed by TfGM. A taxi membership scheme and EV tariff was introduced in October 2021;
- **Promotion of EVs:** Early measures funding has also been used to promote the use of EVs, EV charging and Greater Manchester's expanded publicly owned network; and
- **Communications campaign:** A communications campaign was delivered to support the wider GM CAP by raising awareness of the need to clean up our air and promote alternative travel options.

6.3 What else is Greater Manchester doing to tackle poor air quality?

- 6.3.1 Over the past decade, investment by Greater Manchester in public transport has been second only to London. Using a blend of funding sources, both local and national, Greater Manchester has delivered a range of key transport infrastructure projects that have helped drive Greater Manchester's regional and local economies. These include Metrolink expansion and improvements, bus priority, smart ticketing and information systems, park and ride sites across the conurbation, channelling investment of around £200m each year to radically enhance clean public transport.
- 6.3.2 This built on the ground-breaking £1.5bn Greater Manchester Transport Fund, which paid for the significant expansion of the zero-emission Metrolink network, the Leigh-Salford-Manchester guided busway, as well as key transport interchanges, supporting town centres and regeneration efforts across the conurbation.
- 6.3.3 Greater Manchester have been awarded around £1.2bn through the CRSTS, which will further expand and integrate the network, focusing on improvements to bus routes, funding zero emission fleets and providing further investment in Greater Manchester's rapidly expanding cycling and walking network.
- 6.3.4 Investment in upgrading buses to zero emission standard has been secured through the Zero Emission Buses Regional Area (ZEBRA) Scheme. £35.8m of funding has been awarded after a joint bid to the DfT submitted by GMCA, TfGM, Stockport Council and Stagecoach Group PLC. The ZEBRA funding will be matched by £37.8m of funds from Stagecoach and topped up with £12.5m from GMCA and will support the introduction of 170 zero emission buses running from Stockport by 2024. This equates to 10 per cent of the whole bus fleet in Greater Manchester.
- 6.3.5 Greater Manchester will be bringing buses back under local control for the first time in the City Region since de-regulation in 1986.⁵⁹ The GMCA will introduce a fully franchised system across three phases starting in 2023. From the two rounds of consultation, 86% of responses to the first consultation period supported the franchising scheme with 82% for the second consultation period from more than 12,500 responses.
- 6.3.6 The ability for Greater Manchester to operate a franchised bus system will allow the GMCA / TfGM to directly control bus emission standards for the first time, for example, enabling the transport authority to direct the exclusive use of zero emission buses along particular corridors or within defined geographical areas where there may be specific air quality issues that need addressing.

⁵⁹ <https://www.gmconsult.org/strategy-team/greater-manchester-bus-consultation/>

6.3.7 From September 2023, Greater Manchester is also planning to introduce 50 new zero emission buses into service with the launch of the Area 1 Bus Franchise in Wigan and Bolton.

6.3.8 Greater Manchester has consistently used its available transport funding to improve public transport and active travel options, thereby encouraging people to travel more sustainably. Greater Manchester works to maximise all opportunities to access funding for the region to make it easier and more appealing to travel by transport choices with lower emissions per person including public transport, bike or on foot. In particular:

- **Transforming Cities Fund 1:** Delivering £160m of major walking and cycling improvements across Greater Manchester, supported by an additional £40m Cycle City Ambition Grant, as well as £83m towards 27 new Metrolink trams and supporting infrastructure, which started to come into service in 2021.
- **Transforming Cities Fund 2:** In the 2018 Autumn budget, Greater Manchester was granted an additional £69.5m (to be spent by 2023). The intention is to prioritise this funding to deliver on improving public transport provision for both existing communities, and housing and employment growth areas identified in the Places for Everyone (formally Greater Manchester Spatial Framework) . In January 2021, GMCA announced the scheme prioritisation for investment including £15m for a new rail station at Golborne, £10m for Quality Bus Transit schemes, £10m contribution to the Greek Street Bridge project in Stockport and £2m for a travel hub (including Park & Ride provision) at Tyldesley. This fund has been incorporated into the City Region Sustainable Transport Settlement Fund.
- **Active Travel Fund:** Greater Manchester has been awarded £15.97m, as part of the £2bn Government fund, to deliver 24 miles of cycling and walking routes and dozens of new neighbourhood interventions. The Fund has been used to sustain the unprecedented levels of walking and cycling, attributed to the impacts of the Covid-19 pandemic, delivering measures across Greater Manchester. The schemes include:
 - 'School Streets', where streets around schools are closed to motorists at school times
 - Active neighbourhoods, where residential side streets are closed to through traffic to stop rat-running
 - Segregated cycle lanes
 - Pedestrian improvements

- **Growth Deal:** Delivering over £400m of improvements through schemes such as Stockport Town Centre Accessibility Improvements, Salford Bolton Network Improvements and Ashton-under-Lyne Interchange. Delivery of the Ashton-under-Lyne Interchange has been completed alongside a number of key centre transport improvements. Going beyond the levels agreed with Government, Growth Deal investment in Greater Manchester is expected to deliver 7,000 jobs and £364m in private sector investment in the next few years.
- **City Region Sustainable Transport Settlement:** On 20 July 2021, DfT issued the guidance for the renamed Intra-City Funding Settlement, now City Region Sustainable Transport Fund (CRSTF) and Settlement (CRSTS) process, which will combine certain elements of existing capital funding (including the Integrated Transport Block, Maintenance Funding, and future years Transforming Cities Funding) in addition to the new £4.2 billion. On 10th September, GMCA approved the submission of the Prospectus based upon the upper bound guideline of £1.19bn for government consideration as part of the 2021 Spending Review process. On 22 November 2021, the Secretary of State wrote to the Greater Manchester Mayor to say that GMCA had been allocated an indicative £1.07 billion of capital funding conditional on the submission of a programme business case by the end of January 2022, noting that initially the Secretary of State letter requested submissions by January, which were submitted to government on 31st January 2022. On 1st April 2022, the Secretary of State wrote to the Greater Manchester Mayor to confirm that Greater Manchester would receive the full amount of the indicative allocation of £1.07bn, subject to agreeing to a series of conditions and the final scheme list.⁶⁰
- **Clean Bus Technology Fund:** Greater Manchester also secured c.£6m from the Clean Bus Technology Fund (CBTF) to upgrade the local bus fleet, targeted at air quality hotspots. The CBTF provides support to operators to retrofit their vehicles as follows:
 - 280 buses have been awarded retrofit funding at a total cost of £4.26m; and
 - The remaining £1.73m of funding is currently planned to be distributed through the GM CAP as part of proposals to support bus operators.

6.3.9 Greater Manchester has recently been successful in securing further funding to support the delivery of a low emission bus and taxi fleet:

⁶⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1066118/crstf-funding-settlement-letter-for-greater-manchester-1-april-2022.pdf

- **Office for Zero Emission Vehicles (OZEV):** £1.8m of funding has been secured to deliver 30 dual-headed rapid charging devices installed across Greater Manchester for primary use by Hackney Carriages and private hire vehicles (PHVs). This will be supported by local match-funding of circa £600k. This has been combined with £3.5m of GM CAP funding to deliver a further 30 rapid charging points. A total of 60 dual-headed charging points will be delivered through the project, across the 10 Local Authorities. Feasibility studies have been completed and work on detailed design has commenced. Installation is due to commence in late 2022 and continue throughout 2023.
- **Zero Emission Buses Regional Area (ZEBRA) Scheme:** GMCA was awarded £35.7m in March 2022 for the replacement of 170 diesel buses that operate from Stockport Bus Depot to Zero Emission technology, by Spring 2024.
- **City Region Sustainable Transport Settlement for Zero Emission Buses:** £115m of funding has been secured and TfGM is currently developing detailed plans for the deployment of these funds. Greater Manchester expects to have sufficient funds to deploy 400 to 500 zero emission buses by 2027. In combination with the ZEBRA Stockport 170 buses and the Stagecoach ULEB 32 Zero Emission Buses that run on routes 43 and 111, this represents approximately one third of the fleet. The deployment plan is being heavily influenced by Clean Air considerations. Analytical work is underway to ensure the buses are deployed onto streets in Greater Manchester with the worst air quality, thereby helping to deliver the greatest strategic impacts for the CRSTS funds invested.
- **Bus Service Improvement Plan (BSIP):** On 5th April 2022, it was confirmed that Greater Manchester would receive an indicative allocation of £94.8m of BSIP funding from the government's Bus Back Better strategy.⁶¹ The BSIP will work towards achieving the interim-year 2030 "Right Mix" target for bus travel and removing enable Greater Manchester to remove up to 450,000 tonnes of carbon tailpipe emissions over the period to 2030. This includes reductions associated with the conversion of the bus fleets to fully electric as proposed within this BSIP.

6.3.10 Greater Manchester uses its local transport levy and the Mayoral Precept to fund a range of public transport services. This includes concessions, supported bus services (which make up 20% of the network) and Ring & Ride Services, which provides door-to-door, demand responsive transport to restricted local residents.

⁶¹ https://assets.ctfassets.net/nv7y93idf4iq/1Cu66Ouc9StC7JIRPiuSVI/95b9734bb0096523ec1328dd7c582035/BSIP-PM-PUB-0005_GM_Bus_Service_Improvement_Plan_October_2021.pdf

6.3.11 Local authorities in Greater Manchester are seeking new sources of funding to deliver cleaner air and improve sustainable travel options in the city region:

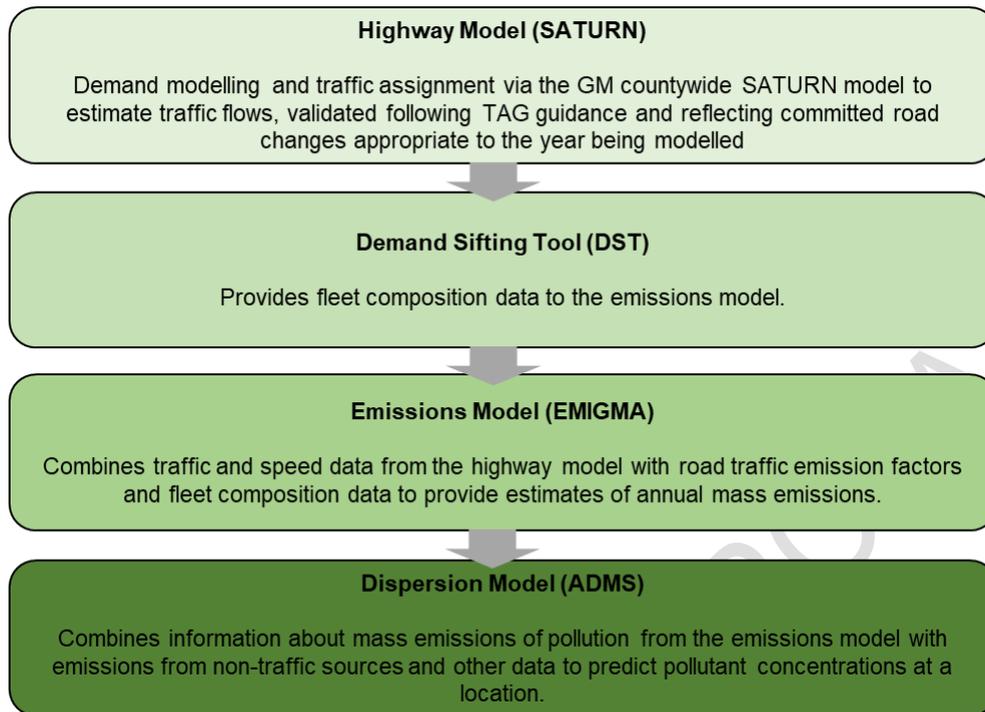
- **Future High Streets Fund:** Six towns in Greater Manchester have been granted full funding, totalling an estimated £90m, to improve transport links, build new homes and transform underused spaces in a key milestone for the government's levelling up agenda. Stretford (£17.6m), Rochdale (£17.1m), Wigan (£16.6m), Stockport (£14.5m), Farnworth (£13.3m) and Oldham (£10.8m) have all received a share of the fund.
- **Towns Fund:** Announced in 2019, 100 places were invited to develop investment priorities and proposals as part of a £3.6bn Towns Fund. The investment includes planning and land use and development of local transport schemes that complement regional and national networks. The 2020 budget announced 45 areas of England have been successful in their funding bids including three areas in Greater Manchester: Bolton (£22.9m), Cheadle (£13.9m) and Rochdale (£23.6m).
- **National Highways (formerly Highways England):** In addition to major committed schemes, National Highways has discretion to fund a range of smaller projects through its Designated Funds, of which £936m has been allocated in the next five years. Greater Manchester will work with National Highways to identify opportunities where use of Designated Funds may be appropriate to deliver infrastructure. The funds cover a range of projects including safety and congestion; users and communities; environment and well-being; and innovation and modernisation. Greater Manchester will also work closely with National Highways on their Route Strategy process which will inform the determination of funding needs and priorities for the next Road Investment Strategy (RIS) which will commence in 2025.

7 What are the current air quality issues in Greater Manchester?

7.1 Methodology

- 7.1.1 Air quality in Greater Manchester has been modelled as part of the GM CAP, and areas of exceedance of the Limit Values identified. This modelling has been updated at relevant stages throughout the development of the plan for a number of reasons, for example to reflect changes to the key phasing dates, to revise underpinning assumptions such as vehicle fleet age (due to Covid-19), or as a response to policy refinements as a result of the public 'conversation' or consultations.
- 7.1.2 Air quality is expected to gradually improve over time as a result of the ongoing cycle of newly purchased vehicles replacing older more polluting equivalents. The Government has required that the GM CAP delivers compliant air quality, using modelling to forecast future concentrations and showing how potential measures might reduce concentrations.
- 7.1.3 The air quality problem for Greater Manchester is assessed by reference to the "Do Minimum" scenario modelling, which sets out air quality as forecast if no action is taken by the GM CAP. The forecast does take into account other investment/interventions that are planned, funded and committed, where they have an impact on travel, traffic or the road network. The forecast appraisal years were developed as the original planned scheme commencement date for the GM CAP (2021 – not updated), the current expected scheme commencement date (2023) and a further year to inform the trajectory of improvement to compliance with the Limit Values (2025).
- 7.1.4 The GM CAP is underpinned by an evidence base derived from data collection, research, analysis and modelling. Throughout the technical development process from 2017 to date, Greater Manchester has used best practice methodology and assumptions and worked closely with Government, including for example by delivering updates to incorporate the impacts of Covid-19 to the GM CAP in accordance with national guidance.
- 7.1.5 The modelling approach has been updated to reflect the impacts of Covid-19 in line with JAQU guidance and changes to the GM CAP Policy following public consultation and now in respect to changing market conditions and further Covid-19 related impacts.
- 7.1.6 The purpose of the modelling process is to quantify the impact of traffic by vehicle type on emissions and consequently on concentrations of NO₂ at the roadside in Greater Manchester. A brief summary of the Do Minimum modelling input steps feeding into the appraisal is presented in **Figure 2**, which shows each of the modelling components and their linkages within the modelling suite.

Figure 2 Overview of the Do Minimum Modelling Process



7.1.7 The Do Minimum forecast has been updated because the evidence presented to the Government in February 2022 showed that business as usual (BAU) car sales were lower than expected in 2021, meaning that the fleet was older than forecast, and that this was likely to delay compliance with legal limits of NO₂ with the scheme as planned. Therefore, in order to update the Do Minimum forecast, the underpinning assumptions have been reviewed to ensure they remain up-to-date. These changes are set out in **Table 2** below. In addition to those set out in the table, work is ongoing to carry out a sensitivity test representing the impact of key schemes affecting the road network in Manchester and Salford, as part of the City Centre Transport Strategy (CCTS).

Table 2 Do Minimum Modelling Assumptions – Changes since February 2022

Vehicle Type	Criteria	Changes
HGV	Fleet age	<ul style="list-style-type: none"> No changes made in 2021 version as evidence did not suggest HGV purchases had been affected by the pandemic in 2020 (given impact of regulatory change in 2019 which had distorted purchase patterns such that lower than normal purchases were expected in 2020 anyway). No changes made in latest forecast.

Vehicle Type	Criteria	Changes
LGV	Fleet age	<ul style="list-style-type: none"> • Delay applied in 2021 version. Evidence suggests sales in 2021 were similar to Greater Manchester's forecast and therefore no additional changes are proposed.
Car	Fleet age	<ul style="list-style-type: none"> • Delay applied in 2021 version to reflect loss of sales in 2020 and SMMT forecast of gradual Covid recovery. • New evidence suggests that car purchases were lower than expected in 2021 and therefore this additional delay has been reflected in this forecast version, with a delay of one year applied.
Taxi	Fleet age	<ul style="list-style-type: none"> • Evidence in 2021 suggested that upgrades had been delayed but could not quantify impact, therefore a delay of one year was applied as a cautious estimate in that version. • No changes made in latest forecast.
Bus	Funding	<ul style="list-style-type: none"> • Electric bus funding was represented in the model as follows: <ul style="list-style-type: none"> ○ Removal of ULEB funding from Vantage and Free Bus routes ○ Addition of ZEBRA funding for Stockport • CRSTS funding not yet assigned so cannot be represented in Do Minimum scenario.

7.2 Updated modelling results

7.2.1 Modelling has been undertaken for the following scenarios:

- **Do Minimum (i.e. No GM CAP)**, which represents what would be forecast to happen in the absence of all GM CAP proposals. In reality this is overly pessimistic because funds for buses and HGVs have been available and successfully applied since these aspects of the GM CAP opened in 2021. This scenario is used to enable appraisal of the full impact of the GM CAP itself; and

- **Do Minimum plus CBF grants test** – a sensitivity test scenario, which represents what is forecast to happen with incorporation of approved GM CAP Clean Bus Fund (CBF) grants. The test is based upon the number of buses in each Greater Manchester operator's fleet where grants have been approved as of March 2022 (around 1,000 buses have been approved for retrofit or replacement funding, with 500 already on the road), with adjustments made to each specific operator's fleet mix to represent a newer set of buses running their service routes, reducing forecast emissions. It is not certain that all operators would now utilise an approved grant in the absence of a CAZ charge to penalise use of their non-compliant buses. Therefore, this scenario is being treated as a sensitivity test at this stage. However, it is expected that investment in bus fleets and the transition to bus franchising in Greater Manchester consider this test to become a most likely scenario.

- 7.2.2 Note that the Stockport depot ZEBRA funded buses are not expected to be fully deployed until 2024. To enable the interpolation of modelled concentrations for 2024, using the available 2023 and 2025 forecast models, the Stockport ZEBRA electric buses have been applied in the 2023 model as well as the 2025 model. This means that the emissions and concentration predictions along these bus routes, which are predominantly on the corridors from central Stockport towards the Manchester regional centre, will be under-predicted in 2023 because many buses would still be diesel variants at that time.
- 7.2.3 Note that this does not include representation of the City Centre Transport Strategy (CCTS) schemes which are expected to have been opened by 2025. Further sensitivity testing of the Do Minimum scenario is underway to better reflect the possible impact of these schemes.

Emission results

- 7.2.4 Summary results from the EMIGMA modelling for the tests are presented below in **Table 3**, which shows modelled mass NO_x emission totals for 2023 and 2025 for Greater Manchester as a whole, disaggregated by vehicle type.
- 7.2.5 It should be noted that overall emissions in this Do Minimum version are approximately 2% greater in 2025 than in the Do Minimum scenario used for the Previous GM CAP. This is mainly a result of the increased age of the private car fleet due to the latest understanding of Covid-19 impacts leading to reduced new cleaner vehicle sales, with private car fleet emissions increasing by 5% in 2025. This total mass emissions value also includes a reduction in emissions associated with new electric buses, but these emission improvements are confined to specific bus route corridors, whereas the private car fleet delay leads to a more geographically even spread of increased vehicle emissions.

- 7.2.6 **Table 3** show that across Greater Manchester as a whole, emissions from road traffic are released from a wide range of vehicle types, with private cars releasing most, followed by commercial freight vehicles (HGVs, LGVs) and then buses and taxis. However, the nature of road traffic varies widely across road types, and further detailed site-specific breakdowns of the sources at the most persistent exceedances are provided in the next section. It can also be seen that forecast emissions are reducing into the future with a reduction from 6,345T to 5,281T predicted from 2023 to 2025 as a result of the natural cycle of vehicle replacement and renewal with cleaner newer models.
- 7.2.7 As a result of the CBF grants, bus emissions are forecast to reduce by 60% in 2023 (if the upgrades have been fully delivered by then) and 44% in 2025 compared to the Do Minimum forecasts for those years, delivering localised improvements along bus routes. This equates to potential reductions in total road vehicle NO_x emissions over Greater Manchester of approximately 4% relative to the Do Minimum in 2023 and 3% in 2025.

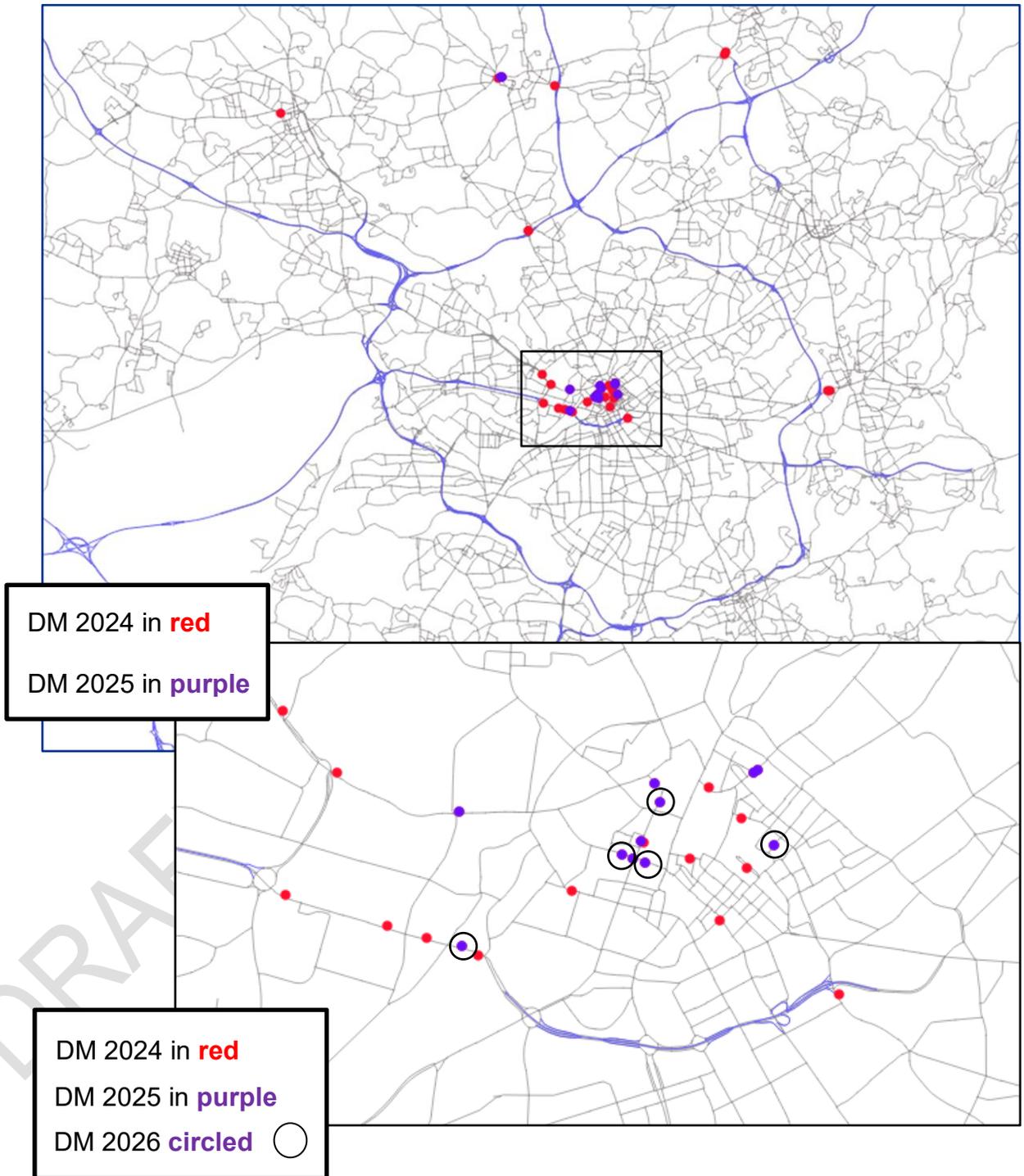
Table 3 Mass NO_x Emission Totals from EMIGMA Modelling (Greater Manchester, Tonnes per Year (T), with Percentage Changes Relative to the Do Minimum)

2023						
Scenario	Car	LGV	HGV	Taxi	Bus	Total
Do-Minimum	2,938	1,888	796	357	449	6,435
Do Min with CBF	2,938	1,888	796	357	179	6,165
% Change (DM)	0%	0%	0%	0%	-60%	-4%
2025						
Scenario	Car	LGV	HGV	Taxi	Bus	Total
Do-Minimum	2,526	1,610	523	294	320	5,281
Do Min with CBF	2,526	1,610	523	294	179	5,140
% Change (DM)	0%	0%	0%	0%	-44%	-3%
Notes: <i>Taxis comprise Private Hire Vehicles and Hackney Carriages combined</i> <i>% Changes for the Do Min with CBF are relative to the Do Minimum</i> <i>Totals may not sum due to rounding</i>						

Air quality results

- 7.2.8 **Table 4** and **Table 5** summarise the updated Do Minimum scenario modelling results and the Do Minimum with CBF Test, both of which incorporate the current understanding of the impacts of Covid-19 on vehicle fleets, for the Do Minimum years of 2023 and 2025. These results are then reported as the number of exceedances by each district in **Table 6**.
- 7.2.9 The location of the predicted exceedances in 2024 and 2025 are shown in **Figure 3**, with the spatial pattern continuing to resemble that in the 'Option for Consultation' and 'Previous GM CAP' modelling iterations.

Figure 3 Greater Manchester Do-Minimum Exceedance Points in 2024, 2025 and 2026



Air quality in the Do Minimum scenario

- 7.2.10 As shown in **Table 4**, there is an increase in the number of points of exceedance in 2023 from the Previous GM CAP model Do Minimum as modelled in spring/summer 2021 (from 71 to 79). This is primarily associated with the wider road network outside of the regional centre where private car emissions have increased due to an older fleet profile due to Covid-19, leading to increases in NO₂ concentrations of typically 0.5 µg/m³ up to 1.0 µg/m³. However, on the route corridors where the new electric buses will operate there are improvements, with a reduction in exceedances inside the Inner Relief Route (IRR) on these routes. Conversely, on the Vantage and FreeBus routes where the ULEB funding will no longer be available it is assumed that diesel variants would still be operating, with associated increases in NO₂ concentrations.
- 7.2.11 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet, which is expected to continue despite the depressive effect of Covid-19 on some markets, and which has been accounted for where relevant. Compared with the Previous GM CAP Do Minimum scenario, there has been an increase in the overall number of exceedances (from 11 to 13).
- 7.2.12 There are predicted to be exceedances in all districts with the exception of Wigan in the Do Minimum scenario for 2023.⁶² By 2025, exceedances are only predicted in Manchester, Salford, and Bury, which is consistent with the Consultation and Previous GM CAP modelling scenarios.
- 7.2.13 The updated modelling shows results consistent with the methodological modelling alterations described previously. The locations where car flows are greatest have an increased number of exceedances, typically sites classed as 'Other Locations'. The last points of exceedance (13 in total) in 2025 still remain at:
- Inside the IRR, including the A34 Bridge St /John Dalton St, Lever St and the A56 Deansgate;
 - A57 Regent Rd, Salford;
 - A6 Chapel St, Salford; and
 - A58 Bolton Road, Bury.
- 7.2.14 The modelling indicates that exceedances would remain in 2026 at 5 sites: 4 inside the IRR and on the A57 Regent Road. However, the A6 Chapel Street and the A58 Bolton Road would by this point have become compliant. All sites are predicted to be compliant by 2027 in the Do Minimum scenario.

⁶² Note that analysis carried out based upon the Do Minimum modelling as at consultation suggested that all local authorities would remain non-compliant in 2022. Updated analysis for 2022 has not yet been completed.

7.2.15 Note that this does not include representation of the CCTS schemes which are expected to have been opened by 2025. A further sensitivity test of the Do Minimum modelling is underway to incorporate the CCTS schemes which are expected to be in place in the relevant forecast years.

Table 4 Predicted annual mean NO₂ concentrations at points on the Greater Manchester road network – 2023 to 2026 without action ('Do Minimum')

Road classification ⁶³	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m ³)	Compliant but marginal (35 to 40 µg/m ³)	Non-compliant (>40 to 45 µg/m ³)	Very non-compliant (>45 to 50 µg/m ³)	Extremely non-compliant (>50 µg/m ³)	Total non-compliant (>40 µg/m ³)
2023						
Inside Manchester-Salford Inner Relief Route (IRR)	211	33	23	8	0	31
Urban centres	209	24	4	0	0	4
Other locations	1829	157	38	6	0	44
Total	2249	214	65	14	0	79
2024 (Interpolated)						
Inside IRR	227	32	11	5	0	16
Urban centres	223	12	2	0	0	2
Other locations	1936	75	18	1	0	19
Total	2386	119	31	6	0	37
2025						
Inside IRR	243	23	9	0	0	9
Urban centres	233	4	0	0	0	0
Other locations	1984	42	4	0	0	4
Total	2460	69	13	0	0	13

⁶³ "Inside Inner Relief Route" is the area encircled by the Inner Relief Route. "Urban centres" are areas that met a definition used for the purposes of air quality modelling for OBC Option testing. "Other locations" are roads outside of Urban centres and the Inner Relief Route.

Road classification ⁶³	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m ³)	Compliant but marginal (35 to 40 µg/m ³)	Non-compliant (>40 to 45 µg/m ³)	Very non-compliant (>45 to 50 µg/m ³)	Extremely non-compliant (>50 µg/m ³)	Total non-compliant (>40 µg/m ³)
2026 (Extrapolated)						
Inside IRR	257	14	4	0	0	4
Urban centres	235	2	0	0	0	0
Other locations	2008	21	1	0	0	1
Total	2500	37	5	0	0	<u>5</u>

Air quality in the Do Minimum plus CBF Grants scenario

7.2.16 The assumption is that when the CBF grants have been utilised by the relevant operators to upgrade non-compliant buses to Euro VI diesel, this will lead to an improvement in air quality across bus corridors, and a reduction in the number of predicted exceedances. Note that Greater Manchester is assuming that all CBF grants will be utilised as planned.

7.2.17 As shown in **Table 5**, under this scenario, there is a predicted decrease in the number of points of exceedance in 2023 from the Do Minimum from 79 to 44. This is primarily associated with the regional centre inside the IRR, where bus emissions comprise a greater proportion of total emissions, alongside the arterial routes that lead into the IRR on wider road network outside of the regional centre.

7.2.18 There are predicted to be exceedances in all districts with the exception of Wigan, Trafford and Oldham in the Do Minimum plus CBF scenario for 2023.

7.2.19 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet. Compared with the Do Minimum scenario, there would be a decrease in the overall number of exceedances from 13 to 5 as a result of the CBF.

7.2.20 By 2025, whilst there are fewer exceedances predicted, the key locations remain as per the Do Minimum scenario at:

- Inside the IRR, including the A34 Bridge St /John Dalton St;
- A57 Regent Rd, Salford; and
- A58 Bolton Road, Bury.

7.2.21 The modelling indicates that exceedances would remain in 2026 at one site, on the A57 Regent Road. All sites are predicted to be compliant by 2027 in the Do Minimum plus CBF Grants scenario.

Table 5 Predicted annual mean NO₂ concentrations at points on the Greater Manchester road network – 2023 to 2026 without further action (Do Minimum with CBF Grants)

Road classification ³	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m ³)	Compliant but marginal (35 to 40 µg/m ³)	Non-compliant (>40 to 45 µg/m ³)	Very non-compliant (>45 to 50 µg/m ³)	Extremely non-compliant (>50 µg/m ³)	Total non-compliant (>40 µg/m ³)
2023						
Inside Manchester-Salford Inner Relief Route (IRR)	241	26	8	0	0	8
Urban centres	219	14	4	0	0	4
Other locations	1881	117	30	2	0	32
Total	2341	157	42	2	0	<u>44</u>
2024 (Interpolated)						
Inside IRR	250	19	6	0	0	6
Urban centres	228	8	1	0	0	1
Other locations	1952	66	12	0	0	12
Total	2430	93	19	0	0	<u>19</u>
2025						
Inside IRR	259	13	3	0	0	3
Urban centres	233	4	0	0	0	0
Other locations	1995	33	2	0	0	2
Total	2487	50	5	0	0	<u>5</u>
2026 (Extrapolated)						
Inside IRR	265	10	0	0	0	0
Urban centres	237	0	0	0	0	0
Other locations	2011	18	1	0	0	1
Total	2513	28	1	0	0	<u>1</u>

Air Quality results by local authority

Table 6 Number of sites remaining in exceedance of legal limits for NO₂ concentrations by year, Greater Manchester, by local authority for the Do Minimum and Do Minimum with CBF Grants Test Scenario

District	2023		2024 (interpolated)		2025		2026 (extrapolated)	
	Do Min.	Do Min with CBF Test	Do Min.	Do Min. with CBF Test	Do Min.	Do Min with CBF Test	Do Min.	Do Min. with CBF Test
Bolton	3	2	1	0	0	0	0	0
Bury	11	7	6	4	2	1	0	0
Manchester	40	16	18	7	9	3	4	0
Oldham	1	0	0	0	0	0	0	0
Rochdale	2	2	2	2	0	0	0	0
Salford	14	10	8	5	2	1	1	1
Stockport	3	3	0	0	0	0	0	0
Tameside	4	4	2	1	0	0	0	0
Trafford	1	0	0	0	0	0	0	0
Wigan	0	0	0	0	0	0	0	0
GM Total	79	44	37	19	13	5	5	1

Note: Calculation of 2024 and 2026 was undertaken using linear interpolation or extrapolation from 2023 and 2025 year's modelled NO₂ results for each model output point.

7.2.22 It is important to note that the modelled scenarios do not include representation of the CCTS schemes which are expected to have been opened by 2025. A further update to the Do Minimum modelling is underway. There are a number of schemes which could alter the nature of local traffic flows and routing, especially on the A34 Bridge St/John Dalton St, A56 Deansgate, A57 Regent Road and A6 Chapel St. These schemes have the potential to interact, so the exact values presented in this section should be treated with caution.

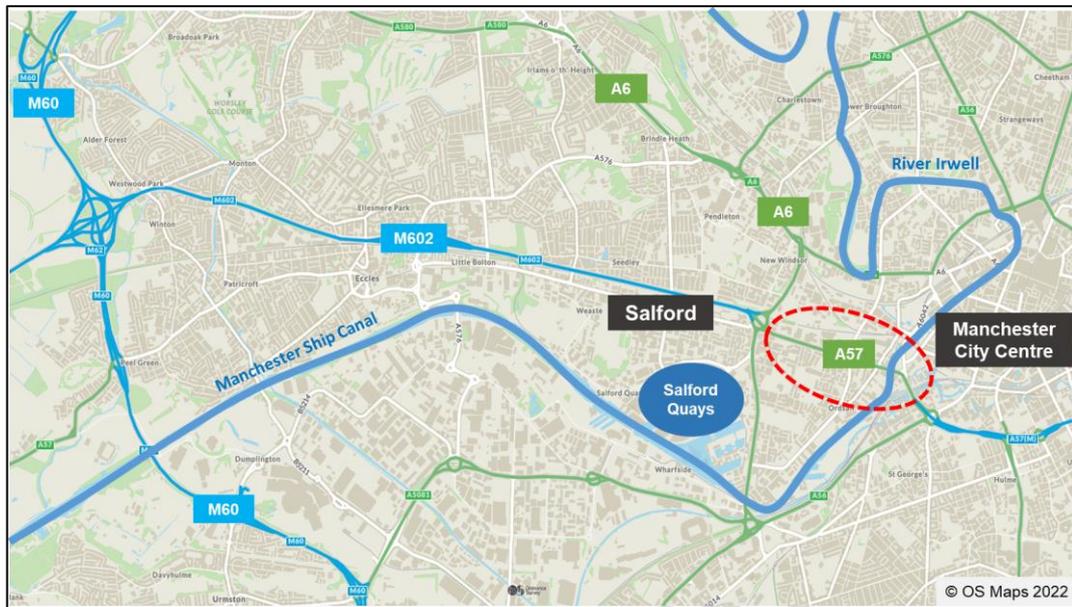
8 Where are the persistent exceedance areas in Greater Manchester?

- 8.1.1 This section builds upon the updated do-minimum modelling outputs presented in **Section 7**. The persistent exceedance areas, detailed in this section, are included to provide supporting evidence of the underpinning of poor air quality at these locations. In many cases these can be seen to be driven by bus emissions and therefore the CBF test, which represents bus upgrades, delivered as part of the GM CAP to date would demonstrably deliver improvements in-line with the objectives of the GM CAP.
- 8.1.2 In 2025, there are predicted to be 13 points where roadside NO₂ exceedances persist. These exceedance points are concentrated in three Greater Manchester local authority areas, namely, Manchester, Salford and Bury. This section will provide further information on the location and source apportionment (in other words, how each vehicle type contributes to emissions at that location) of each point of last exceedance (2025). Under the CBF sensitivity test, only the exceedance at the A57 Regent Road (Salford) would remain in 2026.
- 8.1.3 In addition to the points of last exceedances which have been identified through the updated do-minimum modelling outputs, the A628/A57 at Mottram, Tameside is an area with very special route characteristics to be considered. The A57 and the A628 form part of the Strategic Road Network (SRN) operated by National Highways and runs east-west linking the M67 motorway in Greater Manchester towards West Yorkshire and Sheffield over the Pennines. Measured and modelled concentrations indicate exceedances can be expected up to 2026 and beyond.
- 8.1.4 Source apportionment data has been extracted based on the persistent exceedance areas in 2025 and shown in **Sections 8.2-8.4**. It is believed that the Previous GM CAP could no longer be expected to achieve compliance in 2024 and therefore persistent exceedance areas are based upon 2025 data.

8.2 Persistent Exceedance Area (2025) - A57 Regent Road

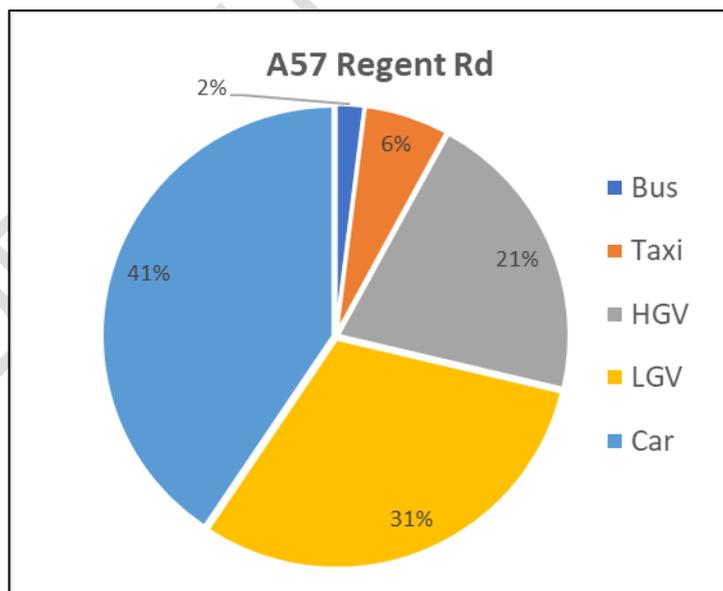
- 8.2.1 **Figure 4** shows the location of the A57 Regent Road in context of the wider highway network. The A57 Regent Road is an important highway corridor providing an East-West connection through Manchester City Centre and joining the M602, part of the Strategic Road Network which is managed by National Highways.

Figure 4 Persistent exceedance area: A57 Regent Road



8.2.2 **Figure 5** shows the source apportionment for Regent Road. This route contains a relatively high proportion of commercial vehicles, with emissions from HGVs & LGVs at c50% of total emissions, and the remainder primarily derived from private cars c40%. Emissions from buses are very low (just 2% of total), with very few bus services operating on this corridor. This reflects the nature of this route as a primary arterial route from the Strategic Road Network, serving traffic demands of the Regional Centre and surrounding area.

Figure 5 A57 Regent Road Source Apportionment



8.3 Persistent Exceedance Area (2025) - Regional Centre / IRR, Manchester and A6 Chapel Street, Salford

8.3.1 The majority of the last points of exceedance are located within Manchester City Centre and the IRR. This persistent exceedance area also includes locations close to the IRR such as Chapel Street. **Figure 6** shows the high-level location of each of the exceedance road links.

Figure 6 Persistent exceedance area: Regional Centre / IRR, Manchester and A6 Chapel Street, Salford



8.3.2 The source apportionment indicates that bus emissions dominate the contributions to the predicted exceedances at almost all locations, typically 70% to 100% of vehicle emissions. This can be viewed in **Figure 7** to **Figure 13**. This reflects the higher frequency of buses running on these routes compared with wider Greater Manchester, but also the slower traffic speeds inside the IRR where queuing and congestion occurs more frequently, and signalised junctions occur at a greater density. At low speeds, buses and HGV NO_x emissions are elevated even for Euro VI models.

8.3.3 The A56 Deansgate and A6 Chapel Street show a different source pattern to the other exceedance locations, with a lower but still significant proportion of bus emissions (15% or less), and higher proportion of private car and LGV emissions.

Figure 7 A34 Bridge St Source Apportionment

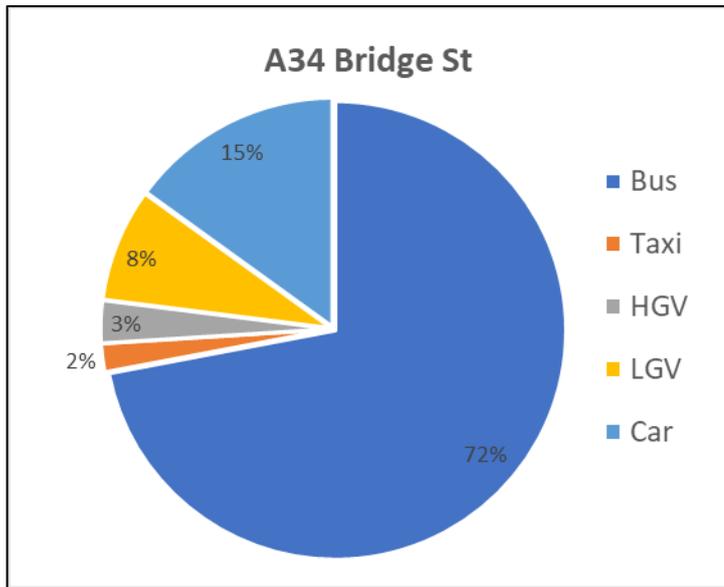


Figure 8 A34 John Dalton St Source Apportionment

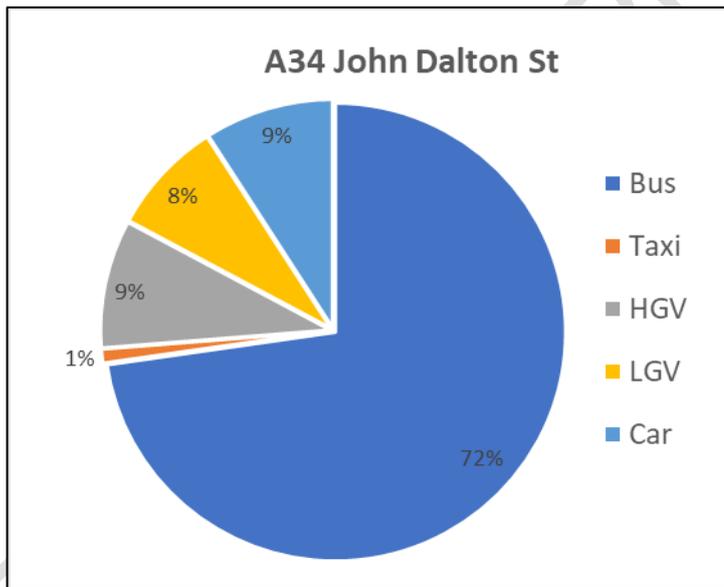


Figure 9 A56 Deansgate Source Apportionment

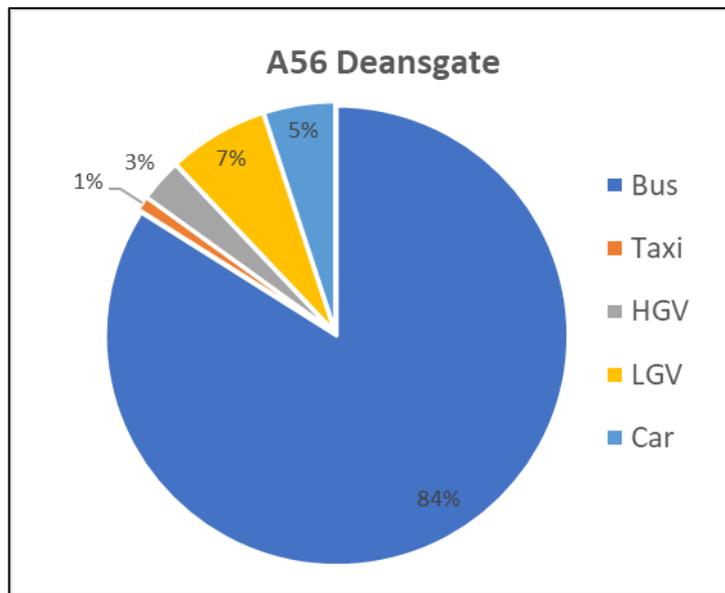


Figure 10 Lever St Source Apportionment

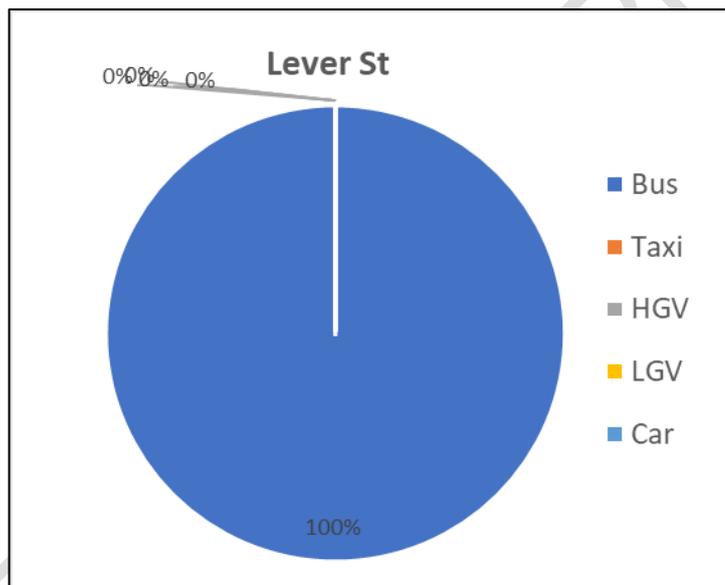


Figure 11 A6 Chapel St Source Apportionment

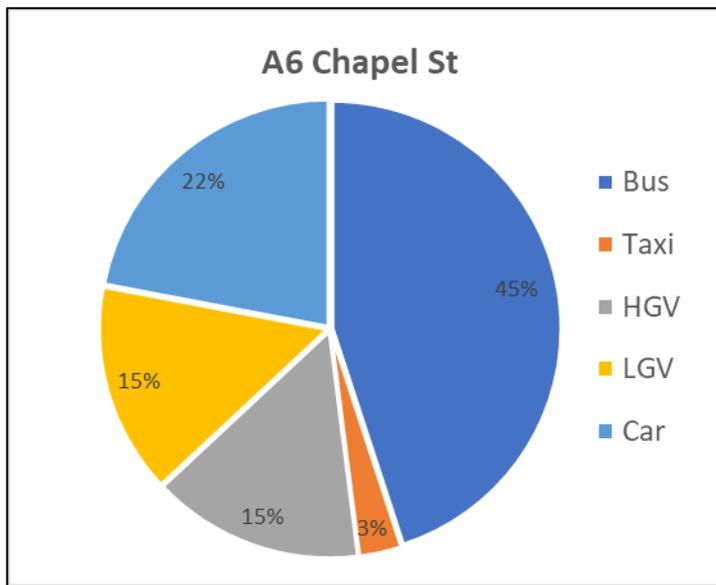


Figure 12 A6041 Blackfriar's Rd Source Apportionment

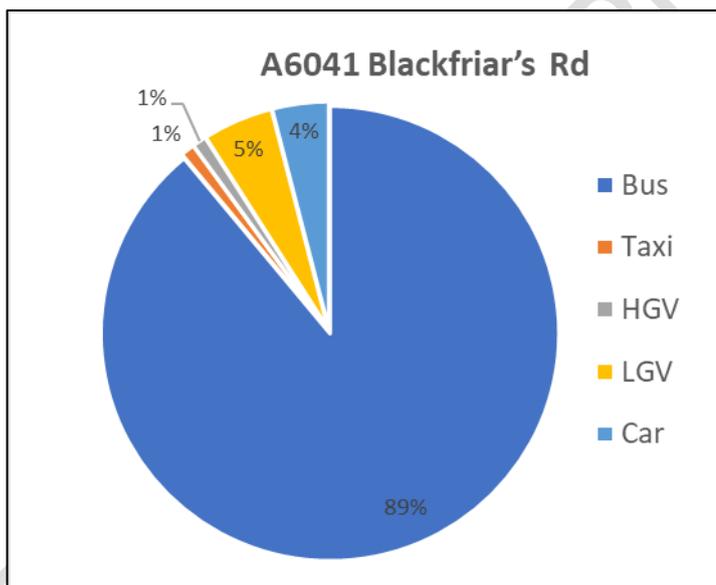
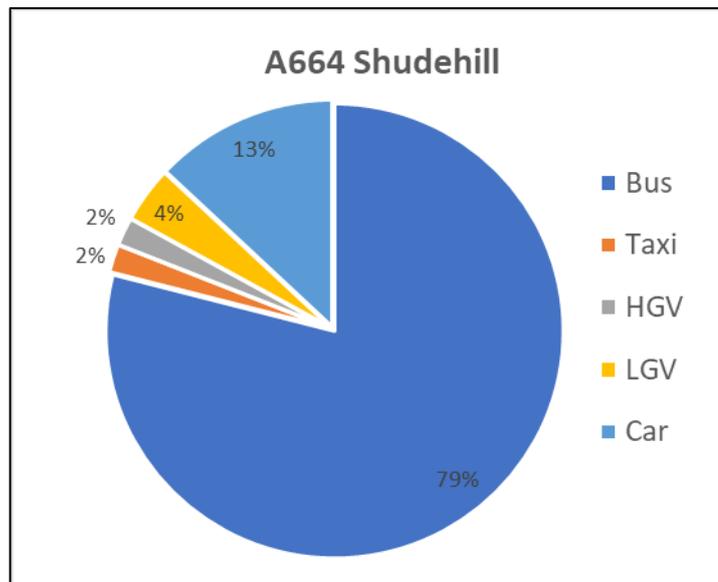


Figure 13 A664 Shudehill Source Apportionment

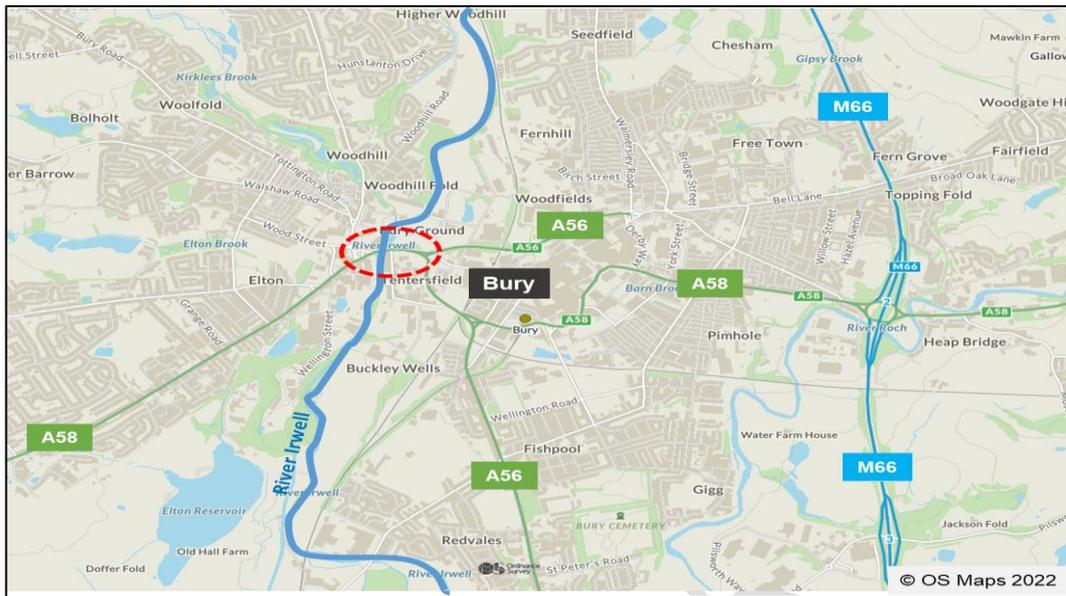


8.3.4 Finally, analysis of ANPR data indicates that the modelling under-represents the proportion of taxi movements within the IRR. This is because the modelling process does not have a user class for taxi available, and taxi movements have been represented as a fixed proportion of private car trips, across GM as a whole. The modelling process could be locally refined to address this issue if required.

8.4 Persistent Exceedance Area (2025) – A58 Bolton Road (Bury Bridge)

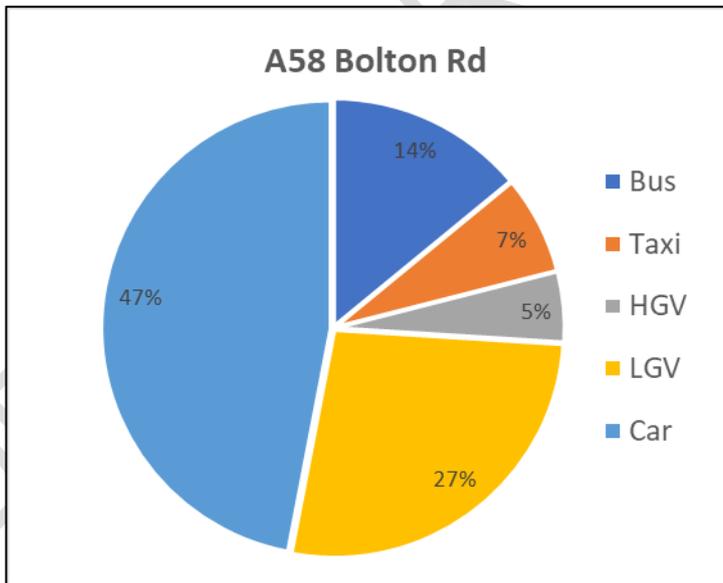
8.4.1 **Figure 14** shows the location of the A58 Bolton Road exceedance at Bury Bridge. At this location, the A58 Bolton Road is a dual carriageway over the River Irwell, serving traffic from the confluence of the A58, B6196 & B6213 roads to and from the Bury town centre ring road. There are modelled exceedances on both of the carriageways but these essentially both represent the same traffic flows.

Figure 14 Persistent exceedance area: A58 Bolton Road (Bury Bridge)



8.4.2 **Figure 15** shows the source apportionment for the A58 Bolton Road, Bury. The contribution from HGVs is low on this link, with the majority of emissions derived from private cars and LGVs. However, there is also a material proportion of emissions from diesel buses.

Figure 15 A58 Bolton Road (Bury Bridge), Bury Source Apportionment



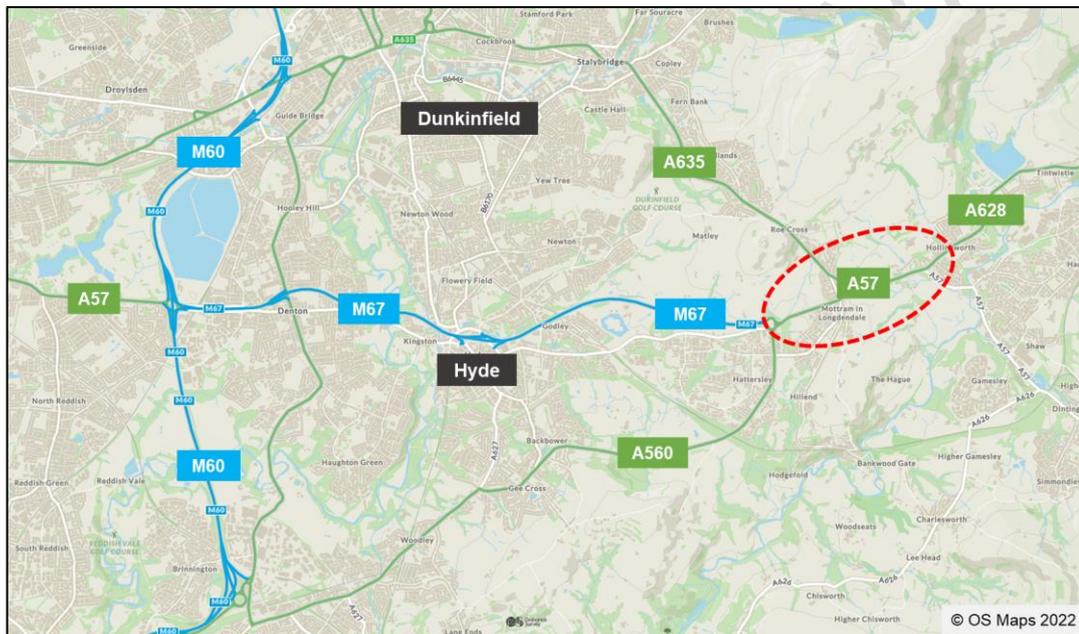
8.5 A57 / A628 Strategic Road Network, Tameside

8.5.1 The ten Greater Manchester local authorities continue to ask the Government to direct National Highways to tackle NO₂ exceedances on the SRN in the same way the Greater Manchester local authorities are having to take action on the local road network.

8.5.2 Tameside MBC has highlighted to Government ministers that the inconsistency in approach between the SRN and local road network is leaving many residents unprotected, particularly, around the A628/A57, a strategically important trans-Pennine route that passes through the villages of Hollingworth and Mottram as a single carriageway. This route, managed by National Highways (formerly Highways England), will be left with NO₂ exceedances that are not being addressed, despite the area being declared as part of Greater Manchester's Air Quality Management Area.

8.5.3 **Figure 16** shows the location of the A57 and the A628 in context of the wider highway network.

Figure 16 Persistent exceedance area: A57 and A628



8.5.4 However, in this location the SRN resembles more typically 'local' roads, rather than a motorway environment, with frequent signalised junctions, single-lane carriageways, pedestrian pavements and residential facades abutting the road.

8.5.5 Following a review of the beneficial impact to compliance with NO₂ legal limits shown by National Highways in their *Assessment of Impact of Potential Charging on A57/A628*, Ministers wrote to Tameside Metropolitan Borough Council in June 2021 to confirm that a section of the A57/A628 should be included as part of the upcoming GM Class C charging CAZ. Ministers noted, the inclusion must be deliverable within current legislative provisions, and with the objective of integrating seamlessly with the GM Class C charging CAZ in order to minimise complexity and confusion for road users.

8.5.6 A joint officer working group concluded that there were two viable options: a trunk road charging scheme (complementary to the local charging scheme required to implement the GM CAZ) or a De-trunking Order (the process of returning the National Highways road to the control of Tameside Council - the Highway Authority). Whilst the working group concluded that both options are legally viable. as they presented legal, administrative and procedural complexities, JAQU advised that the options needed further consideration by Ministers. In December 2021 JAQU advised that both options identified did not offer a timeline that guaranteed implementation could coincide with the planned launch of the Class C charging CAZ on the 30 May 2022.

8.5.7 In January 2022 the Air Quality Administration Committee received an update and resolved that:

- the inclusion of the identified section of the A57/A628 SRN remains critical and vital to delivering improved air quality in Greater Manchester; and
- Greater Manchester authorities are resolute in continuing to press Government for the expedient implementation of the scheme on the A628/A57 SRN as a matter of urgency to ensure the benefits to the health of the residents in the villages of Hollingworth and Mottram can be realised without any further delay.

8.5.8 Until the outcome of the review is complete and any revised plans are agreed, JAQU has not been able to commit to any specific course of action in relation to the A57/A628. However, because in this instance a trunk road charging scheme cannot be made without a local charging scheme being in place, if the GM charging CAZ does not proceed there can be no charging scheme on the A57/A628, unless and until those roads are detrunked. Notwithstanding this, the Greater Manchester local authorities want to ensure that as government takes appropriate action in relation to exceedances in this locale. It is also recognised that additional SRN is planned by National Highways close to this location through the A57 Link Roads scheme which includes proposals for the creation of two new link roads between the M67 Junction 4 roundabout and the A57 in Woolley Bridge to reduce pollution to neighbouring properties in Mottram in Longdendale as well as improvements in journey time reliability and reductions in congestion and severance impacts.⁶⁴ The scheme is currently awaiting a Development Consent Order (DCO) outcome and the SoS for Transport is anticipated to make a decision around Autumn 2022.

⁶⁴ <https://nationalhighways.co.uk/our-work/north-west/a57-link-roads/>

9 Why Greater Manchester needs a new GM CAP – A Summary

- 9.1.1 The information presented in **Sections 2-8** sets out the background to the GM CAP, the circumstances leading to the current review (the impact of the pandemic such as global supply chain challenges, and the cost-of-living crisis) and the updated evidence in terms of air quality modelling and areas of exceedance.
- 9.1.2 In summary, and considering all the above, it is proposed that the Previous GM CAP developed pre-pandemic and agreed in Summer 2021 (comprising a blanket measure across the city-region in the form of a Class C charging CAZ) is no longer the right solution to achieve compliance with Legal Limits for NO₂ on the local road network in Greater Manchester. The most significant reasons for this have been set out in depth in this paper, and in summary are:
- The **cost-of-living crisis** means that businesses are less able to afford to invest in vehicle upgrades, whilst households are less able to absorb any costs that may be passed on to them.
 - This is exacerbated by **rising vehicle prices** and – for some vehicle types – lower residual values of non-compliant vehicles. There is evidence that illustrates the demand for new and compliant second-hand vehicles is exceeding supply; leading to longer wait times and rising prices.
 - A charging CAZ could therefore cause **unacceptable financial hardship** and potentially contribute to business failures.
 - In addition, **new opportunities have arisen** – via the approval of bus franchising and new funding for electric buses – that mean that Greater Manchester has the opportunity to directly tackle a major source of emissions in a different, more targeted way.
 - The exceedances become more localised from 2025 onwards, therefore **action can be targeted** at those locations suffering the worst air quality.
- 9.1.3 It is clear that the GM-wide Class C charging CAZ as approved in Summer 2021 could lead to hardship in Greater Manchester and that to develop and deliver a revised charging CAZ would take time to design, consult upon and implement.
- 9.1.4 Unlike the previous charging-led scheme, the New GM CAP will attend to the emerging cost-of-living crisis and other factors set out in this section. It will actively consider the impacts of Covid-19 and wider global economic instability on supply chains, aims to be delivered in 2023, and crucially takes into account the significant benefits that the delivery of electric buses can have along key routes with persistent exceedances.

9.2 Cost-of-living crisis

- 9.2.1 As a result of the ongoing impacts of the pandemic and the more recent impacts of the war in Ukraine, the UK is experiencing a cost-of-living crisis, with inflation reaching a 40 year high of 9% during April 2022, compared to 2% in July 2021. This crisis is far from over – inflation and interest rates are expected to keep rising and this is being reflected in consumer confidence, which has plummeted, and in falling consumer demand.
- 9.2.2 Greater Manchester has a higher than average proportion of small businesses and low income households, making the region particularly vulnerable to inflationary impacts. The evidence shows that prices of basic goods and commodities such as energy and fuel are rising faster and therefore those on lower incomes, who spend a higher proportion of their income on necessities and have less disposable income to cover any cost increases, will be affected more.
- 9.2.3 From a business perspective, those businesses that rely on high vehicle mileage will be particularly affected by rising fuel prices, which were a third higher in March 2022 than July 2021 (for diesel, used in most commercial vehicles) and have risen further since. Furthermore, key vehicle owning sectors such as construction and manufacturing are being affected by the rising cost of materials such as steel, with just under three in ten businesses surveyed by the GM Growth Company reporting such concerns in April 2022, compared to under 5% in autumn last year.
- 9.2.4 The cost of borrowing is increasing, making capital investments such as a vehicle upgrades more challenging and expensive. The Bank of England base rate has risen from 0.25% at the start of the year to 1.25% by early June. The real cost of borrowing will be higher than this for many consumers and will vary depending on their personal circumstances.
- 9.2.5 Businesses and consumers are already feeling the impact of rising costs being passed on, and measures that increase those costs, such as the imposition of a charging CAZ, could lead to real financial hardship and potentially business closures.
- 9.2.6 During this period of widespread economic hardship, the local Government will do its utmost to support the public economically, rather than create additional financial demands and hardship.

9.3 Supply chain issues and vehicle price increases

- 9.3.1 The price of new and used commercial vehicles is rising, making upgrade less affordable. For some vehicle types, there are long lead times for the purchase of new vehicles, and for second-hand vehicles demand is outstripping supply in some sectors. There is some evidence of a growing gap between the value of non-compliant (Euro 5 and older) and compliant (Euro 6) vehicles, adding to the capital cost of upgrade for vehicle owners losing trade-in value of their existing vehicle.

9.3.2 **Table 7** sets out the conditions affecting each vehicle type, based on the evidence Greater Manchester has collected. **Appendix A – D** set this information out in more depth.

Table 7 Changed conditions in vehicle markets

Vehicle Type	Commentary on changed conditions
<p>HGV</p> <p>Est. 70,900 vehicles serving Greater Manchester 81% compliant in 2023⁶⁵</p>	<ul style="list-style-type: none"> • Having remained stable for many years, price rises are being reported of around 40% for Euro 6 vehicles, with the price gap between Euro 6 vs 5 vehicles increasing. • Dealers are reporting constraints on availability of new vehicles – due to shortages of materials including semi-conductors – and that this means people are extending leases (so fewer vehicles enter the second-hand market) or trying to buy second-hand, leading to shortages in that market. • Price rises reflect these shortages as well as increases in the cost of materials (for new vehicles).
<p>Van</p> <p>Est. 277,400 vehicles serving Greater Manchester 52% compliant in 2023⁶²</p>	<ul style="list-style-type: none"> • There is substantial evidence of significant price increases in the second-hand van market – the scale of those rises has a high degree of variability depending on the particular vehicle. The extent of the reported rise varies between 13% and almost 60%. • Overall, the evidence suggests that demand for new and second-hand vans remains strong, and therefore that the loss of supply caused by lockdowns in 2020 and more recently by the semi-conductor shortage is leading to price rises in the new and second-hand markets, and to long lead times for new vehicle orders. • A high proportion of non-compliant vans are owned by sole traders and very small businesses which are vulnerable to the impacts of inflation and the cost-of-living crisis.
<p>Coach</p> <p>1,700 vehicles serving Greater Manchester 59% compliant in 2023⁶²</p>	<ul style="list-style-type: none"> • The coach sector was badly affected by the pandemic, with lockdown restrictions meaning that many were forced to stop operating for long periods. • Demand from tourism and major events remained constrained during 2021, and recovery is expected to be slow. • The SMMT states that demand for new buses and coaches dropped further in 2021 and was the weakest year since records began in 1996.

⁶⁵ best estimate in a highly changeable economic/vehicle market situation, forecast should be considered subject to review

Vehicle Type	Commentary on changed conditions
<p>Hackney Cab</p> <p>2,100 Hackneys licensed in Greater Manchester 35% compliant in 2023⁶²</p>	<ul style="list-style-type: none"> • Hackneys and PHVs lost a substantial proportion of their trade during the pandemic, as travel for business, leisure and tourism purposes ceased. • The number of vehicles licensed has reduced and drivers report that demand has not returned to pre-pandemic levels. • The number of new vehicles entering the Hackney and PHV licensed fleets was much lower than normal in 2020 and 2021, so that the age of the fleet has increased.
<p>PHV</p> <p>12,400 PHVs licensed in Greater Manchester 68% compliant in 2023⁶²</p>	<ul style="list-style-type: none"> • This is assumed to result from market conditions and conditions in the wider economy, as well as continued uncertainty about licensing and clean air requirements for the fleet. • Furthermore, there is anecdotal evidence that the value of Euro 5 and older Hackney Carriage is falling, as more cities bring in tighter licensing standards and/or CAZs.

9.3.3 This evidence shows that, in addition to the cost-of-living crisis, some key vehicle owning sectors are still experiencing impacts from the pandemic, with travel demand not back to pre-pandemic levels in some sectors for example.

9.3.4 Rising vehicle prices, constraints of the availability of compliant new and second-hand vehicles, as well as rising borrowing costs, mean that upgrade is less affordable and may take more time than previously assumed.

9.3.5 This in turn would mean that any charging CAZ proposal would be less effective – with less upgrade and a higher proportion choosing to stay-and-pay. Negative economic impacts would also be increased, with potential equalities impacts for affected vehicle owning groups.

9.4 New opportunities for electrification of the bus fleet

9.4.1 Since the Previous GM CAP was developed, there has been a significant increase in funding opportunities for electric buses in Greater Manchester. This has had an impact on the Do-Minimum forecast, as set out in **Section 7.2**.

9.4.2 In April 2022, following a court ruling that the decision to franchise bus services was lawfully carried out, as were all other aspects of the franchising process, the GMCA confirmed that it would be proceeding with bus franchising across Greater Manchester. The current programme sees the first franchised services in place by September 2023, and across the whole of the city region by the end of 2024.

- 9.4.3 Bus franchising will enable the integration of the bus network across bus services and with other modes of transport, significantly increasing the efficiency of the network. It will allow the introduction of integrated ticketing and a single, clear point of customer information. Critically for the GM CAP, it allows Greater Manchester to invest in buses with the confidence that they have control of the strategic delivery. Crucially, franchising allows TfGM to specify the vehicles to be used on the network. Under franchising, governance/planning processes are being established so that the cleanest buses are running on routes containing most persistent exceedance points to ensure compliance - with a focus on the regional centre/city centre as the transport hub of the city-region.
- 9.4.4 In April 2022, Greater Manchester was awarded its City Region Sustainable Transport Settlement (CRSTS) and an indicative allocation of £115m from that award has been made to towards zero emission buses, with the aim that a third of the bus fleet in Greater Manchester will be zero carbon by 2027. These funds will build on the existing ZEBRA scheme, and will be used to fund the incremental costs of updating buses to zero emission over above the cost of new diesels. A commitment has been made that from September 2023, 50 new zero emission buses will be brought into service with the launch of the regulated bus system in Wigan and Bolton which will be a major contributor to resolving exceedances at the Bury Bridge persistent exceedance location.
- 9.4.5 Early analysis indicates that the CRSTS funding could support the deployment of sufficient numbers of electric buses targeted at the most persistent exceedance locations in order to achieve compliance at those locations, subject to a delivery plan. This could mean that, because poor air quality at the majority of the locations contains a significant contribution from diesel bus emissions, most areas of Greater Manchester could potentially be compliant in 2025, if electric buses were deployed at those locations.
- 9.4.6 The exception is the A57 Regent Road, which has very few bus services, and therefore electric buses cannot deliver significant reductions in vehicle emissions. Without supporting funding (CRSTS), it is likely that compliance would be achieved in most areas (excluding the A57 Regent Road – which has very few bus services) in 2026, under the CBF test scenario. This scenario is currently not included in Greater Manchester’s core modelling, because take up of the CBF grants is less certain without the charge and because Greater Manchester cannot be certain where on the network the upgraded buses will be deployed.

9.5 Targeting the most persistent exceedances

- 9.5.1 As shown, the spatial pattern of exceedances within the timeline now under consideration is such that a Greater Manchester-wide charging CAZ would be an excessive solution to address the issues remaining in 2025.

- 9.5.2 In addition, a Greater Manchester-wide charging CAZ is increasingly unacceptable given the current economic conditions, as set out in this paper. In Summer 2021, Greater Manchester had proposed a Greater Manchester-wide charging CAZ, forecast to achieve compliance in 2024. By February 2022, it had become clear that the Previous GM CAP was no longer likely to achieve compliance by that date, as a result of greater-than-expected reductions in new car purchases in 2021 and rising van prices. Concerns were also emerging about the affordability of upgrade for key groups given rising prices and supply constraints.
- 9.5.3 In February 2022, the Government revoked the 2020 Direction to Greater Manchester which required the implementation of a Class C charging CAZ in the shortest possible time and by 2024 at the latest and gave Greater Manchester until 1st July to present a new plan to achieve compliance with legal air quality standards in the shortest possible time and by 2026 at the latest.
- 9.5.4 The Do Minimum NO₂ forecasts show that the number of sites in exceedance reduces over time, moving from a Greater Manchester -wide problem in 2023 to a localised problem from 2025 focused around the regional centre with some acute outliers. This means that, in order to achieve compliance by 2026, Greater Manchester can target measures as part of an investment-led approach, such as deployment of electric buses to those most persistent exceedances, which are particularly found in and around the city centre.
- 9.5.5 The updated modelling summarises the existing areas of exceedance that are likely to remain unless action is taken through the New GM CAP during the period from now until 2026. Targeting these areas of exceedance will form the basis of the New GM CAP and the Greater Manchester local authorities are now making the case to Government that this should take the form of an investment-led non-charging GM CAP, which aims to achieve compliance in the shortest possible time and by 2026 at the latest but without creating additional financial hardship for local businesses and families. Without the need to mitigate a Greater Manchester-wide charging CAZ, a New GM CAP should target resources efficiently and effectively at the most persistent exceedances while providing support to those vehicles contributing the most to poor air quality. Additionally, with supported funding for electric bus through CRSTS, targeted investment could enable Greater Manchester to reduce the number of exceedances to only one point remaining in exceedance without other action by 2026.

9.6 A revised charging CAZ would take time to design, consult upon and implement

- 9.6.1 In summary, as shown in this document, the spatial pattern of exceedances within the timeline now under consideration is such that a Greater Manchester-wide charging CAZ would be an excessive to address the issues remaining in 2025. In addition, a Greater Manchester-wide charging CAZ is increasingly unacceptable given the current economic conditions, as set out in this paper. The updated modelling summarises the existing areas of exceedance that are likely to remain unless action is taken through the New GM CAP during the period from now until 2026. Targeting these areas of exceedance will form the basis of the New GM CAP and the Greater Manchester local authorities are now making the case to Government that this should take the form of an investment-led non-charging GM CAP, which aims to achieve compliance in the shortest possible time and by 2026 at the latest but without creating additional financial hardship for local businesses and families.
- 9.6.2 Since this review commenced, Greater Manchester necessarily paused the implementation of the Previous GM CAP, to allow the review to take place. For the reasons set out above, implementing a Greater Manchester-wide Class C charging CAZ, as per the Previous GM CAP, is no longer the right plan for Greater Manchester as it would result in unacceptable financial hardship and would not be expected to achieve compliance in 2024 as previously forecast.
- 9.6.3 Implementing a materially revised charging CAZ, for example with a different boundary, vehicles in scope or discounts and exemptions, would take time to design and consult upon and then implement.

10 The way forward: an Investment-led non-charging GM CAP

10.1.1 An investment-led non-charging GM CAP will target action at the most polluted places. This could be delivered using a three-pillared approach including:

- Funding for electric buses;
- Funding to support vehicle upgrades; and
- Working in partnership with delivery bodies and other stakeholders to develop targeted solutions.

10.1.2 The new investment-led non-charging GM CAP will develop measures based on the following core objectives:

- To reduce NO₂ concentrations to below the legal limits in the shortest possible time and by 2026 at the latest;
- Achieve compliance in a way that is fair to businesses and residents, and does not cause financial hardship to people in Greater Manchester; and
- Ensure the reduction of harmful emissions is at the centre of Greater Manchester's wider objective for delivering the Bee Network's core objectives.

10.1.3 Targeted investment is envisaged to be developed based on the following three mechanisms:

10.2 Electric buses

10.2.1 Investment in electric buses across the network and particularly targeting the last points of exceedance will bring significant air quality benefits, as set out in **Sections 7-9**, though further work is required to develop this evidence base.

10.2.2 It is anticipated that this investment would include 50 electric buses delivered in September 2023 in the first phase of Greater Manchester's bus franchising programme. This programme of works has been approved for delivery recently, and is therefore only now able to be factored into the New GM CAP. The New GM CAP will also likely specify funding for electric buses on services travelling through the regional centre, particularly at key 'last compliance' sites as set out in this report.

10.2.3 Bus accounts for a high proportion of emissions at the majority of the most persistent locations of exceedance in Greater Manchester. By targeting zero emission bus investment at services passing through those locations, Greater Manchester could achieve substantial reductions in NO_x emissions and reduce NO₂ concentrations. This approach could bring air quality improvements and additional benefits to passengers benefiting from high quality new buses without the need to implement a charging CAZ.

10.3 Vehicle upgrades

- 10.3.1 An investment-led non-charging GM CAP will also aim to encourage upgrade to cleaner vehicles, leading to better air quality, by providing funding packages to those most polluting vehicles travelling in locations experiencing NO₂ exceedances.
- 10.3.2 Under an investment-led non-charging GM CAP, rather than a formally signed charging CAZ, the ANPR cameras could be used to inform and support the development of investment-led solutions, which will be developed further.
- 10.3.3 An investment-led non-charging GM CAP could facilitate upgrade for those still in a financial position to do so, over a timescale that they can achieve, without requiring any investment from those not able to afford it. This approach will provide businesses that could be in a position to upgrade with financial support to do so, bringing fresh investment into Greater Manchester's local economy and allowing businesses to access cleaner vehicles that may be cheaper and more efficient to operate. Under an investment-led approach and without a charging CAZ in place, those businesses and individual vehicle owners who are not in a financial position to upgrade are able to continue operating as now, without any increase in costs imposed by the scheme.

10.4 Partnership working

- 10.4.1 The 10 authorities are committed to working in partnership with stakeholders and with other transport bodies to deliver solutions that are area-specific and appropriate for Greater Manchester. This could include working with National Highways to tackle poor air quality on Regent Road and on the A628/A57 at Mottram (some of the last compliance sites that are discussed in more depth in **Section 8**). Partnership working could also include working with vehicle-owning stakeholders to ensure the New GM CAP delivers change and meets their needs.
- 10.4.2 **Table 8** sets out the type of measures that an investment-led non-charging GM CAP could consider; the next steps are to carry out a participatory policy development exercise to determine a package of measures to deliver the best possible investment-led non-charging GM CAP. Further detail on this planned approach is set out in **Section 12**.
- 10.4.3 Under an investment-led non-charging GM CAP, rather than a formally signed charging CAZ, the ANPR cameras could be used to better understand those vehicles where GM would get the greatest emissions reduction from those non-compliant vehicles travelling regularly through GM's most NO₂ polluted places. This will be explored in further detail, alongside other approaches to targeting the funds in the most impactful manner.

Table 8 Greater Manchester CAP Vehicle Measures

Vehicle type	Measure subject to review during participatory policy approach
Bus	<p>Continue with existing funding.</p> <p>Ensure franchising and other governance/planning processes are established so that electric buses are running on routes containing most persistent exceedance points to ensure compliance - with a focus on the regional centre/city centre as the transport hub of the city-region.</p> <p>Initial sensitivity testing indicates that delivery of sufficient bus electrification would achieve compliance at modelled exceedance locations except Regent Road by 2025. A delivery plan is under development with the aim of achieving this.</p>
HGV	<p>Consider offer including eligibility for funding, in light of needing to ensure the cleanest vehicles are running in areas containing most persistent exceedance points to ensure compliance.</p>
Coach	<p>Consider offer including eligibility for funding, in light of needing to ensure the cleanest vehicles are running in areas containing most persistent exceedance points to ensure compliance.</p>
Greater Manchester Hackney Carriage	<p>Consider offer including eligibility for funding, in light of needing to ensure the cleanest vehicles are running in areas containing most persistent exceedance points to ensure compliance – most Hackney Carriages are licensed in the Manchester City Council (MCC) district.</p> <p>Target GM CAP funding to increase roll out of dedicated taxi and other general electric vehicle charging infrastructure points to ensure fleet upgrade to electric vehicles is viable and taxi industry is supported. Consider opportunities for regulatory measures such as licensing standards to complement funding incentives to accelerate fleet upgrades.</p>
Greater Manchester PHV	<p>Consider offer including eligibility for funding, in light of needing to ensure the cleanest vehicles are running in areas containing most persistent exceedance points to ensure compliance. Consider opportunities for regulatory measures such as licensing standards to complement funding incentives to accelerate fleet upgrades.</p>
Clean air promotion of clean air initiatives	<p>Explore opportunities for EVCI investment to support expansion of Car Club in and around city centre and wider city.</p> <p>Target GM CAP funding to continue to roll out sustainable transport infrastructure investment and messages particularly in and around the regional centre to reduce emissions in key exceedance areas. This will include a particular focus on city centre in points of persistent exceedance, such as Deansgate and surrounding streets, as well as other active travel and public transport schemes.</p>

Vehicle type	Measure subject to review during participatory policy approach
	Explore opportunities for GM CAP funding to support other infrastructure investment to address air quality issues, such as green infrastructure.

Table 9 Greater Manchester CAP Cluster Measures

Exceedance cluster	Measure subject to review during participatory policy approach
City centre	<p>In the city centre, bus emissions account for at least 70% of total NO_x emissions at the majority of locations and therefore electric buses can be very effective. Initial sensitivity testing indicates that delivery of sufficient bus electrification would achieve compliance at these locations by 2025. A delivery plan is under development with the aim of achieving this.</p> <p>Further work is also underway to develop a proposition for taxi that encourages upgrade to the cleanest vehicles, and to explore how investment in highway and other transport infrastructure under the city centre transport strategy can best support clean air.</p>
Regent Road	<p>Emissions on Regent Road are principally derived from commercial and logistics traffic, which accounts for c.50%. In addition, the corridor is immediately fed by the M602 motorway and subject to the implications of National Highways signage and traffic management policies.</p> <p>Salford City Council (SCC) and MCC have commissioned analysis via TfGM to improve understanding of the operation of the road and nature of the traffic on Regent Road to help with the joint working with National Highways (NH) which must include how the deployment of funds and local servicing plans can support appropriate solutions to deal with the exceedance at this location.</p> <p>Note that Electric Towns and Cities Infrastructure initiative (ETCI) – NH initiative being explored for mitigation for sections of the SRN.</p>
Bury Bridge	<p>The electrification of bus services over the bridge should happen with the first 50 new zero emission buses that will be brought into service with the launch of the regulated bus system in Wigan and Bolton. Initial sensitivity testing indicates that delivery of sufficient bus electrification would achieve compliance at this location by 2025. A delivery plan is under development with the aim of achieving this.</p>

- 10.4.4 Under an investment-led non-charging GM CAP the ANPR cameras installed for the Class C charging CAZ could be used to inform and support the development of investment-led solutions- for example, ANPR cameras could help determine eligibility for upgrade funding by identifying those non-compliant vehicles travelling most regularly through areas of NO₂ exceedance. GM would also want to utilise the ANPR cameras for potential law enforcement activity related to the detection of crime.
- 10.4.5 Greater Manchester will continue to seek to ensure that the Government takes appropriate action to address exceedances on the A628/A57, a stretch of the Strategic Road network, managed by National Highways that cuts through the villages of Hollingworth and Mottram.

DRAFT FOR APPROVAL

11 How will Greater Manchester deliver the New GM CAP?

- 11.1.1 The ten Greater Manchester local authorities have taken a region-wide approach to producing a GM CAP because it is recognised that air pollution does not respect local authority boundaries. This enables a consistent and coordinated approach, maximising air quality benefits for all people living and working in Greater Manchester, whilst minimising the risk of unintended consequences. These could include the displacement of existing, elevated NO₂ concentrations to other locations within Greater Manchester. A coordinated approach also helps to ensure, as far as possible, alignment between the GM CAP and other Greater Manchester strategies, including the existing Greater Manchester Air Quality Action Plan.^{66,67}
- 11.1.2 Governance arrangements for the ten Greater Manchester local authorities have been established through the Greater Manchester Clean Air Charging Authorities Committee⁶⁸ (a committee created to enable joint decision-making by the 10 local authorities as charging authorities) and the Air Quality Administration Committee⁶⁹ (a further joint committee created by the ten Greater Manchester local authorities and the GMCA).
- 11.1.3 Whilst the New GM CAP will propose an alternative to a Greater Manchester-wide Class C charging CAZ, as set out in **Section 9**, the approach to delivery of the New GM CAP will not change and will build upon the existing collaborative delivery and governance arrangements already developed between the ten local authorities through the development of the Previous GM CAP. The New GM CAP will also be developed in conjunction with a range of stakeholders, using a 'Participatory Policy Development' process, which is described in **Section 12**.

⁶⁶ <https://www.greatermanchester-ca.gov.uk/media/1272/air-quality-action-plan-2016-21.pdf>

⁶⁷ <https://www.greatermanchester-ca.gov.uk/media/1276/low-emission-strategy-dec-2016.pdf>

⁶⁸ [Clean Air Charging Authorities Committee Terms of Reference.pdf \(greatermanchester-ca.gov.uk\)](#)

⁶⁹ [Terms of Reference - Air Quality Administration Committee.pdf \(greatermanchester-ca.gov.uk\)](#)

12 How will Greater Manchester ensure a participatory approach to the development of a New CAP?

12.1 Changing Public Awareness

12.1.1 The Previous GM CAP development has gone through multiple stages including an options assessment. That options assessment concluded in February 2019 that a Greater Manchester-wide Class C charging CAZ was the preferred option to achieved air quality compliance in the shortest possible time, as accepted by government per ministerial Directions issued in 2019 and 2020. Since that stage, the proposals forming the GM CAP have been refined based on further evidence gathering and stakeholder consultation which formed the Previous GM CAP in Summer 2021. This included:

- In 2019, a public conversation⁷⁰ was held on the proposals at the outline business case, with over 3,300 responses.
- Between 8 October and 3 December 2020, a statutory consultation on the GM CAP was held on the proposed Class C charging CAZ. A total of 4,768 responses were received during the consultation period.
- A six-week public consultation commenced from the 1st September 2021 on the inclusion of motorhomes classified as MSP1 within the scope of CAZ charges and on the inclusion in the GM CAZ of the A575 and A580 at Worsley. The analysis of consultation responses was paused when the review of the Previous GM CAP commenced.

12.1.2 Signage implementation for the GM Class C charging CAZ commenced on 29th September 2021 with temporary sign faces developed in accordance with existing DfT authorisation to raise awareness about the zone. In January 2022 a Facebook group formed asking Greater Manchester leaders to rethink the GM CAP. In a short space of time this group gathered 85,000 followers on a social media page with the core aim of the campaign stating something needed to be changed or the scheme needed to be scrapped all together.

12.2 Participatory Approach

12.2.1 The ten Greater Manchester authorities are currently working to develop the New GM CAP, in conjunction with a range of stakeholders. This wider, more participatory approach will ensure that the Plan works for the residents and businesses of Greater Manchester. This process is set out below.

⁷⁰ The information provided at the conversation, as well as the summary of responses can be found here: <https://cleanairgm.com/technical-documents>

- 12.2.2 The 10 authorities are working to ensure that the New GM CAP is the right fit to deal with Greater Manchester's challenges, both in economic and air quality terms. Given the situation – a poor economic outlook for the UK as a whole and for Greater Manchester – and increasing evidence of the harm poor air quality causes, this is a delicate balance.
- 12.2.3 Integral to the success of any New GM CAP is active engagement with those it will affect. Greater Manchester is committed to undertaking a participatory approach to the development of the New GM CAP to ensure that Greater Manchester's proposals consider evidence regarding deliverability and the impacts on affected groups. Greater Manchester has conducted such engagement throughout the development of the GM CAP, and will continue to do so at this next, critical, stage.
- 12.2.4 Due to the timescales governing the initial submission back to Government, it is proposed that Greater Manchester will continue with a process of Participatory Policy Development after this initial submission is provided. This is described further in **Section 15** and will involve engaging with a wide range of stakeholder groups to continue to gather feedback on proposals as they are developed.

13 What are the equalities considerations?

13.1.1 Under Section 149 of the Equality Act (2010), public bodies are subject to the Public Sector Equality Duty, which requires that they have due regard to the need to:

- Eliminate discrimination, harassment, victimisation, and any other conduct that is prohibited by or under the Act;
- Advance equality of opportunity between persons who share a protected characteristic and persons who do not share it; and
- Foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

13.1.2 The aim of an Equality Impact Assessment (EqIA) is to identify whether people with protected characteristics could be affected by the GM CAP disproportionately or differentially:

- Disproportionate effects arise when an impact has a proportionately greater effect on people with protected characteristics than the rest of the population.
- Differential effects arise where people with protected characteristics could be affected differently from the rest of the population, due to a particular need or sensitivity.

13.1.3 In addition to the 9 protected characteristics covered within the Equality Act, the majority of Greater Manchester's local authorities also consider socio-economic deprivation as a characteristic in their equality assessments. As such, low income / socio-economic deprivation will be considered in this instance.

13.1.4 A full EqIA will be undertaken to support and inform the development of the policy and measures within the New GM CAP. This will build on the learning from the work undertaken in 2020-2021, taking into account the proposed measures and updated demographic and socio-economic data, including the 2021 census data if available.

13.1.5 An initial screening has been undertaken to assess which protected characteristics are likely to be impacted by the New GM CAP, and in scope for the EqIA as shown in **Table 10**.

Table 10 Equality Considerations - Protected Characteristics

Protected characteristic	Likely to be disproportionately affected by improved air quality	Likely to be differentially affected by improved air quality
Age		x
Disability (includes all forms of physical and mental disability)		x
Pregnancy and maternity		x
Gender (male drivers)	x	
Race	x	
Low income / socio-economic deprivation	x	

13.1.6 The 2022 Direction requires that any revised GM CAP must reduce NO₂ concentrations to below legal limits in the shortest possible time and by 2026 at the latest. In addition to a GM-wide assessment of the impact of improved air quality on the scoped-in groups, the EqlA will pay particular attention to those communities within, or neighbouring the last points of exceedance: namely, those in the city centre, at Bury Bridge and Regent Road.

13.1.7 Those impacted by air quality changes with protected characteristics could potentially be impacted by the proposed measures adopted within the New GM CAP. The nature and scale of the impact will depend on the preferred policy option and the measures chosen. Therefore, **Table 11** provides a summary of the protected characteristics which will also be considered in the EqlA.

Table 11 Equality Considerations – Protected Characteristics Scope

Protected characteristic	Potential disproportionate impact dependent on option
Age	X
Disability (includes all forms of physical and mental disability)	X
Pregnancy and maternity	X
Race	X
Religion / belief	X

Protected characteristic	Potential disproportionate impact dependent on option
Sex	X
Gender Reassignment	X
Sexual Orientation	X
Low income / socio-economic deprivation	X

13.1.8 As a result of this screening process, marriage and civil partnership will not be scoped into the EqIA process for the New GM CAP.

13.1.9 To inform a robust EqIA for the New GM CAP the approach to Participatory Policy Development, as described in **Section 12**, will include engagement with Greater Manchester-based organisations and networks which represent protected characteristic groups that could potentially be impacted by the New GM CAP. Representative groups will be identified at the next stage and their feedback will also be used to inform the final EqIA.

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14 Government asks

14.1.1 Throughout the development of the GM CAP the local authorities have made clear the expectation that the UK Government would support the plans through:

- Clear arrangements and funding to develop workable, local vehicle scrappage / upgrade measures;
- Short term effective interventions in vehicle and technology manufacturing and distribution, led by national Government
- Replacement of non-compliant buses; and
- A clear instruction to National Highways to implement measures which deliver compliance with legal limits for NO₂ on the strategic road network, for which they are responsible, in the shortest possible time⁷¹.

14.1.2 In particular, Greater Manchester had been clear from the outset in the OBC for the GM CAP (2019) that any GM CAP based on significant vehicle change could only be sustained under stable vehicle market conditions. Greater Manchester had been from the outset concerned about the scale and diversity of the LGV fleet/LGV-owning business sectors; the fact that compliant diesel LGVs had only become available in 2016; the high volume of diverse and active Small and Medium-sized Enterprises (SMEs) in Greater Manchester, many of whom rely on small commercial vehicles on a daily basis; and the relatively old age profile of LGVs in Greater Manchester.

14.1.3 Greater Manchester therefore required Government to maintain a clear oversight of the supply chain conditions, within which the GM CAP would have to operate, recognising the structural nature of markets that are beyond the influence of any one local authority or area.

14.1.4 Further, one key barrier preventing Greater Manchester local authorities from being able to effectively oversee the progressive improvement of private hire vehicle (and therefore emission) standards, is the ongoing ability of vehicle owners / drivers to be licensed 'out of area'.

14.1.5 Over the past three years, the ten Greater Manchester local authorities have worked together to adopt Minimum Licensing Standards to increase public safety including driver standards, rationalising age and emissions policies and livery on vehicles. However, the effect of out-of-area licensing has been to undermine Greater Manchester's approach, and to negatively impact public safety while doing nothing to improve public confidence in a well-regulated local trade.

⁷¹ Greater Manchester Authorities are directed to take action on the local road network. Those roads managed by National Highways, such as motorways and trunk roads are excluded from the CAP.

- 14.1.6 Accordingly, Greater Manchester is looking to secure, via Greater Manchester's Devolution Trailblazer bid, a commitment from Government to devise an appropriate regulatory approach that will legally require that all private hire journeys within the Greater Manchester boundary must be undertaken by a driver and vehicle which are both licensed by one of the ten Greater Manchester local authorities. The effect would be to ensure that private hire operators with a license to operate in one or more of the ten Greater Manchester local authorities will be required to serve any intra Greater Manchester journey request with a locally licensed driver and locally licensed vehicle.
- 14.1.7 Greater Manchester represents the ideal spatial scale to introduce this vital measure. With over 40 million trips taken each year by hackney and private hire vehicles, around 20,000 driver licenses issued and 13,000 vehicle licensed locally across an area with a coherent economic geography, the vast majority of these trips are undertaken within the external boundary of the ten Greater Manchester local authorities.
- 14.1.8 Government's response to the DfT Task and Finish Group on taxi and private hire licensing report was to highlight that *"Local authorities are accountable for licensing in their areas and it is only right that they have the powers to properly shape and influence their local market."* To this end, *Greater Manchester is keen to work with the Department to "consider further (with a view to legislation) how it might best work in detail".*⁷²
- 14.1.9 As it stands, out-of-area operation enables the evasion of fair, safe and democratically determined local licensing standards, which undermines public safety as well as local measures to progressively improve up driver and vehicle standards.
- 14.1.10 In context of the GM CAP, the ability to provide local licensing standards would help to improve the emission standards of taxis operating in Greater Manchester whilst providing incentives to upgrade non-compliant vehicles. This complementary measure would provide more certainty in Greater Manchester's ability to meet required exceedance levels.
- 14.1.11 Under an investment-led non-charging GM CAP the ANPR cameras installed for the Class C charging CAZ could be used to inform and support the development of investment-led solutions. GM also wants to work with Government to agree the use of the GM CAP ANPR cameras to support identification of vehicles that could be upgraded, and also for potential law enforcement activity related to the detection of crime.

⁷² <https://www.gov.uk/government/publications/taxi-and-private-hire-vehicle-licensing-government-response-to-independent-report>

15 Next steps

15.1.1 Greater Manchester recognises that the current economic climate has changed. This has impacted on individuals and businesses' ability to upgrade their vehicles and ultimately, deliver compliance in the shortest possible time.

15.1.2 This submission has set out the evidence base underpinning Greater Manchester's belief that a charging CAZ scheme is no longer the best solution to deliver compliance. Additionally, this submission has set out that an investment-led non-charging GM CAP is the best solution to address the air quality problem in Greater Manchester.

15.1.3 In support of this submission, Greater Manchester has engaged with the following key groups to discuss their experiences of current economic and vehicle market conditions and validate the evidence and conclusions set out throughout this submission document. The groups that have been engaged with prior to this submission are:

- Greater Manchester business leaders as convened through the LEP Chair;
- Road Haulage Association;
- A number of Hackney Carriage and PHV groups including trade representation organisations, the National Private Hire and Taxi Association and the Licensed Private Hire Car Association;
- One Bus Partnership – representing bus operators in Greater Manchester; and
- The Confederation of Passenger Transport.

15.1.4 Feedback from these discussions is reported to the Air Quality Administration Committee on the 1st July 2022. Following submission of this document, Greater Manchester will undertake a Participatory Policy Development process. This will involve exploration of three aspects of policy:

- Developing Greater Manchester's electric bus proposition, including identifying bus routes and services to be upgraded, assessing the impact on NO₂ concentrations and proposing a delivery plan;
- Developing a Fund proposition and any other measures to encourage upgrade to cleaner vehicles considering questions such as what funding offer would be effective, who should be in scope for funding, and whether funds should be targeted at the last points of exceedance; and
- Carrying out local area studies of the last points of exceedance to assess what measures are required to achieve compliance at each site.

15.1.5 The policy development process will involve the following stages:

- Evidence gathering – including via stakeholder engagement, research and the development of analytical tools and methods for estimating the impact of different measures;
- Review of that evidence to define the challenge and inform the development and assessment of different individual measures and policy options; and
- Development of a package of proposed measures and assessment of that package.

15.1.6 At each stage of this process, stakeholder input and feedback will be sought and this will be used to inform the proposed package of measures and ensure that it has been designed in collaboration with those affected by the scheme.

15.1.7 Alongside the Participatory Policy Development process, Greater Manchester will work with JAQU to agree the submission requirements for a New GM CAP and will review delivery plans and operational requirements for any new scheme, including financial and commercial considerations.

15.1.8 As the final output of the Participatory Policy Development process, Greater Manchester will have developed, assessed and agreed a package of measures forming a proposed New GM CAP, suitable for public consultation. It is anticipated that local authorities would be in a position to proceed with public consultation in early 2023.

15.1.9 The requirement for statutory consultation on the GM CAP arose as a consequence of the use of Transport Act 2000 powers for road user charging and therefore it is likely that an investment-led non-charging GM CAP would not require statutory consultation. However, in line with the principles for the review outline by Greater Manchester authorities in the Spring, it is proposed that broad public engagement on the New GM CAP will be undertaken in line with good local authority practice, to ensure impacts are understood, and in particular to inform the ongoing equality impact analysis.

15.1.10 Greater Manchester will review the responses to the consultation and make any adaptations to the proposals as necessary. It is anticipated that local authorities could be in a position to make a decision to proceed with the New GM CAP in July 2023.

15.1.11 Greater Manchester will agree with JAQU the nature and timescale of a submission to Government. Alongside the proposed package of measures and policy for a New GM CAP, it is anticipated that this would include analysis setting out the air quality and socio-economic impacts of the scheme and an EqIA.

- 15.1.12 The submission will set out Greater Manchester's approach to managing the performance of the scheme through a performance management plan, a monitoring and evaluation plan and an adaptive planning process if alterations to the scheme post-implementation are required. This will ensure that the policy contained in the New GM CAP remain appropriate throughout the lifetime of the interventions. Air quality monitoring data will be kept under review and further action may be taken at any sites identified as being at risk of persistent exceedance.
- 15.1.13 Through preparation and commissioning of the Previous GM CAP, Greater Manchester has experience in engaging and appointing contractors to deliver clean air benefits. The scheme submission will include a delivery plan to provide confidence in the proposed procurement and management approach for delivery of each aspect of an investment-led non-charging GM CAP.

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

Appendix A - Technical Note: Vehicle Sector Review – HGV Sector

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June 2022

1. Introduction

Background

- 1.1 After the initial OBC submission, a series of technical notes were published setting out the results of analysis and research carried out to better understand the vehicles in scope for the scheme.
- 1.2 For heavy goods vehicles (HGVs), this included, in particular, Technical Note 3: Analysis of the Freight Market, Technical Note 12: Evidence of the impact of a 2021 implementation of a CAZ C (without exemptions), and Technical Note 20: GM Specialist Goods Survey Results Summary¹. Further notes were produced setting out the development of analytical tools for freight, with the latest published summary of that work provided in T4 Appendix A of the Modelling for Consultation².
- 1.3 This evidence formed the basis of the development of the Option for Consultation. From March 2020, it became clear that the pandemic would affect the Greater Manchester Clean Air Plan (GM CAP); a programme of work was carried out in 2020/2021 to better understand the possible impacts of the Covid 19 pandemic on the GM CAP, published as the Impacts of Covid Report in June 2021³. This evidence, alongside feedback from the Consultation, was used to inform the revised GM CAP as approved by the ten GM local authorities in June/July 2021.
- 1.4 At that time, GM identified a number of possible risks to the GM CAP, which included concerns about the risk of vehicle price increases and the impact of any further lockdowns in the UK or countries in the supply chain.
- 1.5 This report draws a series of findings and conclusions to better understand the circumstances affecting HGV owners in Spring 2022 (based upon the previous' GM CAP implementation date) and the implications for the GM CAP and surrounding policy framework.
- 1.6 Since Spring 2022, there have been further dramatic changes to the economic context in the UK which are not explicitly addressed in this report but are set out in **Appendix E**. A range of factors associated with the impact from war in Ukraine, increased costs of energy and fuel, changes to Bank of England base rates and forecasts, global supply chain challenges, and the cost-of-living crisis have combined to create a context of increased financial hardship for businesses and families.

Structure of Note

- 1.7 The remaining sections of the report are structured as follows:
 - **Section 2** provides a review of the in scope vehicles of the HGV sector in GM;
 - **Section 3** reviews the impacts of Covid-19 on the HGV sector, with a particular focus on the availability and indicative purchase prices of new and used HGVs. This chapter also considers the vulnerability impacts of Covid-19 on the sector; and

¹ All available at <https://cleanairgm.com/technical-documents/>

² [https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4 - Appendix A Behavioural Response Cost Models and Demand Sifting Tool.pdf](https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4_-_Appendix_A_Behavioural_Response_Cost_Models_and_Demand_Sifting_Tool.pdf)

³ GM CAP- Impact of COVID Report. Available at: <https://cleanairgm.com/technical-documents/>

- **Section 4** provides a summary of the key findings, also presenting details of any risks or issues facing the sector in responding to GM CAP.

1.8 In addition, **Appendix A** provides a list of data used to inform the report and **Appendix B** reviews the recent changes in travel behaviour within GM through the pandemic up until January 2022.

2. Overview of the HGV sector in GM

Overview of Vehicle Sector

- 2.1 In the UK, the term HGV is used for any lorry with a maximum gross weight of over 3.5 tonnes. Vehicles over 7.5 tonnes gross require a Heavy Goods Vehicle driver's license.
- 2.2 In 2020 GB registered HGVs carried over 1.27bn tonnes of goods and travelled 16.2bn vehicle kilometres.⁴
- 2.3 At the end of 2020 there were 485,900 HGVs operating in the UK, with 99.4% of those powered by diesel.⁵ Vehicles have got larger and heavier, with the average Gross Vehicle Weight now 22.8 tonnes (up from 18.7 tonnes in 2000) and the percentage of vehicles over 41 tonnes (GVW) rising from 17.4% in 2010 to 24.2% in 2020.⁶
- 2.4 An Operator's Licence is required for businesses that use goods vehicles over 3,500kg. The number of goods vehicle operator licences currently issued in Great Britain declined to under 100,000 in 2009/10 falling further to 69,000 in 2019/20. During this period the average size of an operators' fleet increased from 3.8 vehicles to 5.2 vehicles per licence, meaning fewer individual licences covering more vehicles. This means fleets are getting larger, however the sector is still dominated by SMEs, including owner-drivers who drive and operate their own vehicle.⁷
- 2.5 In Greater Manchester it is estimated there are over 20,000 HGVs⁸ registered in the area. Vehicles in the sector vary in size, from 7.5 tonne 4-wheeler box vehicles often deployed on shorter, local runs (such as deliveries to the end customer) to 44 tonne articulated vehicles often used for strategic 'trunking' movements (such as taking a container from a port in the South of England to a Distribution Centre in the Midlands or North of England).
- 2.6 The age profile of HGV fleets has not significantly varied since 2000, with between 25%-30% of the national HGV fleet newer than 3 years old.⁹
- 2.7 Vehicle lifespans vary; companies operating larger fleets, such as those in the food and retail sectors, typically replace vehicles more frequently and are therefore more

⁴ Domestic Road Freight Statistics, United Kingdom 2020, Department for Transport

⁵ Department for Transport Statistics, Table VEH0503 Licensed heavy goods vehicles at the end of the year by propulsion / fueltype, Great Britain from 1994; also United Kingdom from 2014

⁶ Department for Transport Statistics, Table VEH0506 Licensed heavy goods vehicles at the end of the year by gross vehicle weight (tonnes), Great Britain from 1994; also United Kingdom from 2014

⁷ Domestic Road Freight Statistics, United Kingdom 2020, Department for Transport

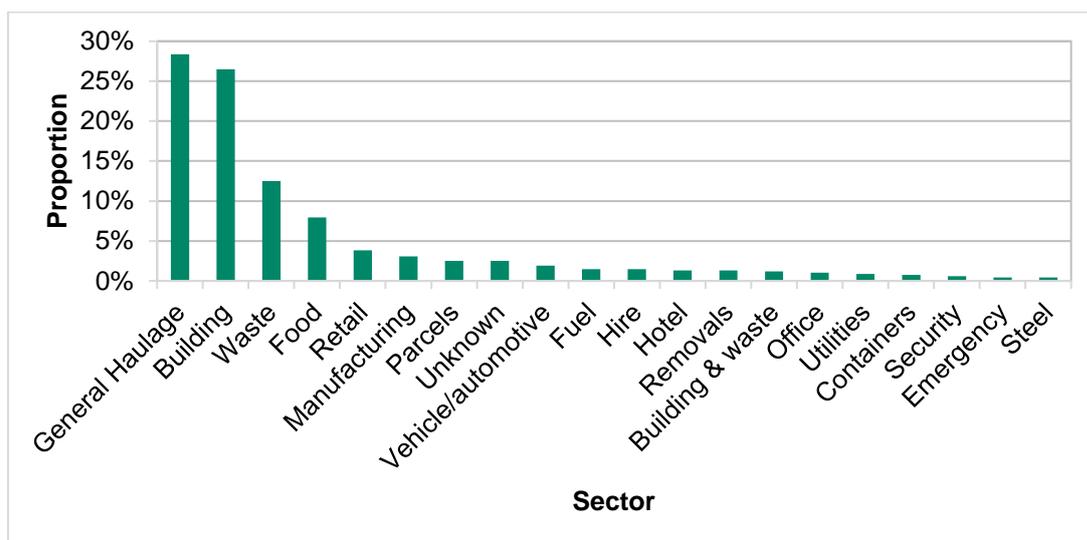
⁸ Based on size of market served by HGV (population served). GM equates to 4.2% of UK population, allocation of circa 500,000 HGVs based in UK (Source: SMMT)

⁹ Department for Transport Statistics, Table VEH0507 Licensed heavy goods vehicles at the end of the year by number of years since first registration, Great Britain from 1994; also United Kingdom from 2014

likely to have CAZ compliant vehicles at present, although some parts of those sectors have been badly affected by the pandemic in terms of extended periods of closure or constrained operations. Longer vehicle lifespans are associated with sectors such as waste and removals, the main factors are the margins on product being moved or the level of intensity that a vehicle is used.

2.8 The largest sector, General Haulage, makes up 29.1% of the GM market and includes over 2,000 vehicles affected by the GM CAP¹⁰. (See **Figure 2-1**).

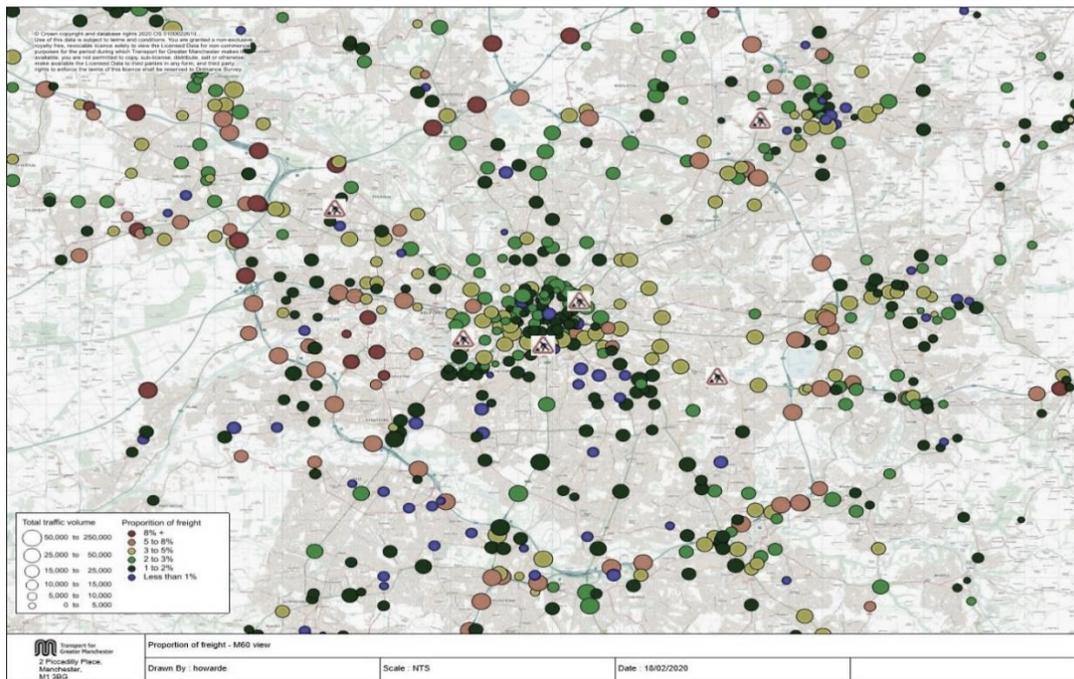
Figure 2-1 HGV Traffic Volumes in Greater Manchester, Feb '20



Source: AECOM Specialised Goods Vehicle Surveys, UK

2.9 **Figure 2-2** demonstrates the HGV pre-pandemic traffic proportions in Greater Manchester. The data used to populate the map was taken from traffic count information collected in mid-February 2020. This date was chosen as it would represent a typical “working” weekday in the first quarter of a year. The Strategic Road Network (SRN) generally has higher volumes of traffic overall and higher proportions of freight-related traffic. Key radial routes into the city often have relatively high volumes of freight vehicles, however form a lower proportion of overall traffic volumes, due in part to high volumes of commuter traffic.

Figure 2-2 HGV Traffic Volumes in Greater Manchester, Feb '20



Source: Draft TfGM Freight Strategy

Review of in scope Vehicles

2.10 For context, the proportion of vehicle types in GM, relative to the regional and national averages, are provided in **Table 2-1** based on the latest available registration statistics from the DfT. There will be instances, particularly for commercial usage, where vehicles are licensed in one location but used in another, but this table provides an overview of the relative size of each fleet.

Table 2-1 Proportion of Vehicle Types Registered by Area, 2022

	Cars	Van	HGV	Bus & Coach	Other
GB	85.0%	11.3%	1.3%	0.4%	2.1%
England	85.1%	11.3%	1.3%	0.4%	1.9%
NW	85.7%	10.9%	1.5%	0.3%	1.6%
GM	85.6%	11.8%	1.6%	0.4%	0.7%

Source: Department for Transport., Statistical data set, All vehicles (VEH01), Last updated 13 January 2022

2.11 **Table 2-2** presents the number of HGVs serving Greater Manchester in 2019, split by compliant and non-compliant vehicles.

Table 2-2 2019 HGV Volumes, 2019

Modelled Response	GM Based	Non-GM Based	Total
Compliant	12,212	29,852	42,064
Non-Compliant	13,525	15,203	28,728
Total	25,737	45,055	70,792

Source: Air Quality Modelling Report: with impacts of Covid-19 and Post Consultation Package Measures

Changes to HGVs Over Time

- 2.12 Projection of the 2019 HGV totals, as set out in **Table 2-2**, was undertaken to forecast the natural change in compliant vehicles into the future, without any interventions applied (Do Minimum – No GM CAP). This was undertaken to understand the market's proportion of natural upgrades. Natural upgrades, without the impact of the pandemic, have been incorporated into the key forecast years (2022, 2023 and 2025) through retention of a constant age profile with the number of non-compliant vehicles reducing over time, summarised in **Table 2-3**.
- 2.13 This shows that natural vehicle upgrades grow the proportion of compliant vehicles serving GM from 42,064 (59%) in 2019 to 54,213 (77%) by 2022. This results in an 8.5% annual change in the split between compliant and non-compliant HGVs serving the GM market.

Table 2-3 Forecast Do Minimum (without CAP) Compliant HGVs

Year	Modelled Response	GM Based	Non-GM Based	Total
2022	Compliant	18,410	35,803	54,213
	Non-Compliant	7,327	9,252	16,579
	Total	25,737	45,055	70,792
2023	Compliant	19,749	37,523	57,272
	Non-Compliant	5,988	7,532	13,520
	Total	25,737	45,055	70,792
2025	Compliant	22,002	40,785	62,787
	Non-Compliant	3,735	4,270	8,005
	Total	25,737	45,055	70,792

Source: Air Quality Modelling Report: with impacts of Covid-19 and Post Consultation Package Measures

Note: All years indicate the beginning of the year

Review of Fleet Profile

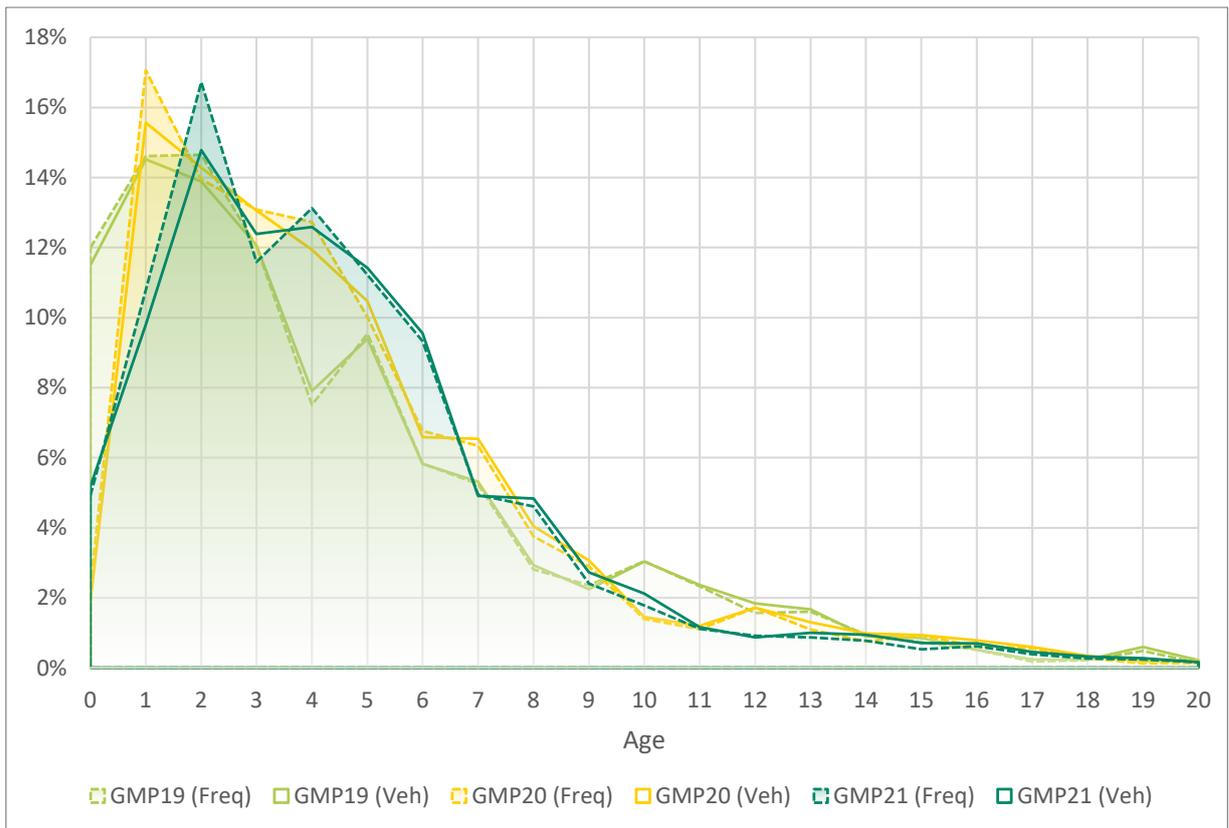
ANPR

- 2.14 Three sets of ANPR data were used, based on available data, these comprise the following time periods:
- GMP19 - January 2019 (pre Covid-19 pandemic);
 - GMP20 - September 2020; and
 - GMP21 - November 2021.

2.15 **Figure 2-3** presents the vehicle age profile of HGV in each survey. The proportion of newly purchased HGVs (i.e. less than 1 year-old) captured by ANPR cameras decreased from near 12% to 2% from 2019 to 2020¹¹ and recovered to close to 6% by the end of the 2021. These figures are likely to be slightly overestimated due to differences in the sample size (10 months' worth of 'new vehicles' captured in the January 2019 survey compared to 6 and 8 months captured in the September 2020 and November 2021 surveys).

2.16 The analysis, as shown in **Figure 2-3** suggests that the average age of HGVs increased by 0.5 years from the beginning of 2019 to the end of 2021.

Figure 2-3 HGV fleet age distribution



Source: GMP ANPR Data analysis

Table 2-4 Average HGV Age

Data set	GMP19	GMP20	GMP21
Frequency			
Average Age	4.6	5.0	5.0
Most common age group	2	1	2
Unique Vehicles			
Average Age	4.8	5.2	5.3
Most common age group	1	1	2

Source: GMP ANPR Data analysis

¹¹ Acknowledging that 2020 is missing at least 3 months of data since the survey was taken in September.

SMMT

- 2.17 The latest figures from SMMT as this document was reviewed shows that HGV registrations are on the rise, but still not at the same levels from the years prior to the pandemic. Sales of new HGVs had been brought forward into 2019 by many hauliers. Given the relatively low divergence of HGV registrations over the 2019-2021 period, it is not possible to distinguish how Covid-19 has impacted on the longer-term pattern of HGV investment cycles.
- 2.18 In July 2019, Specialised Goods Vehicle Counts (SGVC) were undertaken across 3 sites in Salford and Manchester on key approaches to the city centre. This exercise was repeated in October 2020, which demonstrated that compliance rates had improved. This may be due to a general natural trend in improvements to the fleet over time. Although it may also reflect changing travel behaviour due to the restrictions in place at the time, which could have impacted on the types of HGVs accessing these parts of the Regional Centre at this time.
- 2.19 **Table 2-5** shows the results of these surveys, which shows that a significant proportion of non-compliant vehicles are from the building/construction sector.

Table 2-5 Specialised Goods Vehicle Count Results (2019 & 2020)

Location	No of HGVS observed (2019)	Compliance (2019)	Compliance (2020)	Non-Compliance by sector (2019)
Bridge Street, Manchester	271	58%	75%	22% Building 22% Waste 17% Food
Regent Road, Salford	1,071	66%	71%	29% Building 20% General Haulage
A6 (immediately South of Mancunian Way)	612	60%	n/a	27% Building 13% General Haulage

Source: AECOM SGVC Survey, note the A6 site was not resurveyed in 2020

3. Review of Covid-19 impacts on the HGV vehicle sector

Overview

3.1 The HGV sector has been reviewed to consider pre-pandemic background characteristics, Covid-19 related impacts on the industries affected by the sector, and review of the expected vulnerabilities when responding to GM CAP.

Pre-Pandemic – Sector related trends

- 3.2 Unlike the van sector, which has seen significant growth in the number of vehicles in recent years, the HGV market pre-pandemic has remained largely constant over the last 20 years, with a 2% reduction in vehicle numbers overall since 2000.¹²
- 3.3 However, HGV registrations do fluctuate as shown in **Figure 3-1** and **Since 2000**, although total HGV numbers have been relatively stable there is some evidence of downsizing from HGVs to LCVs to accommodate more agile supply chains.
- 3.4 Figure 3-2 showing the impact that the financial downturn experienced in 2009 had on the number of HGVs being registered and subsequent 'bounce-back' as the economy recovered.

Figure 3-1 Number of HGV Registered Per Year in the UK

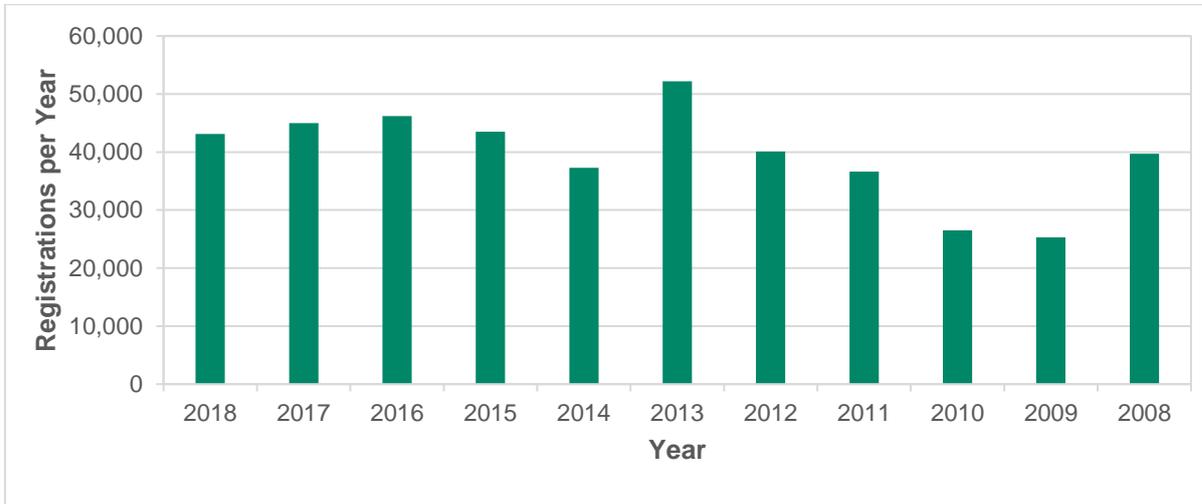
Year	No. of HGVs (000's)	% of HGVs	Euro Standard
2018	43.1	8.2%	Euro 6
2017	45	8.5%	
2016	46.2	8.8%	
2015	43.5	8.2%	
2014	37.3	7.1%	
2013	52.2	9.9%	Euro 5
2012	40.1	7.6%	
2011	36.6	6.9%	
2010	26.5	5.0%	
2009	25.3	4.8%	
2008	39.7	7.5%	Euro 4
2007	32.8	6.2%	
2006	31.5	6.0%	
2005	27.8	5.3%	

Source: <https://www.smm.co.uk/vehicle-data/heavy-goods-vehicle-registrations/>

¹² Source: SMMT

3.5 Since 2000, although total HGV numbers have been relatively stable there is some evidence of downsizing from HGVs to LCVs to accommodate more agile supply chains.¹³

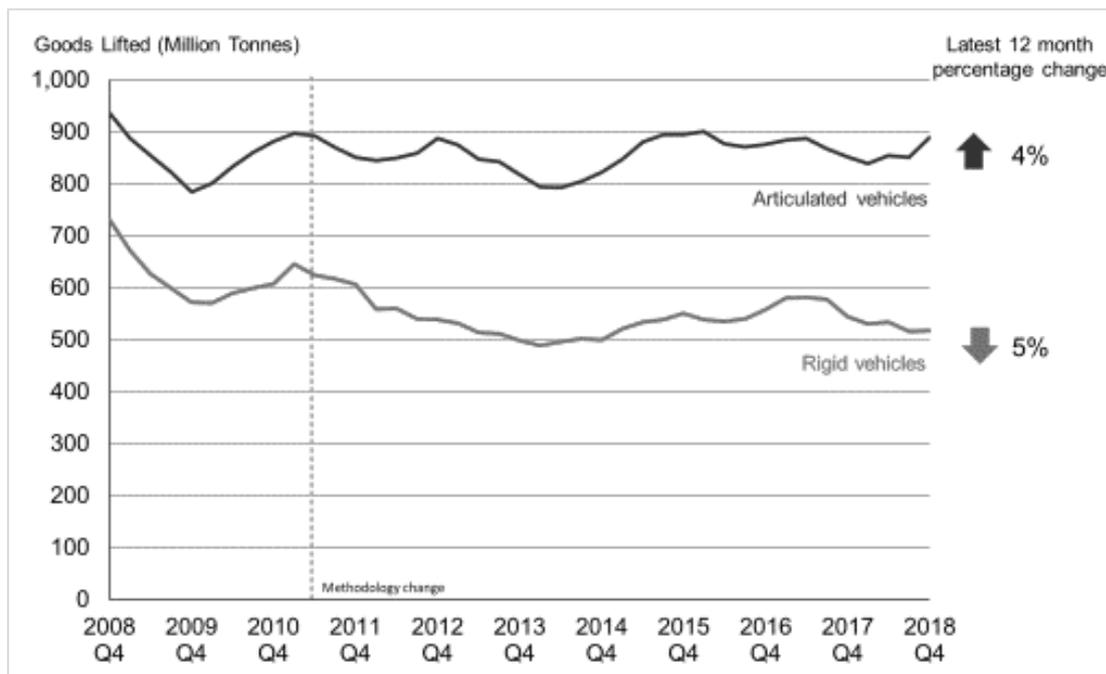
Figure 3-2 HGV Registrations over 10 years



Source: <https://www.smmmt.co.uk/vehicle-data/heavy-goods-vehicle-registrations/>

3.6 There has been a move towards greater uptake of larger HGVs able to transport heavier consignments. HGVs deployed in the UK range from a gross vehicle weight of 3.5 tonnes to 44 tonnes, with articulated vehicles - which tend to be longer, larger, heavier vehicles - carrying more freight (see **Figure 3-3**). In 2018, articulated vehicles carried 889 million tonnes (63%) of freight, whereas rigid vehicles only carried 517 million tonnes (37%) of freight.¹⁴

Figure 3-3 Goods lifted by GB-registered HGVs, by type of vehicle



Source: Domestic Road Freight Statistics, United Kingdom: 2018, Department of Transport

3.7 In 2018 the 5 most common commodity divisions (representing 64% of all goods) lifted by GB-registered HGVs in the UK were food products (20%), Metal ore and

¹³ Source: SMMT

¹⁴ Domestic Road Freight Statistics, United Kingdom: 2018, Department of Transport

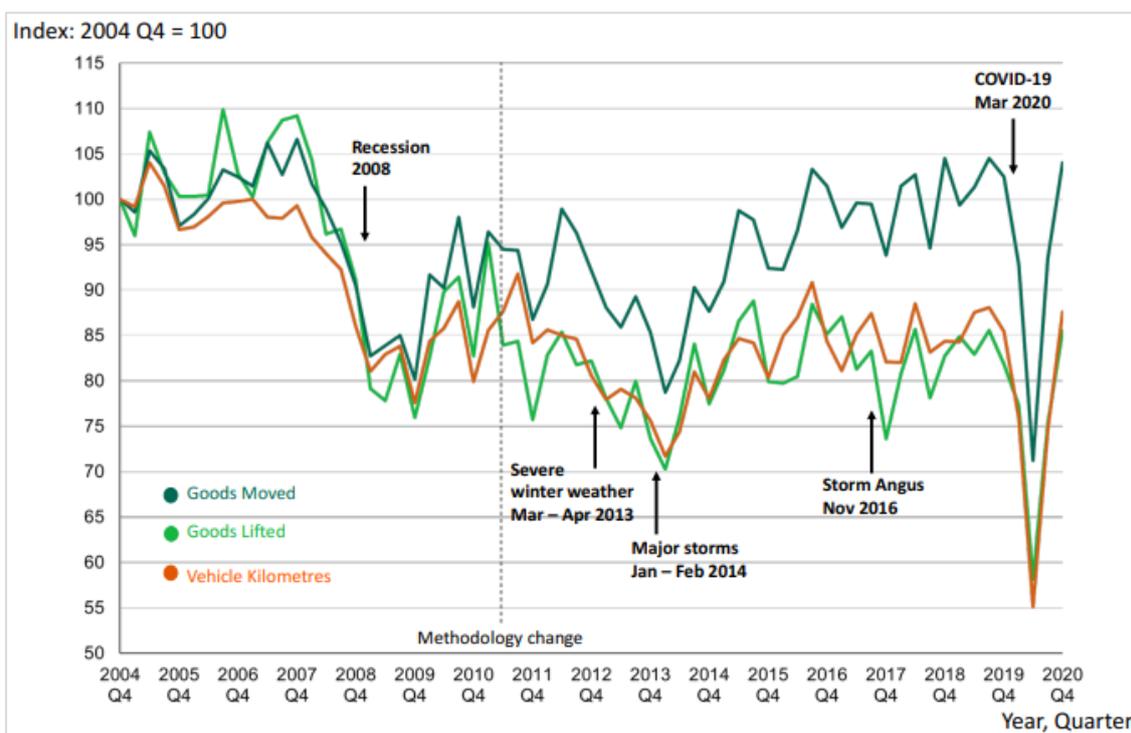
other mining and quarrying (13%), Waste related products (11%), Groupage (10%) and Glass, cement and other non-metallic mineral products (10%).¹⁵

Covid-19 Effects on the HGV sector

Overview

- 3.8 The pandemic caused disruption at all levels of the vehicle sales market, particularly in 2020, where production lines were halted and lockdown rules affected the global supply chain. Skills shortages have been noticed in almost every field, but have been particularly noticeable amongst HGV drivers, leading to government initiatives to bring more people into the field. This driver shortage has had an impact on the demand of HGV vehicles.¹⁶
- 3.9 As with all other modes of transport, the HGV sector was significantly impacted in the aftermath of the March 2020 Covid-19 restrictions as large sections of the economy were shut down. However, by 2020 Q4 domestic road freight had returned to pre-pandemic levels (see **Figure 3-4**).

Figure 3-4 Impact of coronavirus (Covid-19) on quarterly data trends



Source: Domestic Road Freight Statistics, United Kingdom: 2020, Department of Transport

- 3.10 According to the Transport Exchange Group,¹⁷ the cost of road haulage in January 2022 was up by 15% compared to January 2021 as a result of issues in the wider economy amid recent inflation.

¹⁵ Domestic Road Freight Statistics, United Kingdom: 2018, Department of Transport

¹⁶ Business Live <https://www.business-live.co.uk/ports-logistics/hgv-crisis-set-worsen-amid-22146925>

¹⁷ Transport Exchange Group, February 2022 <https://transportexchange.com/road-transport-price-index/january-22/>

Review of Covid-19 impacts on vehicle sales market

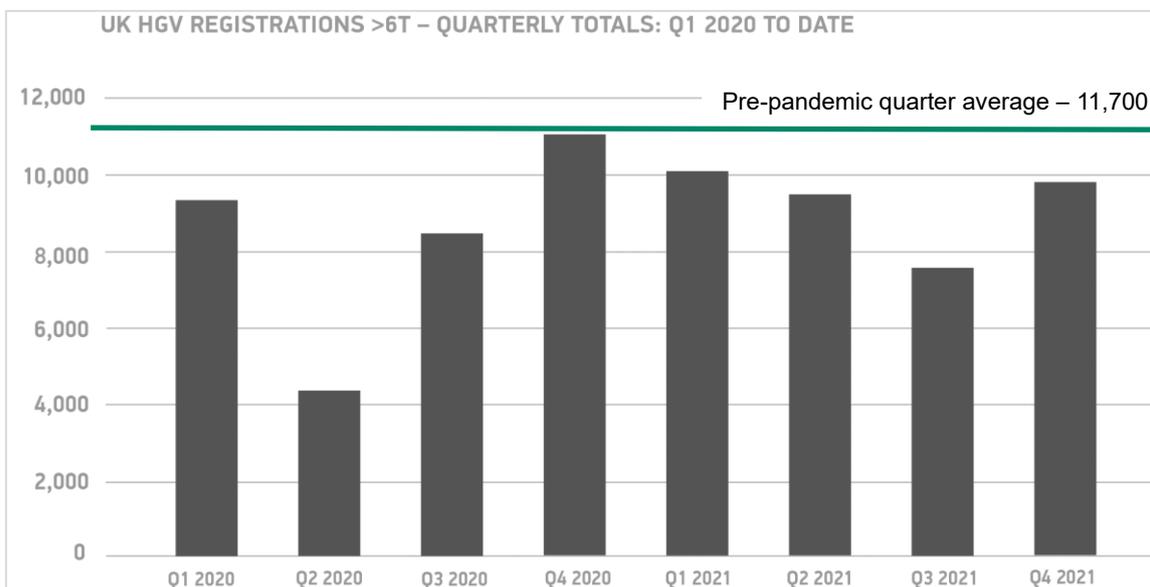
Overview

3.11 The key changes in the HGV sales market during the pandemic are discussed below.

Vehicle Registrations

3.12 Data produced by SMMT shows that despite an initial decrease in HGV registrations, particularly noticeable in quarter two of 2020, HGV registrations are on the rise, but still not at the same levels from the years prior to the pandemic. For example, in the year and a half prior to the pandemic (Q4 2018 – Q1 2020), average registrations per month were around 11,700 per quarter, compared to an average of around 8,500 per quarter since pandemic (Q2 2020 – Q3 2021). In this time, no quarter has reached the same levels as the pre-pandemic quarter average. **Figure 3-5** shows the UK HGV registrations by quarter since Q4 2017.

Figure 3-5 UK HGV Registrations Q1 2020 – Q4 2021



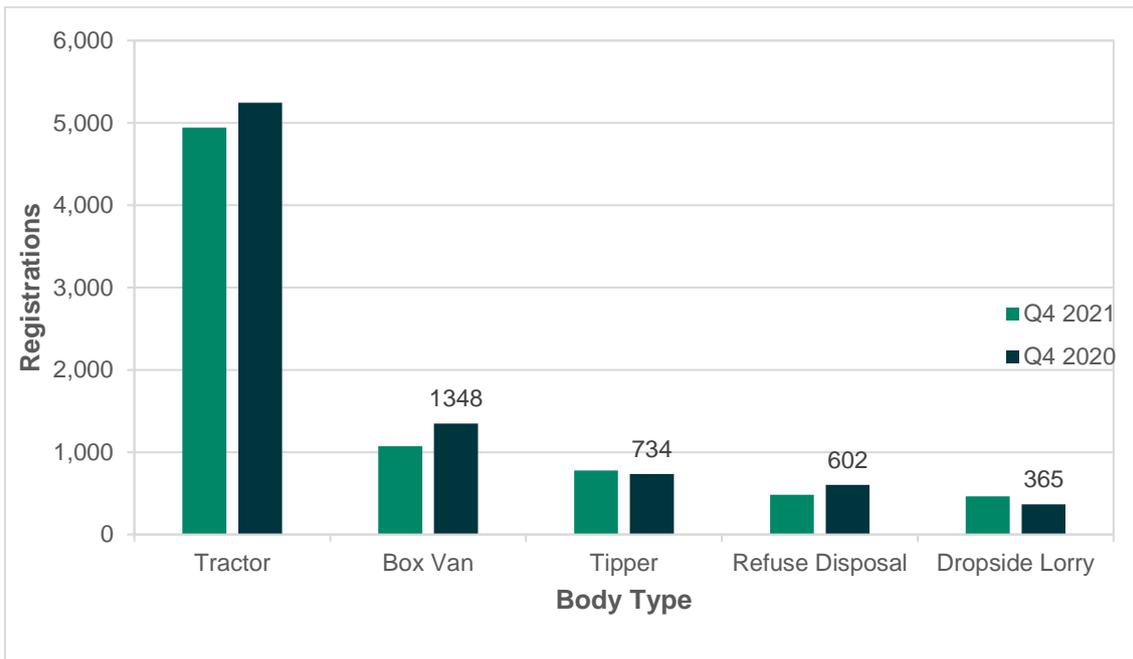
Source: SMMT

- 3.13 Some 37,163 units were registered last year, 57.1% of which were rigid, while 42.9% were articulated trucks, in line with market splits seen in previous years, though both segments grew with 2,239 more rigid (+11.8%) and 2,006 more artic (+14.4%) registered than 2020.¹⁸
- 3.14 As construction began to recover during the year, tipper demand rose by 32.5% to 3,808 units. Tractor units were the most popular type of HGV, with 15,679 units (+16.0%) representing a market share of 42.1%, while refuse trucks increased by 2.0% to 2,067 units between 2020 and 2021, despite a drop in Q4 2021 on the previous years.¹⁹

¹⁸ <https://www.smmt.co.uk/2022/02/hgv-market-accelerates-12-9-in-2021-to-defy-supply-challenge/>

¹⁹ <https://www.smmt.co.uk/2022/02/hgv-market-accelerates-12-9-in-2021-to-defy-supply-challenge/>

Figure 3-6 Top 5 Body Types



Source: <https://www.smmmt.co.uk/2022/02/hgv-market-accelerates-12-9-in-2021-to-defy-supply-challenge/>

Vehicle Availability

3.15 To enhance understanding of HGV availability in the current market, three major vehicle manufacturers and dealerships were consulted. The three companies chosen represent around 60% of the new truck market in 2021. Their responses provide an insight into the availability of new and used HGVs.

Commercial Dealership (1) Manchester – 11th February 2022
 Consultation with a dealership in Greater Manchester outlined the significant issues of vehicle supply and availability of new HGVs. Lead times for certain models were approximately 8 months, 10 months, and 11 months respectively, timescales which do not include postproduction fit outs. The branch broke its sales record in 2021, however were required to close to new orders in December 2021 due to supply issues. Vehicles have been held back due in part to the semiconductor shortage, with key components such as window modulators missing. The manufacturer has also increased prices over the last year.

The used HGV sector is experiencing similar issues with availability, with all HGV types scarce, but curtainsider rigids and tractor units were identified as being particularly difficult to source. Prices were also reported to be high, with the same vehicles fetching the same price second-hand two years on from the initial sale.

Feedback suggests that the company do not expect the situation to be resolved in 2022 at the earliest.

Commercial Dealership (2), Manchester – 17th February 2022

. Lead times for new HGVs were reported to be significant, with an approximate 12 month wait for a new diesel vehicle once ordered. Certain electric models were said to be available in around 14 weeks for the chassis. But there is industry reticence to invest in HGV EVs at the moment.

Trucks were reported to be semi-built, waiting for components (primarily semiconductors). The lack of semiconductors was described as still an issue to all Auto OEMs. The wait for tractor units) was longer than rigid HGVs, due to their relative lack of complexity (rigid wait times being 6-9 months). Prices of new vehicles have risen gradually across the year mainly due to increases in the cost of energy, rubber and steel. 85% of the unladen weight of a typical truck weighing 8500kg is metal and producing steel is very energy intensive.

The availability of used HGVs is also limited, with dealers extending leases whilst new vehicles are being manufactured. This is creating a shortfall in the market and it was reported that vehicles up to 4 years old are fetching higher prices at auction than their original brand new price. The GM CAP is already playing a role in shifting demand, with Euro V vehicles often being sold abroad.

The respondent felt that the market was 2 years away from returning to 'normal' levels and as manufacturers are unable to construct vehicles at the high level that they are being ordered, the waiting list is currently growing.

Commercial Dealership (3) – 14th February 2022

Consultation with the dealership suggested that the future supply of new HGVs was uncertain and whilst there were a small number of vehicles available to sell, the delivery of further trucks from the manufacturer was uncertain.

It was stated as 'likely' that any orders placed now could not be fulfilled until 2023 and that the issues of new vehicle availability was having an impact on the used HGV sector, with owners holding on to their vehicles for longer and dealerships were unable to fulfil large fleet renewal orders.

New Vehicle Prices

- 3.16 Prices of new HGVs did not significantly change in years immediately before the pandemic. In 2018, the cost of an 18-tonne rigid vehicle was £66.7k, in 2019 and 2020 the price was £67.9k, showing only a 1.8% price increase over 2 years. A similar increase of 1.7% can be seen in 44-tonne artic vehicles (£83.2k rising to £84.6k).²⁰
- 3.17 However, consultation with manufacturers and dealers, shown in the boxes above, has demonstrated that the prices of new vehicles has increased in 2021 and 2022 as scarcity and cost of parts and materials has risen.²¹

Second-hand Vehicle Prices

- 3.18 In contrast, the second-hand market has seen price increases much larger than that of new vehicles. In the article *Continuing strong demand predicted to lead to a record year for used HGV prices*²², Commercial Fleet notes positive feedback from dealers, suggesting strong retail appetite and conditions and notes that the 58% increase in average selling price of all heavy goods vehicles is record breaking. The article notes that Cox Automotive states that a significant contributing factor to this is the high demand for Euro 6 HGVs, with a 42% year on year increase in price on these vehicles from 2020 to 2021. Manheim expect the price difference between Euro 5 and Euro 6 to continue to grow from the current value of £9,000.
- 3.19 Second-hand dealers are reflecting the demand for vehicles to be Clean Air Zone (based on national criteria as applied in local zones across the country) and Ultra Low Emission Zone compliant as a selling point by advertising this on their websites.

Review of Vulnerability in responding to GM CAP

- 3.20 Covid-19 has had an impact on the HGV sector. The national lockdowns and Covid-19 restrictions have resulted in a reduced availability of new HGVs to the markets. This has increased the market purchase price of new vehicles and at the same time reduced the availability of newer second-hand vehicles to the market. This has in turn pushed the price of available second-hand HGVs to a level close to that of new vehicles. Most second-hand vehicles coming to the market already have buyers lined up.
- 3.21 There has been a drop in demand for Euro V vehicles, probably due to the GM CAP, with high proportions of Euro V HGVs coming to the markets being sold abroad.
- 3.22 This section reviews the original vulnerability assessment of the HGV sector undertaken in 2019 and assesses how the Covid-19 pandemic has impacted vulnerability to the GM CAP.

²⁰ Motor Transport, MTR_141220_028-030.indd (motortransport.co.uk)

²¹ <https://www.commercialfleet.org/fleet-management/best-practices/used-values-soar-as-van-and-truck-shortages-continue>

²² <https://www.coxautoinc.eu/content-hub/fuel/continuing-strong-demand-predicted-to-lead-to-a-record-year-for-used-hgv-prices/>

Continuing strong demand predicted to lead to a record year for used HGV prices (September 2021)

Market Segment	Pre Covid-19 – Responding to GM CAP	Covid-19 Impact	Impact on Responding to GM CAP (Post Covid-19)
<p>HGV</p>	<p>Medium impact Significant cost to upgrade if existing vehicles are non-compliant. Period for leased vehicles average 4 years, high proportion of these would already be compliant. Likely less impact to larger haulage companies and higher impact on smaller companies as fleet more likely second-hand or not be renewed as quickly. GM CAP having an influence on the second-hand sales market with high proportion of Euro V class HGVs being sold abroad.</p>	<p>High impact likely. A reduction in HGV movements initially during the first national lockdown had recovered to pre-pandemic levels by Q4 2020. Cost of road haulage has increased 15% from Jan 2021 to Jan 2022, due to current economic climate, partially due to Covid-19 pandemic. Driver shortages sector wide. HGV demand for new vehicles exceeds supply resulting in up to 12 months lead times. Caused by supply chain issues and part shortages. Lack of new vehicle supply has resulted in second-hand HGV prices significantly increasing, as there is reduced vehicle rotation.</p>	<p>Medium impact New HGVs experiencing increased lead times, resulting in second-hand vehicle being used for increased length of time. Lack of second-hand vehicles is resulting in prices of second-hand HGVs exceeding cost of new HGVs in some cases.</p>

4. Conclusion

Summary

- 4.1 This note has sought to address the following key considerations:
- A review of the current position of the HGV fleet;
 - Report on the impact of Covid-19 in terms of changes to travel behaviour within GM, including changing transport trends and economic trends as a result of the Covid-19 pandemic;
 - Specific Covid-19 pandemic impacts on this vehicle type (HGVs); and
 - Comment on the extent to which those changes may be considered material to the success of the GM CAP given the vulnerability of the vehicle type (HGVs) to meet GM CAP compliance.
- 4.2 HGVs account for around 1.5% of the total vehicle fleet in GM.
- 4.3 Based on 2019 data, it is estimated there were approximately 71,000 HGVs serving GM, with 60% of those being compliant.
- 4.4 Vehicle fleets are tending to get larger, however the sector is still dominated by SMEs, including owner-drivers who drive and operate their own vehicle.
- 4.5 The age profile of HGV fleets has not significantly varied since 2000, with between 25%-30% of the national HGV fleet newer than 3 years old.
- 4.6 Vehicle lifespans vary; companies operating larger fleets, such as those in the food and retail sectors, typically replacing vehicles more frequently whilst longer vehicle lifespans are associated with sectors such as waste and removals, the main factors are the margins on product being moved or the level of intensity that a vehicle is used. The largest sector, General Haulage, makes up 29.1% of the GM market and includes over 2,000 vehicles affected by the GM CAP.
- 4.7 Whilst there was a significant impact in 2020, the overall volume and usage of HGVs has generally returned to pre-pandemic levels.
- 4.8 The HGV sector is experiencing significant issues in relation to demand and supply of new vehicles. HGV production has been hampered by the shortages in components, particularly semiconductors. This shortage has impacted on the ability of manufacturers to meet the increased demand as the economy grows and the requirement to 'catchup' with lower production in Q2 2020. The issue is so significant that some major manufacturers are not taking new orders for this year.
- 4.9 Significant price increases have been observed, particularly in the second-hand compliant market. For new vehicles, the more significant issue is availability and lead times as noted above.
- 4.10 Whilst the situation is fluid, responses from vehicle manufacturers and dealerships suggest that the issue will not be resolved until 2023. This means that higher prices for new and used vehicles and a lack of availability of HGVs are likely to continue throughout 2022.

Appendix A – List of Documents

This Appendix provides a list of documents and data sources used to inform this report.

Document Title	Date	Description	Relevance to GM CAP
Chapter 1			
Mayor of Greater Manchester writes to Government reiterating call for non-charging Clean Air Zone	May 2022	Announcement, provide background on current status of GM CAP https://www.greatermanchester-ca.gov.uk/news/mayor-of-greater-manchester-writes-to-government-reiterating-city-region-s-call-for-non-charging-clean-air-plan/	Current Status of GM CAP
GM CAP Technical Documents (various)	Various	All available at Technical Documents Clean Air Greater Manchester (cleanairgm.com) https://cleanairgm.com/technical-documents/	Published Technical Reports for GM CAP
Chapter 2			
Domestic Road Freight Statistics	2020	HGV industry statistics - Department for Transport	Understand UK HGVs industry statistics
Table VEH0503 Licensed heavy goods vehicles at the end of the year by propulsion	May 2021	Department for Transport Statistics - Licensed heavy goods vehicles at the end of the year by propulsion	Understand UK HGVs Statistics
Table VEH0506 Licensed heavy goods vehicles at the end of the year by gross vehicle weight (tonnes)	May 2021	Department for Transport Statistics - Licensed heavy goods vehicles at the end of the year by gross vehicle weight (tonnes)	Understand UK HGVs Statistics
HGV data (SMMT)	various	Based on size of market served by HGV (population served). GM equates to 4.2% of UK population, allocation of circa 500,000 HGVs based in UK	To understand the HGV market in the GM
Table VEH0507 Licensed heavy goods vehicles at the end of the year by number of years since first registration,	May 2021	The age profile of HGV fleets has not significantly varied since 2000, with between 25%-30% of the national HGV fleet newer than 3 years old	Understand UK HGVs Statistics
AECOM Specialised Goods Vehicle Surveys	Various	Specialised Goods Vehicle Count Results	Provides background details of the HGV sector 2019 & 2020
All vehicles (VEH01)	Jan 2022	Data on all licensed and registered vehicles, produced by Department for Transport.	Provided the proportion of Vehicle Types Registered by Area, 2022

Air Quality Modelling Report: with impacts of Covid-19 and Post Consultation Package Measures	2021	https://cleanairgm.com/technical-documents/	GM CAP Technical Report
GMP ANPR Data analysis	Various	Data on average HGV age	Understand GM HGVs average age
Chapter 3			
HGV SMMT report	2019	HGV market pre-pandemic has remained largely constant over the last 20 years, with a 2% reduction in vehicle numbers overall since 2000	Understand pre-pandemic HGV market
HGV Registrations - SMMT	2019	HGV Registrations over 10 years https://www.smmt.co.uk/vehicle-data/heavy-goods-vehicle-registrations/	To understand the UK HGV registration trend
Domestic Road Freight Statistics - DfT	2018	Goods lifted by GB-registered HGVs.	To understand the UK HGV types and commodity divisions
HGV crisis set to worsen amid mass exodus of drivers over conditions	Nov 2021	This driver shortage has had an impact on the demand of HGV vehicles https://www.business-live.co.uk/ports-logistics/hgv-crisis-set-worsen-amid-22146925	Impact of driver shortage on the demand of HGV market
January '22 Highest ever price-per-mile for January: TEG Road Transport Price Index up 15% on last January	Jan 2022	the cost of road haulage in January 2022 was up by 15% compared to January 2021 as a result of issues in the wider economy amid recent inflation. https://transportexchange.com/road-transport-price-index/january-22/	Cost of road haulage as a result of inflation
HGV market accelerates 12.9% in 2021 to defy supply challenge - SMMT	Feb 2022	Provide recent HGV registrations post-covid. https://www.smmt.co.uk/2022/02/hgv-market-accelerates-12-9-in-2021-to-defy-supply-challenge/	Information on post-covid HGV market
Annual cost tables history - MotorTransport	Dec 2020	Prices of new HGVs did not significantly change in years immediately before the pandemic. In 2018, the cost of an 18-tonne rigid vehicle was £66.7k, in 2019 and 2020 the price was £67.9k, showing only a 1.8% price increase over 2 years. https://motortransport.co.uk/annual-cost-tables-history/	Information about prices of new HGVs
Used values soar as van and truck shortages continue	July 2021	The prices of new vehicles has increased in 2021 and 2022 as scarcity and cost of parts and materials has risen https://www.commercialfleet.org/fleet-management/best-practices/used-values-soar-as-van-and-truck-shortages-continue	Information on increased price of vehicles
Continuing strong demand predicted to lead to a record year for used HGV prices	Sept 2021	The second-hand HGV market has seen price increases much larger than that of new vehicles. https://www.coxautoinc.eu/content-hub/fuel/continuing-strong-demand-predicted-to-lead-to-a-record-year-for-used-hgv-prices/	Provide information on second-hand HGV market
Chapter 4			
		(No new Sources in Chapter 4)	

Appendix A			
		(No new Sources in Appendix A)	
Appendix B			
Coronavirus (Covid-19) UK Government Dashboard	Oct 2020	https://coronavirus.data.gov.uk/	Background of Covid Timeline
“Greater Manchester’s Covid-19 Management Plan: how we control outbreaks”	2022	https://greatermanchester-ca.gov.uk/coronavirus/Covid-19-management-plan/	Background of Covid Timeline
“Prime Minister announces new local COVID Alert Levels”	Oct 2020	https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels	Background of Covid Timeline
TfGM’s C2 Database	various	Traffic flow data was extracted and analysed from TfGM’s C2 Database https://tfgmc2.drakewell.com/multinodemap.asp	Information on local traffic impacts
“Budget 2021: Fuel duty rise axed as petrol prices hit record highs”	Oct 2021	Fuel Prices Increase: https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-axed-petrol-prices-record-highs-b962832.html	Information on Economic Related Impacts
“GDP monthly estimate, UK : December 2021”	Dec 2021	GDP information https://www.ons.gov.uk/economy/grossdomesticproduct/gdp/bulletins/gdpmonthlyestimateuk/december2021	Information on Economic Related Impacts
“Average weekly earnings in Great Britain: February 2022”	Dec 2021	Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022	Information on Economic Related Impacts
“UK economy latest”	Dec 2022	Information on Goods import and exports https://www.ons.gov.uk/economy/economicoutputandproductivity/output/articles/ukeconomylatest/2021-01-25#output	Information on Economic Related Impacts
“Cities Outlook 2022”	Jan 2022	Change in pub and restaurant sales in City Centres and Suburbs. Weekday footfall in Birmingham, Manchester and London https://www.centreforcities.org/wp-content/uploads/2022/01/Cities-Outlook-2022-2.pdf	Information on Economic Related Impacts

Appendix B – Review of COVID Impacts

Overview

B.1 Travel behaviour and the economy have been impacted by the Covid-19 pandemic and have resulted in changes in the way that people travel and the way businesses operate. In this chapter we will assess some of the key data findings found throughout the period to better understand the levels of impact on transport and travel generally.

COVID Timeline

- B.2 In January 2020, Covid-19 first appeared in the UK. By 30th November 2020, there were an estimated total of 1.6 million people testing positive to the virus in the UK with 58,24523 cases resulting in deaths.²⁴
- B.3 As stated within the GMCA Covid-19 Management Plan Executive Summary, GM had more than 16,000 confirmed cases and nearly 2,800 people died during the first four months of the Covid-19 pandemic.²⁵
- B.4 In Summer 2020, North West England was one of the worst affected areas by the pandemic with GM placed under additional restrictions on 31st July 2020. Throughout 2020, GM continued to experience a disproportionate impact to the rest of the UK from these additional restrictions, such as the three-tier system for lockdowns across England. This three-tiered system was first announced by the Government in October 2020 to ‘*simplify and standardise local rules*’.²⁶
- B.5 On 5th November 2020, the Government imposed a second national lockdown with restrictions on continued business activity in England. These restrictions were in place between 5th November and 2nd December 2020, followed by a return to 3 Tier system restrictions.
- B.6 On 19th December 2020 the Government introduced an additional 4th Tier, with lockdown measures beginning in London and the South East, after having identified the Alpha (Kent) variant, coming into effect on 21st December 2020 until a third nationwide lockdown was re-introduced on 6th January 2021.
- B.7 March 2021 saw Step 1 of the Government’s roadmap being introduced, with schools reopening and outdoor gatherings being allowed with the proviso of staying local. April 2021 saw Step 2 of the roadmap allowing limited indoor contact, businesses such as hairdressers to reopen and outdoor hospitality. Step 3 came into effect in May 2021, allowing indoor meetings limited to 6 people and 10,000 people for large sport stadiums. Step 4, on 19th July 2021, saw the remaining venues such as nightclubs reopen, and the removal of most other restrictions.
- B.8 With the discovery of the Omicron variant, Plan B measures (face coverings indoors and use of Covid Passes at specific settings such as nightclubs), which

²³ UK deaths is based on deaths within 28 days of a positive test and does not include excessive deaths.

²⁴ Coronavirus (COVID-19) UK Government Dashboard <https://coronavirus.data.gov.uk/> (accessed 01/10/20)

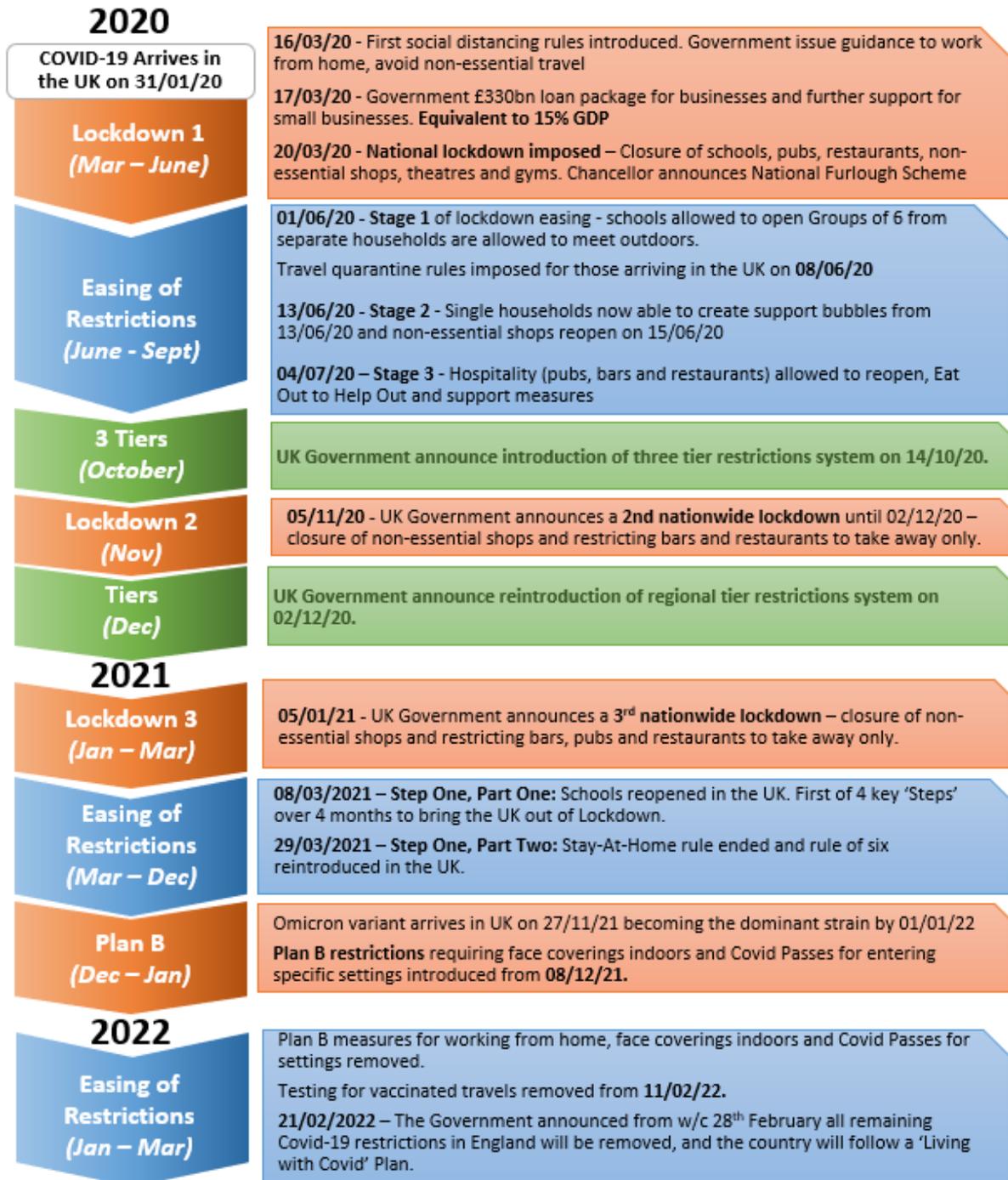
²⁵ COVID-19 Management Plan – Executive Summary (GMCA) <https://greatermanchester-ca.gov.uk/coronavirus/COVID-19-management-plan/>

²⁶ Prime Minister announces new local Covid Alert Levels - <https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels>

also recommended working from home where possible, were implemented from 8th December 2021 to 27th January 2022.

B.9 A summary of the key Covid-19 events and Government responses has been captured in **Figure B-1**.

Figure B-1 Covid-19 Timeline January 2020 to March 2022



B.10 The Covid-19 pandemic has had a transformative global impact to health, businesses, the economy, and way we live and interact with one another.

B.11 At the time of the production of this note in March 2022, the UK appears to be exiting the pandemic. Case numbers are stabilising, death and in-patient numbers

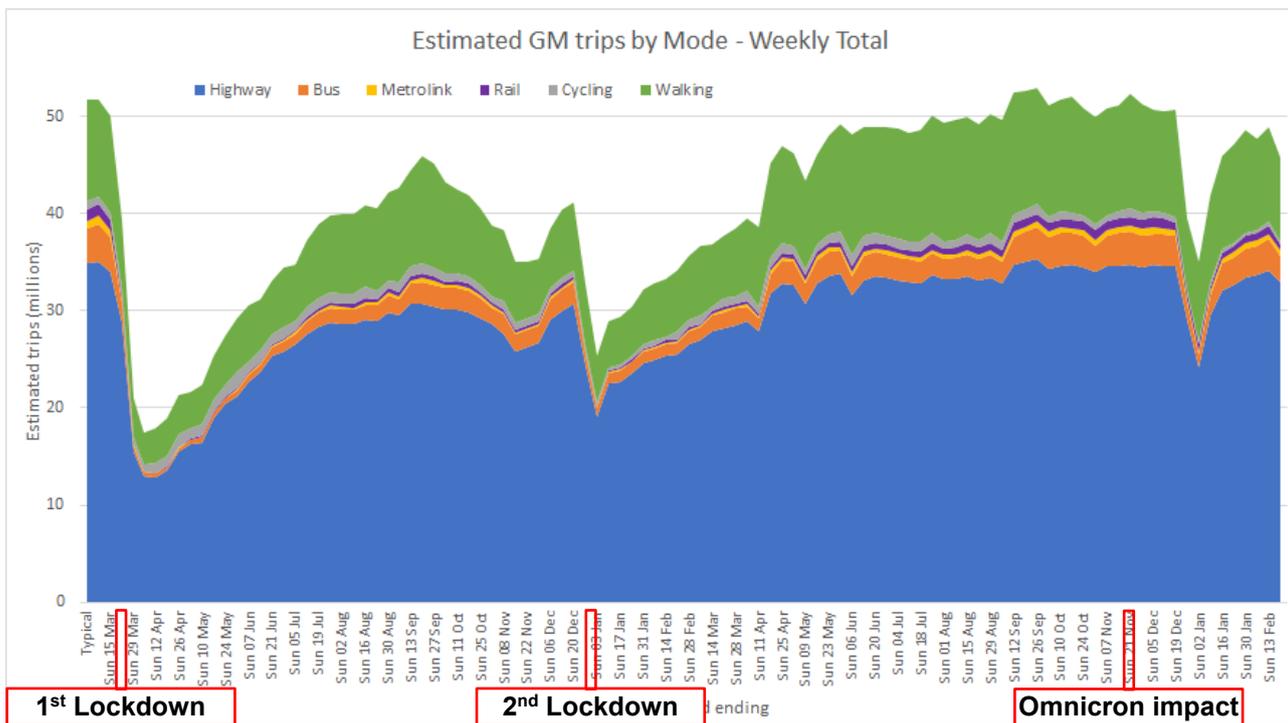
remain low, reflecting the positive impact of a successful vaccine programme rollout.

- B.12 However, emerging evidence gathered over the course of 2020 and 2021 has shown that there have been substantial changes to the economy, travel patterns and our behaviours. These changes have been driven by Government policy in the short term, however some of the behaviours adopted during Government lockdowns may continue as restrictions ease. In addition to this, economic impacts following the recent easing of restrictions have resulted in impacts which can be seen locally, nationally and globally within the economy.

Covid-19 Impacts on Travel Behaviour

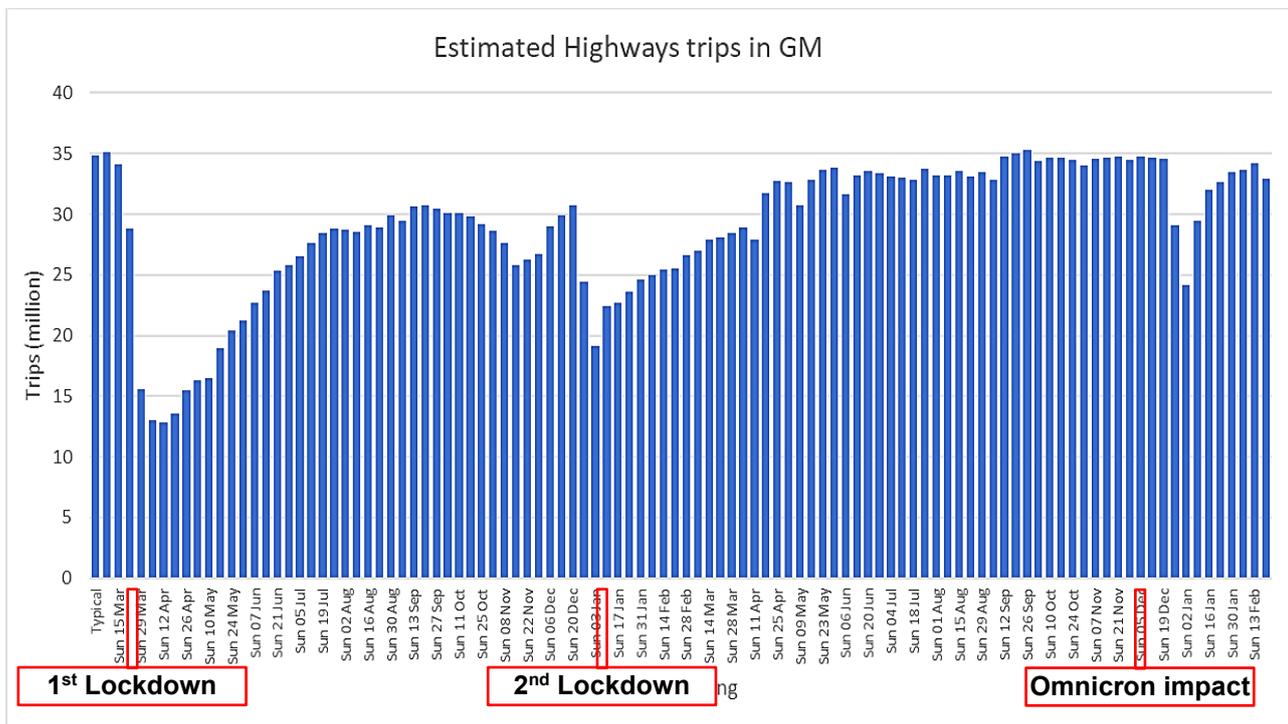
- B.13 Detailed analysis has been undertaken on the impacts of Covid-19 on travel demand within GM to compare 'pre-pandemic' and 'during pandemic' travel levels within GM.
- B.14 As shown in **Figure B-1**, there are a number of Government interventions which have had an impact on traffic levels (for all modes of transport). These include:
- Government guidance issued on 16th March 2020 to work from home 'where possible';
 - Closure of all UK schools to children, apart from those who have key worker guardians on 20th March 2020;
 - Closure of the hospitality and leisure sector on the 20th March 2020 including pubs, bars, restaurants, gyms, theatres etc.;
 - Re-opening of schools to all children in September 2020 alongside the UK Government encouraging workers to return to the office;
 - Implementation and extension of the Government Tiered restrictions;
 - Return to lockdown conditions on 5th November 2020, 2nd December 2020 and 6th January 2021; and
 - Hotel quarantine for travelers from high-risk countries.
- B.15 Since the beginning of the pandemic, travel patterns across the UK have significantly changed, driven by changing Government guidelines and the perception of transmission risks on certain forms of transport. An overview of the changing trends of travel behaviour by mode in Greater Manchester is provided in **Figure B-2** to **Figure B-6**; the data has been provided by TfGM. Three key dates have been flagged in each figure: the first and second national lockdowns plus the emergence of the Omicron variant.

Figure B-2 Overview of travel behaviour – All Modes



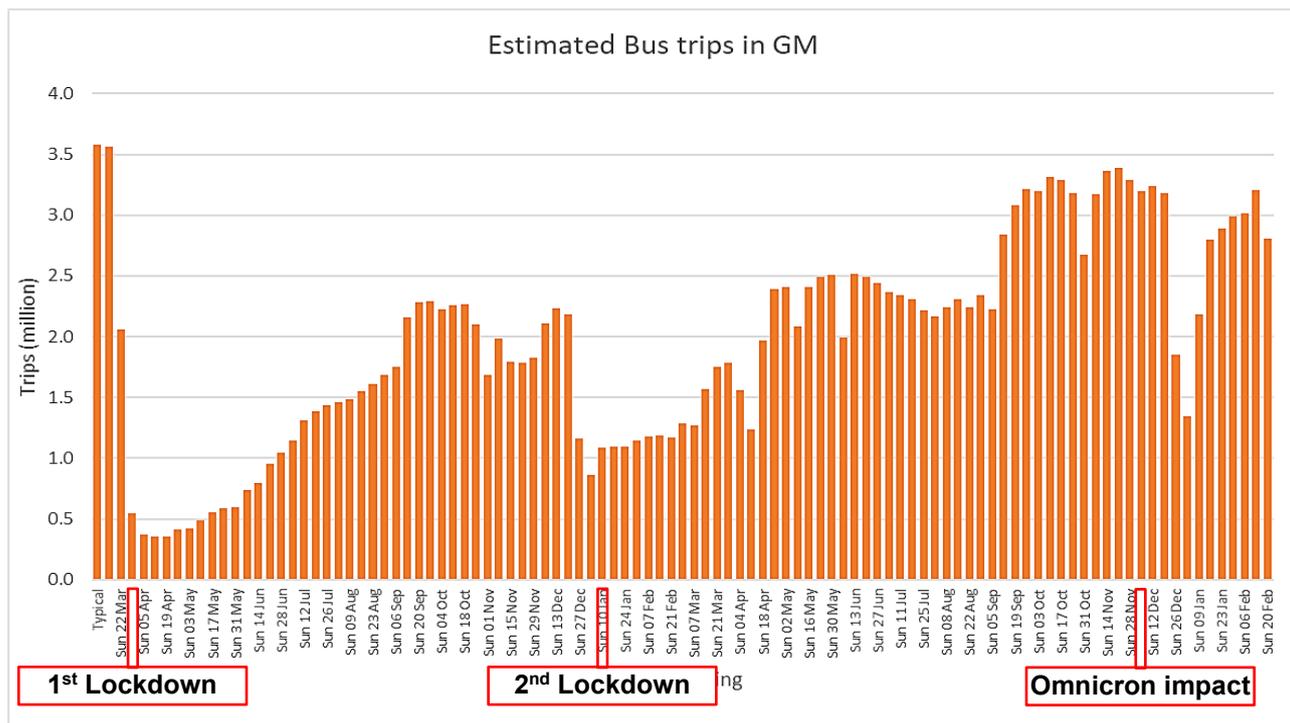
Source: TfGM

Figure B-3 Overview of travel behaviour – Highway



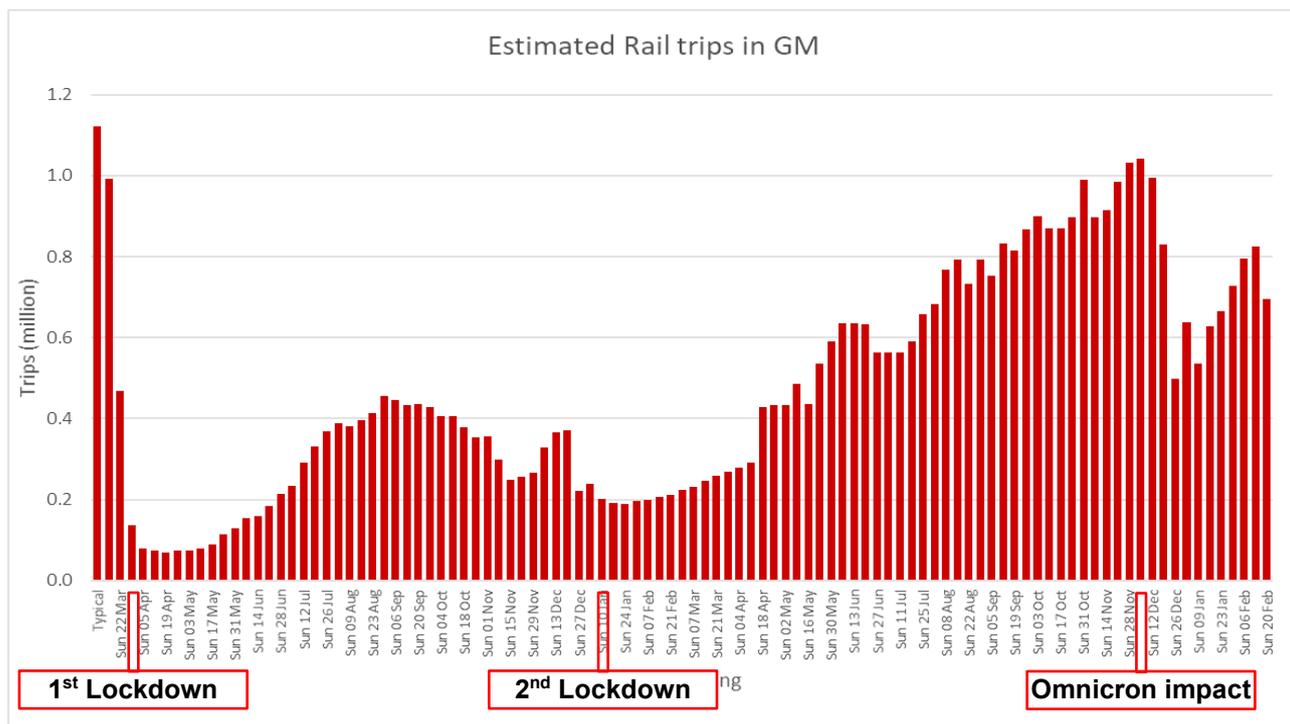
Source: TfGM

Figure B-4 Overview of travel behaviour – Bus



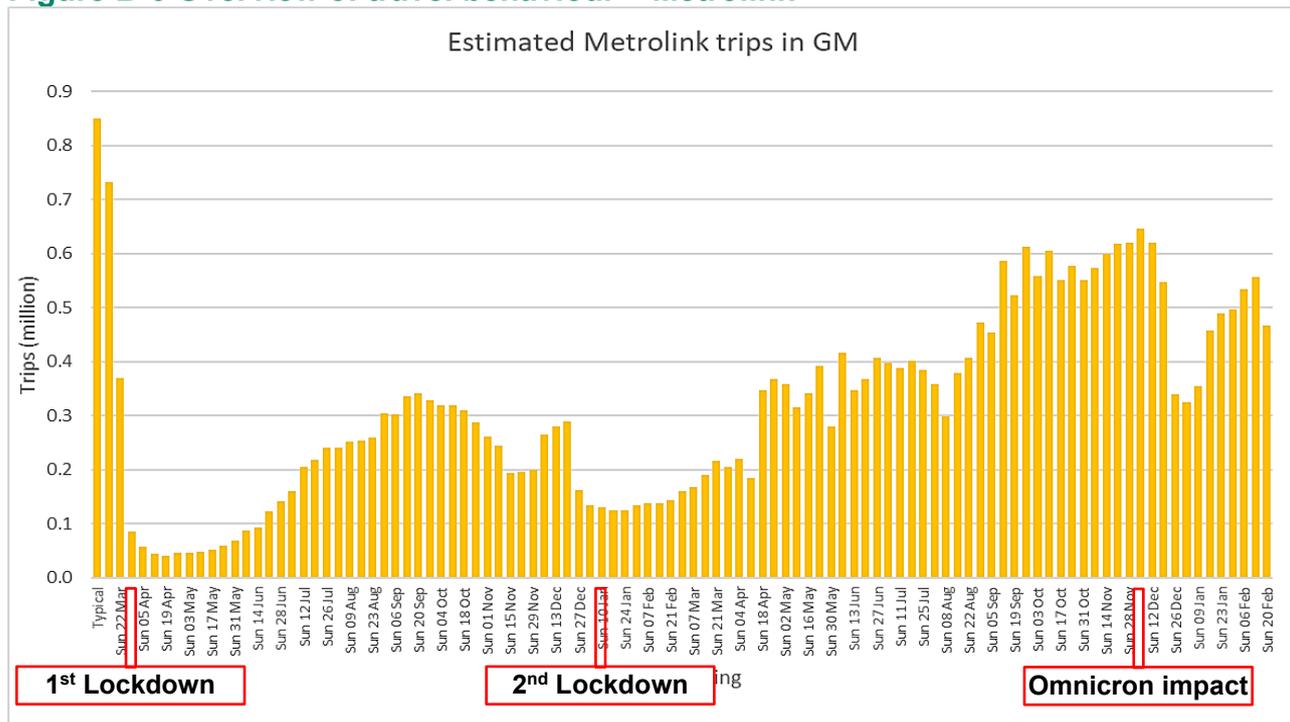
Source: TfGM

Figure B-5 Overview of travel behaviour – Rail



Source: TfGM

Figure B-6 Overview of travel behaviour – Metrolink



Source: TfGM

- B.16 These figures illustrate that the impact of the pandemic has been pronounced and the extent to which pre-pandemic travel volumes have returned varies by mode. In summary, at the aggregate level across GM:
- Highway trips are close to pre-pandemic levels (approximately 95% of 'typical'); and
 - Public transport trip levels are between 60% and 75% of pre-pandemic / typical levels with bus performing more strongly than rail / Metrolink.

Local Traffic Impacts

- B.17 Further analysis was undertaken regarding traffic flows on the local highway network, in order to understand the changing highway demand levels at various points through the pandemic. This has provided an insight into how the Covid-19 related travel guidance and changing behaviours because of the pandemic have impacted travel across GM.
- B.18 This analysis has considered changing travel levels at a range of locations across Greater Manchester, to understand how traffic flows have changed on the following:
- Roads near to the Regional Centre;
 - Key radial routes;
 - Roads adjacent to local centres within GM; and
 - Roads accessing centres of employment.
- B.19 The analysis has considered several points in time, comparing:
- September 2019 (before the pandemic);

- September 2020 (during the pandemic);
- November 2021 (during pandemic – pre Omicron); and
- January 2022 (most recent, though impacted by Omicron variant).

B.20 Traffic flow data was extracted and analysed from TfGM's C2 Database²⁷. These have been reviewed and presented for the 2-way hourly link volumes, by hour, at the following locations:

- Manchester Rd (A56) / 15m South of Ashlor St, Bury (ATC);
- Princess Rd (A5103) / 100m North of Bonsall St, Hulme, Manchester (ATC);
- Washway Rd (A56) / 40m North of Hunston Rd, Sale, Trafford (ATC);
- Bury New Rd (A56) / 90m North of Kingswood Rd, Prestwich, Bury (ATC); and
- Centenary Way (A576) / 160m North of Guinness Rd, Trafford Park, Trafford (ATC)

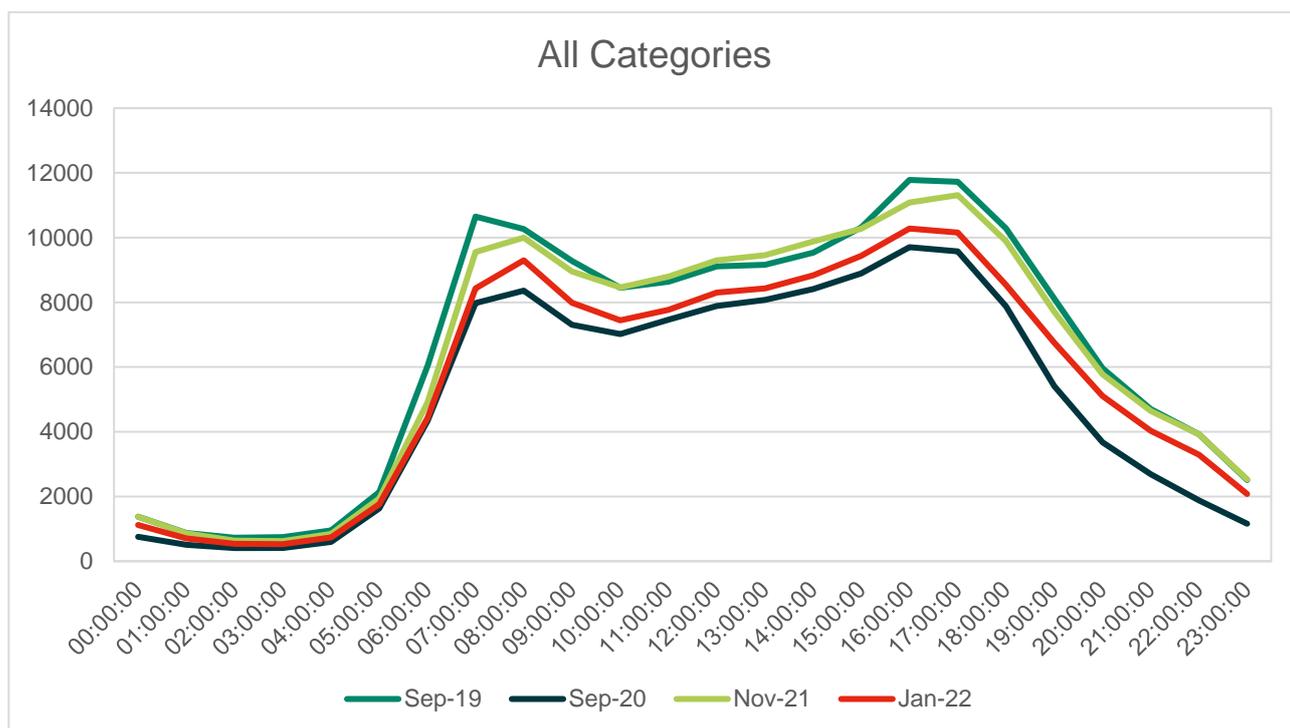
B.21 Using these specific locations around Greater Manchester the traffic behaviours at each location type can be assessed.

General Traffic Conditions

B.22 Averaging the sites identified above (see **Figure B-7**) suggests there has been a change in travel behaviour throughout the pandemic, noting the following key observations:

- The AM and PM peak periods have remained, although there is a dampening down effect on the peaks, with less variation between peak flows and interpeak flows, as the interpeak has continued to perform strongly.
- During late 2021, highway demand was almost back at pre-pandemic levels, there was then a noticeable drop again in demand as a result of the Omicron variant in December 2021.
- There has been some recovery during the peak periods, though they have not yet returned to pre pandemic levels.
- It is also noted that the earlier part of the AM peak is less strong than pre pandemic levels, with the AM peak now occurring 08:00 to 09:00, rather than 07:00 to 08:00 based on the sample of data sites.
- It also appears that the evening traffic (after 19:00) in 2022 is recovering at a slightly faster rate than the daytime traffic flows. This returned to pre-pandemic levels in November 2021 however, there has been a slight drop again in 2022, although it has been less impacted than other times of day. During the 2020 restrictions, the evening economy was significantly restricted by the Covid-19 restrictions in place at the time.

²⁷ <https://tfgmc2.drakewell.com/multinodemap.asp>

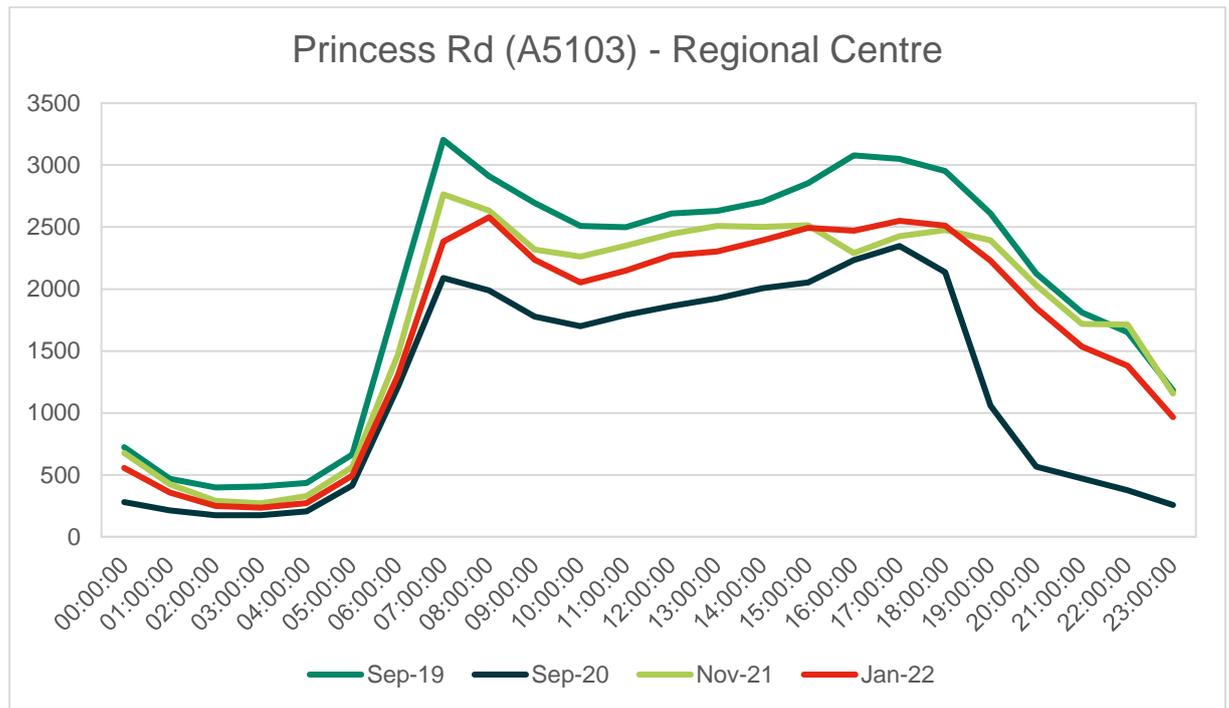
Figure B-7 Change in traffic flow levels by time of day (all areas)

Roads adjacent to the Regional Centre

B.23 Traffic flows adjacent to the Regional Centre have been significantly impacted throughout the pandemic (see **Figure B-8**). The following key trends have been identified:

- From the data assessed, the pandemic (and associated restrictions) appears to have had the greatest impact on regional centre flows, with the largest decrease in 2020 and the slowest recovery;
- The recovery of traffic flows in the peaks is still subdued, though traffic flows during the Omicron variant have been higher than in Autumn 2020, unlike what is seen at local centres;
- In 2020, Covid-19 restrictions had a considerable impact on demand for travel relating to the Regional Centre, with heavy restrictions placed on sectors such as leisure, tourism, and the night time economy. By November 2021, the easing of COVID restrictions resulted in a return of travel demand to the Regional Centre, showing considerable recovery at particular times of day, reaching close to 2019 levels. The 2022 travel demand to Mar-22 also showed a strong return of traffic during the evening periods, though the Omicron variant is likely to be keeping these slightly below pre-pandemic levels at present.
- The early part of the AM peak is now much weaker than prior to the pandemic, and the PM peak is less pronounced. In November 2021, traffic flows were slightly reduced from pre pandemic levels, with the PM peak most strongly impacted. In January 2022, the PM peak appears to be starting to recover, with a slightly later AM peak.

Figure B-8 Change in traffic flow levels by time of day (Regional Centre)

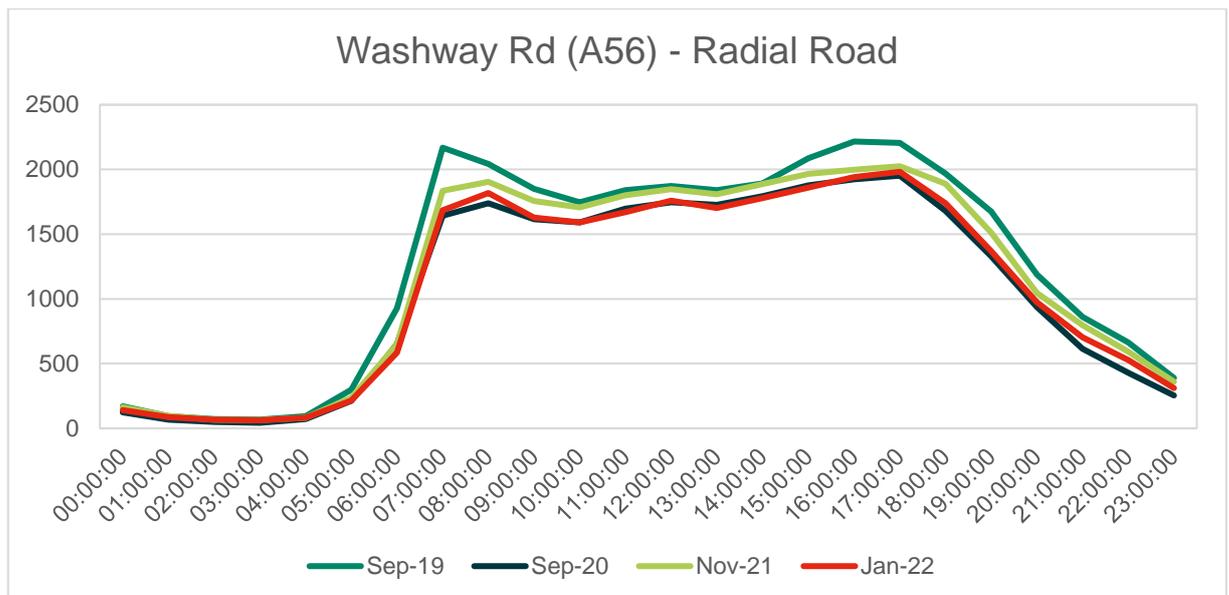


Source: TfGM C2 Database – Location N of Bonsall St, Hulme

Radial Roads

B.24 On Washway Road in Sale (see **Figure B-9**), its proximity close to the M60, and as a key radial route, has resulted in a high level of traffic demand at various points throughout the pandemic. The site is also close to the Local Centre of Sale. Demand has remained strong at the various points assessed although, as with most other locations, the peak periods are showing slightly lower demand in 2022.

Figure B-9 Change in traffic flow levels by time of day (Radial Roads Outside M60)

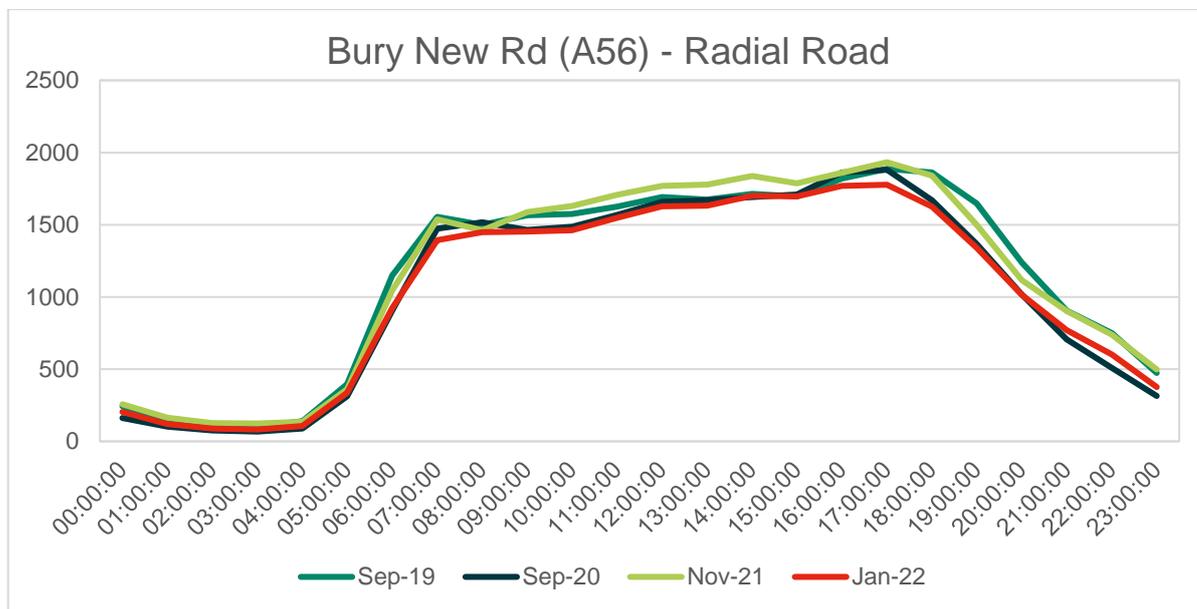


Source: TfGM C2 Database – Location adjacent to Sale Local Centre

B.25 Another key radial route north of the Regional Centre is Bury New Road (see **Figure B-10**). This site is also a key radial, though also serves local centres, such as at Prestwich. This location has shown a strong recovery of travel behaviour with travel at certain times of day exceeding pre-pandemic levels, especially during the

interpeak, both in autumn 2020, autumn 2021 and currently in 2022. The evening period has, however, shown a slower recovery.

Figure B-10 Change in traffic flow levels by time of day (Radial Roads Inside M60)

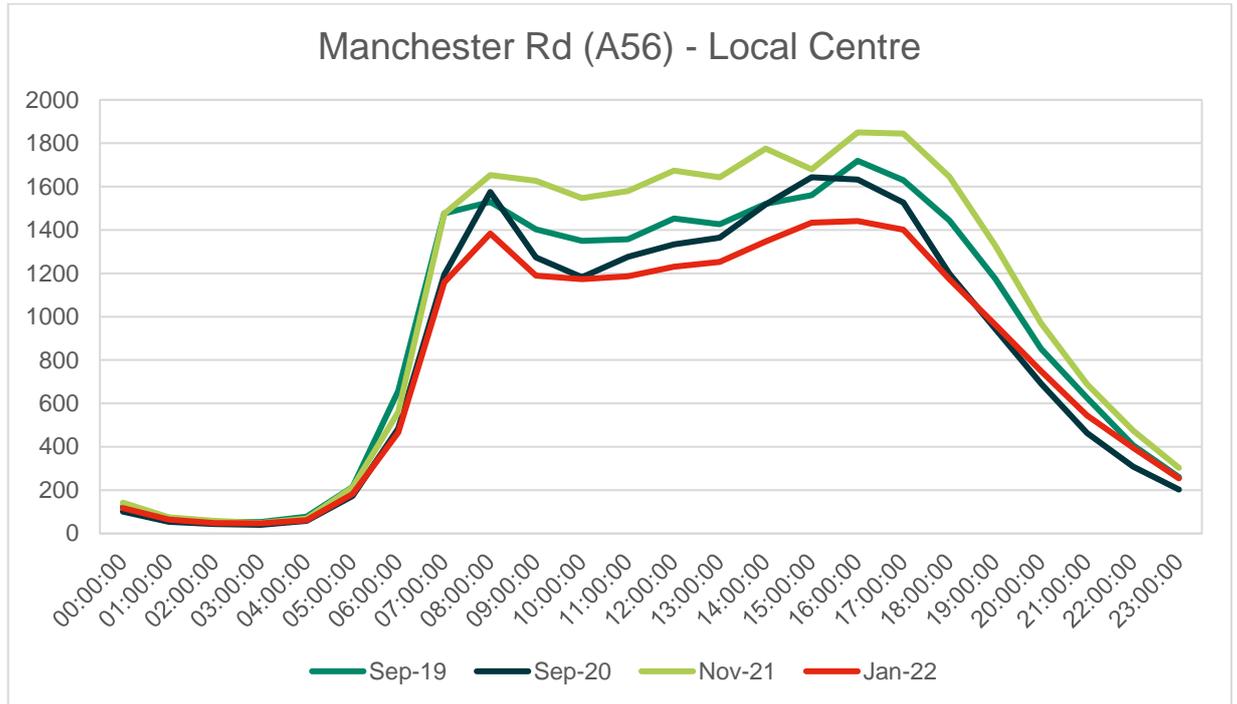


Source: TfGM C2 Database – Location N of Kingswood Rd, Prestwich (Near to M60 J17)

Local Centres

- B.26 Throughout the pandemic, as the UK Government eased travel guidance, travel demand in the vicinity of local centres, have bounced back strongly. **Figure B-11**, shows the A56 Manchester Road near Bury, which experienced a strong bounce back effect in Autumn 2020, when travel restrictions were eased. **Figure B-11** shows the later part of the AM peak and the early part of the PM peak exceeding pre pandemic levels, plus a strong interpeak and was likely an impact of more localised travel.
- B.27 By the end of 2021, demand had exceeded 2019 pre-pandemic levels by a clear margin, however this demand fell significantly in January 2022. The recent 2022 data shows the impacts of restrictions associated with the Omicron variant which has suppressed traffic flows once again.

Figure B-11 Change in traffic flow levels by time of day (adjacent to Local Centres)



Source: TFGM C2 Database – Location S of Ashlor St, Bury

Centres of Employment (Trafford Park)

- B.28 Trafford Park is a major site of employment within Greater Manchester, with traffic flows accessing this employment area changing significantly during the pandemic.
- B.29 During the limited easing of travel restrictions in Autumn 2020, traffic flows to/from Trafford Park remained low, with limited return of higher peak time travel flows. This was possibly due to the higher levels of working from home at the time. The more recent data from November 2021 shows flows higher than pre-pandemic levels. January 2022, though impacted by the Omicron variant, shows a recovery of peak hour travel demand, close to pre pandemic levels, although the early part of the AM peak and the later part of the PM peak show a slightly weaker recovery. Interpeak travel is also similar to pre pandemic levels (See **Figure B-12**).

Figure B-12 Change in traffic flow levels by time of day (Centres of Employment)



Source: TFGM C2 Database – Location Trafford Park, Trafford

Summary

- B.30 The review of local traffic flows at various locations across GM has shown considerable variations in changing travel behaviour by location, when compared to pre-pandemic levels. This is likely to be impacted by changing travel habits, although the recent Omicron variant is likely to be impacting some travel behaviour in the 2022 data, as shown in **Figure B7**, general traffic levels in Autumn 2021 showed overall recovery in traffic flows above pre-pandemic levels.
- B.31 The change in travel behaviour by location since September 2019 is summarised in **Table B-1**.
- B.32 Considering the position in November 2021, when travel patterns were least affected, it is notable that Local Centre traffic flows were higher than previously whilst the Regional Centre flows were still much reduced. For radial routes and employment centres, overall (daily) levels were back to pre-pandemic but with some variation during the day; the morning peak being less pronounced but the interpeak higher.

Table B-1 Traffic flow changes by location type from September 2019 to January 2022

Location Type	Period	Change relative to Sep-19 (Index=100)			
		Sep-19	Sep-20	Nov-21	Jan-22
Regional Centre	AM	100	67	88	81
	IP	100	73	95	88
	PM	100	41	92	85
	Eve	100	26	95	85
	Daily	100	61	88	83
Radial inside M60	AM	100	98	98	93
	IP	100	98	105	96
	PM	100	101	102	96
	Eve	100	80	94	83
	Daily	100	92	101	91
Local Centres	AM	100	103	108	90
	IP	100	96	115	88
	PM	100	94	113	86
	Eve	100	74	110	87
	Daily	100	90	111	86
Employment Centre	AM	100	69	95	86
	IP	100	83	108	94
	PM	100	61	102	79
	Eve	100	74	99	91
	Daily	100	74	102	88

Source: TfGM C2 Database

Economic Related Impacts

Introduction

B.33 Changes in the economic situation are also likely to have had an influence on travel behaviour. The section below presents the trends for a range of factors impacting the economy, several of which are likely to impact the way people travel and businesses operate.

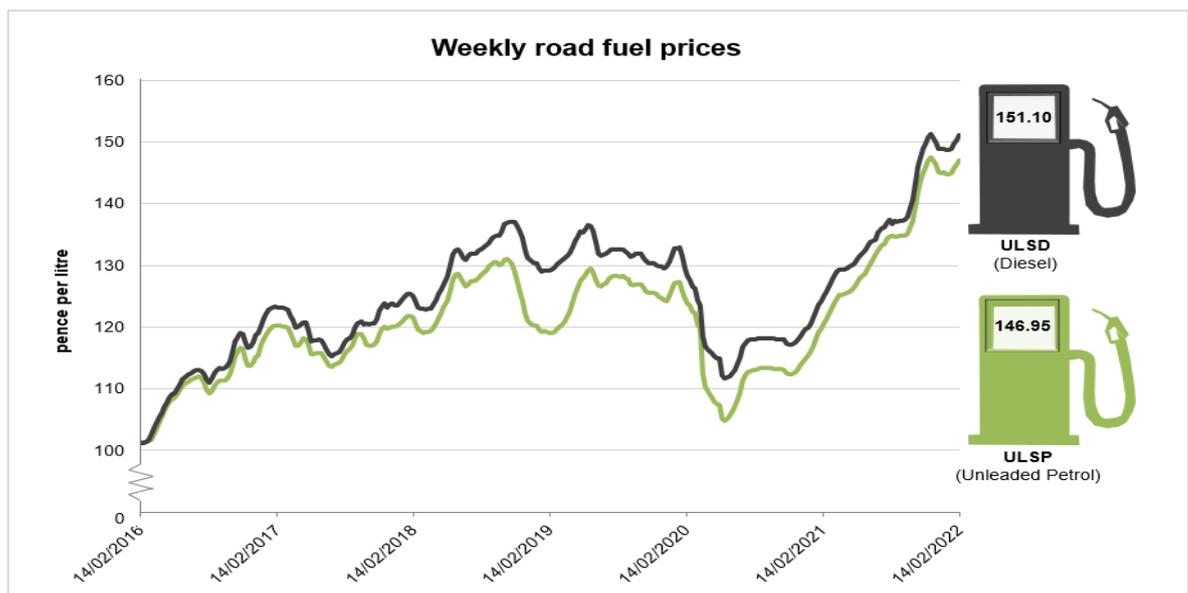
Fuel Prices

B.34 There are six companies (four oil companies and two supermarkets) that feed into the weekly fuel price survey prepared by the government. These companies cover around 65% of the market. The change in fuel price is displayed in **Figure B-13**.

B.35 The price of road fuel is volatile over shorter time periods, with prices regularly rising and falling. The key trends from during the pandemic are:

- At the start of 2020 prices appear to have been on the decline. There was then a significant fall in both Diesel and Unleaded Petrol in early 2020, corresponding with the first national lockdown.
- During the second part of 2020, prices appear to be stable, with prices beginning to rise steadily throughout 2021 in line with global oil market prices.
- There is a steep rise in prices towards the end of 2021, reaching record highs. This corresponds with a sudden rise in post-pandemic energy demand. This has triggered a tax freeze on petrol and diesel for the twelfth year in a row²⁸.
- In September 2021 long queues and forecourt closures were witnessed, caused by panic buying throughout the country, sparking a fuel shortage in Britain.

Figure B-13 Weekly Road Fuel Prices



Source: gov.uk

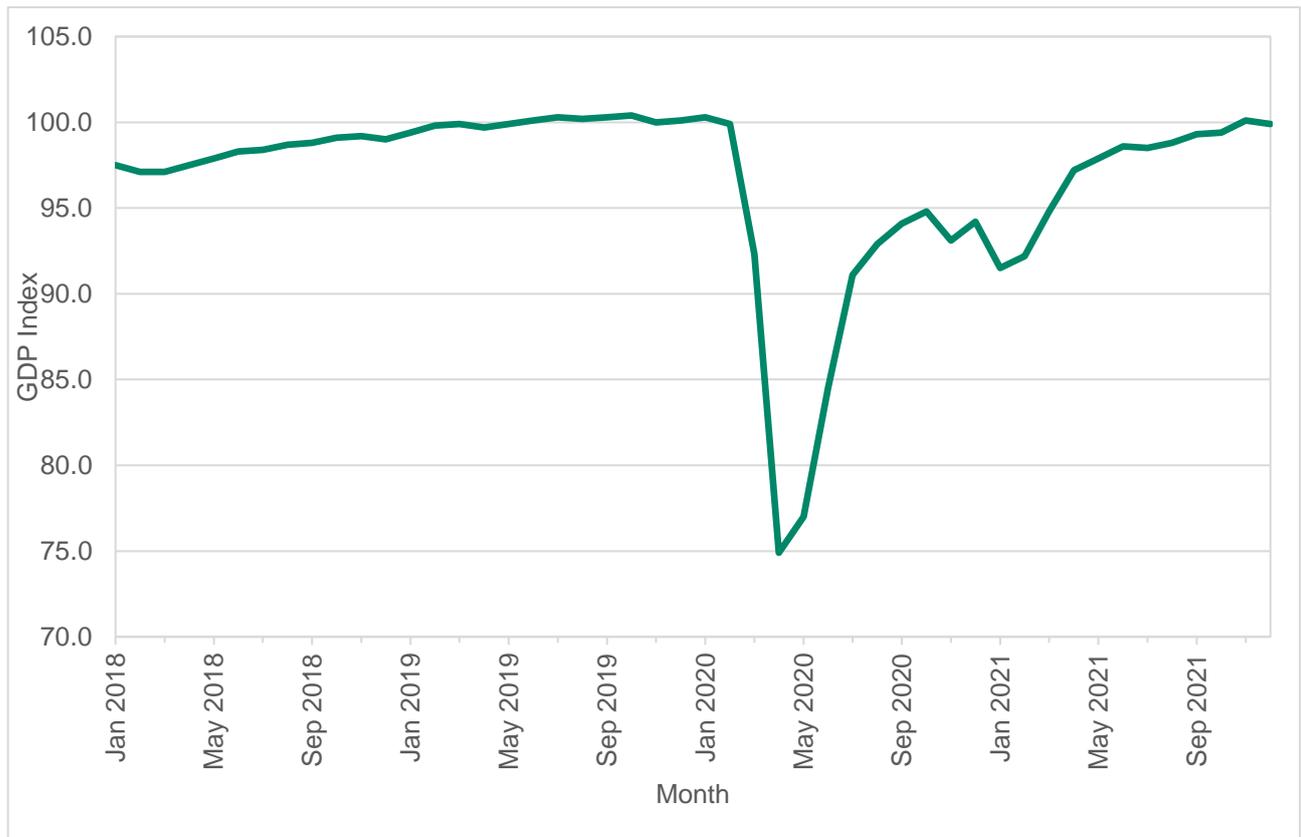
²⁸ <https://www.standard.co.uk/news/politics/budget-2021-fuel-price-rise-34d-petrol-prices-record-highs-b962832.html>

- B.36 It was already likely that the price of fuel would remain unsteady for some time as a consequence of the impact of the pandemic and recent events in Ukraine have brought additional uncertainty to that market.

GDP

- B.37 From bulletins on the ONS data website²⁹ the end of 2021 saw a drop in GDP by 0.2%, to equal the pre pandemic level of February 2020. In December 2021 services and construction are both above pre-pandemic levels, while production remained below. Consumer facing services fell within December, driven by a fall in retail, 8.4% below pre-coronavirus levels, contributing to the GDP fall in December 2021 (see **Figure B-14**).

Figure B-14 GDP in the UK (Index, 2019 = 100)



Source: [ons.gov.uk/economy](https://www.ons.gov.uk/economy)³⁰

- B.38 Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021³¹. In real terms (adjusted for inflation), total and regular pay fell for the year by 0.1% and 0.8% respectively.

Imports and Exports

- B.39 **Figure B-15** shows the trends in UK goods imports and exports throughout 2019, 2020, and 2021. After an initial decrease in imports at the beginning of the pandemic, this appears to have recovered. There was another significant decrease at the end of 2020, however imported goods are on the increase back to

²⁹ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021>

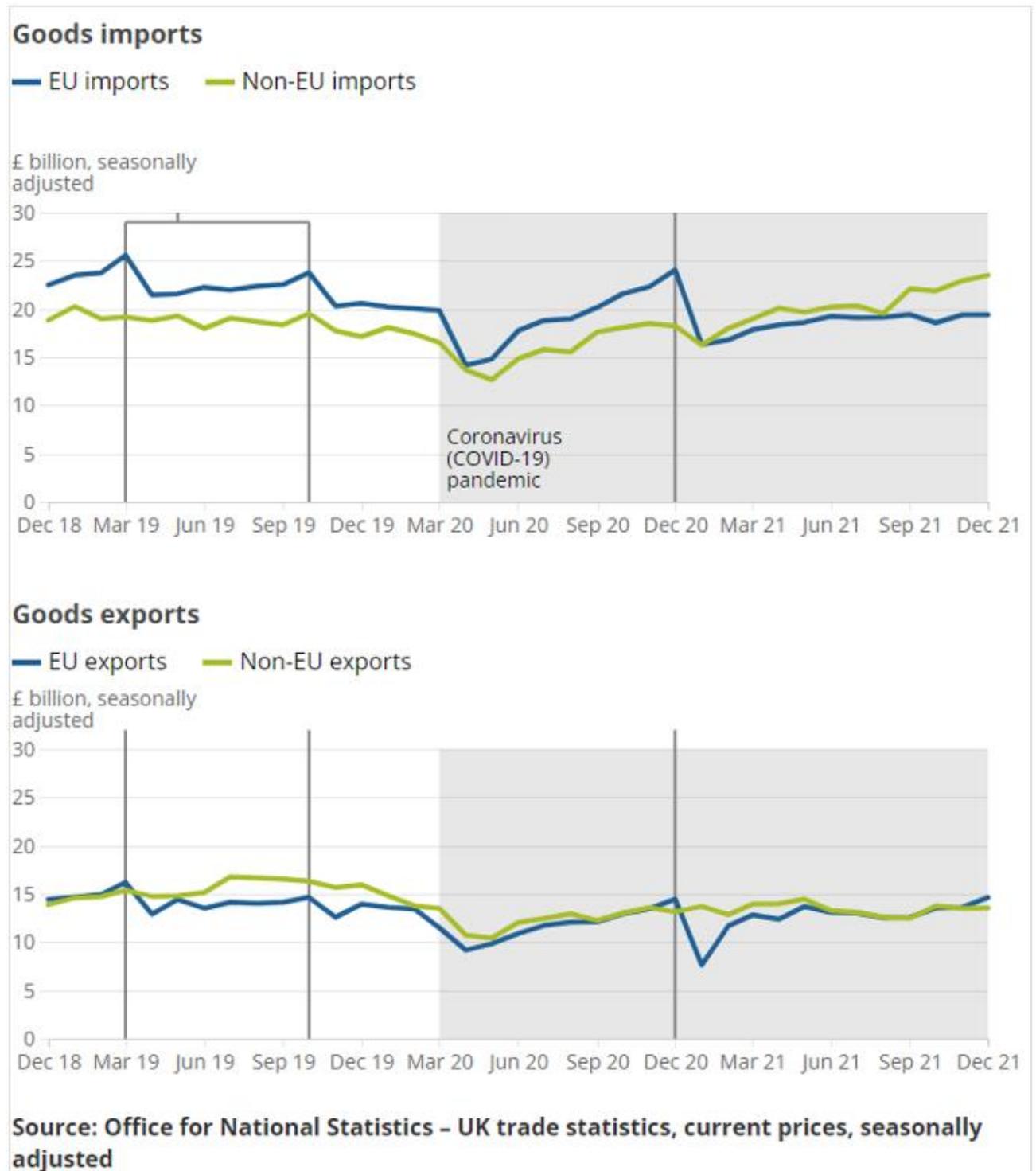
³⁰ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021>

³¹

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022>

pre-pandemic levels. There was less impact on exports, with these remaining steady throughout.

Figure B-15 Import and Exports



Source: ons.gov.uk/economy³²

Centre for Cities – Cities Outlook

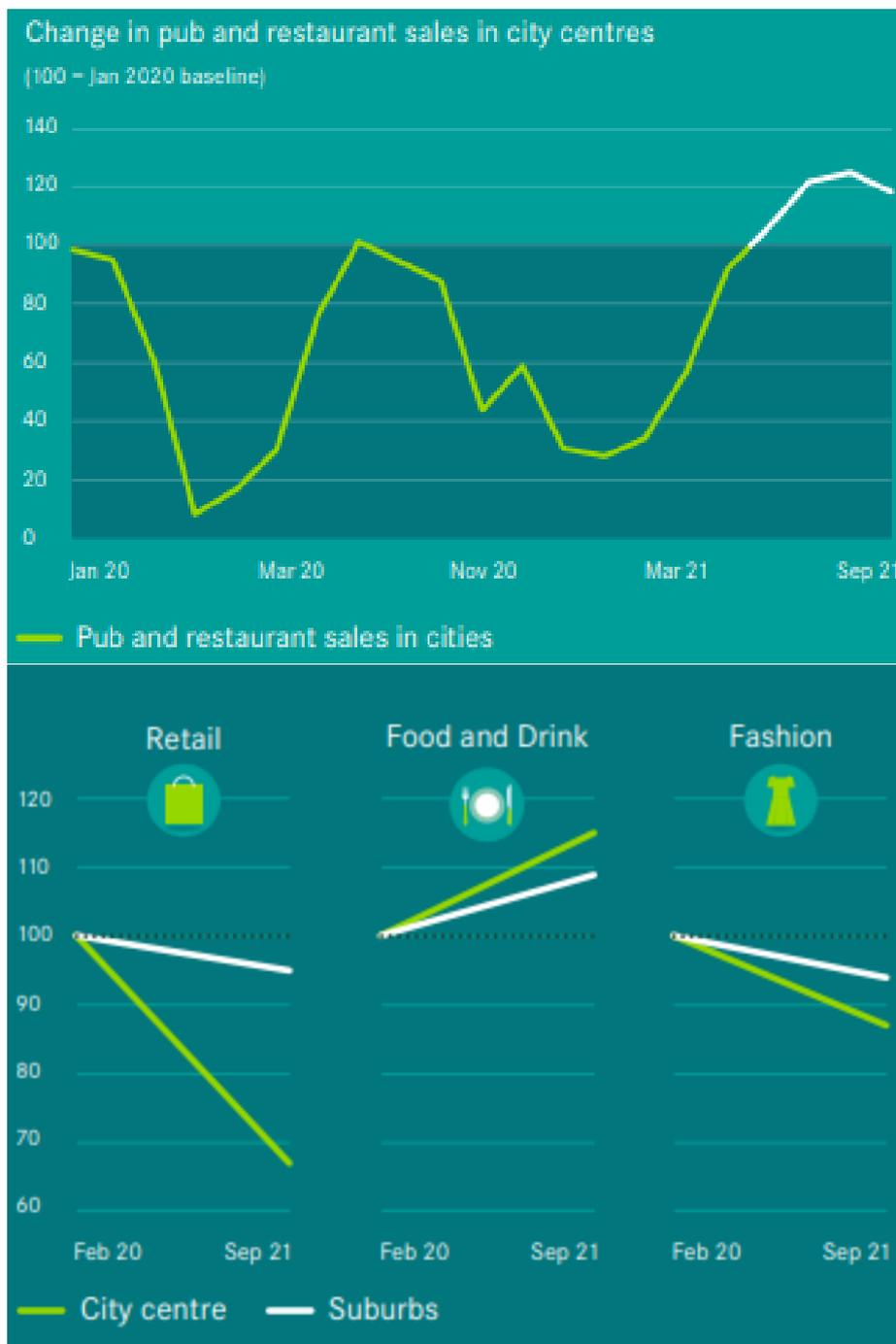
- B.40 Centre for Cities produced the Cities Outlook 2022 report looking in-depth at the state of UK high streets, to get a sense of the short-term impact of the pandemic on Britain's town and city centres, and the long-term consequences and implications this has for the Government's levelling up agenda. This report showed

³² <https://www.ons.gov.uk/economy/economicoutputandproductivity/currentaffairs/articles/ukeconomy/latest/2021-01-25#output>

that there was a quick and considerable shift away from high streets to online shopping during the pandemic. However, in most cities the shift stalled, or slightly fell again once shops reopened.

- B.41 The Cities Outlook report also studies the impacts on pubs and restaurants, stating that the fashion sector was hit harder than pubs and restaurants. **Figure B-16** shows the trend in sales throughout 2020 and 2021. There are clear decreases in sales corresponding to the national lockdowns but in all instances, these soon recover when the sector reopens. This is also reflected in the suburbs, with retail and fashion experiencing a slight decline from Feb 2020 to September 2021 but food and drink on a steady incline.

Figure B-16 Change in pub and restaurant sales in City Centres and Suburbs



Source: ons.gov.uk/economy³³

- B.42 Due to the work from home regulations and, for many, working from home becoming a regular part of the working week, it is feared the reduced footfall in cities will have a lasting effect on retail, hospitality, and transport sectors. **Figure B-17** show the weekday footfall in London, Manchester and Birmingham. Although not yet back to pre-pandemic levels, there is a steady climb in footfall in the major cities with Manchester appearing to recover more quickly than Birmingham, and London taking considerably longer.
- B.43 The more significant impact on London may be related to the impact of Covid-19 on international tourism.

Figure B-17 Weekday footfall



Source: ons.gov.uk/economy

³³ <https://www.centreforcities.org/>

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

Appendix B - Technical Note: Vehicle Sector Review – Taxis (Hackney Carriages and Private Hire Vehicles)

DRAFT FOR APPROVAL

June 2022

1. Introduction

Background

- 1.1 After the initial Outline Business Case (OBC) submission in March 2019, a series of technical notes were published setting out the results of analysis and research carried out to better understand the vehicles in scope for the scheme. For taxis, this included, in particular, *Technical Note 10: Taxi Behavioural Responses Note*, and *Technical Note 19: Taxi and Private Hire Vehicle Fleet Research*.¹
- 1.2 Further notes were produced setting out the development of analytical tools for taxis, with the latest published summary of that work provided in *T4 Appendix A* of the *Modelling for Consultation*.² Research was carried out with taxi owners potentially in scope for the scheme, including deliberative research³ and a survey with 66 taxi owners.⁴
- 1.3 This evidence formed the basis of the development of the Option for Consultation. From March 2020, it became clear that the Covid-19 pandemic would affect the Greater Manchester Clean Air Plan (GM CAP); a programme of work was carried out in 2020/2021 to better understand the possible impacts of the Covid-19 pandemic on the GM CAP, published as the *Impacts of COVID Report* in June 2021.⁵ This evidence, alongside feedback from the Consultation, was used to inform the revised GM CAP as approved by the ten GM local authorities in June/July 2021.
- 1.4 At that time, GM identified several possible risks to the GM CAP, which included concerns about the risk of vehicle price increases and the impact of any further lockdowns in the UK or countries in the supply chain.
- 1.5 This report, which was originally developed in February 2022, draws a series of findings and conclusions to better understand the circumstances affecting hackney and PHV owners in Spring 2022 (based upon the previous' GM CAP implementation date) and the implications for the GM CAP and surrounding policy framework.
- 1.6 Since Spring 2022, there have been further dramatic changes to the economic context in the UK which are not explicitly addressed in this report but are set out in **Appendix E**. A range of factors associated with the impact from war in Ukraine, increased costs of energy and fuel, changes to Bank of England base rates and forecasts, global supply chain challenges, and the cost-of-living crisis have combined to create a context of increased financial hardship for businesses and families.

Structure of Note

- 1.7 The remaining sections of the report are structured as follows:

¹ All available at <https://cleanairgm.com/technical-documents/>

² https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4_-_Appendix_A_Behavioural_Response_Cost_Models_and_Demand_Sifting_Tool.pdf

³ https://assets.ctfassets.net/tlpgbv1k6h2/15ZwMwWdJ0EQ1NvqPNG1Hgw/f856512a823040934674eb543573ff70/GM_CAP_Deliberative_Research_ALL_-_Spring_2019.pdf

⁴ https://assets.ctfassets.net/tlpgbv1k6h2/5e5iXeGPZwXiSvaTTWqID0/4c93aa82e0d4ec3e5f4f7ddcb29ae9ff/GM_CAP_Survey_and_Interviews_VAN_-_Autumn_2019.pdf

⁵ https://assets.ctfassets.net/tlpgbv1k6h2/2vJXVuLxfXON7HexGli29Q/4726e8696145d9f10bd1b19c16bdc1dd/Appendix_5_Impact_of_Covid-19_Report.pdf

- **Section 2** provides a review of the in-scope vehicles of the current Taxi sector in GM;
 - **Section 3** reviews the impacts of Covid-19 on the Taxis sector, with a particular focus on the availability and prices of purchasing new and used taxis. This chapter also considers the vulnerability impacts of Covid-19 on the sector; and
 - **Section 4** provides a summary of the key findings, also presenting details of any key risks or issues facing the sector in responding to GM CAP.
- 1.8 In addition, **Appendix A** provides a list of data used to inform the report and **Appendix B** reviews the recent changes in travel behaviour within GM through the pandemic up until January 2022.

2. Review of Vehicles in Scope

Overview of Vehicle Sector

- 2.1 Taxis offer a flexible form of door-to-door public transportation. The taxi vehicle sector comprises of two vehicle types:
- Hackney Carriage; and
 - Private Hire Vehicles (PHVs).
- 2.2 Hackney Carriages can be distinguished from PHVs in their licensing and operating regime. Hackney Carriages can legally be hailed by passengers in the street, pick up fares from taxi ranks and take pre-bookings from within their licensing authority (or an origin outside their area in the case of pre-bookings only). PHVs must be pre-booked with a licensed operator and cannot be hailed by passengers in the street or use taxi ranks. For the purposes of this note, 'taxi' refers to the collective term for both Hackney Carriages and PHVs.
- 2.3 Local Authorities regulate Hackney Carriage fare tariffs and have control over total Hackney Carriage numbers through the issue of licences. A licence is required for both the Hackney Carriage and for any person driving a Hackney Carriage. PHVs fares are not regulated by the local authorities and the council has no power to regulate fares charged.
- 2.4 Detailed research on taxis has been carried out as part of the Clean Taxi Fund (CTF) - Case for Measure, produced in Autumn 2020 and Cost Response Model reports.
- 2.5 It is important to note that there are a small number of Hackney Carriage that operate within GM that are not registered to a GM Local Authority (LA), these vehicles would also be affected by GM CAP. Due to Hackney Carriage operational requirements, non-GM licensed Hackney Carriages are not permitted to take fares solely within GM. Therefore, non-GM Hackney Carriages operating within GM will be for trips where the journey origin is outside GM or for pre booked journeys.
- 2.6 For context, the proportion of vehicle types in GM, relative to the regional and national averages, are provided in **Table 2-1** based on the latest available registration statistics from the DfT. There will be instances, particularly for commercial usage, where vehicles are registered in one location but used in another, but this table provides an overview of the relative size of each fleet.

Table 2-1 Proportion of Vehicle Types Registered by Area, Jan-22

	Cars	Van	HGV	Bus & Coach	Other
GB	85.0%	11.3%	1.3%	0.4%	2.1%
England	85.1%	11.3%	1.3%	0.4%	1.9%
NW	85.7%	10.9%	1.5%	0.3%	1.6%
GM	85.6%	11.8%	1.6%	0.4%	0.7%

Source: Department for Transport, Statistical data set, All vehicles (VEH01), Last updated 13 January 2022

- 2.7 Within these national statistics, Hackneys are one of a number of vehicle types categorised as 'other'; PHVs are included within the cars category.

- 2.8 Referring to ANPR data captured by GM in 2019, compared to the GM Taxi fleet list, GM licensed taxis as a proportion of cars registered in GM equates to approximately 1.4%.

In-scope Vehicles

Compliance of the Hackney Carriage fleet serving GM

- 2.9 **Table 2-2** presents the number of Hackney Carriages estimated to be serving GM in 2019 and 2023, including splits by compliant and non-compliant vehicles which failed to meet Euro VI standards at that point.

Table 2-2 Number of Hackneys Carriages in GM by compliance – 2019 & 2023 (without CAP)

	2019			2023 ⁶		
	GM Licensed	Non-GM Licensed	Total	GM Licensed	Non-GM Licensed	Total
Compliant	259 (12%)	37 (13%)	296 (12%)	738 (36%)	105 (36%)	844 (36%)
Non-Compliant	1,821 (88%)	259 (87%)	2,080 (88%)	1,342 (64%)	191 (64%)	1,532 (64%)
Total	2,080 (100%)	296 (100%)	2,376 (100%)	2,080 (100%)	296 (100%)	2,376 (100%)

Source: FBC Appendix V, T4 Annex C: Vehicle Population Estimates (FBC – includes 1 year delay in natural fleet upgrade)

- 2.10 In 2019, there were 2,376 Hackney Carriages serving GM, with 296 (12%) deemed compliant and 2,080 (88%) non-compliant. Non-GM licensed vehicles represent 10% of the total.
- 2.11 The large proportion of Hackney Carriages which are non-compliant is partly due to a relatively long lifespan, with many Hackney Carriage owners typically holding onto vehicles for several years (given the limited second-hand market for this vehicle type). Also, compliant Hackney Carriages did not come onto the market until 2015, with the Euro VI standard coming into force for Hackney Carriages in 2015.
- 2.12 GM forecast that the number of non-compliant Hackney Carriages serving GM will have reduced from 2,080 in 2019 to 1,532 by 2023 as a result of ongoing vehicle upgrades. This means that 548 vehicles would have been upgraded from a non-compliant vehicle as a result of business-as-usual purchase.
- 2.13 The anticipated rate of upgrade for Hackney Carriages was revised in 2021 based on evidence that the Covid-19 pandemic had delayed vehicle purchases, such that the fleet was estimated to be around 12 months older than previously forecast (note this delay is represented within the values quoted in **Table 2-2**).

⁶ Note: 2023 vehicle volumes include a one-year delay in the natural turnover of the taxi fleet assumption. This assumption was agreed with JAQU in Spring 2021 and incorporated within the 2021 modelling undertaken by GM support the FBC and is currently being reviewed based on new available data.

2.14 The rationale and methodology for this change is set out in the report “GM’s proposed approach to representing the impact of Covid-19 in core modelling scenarios”.⁷ This had the effect of reducing the number of GM-based Hackney Carriages expected to make a business-as-usual upgrade between 2019 and 2023 by 149.⁸

Compliance of the PHV fleet serving GM

2.15 **Table 2-3** presents the number of PHVs estimated to be serving GM in 2019 and 2023, including splits by compliant and non-compliant vehicles which failed to meet Euro VI standards at that point.

Table 2-3 Number of PHVs in GM by compliance – 2019 & 2023 (without CAP)

	2019			2023		
	GM Licensed	Non-GM Licensed*	Total	GM Licensed	Non-GM Licensed	Total
Compliant	3,595 (29%)	1,384 (29%)	4,979 (29%)	8,425 (68%)	3,243 (68%)	11,668 (68%)
Non-Compliant	8,806 (71%)	3,390 (71%)	12,196 (71%)	3,976 (32%)	1,530 (32%)	5,506 (32%)
Total	12,401 (100%)	4,773 (100%)	17,174 (100%)	12,401 (100%)	4,773 (100%)	17,174 (100%)

Source: FBC Appendix V, T4 Annex C: Vehicle Population Estimates. *Note: Non-GM fleet information estimated based on FOI request data. Note: 2023 values include a 12 month delay to the natural turnover of the fleet due to the pandemic

2.16 In 2019, there were 17,174 PHVs serving GM, with 4,979 (29%) deemed compliant and 12,196 (71%) non-compliant. Vehicles licensed with one of GM’s ten local authorities are as likely to be compliant as non-GM licensed vehicles (29% compliant).

2.17 A proportion of the PHVs within the taxi fleet would normally be upgraded each year, with the oldest vehicles being scrapped out of the fleet. GM’s forecast suggests that the number of non-compliant PHVs serving GM will have reduced from 12,196 in 2019 to 5,506 by 2023. Meaning 6,690 vehicles would have been upgraded from a non-compliant vehicle as a result of business-as-usual purchase.

2.18 Based on evidence that the Covid-19 pandemic had delayed vehicle purchases, the anticipated rate of upgrade for PHVs was revised in 2021, such that the fleet was estimated to be around 12 months older than previously forecast. The rationale and methodology for this change is set out in the report “GM’s proposed approach to representing the impact of Covid-19 in core modelling scenarios”⁹. This had the effect of reducing the number of GM-based PHVs expected to make a business-as-usual upgrade between 2019 and 2023 by 965¹⁰.

⁷

https://assets.ctfassets.net/tlpgbvvy1k6h2/2ZMJ3DJXiv7p3xOeZu4CYQ/247196ef60e33ac89f7f8938e1e16418/Appendix_6D_GM_proposed_approach_to_representing_the_impact_of_Covid-19_in_core_modelling_scenarios.pdf

⁸ TN 37 Vehicle Populations, compared to T4 Annex C

⁹

https://assets.ctfassets.net/tlpgbvvy1k6h2/2ZMJ3DJXiv7p3xOeZu4CYQ/247196ef60e33ac89f7f8938e1e16418/Appendix_6D_GM_proposed_approach_to_representing_the_impact_of_Covid-19_in_core_modelling_scenarios.pdf

¹⁰ TN 37 Vehicle Populations, compared to T4 Annex C

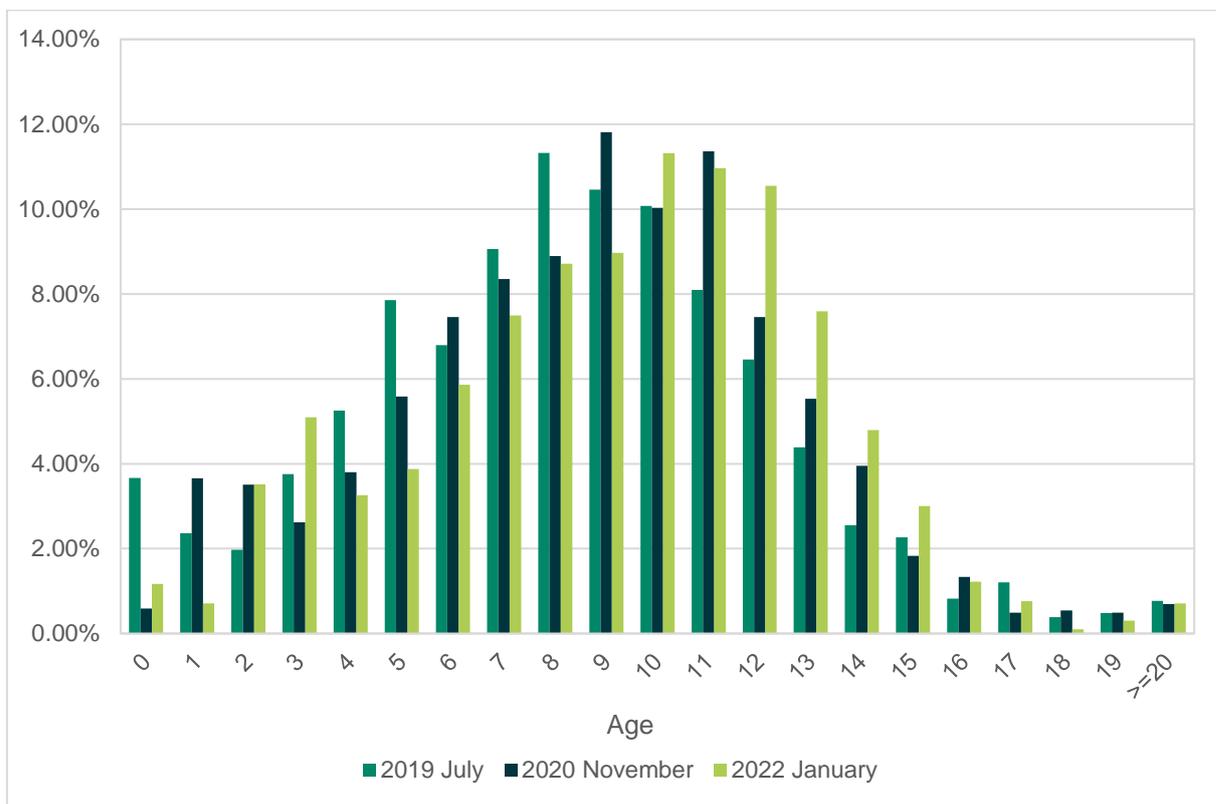
Review of Fleet Profile

2.19 Taxi licensing data from GM local authorities has been obtained and compared across July 2019, November 2020 and January 2022 to understand the taxi fleet profile operating in GM and how it has changed over time.

2.20 **Figure 2-1** below provides an insight into the change of GM-registered Hackney Carriage age profile over time. Only 12 brand-new Hackney Carriages (0-year-old) were licensed within GM within the year before November 2020 which is significantly lower than that of 2019 when 76 brand-new Hackney Carriages were licensed. The number of brand-new Hackney Carriages licensed increased from 12 to 23 in 2022 although this is still lower than the 2019 figure of 76, and suggests that the purchasing of new Hackney Carriages has significantly reduced since 2019.

2.21 It can be seen clearly that the Hackney Carriage age profile has been slightly “shifted” to the right from 2019 to 2022, which indicates that fleet age has grown older, and the fleet natural upgrade process had been delayed slightly.

Figure 2-1 Change in Hackney Carriage Fleet Age Distribution

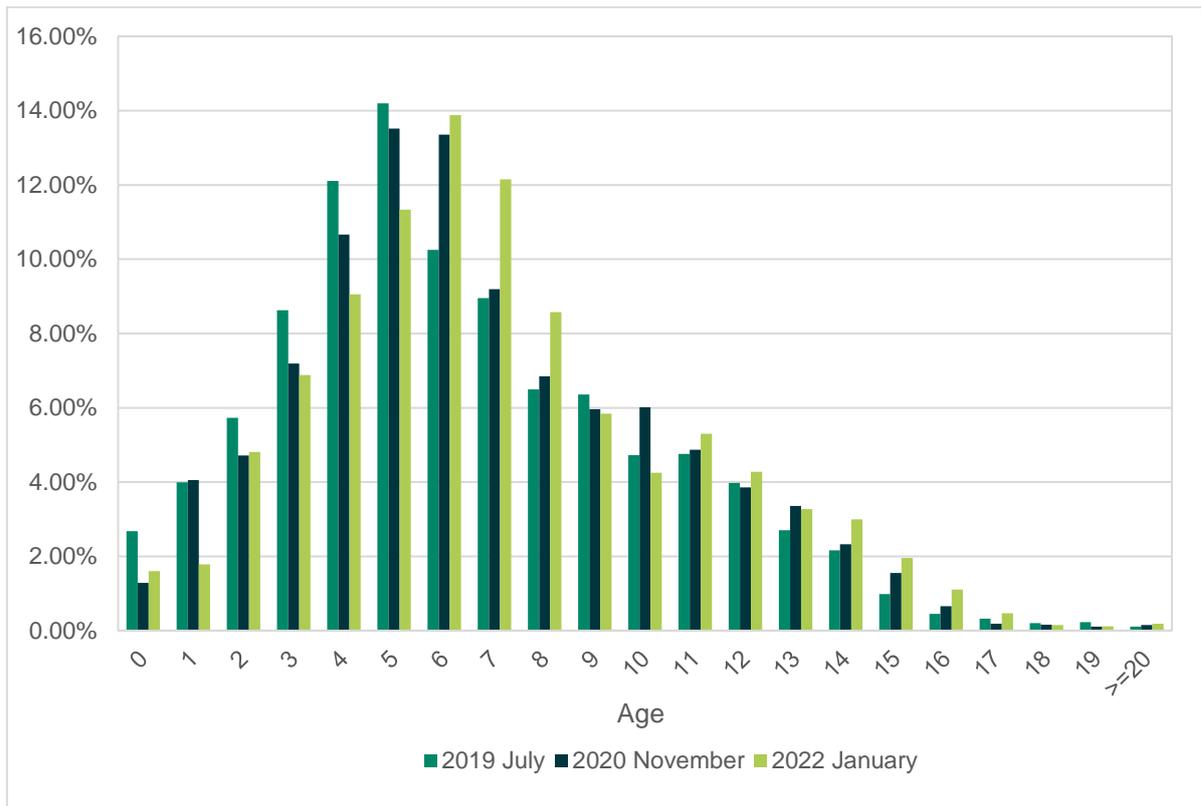


Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

2.22 A similar trend can be seen in PHVs as shown in **Figure 2-2**, with 147 brand-new PHVs licensed in the year before November 2020, which is less than half of the number in 2019 (327). 181 brand-new PHVs were licensed in 2022, a slight increase from 2020, although still lower than the number in year 2019 (327). This suggests there has been a reduction in the purchasing of brand-new PHVs since 2019.

2.23 The PHV fleet age profile had also grown older in 2020 and 2022 comparing to 2019, which indicates that the PHV fleet natural-upgrade process had also been delayed. However, the upgrade delay seems to be less significant when compared to that of Hackney Carriages.

Figure 2-2 Change in PHV Fleet Age Distribution



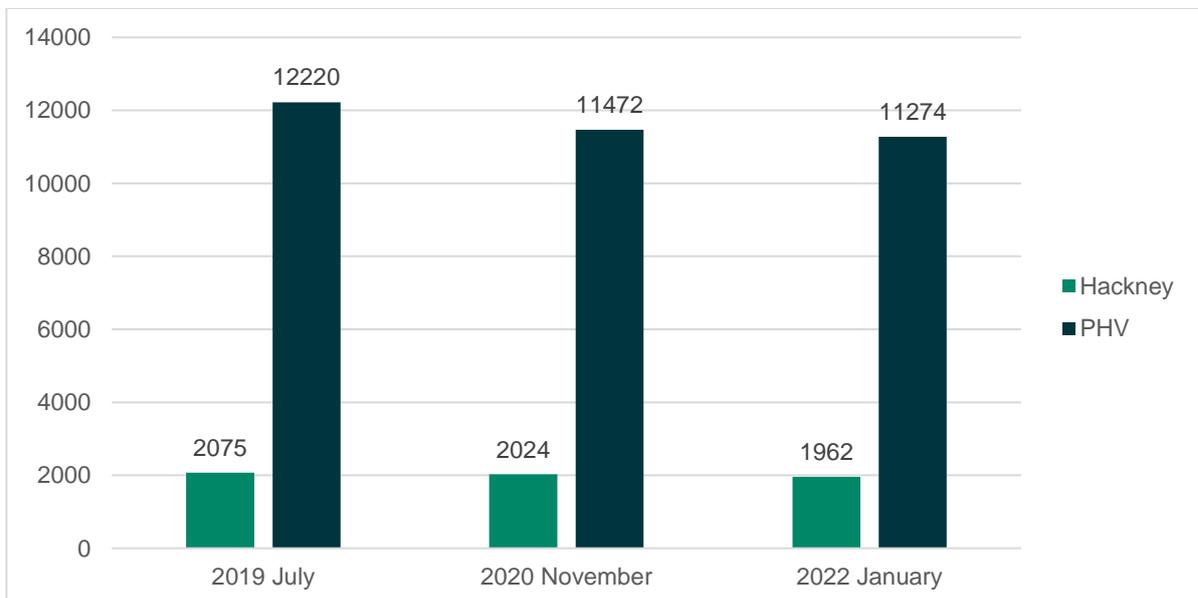
Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

2.24 ANPR data shows the age distribution for both GM registered Hackney Carriages and PHVs increased from 2019 to 2021. Comparisons of key vehicle profiles have been conducted to examine the changes over time. The key findings are as follows:

Total GM registered taxi numbers

2.25 The total number of GM licensed taxis decreased from 2019 to 2022 by 5.4% for PHVs and 7.7.% for Hackney Carriages as shown in **Figure 2-3**.

Figure 2-3 Total GM Licensed Hackney Carriage and PHV Numbers



Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Taxi age profile

2.26 The average age of both PHVs and Hackney Carriages in the GM licensed fleet increased from 2019 to 2022 as shown in **Table 2-4**. The PHV average age increased by 0.7 years and Hackney Carriages by 0.9 years. The average age of PHVs is now 7.1 years and 9.1 years for Hackney Carriages

Table 2-4 Average Vehicle Age

Taxi Types	Data year	2019	2020	2022
Hackney Carriage	Average Age	8.2	8.7	9.1
	Most common age group	8	9	10
PHV	Average Age	6.4	6.8	7.1
	Most common age group	5	5	6

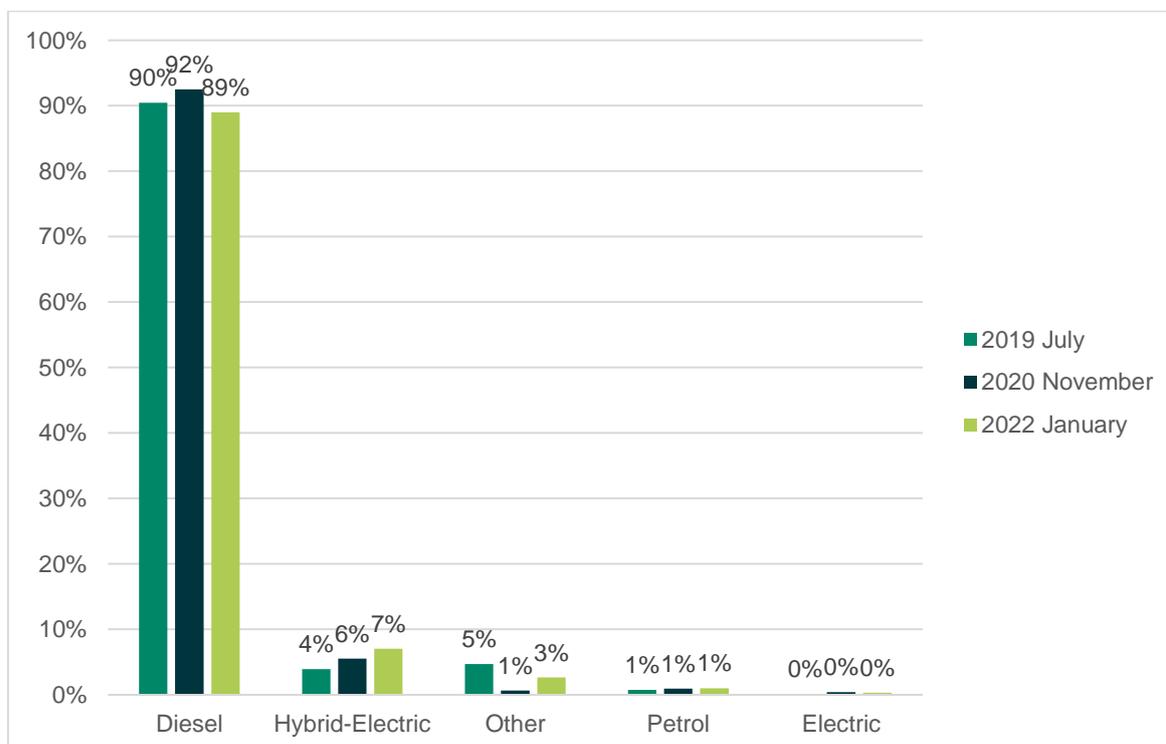
Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Fuel types

2.27 The change of the fuel types of Hackney Carriages and PHVs licensed in GM are shown in **Figure 2-4** and **Figure 2-5**.

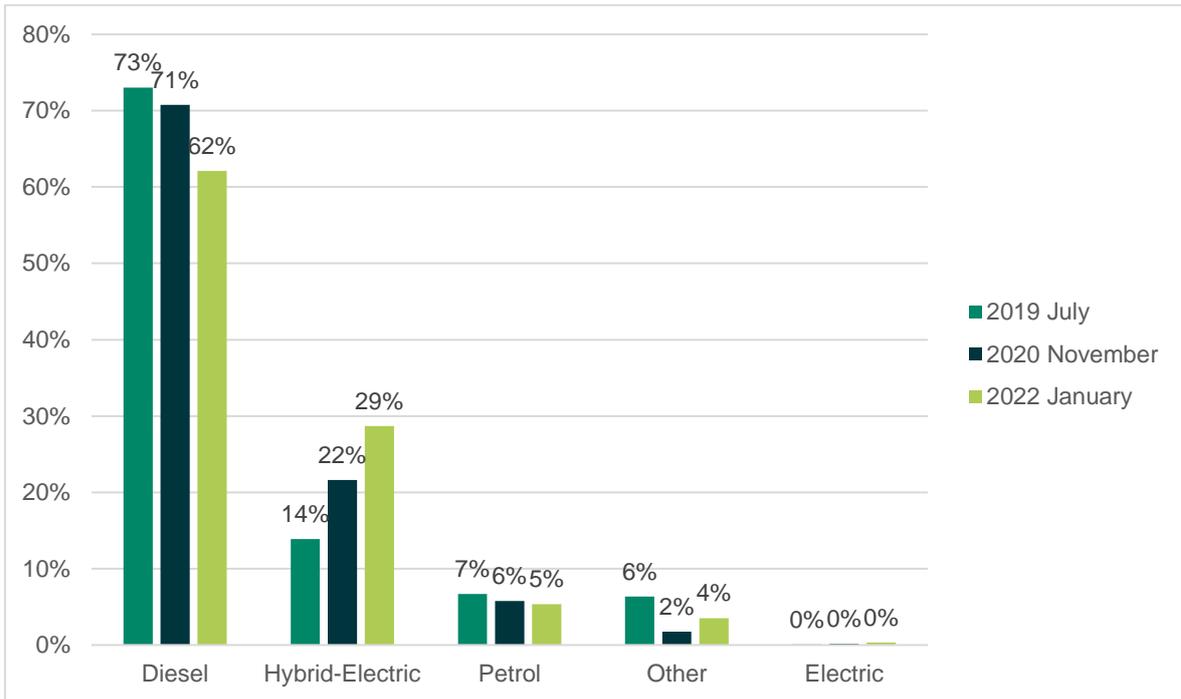
2.28 No significant change has been seen in Hackney Carriage fuel types with 89% still fuelled by diesel. Conversely, the proportion of PHVs fuelled by diesel has fallen from 73% to 62% between 2019 and 2022. There has been a shift from diesel to Hybrid-electric for PHVs, with Hybrid-Electric PHVs rising from 14% 2019 to 29% in 2022. The EV uptakes remain very low at less than 1% for both PHVs and Hackney Carriages.

Figure 2-4 Fuel Types for GM Hackney Carriages



Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Figure 2-5 Fuel Types for GM PHVs

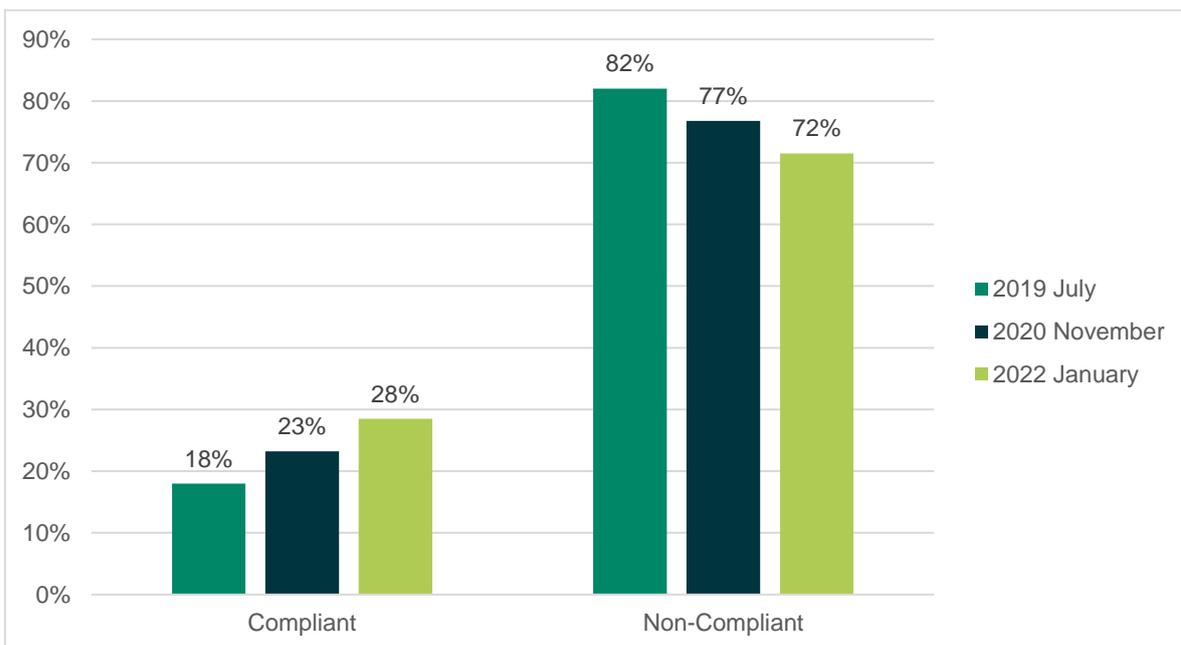


Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Compliance rate

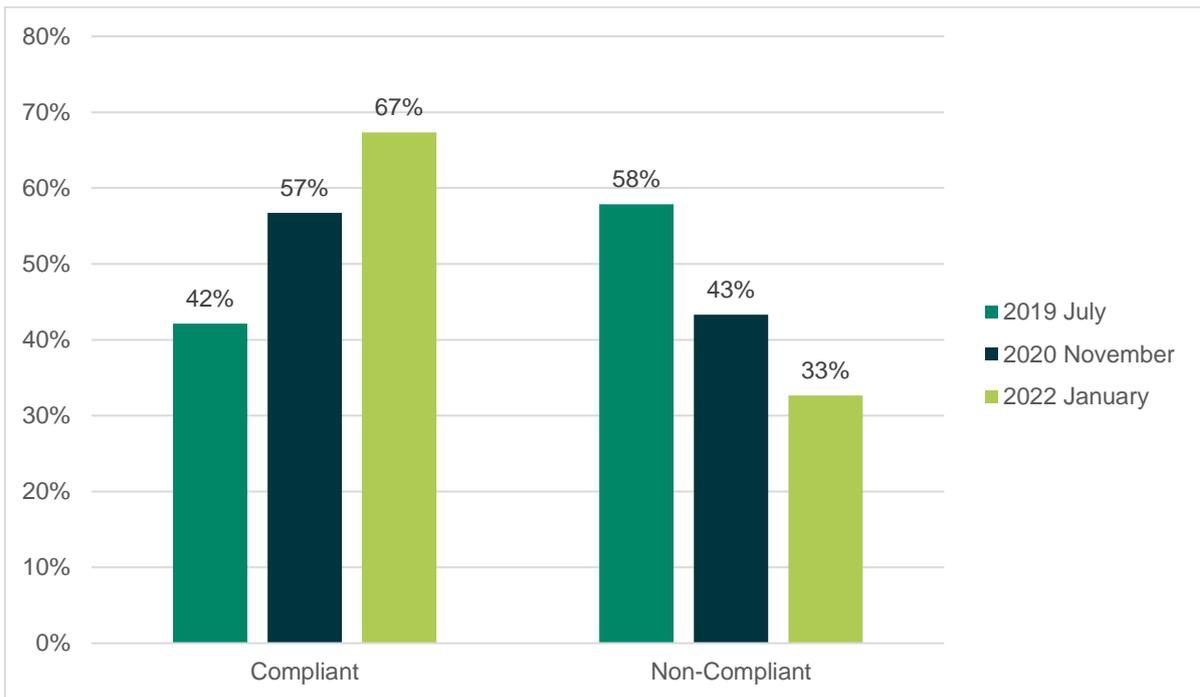
2.29 Hackney Carriage compliance has increased from 18% in 2019 to 28% in 2022, averaging a 20% increasing compliance rate per annum over the observed period as shown in **Figure 2-6**. PHV compliance has increased from 42% in July 2019 to 67% in January 2022, averaging a 21% increase compliance rate per annum over the observed period as shown in **Figure 2-7**. In addition, the PHV compliance level in 2019 is significantly higher than the compliance level of Hackney Carriages.

Figure 2-6 Hackney Carriage Compliance Rates



Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Figure 2-7 PHV Compliance Rates



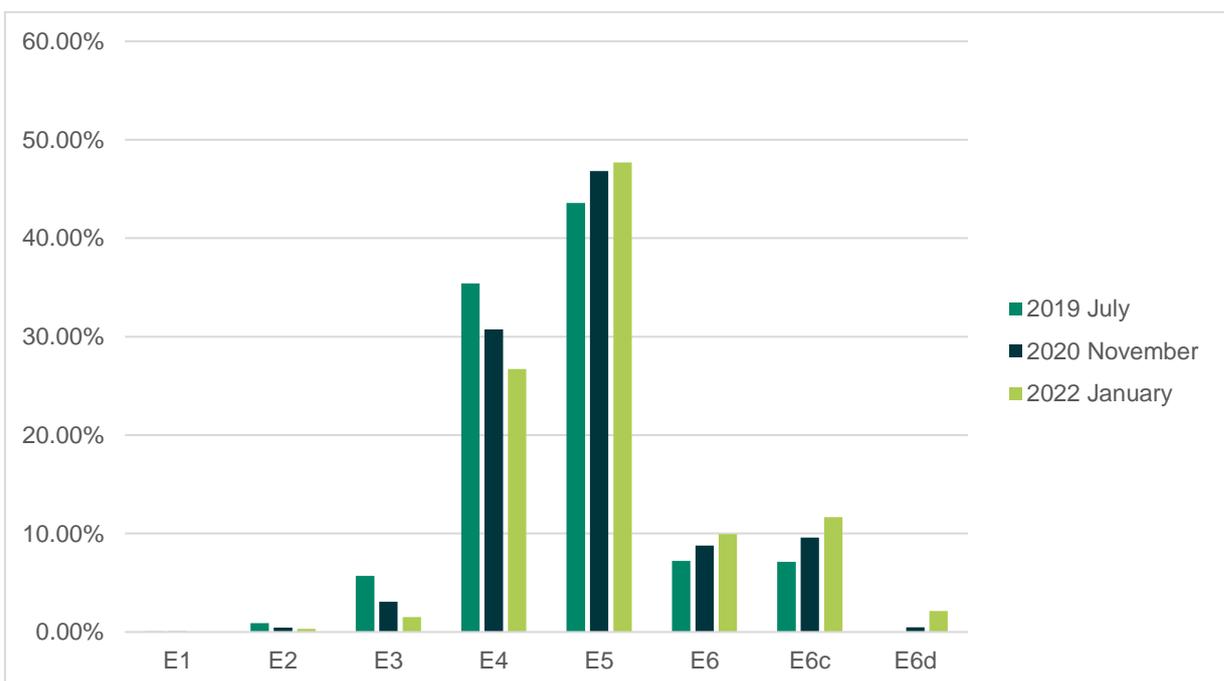
Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Euro classifications

2.30 There is a sustained reduction in Hackney Carriage Euro IV (E4) engines across the observed period. The E5 remains the predominant engine standard for Hackney Carriages in 2022 with 48% share which has increased between 2019 and 2022.

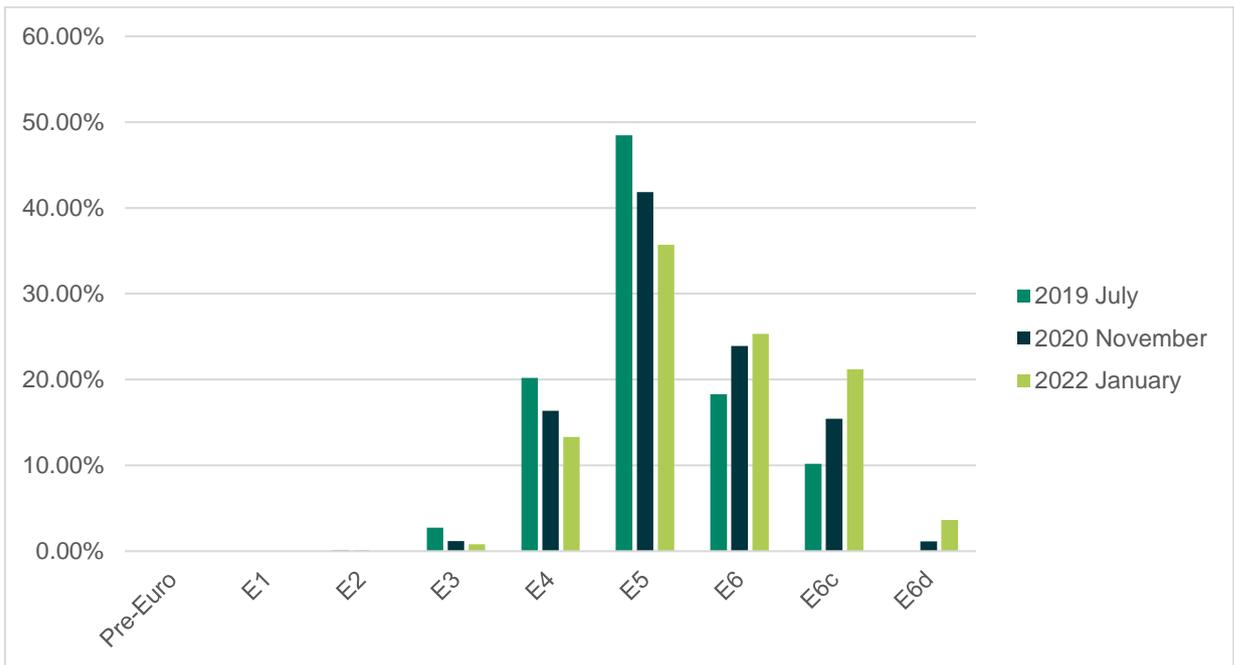
2.31 A significant reduction was seen in PHV E4 and E5 engines and corresponding increases were seen in E6 and E6c. It is worth noting that the proportion of PHVs with E5 engines decreased between 2019 and 2022 unlike Hackney Carriages.

Figure 2-8 Hackney Carriage Euro Classification trend



Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Figure 2-9 PHVs Euro Classification trend



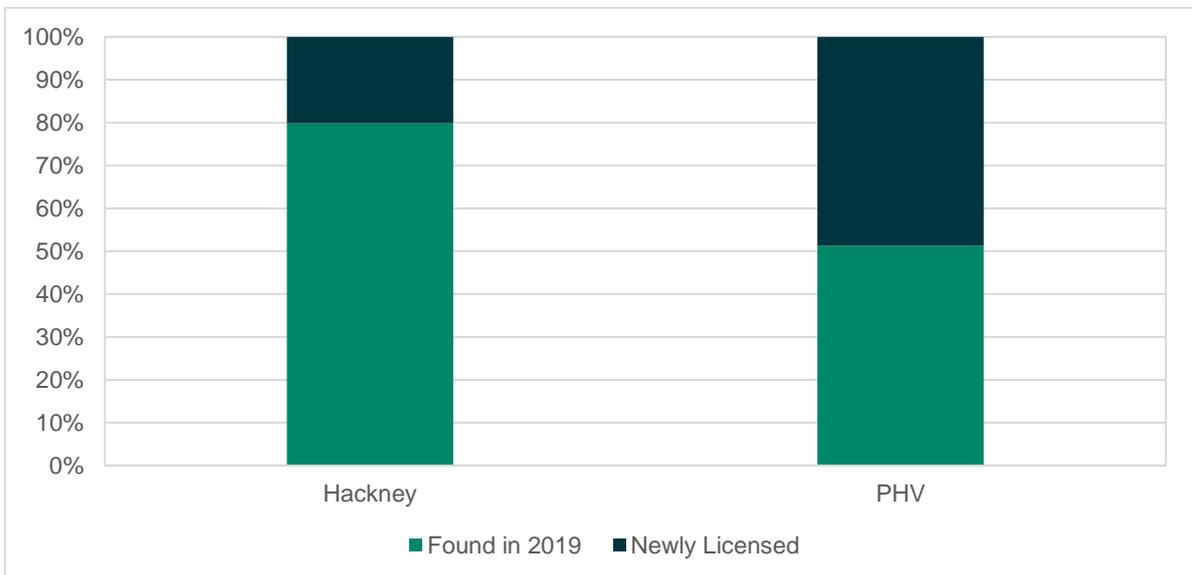
Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Registration by LAs

2.32 Vehicle registrations for Hackney Carriages and PHVs have been examined in 2022 to compare with 2019 showing the proportion of unique registration plates in GM to demonstrate the churn in the vehicle market.

2.33 **Figure 2-10** shows the percentage of Hackney Carriages and PHVs licensed in 2022 that were found in 2019, suggesting that since 2019, 20% of licensed Hackney Carriages and 49% of licensed PHVs are 3 years old or less. The level of natural churn experienced in the PHV fleet is significantly higher than in the Hackney Carriage fleet, demonstrating a quicker, natural trajectory within the PHV market to achieve compliance with the GM CAP. This would be in-keeping with the average age of the vehicles, as presented earlier within this section which demonstrates that in GM PHVs are two years younger than Hackney Carriages on average.

Figure 2-10 2022 Hackney Carriages and PHVs found in 2019 records



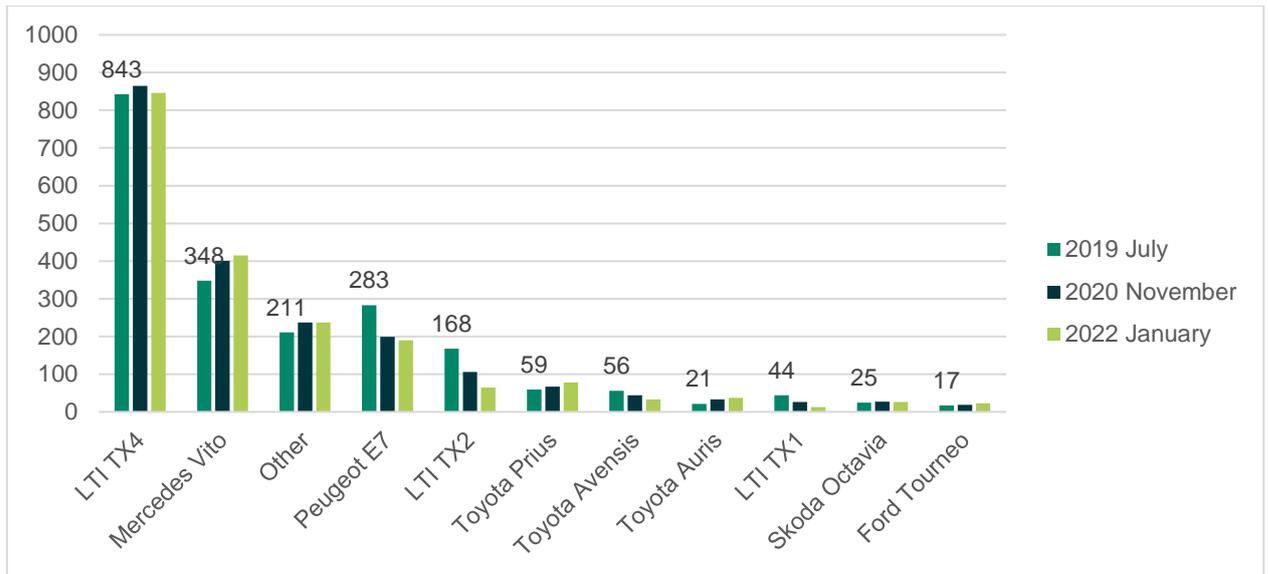
Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Taxi makes and models

2.34 The London Taxi Company TX4 (LTI TX4) has remained the most popular vehicle representing 43% of GM’s Hackney Carriage fleet in 2022 as shown in **Figure 2-11**.

2.35 The most common PHV used in GM in 2022 is still the Skoda Octavia which accounts for 19% of the fleet as shown in **Figure 2-12**.

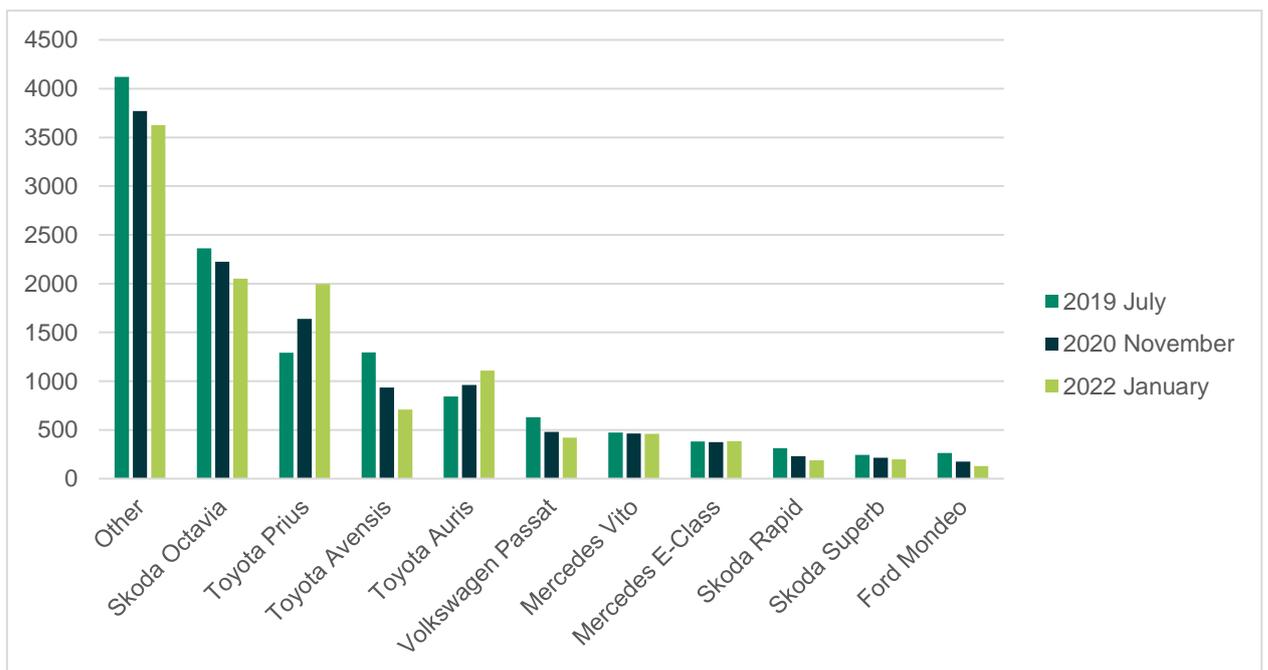
Figure 2-11 GM Hackney Carriage Make and Model Trend



Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Note: Some vehicle types included in this graph are typical of a PHV fleet however they are permitted for Hackney Carriage licensing by some GM local authorities

Figure 2-12 GM PHVs Make and Model Trend



Source: TfGM, GM Taxi Licensing Data (2019, 2020 and 2022)

Note: Some vehicle types included in this graph such as Mercedes Vito, are more commonly associated with Hackney Carriages however a smaller proportion are operated as a PHV

Updated traffic and travel patterns

2.36 Using ANPR data, Hackney Carriage and PHV frequencies have been observed across multiple locations within GM¹¹. The observations show how proportions of Hackney Carriages and PHVs change over the observed years at different locations.

Hackney Carriage

2.37 **Table 2-5** shows the proportions of Hackney Carriages by GM location and the change in proportions from 2019 to 2021. Using ANPR data, taxis were observed at locations inside the M60, outside the M60 and inside the Inner Ring Road (IRR).

2.38 Across the observed period (2019-2021), there was a reduction in the proportion of Hackney Carriages located in the IRR whilst there was a proportional increase in the number of Hackney Carriages located inside the M60. The largest proportion of Hackney Carriages inside the M60 were observed on the A5103 Princess Road, with 25% in 2019, observing a 4% increase from 2019 to 2021. Inside the IRR a high proportion of Hackney Carriages were observed on the B6469 Fairfield Street in 2019 (21%), close to Manchester Piccadilly rail station, which observed a 6% decrease from 2019 to 2021.

Table 2-5 Proportion of Hackney Carriages by GM Location

	2019	2020	2021	2019-2021 % Change
Inside M60¹²	57%	52%	62%	5%
Outside M60	7%	11%	7%	0%
Inside Inner Ring Road (IRR)	36%	37%	30%	-6%

Source: ANPR (2019, 2020 and 2021)

PHV

2.39 Similar proportions can be seen for PHVs, as shown in **Table 2-6**, with the category 'Inside M60' having the largest proportions and 'Outside M60' having the smallest proportion. However, the proportion of PHVs inside the IRR is lower than Hackney Carriages which could be associated with Hackney Carriage depots located in Manchester City Centre and pick-up areas such as at Manchester Piccadilly rail station.

2.40 The proportion of PHVs inside the M60 increased by 2% from 2019 to 2021, from 71% in 2019 to 73% in 2021. Inside the M60 saw a 1% increase from 2019 and 2021, and inside the IRR a 3% decrease from 2019 and 2021 was observed.

¹¹ ANPR data based on data collection from following number of sites by location: Inside M60 = 9 sites, Outside M60 = 3 sites, Inside IRR = 3 sites

¹² 'Inside M60' refers to taxis captured inside the M60 motorway but outside the IRR.

Table 2-6 Proportion of PHVs by GM Location

	2019	2020	2021	2019-2021 % Change
Inside M60	71%	68%	73%	2%
Outside M60	9%	12%	10%	1%
Inside IRR	20%	20%	17%	-3%

Source: ANPR (2019, 2020 and 2021)

- 2.41 Similarly to Hackney Carriage, the largest proportion of PHVs observed inside the M60 in 2019 were on the A5103 Princess Road (27%), with an observed 1% increase from 2019 to 2021. Across both taxi types, the proportion of vehicles recorded inside the IRR fell between 2019 and 2021 which is consistent with the findings by TfGM across modes for the 'regional centre'. Error! Reference source not found.

3. Review of Covid-19 impacts on vehicle sector

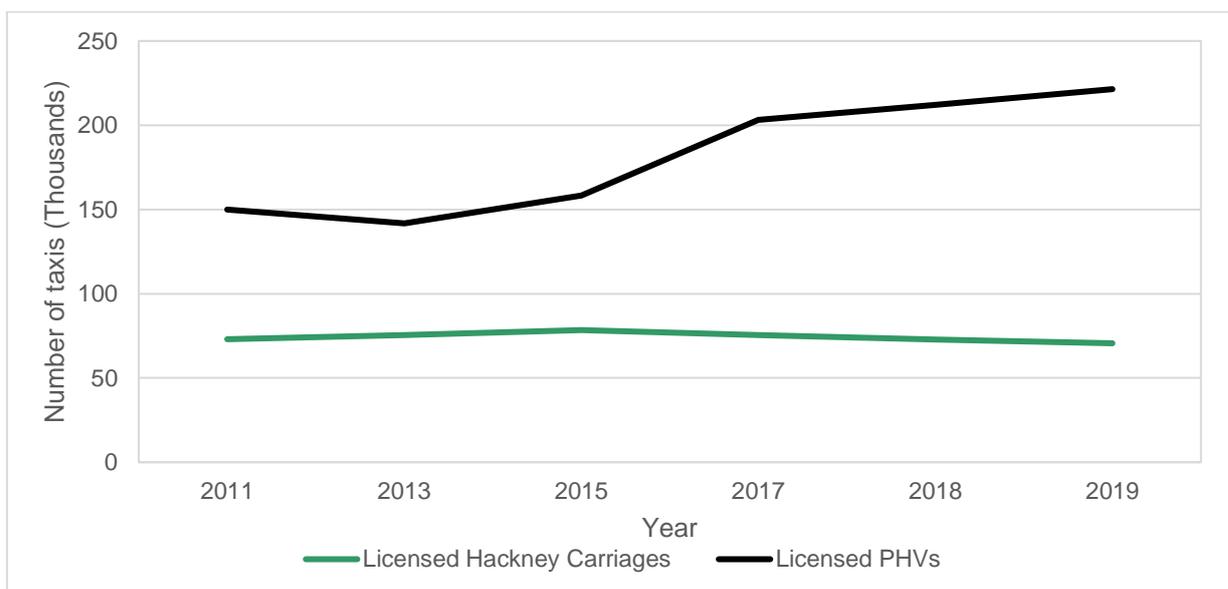
Overview

- 3.1 This section provides an update on the direct impacts the Covid-19 pandemic and associated restrictions have had on taxi fleets and licensed drivers.
- 3.2 This section also assesses the impact Covid-19 has had on the taxi market for the purchasing of new and second-hand compliant vehicles.

Pre-Pandemic – Sector Related Trends

- 3.3 The following charts, displaying DfT Taxi Statistics¹³, show the trend in licensed taxi vehicles and drivers between 2011 and 2019. The dataset follows the same trend for both.
- 3.4 Assessing pre-pandemic conditions (2011-2019), **Figure 3-1** and **Figure 3-2** show the following:
- there is a direct collation between the trend in licensed Hackney Carriage and PHVs with the number of licensed Hackney Carriage and PHV drivers;
 - the number of licensed Hackney Carriage vehicles and drivers in England has remained stable across the pre-pandemic period. Whilst the number of licensed Hackney Carriage drivers in England has increased by 2% in 2019 compared to 2011, the number of licensed Hackney Carriages in England has decreased by 3%; and
 - the number of licensed PHVs and drivers in England has steadily increased over the period, increasing 32% in the number of PHVs in 2019 compared to 2011 and 28% in the number of licensed drivers in 2019 compared to 2011.

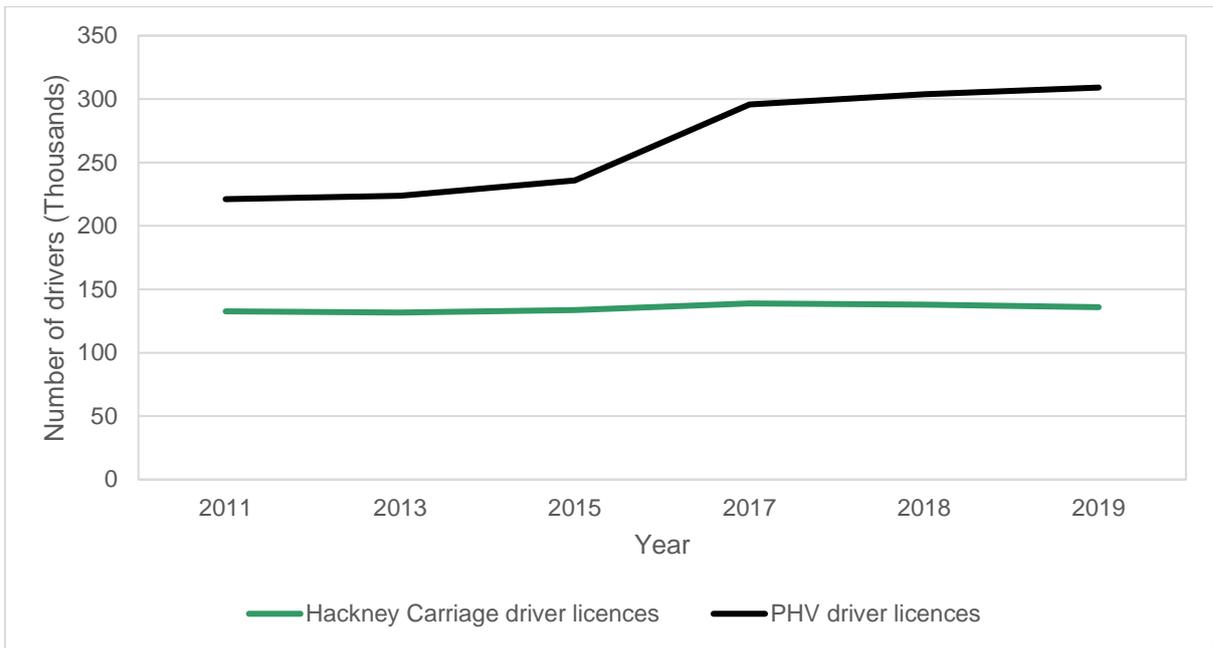
Figure 3-1 Licensed Hackney Carriage and licensed PHVs: England



Source: <https://www.gov.uk/government/collections/taxi-statistics>

¹³ <https://www.gov.uk/government/organisations/department-for-transport/series/taxi-statistics>

Figure 3-2 Licensed Hackney Carriage drivers and Licensed PHV drivers: England

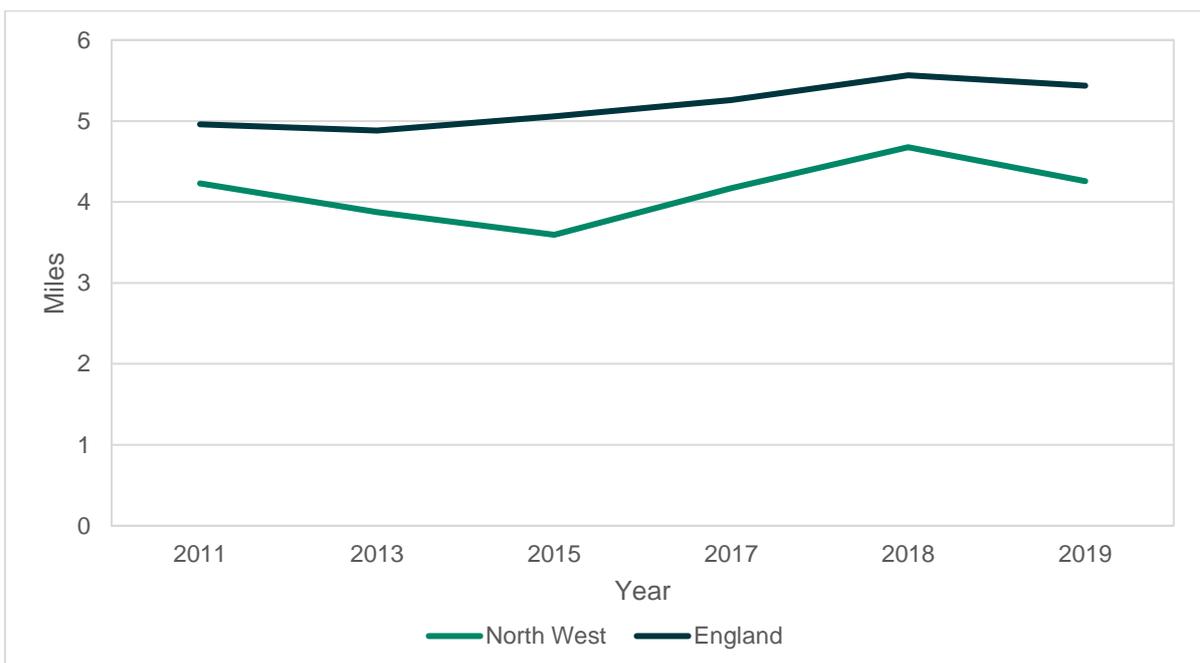


Source: <https://www.gov.uk/government/collections/taxi-statistics>

Mileage

3.5 The average trip lengths taken in Hackney Carriages and PHVs has remained steady over the observed period as shown in **Figure 3-3**. Assessing pre-pandemic conditions (2011-2019), trends show that the average trip mileage in a taxi in the North West is lower than the average for England however the gap narrowed in 2018.

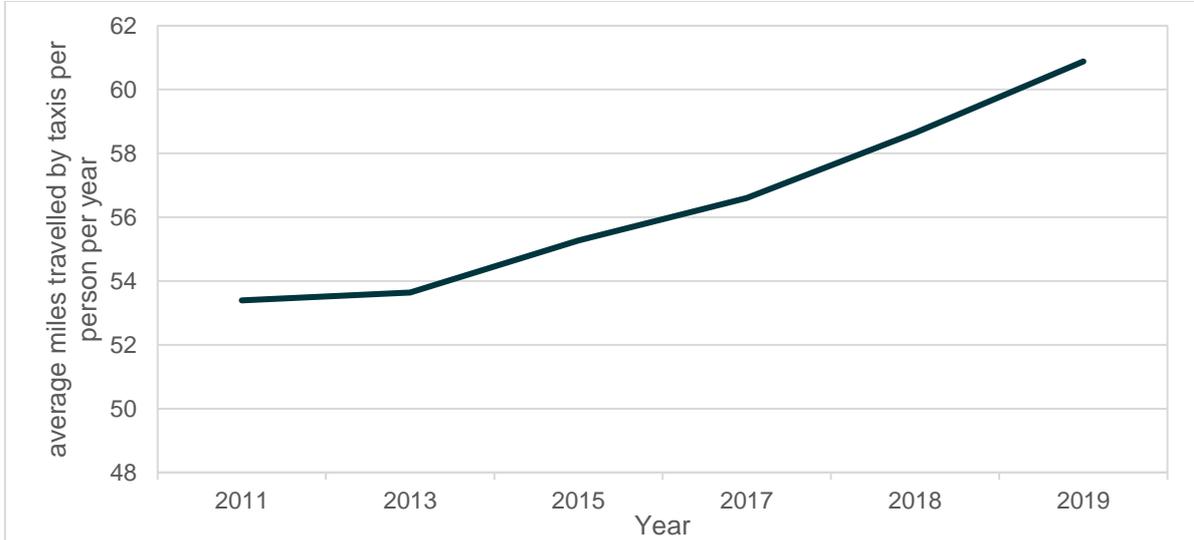
Figure 3-3 Average trip lengths of Hackney Carriage and PHVs



Source: <https://www.gov.uk/government/statistical-data-sets/nts03-modal-comparisons>

- 3.6 **Figure 3-4** displays the average miles travelled by taxis per person per year in England. The results show that the average miles travelled by taxis per person per year has increased year-on-year of the observed period prior to the pandemic.

Figure 3-4 Average miles travelled by Hackney Carriage or PHV per person per year: England



Source: <https://www.gov.uk/government/statistical-data-sets/nts03-modal-comparisons>

Covid-19 Different Industries' Effects on the Hackney Carriage and PHV Sector

Background

- 3.7 The first UK national lockdown in March 2020 had a significant impact on the Hackney Carriage and PHV sector, with demand significantly decreasing as restrictions limited mobility across the UK.
- 3.8 After 10 years of stable numbers, licensed Hackney Carriages fell between 2020 to 2021. Licensed PHVs have taken a significant fall from March 2020 to March 2021, a fall of 38,000 vehicles.
- 3.9 Of the national totals for licensed taxis, 20% are registered within GM (2018 18%) and 15% of licensed drivers are registered within GM (2018 13%). Between 2020 and 2021 there was a reduction of 1,500 licensed vehicles within GM, although there was an increase of 331 licensed drivers within GM between 2020 and 2021, this does not follow the national trend with a decrease of 7,082 in England and Wales during the same time period. However, the number of GM licensed drivers has not recovered to 2019 (pre-pandemic) levels.
- 3.10 Through review of GM based ANPR data, the number of unique Hackney Carriage vehicles fell 22% between 2019 and 2020 and PHVs fell 7% over the same period. The number of unique Hackney Carriages and PHVs recovered in 2021 with a 14% increase for Hackney Carriages compared to 2020 and 11% increase for PHVs compared to 2020 however 2021 volumes were still below pre-pandemic (2019). In addition, trip frequency between 2019 and 2020 fell 49% for Hackney Carriages and 23% for PHVs. Trip frequency recovered between 2020 and 2021 however 2021 data were marginally below average trip frequency recorded in 2019 with Hackney Carriages 0.6% and PHVs 5% below 2019 levels.

- 3.11 The Licensed Private Hire Car Association (LPHCA) estimated in 2021 that only 160,000 of the nearly 300,000 pre-Covid-19 cab drivers are now active. An interview conducted with PHV firm, Cresta Cars, based in Manchester, indicated that, since the pandemic, the number of drivers has reduced from 400 to 300¹⁴.
- 3.12 As a result of the reduction in demand and trade, due to the pandemic, drivers were forced to move into jobs which remained resilient during the pandemic, such as the supermarket and delivery sector with some drivers not returning to the taxi industry.
- 3.13 Some drivers moved to part time work, only 9% of drivers were working 7 days a week in April 2020, a reduction from 22% in April 2019, this could be explained by reduced trade during the pandemic and the need to find alternative employment. Contributing factors to the driver shortage also include those taking the opportunity to retire in higher numbers than pre-pandemic and a backlog to become licensed again with a 5.7% reduction in the number of Hackney Carriage and PHV driver licences in 2021 compared with 2020¹⁵.
- 3.14 Along with lack of drivers is the lack of actual vehicles. Hackney Carriages in particular can be expensive to own and insure, and with older diesels falling foul of clean-air rules based upon a London example with circa 5,000 London black cabs were handed back, sold or scrapped as demand reduced in 2020, and only 13,500 remain in 2021.¹⁶
- 3.15 According to the NTS the majority of trips taken by Hackney Carriage or PHV are for leisure purposes, with a share of 51% in 2019¹⁷. As lockdowns were brought into effect across the UK, the leisure industry was hit significantly, bringing profound changes to consumer behaviour and thus adversely reducing the demand on the Hackney Carriage and PHV sector. According to DfT Hackney Carriage and PHV statistics (June 2021), there were 251,100 licensed Hackney Carriages and PHVs in 2021 nationally, a decrease of 15.9% since 2020. There was a 5.4% reduction of drivers between March 2020 and March 2021, equating to over 24,000.
- 3.16 The following section provides a summary of Covid-19 impacts for the key sectors which the taxi industry relies on.

Covid-19 Impacts on Industry Sectors that are served by the Taxi Sector

- 3.17 This section provides a narrative for the reduction in demand for taxis during the Covid-19 pandemic which have been influenced by Government policy and public confidence to travel. The section provides the background behind the underlying financial stability of the taxi industry and how the pandemic may have influenced their ability to have sufficient levels of cash reserves to upgrade non-compliant vehicles.

Leisure

- 3.18 According to the NTS, leisure trips made up 51% of all Hackney Carriage and PHV journeys in 2019, this was significantly impacted during the pandemic¹⁸. Restrictions introduced on March 23rd ordered people in the UK to “stay at home”, limiting all non-essential business and leisure activities.

¹⁴ <https://lphca.co.uk/lphca-news/industry-driver-shortages>

¹⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/997793/taxi-and-private-hire-vehicle-statistics-2021.pdf

¹⁶ <https://www.theguardian.com/uk-news/2021/nov/13/taxi-taxi-why-its-suddenly-getting-so-hard-to-find-a-cab>

¹⁷ Taxi and Private Hire Vehicle Statistics: England 2021

¹⁸ Taxi and Private Hire Vehicle Statistics: England 2021

- 3.19 As part of the restrictions to curb the spread of Covid-19, a 10pm curfew for bars and restaurants was introduced on 24th September 2020. The closure of these establishments has undoubtedly affected the taxi industry. In February 2021, nightclubs were trading at just 5% of their pre-COVID annual revenue, bars were trading at 9% and pubs at 11%.¹⁹
- 3.20 Following the easing of restrictions, consumer demand for leisure activities has increased, the Leisure Consumer state in their 2021 report that in the first quarter of 2021 there was a 50% increase in demand for eating out when compared to the final quarter of 2020, similar increases are expected for visiting pubs and bars and culture and entertainment.²⁰
- 3.21 As COVID restrictions continued to ease, some sectors have bounced back strongly, such as the Manchester evening economy which was previously severely impacted by the pandemic. Although, recent media articles have suggested difficulties in passengers obtaining taxis;

“In Manchester, which has a good night-time economy, it’s a real problem,” says Derek Brocklehurst, manager of Cresta Cars, one of the city’s largest private hire firms. After more than 40 years in business, he says: “We feel embarrassed, unable to fulfil our customers’ requirements, with people having to wait one or two hours.” Some drivers only want to work workdays since the pandemic, he says: “They’ve taken on different jobs, their work-life has changed and they are spending more time with their families.”²¹

Travel and Tourism

- 3.22 The Covid-19 pandemic has impacted the travel and tourism sector heavily as restrictions in the UK and worldwide have hindered, and in cases prevented domestic and international travel. Unnecessary travel was first discouraged in March and was again impacted by the second and third English lockdowns in November 2020 and January 2021.
- 3.23 In June 2021 Eurocontrol published a report stating that the UK aviation sector has lost a total of 2 Million flights since March 2020, a 72% decrease from 2019. In March 2020 the average daily flights departing and arriving Manchester was 135, a 79% decrease from 2019, and flights travelling to or from the UK were down by 49%²². In 2019 Hackney Carriages and PHVs made up just under a third (29%) of the transport modes used by passengers travelling to/from Manchester Airport²³.
- 3.24 The reduction in air travel impacted the demand for airport Hackney Carriage and PHV journeys, with the lack of passengers needing a taxi to travel to or from airports in the UK declining during the pandemic and thus negatively impacting airport trade for Hackney Carriages and PHVs.
- 3.25 The continued reduced levels of aviation travel, due to wider international Covid-19 restrictions still in place, taxi journeys to / from Manchester airport are likely to continue to be operating at below pre-pandemic levels. It is not clear when tourism activity will reach pre-pandemic growth levels.

¹⁹ APPG submission by UK Hospitality, February 2021

²⁰ The Leisure Consumer 2021, Emerging from the Pandemic

²¹ <https://www.theguardian.com/uk-news/2021/nov/13/taxi-taxi-why-its-suddenly-getting-so-hard-to-find-a-cab>

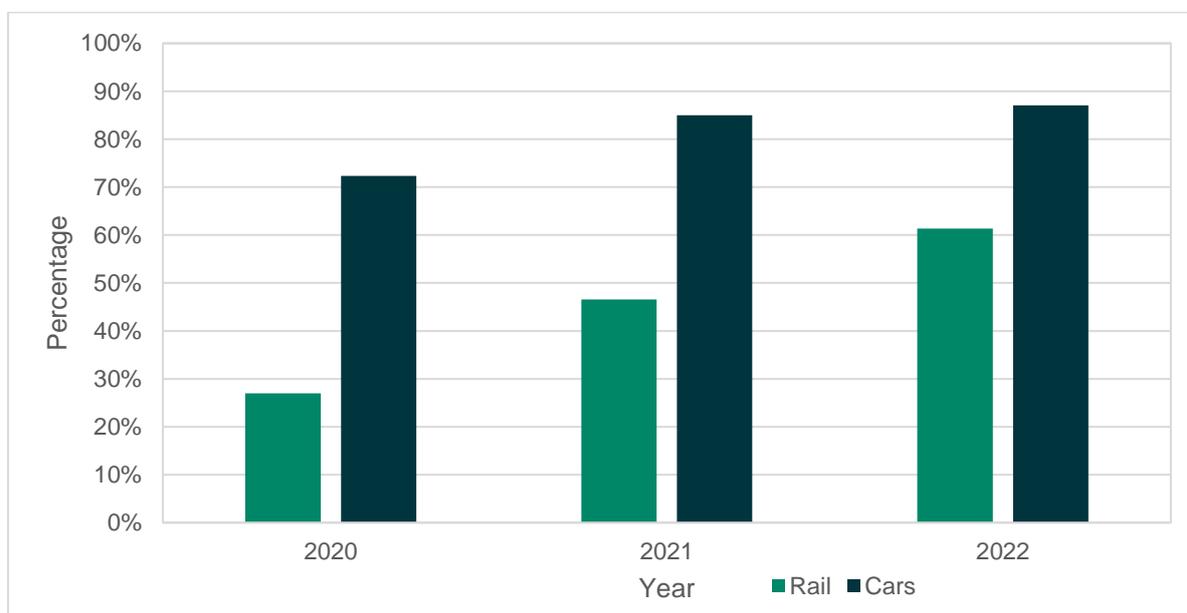
²² Covid-19 Impact on EUROCONTROL Member States, EUROCONTROL States Briefing, June 2021

²³ <https://www.statista.com/statistics/303820/modes-of-transport-to-and-from-manchester-airport-uk-united-kingdom/>

Transport Hubs – Access to Rail

- 3.26 Taxis also provide an important role serving a mode of access to transport hubs for onward public transport travel, especially at larger rail stations across GM.
- 3.27 GM has a number of important railway stations that see high volumes of passengers every year. Two of the busiest in the region are Manchester Piccadilly and Manchester Victoria. Both these stations normally have busy taxi ranks. However, Covid-19 has had a significant impact on the number of people travelling by rail as the advice to work from home and avoid unnecessary travel was issued from the government at the start of the pandemic.
- 3.28 Data released from DfT show the percentage of rail users from the start of the first national lockdown between 2020 and 2022 compared against cars²⁴; this is shown in **Figure 3-5**. Rail patronage levels continue to recover in 2022 however they still remain significantly below pre-pandemic levels with less than two thirds (61%) of pre-pandemic rail trips made. In comparison, car has recovered to 87% as a 2022 average compared to pre-pandemic levels.
- 3.29 For taxis serving transport hubs across Greater Manchester, this significant reduction in rail travel will result in a substantial reduction in the demand for taxis to serve these transport hubs. Although this data does not provide direct findings for GM stations it does give an insight into the significant reductions in train travel which undoubtedly have had an impact on those drivers and operators that rely on train passengers, though it is noted that taxi makes up a small proportion of overall station access trips.

Figure 3-5 Use of transport modes: Great Britain, since 1 March 2020 – Rail and Car



Source: <https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic>

Note: Data does not represent full year date and corresponds to the following period – 01/03/2020 to 14/03/2022

Commuting

- 3.30 Commuting made up 11% share in trip purpose for Hackney Carriages and PHVs in 2019²⁵, with the ONS Labour Force Survey implying that 70% of the entire UK labour force was commuting most working days prior to the pandemic. Government restrictions and advice to work from home across the nation saw around 40% of the population working from home during the pandemic. This resulted in a significant decrease in commuting numbers, therefore fewer people relied on the Hackney Carriage and PHV sector.
- 3.31 It is expected that many people will adopt the new working habit of commuting to the workplace part time and working from home part time. The demand for taxis for commuting is therefore expected to rise again, however not to the extent that it was pre pandemic²⁶.

Shopping

- 3.32 Shopping made up 14% of all Hackney Carriage and PHV trips in 2019, however the introduction of the lockdown in March 2020 saw the closure of all non-essential high street businesses. Restrictions on shopping continued throughout the pandemic and sales in April 2020 were 19% lower than in February 2020, with significant decrease in the number of people making journeys to and from high-street business and retail outlets ²⁷.
- 3.33 Restrictions on non-essential high street businesses eased throughout the pandemic, and now operate with no restrictions, which has seen total retail sale volumes recover to above pre-pandemic levels. From data presented in **Section 2**, for both Hackney Carriage and PHVs, the IRR (also known as city centre) had the largest decreases in taxis operating by GM area across 2019-2021 compared to locations inside and outside the M60. This would align to the sector concentrations within GM with the IRR having the highest proportion of leisure and hospitality uses.

Review of Covid-19 impacts on vehicle sales market

Overview

- 3.34 The UK vehicle market has made a slow recovery due to a combination of manufacturing issues and lack of consumer purchasing. The vehicle market has seen a slow return to pre-pandemic manufacturing levels, experiencing supply chain interruptions, export disruption and the closure of manufacturing plants. In January 2021, commercial vehicle production, including the production of purpose designated taxis, was 31.5% lower when compared to pre pandemic production in January 2020²⁸.

²⁵ Taxi and Private Hire Vehicle Statistics: England 2021

²⁶ <https://www.economicsobservatory.com/what-is-the-future-of-commuting-to-work>

²⁷ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/articles/impactofthecoronavirusCOVID19pandemiconretailsalesin2020/2021-01-28#:~:text=1.-,Main%20points,remain%20below%20pre%2Dpandemic%20levels>

²⁸ <https://www.smm.co.uk/vehicle-data/manufacturing/> Page 160

- 3.35 A lack of consumer purchasing could explain the reduction in the number of Hackney Carriages and PHVs registered between 2019 and 2022. According to PwC Research's QuantiBus survey, there has been a lack of vehicle purchasing as uncertainty has increased and the demand outlook has declined, this is likely due to financial constraints following the pandemic²⁹. The lack of vehicle upgrades resulted in a limited second-hand market during the pandemic, used car sales, which form the sales for PHVs, fell by 2.2% in March 2020, however between 2020 and 2021 the used car market has seen an increase of 11.5%.
- 3.36 This section provides an update on the changes in market price of new and second-hand taxi fleet. Vehicle price information has been gathered based on the following:
- Extracted from 2019, 2020 and 2021 to examine whether any changes in vehicle sales could be attributed to the Covid-19 pandemic;
 - Prices shown for the most popular taxi fleet for Hackney Carriage and PHV, defined as vehicle make and models which comprise of having a 10% or greater share of the market.
 - Based on estimates, gathered from various sources and, in particular for second-hand vehicles, are subject to other variables including vehicle condition, service history, mileage etc.

New Hackney Carriage

- 3.37 LTI TX4s are the most common Hackney Carriage used in GM with 844 registered in 2019. The LTI TX fleet conjure the 'typical' Hackney Carriage look, however the TX4 is no longer in production as of 2017 so therefore only second-hand vehicles are available. In a shift to cleaner vehicles, LTI relaunched as the London Electric Vehicle Company (LEVC) in 2017 with new petrol/diesel Hackney Carriages no longer available.
- 3.38 **Table 3-1** and **Figure 3-6** displays the estimated cost for the most popular Hackney Carriage vehicles (greater than 10% market share).

Table 3-1 Estimated Cost for New Hackney Carriage vehicles

Vehicle Make	Upgrade	Estimate Cost 2019	Estimate Cost 2021	Estimate Cost 2022
LTI TX4 / LEVC TX	LEVC TX Electric Taxi	Prices starting from £55,599	No data	£63,000*
Mercedes Vito	Euro 6 Upgrade	£42,000	£42,000 - £47,000	From £39,995
Peugeot E7	Euro 6 Upgrade	£30,000	£24,000	£26,000

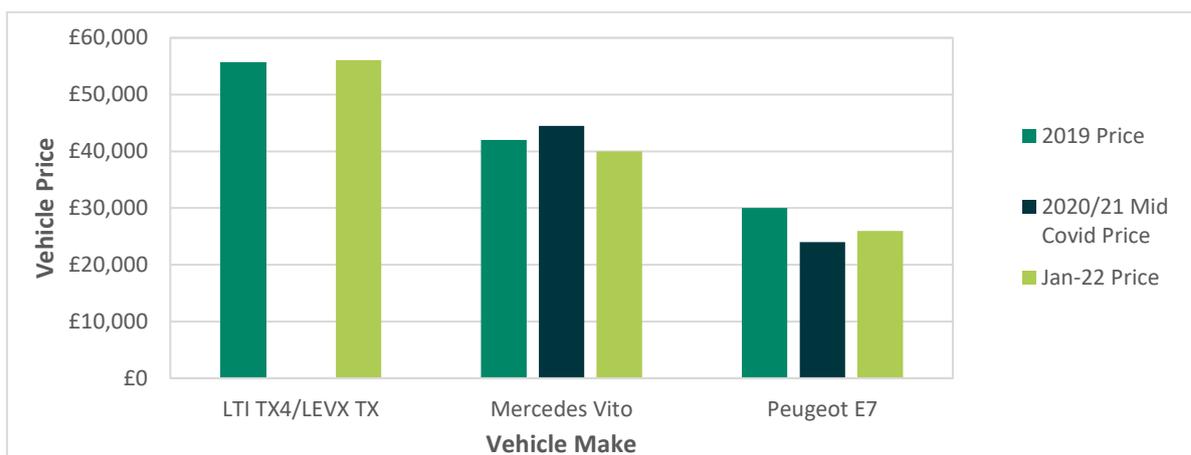
Source Cabdirect³⁰ and LEVC³¹ (2022)

* Does not include Plug-in Taxi Grant (PITG)

²⁹ <https://www.pwc.co.uk/industries/automotive/insights/uk-automotive-demand-in-the-wake-of-Covid-19.html>

³⁰ <https://www.cabdirect.com/>

³¹ <https://levc.com/event/tx-offer-national/>

Figure 3-6 Estimated Cost for New Hackney Carriage vehicles

Source: Cabdirect³² and LEVC³³ (2022) Note: No new Hackney Carriage vehicle price information was available for LTI / LEVC in 2020/21

3.39 For new purpose-built Hackney Carriages, manufacturers do not release their prices online and require individual enquiries to gain a quote, for this reason alternative websites were used to get 2022 prices. The LEVC TX price was obtained from UK price spec guide. The other Hackney Carriage style taxis (Mercedes Vito and Peugeot E7) were priced from Cabdirect.com, directed from Mercedes Benz website as approved Hackney Carriage provider.

3.40 Vehicle price information for new Hackney Carriage vehicles across the period 2019-2022 show that there have been minimal price changes across the most popular models observed however there are slight variances by model type.

New PHV

3.41 **Table 3-2** and **Figure 3-7** displays the estimated cost for the most popular PHV vehicles within GM.

3.42 There has been a number of vehicle model changes for Toyota across the observed period. Due to the Toyota Avensis, Auris and Prius no longer being available to purchase as new vehicles in the UK market³⁴, the vehicle price information has been combined to represent a typical, popular PHV model. Other available models within a similar price range, such as the Toyota Corolla are available to purchase in the UK. It is worth noting that both, the Toyota Corolla and Skoda Octavia are available as petrol-hybrid models.

Table 3-2 Estimated Cost for New PHVs

Vehicle Make	Upgrade	Estimate Cost 2019	Estimate Cost 2021	Estimate Cost 2022
Toyota Prius	Euro 6 Upgrade	£19,500 - £27,500	£25,000 - £29,000	£30,000
Skoda Octavia	Euro 6 Upgrade	£18,500 - £31,500	£21,500 - £30,500	£22,000 - £37,000

Source: Toyota³⁵ and Skoda³⁶ (2022)

³² <https://www.cabdirect.com/>

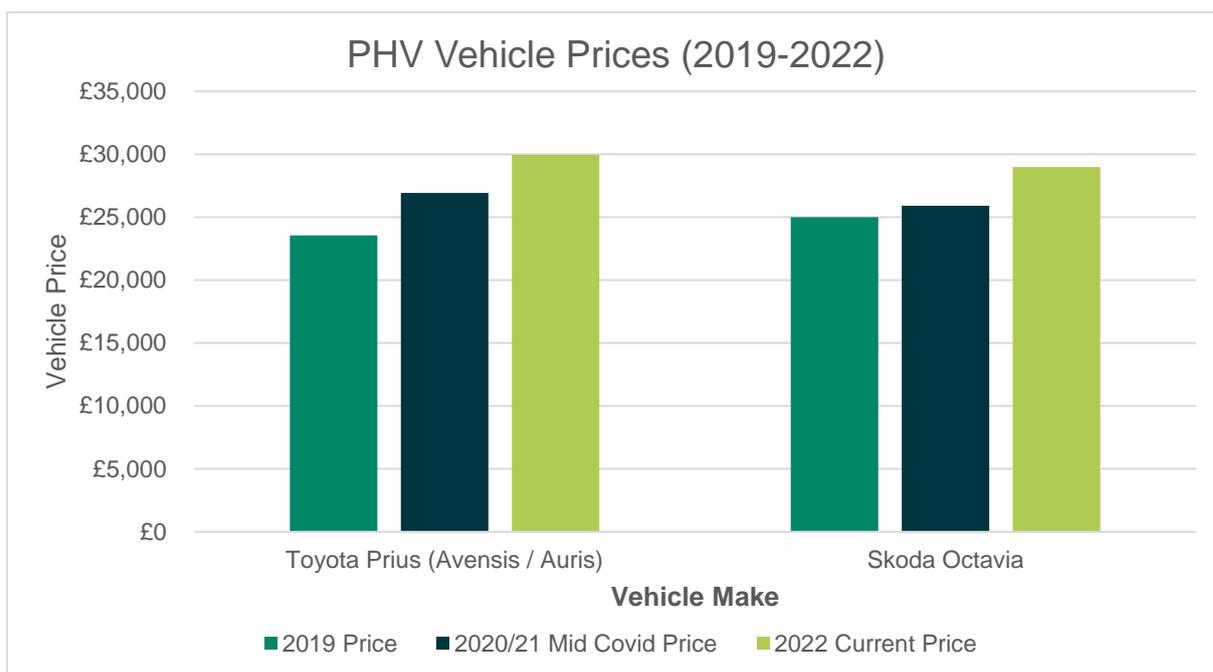
³³ <https://levc.com/event/tx-offer-national/>

³⁴ <https://www.toyota.co.uk/new-cars/prius/>

³⁵ <https://www.toyota.co.uk/new-cars/model-filter?errType=ToyotaModelNotFound&model=prius>

³⁶ <https://cc.skoda-auto.com/gbr/en-GB/summary-scenic?activePage=summary&aid=ced75e7b-4b2f-4a66-94c2-43d8bc93337b&color=1Z1Z&configurationId=C7HZXPDH&extraEquipments=UZZCWA2%7CMMKEEM1%7CMMFA7J2%7CGPT1PT1>

Figure 3-7 Estimated Cost for New PHVs



Source: Toyota³⁷ and Skoda³⁸ (2022)

3.43 The 2022 market prices were obtained for a mid-specification, new vehicle priced using the dealer websites.

3.44 Consistent across both PHV vehicle model types, there has been an upward trend in vehicle prices across the observed period (2019-2022) with Toyota models increasing 21% in 2022 compared to 2019 prices and Skoda Octavia increasing 14% in 2022 compared to 2019 prices. This included 5 vehicles ranging in age from 1 year to 4 years (registered 2018 – 2021). This is compared to the same data collected in 2019.

Second-hand Hackney Carriage

3.45 There was a wide range of second-hand prices found in the study conducted in 2019. A price range of £15,500 to £42,995 was found, however it is worth noting that the highest end vehicle was 2019 registered so less than 12 months out at the time of the search. The most common price in 2019 was around £20,000.

3.46 The lowest priced vehicle in the same search repeated in January 2022 was £26,995, this is almost £7000 more than the average price in 2019. There was only one vehicle prices within the £20,000 - £30,000 price bracket, all other available second-hand Mercedes Vito’s were prices between £35,000 and £40,000. This shows a clear and significant price increase.

<https://www.toyota.co.uk/new-cars/model-filter?errType=ToyotaModelNotFound&model=prius>

<https://cc.skoda-auto.com/gbr/en-GB/summary-scenic?activePage=summary&aid=ced75e7b-4b2f-4a66-94c2-43d8bc93337b&color=1Z1Z&configurationId=C7HZXPDH&extraEquipments=UZZCWA2%7CMMKEEM1%7CMMFA7J2%7CGPT1PT1%7CMGRA8T8%7CGPWZPWZ%7CGPJAPJA%7CGPJ3PJ3%7CGWU1WU1&id=GBR%3Bskoda%3B2022%3BNX33LD%3B1%3BGY02Y02%3Bmda20220124120504%3Ben-GB%3B%3B63003%3B63063&interior=BG&modifiedPages=colors%7Cwheels%7Cengines%7Cextraequipments&snapshotVersion=047fedec-cc29-4574-8822-1acfae823c79&state=NEW&trimline=NX3%7CSE6306363003&visitedPages=colors%7Cwheels%7Cinteriors%7Cengines%7Cextraequipments%7Cservices>

3.47 During the desktop study conducted in 2019 for second-hand compliant LTI TX4 it was discovered that there was only one vehicle listed that was CAZ compliant, the vehicle had a 2017 registration plate and was listed for £31,495. This exercise was repeated in 2022 and again only one vehicle was listed at a cost of £28,680. It was therefore worthwhile to again assess the prices of second-hand compliant Mercedes Vito as the second most popular Hackney Carriage as shown in **Table 3-3**. The Mercedes Vito estimate is based on a range of prices available on 18th January 2022 This included 5 vehicles ranging in age from 1 year to 4 years (registered 2018 – 2021). This is compared to the same data collected in 2019.

Table 3-3 Second Hand Compliant Hackney Carriages

	Year of Manufacture	Estimated Cost 2019	Estimated Cost 2022
LTI TX4	2015 – current	£31,495 (2017) *	£28,680 (2016) *
Mercedes Vito	2015 – current	£15,500 - £43,000	£27,000 - £38,500

Source: Online Vehicle Price Data sourced by AECOM (2022)*only one second-hand vehicle for sale at time of research

3.48 Due to limitations in second-hand Hackney Carriage vehicle prices, **Table 3-4** provides an overview of the emerging second-hand EV Hackney Carriage market, as stated within Section 2, a second-hand LEVC TX market has started to emerge over the latest few years. As shown in **Figure 2-4**, there has been steady growth in hybrid-electric vehicles from observed ANPR data in GM however the proportion of Hackney Carriages that are electric remain below 1% in 2022.

Table 3-4 Second-Hand EV Hackney Carriage Market

Model	Year	Average Mileage	Average Cost
TX Vista	2018	73,543	£43,750
TX Vista Comfort	2018	77,531	£43,000
TX Vista Comfort Plus	2018	93,004	£42,913

Source: <https://levc.com/>

Second-hand PHV

3.49 **Table 3-5** displays the data comparison for the PHV Skoda Octavia. The Skoda Octavia is available in both diesel and petrol engine. As there is a difference in manufacturing years for compliance of the Euro 6 diesel engines and Euro 4 petrol engines the table provides data for both engine types separately, this was provided in the original 2019 study. From this table it is clear that the price of available second-hand Skoda Octavia's has increased between 2019 and 2022. The higher end of vehicles available have increased by circa 10%, whereas the lower end vehicles available have increased by circa 5%. This is reflective of the full second-hand vehicle market.

Table 3-5 Second-Hand Compliant Skoda Octavia PHV

Year of Manufacture	Fuel Type	Price Range 2019	2022 Update
2015 – current	Diesel	£5,500 - £32,000	£6,000 - £35,000
2005 – current	Petrol	£1,500 - £33,000	£7,000 - £39,000

Source: Online Vehicle Price Data sourced by AECOM (2022)

3.50 An assessment of the price change of second-hand non-compliant taxi models was carried out, as in 2019. The data showed that, for Hackney Carriages registered between 2008 and 2014, there was little price difference between the 2019 and 2022 prices. The second hand non-compliant Skoda Octavia prices mirrored the trend as seen in **Table 3-5**, with there being a notable increase in price of available vehicles at both the lower and higher ends of the market. It is worth noting that whilst PHV prices have been presented based on diesel and petrol vehicles, as shown in **Figure 2-5**, there has been substantial growth in hybrid-electric PHVs with 29% of the total observed ANPR movements in 2022 compared to 14% in 2019. Whilst this substantial growth has been seen in hybrid-electric vehicles, the proportion of electric PHVs remains below 1%.

Review of Vulnerability in responding to GM CAP

3.51 As part of the 2019 data study a qualitative assessment of vulnerability impacts on the taxi sector was prepared and has since been reviewed in January 2022. This assessment has considered how the Covid-19 pandemic has impacted Hackney Carriage and PHV vulnerability in responding to the GM CAP.

3.52 The review findings are presented in **Table 3-6** showing that both Hackney Carriage and PHVs were previously highly vulnerable to the introduction of GM CAP, and vulnerability has increased considerably due to the pandemic.

Table 3-6 Taxi Sector Vulnerability Review

	Vulnerability				
	Oct 2019	Situation: Oct 2020		Situation: Jan 2022	
	GM CAP (Pre-Covid-19)	Covid-19 (2020)	GM CAP (Post-Covid-19)	Covid-19 (2022)	GM CAP (Post-Covid-19)
Hackney Carriage	High	Disadvantaged / Negative Affected	Very High	Disadvantaged / Negatively Affected	Very High
PHV	High	Disadvantaged / Negative Affected	Very High	Disadvantaged / Negatively Affected	Very High

- 3.53 The Hackney Carriage sector within GM was vulnerable to GM CAP pre-Covid-19 due to the high proportion of non-compliant vehicles that are currently operating within GM. During the early part of the pandemic, the COVID restrictions in place in 2020 and 2021 resulted in a significant reduction in demand for Hackney Carriages, this placed Hackney Carriage owners in a more challenging financial position when responding to GM CAP. Since Covid-19 restrictions have eased, there has been some recovery of the sector, although not to pre-pandemic levels. Also, due to increased average age of GM Hackney Carriage fleet, and reduced natural turnover of the fleet during the pandemic, Hackney Carriage owners continue to face a considerable challenge when responding the GM CAP.
- 3.54 Similarly to Hackney Carriages, the PHV sector was vulnerable to GM CAP pre-COVID, and has experienced considerable challenges during the pandemic, due to restrictions on sectors serving the taxi market and changing travel behaviours which have affected the taxi market as a whole. Whilst Covid-19 guidance has eased and there has been some recovery of the sector, PHVs continue to face changes in recovery from increasing vehicle prices and the availability of new PHV type vehicles has been identified as a key factor currently impacting on the PHV sector. This will add extra financial pressure to the already vulnerable sector when responding to GM CAP.

4. Conclusion

Summary of Current Conditions

4.1 This note has sought to capture the following key considerations:

- A review of current taxi fleet compliance;
- A summary of the impact of Covid-19 in terms of changes to travel behaviour within GM, including changing transport trends and economic trends as a result of the Covid-19 pandemic;
- Pre-pandemic sector-related circumstances;
- Sector-related trends during the pandemic; and
- Evaluation to how sector-related trends have changed and to what extent has this impacted on the ability of taxi owners to meet GM CAP compliance.

Key Risk and Issues

4.2 The challenges faced by the taxi market, mainly associated with the impact of the Covid-19 pandemic, has affected Hackney Carriages and PHVs, to some extent, unequally. However, it is also important to recognise the unbalanced profile and trends of Hackney Carriages and PHVs individually to provide a more balanced view of the key risks and issues. Key risks and issues have been categorised into: pre-pandemic circumstances, Covid-19 impacts and emerging trends and are report below.

Pre-Pandemic Circumstances

- In 2019, only 12% of Hackney Carriages and 29% of PHVs serving GM were deemed compliant.
- Hackney Carriages operating in GM are typically older than PHVs with the average age of a Hackney Carriage in 2019 being 8 years old compared to 6 years old for a PHV.
- The number of licensed Hackney Carriage vehicles and drivers remained stable across the pre-pandemic period. During this period, the number of licensed PHV drivers increased by 2% in 2019 compared to 2011, the number of licensed PHVs in England has decreased by 3%.
- Average trip length has remained stable for taxis with the average miles travelled by taxi per person per year increasing in England over the pre-pandemic period.

Covid-19 Impacts

- The number of new GM-licensed Hackney Carriages and PHVs was significantly lower during the pandemic compared to pre-pandemic levels. The number of GM licensed taxis decreased from 2019 to 2022 by 5.4% for PHVs and 7.7.% for Hackney Carriages.
- The average age of Hackney Carriages and PHVs has grown older in 2020 and 2022 compared to pre-pandemic levels (2019) with taxi fleets estimated to be one year older than pre-pandemic.

- There has been no significant shift in fuel types for Hackney Carriage with 89% still fuelled by diesel. However, there has been a shift from diesel to hybrid-electric for PHVs, rising from 14% in 2019 to 29% in 2022. The EV uptake remains very low at less than 1% for both Hackney Carriages and PHVs.
- Industries served by the taxi industry have suffered heavily through Covid-19. Leisure trips comprised of over half of all taxi journeys in 2019 with Government restrictions having a significant impact on the leisure market, particularly bars, pubs, restaurants and nightclubs. Equally, other important taxi markets have been constrained during the pandemic, stemming from Government restrictions on commuting, shopping and tourism.
- A higher proportion of Hackney Carriages operate within the Regional Centre (inside the Inner Ring Road (IRR)) compared to PHVs with the Regional Centre believed to have the highest impact from the Covid-19 pandemic across GM due to the location of a large number of hospitality and leisure businesses. This is in-keeping with the taxi licensing data which states that approximately 55% of Hackney Carriages are licensed to Manchester City Council. The proportion of within IRR trips between 2019 and 2021 fell for both Hackney Carriages and PHVs.

Emerging Trends

- Emerging from the pandemic, taxis are older, more non-compliant than previously assumed and there are fewer taxis and taxi drivers operating in GM compared to pre-pandemic levels.
- Hackney Carriages, in particular, are likely to have faced a more significant impact from the Covid-19 pandemic, compared to PHVs, due to their prominent origins and destinations being located in Manchester City Centre where sectors have been hit the hardest. Both Hackney Carriage and PHV owners are likely to have lower cash reserves to upgrade their vehicles than prior to the pandemic.
- Hackney Carriages are older, more non-compliant and being upgraded at a slower rate compared to PHVs.
- The ability for Hackney Carriage owners to upgrade their vehicles is likely to be more constrained compared to PHV owners due to the higher cost of replacement vehicles and the likelihood of more substantive Covid-19-related impacts. However, there is some evidence to suggest that whilst Hackney Carriage vehicle prices are stable, and even falling for certain vehicle types, the vehicle prices for new and second-hand compliant PHVs are increasing in-line with rising wider car market vehicle prices.

Appendix A – List of Data Sources

List of data sources used within this document.

Document Title	Date	Description	Relevance to GM CAP
Chapter 1			
Mayor of Greater Manchester writes to Government reiterating call for non-charging Clean Air Zone	May 2022	Announcement, provide background on current status of GM CAP https://www.greatermanchester-ca.gov.uk/news/mayor-of-greater-manchester-writes-to-government-reiterating-city-region-s-call-for-non-charging-clean-air-plan/	Current Status of GM CAP
GM CAP Technical Documents (various)	various	All available at Technical Documents Clean Air Greater Manchester (cleanairgm.com) https://cleanairgm.com/technical-documents/	Published Technical Reports for GM CAP
Technical Note 10: Taxi Behavioural Responses Note	July 2019	https://cleanairgm.com/technical-documents/	Background on Taxi Sector
Technical Note 19: Taxi and Private hire Vehicle Fleet Research		https://cleanairgm.com/technical-documents/	Background on Taxi Sector
Technical Note 12: Evidence of the Impact of a 2021 Implementation of a CAZ C (Without exemptions)	July 2019	Describes analysis carried out by GM to assess the risks of implementing a CAZ C in 2021 without also implementing a two-year sunset period as was proposed in the OBC. https://cleanairgm.com/technical-documents/	analysis of vulnerability by sector, based on the proportion of the fleet that would be non-compliant
T4 Appendix A (Modelling for Consultation)	Jan 2020	Discusses the modelling tools used to assess the impacts of GM CAP https://cleanairgm.com/technical-documents/	Modelling tools used to assess impacts of GM CAP
Deliberative Research	Nov 2019	Research was carried out with taxi drivers potentially in scope for the scheme, including deliberative research and surveys of van owners https://cleanairgm.com/technical-documents/	Understanding the taxi sector and views of taxi owners
GM CAP Impacts of Covid-19 Report	June 2021	Considers the impacts of the pandemic on GM and reviews the potential and actual impacts of Covid-19 on the GM CAP. https://cleanairgm.com/technical-documents/	Review of impacts of Covid-19, including impacts on taxis
Chapter 2			
Proportion of Vehicle Types Registered by Area	Jan 2022	https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01	Proportion of the fleet
T4 Appendix V (previously TN37)	2021	(Current version not published) – Provides details of vehicle proportions by mode, including future year forecasts	Number of impacted vehicles
Taxi Fleet Data	Various (2019 – 2022)	Comparison of the changing taxis fleet over time. Sourced from the GM Taxi Licencing data (raw data not published) e.g. age profile / fuel type / number of taxis	Understand changes in taxi fleet over time
GMP ANPR Data	Various (2019 – 2022)	GMP ANPR data – to review changing characteristics of the vehicle fleet operating within GM	Understand changes to taxis over time
Chapter 3			
Taxi and private hire vehicle statistics, England: 2021	June 2021	https://www.gov.uk/government/collections/taxi-statistics	Understanding make up of taxi operations

Industry Driver Shortages	2021	https://lphca.co.uk/lphca-news/industry-driver-shortages	Research
Taxi? Taxi? Why it's suddenly getting so hard to find a cab	Nov 2021	https://www.theguardian.com/uk-news/2021/nov/13/taxi-taxi-why-its-suddenly-getting-so-hard-to-find-a-cab	Research
APPG submission by UK Hospitality	Feb 2021	https://www.ukhospitality.org.uk/page/APPG	Research
Emerging from the Pandemic	2021	The Leisure Consumer Group https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/consumer-business/deloitte-uk-the-leisure-consumer-2021.pdf	Research
Covid-19 Impact on EUROCONTROL Member States	June 2021	https://www.eurocontrol.int/sites/default/files/2021-06/eurocontrol-brief-on-covid19-impact-spain-en-09062021.pdf	Research
Modes of transport used by passengers traveling to Manchester Airport between 2002 and 2019	2019	Historical mode shares for surface access, Manchester Airport (pre-COVID) – showing high taxi mode share https://www.statista.com/statistics/303820/modes-of-transport-to-manchester-airport-uk-united-kingdom/	Research
Transport use during the coronavirus (Covid-19) pandemic	2022	https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic	Research
What is the future of commuting to work?	May 2021	https://www.economicsobservatory.com/what-is-the-future-of-commuting-to-work	Research
Impact of the coronavirus (Covid-19) pandemic on retail sales in 2020	Feb 2021	https://www.ons.gov.uk/economy/grossdomesticproduct/gdp/articles/impactofthecoronavirusCOVID19pandemiconretailsalesin2020/2021-01-28#:~:text=1.-,Main%20points,remain%20below%20pre%2Dpandemic%20levels.	Research
Manufacturing Data	Various	Review of new vehicle production levels & impacts due to the pandemic https://www.smmmt.co.uk/vehicle-data/manufacturing/	Research
Uk automotive demand in the wake of COVID 19	2021	https://www.pwc.co.uk/industries/automotive/insights/uk-automotive-demand-in-the-wake-of-Covid-19.html	Research
Taxi price search	various	Changing prices for taxis https://www.cabdirect.com/	Taxi Prices
LEVC – Taxi Prices	various	https://levc.com/event/tx-offer-national/	Taxi Prices
Toyota Prius vehicle price	various	Review of taxi prices of popular types of PHV https://www.toyota.co.uk/new-cars/prius/	Taxi Prices
Skoda Octavia Prices	Various	Review of taxi prices of popular types of PHV https://cc.skoda-auto.com	Taxi Prices
Chapter 4			
		(No additional Sources in Chapter 4)	
Appendix A			
		No additional Sources in Appendix A	
Appendix B			
Coronavirus (Covid-19) UK Government Dashboard	Oct 2020	https://coronavirus.data.gov.uk/	Background of Covid Timeline

"Greater Manchester's Covid-19 Management Plan: how we control outbreaks"	2022	https://greatermanchester-ca.gov.uk/coronavirus/Covid-19-management-plan/	Background of Covid Timeline
"Prime Minister announces new local COVID Alert Levels"	Oct 2020	https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels	Background of Covid Timeline
TfGM's C2 Database	various	Traffic flow data was extracted and analysed from TfGM's C2 Database https://tfgmc2.drakewell.com/multinodemap.asp	Information on local traffic impacts
"Budget 2021: Fuel duty rise axed as petrol prices hit record highs"	Oct 2021	Fuel Prices Increase: https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-axed-petrol-prices-record-highs-b962832.html	Information on Economic Related Impacts
"GDP monthly estimate, UK : December 2021"	Dec 2021	GDP information https://www.ons.gov.uk/economy/grossdomesticproduct/gdp/bulletins/gdpmonthlyestimateuk/december2021	Information on Economic Related Impacts
"Average weekly earnings in Great Britain: February 2022"	Dec 2021	Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022	Information on Economic Related Impacts
"UK economy latest"	Dec 2022	Information on Goods import and exports https://www.ons.gov.uk/economy/economicoutputandproductivity/output/articles/ukeconomylatest/2021-01-25#output	Information on Economic Related Impacts
"Cities Outlook 2022"	Jan 2022	Change in pub and restaurant sales in City Centres and Suburbs. Weekday footfall in Birmingham, Manchester and London https://www.centreforcities.org/wp-content/uploads/2022/01/Cities-Outlook-2022-2.pdf	Information on Economic Related Impacts

Appendix B – Review of COVID Impacts

Overview

- B.1 Travel behaviour and the economy have been impacted by the Covid-19 pandemic and have resulted in changes in the way that people travel and the way businesses operate. In this chapter we will assess some of the key data findings found throughout the period to better understand the levels of impact on transport and travel generally.
- B.2 Chapter 3 focuses on the impacts of Covid-19 on the coach and minibuss sectors.

COVID Timeline

- B.3 In January 2020, Covid-19 first appeared in the UK. By 30th November 2020, there were an estimated total of 1.6 million people testing positive to the virus in the UK with 58,24539 cases resulting in deaths.⁴⁰
- B.4 As stated within the GMCA Covid-19 Management Plan Executive Summary, GM had more than 16,000 confirmed cases and nearly 2,800 people died during the first four months of the Covid-19 pandemic.⁴¹
- B.5 In Summer 2020, North West England was one of the worst affected areas by the pandemic with GM placed under additional restrictions on 31st July 2020. Throughout 2020, GM continued to experience a disproportionate impact to the rest of the UK from these additional restrictions, such as the three-tier system for lockdowns across England. This three-tiered system was first announced by the Government in October 2020 to ‘*simplify and standardise local rules*’.⁴²
- B.6 On 5th November 2020, the Government imposed a second national lockdown with restrictions on continued business activity in England. These restrictions were in place between 5th November and 2nd December 2020, followed by a return to 3 Tier system restrictions.
- B.7 On 19th December 2020 the Government introduced an additional 4th Tier, with lockdown measures beginning in London and the South East, after having identified the Alpha (Kent) variant, coming into effect on 21st December 2020 until a third nationwide lockdown was re-introduced on 6th January 2021.
- B.8 March 2021 saw Step 1 of the Government’s roadmap being introduced, with schools reopening and outdoor gatherings being allowed with the proviso of staying local. April 2021 saw Step 2 of the roadmap allowing limited indoor contact, businesses such as hairdressers to reopen and outdoor hospitality. Step 3 came into effect in May 2021, allowing indoor meetings limited to 6 people and 10,000 people for large sport stadiums. Step 4, on 19th July 2021, saw the remaining venues such as nightclubs reopen, and the removal of most other restrictions.

³⁹ UK deaths is based on deaths within 28 days of a positive test and does not include excessive deaths.

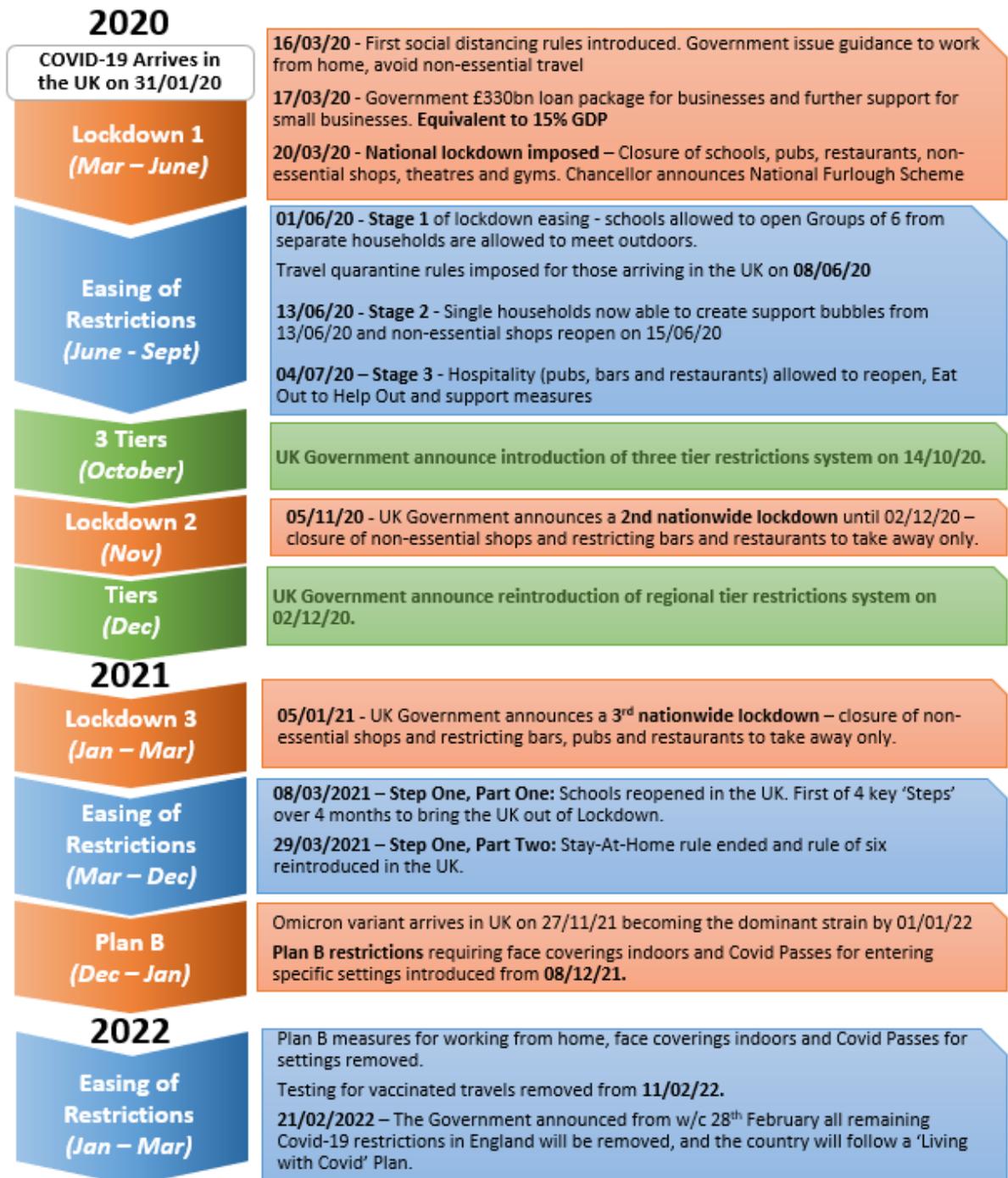
⁴⁰ Coronavirus (Covid-19) UK Government Dashboard <https://coronavirus.data.gov.uk/> (accessed 01/10/20)

⁴¹ Covid-19 Management Plan – Executive Summary (GMCA) <https://greatermanchester-ca.gov.uk/coronavirus/Covid-19-management-plan/>

⁴² Prime Minister announces new local Covid Alert Levels - <https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels>

- B.9 With the discovery of the Omicron variant, Plan B measures (face coverings indoors and use of Covid Passes at specific settings such as nightclubs), which also recommended working from home where possible, were implemented from 8th December 2021 to 27th January 2022.
- B.10 A summary of the key Covid-19 events and Government responses has been captured in **Figure B-1**.

Figure B-1 Covid-19 Timeline January 2020 to March 2022



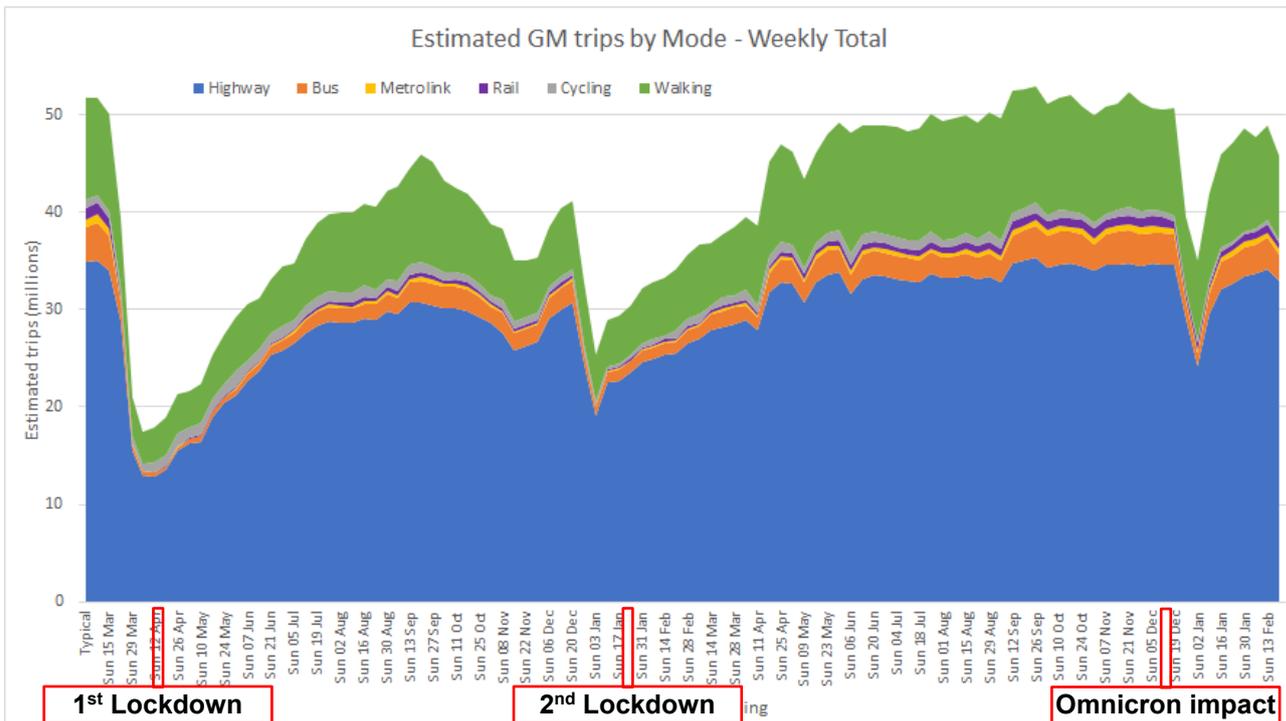
- B.11 The Covid-19 pandemic has had a transformative global impact to health, businesses, the economy, and way we live and interact with one another.

- B.12 At the time of the production of this note in March 2022, the UK appears to be exiting the pandemic. Case numbers are stabilising, death and in-patient numbers remain low, reflecting the positive impact of a successful vaccine programme rollout.
- B.13 However, emerging evidence gathered over the course of 2020 and 2021 has shown that there have been substantial changes to the economy, travel patterns and our behaviours. These changes have been driven by Government policy in the short term, however some of the behaviours adopted during Government lockdowns may continue as restrictions ease. In addition to this, economic impacts following the recent easing of restrictions have resulted in impacts which can be seen locally, nationally and globally within the economy.

Covid-19 Impacts on Travel Behaviour

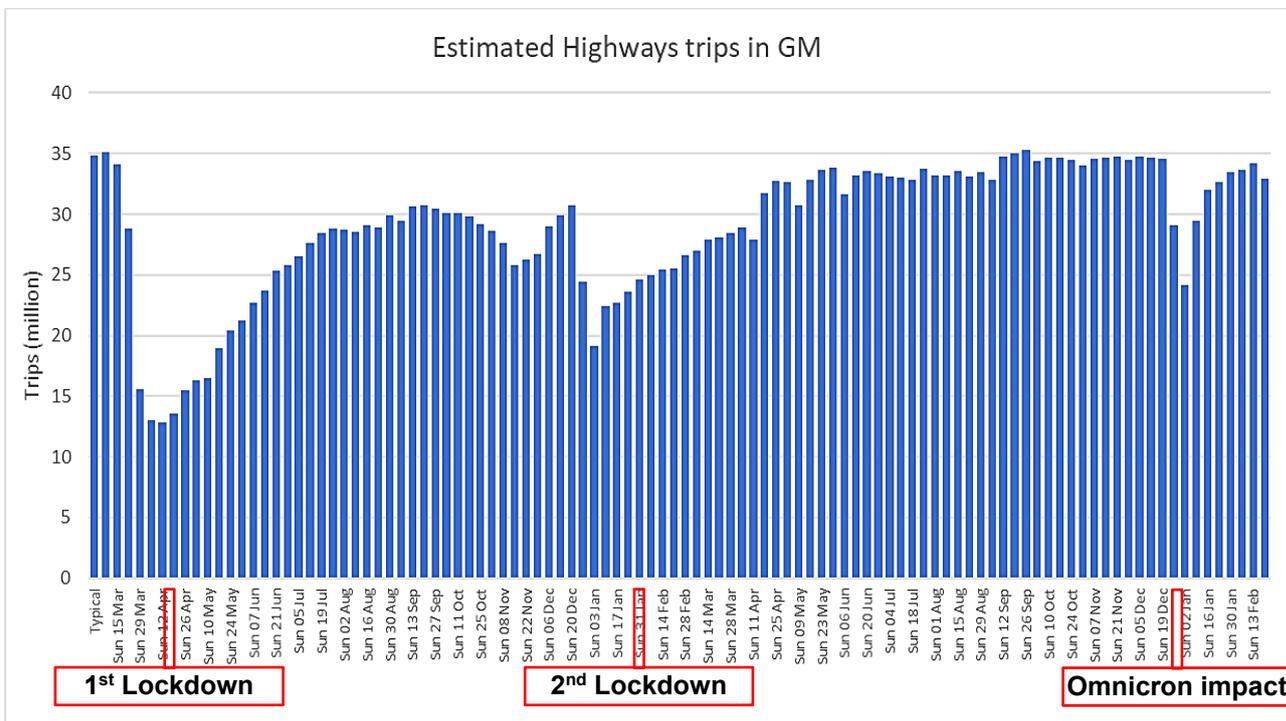
- B.14 Detailed analysis has been undertaken on the impacts of Covid-19 on travel demand within GM to compare 'pre-pandemic' and 'during pandemic' travel levels within GM.
- B.15 As shown in **Figure B-1**, there are a number of Government interventions which have had an impact on traffic levels (for all modes of transport). These include:
- Government guidance issued on 16th March 2020 to work from home 'where possible';
 - Closure of all UK schools to children, apart from those who have key worker guardians on 20th March 2020;
 - Closure of the hospitality and leisure sector on the 20th March 2020 including pubs, bars, restaurants, gyms, theatres etc.;
 - Re-opening of schools to all children in September 2020 alongside the UK Government encouraging workers to return to the office;
 - Implementation and extension of the Government Tiered restrictions;
 - Return to lockdown conditions on 5th November 2020, 2nd December 2020 and 6th January 2021; and
 - Hotel quarantine for travelers from high-risk countries.
- B.16 Since the beginning of the pandemic, travel patterns across the UK have significantly changed, driven by changing Government guidelines and the perception of transmission risks on certain forms of transport. An overview of the changing trends of travel behaviour by mode in Greater Manchester is provided in **Figure B-2 to Figure B-6**; the data has been provided by TfGM. Three key dates have been flagged in each figure: the first and second national lockdowns plus the emergence of the Omicron variant.

Figure B-2 Overview of travel behaviour – All Modes



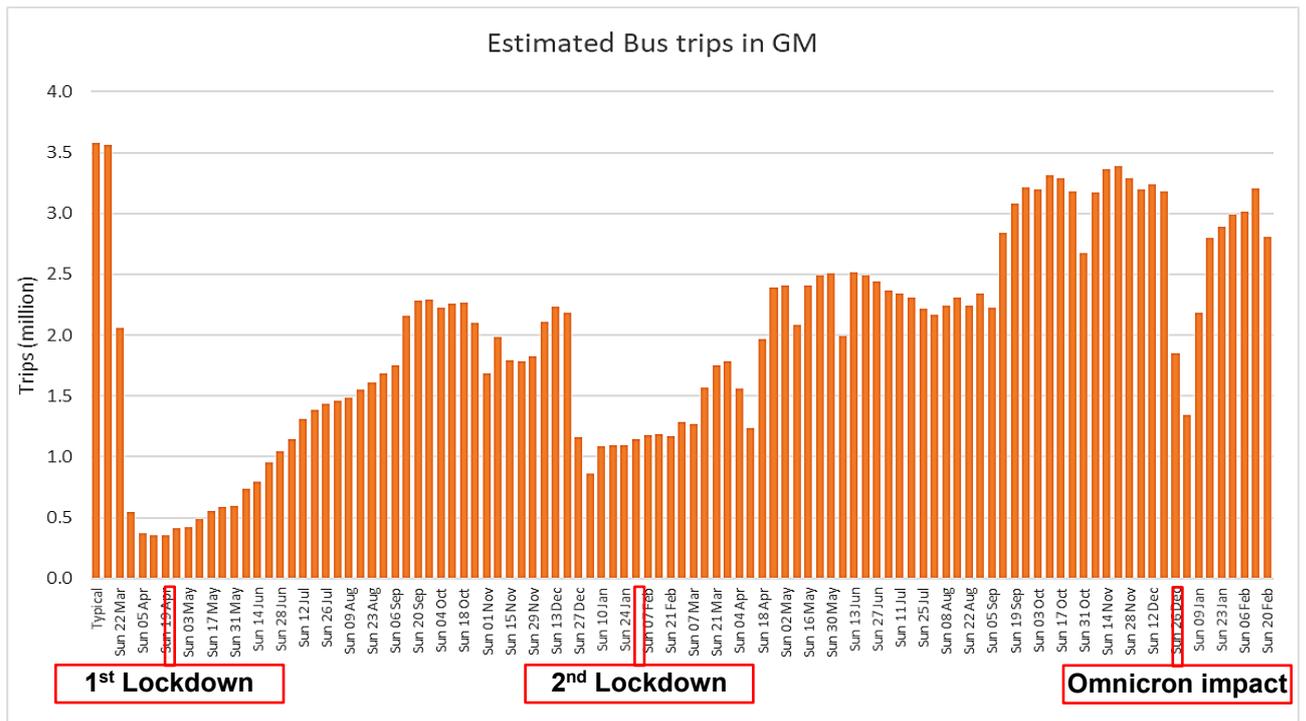
Source: TfGM

Figure B-3 Overview of travel behaviour – Highway



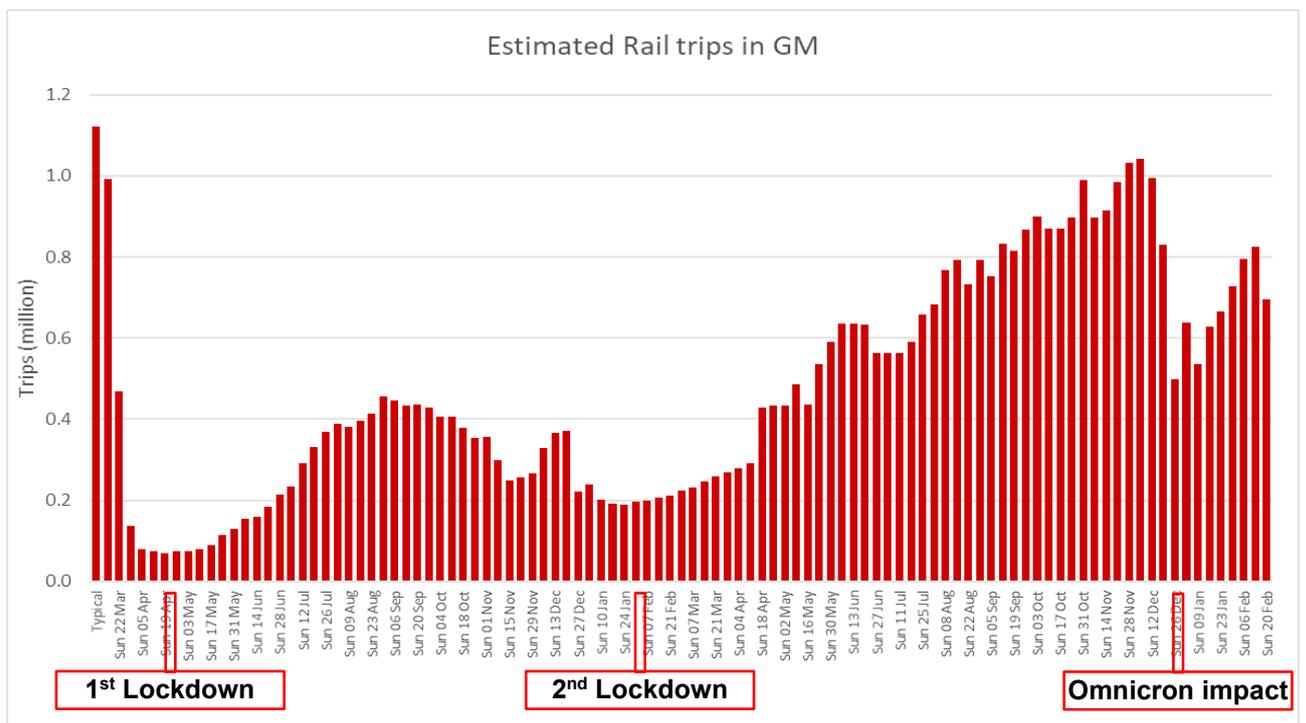
Source: TfGM

Figure B-4 Overview of travel behaviour – Bus



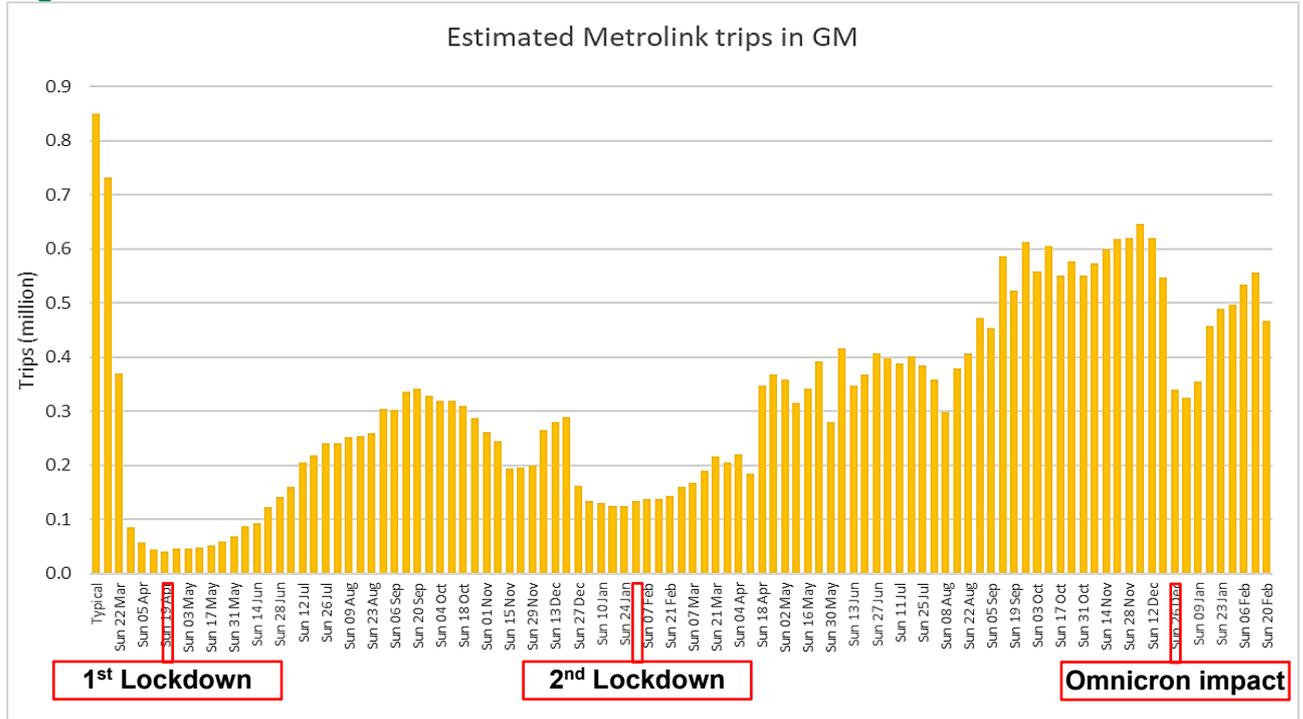
Source: TfGM

Figure B-5 Overview of travel behaviour – Rail



Source: TfGM

Figure B-6 Overview of travel behaviour – Metrolink



Source: TfGM

B.17 These figures illustrate that the impact of the pandemic has been pronounced and the extent to which pre-pandemic travel volumes have returned varies by mode. In summary, at the aggregate level across GM:

- Highway trips are close to pre-pandemic levels (approximately 95% of ‘typical’); and
- Public transport trip levels are between 60% and 75% of pre-pandemic / typical levels with bus performing more strongly than rail / Metrolink.

Local Traffic Impacts

B.18 Further analysis was undertaken regarding traffic flows on the local highway network, in order to understand the changing highway demand levels at various points through the pandemic. This has provided an insight into how the Covid-19 related travel guidance and changing behaviours because of the pandemic have impacted travel across GM.

B.19 This analysis has considered changing travel levels at a range of locations across Greater Manchester, to understand how traffic flows have changed on the following:

- Roads near to the Regional Centre;
- Key radial routes;
- Roads adjacent to local centres within GM; and
- Roads accessing centres of employment.

B.20 The analysis has considered several points in time, comparing:

- September 2019 (before the pandemic);

- September 2020 (during the pandemic);
- November 2021 (during pandemic – pre Omicron); and
- January 2022 (most recent, though impacted by Omicron variant).

B.21 Traffic flow data was extracted and analysed from TfGM's C2 Database⁴³. These have been reviewed and presented for the 2-way hourly link volumes, by hour, at the following locations:

- Manchester Rd (A56) / 15m South of Ashlor St, Bury (ATC);
- Princess Rd (A5103) / 100m North of Bonsall St, Hulme, Manchester (ATC);
- Washway Rd (A56) / 40m North of Hunston Rd, Sale, Trafford (ATC);
- Bury New Rd (A56) / 90m North of Kingswood Rd, Prestwich, Bury (ATC); and
- Centenary Way (A576) / 160m North of Guinness Rd, Trafford Park, Trafford (ATC)

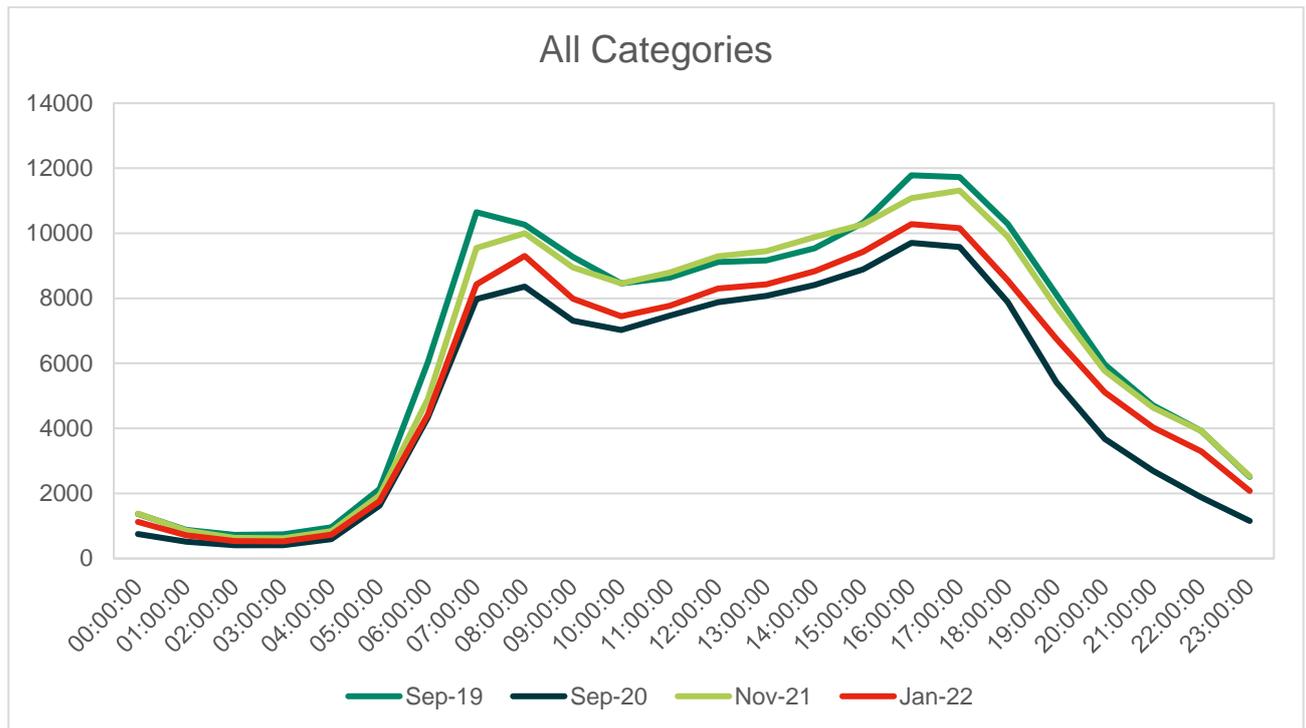
B.22 Using these specific locations around Greater Manchester the traffic behaviours at each location type can be assessed.

General Traffic Conditions

B.23 Averaging the sites identified above (see **Figure B-7**) suggests there has been a change in travel behaviour throughout the pandemic, noting the following key observations:

- The AM and PM peak periods have remained, although there is a dampening down effect on the peaks, with less variation between peak flows and interpeak flows, as the interpeak has continued to perform strongly.
- During late 2021, highway demand was almost back at pre-pandemic levels, there was then a noticeable drop again in demand as a result of the Omicron variant in December 2021.
- There has been some recovery during the peak periods, though they have not yet returned to pre pandemic levels.
- It is also noted that the earlier part of the AM peak is less strong than pre pandemic levels, with the AM peak now occurring 08:00 to 09:00, rather than 07:00 to 08:00 based on the sample of data sites.
- It also appears that the evening traffic (after 19:00) in 2022 is recovering at a slightly faster rate than the daytime traffic flows. This returned to pre-pandemic levels in November 2021 however, there has been a slight drop again in 2022, although it has been less impacted than other times of day. During the 2020 restrictions, the evening economy was significantly restricted by the Covid-19 restrictions in place at the time.

⁴³ <https://tfgmc2.drakewell.com/multinodemap.asp>

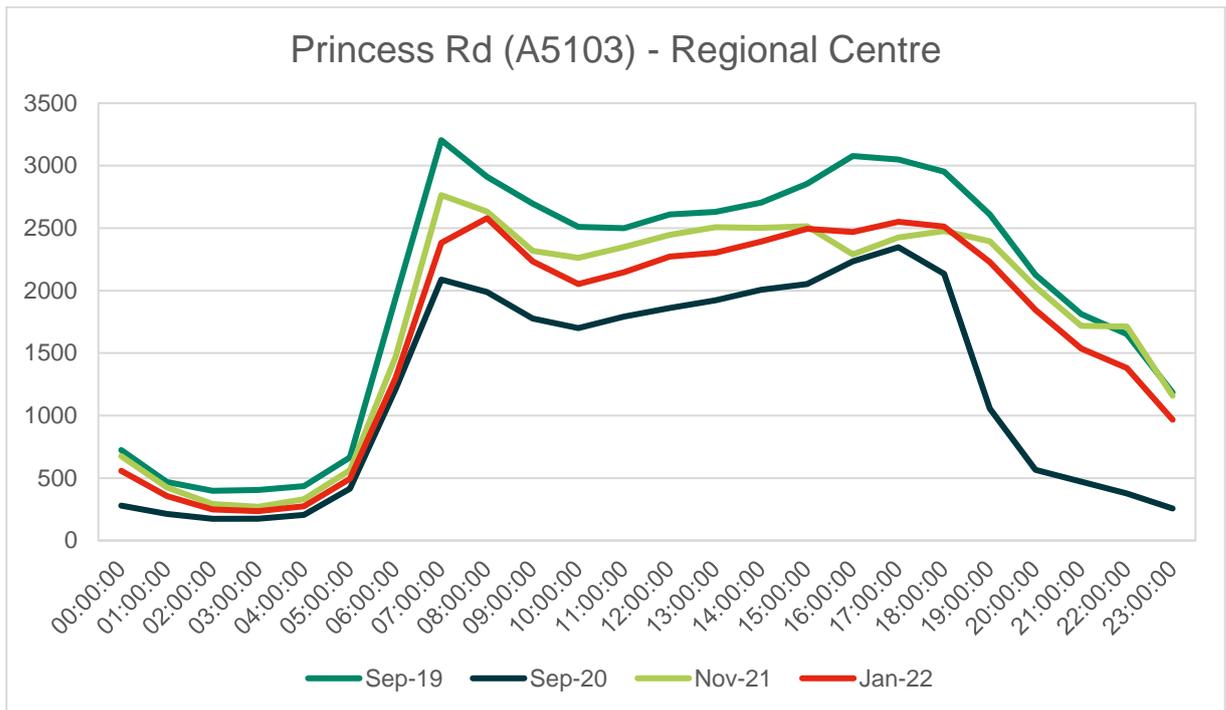
Figure B-7 Change in traffic flow levels by time of day (all areas)

Roads adjacent to the Regional Centre

B.24 Traffic flows adjacent to the Regional Centre have been significantly impacted throughout the pandemic (see **Figure B-8**). The following key trends have been identified:

- From the data assessed, the pandemic (and associated restrictions) appears to have had the greatest impact on regional centre flows, with the largest decrease in 2020 and the slowest recovery;
- The recovery of traffic flows in the peaks is still subdued, though traffic flows during the Omicron variant have been higher than in Autumn 2020, unlike what is seen at local centres;
- In 2020, Covid-19 restrictions had a considerable impact on demand for travel relating to the Regional Centre, with heavy restrictions placed on sectors such as leisure, tourism, and the night time economy. By November 2021, the easing of COVID restrictions resulted in a return of travel demand to the Regional Centre, showing considerable recovery at particular times of day, reaching close to 2019 levels. The 2022 travel demand to Mar-22 also showed a strong return of traffic during the evening periods, though the Omicron variant is likely to be keeping these slightly below pre-pandemic levels at present.
- The early part of the AM peak is now much weaker than prior to the pandemic, and the PM peak is less pronounced. In November 2021, traffic flows were slightly reduced from pre pandemic levels, with the PM peak most strongly impacted. In January 2022, the PM peak appears to be starting to recover, with a slightly later AM peak.

Figure B-8 Change in traffic flow levels by time of day (Regional Centre)

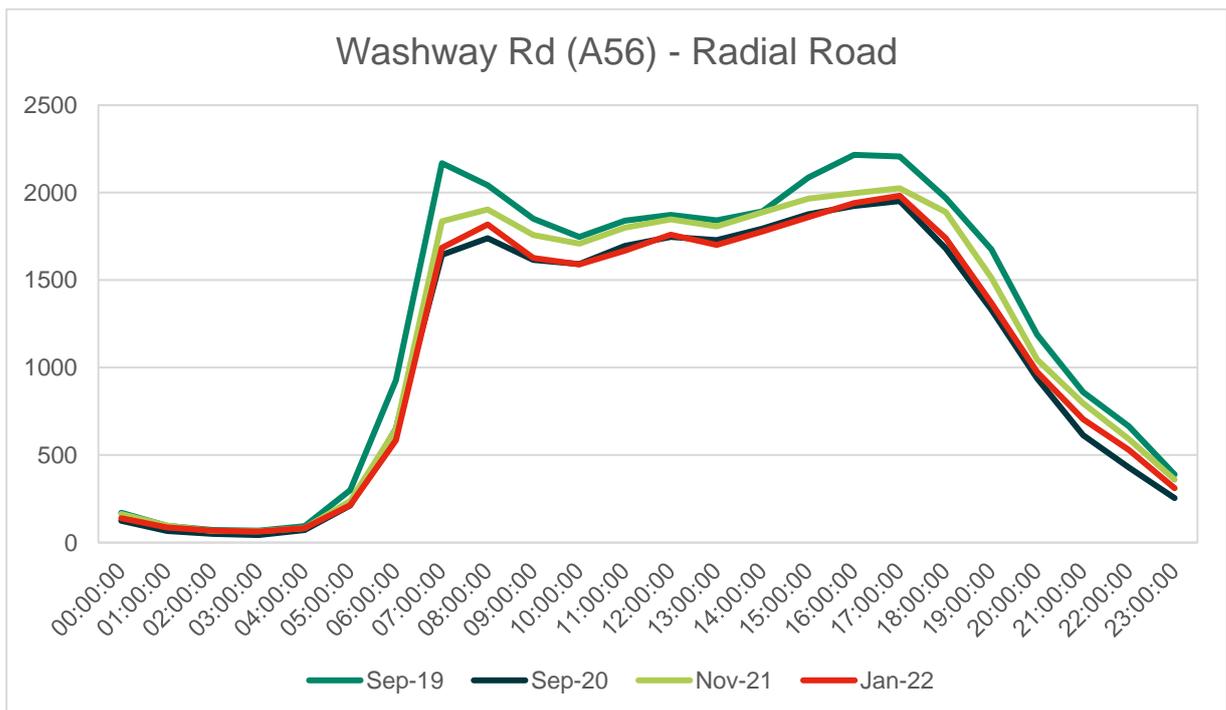


Source: TfGM C2 Database – Location N of Bonsall St, Hulme

Radial Roads

B.25 On Washway Road in Sale (see **Figure B-9**), its proximity close to the M60, and as a key radial route, has resulted in a high level of traffic demand at various points throughout the pandemic. The site is also close to the Local Centre of Sale. Demand has remained strong at the various points assessed although, as with most other locations, the peak periods are showing slightly lower demand in 2022.

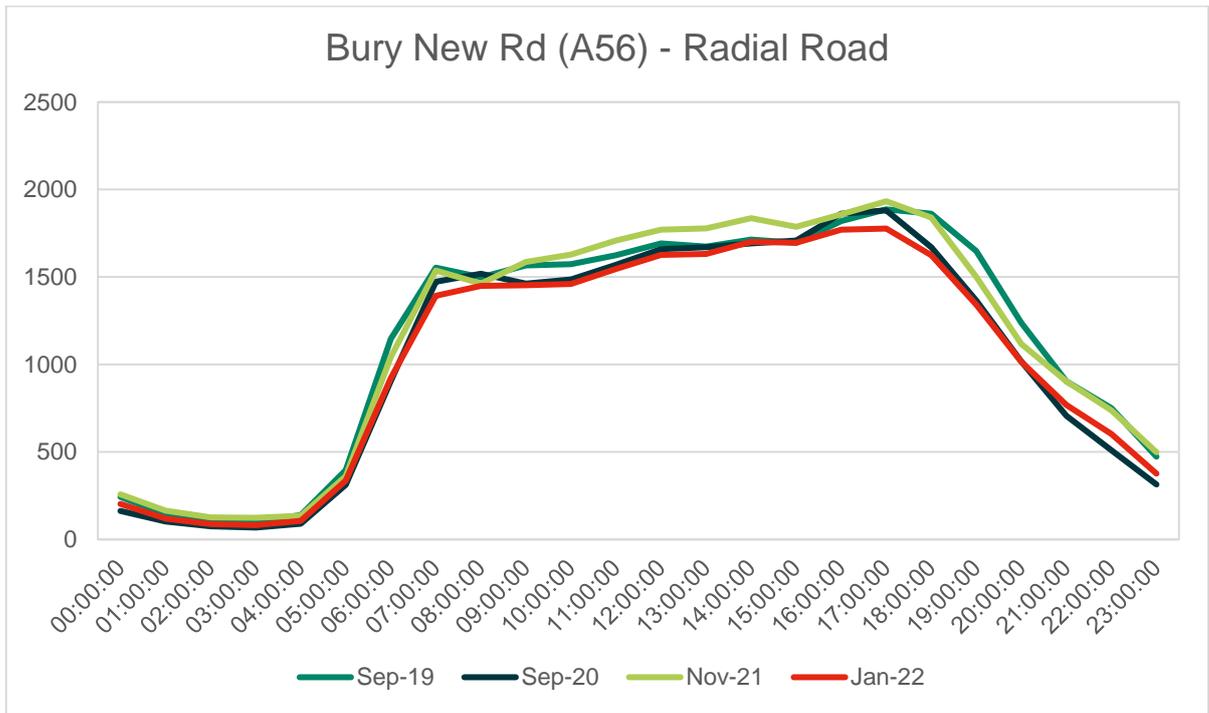
Figure B-9 Change in traffic flow levels by time of day (Radial Roads Outside M60)



Source: TfGM C2 Database – Location adjacent to Sale Local Centre

B.26 Another key radial route north of the Regional Centre is Bury New Road (see **Figure B-10**). This site is also a key radial, though also serves local centres, such as at Prestwich. This location has shown a strong recovery of travel behaviour with travel at certain times of day exceeding pre-pandemic levels, especially during the interpeak, both in autumn 2020, autumn 2021 and currently in 2022. The evening period has, however, shown a slower recovery.

Figure B-10 Change in traffic flow levels by time of day (Radial Roads Inside M60)



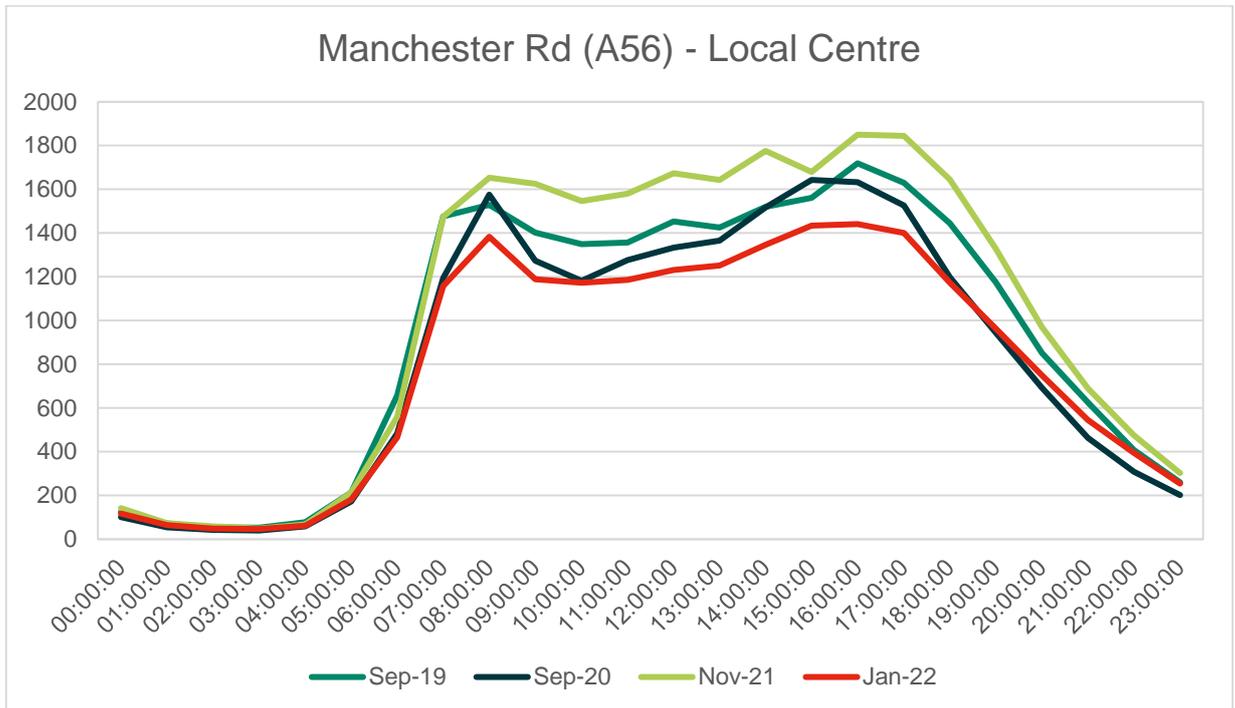
Source: TfGM C2 Database – Location N of Kingswood Rd, Prestwich (Near to M60 J17)

Local Centres

B.27 Throughout the pandemic, as the UK Government eased travel guidance, travel demand in the vicinity of local centres, have bounced back strongly. **Figure B-11**, shows the A56 Manchester Road near Bury, which experienced a strong bounce back effect in Autumn 2020, when travel restrictions were eased. **Figure B-11** shows the later part of the AM peak and the early part of the PM peak exceeding pre pandemic levels, plus a strong interpeak and was likely an impact of more localised travel.

B.28 By the end of 2021, demand had exceeded 2019 pre-pandemic levels by a clear margin, however this demand fell significantly in January 2022. The recent 2022 data shows the impacts of restrictions associated with the Omicron variant which has suppressed traffic flows once again.

Figure B-11 Change in traffic flow levels by time of day (adjacent to Local Centres)

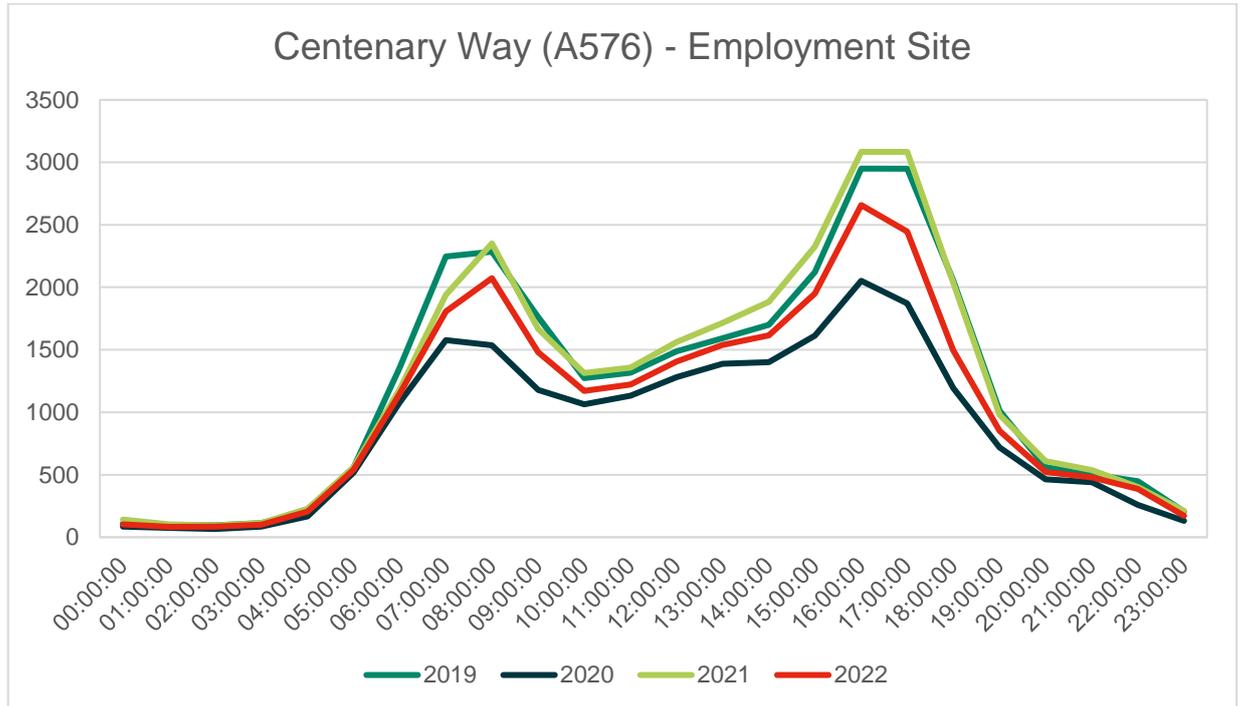


Source: TfGM C2 Database – Location S of Ashlor St, Bury

Centres of Employment (Trafford Park)

- B.29 Trafford Park is a major site of employment within Greater Manchester, with traffic flows accessing this employment area changing significantly during the pandemic.
- B.30 During the limited easing of travel restrictions in Autumn 2020, traffic flows to/from Trafford Park remained low, with limited return of higher peak time travel flows. This was possibly due to the higher levels of working from home at the time. The more recent data from November 2021 shows flows higher than pre-pandemic levels. January 2022, though impacted by the Omicron variant, shows a recovery of peak hour travel demand, close to pre pandemic levels, although the early part of the AM peak and the later part of the PM peak show a slightly weaker recovery. Interpeak travel is also similar to pre pandemic levels (See **Figure B-12**).

Figure B-12 Change in traffic flow levels by time of day (Centres of Employment)



Source: TfGM C2 Database – Location Trafford Park, Trafford

Summary

- B.31 The review of local traffic flows at various locations across GM has shown considerable variations in changing travel behaviour by location, when compared to pre-pandemic levels. This is likely to be impacted by changing travel habits, although the recent Omicron variant is likely to be impacting some travel behaviour in the 2022 data, as shown in **Figure B7**, general traffic levels in Autumn 2021 showed overall recovery in traffic flows above pre-pandemic levels.
- B.32 The change in travel behaviour by location since September 2019 is summarised in **Table B-1**.
- B.33 Considering the position in November 2021, when travel patterns were least affected, it is notable that Local Centre traffic flows were higher than previously whilst the Regional Centre flows were still much reduced. For radial routes and employment centres, overall (daily) levels were back to pre-pandemic but with some variation during the day; the morning peak being less pronounced but the interpeak higher.

Table B-1 Traffic flow changes by location type from September 2019 to January 2022

Location Type	Period	Change relative to Sep-19 (Index=100)			
		Sep-19	Sep-20	Nov-21	Jan-22
Regional Centre	AM	100	67	88	81
	IP	100	73	95	88
	PM	100	41	92	85
	Eve	100	26	95	85
	Daily	100	61	88	83
Radial inside M60	AM	100	98	98	93
	IP	100	98	105	96
	PM	100	101	102	96
	Eve	100	80	94	83
	Daily	100	92	101	91
Local Centres	AM	100	103	108	90
	IP	100	96	115	88
	PM	100	94	113	86
	Eve	100	74	110	87
	Daily	100	90	111	86
Employment Centre	AM	100	69	95	86
	IP	100	83	108	94
	PM	100	61	102	79
	Eve	100	74	99	91
	Daily	100	74	102	88

Source: TfGM C2 Database

Economic Related Impacts

Introduction

B.34 Changes in the economic situation are also likely to have had an influence on travel behaviour. The section below presents the trends for a range of factors impacting the economy, several of which are likely to impact the way people travel and businesses operate.

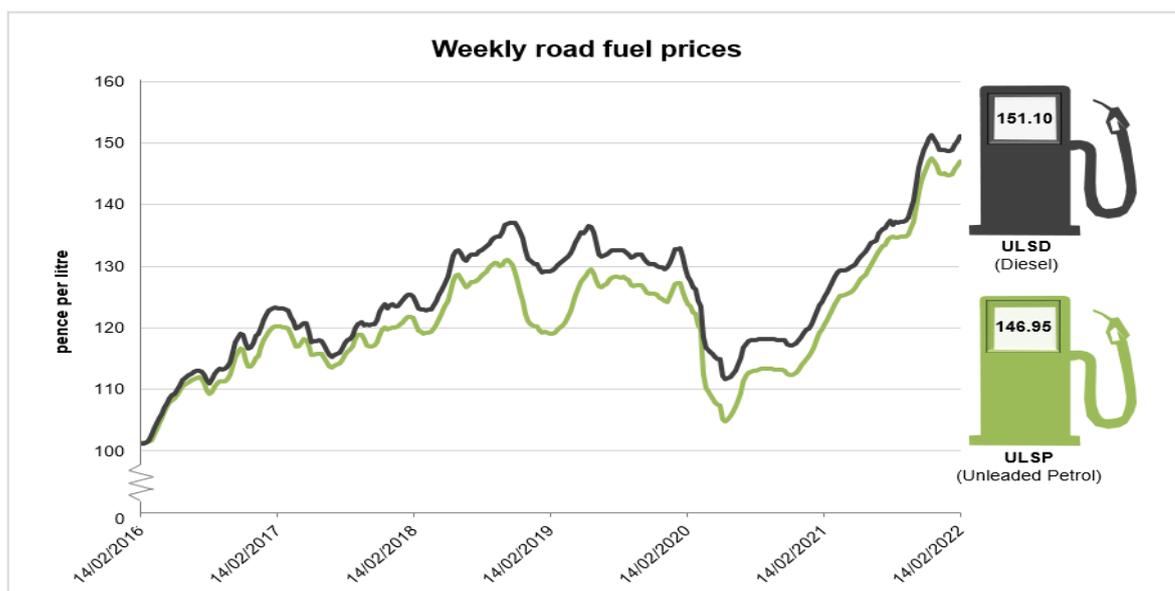
Fuel Prices

B.35 There are six companies (four oil companies and two supermarkets) that feed into the weekly fuel price survey prepared by the government. These companies cover around 65% of the market. The change in fuel price is displayed in **Figure B-13**.

B.36 The price of road fuel is volatile over shorter time periods, with prices regularly rising and falling. The key trends from during the pandemic are:

- At the start of 2020 prices appear to have been on the decline. There was then a significant fall in both Diesel and Unleaded Petrol in early 2020, corresponding with the first national lockdown.
- During the second part of 2020, prices appear to be stable, with prices beginning to rise steadily throughout 2021 in line with global oil market prices.
- There is a steep rise in prices towards the end of 2021, reaching record highs. This corresponds with a sudden rise in post-pandemic energy demand. This has triggered a tax freeze on petrol and diesel for the twelfth year in a row⁴⁴.
- In September 2021 long queues and forecourt closures were witnessed, caused by panic buying throughout the country, sparking a fuel shortage in Britain.

Figure B-13 Weekly Road Fuel Prices



Source: [gov.uk](https://www.gov.uk)

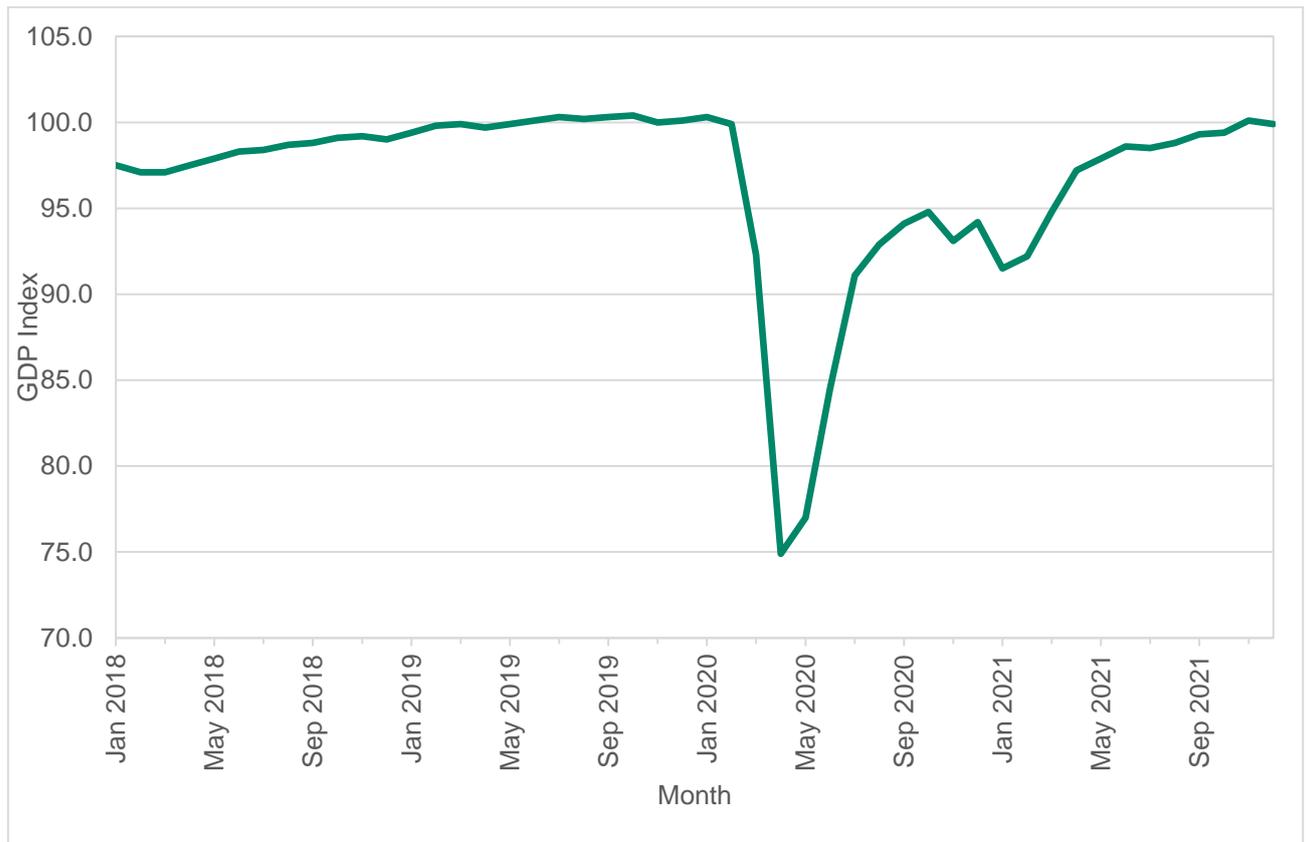
B.37 It was already likely that the price of fuel would remain unsteady for some time as a consequence of the impact of the pandemic and recent events in Ukraine have brought additional uncertainty to that market.

GDP

B.38 From bulletins on the ONS data website⁴⁵ the end of 2021 saw a drop in GDP by 0.2%, to equal the pre pandemic level of February 2020. In December 2021 services and construction are both above pre-pandemic levels, while production remained below. Consumer facing services fell within December, driven by a fall in retail, 8.4% below pre-coronavirus levels, contributing to the GDP fall in December 2021 (see **Figure B-14**).

⁴⁴ <https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-axed-petrol-prices-record-highs-b962832.html>

⁴⁵ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdp/wholesalepriceindexestimateuk/december2021>

Figure B-14 GDP in the UK (Index, 2019 = 100)

Source: ons.gov.uk/economy⁴⁶

- B.39 Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021⁴⁷. In real terms (adjusted for inflation), total and regular pay fell for the year by 0.1% and 0.8% respectively.

Imports and Exports

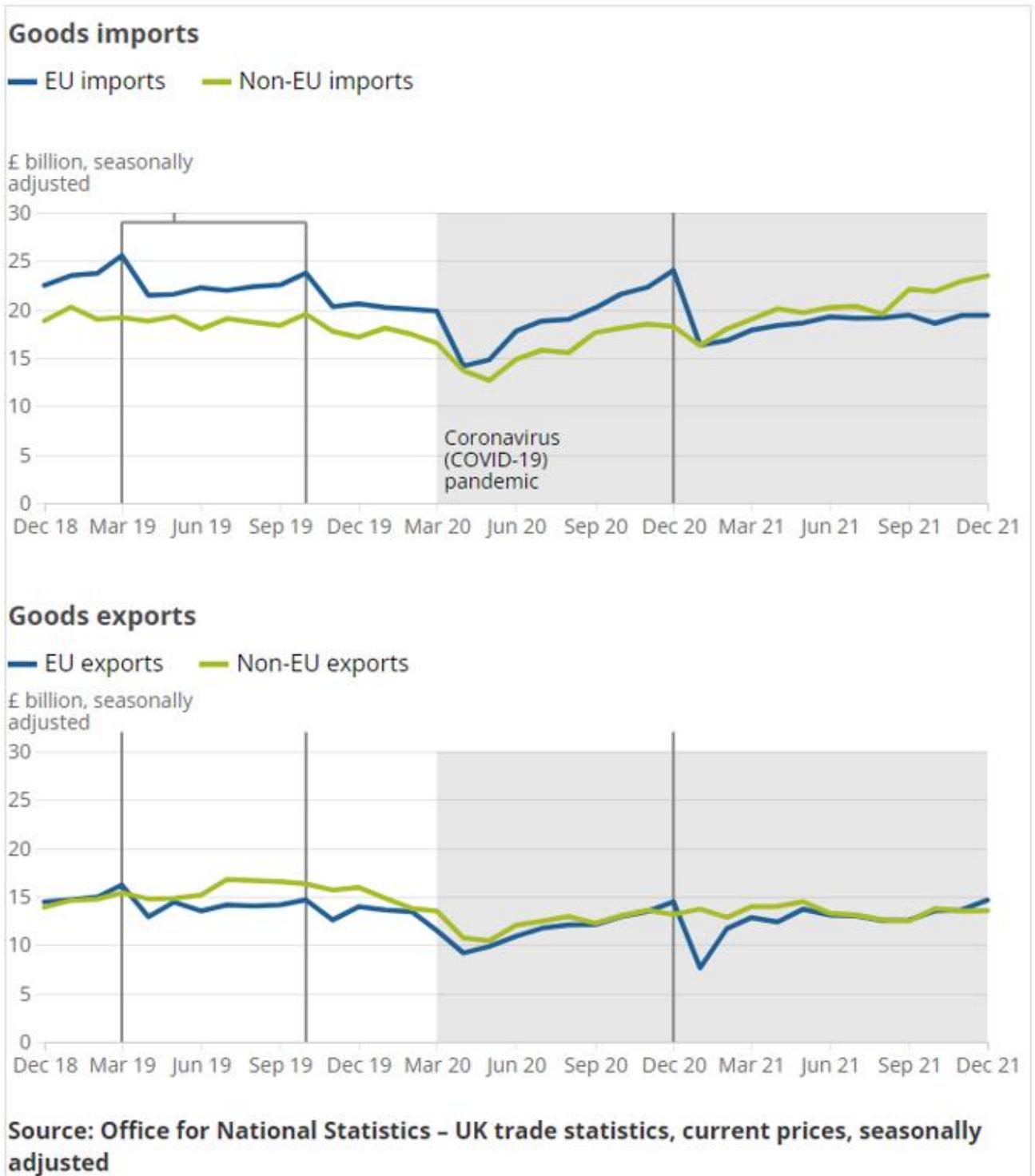
- B.40 **Figure B-15** shows the trends in UK goods imports and exports throughout 2019, 2020, and 2021. After an initial decrease in imports at the beginning of the pandemic, this appears to have recovered. There was another significant decrease at the end of 2020, however imported goods are on the increase back to pre-pandemic levels. There was less impact on exports, with these remaining steady throughout.

⁴⁶ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021>

⁴⁷

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022>

Figure B-15 Import and Exports



Source: ons.gov.uk/economy⁴⁸

Centre for Cities – Cities Outlook

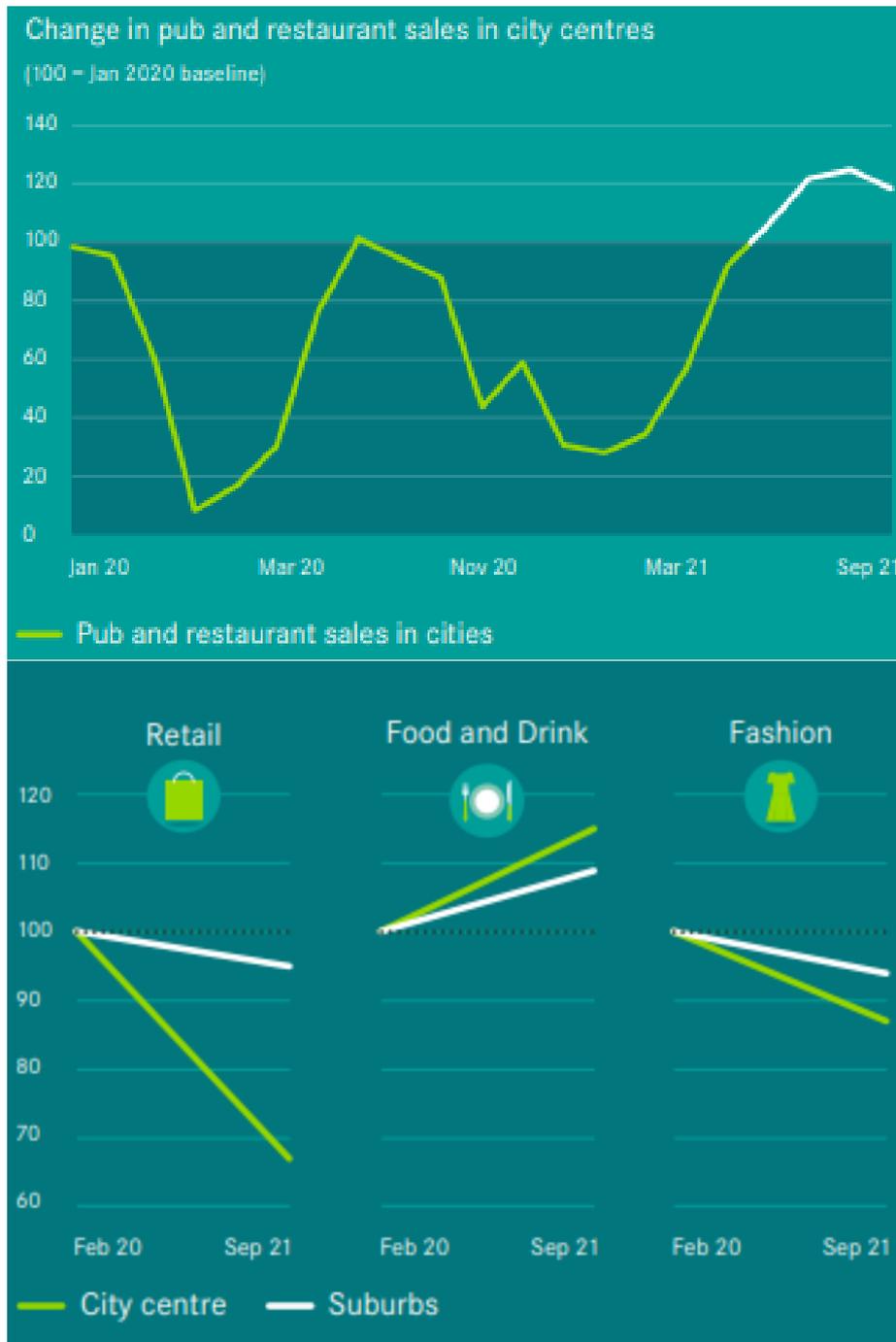
- B.41 Centre for Cities produced the Cities Outlook 2022 report looking in-depth at the state of UK high streets, to get a sense of the short-term impact of the pandemic on Britain's town and city centres, and the long-term consequences and implications this has for the Government's levelling up agenda. This report showed that there was a quick and considerable shift away from high streets to online

⁴⁸ <https://www.ons.gov.uk/economy/economicoutputandproductivity/outputandprices/ukeconomy/latest/2021-01-25#output>

shopping during the pandemic. However, in most cities the shift stalled, or slightly fell again once shops reopened.

B.42 The Cities Outlook report also studies the impacts on pubs and restaurants, stating that the fashion sector was hit harder than pubs and restaurants. **Figure B-16** shows the trend in sales throughout 2020 and 2021. There are clear decreases in sales corresponding to the national lockdowns but in all instances, these soon recover when the sector reopens. This is also reflected in the suburbs, with retail and fashion experiencing a slight decline from Feb 2020 to September 2021 but food and drink on a steady incline.

Figure B-16 Change in pub and restaurant sales in City Centres and Suburbs



Source: ons.gov.uk/economy⁴⁹

⁴⁹ <https://www.centreforcities.org/>

- B.43 Due to the work from home regulations and, for many, working from home becoming a regular part of the working week, it is feared the reduced footfall in cities will have a lasting effect on retail, hospitality, and transport sectors. **Figure B-17** show the weekday footfall in London, Manchester and Birmingham. Although not yet back to pre-pandemic levels, there is a steady climb in footfall in the major cities with Manchester appearing to recover more quickly than Birmingham, and London taking considerably longer.
- B.44 The more significant impact on London may be related to the impact of Covid-19 on international tourism.

Figure B-17 Weekday footfall



Source: ons.gov.uk/economy

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

Appendix C - Technical Note: Current issues in the Van Sector

DRAFT FOR APPROVAL

June 2022

1. Introduction

Background

- 1.1 After the initial OBC submission, a series of technical notes were published setting out the results of analysis and research carried out to better understand the vehicles in scope for the scheme. For vans, this included in particular Technical Note 3: Analysis of the Freight Market, Technical Note 12: Evidence of the impact of a 2021 implementation of a CAZ C (without exemptions), and Technical Note 20: GM Specialist Goods Survey Results Summary¹.
- 1.2 Further notes were produced setting out the development of analytical tools for freight, with the latest published summary of that work provided in T4 Appendix A of the Modelling for Consultation². Research was carried out with vehicle owners potentially in scope for the scheme, including deliberative research³ and a survey with 800 van owners⁴.
- 1.3 This evidence formed the basis of the development of the Option for Consultation. From March 2020, it became clear that the pandemic would affect the Greater Manchester Clean Air Plan (GM CAP); a programme of work was carried out in 2020/2021 to better understand the possible impacts of the Covid 19 pandemic on the GM CAP, published as the Impacts of Covid Report in June 2021⁵. This evidence, alongside feedback from the Consultation, was used to inform the revised GM CAP as approved by the ten GM local authorities in June/July 2021.
- 1.4 At that time, GM identified a number of possible risks to the GM CAP, which included concerns about the risk of vehicle price increases and the impact of any further lockdowns in the UK or countries in the supply chain.
- 1.5 This report, which was originally developed in January 2022, draws a series of findings and conclusions to better understand the circumstances affecting van owners in Spring 2022 (based upon the previous' GM CAP implementation date) and the implications for the GM CAP and surrounding policy framework.
- 1.6 Since Spring 2022, there have been further dramatic changes to the economic context in the UK which are not explicitly addressed in this report but are set out in **Appendix E**. A range of factors associated with the impact from war in Ukraine, increased costs of energy and fuel, changes to Bank of England base rates and forecasts, global supply chain challenges, and the cost-of-living crisis have combined to create a context of increased financial hardship for businesses and families.

Structure of Note

- 1.7 The remaining sections of the report are structured as follows:
 - Section 2 provides an overview of the van sector in GM;

¹ All available at [Technical Documents | Clean Air Greater Manchester \(cleanairgm.com\)](https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4 - Appendix A Behavioural Response Cost Models and Demand Sifting Tool.pdf)

² <https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4 - Appendix A Behavioural Response Cost Models and Demand Sifting Tool.pdf>

³ [GM CAP Deliberative Research ALL - Spring 2019.pdf \(ctfassets.net\)](https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4 - Appendix A Behavioural Response Cost Models and Demand Sifting Tool.pdf)

⁴ [CCTS Listening Exercise \(ctfassets.net\)](https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4 - Appendix A Behavioural Response Cost Models and Demand Sifting Tool.pdf)

⁵ [GM CAP- Impact of COVID Report \(ctfassets.net\)](https://assets.ctfassets.net/tlpgbv1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4 - Appendix A Behavioural Response Cost Models and Demand Sifting Tool.pdf)

- Section 3 describes the national van market trends and vehicle volumes;
- Section 4 describes issues affecting the demand for vans;
- Section 5 describes issues affecting the supply of vans;
- Section 6 sets out the impact of supply and demand on van prices;
- Section 7 considers the impact of supply constraints and price rises on the GM CAP; and
- Section 8 provides a summary of the key findings and recommendations.

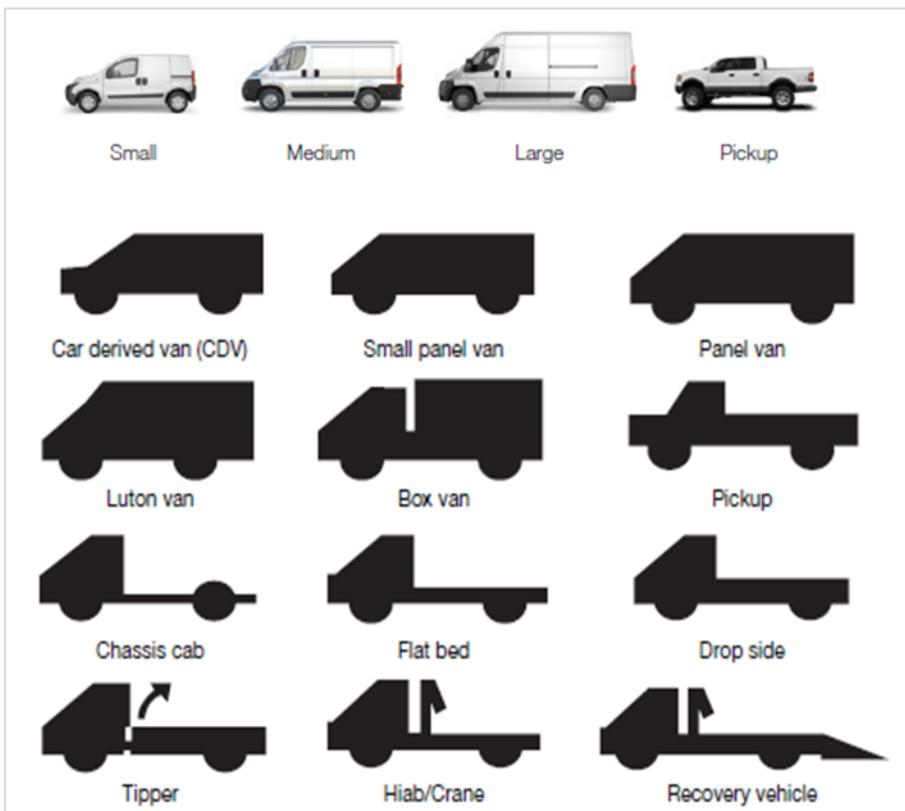
1.8 In addition, **Appendix A** provides a list of data used to inform the report and **Appendix B** reviews the recent changes in travel behaviour within GM through the pandemic up until January 2022.

2. Overview of the van sector in GM

Diversity and importance of the Van Sector

- 2.1 Vans are vital to the UK economy. Nationally, 3.4 million people use or depend on vans for their work and half a million people drive a van as the main part of their job. In total, vans support 10% of the UK's workforce, delivering a combined wage bill of £56bn or 11% of GDP⁶.
- 2.2 There has been a 56% growth in the van sector since 2000, mainly in the larger van market. This has been driven by an increase in the number of self-employed tradespeople and the rapid rise in online shopping. The pandemic has strengthened the trend towards online shopping, with many (especially older) people shopping online for the first time⁷.
- 2.3 More than three quarters of vans are medium or large, and the van market encompasses a wide range of vehicle types, as shown in **Figure 2-1**. Some vehicles will include refrigeration or other modifications, and many van owners will have fitted out their van interior to include shelving, for example.
- 2.4 Vans serve a wide range of sectors, as illustrated in **Figure 2-2**. A quarter of GM's vans fleet serves the construction sector (24%), with other major sectors including wholesale & retail (16%), manufacturing (13%), and transport & storage (9%).

Figure 2-1 Vehicle Types Classified as a Van

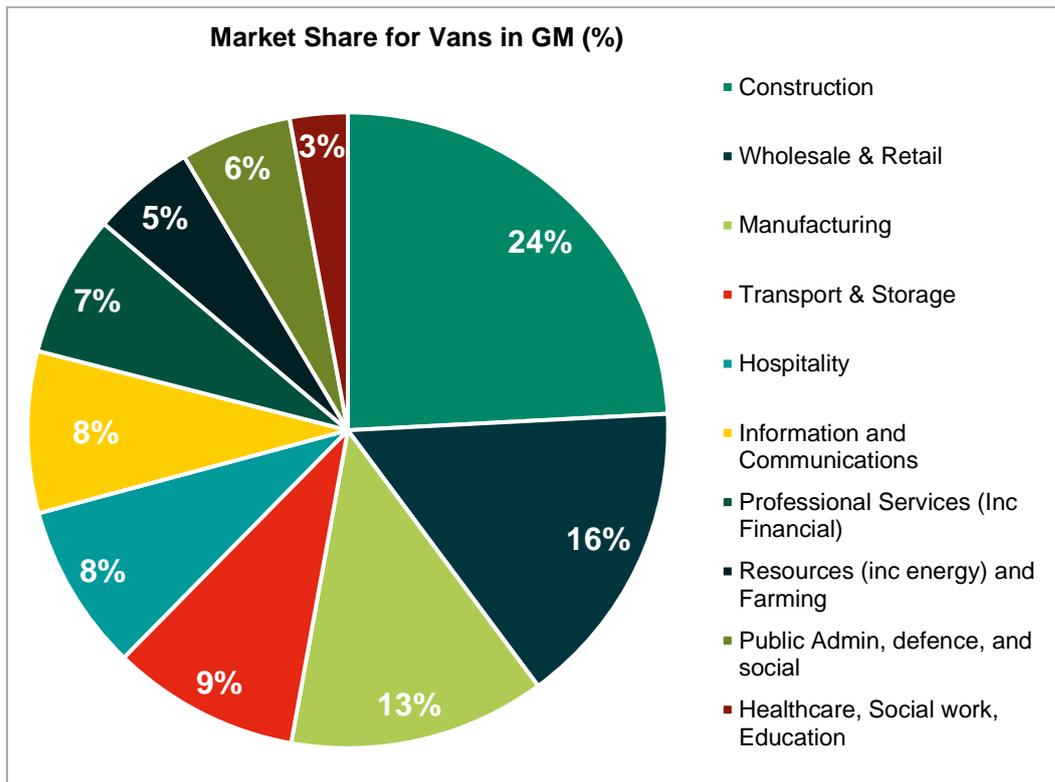


Source: Ford Commercials

⁶ Data throughout this section sourced from [Note 3 - GM CAP Analysis of the Freight Market \(ctfassets.net\)](https://www.ctfassets.net)

⁷ Statista Accessed 5th January 2022 <https://www.statista.com/statistics/1230225/changes-in-online-buying-among-uk-consumers-since-covid-19/>

Figure 2-2 Market share by industrial sector for Vans in GM



Source: <https://www.smmmt.co.uk/wp-content/uploads/sites/2/SMMT-Light-Commercial-Vehicles-Delivering-for-the-UK-economy.pdf>

2.5 GM carried out analysis considering how vulnerable different sectors were to the GM CAP. This was carried out before the pandemic in Autumn 2019, and then revisited in Autumn 2020 based on evidence of the impact of Covid on each sector⁸. A summary of that analysis is shown in **Figure 2-3**.

2.6 There is a high proportion of sole traders in the most vulnerable sectors. Van drivers have low average incomes, with analysis suggesting that the cost of the charge could equate to 15% of average income.

2.7 Longer vehicle lifespans are associated with smaller businesses and sole traders most commonly found in sectors such as removals and construction. Companies operating larger fleets, such as those in the food and retail sectors, typically replace vehicles more frequently and are therefore more likely to have CAZ compliant vehicles at present, although some parts of those sectors have been badly affected by the pandemic in terms of extended periods of closure or constrained operations.

2.8 Research conducted by GM in Autumn 2019⁹ with 800 sole traders and microbusinesses found that 48% of businesses change their LGVs when they are over 10 years old or no longer fit for purpose, in comparison with 20% who update their vehicles before they are 4 years old¹⁰.

2.9 The largest sector, construction, makes up 24% of the GM market and includes over 21,000 vehicles affected by the GM CAP, 38% of the total overall affected vans. LGVs in the construction sector have the longest lifespans, with an average replacement age of 15 years.

⁸ [GM CAP- Impact of COVID Report \(ctfassets.net\)](https://www.ctfassets.net/gm-cap-impact-of-covid-report)

⁹ [CCTS Listening Exercise \(ctfassets.net\)](https://www.ctfassets.net/ccts-listening-exercise)

¹⁰ [CCTS Listening Exercise \(ctfassets.net\)](https://www.ctfassets.net/ccts-listening-exercise)

Figure 2-3 Vulnerability to the GM CAP by van-owning sector

Sectors	Sector Percentage	Vehicle Replacement Age	Non-compliant percentage	Responding to CAP	
				Vulnerability (Pre COVID – 2019)	Vulnerability (Spring 2022)
Construction	24%	15	56%	Very High	Very High
Wholesale, retail & repair of motor vehicles	16%	10	34%	Medium	High
Manufacturing	13%	10	34%	Medium	High
Transport & storage	9%	10	34%	Medium	High
Accommodation & food services	8%	9	27%	Low	Medium
Information & communication	6%	9	27%	Low	Medium
Professional, scientific & technical activities	4%	10	34%	Medium	High
Mining, energy & water supply	4%	10	34%	Medium	High
Public admin. & defence; social security	4%	12	45%	High	Very High
Human health & social work activities	2%	12	45%	High	Very High
Other services	2%	12	45%	High	Very High
Financial & insurance activities	2%	9	27%	Low	Medium
Administrative & support services	2%	12	45%	High	Very High
Agriculture, forestry & fishing	1%	15	56%	Very High	Very High
Real estate activities	1%	9	27%	Low	Medium
Education	1%	10	34%	Medium	High
Royal Mail	1%	9	0%	Very Low	Very Low
Total	100%	-	40%		-

Vulnerability Criteria	
10% and below	Very Low
11-20%	Low
21-30%	Medium
31-40%	High
40% and above	Very High

Compliance of the van fleet serving Greater Manchester

- 2.10 Based on ANPR data and DfT Statistics, GM estimates that there are around 278,000 vans serving the region, of which around 136,000 are thought to be located within the GM boundary.
- 2.11 **Table 2-1** presents the number of LGVs estimated to be serving Greater Manchester in 2019, including splits by compliant and non-compliant vehicles which failed to meet Euro VI standards at that point.

Table 2-1 Number of vans in GM by compliance – 2019

	GM Based	Non-GM Based	Total
Compliant	27,290 (20%)	74,147 (52%)	101,437 (37%)
Non-Compliant	108,456 (80%)	67,535 (48%)	175,991 (63%)
Total	135,746	141,682	277,428

Source: FBC Appendix V, T4 Annex C: Vehicle Population Estimates

- 2.12 In 2019, there were 277,400 LGVs serving Greater Manchester¹¹ with 37% deemed compliant and 63% non-compliant. Vehicles based in GM had a lower level of compliance than those based outside GM, with only 20% of LGVs deemed compliant and 80% non-compliant (compared to 52% compliance for LGVs based outside of GM). Overall, there were slightly more LGVs serving GM that were not based in GM (141,700) in comparison with LGVs based in the city region (135,700).
- 2.13 The large proportion of LGVs which are non-compliant is in part due to relatively long vehicle lifespans, typically ranging between 9-15 years depending on the industrial sector in question, and due to the fact that compliant vans did not come onto the market until 2015, with the Euro 6 standard coming into force for vans in 2016.
- 2.14 A proportion of the vans in the fleet would normally be upgraded each year, with the oldest vehicles being scrapped out of the fleet. GM's forecasting suggests that the number of non-compliant vans based in GM will have reduced from 108,500 in 2019 to 75,400 by 2023. This means that around 31,100 vans would have been upgraded from a non-compliant to compliant vehicle as a result of business-as-usual purchases prior to the COVID-19 Pandemic.
- 2.15 The anticipated rate of upgrade for vans was revised in 2021 based on evidence that the Covid-19 pandemic had delayed vehicle purchases, such that the fleet was estimated to be around 3 months older than previously forecast. The rationale and methodology for this change is set out in the report "GM's proposed approach to representing the impact of Covid 19 in core modelling scenarios"¹². This had the effect of reducing the number of GM-based vans expected to make a business-as-usual upgrade between 2019 and 2023 by 1,4000.
- 2.16 **Table 2-2** sets out the number of vans estimated to be serving GM in 2023, by whether they are expected to be compliant without the GM CAP being introduced.

¹¹ Based upon 2019 ANPR splits

¹²

https://assets.ctfassets.net/tlpgbv1k6h2/2ZMJ3DJXiv7p3xOeZu4CYQ/247196ef60e33ac89f7f8938e1e16418/Appendix_6D_GM_proposed_approach_to_representing_the_impact_of_Covid-19_in_core_modelling_scenarios.pdf

Table 2-2 Number of vans in GM by compliance – 2023

	GM Based	Non-GM Based	Total
Compliant	58,935 (43%)	86,122 (61%)	145,056 (52%)
Non-Compliant	76,811 (57%)	55,560 (39%)	132,371 (48%)
Total	135,746	141,682	277,428

Source: FBC Appendix V, T4 Annex C: Vehicle Population Estimates

Impact of the GM CAP on Van Upgrades

- 2.17 As set out above, it is anticipated that 76,800 GM-based vans will be non-compliant in 2023 and will therefore need to upgrade their vehicle or pay the charge in response to the GM CAP until compliance with the Government Direction has been achieved.
- 2.18 Of these, it is estimated that up to 59,000 may be in scope¹³ for support from the Clean Commercial Vehicle Fund. This Fund provides financial support of up to £3,500 for the purchase of a compliant van up to 1.6t and up to £4,500 for the purchase of larger compliant van up to 3.5t, with a grant of up to £5,000 available for retrofit where available, subject to eligibility criteria. GM has secured £70m to support the upgrade of vans, sufficient to support around 15,900 vehicles.
- 2.19 **Table 2-3** sets out the number of vans estimated to be serving GM in 2023, by whether they are expected to be compliant with the introduction of the GM CAP.

Table 2-3 Number of vans in GM by compliance, with GM CAP – 2023

	GM Based	Non-GM Based	Total
Compliant	107,345 (79%)	129,550 (91%)	236,895 (85%)
Non-Compliant	28,401 (21%)	12,132 (9%)	40,533 (15%)
Total	135,746	141,682	277,428

Source: FBC Appendix V, T4 Annex C: Vehicle Population Estimates

¹³ https://assets.ctfassets.net/tlpgbvvy1k6h2/2VNncClzejAvGh3CrVn0oo/d45528de22e593c9be285ddf5b26373b/Appendix_1_-_GM_Clean_Air_Plan_Policy_following_Consultation.pdf

Review of Fleet Profile

ANPR

2.20 Three sets of ANPR data were used, based on available data, these comprise the following time periods:

- GMP19 - January 2019 (pre COVID-19 pandemic);
- GMP20 - September 2020; and
- GMP21 - November 2021.

2.21 The LGV vehicle age profile change is presented in **Figure 2-4**. The proportion of newly purchased LGVs (i.e. less than 1 year-old) captured by ANPR cameras decreased from near 12% to 3% from 2019 to 2020 and recovered to close to 7% by the end of the 2021. It is noted that these figures are likely to be slightly overestimated due to differences in the sample size (10 months' worth of 'new vehicles' captured in the January 2019 survey compared to 6 and 8 months captured in the September 2020 and November 2021 surveys).

2.22 **Table 2-4** suggests that the average age of LGVs increased by 0.8 years from the beginning of 2019 to the end of 2021.

Figure 2-4 LGV fleet age distribution

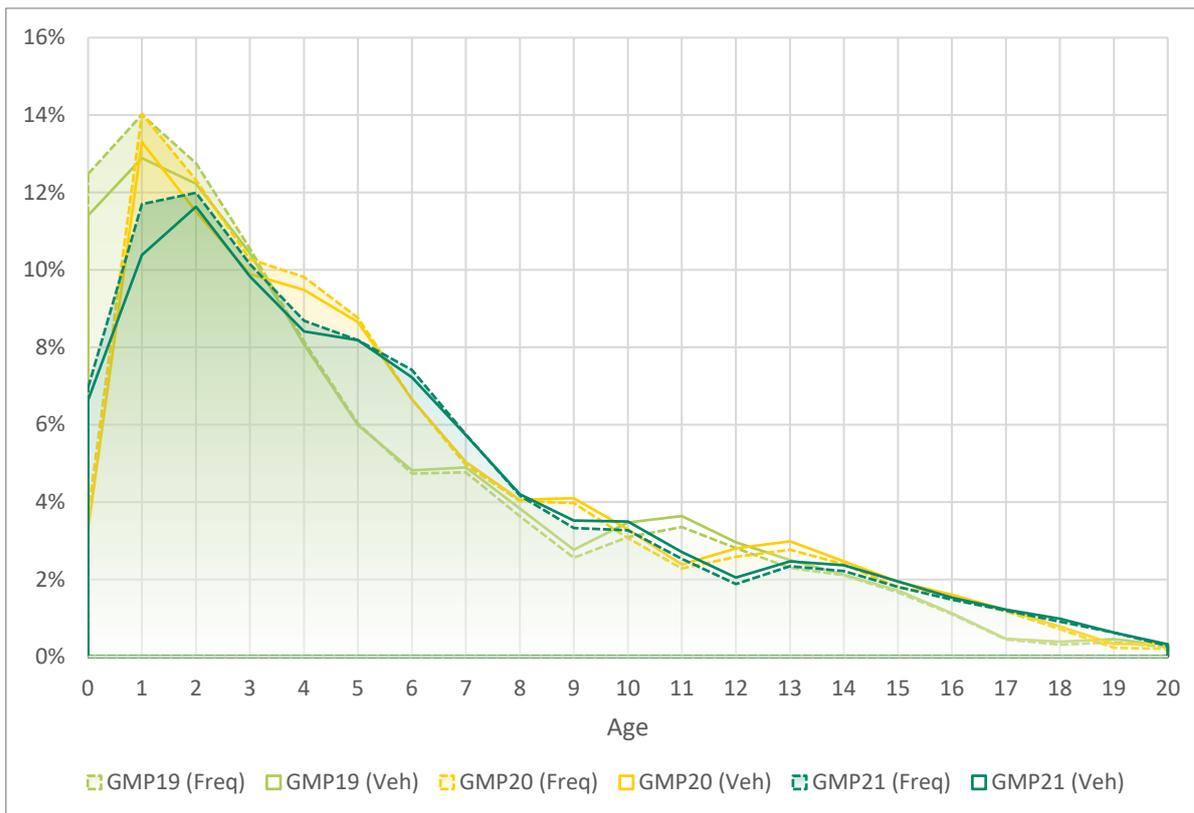


Table 2-4 Average LGV Age

Data set	GMP19	GMP20	GMP21
Frequency			
Average Age	5.3	6.0	6.1
Most common age group	1	1	2
Unique Vehicles			
Average Age	5.8	6.5	6.6
Most common age group	1	1	2

SMMT

2.23 The pandemic had a large impact on the number of new vans sold in the UK in 2020, but sales recovered to nearly pre-Covid levels in 2021. Sales forecasts indicate that market supply will recover the majority of the lost sales by 2025.

3. National Van Market

Overview of the Van Market

- 3.1 On average, around 367 thousand new vans are registered nationally each year. New vehicles are primarily purchased by larger businesses, vehicle rental companies and the leasing sector. Many large fleet operators lease rather than own their vehicles, and most such vehicles are kept for around 3 to 5 years, with vehicles from the rental sector typically entering the second-hand market first. These good quality second-hand vehicles are typically purchased by small businesses.
- 3.2 Vehicles may then be released onto the market again at 8 to 10 years old, into the third-hand van market, which are typically purchased by people and businesses working in the construction, transport and storage sectors.
- 3.3 Compliant diesel vans came onto the market in 2016 (some early models may have been available from 2015), meaning that the second-hand market for compliant vans started to exist at scale from 2019 onwards.
- 3.4 Pre-pandemic evidence suggested that there are around 10-12,000 second-hand van sales per week nation-wide, of which around 4% take place in GM.
- 3.5 This evidence is set out in more detail in GM CAP Technical Note 3: Analysis of the Freight Market¹⁴.

Van Ownership and Usage

- 3.6 The Department for Transport (DfT) undertook a survey of van activity in Great Britain in 2019¹⁵. This looked at van ownership, van mileage, where and when vans are traveling, and environmental factors. The survey field work was carried out in 2019-20, prior to any Covid-19 related restrictions.
- 3.7 The survey showed that the most common primary usage of licensed vans was for 'carrying equipment, tools and materials' (54%), followed by 'delivery/collection of goods' (16%) and 'private/domestic non-business use' (16%).
- 3.8 Over half (57%) of business kept vans were new; 35% owned outright and 22% owned via a hire purchase agreement. Most privately kept vans were second-hand (82%). Within the DfT survey, the keeper of the vehicle is defined as that responsible for registering and taxing the vehicle only. The keeper of the vehicle is not necessarily the owner or the driver. Furthermore, the keeper is either an individual or a business (including sole trader, partnership or limited company).
- 3.9 Around half of all vans (51%) in Great Britain stayed local, within 15 miles of their base, on a typical day.
- 3.10 Associated statistics produced by the department showed that average mileage for vans has remained broadly stable in recent years (pre-pandemic) at around 13,000 miles per year.

¹⁴ https://assets.ctfassets.net/tlpgbv1k6h2/sxMVbAwfJrcq3tFd9Thb7/fd8843b6d128ef318da320ee22ca6ac5/3_-_GM_CAP_Analysis_of_the_freight_market.pdf

¹⁵ DfT Statistical Release 15 April 2021, Final Van Statistics April 2019 - March 2020

Van Manufacturers

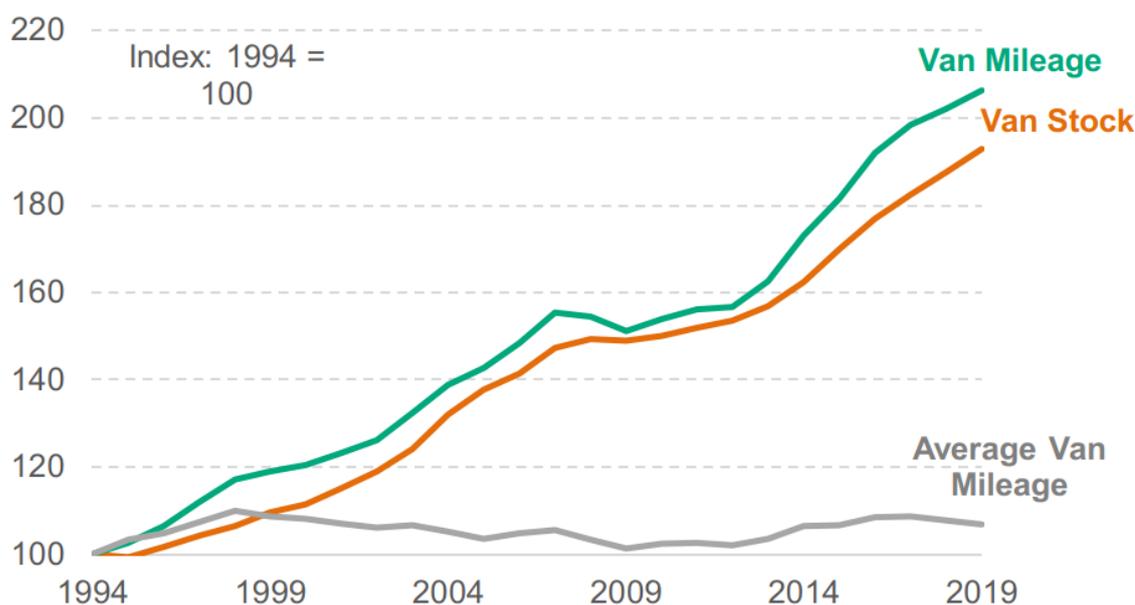
- 3.11 The British van market in 2021 has sales of 355,380 vehicles under 3.5 tonnes. The biggest growth in recent times is in the area of large vans (2.5-3.5 tonnes) which are typically used by parcel companies, food home deliveries and in the construction sector.
- 3.12 The top 10 selling models represent around 60% of the market. Within this top 10 there are three Ford Transit variants which represent 99,185 of sales (28% of the total market) and these vans are made in Turkey. The next best seller is Mercedes Sprinters with 6% of the market. The main van made in the UK is the Vauxhall Vivaro made by Stellantis, and this had sales of 17,957 (5%) of the market.
- 3.13 Almost 95% of vans sold in the UK are imported and reliance on imports has grown over the last twenty years and changed significantly when Ford shut their van plant in Hampshire. Around 330,000 vans were imported last year whilst 60% of vans made in the UK are exported.

4. Van Demand

Historical Trends Pre-Pandemic

- 4.1 The Department for Transport's (DfT) road traffic estimates indicate that van travel has grown substantially over the last 25 years, increasing 106% to 55.5 billion vehicle miles in 2019. Van travel as a proportion of all motor vehicle miles has increased from 10% to 16% over the same period.
- 4.2 This, together with the relationship to the scale of the van stock, is illustrated in **Figure 4-1** from the DfT statistical bulletin relating to the 2019 survey¹⁶.

Figure 4-1 Trend of Van Stock and Van Traffic, Great Britain 1994-2019



Source: Road Traffic estimates in Great Britain: 2019, Vehicle Licensing Statistics: 2019

- 4.3 The increase in van stock in recent years evident from **Figure 4-1** reflects the significant demand for new vans which has been on a consistently upward trend for many years.

Demand Trends Pre-Covid

- 4.4 The Society of Motor Manufacturers and Traders (SMMT) 2019 Report¹⁷ identified the following as aspects in the increase in demand seen in the sector since 2000:
- the van parc (the total number of vehicles in operation) has grown by 59% while, by contrast, the HGV parc has shrunk by 2%;
 - the majority of this growth has been driven by demand for larger vans (2,600-3,500 kg Gross Vehicle Weight);
 - Factors fuelling this growth include a fundamental shift in consumer behaviour with the growth of online shopping;

¹⁶ DfT Statistical Release 15 April 2021, Final Van Statistics April 2019 - March 2020

¹⁷ Light Commercial Vehicles, Delivering for the UK Economy, 2019 Report

- an increase in vans as businesses seek to develop more agile logistics operations in response to the growth in the ‘fulfilment from store’ model (a service which previously would have been completed by an HGV); and
- a rise in self-employment (from 3.3 million in 2001 to 4.8 million in 2017)¹⁸.

Impact of Covid

- 4.5 Van sales have been heavily impacted by pressures associated with Covid. SMMT data shows April and May 2020 being particularly poor months for new van registrations.
- 4.6 Supply constraints on delivery of new vehicles in the early 2020 lockdown, were gradually released into the summer as already purchased and manufactured vehicles could be delivered and received. At this point, new orders were likely delayed due to market uncertainty in the early phases of the pandemic.
- 4.7 However, whilst the early phases of the pandemic and subsequent lockdowns and constraints in 2020 constrained demand, it appears that this effect was temporary based on SMMT new van registration monthly data (see later in **Figure 5-1**) and has been offset by growth in demand from other sectors.
- 4.8 Home deliveries surged during the lockdown in 2020, with traditional ‘bricks and mortar’ retail affected by closures for at least three months of the year. This led to many consumers increasing their use of on-line deliveries or using it for the first time.¹⁹ This includes the grocery sector, which whilst not subject to the enforced closures of other retailers, saw increased demand for home deliveries as customers looked to avoid social contact in-store.
- 4.9 This has seen an increase in the use of and demand for vans as companies frequently use these vehicles for home deliveries (although some companies have drivers using their own cars). Vans are the vehicle of choice as larger HGVs are impractical and undesirable for most residential streets and the more stringent regulation and licensing requirements of those vehicles.²⁰

Green Agenda/Corporate Social Responsibility

- 4.10 Many fleet operators and individual van owners are looking to transition their fleets to vehicles using low or zero emission fuels. In the Mayor’s round table session with large fleet operators held in December 2021, many commented that they had corporate goals to speed up the transition of their fleet to electric, from Euro 5 or 6 diesel, but that they were finding it difficult to do so because of the issues in the supply chain. In some cases, this meant that they were retaining existing vehicles for longer whilst they waited for new vehicles to arrive.

¹⁸ Trends in Self-Employment in the UK Office for National Statistics

¹⁹ Statista Accessed 5th January 2022 <https://www.statista.com/statistics/1230225/changes-in-online-buying-among-uk-consumers-since-covid-19/>

²⁰ Motor Trader Accessed 5th January 2022 <https://www.motortrader.com/motor-trader-news/automotive-news/booming-home-delivery-construction-fuel-demand-vans-auction-25-08-2021>

4.11 Electric vans, in particular, are increasingly attractive as their price relative to conventionally fuelled vehicles drops, range increases and lifecycle costs become more certain. Sales of electric vans are increasing, albeit from a low base and a lower market share than electric cars²¹. This may be placing additional demand pressure on the market, if operators are bringing forward vehicle replacements.

Clean Air Plan Initiative

4.12 Modelling associated with the GM CAP forecast that almost 70% of van owners whose vehicles operate in Greater Manchester were expected under previous conditions to upgrade their vehicles to Euro VI engines or better to avoid the charge, taking advantage of associated funding support. Similarly, the London Ultra Low Emission Zone, along with other smaller city centre CAZs will lead to increased demand for compliant Euro 6 models.

4.13 This will increase demand for compliant vehicles, and more substantially at a regional level in GM and London, which for the used vehicle market could lead to regional disparities in purchasing trends and therefore demand across the wider UK.

Forecasting Van Demand

4.14 In October 2021 SMMT released a forecast of van sales for the next 3 years, demonstrating that they expect registrations to increase each year to 2023.

Table 4-1 Forecast van sales between 2021 and 2023, SMMT

Forecast Year	2021	2022	2023
Projected van registrations (thousands)	340*	364	378

Source: SMMT

Note: The 2021 sales achieved 355,000, 15,000 more than the October 2021 projection.

4.15 The SMMT historic forecast van sales estimates are useful to understand how the manufacturing base anticipates demand and enables supply. The SMMT annual forecasts have been analysed against the actual van sales to help gain insight on trend in supply versus predicted demand.

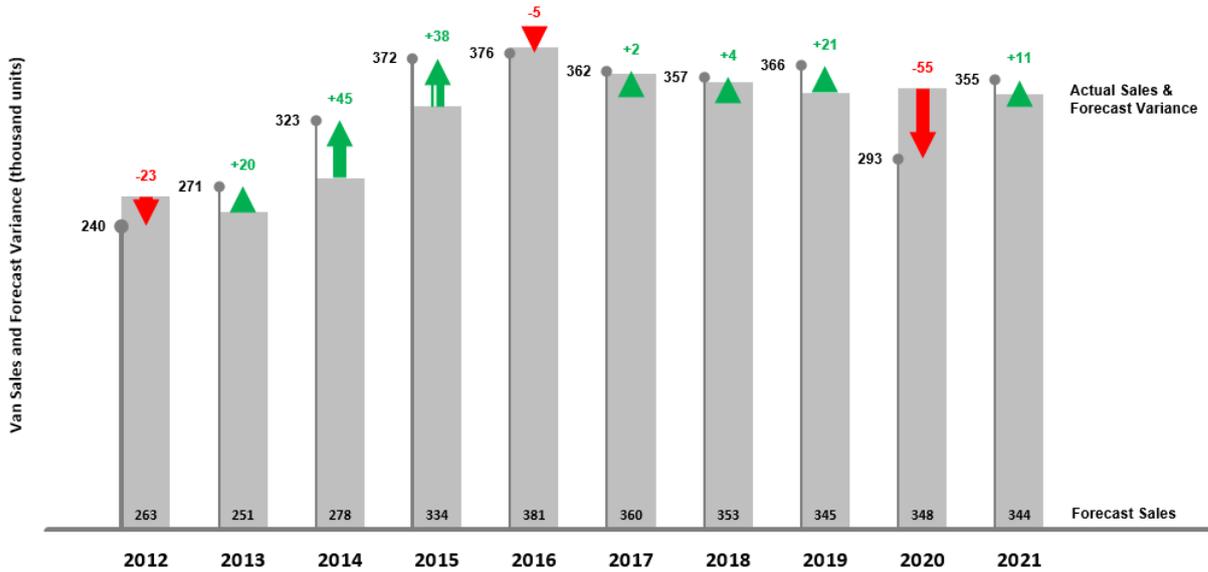
4.16 **Figure 4-2** and **Figure 4-3** show the variance between actual new van registrations and the SMMT January forecast for the forthcoming year and the following year, respectively²².

²¹ Fleet Europe Accessed 5th January 2022 <https://www.fleeteurope.com/en/last-mile/europe/analysis/why-electric-van-sales-are-set-soar?a=JMA06&t%5B0%5D=e-LCV&t%5B1%5D=Dataforce&t%5B2%5D=Arrival&t%5B3%5D=EV100&t%5B4%5D=Renault&t%5B5%5D=Nissan&t%5B6%5D=Mercedes-Benz%20Vans&curl=1>

²² SMMT accessed 9th January 2022, <https://www.smmt.co.uk/2022/01/09/used-car-sales-data/>

Figure 4-2 SMMT Van Sales, Actual Sales and Variance from 1-Year Forecast

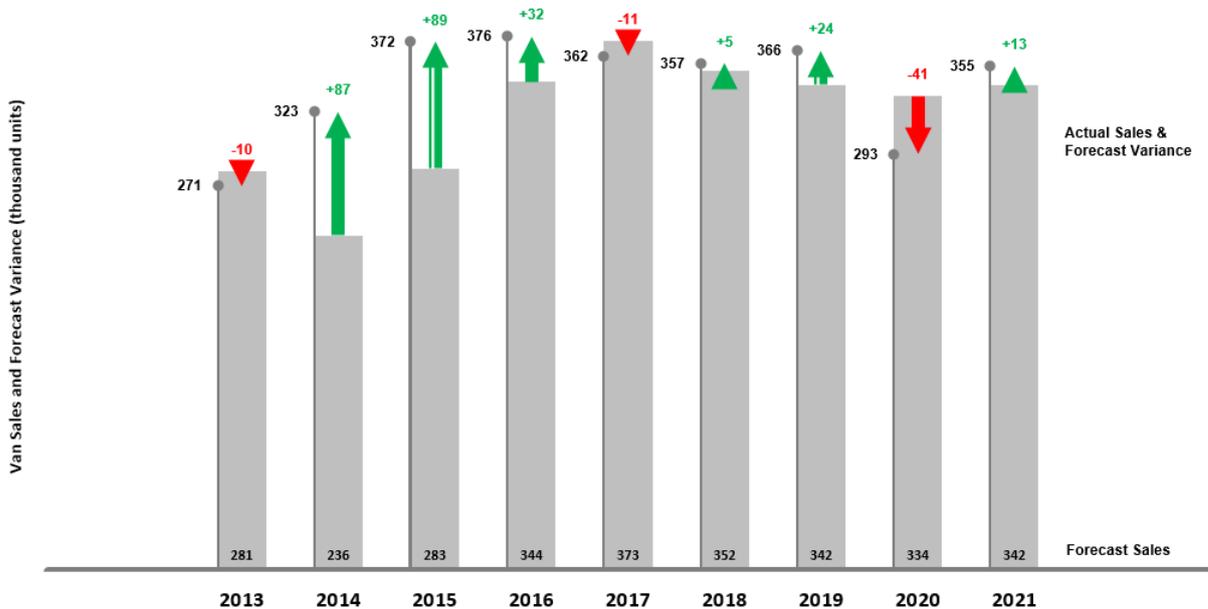
Forecast Sales for the Forthcoming Year vs Actual



Source: SMMT

Figure 4-3 SMMT Van Sales, Actual Sales and Variance from 2-Years On Forecast

Forecast Sales for Two Years On vs Actual



Source: SMMT

4.17 What this shows is that the SMMT forecasts have typically under-predicted sales, with the 2 Years On under-prediction more significant, which may be expected if demand is increasing quickly above previous trends.

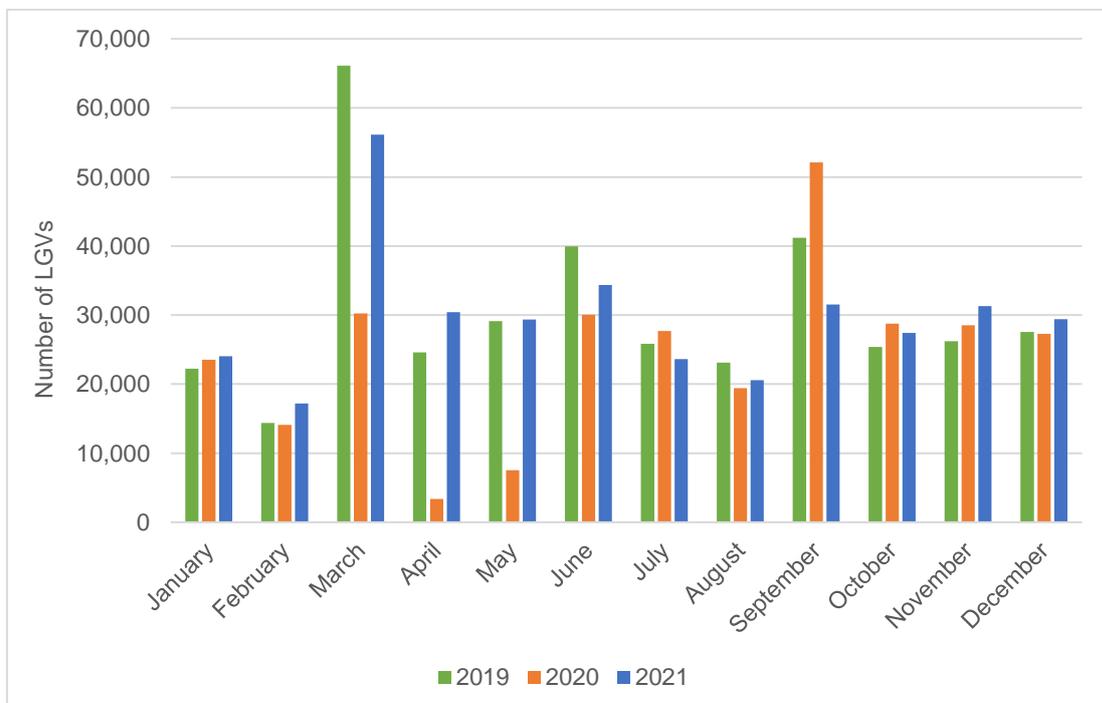
- 4.18 The graphs also show that, prior to the Covid-19 pandemic, total van sales had been stable since 2015, with average sales at 367,000 per annum. Van sales in 2021 recovered back to close to typical levels, after the substantial drop in 2020. So, whilst 2021 sales maybe similar to pre-Covid, the overall reduced new vehicle sales in 2020/21 would require a very significant increase in 2022 to recapture lost sales in time for the GM CAP 2023 opening. To simply recover the lost sales in 2020/2021, the 2022 registrations would need to be 448,000, equivalent to an immediate 23% increase over pre-Covid levels. This is in the face of supply constraints in the manufacturing process and ongoing economic uncertainty. In fact, the SMMT forecasts for 2022/23 presented in **Table 4-1** suggest continued typical levels, meaning there is predicted to be a shortfall in the new van fleet and associated impacts for the used van market too.
- 4.19 However, it can also be inferred that despite these constraints, manufacturing in 2021 has managed to deliver at previous levels of supply, and also owners purchasing new vehicles have been able to afford them. This indicates that there is strong and resilient demand in some sectors, at least those companies able to purchase new vehicles. What isn't clear from these data is how this might filter to the used van market nor whether some groups or sectors are deferring purchases due to high prices or lack of availability of suitable vehicles. The GM CAP behavioural modelling has been based primarily on a sustainable used van market and associated pricing, rather than the cost and availability of new vehicles.

5. Van Supply

Impact of the Pandemic

- 5.1 The pandemic had an initial direct impact on all types of vehicle production as production lines were halted at various times around the world dependant on local lockdown rules. The ability of vehicle manufacturers to respond to demands for increased production is still being limited by the pandemic amongst other factors.
- 5.2 One factor arising from the pandemic is the pronounced effect that it had on the logistics sector, with employees across the supply chain required to isolate causing delays in the supply of parts, with parts from places such as Asia being unavailable due to production issues and temporary staff shortages there.²³
- 5.3 To review the impact of Covid-19 on national van sales, data from 2019 to 2021 for the registration of new vans has been used from SMMT.²⁴ As the registration data demonstrates in **Figure 5-1** van sales were significantly lower in March, April and May 2020 during the first lockdown.
- 5.4 **Table 5-1** displays the total number of vans registered in 2020 and 2021 compared to the last pre-pandemic year of 2019. Sales in 2019 were similar to the previous 5-year average of 367,000 and is therefore a reasonable comparator. In 2020 there were significantly fewer new sales with the total registered down 20%. There was some recovery in 2021 though sales remained 3% below pre-pandemic levels. The net effect is a reduction of over 80,000 new vans in circulation compared to what would have been expected based on pre-pandemic sales.

Figure 5-1 Registration of New Vans from 2019 to 2021



Source: SMMT

²³ Baker McKenzie Accessed 6th January 2022 <https://www.bakermckenzie.com/en/newsroom/2020/04/global-supply-chains-under-huge-pressure-covid-19>

²⁴ LCV Registrations – SMMT - <https://www.smmt.co.uk/vehicle-data/new-registrations/>

Table 5-1 Total number of new vans registered in 2019-2021

Year	Total	% Change from 2019
2019	365,778	-
2020	292,657	-20%
2021	355,380	-3%

Source: SMMT

Semiconductor Shortages

- 5.5 The global shortage of semiconductors began in the first quarter of 2021. Analysis by McKinsey²⁵ suggests that the demand for semiconductors in the auto industry in 2020 was below expectations by around 15%. But at the same time, some other market areas experienced rapid expansion, resulting in overall growth of 5% to 9% in semiconductor sales above forecasts. When the automotive sector's demand recovered, the semiconductor industry had already shifted production to meet demand for other applications.
- 5.6 As with other markets and industries there are also now Covid-related closures at semiconductor factories and international shipping ports²⁶.
- 5.7 Consultation with SMMT and vehicle manufacturers demonstrates the significant impact of the semiconductor shortage, with new vehicles typically containing over 1,000 semiconductor chips. This has led to manufacturers reducing their production targets, limiting the number of new vans entering the market.
- 5.8 Reports from Commercial Fleet earlier in 2021²⁷ highlighted that new vehicle supply was affected by the global semiconductor crisis with lead times for new vehicles increased and then standing at up to 12 months for certain factory-order models. Manufacturers were also reported to be removing some non-essential components (e.g. infotainment systems) from vehicle specification to maintain production.

Britain leaving the EU

- 5.9 It is challenging to disaggregate the impact of Britain leaving the EU and the Covid pandemic on supply chains and consumer confidence, however the changing trading arrangements with the EU meant that there were supply issues as businesses got used to new customs requirements (particularly in January/February 2020), which caused delays at major ports. This backlog is likely to have fed into the number of vehicles produced and subsequent registrations.

²⁵ <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/coping-with-the-auto-semiconductor-shortage-strategies-for-success>

²⁶ <https://www.autocar.co.uk/car-news/business-tech%2C-development-and-manufacturing/latest-updates-semiconductor-chip-crisis>

²⁷ <https://www.commercialfleet.org/news/van-news/2021/04/28/used-lcv-prices-to-rise-as-semiconductor-supply-crisis-hits-new-van-production>

Views from the Industry

5.10 Consultation was undertaken with SMMT and van manufacturers, as well as a review of industry press on the issue.

Conversations with Society of Motor Manufacturers and Traders (SMMT) in 2021 & 2022:

The semi-conductor shortage has had a significant impact on vehicle production, with the typical vehicle comprising of 1,500 semi-conductor chips. Due to Covid-19 restrictions in South East Asia, approximately 19 semi-conductor plants have been closed, affecting supply. In addition, due to 'stay-at-home' restrictions, demand from other sectors such as the gaming industry has risen, further reducing supply. Car producers have been hit hardest as it is more difficult for high volume manufacturers to source chips. HGV manufacturers have more specialist providers which means they can source chips more easily and overall volumes are much lower.

The lag on production means that shortages are being felt now and are likely to become more pronounced in early 2022.

As a result of this shortage some specialist orders are not being fulfilled until 2023. The typical delivery date for an HGV has increased from 12 to 26 weeks. However, the SMMT believe this will stabilise and return to normal, with no medium- or long-term impact. They envisage it will take 12 months to correct so some time during 2023.

SMMT also reported that manufacturers were now looking at sourcing semi-conductors from alternative providers, including those not previously focused on the automotive sector

Conversations with Volkswagen Van Centre Greater Manchester, 2021:

VW's most popular van model, the Transporter, is produced at the company's German-based plant and brought over to the UK. Transporters are already sold out for 2022, meaning new customers will now need to wait until Q1 2023 for their van.

Several issues underpin the shortage in vans. The most pressing issue is the shortage in semi-conductors.

Another factor is the 70% increase in the price of steel which has resulted in price rises for customers. Together, these issues have led to four price increases in the last 12 months. As a result, Volkswagen has ceased to provide its usual price guarantees for all new sales and customers have now lost price protection.

The second-hand market is performing strongly. Customers are reselling their vans now more than they ever have before and prices are the highest they have ever been

- 5.11 Reports from industry press also state that supply issues could last until 2023. Speaking at the IAA Munich auto show in September 2021 Daimler CEO Ola Kallenius said soaring demand for semiconductors means the auto industry could struggle to source enough of them throughout next year and into 2023, though the shortage should be less severe by then. BMW CEO Oliver Zipse said: *"I expect that the general tightness of the supply chains will continue in the next six-to-12 months."*
- 5.12 Numerous Ford models are affected and Ford's plant in Turkey, where the Transit van is built, was also closed this summer. The manufacturer is now shipping some models with missing features as noted previously in this report.
- 5.13 Other reports are stating six to nine month lead times for ubiquitous models such as the Ford Transits.
- 5.14 Information from the wider commercial sector was also provided by the Road Haulage Association (RHA) that reflected some of the issues their members were experiencing. Whilst this relates to the heavy goods vehicle sector, it does reflect a similar picture in terms of supply side issues within the automotive market.

Selected extracts from RHA member correspondence:

(1) We have currently stopped pricing & closed our order books for the short term due to the increased difficulty in predicting pricing close to 12 months down the line.

(2) We had requested rate from our commercial supplier for a tractor unit and 2 trailers on long term rental, but we were quickly met with a response of "unfortunately this isn't something we are going to be able to provide in time for next year". I have also spoken with {anonymous} used and could be supplied a used tractor unit, but that option is very limited to what vehicles are coming in off contract. as for new purchase we were told by a sales rep at {anonymous} we would be looking at 2023 deliver times now.

(3) We predominantly run {anonymous} HGVs. Having had a verbal conversation with the dealer about pricing and lead times, we have been advised by them that for any orders placed within the next few weeks we will be looking at quarter 1 of 2023 for delivery of a chassis to the dealer. We then have to factor in further time for crane installation and truck body build etc. Realistically if this remains the case, we will end up not getting new trucks until the end of Quarter 2 of 2023, almost 2 years from now! They have also said that pricing quoted is not guaranteed and is subject to fluctuation due to pricing of raw materials changing between now and the vehicle being built and supplied.

(4) {anonymous} have closed their order books last Friday until 2023, they are concentrating on back orders and are waiting for their suppliers to provide software for their hardware, i.e computers to operate the gearboxes etc etc. They have loads of incomplete trucks at {anonymous} airport awaiting cpu's for various tasks.

6. Van Prices

New Vehicles

- 6.1 Van prices are a function both of the production and supply costs, combined with market demand versus available supply.
- 6.2 As a result of the constraints described previously, new vans are therefore expected to see their value rise more acutely as the semi-conductor crisis persists limiting supply, alongside the newfound shortages in other crucial resources such as rubber and metal, thus pushing up costs.²⁸
- 6.3 The rising costs of materials, caused in part by reduced production associated with Covid are also affecting vehicle prices, with VW reporting that the cost of steel has risen significantly during 2021, causing them to raise prices. Steel prices have reduced in recent months but remain volatile.²⁹
- 6.4 For reasons of commercial sensitivity, it has not been possible to obtain reliable data on changes to prices paid for new vans during the period under review. Advertised prices may be obtainable but records on actual sale values are not available.

Used Vehicles

- 6.5 It was to be expected that the reduction in new vehicles entering the fleet in 2020/21 would also have a knock-on effect to the used van market as the natural turnover of vehicles is stalled, reducing supply at this stage as well. Given the ongoing demand, this would normally lead to increased prices and there is considerable evidence of this occurring as shown later in this section.
- 6.6 Used light commercial vehicle values rose during November according to BCA (www.bca.co.uk) as demand for vehicles to service the online and home delivery sector increased in the run-up to Christmas with average values increasing by 15% from the start of November. Average monthly values continue to be well ahead year-on-year, with November 2021 values up by 16.4% increase compared to the same month last year.
- 6.7 Stuart Pearson, COO at BCA UK, said: *“The used LCV market remains exceptionally competitive and average selling values at BCA have consistently outperformed guide price expectations throughout 2021. The strong market that we’ve experienced reflects the ongoing economic shift supported by consume-driven online activity plus the well-documented challenges with new LCV supplies. In addition, and as we anticipated, we have seen demand increase in the final weeks of the year to meet the needs of the hub delivery, courier and final mile home delivery sectors.”*
- 6.8 Matthew Davock, director of commercial vehicles at Cox Automotive, believes the wholesale performance of the past 12 months will never be witnessed again, but warns that the early part of next year, at least, looks to continue similar trends.
- 6.9 He said the market is likely to reposition itself when stock shortages are resolved halfway through 2022. According to Davock, *“the shortage in the supply of used Euro 6 vans and demand for vehicles that comply with emissions zones such as ULEZ, will*

²⁸ Ibid

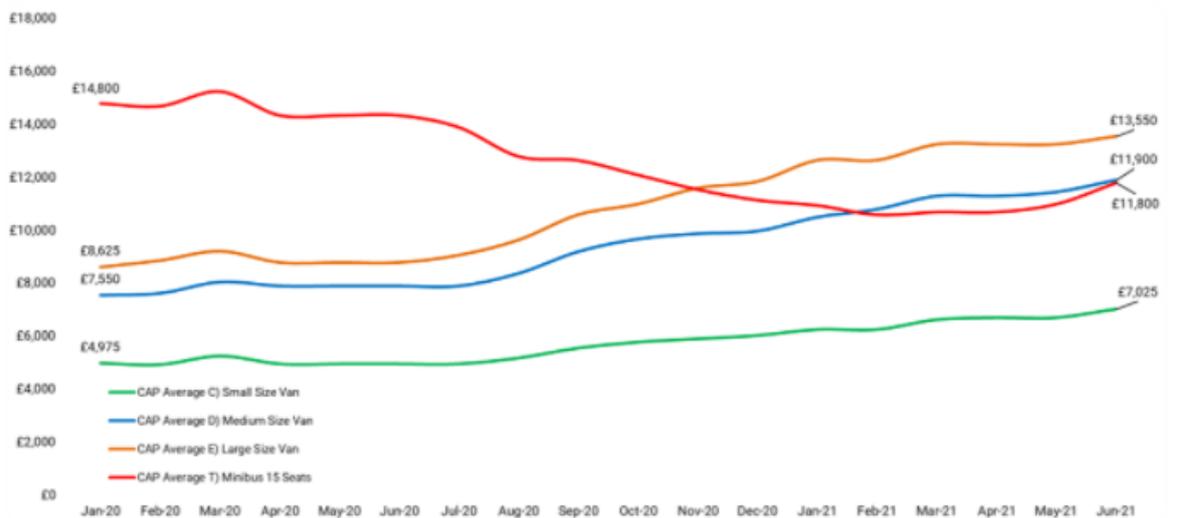
²⁹ Trading Economics Accessed 6th January 2022 <https://www.tradingeconomics.com/commodity/steel>

impact the market for the next few months at least, affecting wholesale stock dynamics for at least the next three years”.

- 6.10 Earlier in the year BCA reported that used van values remained stable in September, following a period of rapid growth, earlier in the year. That earlier growth was of the order of 25% based on a year on year comparison from September 2021.
- 6.11 The general picture is of considerable market volatility, most pronounced earlier in 2021 but still remaining to some extent as we enter 2022. Overall used light commercial vehicle price rises of at least 40% between the pre-pandemic market and late 2021 are not uncommon.
- 6.12 Commercial Fleet News reported in July 2021³⁰ reported significant increases in second-hand van prices including the example of a three-year-old medium-sized van, with 60,000 miles, being 58% higher at that time than it was at the start of 2020. The same report included data, from Cap HPI (the vehicle valuation company), which revealed that *“the typical medium van was worth £7,550 18 months ago, but is now achieving an average selling price of £11,900 – an increase of £4,350”*. The graphic from CAP HPI is reproduced as **Figure 6-1**.

Figure 6-1 Data from CAP HPI on Used Van Price Trends (as of July 2021)

Value for a typical 3year/60k vehicle 2020/2021- by sector



Solego | cap hpi
THE BUSINESS AUTOMOTIVE ACCOUNTANT

- 6.13 It should be noted that this reflects wholesale prices (which a dealer pays at places like auctions) as opposed to retail and therefore the dealer margin is not included. This data is collected by Cap HPI, which collects data on transactions in the automotive sector, recording each sale live as it is completed. Dealers are likely to pass on this increased cost to customers or chose to take a reduced margin. Alternatively, where demand is high and additional funding is available related to CAP scheme with associated deadlines, margins may be increased. There is therefore a difference in absolute value between this information and data elsewhere in this report.

³⁰ <https://www.commercialfleet.org/news/van-news/2021/07/05/used-van-values-up-50-in-18-months-despite-mileage-and-age-increasing>

- 6.14 A review of online adverts carried out in January 2022 shows the price of one of UK's most popular vans in 2022 was 13% higher in real terms (£19,495) than a model of the same age in early 2019 (£17,244).³¹ The values are presented in **Table 6-1**.
- 6.15 Specialist vans like dropsides, tippers and Lutons are achieving big values at auction due to the lack of availability on new conversions. Fleet managers are also reporting that they are running vans for longer, with 6-9 month extensions on leases or hiring additional rental vans rather than replacing them.³²

Table 6-1 Example change in second-hand van prices between 2019 and 2022

Type	Manufacture Year	Sold Year	Age	Mileage	Price	Increase by
Ford Transit Custom	2016	2019	3	50,000	£17,244	-
Ford Transit Custom	2018	2022	3	50,000	£19,495	13%

Source: Autotrader UK

³¹ <https://www.carpricetracker.com/car/239343/Ford+Transit+Custom+2.2+TDCi+290+L1H1+Limited+Double+Cab-in-Van+6dr>

³² Automotive Management Accessed 4th January 2022 <https://www.am-online.com/news/market-insight/2021/10/15/supply-shortages-creating-perfect-storm-for-van-sector>

7. Impact of supply constraints and price rises on the GM CAP

Compliance in the shortest possible time

- 7.1 Modelling carried out to support the decision to approve the GM CAP, carried out in June 2021, demonstrated that the 2021 GM CAP was forecast to achieve compliance with legal limits of NO₂ concentrations by 2024, as per the Ministerial Direction, based on the proposals set out in the previous Policy³³ and the assumptions made at that time in terms of the age of the fleet and the cost of upgrade amongst other factors³⁴.
- 7.2 Sensitivity testing has been carried out to better understand the possible impact of uncertainty in the appraisal of the GM CAP. In particular, the aim is to understand whether variations in the assumptions underpinning the modelling, or the modelling methodology, would lead to a different decision or outcome, or conversely to provide additional confidence in the conclusions.
- 7.3 The evidence set out in this report has implications for two aspects of the sensitivity testing. Firstly, in terms of the rate of business-as-usual upgrades and the age of the fleet in the 'Do Minimum' scenario (in other words, how old the vehicle fleet would be without any action being taken by policy makers). Secondly, in terms of the impact of changes to the cost of upgrade on how vehicle owners may respond to the measures introduced by the GM CAP.

Rate of upgrade and the age of the fleet

- 7.4 The Do Minimum fleet mix as modelled at Consultation (January 2021) assumed a normal pattern of vehicle upgrades, including the purchase of new vehicles, trading of second-hand vehicles and the scrapping of the oldest vehicles from the fleet.
- 7.5 However, GM's analysis suggested that the impacts of the Covid 19 pandemic included:
- Reduction in the number of new vehicles manufactured due to lockdowns;
 - Delay in transactions due to lockdown constraints;
 - Reduction in vehicle upgrades due to direct economic impact of lockdown or wider recessionary impacts, or because vehicles are not being used as heavily as before; and therefore
 - The oldest vehicles remaining in the fleet for longer.
- 7.6 Analysis showed that these impacts vary between different vehicle types and business sectors with some more affected than others.
- 7.7 As a result, adjustments were made to the car, van and taxi fleets to reflect the emerging evidence that the normal pattern of vehicle upgrades has been affected for those fleets³⁵.

³³ [Appendix 1 - GM Clean Air Plan Policy following Consultation \(ctfassets.net\)](#)

³⁴ [DRAFT GM CAP Post-Covid Post-Consultation AQ Modelling Summary Report v1 \(ctfassets.net\)](#)

³⁵ [Air Quality Modelling Summary Report Appendix D \(ctfassets.net\)](#)

- 7.8 While the recent evidence has been used to create reasonable adjustments, uncertainty remained as to whether sales will ‘catch up’ to their pre-pandemic trajectory or indeed continue to remain below previously assumed levels as a result of the pandemic or other factors and therefore sensitivity testing relating to fleet age assumptions was carried out as follows:
- **Fleet is older than modelled:** HGV, vans and private cars all assumed to be one year older than pre-Covid Do Minimum, taxi to be two years older, no change assumed to Bus. This test showed increased concentrations sufficient to delay the year of compliance. The roads outside of the inner ring road are more sensitive to this test, because car and van emissions are more prevalent compared to buses. However, it is considered unlikely that the fleet age would be as old as this test assumes, given that changes have already been applied to the core to reflect Covid-19 related delays in vehicle upgrades. The most recent data from SMMT suggests that whilst vehicle sales have not caught up with pre-pandemic conditions, van and car sales have not been delayed to the extent of a full year.
 - **Fleet is as per the pre-Covid Do Minimum** (the Consultation Option Do Minimum) as Covid-related changes prove to be transitory and fleet quickly reverts to trend, with the fleet tested as assumed in the Consultation Option Do Minimum. This test produced a reduction in concentrations, but with exceedances remaining in 2023 and therefore would not affect the decision to proceed with the GM CAP but demonstrates that there could be greater certainty of achieving compliance as forecast if vehicle sales recovered to their pre-pandemic position.
- 7.9 GM has used the national SMMT vehicle registrations to assess fleet impacts. The latest data on van registrations to end 2021 suggests that the assumptions with regards to vans remain valid, but given the supply and demand issues set out above, GM will need to keep the evidence under urgent review.
- 7.10 Monitoring of the on-road fleet will be undertaken throughout the lifetime of the GM CAP using ANPR data and can be compared with the quarterly/annual SMMT releases to assess whether the GM CAP is likely to be affected by changes to purchasing patterns other than those forecast.

Price of upgrade and behavioural responses to the GM CAP

- 7.11 In summer 2021, GM was concerned that prices could increase as a result of constraints in the availability of compliant vehicles, as set out above, or due to increased demand arising from sustained behavioural changes post-pandemic. For example, GM was aware that the rise in internet shopping during the initial lockdown periods led to increased demand for vans, with anecdotal evidence that vans temporarily released by construction firms were re-purposed for deliveries during lockdown. In summer 2021, GM noted that a sustained increase in van demand could place pressure on the van market and that media reports were suggesting that the price of second-hand vans may be rising. Since then, the evidence of price rises resulting from supply not being able to keep up with demand has strengthened, as set out in this report.
- 7.12 Sensitivity testing carried out in 2021 suggested that whilst HGV behavioural responses are relatively insensitive to vehicle price increases, for vans an increase of

8% in the price of vehicles (compared to the price as assumed in the modelling) could be sufficient to delay compliance by one year, all other things being equal.

- 7.13 This is because if van prices rise, more van owners are expected to stay-and-pay rather than upgrade their vehicle, and therefore the emissions reductions would be less than previously forecast.
- 7.14 The evidence suggests that currently price rises in excess of 8% are being experienced in the van market and therefore that, if these price rises were to be sustained to 2023, and all other things being equal, GM could face an increased risk in terms of achieving compliance by 2024.

Socio-economic impacts on vehicle owners

- 7.15 If, by June 2023, van owners have been unable to access an affordable compliant vehicle, they may reconsider how to respond to the scheme.
- 7.16 Van drivers/owners may look to pass the charge onto customers and keep their non-compliant vehicle. As discussed, the demand for those working in the construction/home improvement sector (tradespeople) in particular means that there are often long lead times for work to commence as skills gaps emerge and the price of materials rises.³⁶ In the context of higher prices and long waiting times, customers may be more willing to accept these charges, which are likely to represent a small proportion of the overall cost of the work. Those charging lower rates or in more competitive markets will be less able to pass on the cost to their customers. If realized, the impacts of this would be a reduction in the environmental benefits of the GM CAP and increased costs for consumers.
- 7.17 Vans in certain sectors often have low load factors (e.g. operate without a full load) and as such it is feasible that van drivers may switch to larger passenger cars, particularly estate or Multi-Purpose Vehicle (MPVs such as a Ford Galaxy) cars. Some parcel company business models have drivers using their own vehicles, usually cars and it is not uncommon for tradespeople to use larger estate cars if it suits their required tasks. As cars are not subject to any charges associated with GM CAP, this approach may become more attractive. Depending on the type of cars that businesses and drivers transition to (and their availability), this could reduce the environmental benefits of the scheme.
- 7.18 The Funding policy is designed to support the smallest businesses, sole traders and private owners to upgrade their vehicle. However, in the worst-case scenario, if van owners cannot afford to upgrade their vehicle even with the funding available, and are not able to pass on the cost of upgrade to their customers, they may cease trading or leave the region.
- 7.19 The impacts of the pandemic and Britain leaving the EU have not been experienced equally across business sectors, with some experiencing major disruptions, costs and loss of business whilst others have been able to benefit from new opportunities created by new ways of working and living. GM's evidence already suggested that a number of vehicle owners were at risk of being placed in hardship as a result of the scheme and it is clear that rising vehicle prices risks worsening that position. However, better evidence is needed to understand the possible nature and extent of such impacts, and who is most at risk.

³⁶ PBC Today Accessed 5th January 2022 <https://www.pbctoday.co.uk/news/training-construction-news/builders-delays/100980/>

8. Summary and Recommendations

Summary of current conditions in the van market

- 8.1 Pre-pandemic, there was significant growth in van mileage and van stock over a number of years and the expectation was that both growth trends would continue.
- 8.2 However, whilst the early phases of the pandemic and subsequent lockdowns and constraints in 2020 constrained demand, it appears that this effect was temporary and has been offset by growth in demand from some van-owning sectors.
- 8.3 The pandemic had a major impact on the number of new vans sold in the UK, initially due to the halting of production lines and local lockdowns around the world.
- 8.4 Whilst new van sales recovered to some extent, they are still not back to 2019 levels and so there is a substantial 'lost supply' that has not been recovered equating to 80,000 vehicles on a conservative assumption that 2019 levels had been maintained.
- 8.5 The global semiconductor shortage has also impacted the automotive industry and its effects are ongoing.
- 8.6 The industry is reporting significant supply issues with extended lead times for new orders.
- 8.7 It is anticipated that the introduction of clean air zones at particular locations in the UK will introduce some regional disparity in terms of the availability of certain vehicles and place additional demand pressure on the market in general.
- 8.8 Reliable data on the variation in the price of new vans as a consequence of the supply side issues discussed in Chapter 4 is not available.
- 8.9 There is substantial evidence of significant price increases in the second-hand van market – the scale of those rises has a high degree of variability depending on the particular vehicle. The extent of the reported rise varies between 13% and almost 60%.
- 8.10 Overall, the evidence suggests that demand for new and second-hand vans remains strong, and therefore that the loss of supply caused by lockdowns in 2020 and more recently by the semi-conductor shortage is leading to price rises in the new and second-hand markets, and to long lead times for new vehicle orders.

Recommendations

- 8.11 Whilst there is strong evidence relating to the supply of new vans, there is less insight into the full extent of demand beyond the evidence of rising prices. A better understanding of demand would provide insight into the extent of the shortfall in the market. Further consultation with manufacturers, traders and van owners would be informative.
- 8.12 There is a lack of robust national data on second-hand van transactions which is important in the context of forecasting and monitoring the impacts of the various clean air zones around the country. This data should be made available by Government.

- 8.13 There is a lack of robust national data about vehicle prices; this needs to be addressed by Government.
- 8.14 In addition, it is unclear as to how those affected will respond to the changing circumstances. Research was undertaken with van owners in 2019, followed by consultation activity in 2020, prior to issues described in this note becoming as pronounced as they are at present. Previous assumptions may need to be revisited, which would require engagement with those who operate non-compliant vans.
- 8.15 It appears that supply constraints and price increases may be more severe for those operating more unusual or specialist vehicles. More research and analysis is required to better understand the types of specialist vehicle operating in the LGV market and how these are being affected by current market circumstances.
- 8.16 It is apparent that there is strong demand for vans and that high prices are currently being tolerated without reducing demand for vehicles. This suggests that some sectors may be experiencing growth and stronger economic conditions. Nevertheless, it is also clear from previous evidence that rising prices will mean that, for some, it is increasingly unaffordable to upgrade their vehicle. Therefore, more work is required to better understand market conditions by van-owning sector, and to reassess how vulnerable different groups are to the impacts of the GM CAP.
- 8.17 In particular, GM and Government could consider revisiting analysis carried out previously on the socio-economic impacts of the GM CAP and also review any potential equalities issues that may emerge from changing market conditions.

Appendix A – List of Documents

This Appendix provides a list of documents and data sources used to inform this report

Document Title	Date	Description	Relevance to GM CAP
Chapter 1			
Mayor of Greater Manchester writes to Government reiterating call for non-charging Clean Air Zone	May 2022	Announcement, provide background on current status of GM CAP https://www.greatermanchester-ca.gov.uk/news/mayor-of-greater-manchester-writes-to-government-reiterating-city-region-s-call-for-non-charging-clean-air-plan/	Current Status of GM CAP
GM CAP Technical Documents (various)	various	All available at Technical Documents Clean Air Greater Manchester (cleanairgm.com) https://cleanairgm.com/technical-documents/	Published Technical Reports for GM CAP
Technical Note 3: Analysis of the Freight Market	July 2019	Describes the number of HGVs operating in GM, the compliance status of those vehicles, and the business and usage patterns of those vehicles. https://cleanairgm.com/technical-documents/	Background on Freight Sector
Technical Note 12: Evidence of the Impact of a 2021 Implementation of a CAZ C (Without exemptions)	July 2019	Describes analysis carried out by GM to assess the risks of implementing a CAZ C in 2021 without also implementing a two-year sunset period as was proposed in the OBC. https://cleanairgm.com/technical-documents/	analysis of vulnerability by sector, based on the proportion of the fleet that would be non-compliant
Technical Note 20: GM Specialist Goods Survey Results Summary	Aug 2019	Sets out the results of on-street surveys carried out at three sites identified in the local exceedances study where freight was a significant contributor of emissions. The surveys provide estimates of vehicle volumes by size, compliance status and industry. https://cleanairgm.com/technical-documents/	Reviews the composition of the freight vehicles operating at specific location in GM
T4 Appendix A (Modelling for Consultation)	Jan 2020	Discusses the modelling tools used to assess the impacts of GM CAP https://cleanairgm.com/technical-documents/	Modelling tools used to assess impacts of GM CAP
Deliberative Research	Nov 2019	Research was carried out with vehicle owners potentially in scope for the scheme, including deliberative research and surveys of van owners https://cleanairgm.com/technical-documents/	Understanding the vans sector and views of van owners
GM CAP Impacts of COVID-19 Report	June 2021	Considers the impacts of the pandemic on GM and reviews the potential and actual impacts of COVID-19 on the GM CAP. https://cleanairgm.com/technical-documents/	Review of impacts of COVID-19, including impacts on vans

Chapter 2			
Percentage change in online purchases due to the coronavirus (COVID-19) pandemic	Jan 2022	Percentage change in online purchases due to the coronavirus (COVID-19) pandemic in the United Kingdom from March 2020 to February 2021 https://www.statista.com/statistics/1230225/changes-in-online-buying-among-uk-consumers-since-covid-19/	Linked to vans activities for certain sectors
Light Commercial Vehicles Delivering for the UK Economy	2019	Background on Light Commercial Vehicles Sector https://www.smmmt.co.uk/wp-content/uploads/sites/2/SMMT-Light-Commercial-Vehicles-Delivering-for-the-UK-economy.pdf	Provides background details of the vans sector (Pre-Covid-19)
T4 Appendix C – Vehicle Populations	2021	Provides details of vehicle proportions impacted by GM CAP (NB: Current version not published – TN37, link below provides previous version of this note) https://cleanairgm.com/technical-documents/	Details of vans vehicle proportions (compliant / non-compliant splits)
GMP ANPR Data	2019 / 2020 / 2021	Greater Manchester Police – ANPR camera data, reviewed to understand the composition of the vans fleet, including age profile of the fleet (Raw Data not published)	Understand composition of the vans fleet (e.g. fleet age distribution)
Chapter 3			
Vans Sales data (SMMT)	Various	Sales data as reported by Society of Motor Manufacturers and Traders (SMMT) https://www.smmmt.co.uk/vehicle-data/lcv-registrations/	Vans sales data
Vans Statistics	Apr 2021	DfT Statistical Release 15 April 2021, Final Van Statistics April 2019March2020 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065072/van-statistics-2019-to-2020.pdf	Vans Statistics
Chapter 4			
Self Employment Stats (ONS)	Feb 2022	Trends in Self-Employment in the UK Office for National Statistics https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2018-02-07	To understand business types for van ownership
Booming home delivery and construction fuel demand for vans	Aug 2021	Motor Trader review of market sectors https://www.motortrader.com/motor-trader-news/automotive-news/booming-home-delivery-construction-fuel-demand-vans-auction-25-08-2021	Understand impacts of COVID on Vans sectors
Why electric van sales are set to soar	Mar 2021	Review of position of electric vehicle take up https://www.fleeteurope.com/en/last-mile/europe/analysis/why-electric-van-sales-are-set-soar?a=JMA06&t%5B0%5D=e-LCV&t%5B1%5D=Dataforce&t%5B2%5D=Arrival&t%5B3%5D=EV100&t%5B4%5D=Renault&t%5B5%5D=Nissan&t%5B6%5D=Mercedes-Benz%20Vans&curl=1	Understand likely EV uptake on vans sector
SMMT Car Sales data	Various	Review of ongoing changes in vehicle sales data. Covers other modes than car	Reviewing trends of

		https://www.smmmt.co.uk/category/vehicle-data/used-car-sales-data/	vehicle registrations / sales
Chapter 5			
Baker McKenzie	Jan 2022	https://www.bakermckenzie.com/en/newsroom/2020/04/global-supply-chains-under-huge-pressure-covid-19	Impacts of the pandemic on supply chains
LCV Registrations	Various	https://www.smmmt.co.uk/vehicle-data/lcv-registrations/	Changing fleet profile over time
Coping with the auto-semiconductor shortage: Strategies for success	May 2021	https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/coping-with-the-auto-semiconductor-shortage-strategies-for-success	Research
Latest updates as semiconductor chip crisis cripples industry	Feb 2022	https://www.autocar.co.uk/car-news/business-tech%2C-development-and-manufacturing/latest-updates-semiconductor-chip-crisis	Research
Used values to rise as semiconductor crisis hits new van production	Apr 2021	https://www.commercialfleet.org/news/van-news/2021/04/28/used-lcv-prices-to-rise-as-semiconductor-supply-crisis-hits-new-van-production	Research
Chapter 6			
Steel Prices	Various	Changing Price of Steel – impacts on supply chains https://tradingeconomics.com/commodity/steel	Research
LCV Market Statement	2021	BCA – Statements Stuart Pearson, COO at BCA UK www.bca.co.uk	Research
LCV Market Statement	2021	Cox Automotive Statement - Matthew Davock, director of commercial vehicles	Research
Changes in Van Prices	2021	Changing van prices provided by CAP HPI https://www.cap-hpi.com/	Research – Vehicle prices
Used van values up 50% in 18 months despite mileage and age increasing	Jul 2021	https://www.commercialfleet.org/news/van-news/2021/07/05/used-van-values-up-50-in-18-months-despite-mileage-and-age-increasing	Research
Used Van Prices	2019 / 2022	https://www.autotrader.co.uk/	Research – Vehicle prices
Van Prices	Various	https://www.carpricetracker.com/car/239343/Ford+Transit+Cus+tom+2.2+TDCi+290+L1H1+Limited+Double+Cab-in-Van+6dr	Research – Vehicle prices
Supply shortages creating 'perfect storm' for van sector	Oct 2021	https://www.am-online.com/news/market-insight/2021/10/15/supply-shortages-creating-perfect-storm-for-van-sector	Research

Chapter 7			
Appendix 1 - GM Clean Air Plan Policy following Consultation	2021	https://cleanairgm.com/technical-documents/	GM CAP Technical Report
DRAFT GM CAP Post-Covid Post-Consultation AQ Modelling Summary Report v1	2021	https://cleanairgm.com/technical-documents/	GM CAP Technical Report
Air Quality Modelling Summary Report Appendix D	2021	https://cleanairgm.com/technical-documents/	GM CAP Technical Report
89% of builders face job delays as shortages continue	Oct 2021	https://www.pbctoday.co.uk/news/planning-construction-news/builders-delays/100980/	Research
Chapter 8			
		(No new Sources in Chapter 8)	
Appendix A			
		(No new Sources in Appendix A)	
Appendix B			
Coronavirus (COVID-19) UK Government Dashboard	Oct 2020	https://coronavirus.data.gov.uk/	Background of Covid Timeline
“Greater Manchester’s COVID-19 Management Plan: how we control outbreaks”	2022	https://greatermanchester-ca.gov.uk/coronavirus/COVID-19-management-plan/	Background of Covid Timeline
“Prime Minister announces new local COVID Alert Levels”	Oct 2020	https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels	Background of Covid Timeline
TfGM’s C2 Database	various	Traffic flow data was extracted and analysed from TfGM’s C2 Database https://tfgmc2.drakewell.com/multinodemap.asp	Information on local traffic impacts
“Budget 2021: Fuel duty rise axed as petrol prices hit record highs”	Oct 2021	Fuel Prices Increase: https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-axed-petrol-prices-record-highs-b962832.html	Information on Economic Related Impacts

"GDP monthly estimate, UK : December 2021"	Dec 2021	GDP information https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021	Information on Economic Related Impacts
"Average weekly earnings in Great Britain: February 2022"	Dec 2021	Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022	Information on Economic Related Impacts
"UK economy latest"	Dec 2022	Information on Goods import and exports https://www.ons.gov.uk/economy/economicoutputandproductivity/output/articles/ukeconomylatest/2021-01-25#output	Information on Economic Related Impacts
"Cities Outlook 2022"	Jan 2022	Change in pub and restaurant sales in City Centres and Suburbs. Weekday footfall in Birmingham, Manchester and London https://www.centreforcities.org/wp-content/uploads/2022/01/Cities-Outlook-2022-2.pdf	Information on Economic Related Impacts

Appendix B – Review of COVID Impacts

Overview

B.1 Travel behaviour and the economy have been impacted by the COVID-19 pandemic and have resulted in changes in the way that people travel and the way businesses operate. In this chapter we will assess some of the key data findings found throughout the period to better understand the levels of impact on transport and travel generally.

COVID Timeline

- B.2 In January 2020, COVID-19 first appeared in the UK. By 30th November 2020, there were an estimated total of 1.6 million people testing positive to the virus in the UK with 58,24537 cases resulting in deaths.³⁸
- B.3 As stated within the GMCA COVID-19 Management Plan Executive Summary, GM had more than 16,000 confirmed cases and nearly 2,800 people died during the first four months of the COVID-19 pandemic.³⁹
- B.4 In Summer 2020, North West England was one of the worst affected areas by the pandemic with GM placed under additional restrictions on 31st July 2020. Throughout 2020, GM continued to experience a disproportionate impact to the rest of the UK from these additional restrictions, such as the three-tier system for lockdowns across England. This three-tiered system was first announced by the Government in October 2020 to ‘*simplify and standardise local rules*’.⁴⁰
- B.5 On 5th November 2020, the Government imposed a second national lockdown with restrictions on continued business activity in England. These restrictions were in place between 5th November and 2nd December 2020, followed by a return to 3 Tier system restrictions.
- B.6 On 19th December 2020 the Government introduced an additional 4th Tier, with lockdown measures beginning in London and the South East, after having identified the Alpha (Kent) variant, coming into effect on 21st December 2020 until a third nationwide lockdown was re-introduced on 6th January 2021.
- B.7 March 2021 saw Step 1 of the Government’s roadmap being introduced, with schools reopening and outdoor gatherings being allowed with the proviso of staying local. April 2021 saw Step 2 of the roadmap allowing limited indoor contact, businesses such as hairdressers to reopen and outdoor hospitality. Step 3 came into effect in May 2021, allowing indoor meetings limited to 6 people and 10,000 people for large sport stadiums. Step 4, on 19th July 2021, saw the remaining venues such as nightclubs reopen, and the removal of most other restrictions.
- B.8 With the discovery of the Omicron variant, Plan B measures (face coverings indoors and use of Covid Passes at specific settings such as nightclubs), which

³⁷ UK deaths is based on deaths within 28 days of a positive test and does not include excessive deaths.

³⁸ Coronavirus (COVID-19) UK Government Dashboard <https://coronavirus.data.gov.uk/> (accessed 01/10/20)

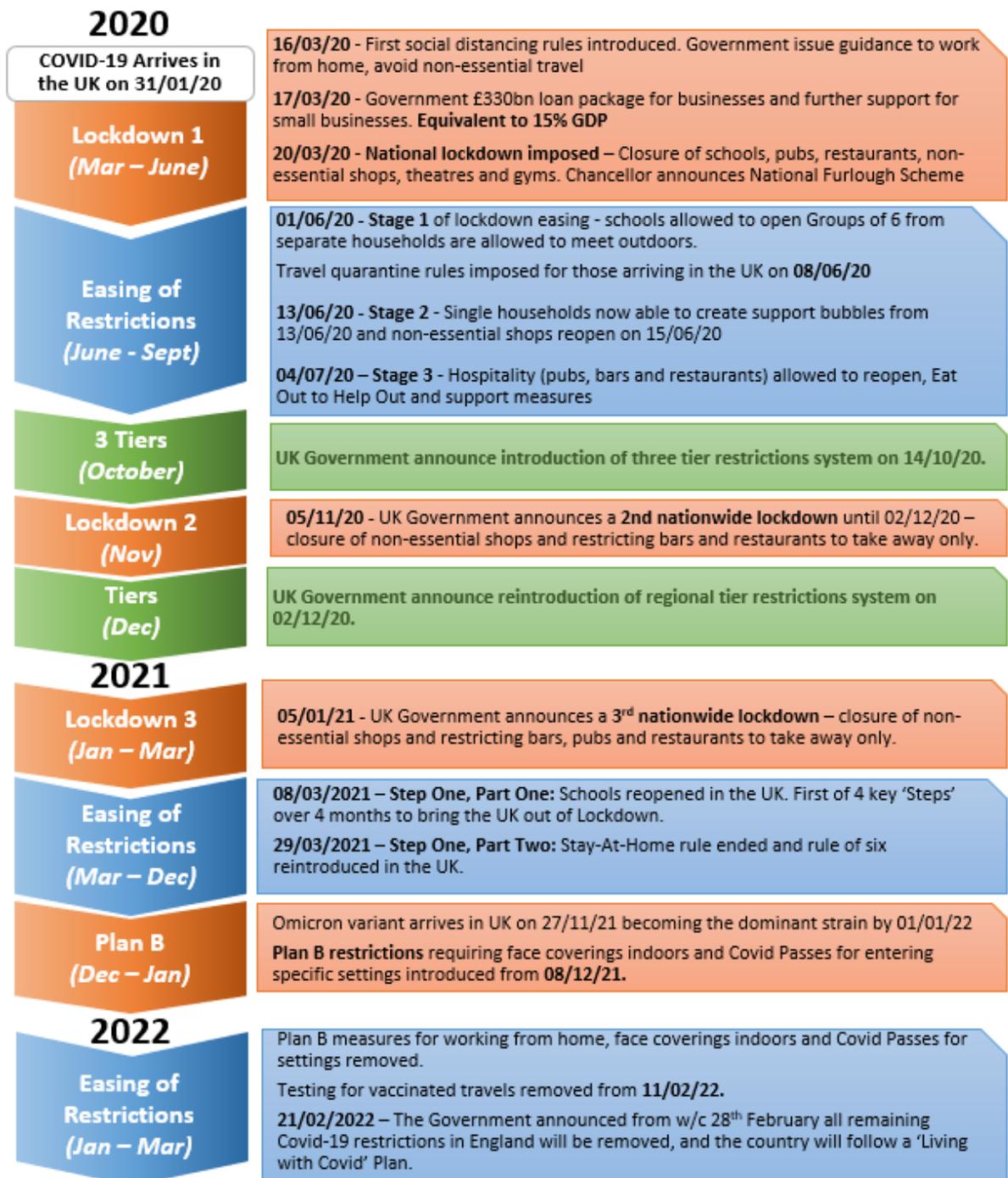
³⁹ COVID-19 Management Plan – Executive Summary (GMCA) <https://greatermanchester-ca.gov.uk/coronavirus/COVID-19-management-plan/>

⁴⁰ Prime Minister announces new local Covid Alert Levels - <https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels>

also recommended working from home where possible, were implemented from 8th December 2021 to 27th January 2022.

B.9 A summary of the key COVID-19 events and Government responses has been captured in **Figure B-1**.

Figure B-1 COVID-19 Timeline January 2020 to March 2022



B.10 The COVID-19 pandemic has had a transformative global impact to health, businesses, the economy, and way we live and interact with one another.

B.11 At the time of the production of this note in March 2022, the UK appears to be exiting the pandemic. Case numbers are stabilising, death and in-patient numbers

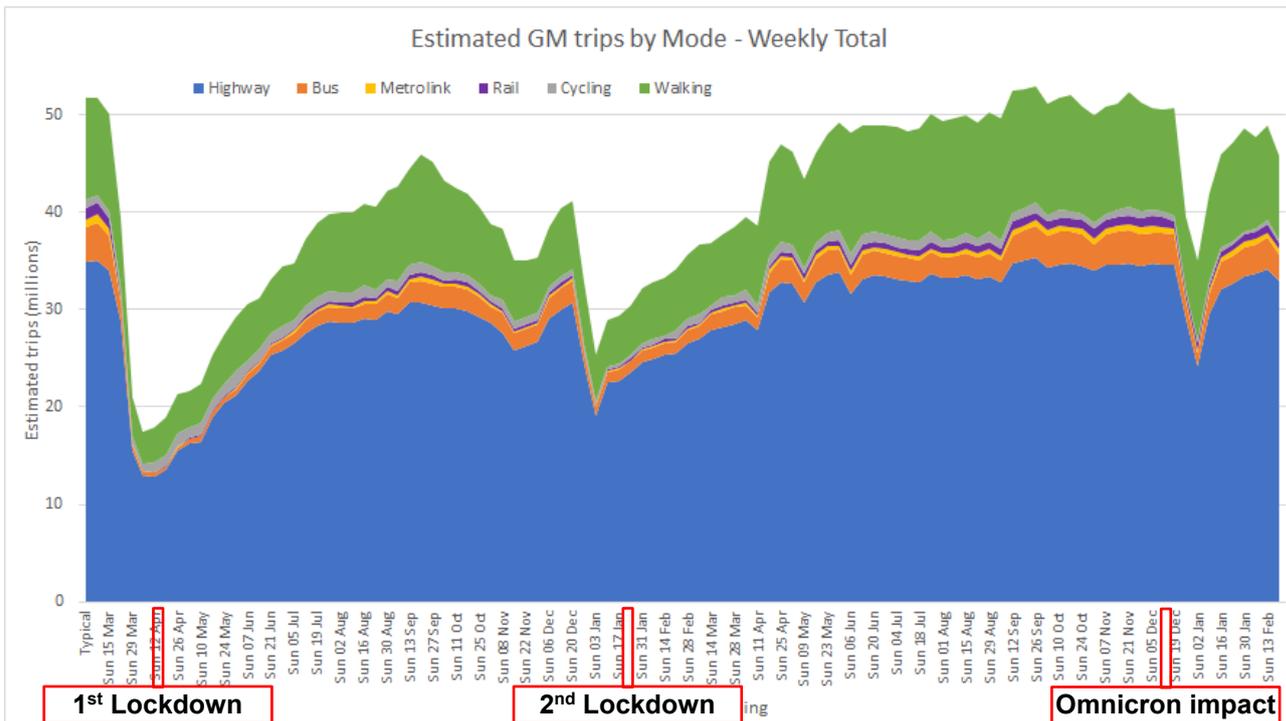
remain low, reflecting the positive impact of a successful vaccine programme rollout.

- B.12 However, emerging evidence gathered over the course of 2020 and 2021 has shown that there have been substantial changes to the economy, travel patterns and our behaviours. These changes have been driven by Government policy in the short term, however some of the behaviours adopted during Government lockdowns may continue as restrictions ease. In addition to this, economic impacts following the recent easing of restrictions have resulted in impacts which can be seen locally, nationally and globally within the economy.

COVID-19 Impacts on Travel Behaviour

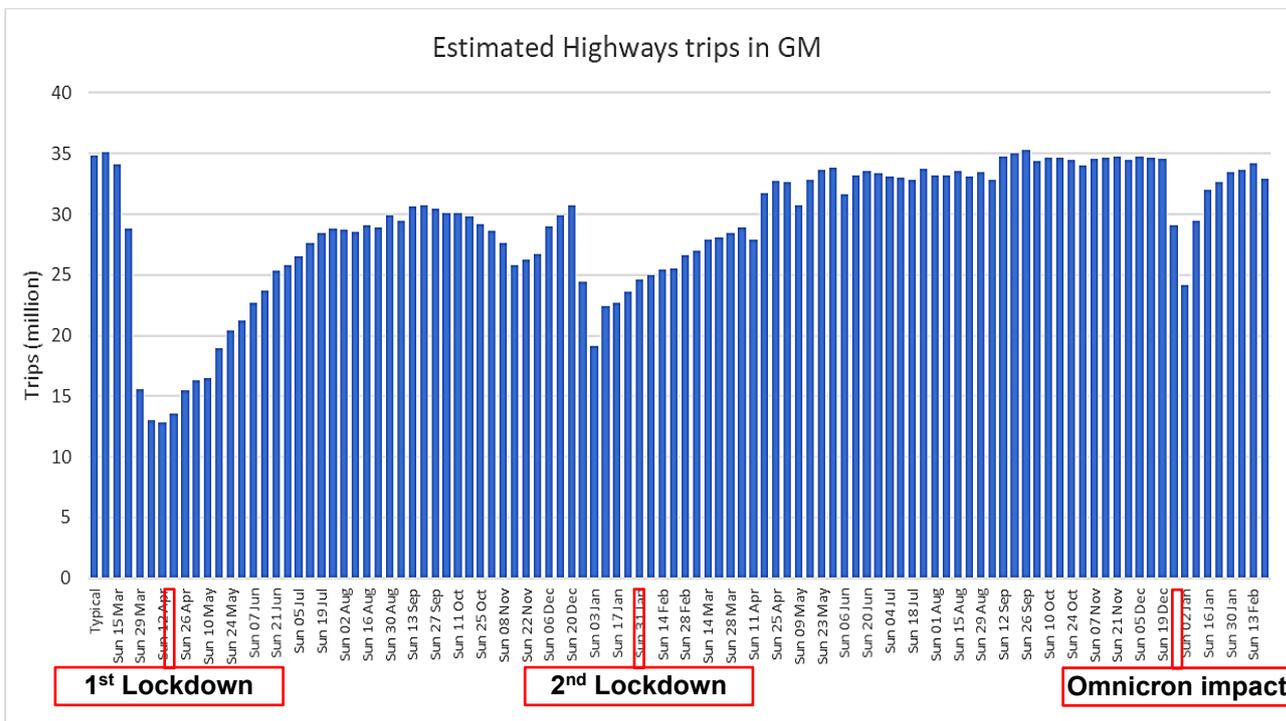
- B.13 Detailed analysis has been undertaken on the impacts of COVID-19 on travel demand within GM to compare 'pre-pandemic' and 'during pandemic' travel levels within GM.
- B.14 As shown in **Figure B-1**, there are a number of Government interventions which have had an impact on traffic levels (for all modes of transport). These include:
- Government guidance issued on 16th March 2020 to work from home 'where possible';
 - Closure of all UK schools to children, apart from those who have key worker guardians on 20th March 2020;
 - Closure of the hospitality and leisure sector on the 20th March 2020 including pubs, bars, restaurants, gyms, theatres etc.;
 - Re-opening of schools to all children in September 2020 alongside the UK Government encouraging workers to return to the office;
 - Implementation and extension of the Government Tiered restrictions;
 - Return to lockdown conditions on 5th November 2020, 2nd December 2020 and 6th January 2021; and
 - Hotel quarantine for travellers from high-risk countries.
- B.15 Since the beginning of the pandemic, travel patterns across the UK have significantly changed, driven by changing Government guidelines and the perception of transmission risks on certain forms of transport. An overview of the changing trends of travel behaviour by mode in Greater Manchester is provided in **Figure B-2** to **Figure B-6**; the data has been provided by TfGM. Three key dates have been flagged in each figure: the first and second national lockdowns plus the emergence of the Omicron variant.

Figure B-2 Overview of travel behaviour – All Modes



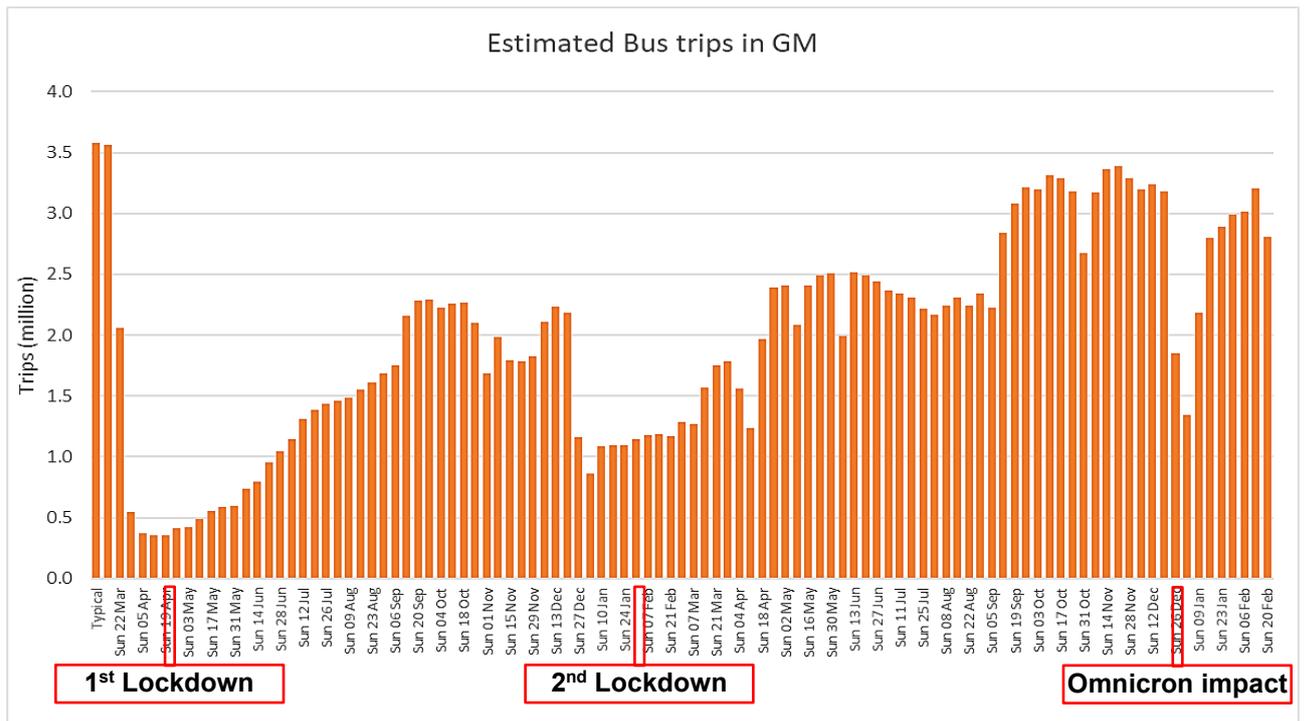
Source: TfGM

Figure B-3 Overview of travel behaviour – Highway



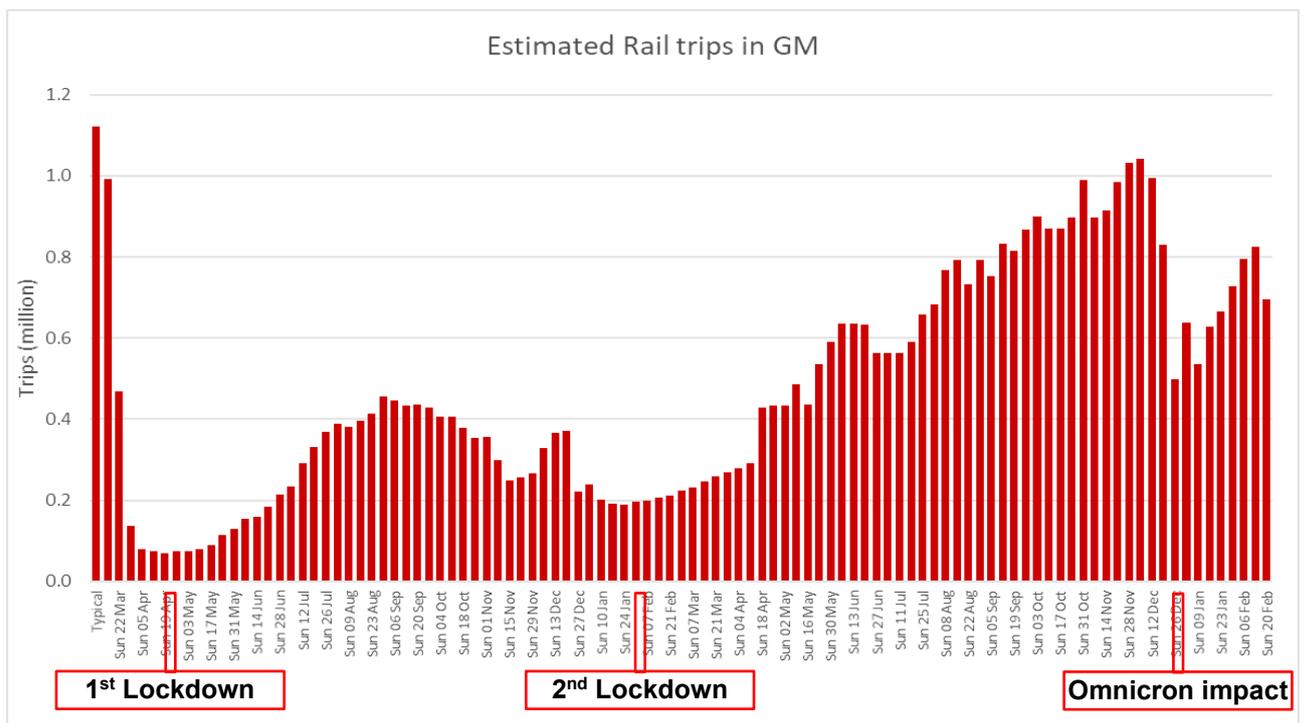
Source: TfGM

Figure B-4 Overview of travel behaviour – Bus



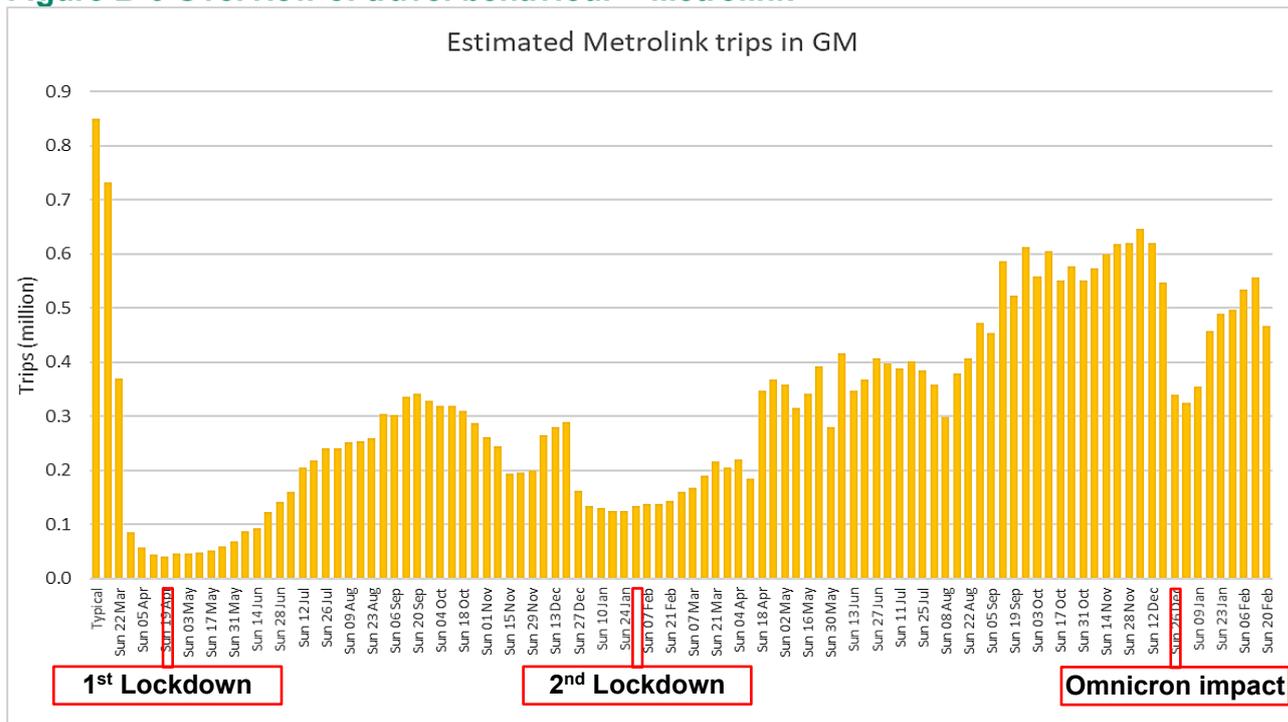
Source: TfGM

Figure B-5 Overview of travel behaviour – Rail



Source: TfGM

Figure B-6 Overview of travel behaviour – Metrolink



Source: TfGM

B.16 These figures illustrate that the impact of the pandemic has been pronounced and the extent to which pre-pandemic travel volumes have returned varies by mode. In summary, at the aggregate level across GM:

- Highway trips are close to pre-pandemic levels (approximately 95% of ‘typical’); and
- Public transport trip levels are between 60% and 75% of pre-pandemic / typical levels with bus performing more strongly than rail / Metrolink.

Local Traffic Impacts

B.17 Further analysis was undertaken regarding traffic flows on the local highway network, in order to understand the changing highway demand levels at various points through the pandemic. This has provided an insight into how the COVID-19 related travel guidance and changing behaviours because of the pandemic have impacted travel across GM.

B.18 This analysis has considered changing travel levels at a range of locations across Greater Manchester, to understand how traffic flows have changed on the following:

- Roads near to the Regional Centre;
- Key radial routes;
- Roads adjacent to local centres within GM; and
- Roads accessing centres of employment.

B.19 The analysis has considered several points in time, comparing:

- September 2019 (before the pandemic);

- September 2020 (during the pandemic);
- November 2021 (during pandemic – pre Omicron); and
- January 2022 (most recent, though impacted by Omicron variant).

B.20 Traffic flow data was extracted and analysed from TfGM's C2 Database⁴¹. These have been reviewed and presented for the 2-way hourly link volumes, by hour, at the following locations:

- Manchester Rd (A56) / 15m South of Ashlor St, Bury (ATC);
- Princess Rd (A5103) / 100m North of Bonsall St, Hulme, Manchester (ATC);
- Washway Rd (A56) / 40m North of Hunston Rd, Sale, Trafford (ATC);
- Bury New Rd (A56) / 90m North of Kingswood Rd, Prestwich, Bury (ATC); and
- Centenary Way (A576) / 160m North of Guinness Rd, Trafford Park, Trafford (ATC)

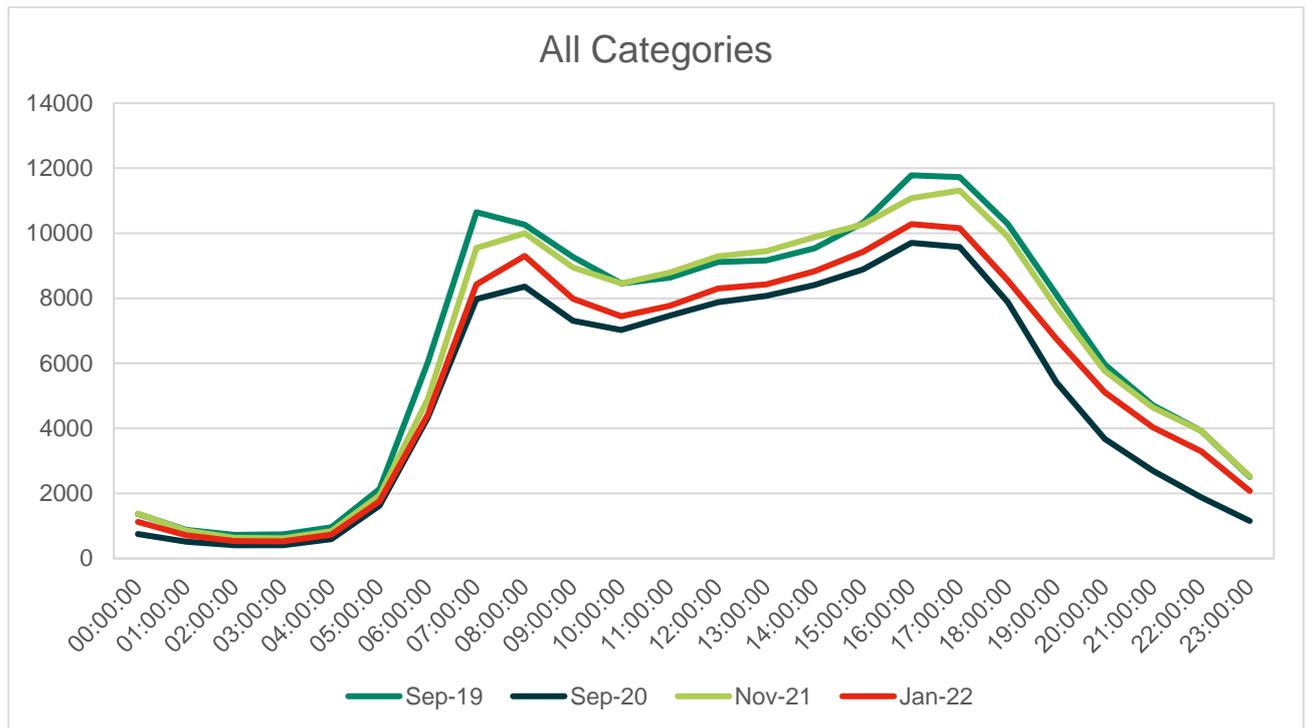
B.21 Using these specific locations around Greater Manchester the traffic behaviours at each location type can be assessed.

General Traffic Conditions

B.22 Averaging the sites identified above (see **Figure B-7**) suggests there has been a change in travel behaviour throughout the pandemic, noting the following key observations:

- The AM and PM peak periods have remained, although there is a dampening down effect on the peaks, with less variation between peak flows and interpeak flows, as the interpeak has continued to perform strongly.
- During late 2021, highway demand was almost back at pre-pandemic levels, there was then a noticeable drop again in demand as a result of the Omicron variant in December 2021.
- There has been some recovery during the peak periods, though they have not yet returned to pre pandemic levels.
- It is also noted that the earlier part of the AM peak is less strong than pre pandemic levels, with the AM peak now occurring 08:00 to 09:00, rather than 07:00 to 08:00 based on the sample of data sites.
- It also appears that the evening traffic (after 19:00) in 2022 is recovering at a slightly faster rate than the daytime traffic flows. This returned to pre-pandemic levels in November 2021 however, there has been a slight drop again in 2022, although it has been less impacted than other times of day. During the 2020 restrictions, the evening economy was significantly restricted by the COVID-19 restrictions in place at the time.

⁴¹ <https://tfgmc2.drakewell.com/multinodemap.asp>

Figure B-7 Change in traffic flow levels by time of day (all areas)

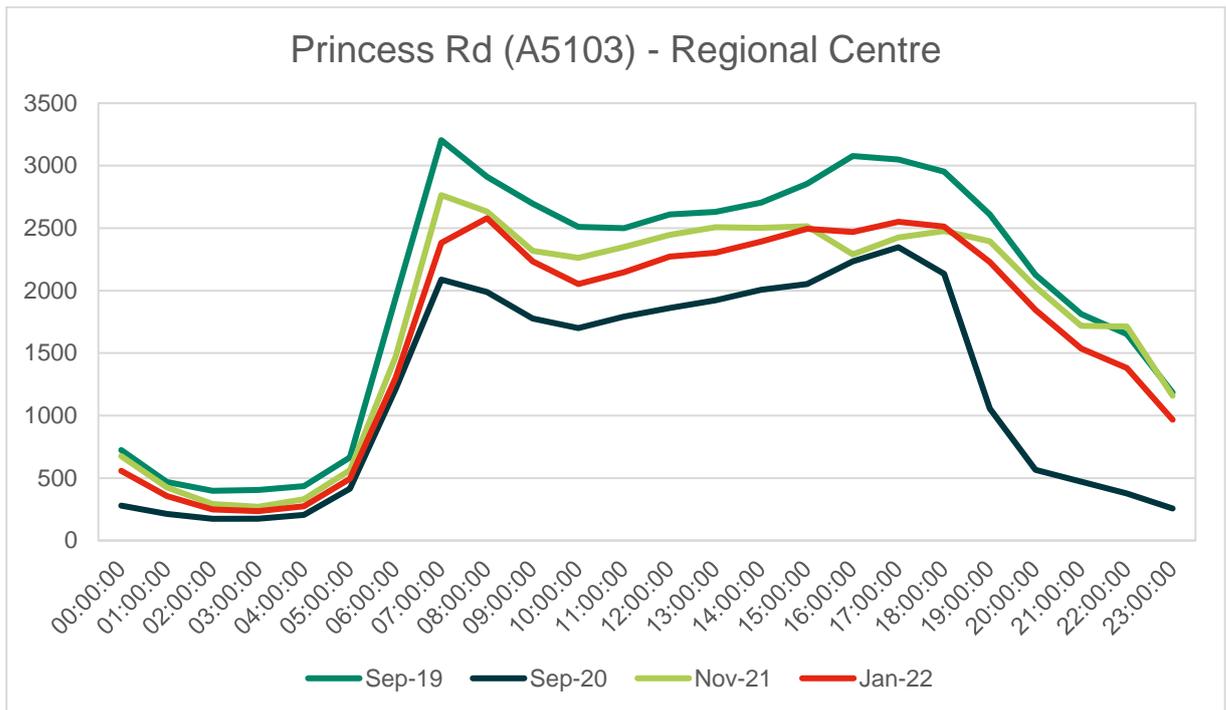
Source: TfGM C2 Database

Roads adjacent to the Regional Centre

B.23 Traffic flows adjacent to the Regional Centre have been significantly impacted throughout the pandemic (see **Figure B-8**). The following key trends have been identified:

- From the data assessed, the pandemic (and associated restrictions) appears to have had the greatest impact on regional centre flows, with the largest decrease in 2020 and the slowest recovery;
- The recovery of traffic flows in the peaks is still subdued, though traffic flows during the Omicron variant have been higher than in Autumn 2020, unlike what is seen at local centres;
- In 2020, COVID-19 restrictions had a considerable impact on demand for travel relating to the Regional Centre, with heavy restrictions placed on sectors such as leisure, tourism, and the night time economy. By November 2021, the easing of COVID restrictions resulted in a return of travel demand to the Regional Centre, showing considerable recovery at particular times of day, reaching close to 2019 levels. The 2022 travel demand to Mar-22 also showed a strong return of traffic during the evening periods, though the Omicron variant is likely to be keeping these slightly below pre-pandemic levels at present.
- The early part of the AM peak is now much weaker than prior to the pandemic, and the PM peak is less pronounced. In November 2021, traffic flows were slightly reduced from pre pandemic levels, with the PM peak most strongly impacted. In January 2022, the PM peak appears to be starting to recover, with a slightly later AM peak.

Figure B-8 Change in traffic flow levels by time of day (Regional Centre)

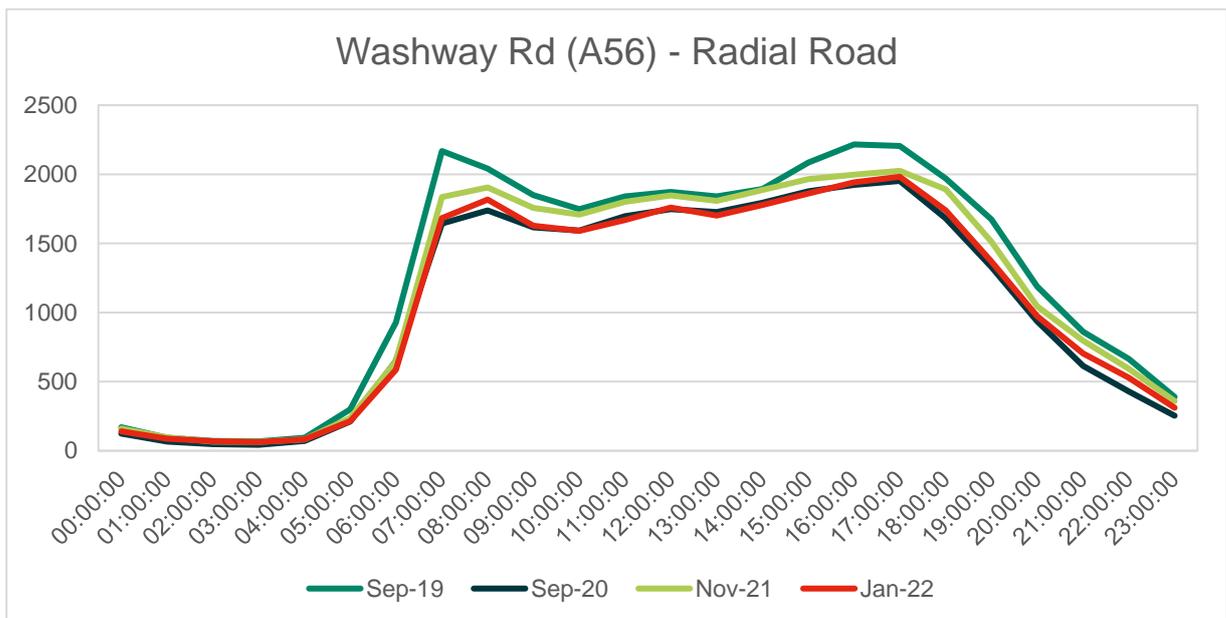


Source: TfGM C2 Database – Location N of Bonsall St, Hulme

Radial Roads

B.24 On Washway Road in Sale (see **Figure B-9**), its proximity close to the M60, and as a key radial route, has resulted in a high level of traffic demand at various points throughout the pandemic. The site is also close to the Local Centre of Sale. Demand has remained strong at the various points assessed although, as with most other locations, the peak periods are showing slightly lower demand in 2022.

Figure B-9 Change in traffic flow levels by time of day (Radial Roads Outside M60)

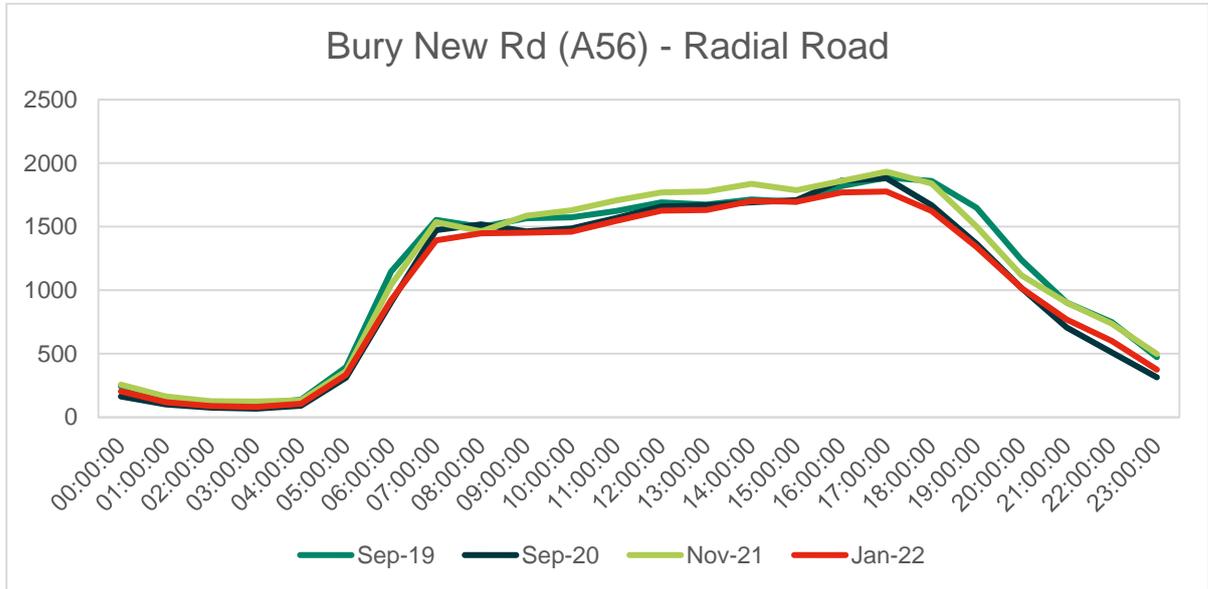


Source: TfGM C2 Database – Location adjacent to Sale Local Centre

B.25 Another key radial route north of the Regional Centre is Bury New Road (see **Figure B-10**). This site is also a key radial, though also serves local centres, such

as at Prestwich. This location has shown a strong recovery of travel behaviour with travel at certain times of day exceeding pre-pandemic levels, especially during the interpeak, both in autumn 2020, autumn 2021 and currently in 2022. The evening period has, however, shown a slower recovery.

Figure B-10 Change in traffic flow levels by time of day (Radial Roads Inside M60)

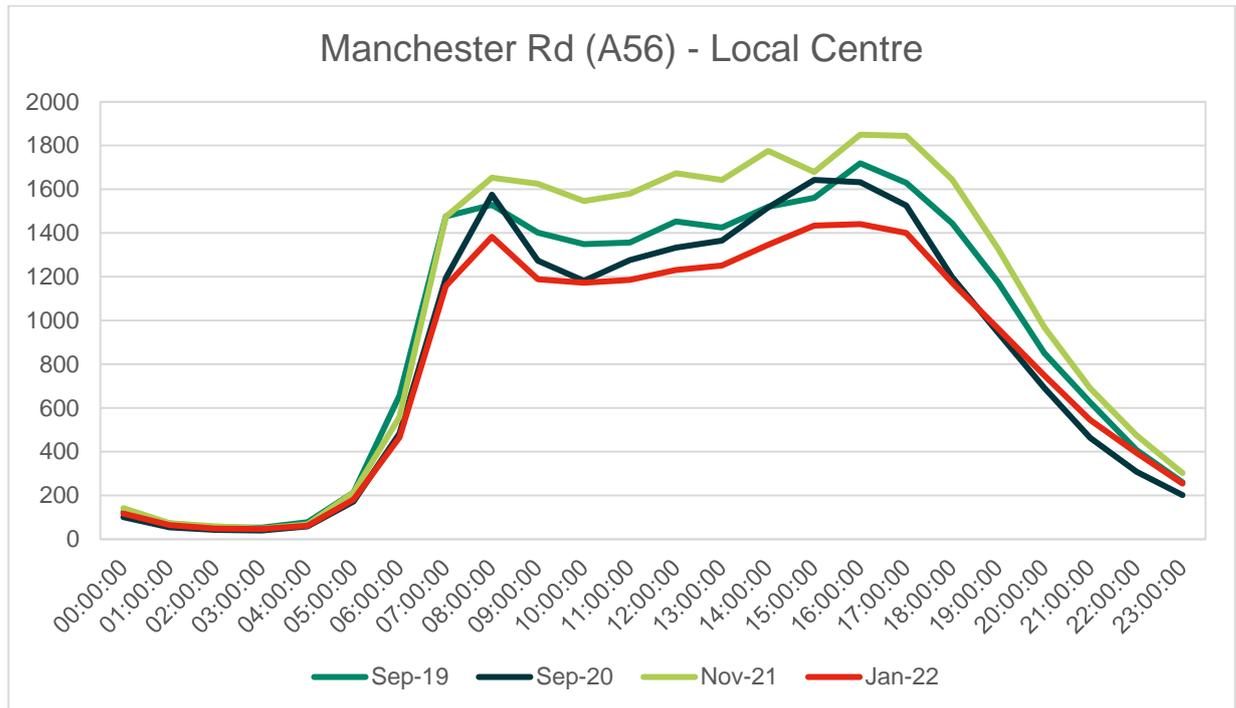


Source: TfGM C2 Database – Location N of Kingswood Rd, Prestwich (Near to M60 J17)

Local Centres

- B.26 Throughout the pandemic, as the UK Government eased travel guidance, travel demand in the vicinity of local centres, have bounced back strongly. **Figure B-11**, shows the A56 Manchester Road near Bury, which experienced a strong bounce back effect in Autumn 2020, when travel restrictions were eased. **Figure B-11** shows the later part of the AM peak and the early part of the PM peak exceeding pre pandemic levels, plus a strong interpeak and was likely an impact of more localised travel.
- B.27 By the end of 2021, demand had exceeded 2019 pre-pandemic levels by a clear margin, however this demand fell significantly in January 2022. The recent 2022 data shows the impacts of restrictions associated with the Omicron variant which has suppressed traffic flows once again.

Figure B-11 Change in traffic flow levels by time of day (adjacent to Local Centres)

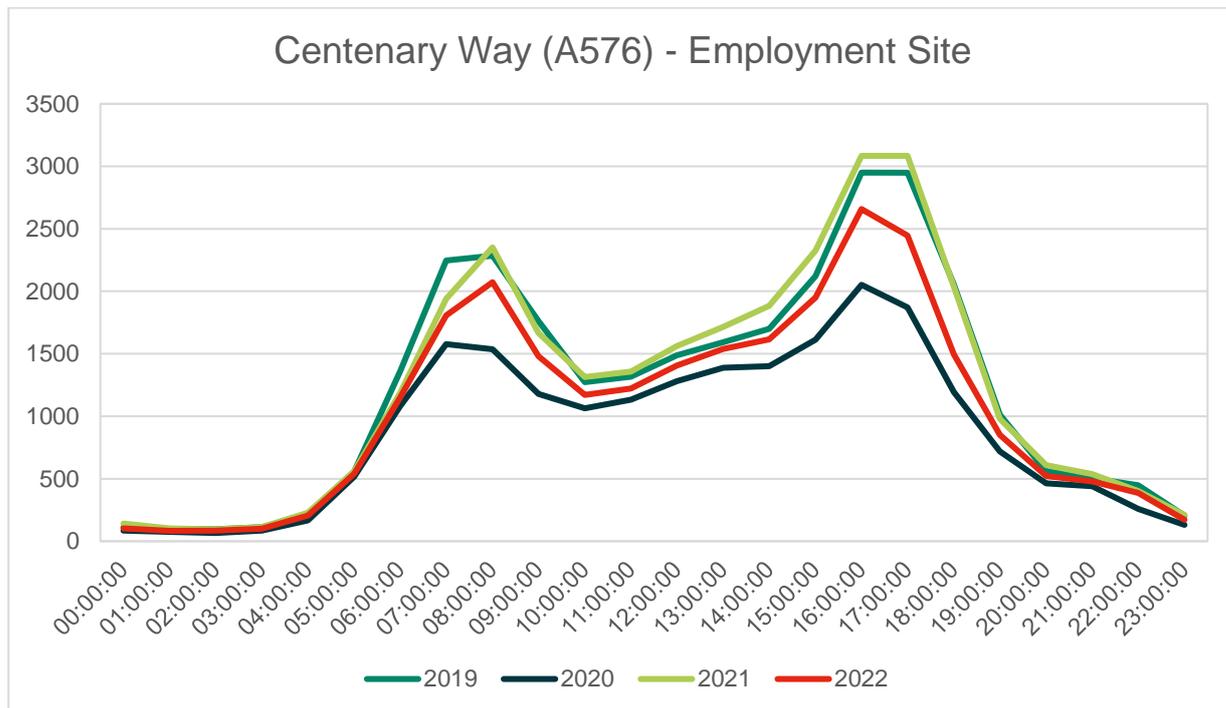


Source: TfGM C2 Database – Location S of Ashlor St, Bury

Centres of Employment (Trafford Park)

- B.28 Trafford Park is a major site of employment within Greater Manchester, with traffic flows accessing this employment area changing significantly during the pandemic.
- B.29 During the limited easing of travel restrictions in Autumn 2020, traffic flows to/from Trafford Park remained low, with limited return of higher peak time travel flows. This was possibly due to the higher levels of working from home at the time. The more recent data from November 2021 shows flows higher than pre-pandemic levels. January 2022, though impacted by the Omicron variant, shows a recovery of peak hour travel demand, close to pre pandemic levels, although the early part of the AM peak and the later part of the PM peak show a slightly weaker recovery. Interpeak travel is also similar to pre pandemic levels (See **Figure B-12**).

Figure B-12 Change in traffic flow levels by time of day (Centres of Employment)



Source: TfGM C2 Database – Location Trafford Park, Trafford

Summary

- B.30 The review of local traffic flows at various locations across GM has shown considerable variations in changing travel behaviour by location, when compared to pre-pandemic levels. This is likely to be impacted by changing travel habits, although the recent Omicron variant is likely to be impacting some travel behaviour in the 2022 data, as shown in **Figure B7**, general traffic levels in Autumn 2021 showed overall recovery in traffic flows above pre-pandemic levels.
- B.31 The change in travel behaviour by location since September 2019 is summarised in **Table B-1**.
- B.32 Considering the position in November 2021, when travel patterns were least affected, it is notable that Local Centre traffic flows were higher than previously whilst the Regional Centre flows were still much reduced. For radial routes and employment centres, overall (daily) levels were back to pre-pandemic but with some variation during the day; the morning peak being less pronounced but the interpeak higher.

Table B-1 Traffic flow changes by location type from September 2019 to January 2022

Location Type	Period	Change relative to Sep-19 (Index=100)			
		Sep-19	Sep-20	Nov-21	Jan-22
Regional Centre	AM	100	67	88	81
	IP	100	73	95	88
	PM	100	41	92	85
	Eve	100	26	95	85
	Daily	100	61	88	83
Radial inside M60	AM	100	98	98	93
	IP	100	98	105	96
	PM	100	101	102	96
	Eve	100	80	94	83
	Daily	100	92	101	91
Local Centres	AM	100	103	108	90
	IP	100	96	115	88
	PM	100	94	113	86
	Eve	100	74	110	87
	Daily	100	90	111	86
Employment Centre	AM	100	69	95	86
	IP	100	83	108	94
	PM	100	61	102	79
	Eve	100	74	99	91
	Daily	100	74	102	88

Source: TfGM C2 Database

Economic Related Impacts

Introduction

B.33 Changes in the economic situation are also likely to have had an influence on travel behaviour. The section below presents the trends for a range of factors impacting the economy, several of which are likely to impact the way people travel and businesses operate.

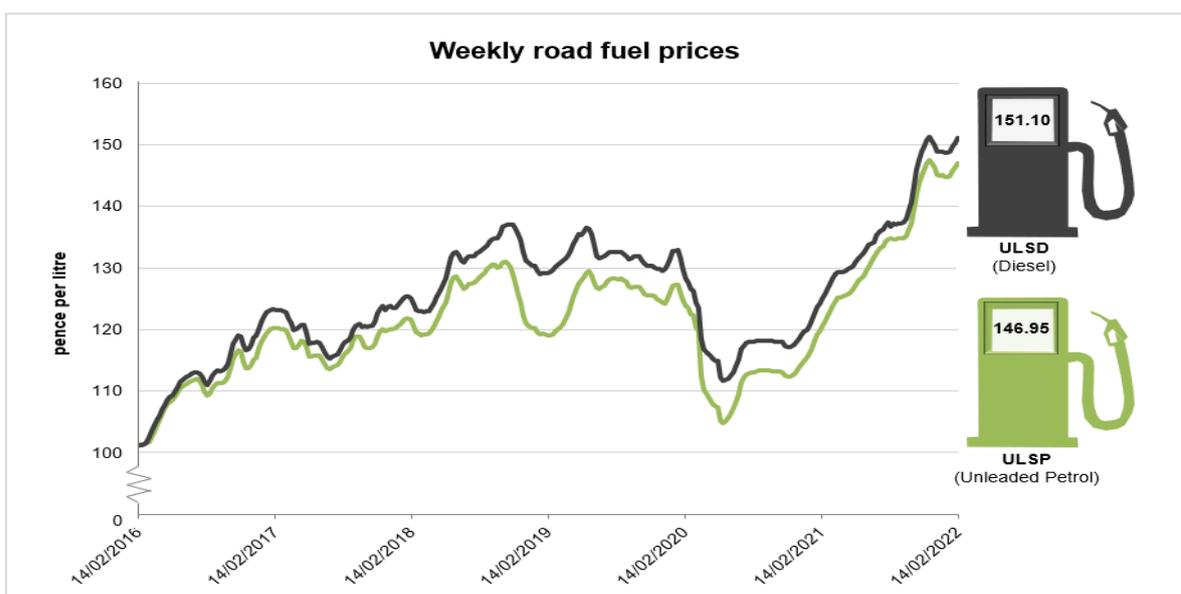
Fuel Prices

B.34 There are six companies (four oil companies and two supermarkets) that feed into the weekly fuel price survey prepared by the government. These companies cover around 65% of the market. The change in fuel price is displayed in **Figure B-13**.

B.35 The price of road fuel is volatile over shorter time periods, with prices regularly rising and falling. The key trends from during the pandemic are:

- At the start of 2020 prices appear to have been on the decline. There was then a significant fall in both Diesel and Unleaded Petrol in early 2020, corresponding with the first national lockdown.
- During the second part of 2020, prices appear to be stable, with prices beginning to rise steadily throughout 2021 in line with global oil market prices.
- There is a steep rise in prices towards the end of 2021, reaching record highs. This corresponds with a sudden rise in post-pandemic energy demand. This has triggered a tax freeze on petrol and diesel for the twelfth year in a row⁴².
- In September 2021 long queues and forecourt closures were witnessed, caused by panic buying throughout the country, sparking a fuel shortage in Britain.

Figure B-13 Weekly Road Fuel Prices



Source: gov.uk

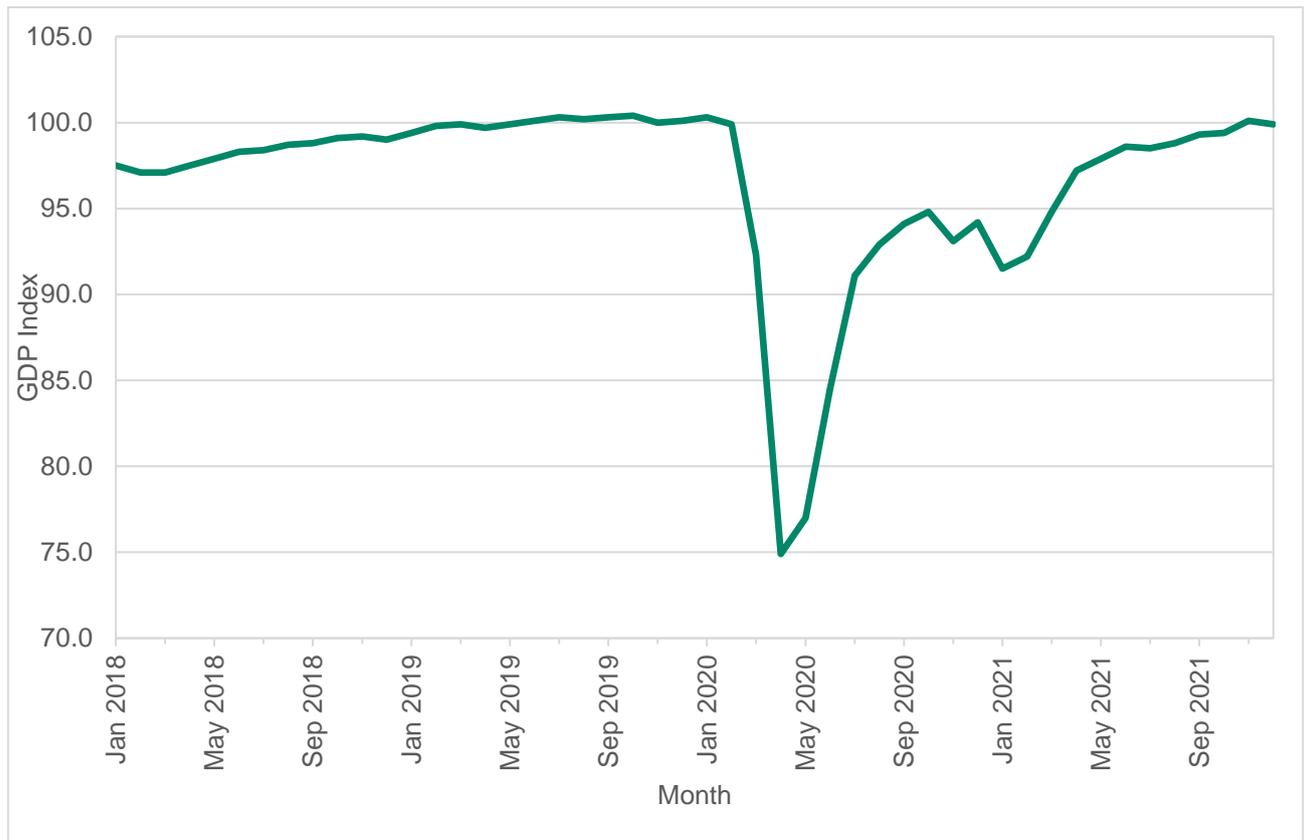
⁴² <https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-3-year-petrol-prices-record-highs-b962832.html>

- B.36 It was already likely that the price of fuel would remain unsteady for some time as a consequence of the impact of the pandemic and recent events in Ukraine have brought additional uncertainty to that market.

GDP

- B.37 From bulletins on the ONS data website⁴³ the end of 2021 saw a drop in GDP by 0.2%, to equal the pre pandemic level of February 2020. In December 2021 services and construction are both above pre-pandemic levels, while production remained below. Consumer facing services fell within December, driven by a fall in retail, 8.4% below pre-coronavirus levels, contributing to the GDP fall in December 2021 (see **Figure B-14**).

Figure B-14 GDP in the UK (Index, 2019 = 100)



Source: [ons.gov.uk/economy](https://www.ons.gov.uk/economy)⁴⁴

- B.38 Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021⁴⁵. In real terms (adjusted for inflation), total and regular pay fell for the year by 0.1% and 0.8% respectively.

Imports and Exports

- B.39 **Figure B-15** shows the trends in UK goods imports and exports throughout 2019, 2020, and 2021. After an initial decrease in imports at the beginning of the pandemic, this appears to have recovered. There was another significant decrease at the end of 2020, however imported goods are on the increase back to

⁴³ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021>

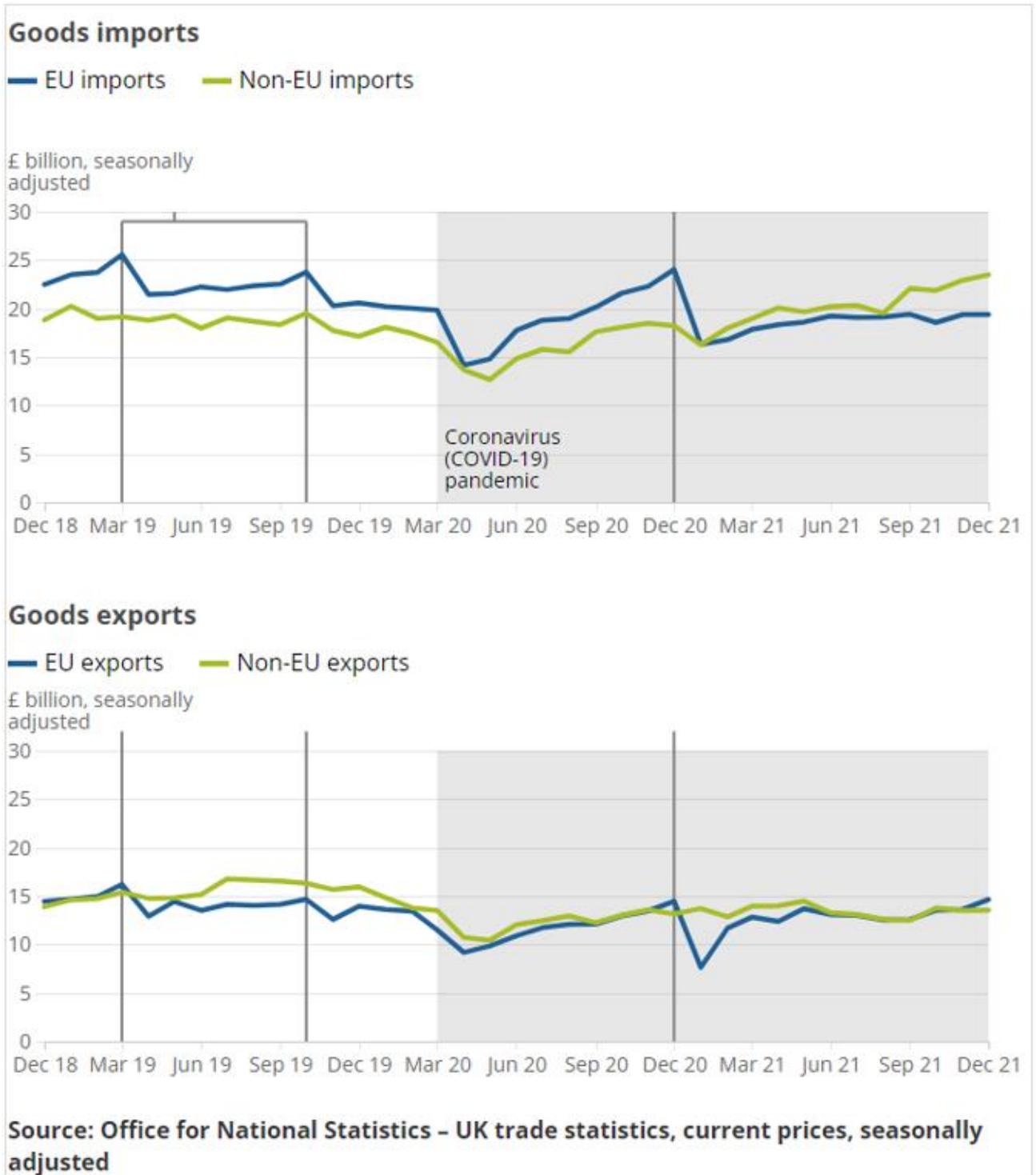
⁴⁴ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021>

⁴⁵

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022>

pre-pandemic levels. There was less impact on exports, with these remaining steady throughout.

Figure B-15 Import and Exports



Source: ons.gov.uk/economy⁴⁶

Centre for Cities – Cities Outlook

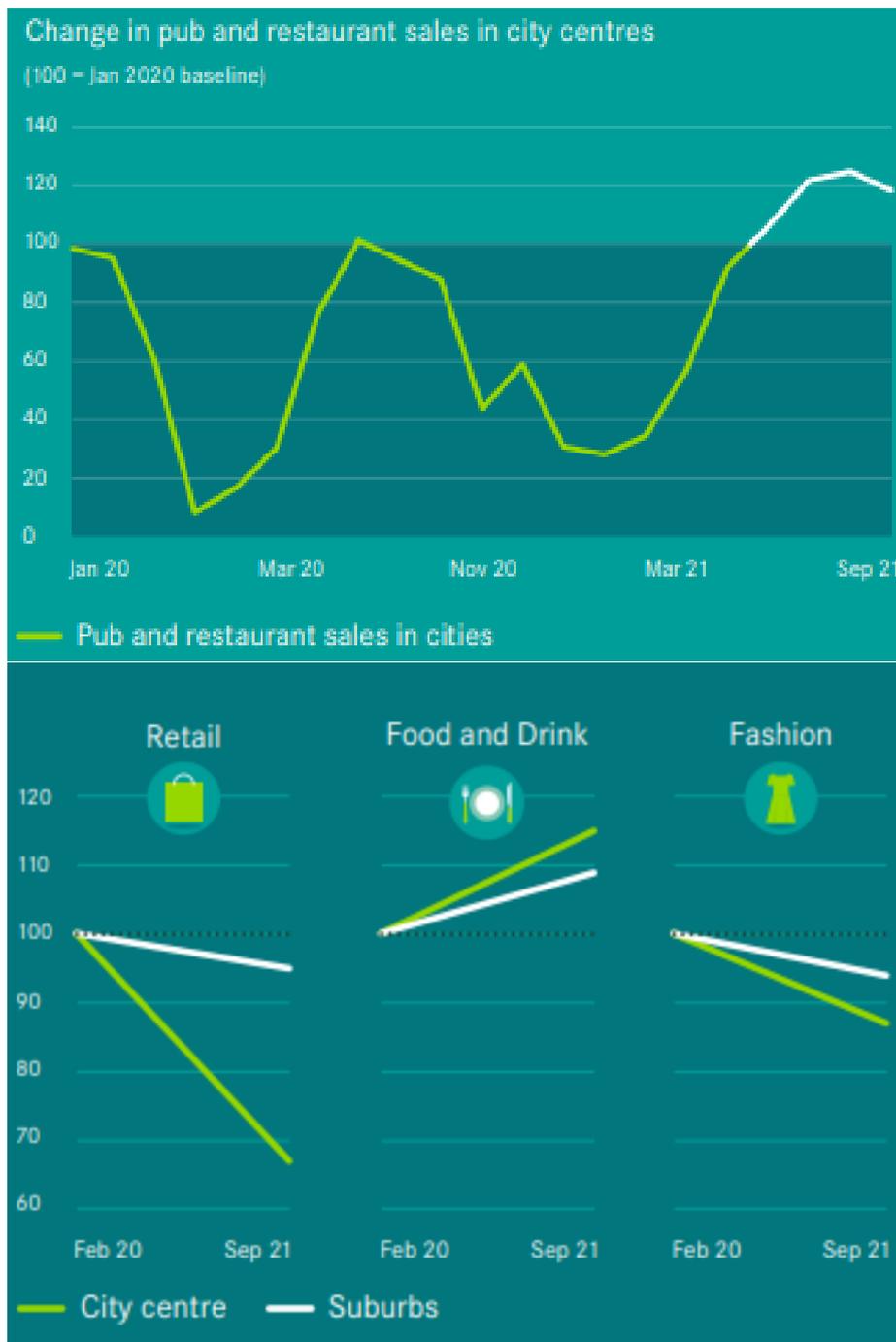
B.40 Centre for Cities produced the Cities Outlook 2022 report looking in-depth at the state of UK high streets, to get a sense of the short-term impact of the pandemic on Britain's town and city centres, and the long-term consequences and

⁴⁶ <https://www.ons.gov.uk/economy/economicoutputandproductivity/output/articles/ukeconomy/latest/2021-01-25#output>

implications this has for the Government’s levelling up agenda. This report showed that there was a quick and considerable shift away from high streets to online shopping during the pandemic. However, in most cities the shift stalled, or slightly fell again once shops reopened.

B.41 The Cities Outlook report also studies the impacts on pubs and restaurants, stating that the fashion sector was hit harder than pubs and restaurants. **Figure B-16** shows the trend in sales throughout 2020 and 2021. There are clear decreases in sales corresponding to the national lockdowns but in all instances, these soon recover when the sector reopens. This is also reflected in the suburbs, with retail and fashion experiencing a slight decline from Feb 2020 to September 2021 but food and drink on a steady incline.

Figure B-16 Change in pub and restaurant sales in City Centres and Suburbs



Source: ons.gov.uk/economy⁴⁷

- B.42 Due to the work from home regulations and, for many, working from home becoming a regular part of the working week, it is feared the reduced footfall in cities will have a lasting effect on retail, hospitality, and transport sectors. **Figure B-17** show the weekday footfall in London, Manchester and Birmingham. Although not yet back to pre-pandemic levels, there is a steady climb in footfall in the major cities with Manchester appearing to recover more quickly than Birmingham, and London taking considerably longer.
- B.43 The more significant impact on London may be related to the impact of COVID-19 on international tourism.

Figure B-17 Weekday footfall



Source: ons.gov.uk/economy

⁴⁷ <https://www.centreforcities.org/>

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

Appendix D - Technical Note: Vehicle Sector Review – Coach and Minibus

DRAFT FOR APPROVAL

June 2022

1. Introduction

Background

- 1.1 After the initial Outline Business Case (OBC) submission in March 2019, a series of technical notes were published setting out the results of analysis and research carried out to better understand the vehicles in scope for the scheme.
- 1.2 For coaches and minibuses this included, in particular, *Technical Note 4: Analysis of the Coaches Market*, and *Technical Note 18: Minibus Vehicle Research*.¹ Further notes were produced setting out the development of analytical tools, with the latest published summary of that work provided in *T4 Appendix A of the Modelling for Consultation*.²
- 1.3 This evidence formed the basis of the development of the Option for Consultation. From March 2020, it became clear that the COVID-19 pandemic would affect the Greater Manchester Clean Air Plan (GM CAP); and a programme of work was carried out in 2020/2021 to better understand the possible impacts of the COVID-19 pandemic on the GM CAP, published as the *Impacts of Covid Report* in June 2021.³ This evidence, alongside feedback from the Consultation, was used to inform the revised GM CAP as approved by the ten GM local authorities in June/July 2021.
- 1.4 At that time, GM identified several possible risks to the GM CAP, which included concerns about the risk of vehicle price increases and the impact of any further lockdowns in the UK or countries in the supply chain.
- 1.5 The report, which was originally developed in February 2022, draws a series of findings and conclusions to better understand the circumstances affecting Coach and Minibus owners in Spring 2022 and the implications for the GM CAP and surrounding policy framework.
- 1.6 Since Spring 2022, there have been further dramatic changes to the economic context in the UK which are not explicitly addressed in this report but are set out in **Appendix E**. A range of factors associated with the impact from war in Ukraine, increased costs of energy and fuel, changes to Bank of England base rates and forecasts, global supply chain challenges, and the cost-of-living crisis have combined to create a context of increased financial hardship for businesses and families.

Structure of Note

- 1.7 The remaining sections of the report are structured as follows:
 - **Section 2** provides a review of the in-scope vehicles of the current Coach and Minibus sector in GM;
 - **Section 3** reviews the impacts of COVID-19 on the Coach and Minibus sector, with a particular focus on the availability and prices of purchasing new and used coach and minibuses. This section also considers the vulnerability impacts of COVID-19 on the sector; and

¹ All available at <https://cleanairgm.com/technical-documents/>

² https://assets.ctfassets.net/tlpgbvy1k6h2/3AKtd1g0fg5OwQFNzc5FIQ/2b42ae34e93d292a5ec2eb26f7f5e8fb/T4_-_Appendix_A_Behavioural_Response_Cost_Models_and_Demand_Sifting_Tool.pdf

³ GM CAP- Impact of COVID Report. Available at: <https://cleanairgm.com/technical-documents/>

- **Section 4** provides a summary of the key findings, also presenting details of any key risks or issues facing the sector in responding to the GM CAP.
- 1.8 In addition, **Appendix A** provides a list of data used to inform the report and **Appendix B** reviews the recent changes in travel behaviour within GM through the pandemic up until January 2022.

2. Review of Vehicles in Scope

Overview of Vehicle Sector

- 2.1 A coach is considered to fall within vehicle category M3 of the DfT vehicle classifications, defined as a 'Motor vehicles with at least four wheels designed and constructed for the carriage of passengers' comprising of more than eight seats and a maximum mass exceeding 5 tonnes, whereas a minibus falls into category M2 by not exceeding 5 tonnes maximum mass⁴ (see **Table 2-1**).

Table 2-1 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.

Source: transportpolicy.net/standard/eu-vehicle-definitions/

Review of In-scope Vehicles

Overview

- 2.2 For context, the proportion of vehicle types in GM, relative to the regional and national averages, are provided in **Table 2-2** based on the latest available registration statistics from the DfT. There will be instances, particularly for commercial usage, where vehicles are based in one location but used in another, but this table provides an overview of the relative size of each fleet.

Table 2-2 Proportion of Vehicle Types Registered by Area

	Cars	Van	HGV	Bus & Coach	Other
GB	85.0%	3.4%	11.3%	1.3%	0.4%
England	85.1%	3.5%	11.3%	1.3%	0.4%
NW	85.7%	2.9%	10.9%	1.5%	0.3%
GM	85.6%	2.1%	11.8%	1.6%	0.4%

Source: Department for Transport., Statistical data set, All vehicles (VEH01), Last updated 13 January 2022

⁴ Definition of Vehicle Categories, Vehicle Certification Agency

Coaches

- 2.3 **Table 2-3** shows the number of coaches serving GM that are GM and non-GM based as of 2019, showing that the GM based fleet is typically more non-compliant than the non-GM based fleet, this may be reflected in the smaller organisations operating in a more local basis, whereas longer distance out of area coaches, are more likely to be operated by larger organisations and to be generally more compliant.

Table 2-3 Number of Coaches Serving GM (2019)

	GM Based	Non-GM Based	Total
Compliant	233	529	762
Non-Compliant	464	448	912
Total	697	977	1,674

Source: T4 Appendix C, Vehicle Population Estimates

- 2.4 Without intervention there will be a natural turnover of the coach fleet serving GM. Based on a typical assumed lifespan of a coach of up to 20 years, and assuming the same fleet age composition, the coach fleet was projected into the future. This was applied for each year by removing the oldest vehicles and replacing with a new one (whilst keeping the overall age profile consistent). This naturally leads to an increase in Euro 6 (compliant) coaches over time. The coach fleet serving GM, (pre-COVID-19) was therefore projected from 2019 to 2023. These projections are presented in **Table 2-4**.

Table 2-4 Forecast Do Minimum (without CAP) Compliant Coaches 2023

	GM Based	Non-GM Based	Total
Compliant	386	600	986
Non-Compliant	311	377	688
Total	697	977	1,674

Source: T4 Appendix C

Minibuses

- 2.5 **Table 2-5** shows the number of minibuses serving GM that are GM and non-GM based as of 2019.

Table 2-5 Number of Minibuses Serving GM (2019)

	GM Based	Non-GM Based	Total
Compliant	130	306	436
Non-Compliant	1,903	805	2,707
Total	2,032	1,111	3,143

Source: T4 Appendix C, Vehicle Population Estimates

- 2.6 The minibus fleet has been projected forward in a similar fashion to the coach fleet as described earlier. A typical lifespan of 20 years has been assumed. These projections are presented in **Table 2-6** and are based on pre-COVID-19 natural fleet turnover assumptions.

Table 2-6 Forecast Do Minimum (without CAP) Compliant Minibuses 2023

	GM Based	Non-GM Based	Total
Compliant	417	413	830
Non-Compliant	1,616	698	2,313
Total	2,032	1,111	3,143

Note: Values above exclude those minibuses that operate as PHVs

3. Review of COVID-19 impacts on the Coach and Minibus vehicle sector

Overview

- 3.1 The Coach and Minibus sector has been reviewed to consider pre-pandemic background characteristics, COVID-19 related impacts on the industries affected by the sector, and a review of the expected vulnerabilities when responding to the GM CAP.
- 3.2 On 17th February 2022, the Society of Motor Manufacturers and Traders (SMMT) released an article stating that UK bus and coach registrations had fallen to the lowest recorded level as demand dwindled after the pandemic⁵.

COVID-19 Effects on the Coach sector

Background

- 3.3 The first UK national lockdown in March 2020 had a significant impact on the coach and minibus market, with many coach and minibus operators either having to stop their services altogether or only operate at a significantly reduced capacity.
- 3.4 According to the Confederation of Passenger Transport (CPT), coach tourism operators, on average, require a coach occupancy of 47-53% to breakeven. With the implementation of the 1m physical distancing, depending on vehicle type, social bubbling and additional COVID-19 mitigation factors, coaches were having to operate at a maximum of 35-50% occupancy during the pandemic.⁶
- 3.5 Once the lockdown restrictions began to ease and destinations began to reopen, more coach and minibus operators were then able to begin operating again albeit with restricted passenger numbers and dampened demand as not all sectors could re-open. The ongoing restrictions and guidance, whilst not as restrictive as the national lockdowns, continued to affect road passenger transport, with declining ridership impacting operator confidence and orders for new vehicles.
- 3.6 During this time, key sectors served by the coach and minibus sector, in particular the tourism and hospitality sector, were badly affected by the restrictions in place. In 2021, a recovery in this sector occurred due to ongoing restrictions on international travel resulting in a boom in domestic holidays. However, whilst the sector saw an improvement, the coach and minibus market continued to be negatively impacted by reductions in international travel⁷ and, due to social distancing requirements, weak demand for coach and minibus travel.

⁵ <https://www.smmt.co.uk/2022/02/uk-bus-and-coach-registrations-fall-to-lowest-recorded-level-as-pandemic-dents-ridership/>

⁶ <https://www.cpt-uk.org/media/ijn13w4f/aid-to-trade-document.pdf>

⁷ <https://www.route-one.net/news/difficult-road-ahead-for-incoming-coach-tourism-recovery/>

- 3.7 Schools, colleges and universities have remained open during the pandemic, although government restrictions during the pandemic placed restrictions on face-to-face learning at various points throughout the pandemic. This has impacted the number of people travelling on a daily basis to access education which will have reduced at various points through the pandemic, though as education establishments have remained largely open, the coach and minibus operators that transport students to educational establishments are less likely to be negatively affected than other sectors.
- 3.8 On 28th November 2021, a report was released by Unite union after a survey of bus driver members. This revealed the bus driver shortages are at far higher levels than previously indicated, with 99% of bus garages experiencing driver shortages and 79% of respondents to the survey recording that vacancies had increased since the pandemic began in March 2020⁸.
- 3.9 There is limited quantifiable data available to analyse the impact of COVID-19 on the coach market and the impacts after the first lockdown, but there are several reports that qualitatively surmise how certain operators have been affected. The remainder of this section discusses the COVID-19 impacts on Regular, Special, and Occasional Coach Services.

Impact of COVID-19 on Regular Coach Services

- 3.10 Regular coach services are defined as all services which provide for the carriage of passengers at specified intervals along specified routes, with passengers being picked up and set down at predetermined stopping points.
- 3.11 Whilst the larger national operators of regular services do not have large numbers of vehicles based within GM (e.g. National Express / Megabus), prior to the pandemic, GM was served by a frequent operation of scheduled long-distance coach services serving a large and varied number of destinations across the UK. Within this context, there are also some franchise operations which operate services on behalf of national operators, such as Selwyns, which is based in GM, and operates services on behalf of National Express.
- 3.12 National Express is one of the largest coach operators in the UK. In August 2021, National Express brought together several existing brands such as Fareham based Lucketts and Woods Coaches of Leicester into National Express Leisure, aimed at providing one place for holidays and leisure travel by coach with operations in Fareham and Birmingham⁹.

⁸ <https://www.unitetheunion.org/news-events/news/2021/november/new-survey-reveals-shocking-shortage-of-bus-drivers/>

⁹ <https://www.nationalexpressgroup.com/media/news-releases/2021/national-express-takes-next-step-into-uk-leisure-travel-market/>

Case Study: National Express

National Express are one of the largest operators in the UK, operating regular services between major cities and key destinations. The company have central depots in Birmingham and London.

A common aspect of their business model is to franchise services out to private operators, who are then required to buy or lease vehicles as specified by National Express.



How COVID-19 Affected National Express

- Reported £60m losses for the first half of 2020¹⁰ resulting in a hit to the company share price, trading at £1.59 compared to £4.69 at the start of 2020.
- Although aggregate demand fell by 80% during the spring 2020, revenues were approximately 50% of normal levels by end of 2020, due to pre-existing contracts and support from government and local authorities for services such as school buses.
- Secured cash from Bank of England COVID Financing scheme and the selling of new shares to investors was enough to see it through a slow 2021.
- National Express is currently in the process of a takeover by Stagecoach. The proposal is subject to a number of approvals and is expected to be completed towards the end of 2022.
- June 2021 Q1 figures show a revenue of £172.8m compared to Q1 2020 revenue of £189.9m. The 9% decrease was due to temporary mothballing of coach operations. This was counteracted by a revenue growth in Bus services, operating at 102% for much of the period.
- Profits were operating at a loss of £20m, but this was a much-reduced level to Q2 2020, which reflected the loss in Coach. The decline in revenue was partly mitigated by payroll savings through the use of the Coronavirus Job Retention Scheme (CJRS) and other cost actions¹¹.



- The above charts show total National Express monthly revenue compared to 2019 and Service Evolution as a percentage of pre-COVID-19 levels, these are for National Express as a total, including ALSA (Spain) and North American divisions along with UK.
- By June 2021 revenue was at 85% of June 2019 level.

¹⁰ <https://www.theguardian.com/business/2020/aug/13/national-express-shares-fall-warns-covid-19-recovery-slow>

¹¹ <https://www.nationalexpressgroup.com/media/i2tdj5xc/national-express-2021-presentation-post-final-tweak-11-aug-2021.pdf>

Impact of COVID-19 on Special Regular Services

School Services

- 3.13 The Home to School (HTS) scheme that was introduced by the Government in August 2020 helped some coach operators to gain extra revenue (to help cover lost revenue from suppressed passenger demand) as a result of the COVID-19 restrictions¹². The scheme gave local authorities extra funding to help procure additional vehicles, including coaches, to accommodate social distancing policies on public transport for the reopening of schools. However, many operators argued that it was not enough support, as only 15% to 20% of coach operators were providing those services, leaving the rest with no extra revenue income to fill the gap¹³.
- 3.14 In December 2021, the Government announced the intention to extend existing Vehicle Accessibility Regulations 2000 exemptions for HTS services to the end of the 2021 to 2022 academic year, and qualified medium-term exemptions for rail replacement (RR) and HTS services that are still not compliant when existing exemptions expire in summer 2022¹⁴. These exemptions will ensure that essential HTS and RR services can continue while requiring operators to become increasingly compliant with existing legal obligations.

Rail Replacement Services

- 3.15 Some operators have been able to adapt to the changing environment by offering rail replacement services as an extra revenue stream. However, this limits many coach operators as vehicles must be Public Service Vehicle Accessibility Regulations (PSVAR) vehicles in order to provide this service. Though it should be noted that the rail network has also been significantly impacted by a large decrease in passenger demand and, as a result, it is expected that there will be limited rail replacements requiring support from coach operators.
- 3.16 Rail demand in January 2022 was at 55% of pre-pandemic levels, as a result of timetable reductions due to staff shortages following the Omicron wave, having previously returned to 70% of pre-pandemic demand¹⁵.
- 3.17 There are some operators during the pandemic that have used rail replacement services as their main source of income. Spencer Graham Coaches of Silloth invested in three PSVAR vehicles and have provided rail replacement services, which has provided the company enough revenue to survive during COVID-19¹⁶. Whilst this example is from an operator from outside of GM, it does provide an indication of how the wider coach market may need to adapt in the future, including coach operators based in GM, although this is unlikely to be enough to make up the difference in lost revenue from the tourism industry.

Impact of COVID-19 on Occasional Coach Services

Tourism Industry Effects on Coach Sector

- 3.18 The tourism industry forms an important part of the coach sector market¹⁷. Coach operators deliver vital footfall to attractions across the UK and carry spectators to

¹² <https://www.ft.com/content/424808f0-c5d8-4b64-a127-c2e802b67d17>

¹³ <https://www.ft.com/content/424808f0-c5d8-4b64-a127-c2e802b67d17>

¹⁴ <https://www.gov.uk/government/publications/public-service-vehicles-accessibility-regulations-2000-and-their-application-to-home-to-school-and-rail-replacement-coach-services>

¹⁵ <https://www.dailymail.co.uk/news/article-10394121/Demand-trains-plummets-timetables-slashed-Rail-travel-55-pre-pandemic-levels.html>

¹⁶ <https://www.route-one.net/features/covid-19-positive-change-for-the-coach-industry/>

¹⁷ <https://publications.parliament.uk/pa/cm200001/cmselect/cm200001/cm2000011101p11.htm>

concerts, festivals and sporting events, as well as coach tours around the UK. Pre-pandemic, in 2019, coach travel catered for over 23 million tourism visits a year and contributed £14bn to the UK economy¹⁸. Many of the coach companies based within GM will support the tourism sector and will have been significantly impacted by the downturn in this market. Around 80% of the coach industry's income is derived from tourism related activities¹⁹.

General Impact on Tourism

- 3.19 Pre-pandemic, UK residents consistently made more visits abroad than foreign residents made to the UK. As a result, the total amount spent by UK residents during visits abroad was higher than the total brought into the UK by foreign residents visiting²⁰. As international travel restrictions ease into and out of the UK, the emerging trend appears to follow the same path with over 4 times more UK tourists traveling overseas compared to foreign tourists arriving in Quarter 3 (July to September) 2021.
- 3.20 According to the Office for National Statistics (ONS), overseas residents made 1.3 million visits by air to the UK in Q3 2021. This is a decrease of 86% compared with Q3 2019, due to the continued restrictions on international travel and perceptions of international travel (see **Figure 3-1**). Overseas residents spent a total of £1.2 billion on their visits to the UK during this period (which covers the typical summer peak travel period); this is a decrease of 87% on the same quarter in 2019²¹ (see **Figure 3-2**).
- 3.21 COVID-19 restrictions prevented the collection of data at ports, therefore Sea and Eurotunnel data has not been assessed throughout the pandemic. Typically, Sea and Eurotunnel numbers make up 20% of all pre-COVID-19 travel numbers, so this may account for slightly lower numbers. However, analysis of administrative data, shows a 95% drop in passenger numbers when compared with Q3 2019.

Figure 3-1 Visits to the UK by Overseas Residents, 2016 to 2021 (Q1 – Q3 2021, air only)



Source: [ons.gov.uk/peoplepopulationandcommunity/leisureandtourism](https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism)

¹⁸ <http://www.movingforwardtogether.uk/covid-19-latest-news/14bn-and-10-000s-of-jobs-at-risk-if-coach-travel-sector-collapses-warns-cpt/>

¹⁹ <https://www.cpt-uk.org/media/ijn13w4f/aid-to-trade-document.pdf>

²⁰ <https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/bulletins/overseastravelandtourism/january2019provisionalresults>

²¹ <https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/bulletins/overseastravelandtourism/julytoseptember2021>

Figure 3-2 Spending in the UK by Overseas Residents, 2016 to 2021 (Q1 – Q3 2021, air only)



Source: ons.gov.uk/peoplepopulationandcommunity/leisureandtourism

3.22 Reasons for travel into the UK were recorded as part of the ONS travel and tourism data survey²²; all trips had a significant decline, but holiday visits were still down by 95%. Visiting family and relatives had decreased by 70% and business trips decreased by 90%.

3.23 On 17 November 2021, VisitBritain released its 2022 tourism forecast²³. The key points on inbound international travel are:

- Inbound visits are forecast to increase to 24.0 million, 59% of 2019 levels;
- Spending associated with inbound visits is forecast to be £19.2 billion, 67% of 2019 levels;
- By the end of 2022 the UK is forecast to have recovered to approximately 68% of pre-COVID-19 levels;
- Visits from Europe are forecast to recover sooner than long haul; and
- Spend per visit expected to remain higher than pre-pandemic due to longer average length of stay and higher prices.

3.24 The VisitBritain forecast for 2022 domestic tourism is not currently available, the most recent 2021 forecast, (late 2021), stated that:

- There was expected to be recovery to £56.2 billion in domestic tourism spending in 2021, an increase of 65% on 2020 but still only 61% of the level of spending seen in 2019; and
- There was a revision on the initial numbers stated for 2021 as domestic tourism is recovering slower than expected.

How Have Coach Operators Coped?

3.25 National Express reported a £445m loss in 2020 due to the COVID-19 pandemic. However, they are optimistic as, throughout 2021, they have seen a rapid recovery in demand when travel restrictions have been lifted²⁴. They have also been using the down time during the pandemic to reduce costs, diversify contracts and access government loans to ensure the business emerges financially stronger.

²² <https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/bulletins/overseastravelandtourism/julytoseptember2021>

²³ <https://www.visitbritain.org/2022-tourism-forecast>

²⁴ <https://www.theguardian.com/business/2021/mar/18/national-express-reports-445m-loss-for-2020-after-80-drop-in-passengers>

- 3.26 The Birmingham-based group whose markets include UK, North America and Spain, secured £900m of new contracts through a move to win profitable contracts from weaker bus and coach operators that are at the brink of collapse after the pandemic. This could trigger consolidation within the sector²⁵.
- 3.27 Many small travel companies have not recovered from 2020, with financial times stating 76 passenger vehicle groups entering into insolvency within the UK²⁶, although this represents a small overall share of the market.
- 3.28 Notwithstanding any further restrictions, the outlook for 2022 is positive. As an example, Andersons Travel had returned to around 60% of pre-pandemic business by the end of 2021. A degree of this has been due to diversification, for example home-to-school is now a predominant area of work²⁷.
- 3.29 It is hoped that spring / summer 2022 the coach sector will see the postponed 2020 and 2021 bookings, along with new bookings, providing a much-needed boost to coach tourism.

COVID-19 Effect on the Minibus Sector

Background

- 3.30 It is important to note that there is limited data or published articles available to provide direct insight into the effects of COVID-19 on the minibus sector. Therefore, the following information presented considers mainly qualitative anecdotal information on the performance of the minibus sector, in the context of the wider markets they serve.
- 3.31 As stated in *Technical Paper 18*, the minibus sector is made up of several types of operators that will have been affected differently by COVID-19. These are:
- Community Transport;
 - Local Authorities;
 - Local Bus Operators;
 - Coach Operators;
 - Rental / Leasing Companies; and
 - Education Establishments.
- 3.32 Local authorities, community transport and education establishments are unlikely to have been as significantly financially impacted as commercial operators as they do not use their vehicles for commercial reasons. These services are less reliant on passenger income generation. Although with COVID-19 restrictions in place demand for these services will have reduced significantly during the pandemic, it is likely that as restrictions ease and confidence rises these will return to operate largely as normal.
- 3.33 With the closure of schools during the first national lockdown, it is likely that minibus drivers serving daily travel to and from school may have been placed onto the furlough scheme as these services would not have been in operation, though will have likely restarted operation once schools returned in September 2020. These

²⁵ <https://www.ft.com/content/02a27f99-8955-4220-95c4-3e15e9844ad8>

²⁶ <https://www.ft.com/content/02a27f99-8955-4220-95c4-3e15e9844ad8>

²⁷ <https://www.route-one.net/news/difficult-road-ahead-for-income-recovery>

services will have been paused again in January 2021 as schools remain closed for the majority of pupils following another national lockdown, though returned to operation through the remainder of 2021.

- 3.34 In the case of the Ring and Ride service provided by TfGM, the service was completely stopped for just over two months when the first national lockdown occurred but has since restarted, albeit at a reduced service level, since 18th May 2020²⁸ and has continued to serve lower passenger numbers. To support the COVID-19 vaccine roll out in 2021, the Ring & Ride service has been used to support travel to vaccine centres where limited public transport is available.
- 3.35 Local bus operators, coach operators and rental and leasing companies will have been impacted severely due to their minibuses being used to provide an income-generating service. Using the coach sector as an example, minibus operators will likely have placed many of their staff on furlough and taken payment holidays for any vehicles they have used a loan to buy. Also, with the continued impacts on the sector, many drivers of coaches and minibuses are likely to have transferred to other sectors which have been more resilient through the pandemic.
- 3.36 Other minibus groups are likely to be sole operators, owned by individuals, small businesses and have fleets of only a few minibuses. For this sector it is highly likely that the small businesses will have been heavily impacted by COVID-19 and most likely have had to utilise the furlough scheme and payment holidays.

Changes as a Result of COVID-19

- 3.37 There is no direct evidence that could be found to support exactly how minibus owners and operators have been affected by COVID-19.
- 3.38 For local bus operators, coach operators, rental and leasing companies and smaller sole operators, the effects are likely to be greater as companies in these industries rely on their vehicles to generate income.
- 3.39 Similarly, the rental and leasing sector has been impacted by COVID-19. A report from the British Vehicle Rental and Leasing Association (BVRLA) produced in September 2020, states that 94% of their members expect reduced revenues compared to their forecasts pre-COVID-19²⁹. Although the report does not state how heavily affected the revenues will be, it does give an indication on the severity to which the market has been affected.

Will the Coach and Minibus Sector Recover?

- 3.40 There is little to no evidence to indicate exactly how the industry has been affected by COVID-19 and how it will recover. With vehicles used across different industries, there are likely to be differences in the scale of recovery depending on the sector they are in and how heavily impacted it is by COVID-19.
- 3.41 The coach sector has been heavily impacted by COVID-19 and is reliant on the tourism and events-based sector recovering, as well as consumer confidence improving. Whilst there was some recovery through 2021, many large events were cancelled. Also, continued restrictions on international travel, and nervousness in the use of public transport, is likely to result in a slow recovery of the coach sector. This slow recovery, combined with continued uncertainty in the market, could result in

²⁸ <https://www.wigantoday.net/news/uk-news/minibus-services-relaunched-across-greater-manchester-help-vulnerable-residents-2857659>

²⁹ <https://www.bvrla.co.uk/resource/aug-2020-covid19-research-report-2020.html>

several coach operators ceasing their operations permanently, leading to fewer vehicles on the road. Many drivers may have switched away from the coach and minibus sector, to other sectors performing more strongly, such as HGV and vans haulage and delivery sectors. This is noted in a recent article with sky news that The Unite union stated that there are more than 4,000 vacancies for bus and coach drivers across the UK and some companies have been forced to cancel services because drivers are not available³⁰.

- 3.42 Local bus operators are likely to have a quicker recovery as they provide a daily service for people to travel to their desired location. Although passenger numbers remain low at present, operators can still provide a level of service albeit at a reduced scale. Passenger numbers on buses have decreased sharply from 80% of pre-pandemic levels to less than 60% since the rise of the Omicron variant and the re-introduction of work-from-home advice in December 2021, leaving firms reliant on recovery grants to run services³¹. It is possible that, as the COVID-19 recovery continues, passenger numbers will begin to increase, but if this increase in patronage will return to pre-pandemic levels is uncertain.
- 3.43 Smaller operators are likely to be the most vulnerable to COVID-19 and may struggle to survive due to their lack of capital. Whilst operators have been able to access the furlough scheme, the sustained restrictions placed on travel that utilise the coach and minibus sector may have placed many businesses in a vulnerable position post pandemic.
- 3.44 The future of the minibus sector is unclear and is difficult to predict due to the sustained reductions in travel by public transport and uncertainty around whether public transport demand will return to pre-pandemic levels. Some sectors such as local authorities, community transport and education establishments will likely be able to survive COVID-19 and most likely return to pre-COVID-19 levels due to the nature of their sector. The local bus operators, coach operators, leasing and rental companies and smaller businesses are in the most precarious positions.

Review of COVID-19 impacts on vehicle sales

Overview

- 3.45 The key changes in the coach and minibus sales market during the pandemic are discussed below.

Vehicle Registrations

- 3.46 Before the pandemic, the UK new bus and coach market was already in decline, with the market falling by 18.8% in 2019, with annual registrations falling for a third consecutive year to 5,874 units, according to figures released by the SMMT³². Whilst there was some growth in Q4, this was driven by minibus registrations, which were up 49.0% to 1,311 units. SMMT suggest that the reasons for this continued decline were due to a combination of weak business confidence, declining passenger numbers and some confusion over clean air zones which has depressed demand³³.

³⁰ <https://news.sky.com/story/theyre-leaving-in-droves-uk-faces-bus-driver-shortage-as-hgv-industry-offers-better-pay-12442971>

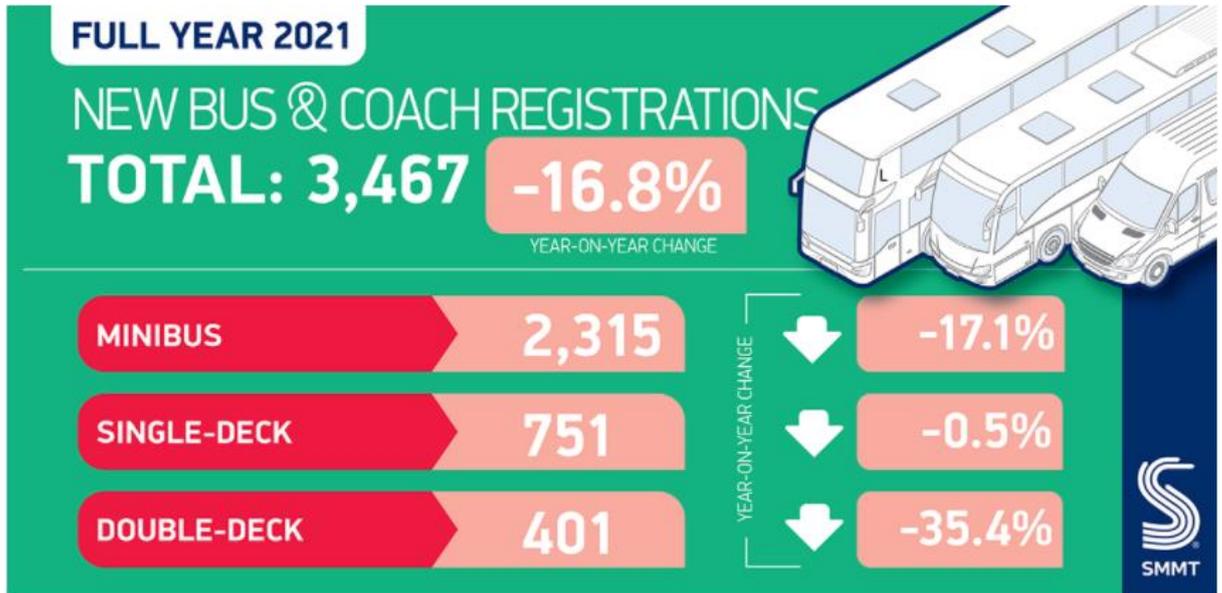
³¹ <https://www.theguardian.com/business/2022/jan/11/bus-services-in-england-face-axe-as-end-to-emergency-covid-funding-looms>

³² <https://www.smmt.co.uk/2020/02/third-year-of-decline-for-uk-bus-coach-market/>

³³ <https://www.smmt.co.uk/2020/02/third-year-of-decline-for-uk-bus-coach-market/>

3.47 An article released on 17 February 2022 by SMMT³⁴ states that demand for new buses and coaches dropped further in 2021 and was the weakest year since records began in 1996, with a total of 3,467 new registered buses (see **Figure 3-3**).

Figure 3-3 Bus and Coach and Minibus Registrations 2021

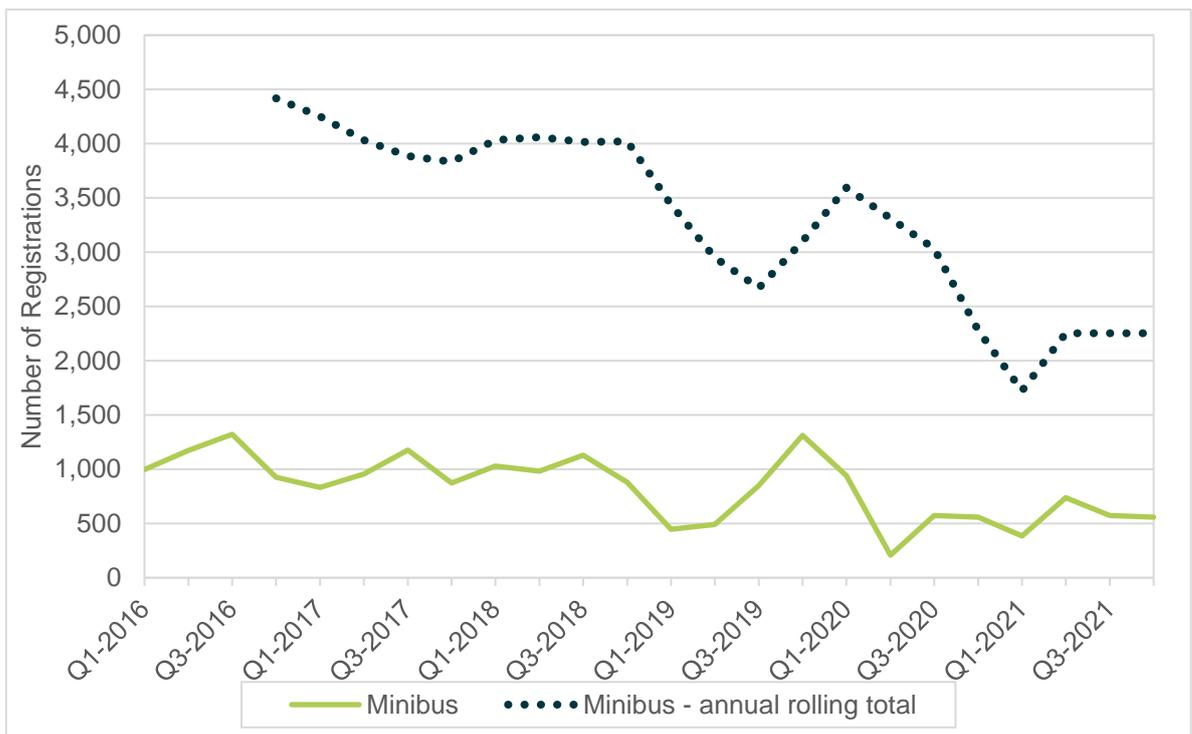


Source: SMMT

3.48 Details of quarterly registrations for minibus, bus and coach for recent years are illustrated in **Figure 3-4** and **Figure 3-5**, based on data held by SMMT.

3.49 There was a clear downward trend in both markets prior to the pandemic which was then exacerbated in 2020. There is some early evidence of the position stabilising towards the end of 2021.

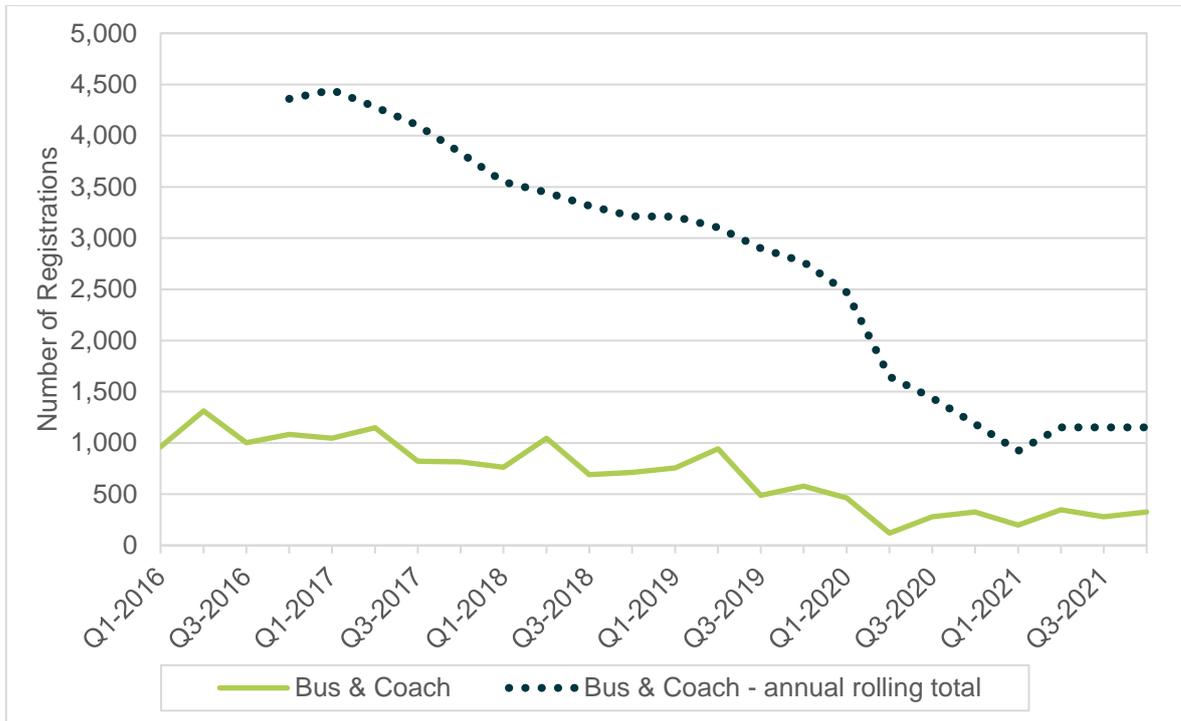
Figure 3-4 Trend in Minibus Registrations



³⁴ <https://www.smmt.co.uk/2022/02/uk-bus-and-coach-registrations-reach-lowest-recorded-level-as-pandemic-dents-ridership/>

Source: SMMT

Figure 3-5 Trend in Bus & Coach Registrations



Source: SMMT

Vehicle Availability

3.50 There is limited information on the availability of coaches. From a review of the online listings of second-hand coaches available for sale³⁵, there does appear to be a wider range of second-hand vehicles available for purchase.

New Prices – Coach

3.51 The findings show that the cost for new coach vehicles that have between 45 and 60 seats was typically over £250,000, with a median price of approximately £280,000 in 2019 and approximately £225,000 in 2022. Even with the supply chain issues and rising manufacturing costs, it is likely this fall is due to reduced demand.

Table 3-1: Costs of New Coaches

2019 Price	2022 Price
Between £250,000 – £300,000	~ £225,000

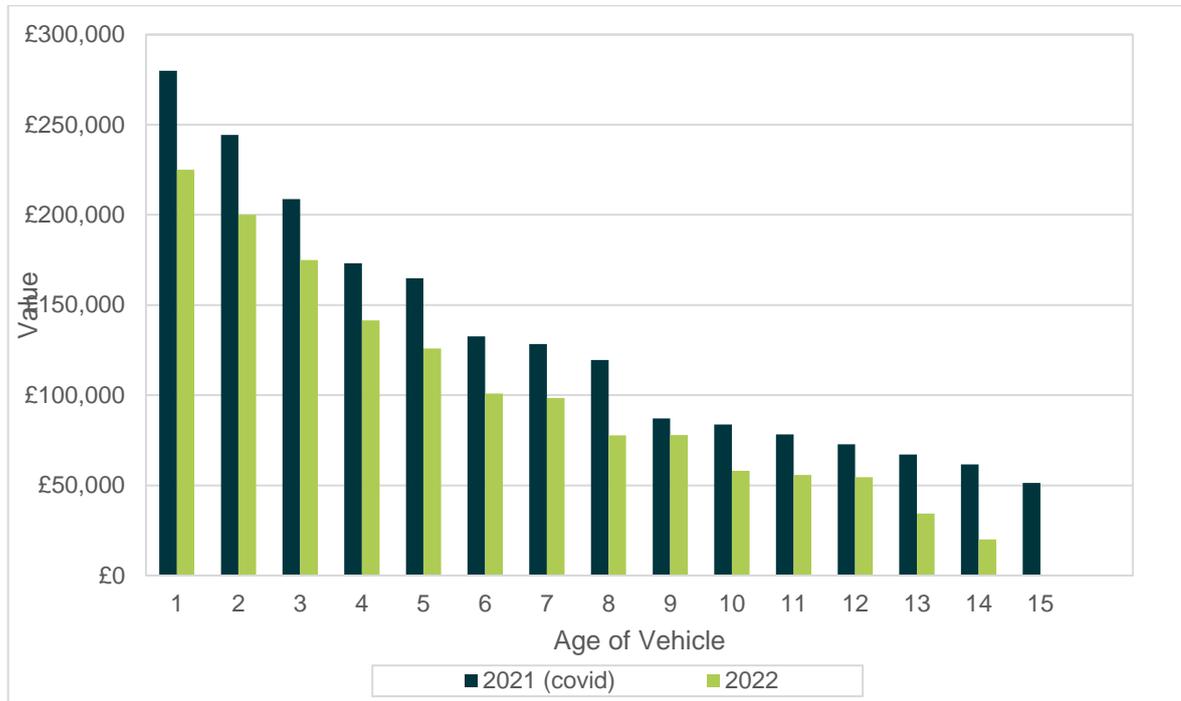
Second-hand Prices – Coach

3.52 An assessment of available second-hand coaches (45 – 60 seats) was undertaken in 2021. Second-hand coach prices also took a fall during 2021 compared to 2019, likely to be because of COVID-19. The assessment was therefore repeated in January 2022, and this shows there has not yet been a recovery in price, instead

³⁵ <https://classifieds.busandcoachbuyer.com/classifieds/coaches/> Page 259

falling further. It is noted that this is in contrast to other sectors such as the vans sector. (see **Figure 3-6**).

Figure 3-6 Second-hand Coach Purchase Prices



Source: average prices extracted from search of classifieds.busandcoachbuyer.com undertaken in 2021 and 2022

3.53 **Table 3-2** displays the price comparison for a second-hand compliant coach pre- COVID-19, in Autumn 2021, versus current market prices. Second-hand coaches on the market varied in price depending on age, mileage and condition.

3.54 Second-hand compliant coaches ranged in type and condition. A review in January 2022 of Mercedes-Benz models (the most common on the market and registered in GM) found that prices ranged from £86,000 to £207,000, with the higher end being a 2020 registered vehicle. The average cost of a popular model; the Tourismo, was approximately £168,000 in 2019 compared to £133,000 in 2022. The mid and high-end prices appear to be recovering slightly whilst the lower end vehicles have continued to fall in value.

3.55 This indicates a potential loss of confidence and demand in the market due to COVID-19 as operators take stock of their operations and vehicles. Most operators will likely be holding back renewals of their fleet until the market improves.

Table 3-2: Second Hand Compliant Coach Cost Estimates

Category	Model	2019 Price Range (Pre-COVID-19)	Autumn 2020 (Mid-COVID-19)	2022 Price Range
Lower	Mercedes-Benz (all on market)	£142,000	£115,000	£86,000
Mid	Mercedes-Benz Tourismo	£168,000	£130,000	£133,000

Higher	Mercedes-Benz (all on market)	£180,000	£165,000	£207,000
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Table 3-3: Second Hand Non-Compliant Coach Cost Estimates

Age (years old)	2019 Price Range (Pre-COVID-19)	Autumn 2020 (Mid-COVID-19)	2022 Price Range
15+	~ £20,000	~ £15,000	Less than £20,000
10-15	£42,000 - £80,000	£20,000 - £70,000	£20,000 - £56,000
5-10	£80,000 - £115,000	£45,000 - £85,000	£56,000 - £101,000

3.56 **Table 3-3** shows the same price comparison for second hand non-compliant coaches. The same trend as the compliant coaches is evident. Comparing to the autumn 2020 prices it does appear the newer end of the market has recovered slightly but is not yet back to pre-pandemic levels.

3.57 An alternative, more affordable approach for coach operators to become compliant is to retrofit their vehicles, for those vehicles where retrofit is possible. As stated in *Technical Note 4*, the cost to retrofit would range between £13,000 to £20,000³⁶ and with grants available from the GM CAP of up to £16,000, this could be a viable way for coach operators to achieve compliance for GM based fleet.

3.58 However, only Euro V engines can be retrofitted which would equate to 120 GM coaches as stated in *Technical Note 37*. This would leave 191 non-compliant GM coaches that cannot be retrofitted, thus requiring a more expensive solution.

New Prices – Minibus

3.59 New market prices for minibuses range from between £25,000 and £55,000, with the vehicles over £50,000 being primarily the Mercedes eVito electric vehicles.

3.60 CAP HPI data provided to AECOM in February 2022 allowed for the comparison of new purchase prices for a Ford Transit minibus in summer 2019 compared to January 2022 – the data shows there has been a 7% increase in purchase price.

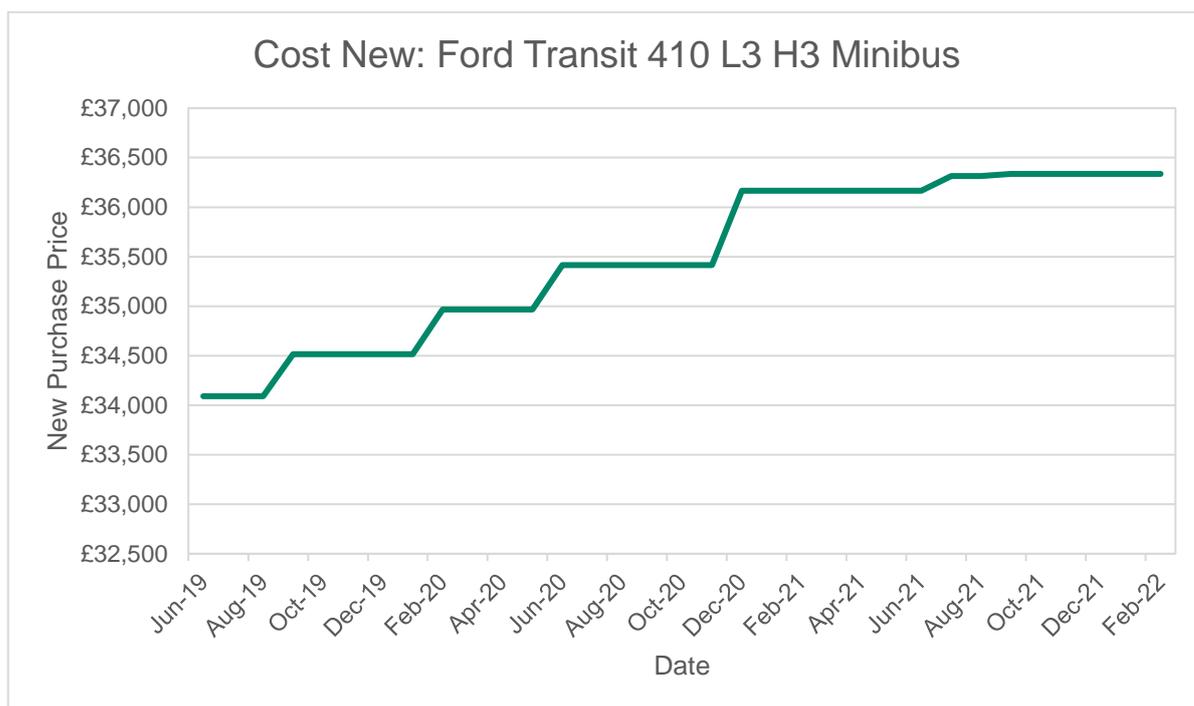
Table 3-4: Estimated Cost of a New Minibus

2019 Typical Price	2022 Typical Price
£34,000	£36,500

Source: CAP HPI data request 2022 – data provided on 15th February 2022.

3.61 The CAP HPI data allows for the trend of new minibus prices to be displayed (see **Figure 3-7**). This shows that since summer 2019, there has been a steady and continued increase in the purchase price of a new Ford Transit minibus. It does appear that the price has remained stable since summer 2021.

³⁶ Note these values were derived prior to the emerging global costs crisis, which may have also impacted retrofit costs.

Figure 3-7 New Minibus Purchase Price (retail condition, excluding VAT)

Source: CAP HPI data request 2022 – data provided on 15th February 2022.

Second-hand Prices – Minibus

3.62 Second-hand minibus prices have been obtained for available compliant and non-compliant vehicles from Auto Trader. This data is compared against market price data collected in 2019 and 2020 and is summarised in **Table 3-5** & **Table 3-6**.

Table 3-5: Second Hand Compliant Minibus Cost Estimates

Model	9 – 12 Seats			13 – 15 Seats		
	2019 Price (Pre-COVID-19)	Autumn 2020 (Mid-COVID-19)	2022 Price	2019 Price (Pre-COVID-19)	Autumn 2020 (Mid-COVID-19)	2022 Price
Ford Transit	£12,000	£16,000	£21,000	£20,000	£16,000	£22,000
Mercedes-Benz Sprinter	£29,500	£20,500	n/a	n/a	n/a	£29,000
Average	£21,000	£18,500	n/a	n/a	n/a	n/a

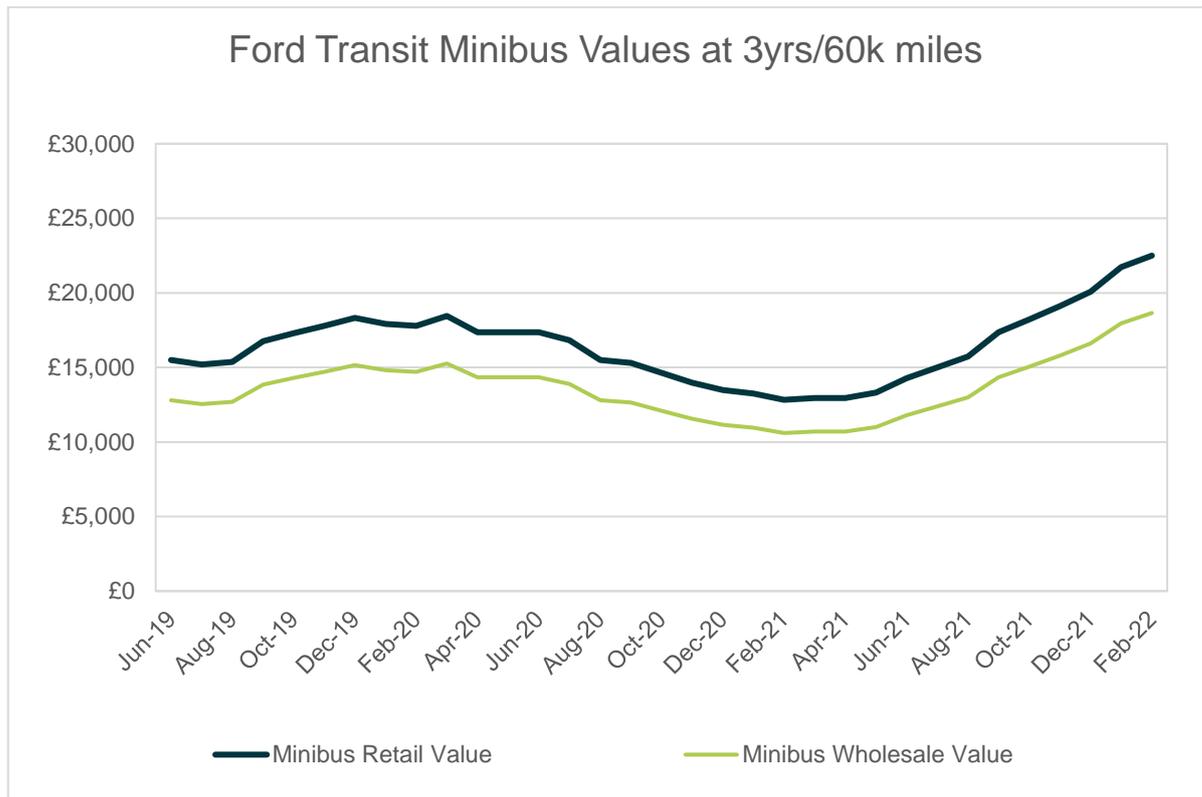
Table 3-6: Second Hand Non-Compliant Minibus Cost Estimates

Model	9 – 12 Seats			13 – 15 Seats		
	2019 Price (Pre-COVID-19)	Autumn 2020 (Mid-COVID-19)	2022 Price	2019 Price (Pre-COVID-19)	Autumn 2020 (Mid-COVID-19)	2022 Price
Ford Transit	£12,000	£9,000	£2,500 – 20,000	£20,000	£8,500	£5,000 – 9,500
Mercedes-Benz Sprinter	£29,500	£12,000	n/a	n/a	n/a	£7,500*
Average	£21,000	£10,000	n/a	n/a	n/a	n/a

* Only one vehicle available at time of search

3.63 There was a reduction in price of second-hand compliant minibuses during 2020 and this appears to have recovered with the price of both a smaller and larger minibus now equal to or exceeding pre-pandemic prices. The purchase price of second hand non-compliant vehicle has continued to fall and the average price of a non-compliant minibus is considerably lower now than in both 2019 and 2020.

3.64 From the CAP HPI data **Figure 3-8** shows the trend in the value of second-hand minibuses throughout the pandemic. An initial small rise in value in March 2020 was followed by a significant fall in value throughout the remainder of 2020. The value began to recover in early 2021 and, by the start of 2022, the value of a second-hand Ford minibus is exceeding 2019 pre-pandemic levels.

Figure 3-8 New Minibus Purchase Price (retail condition excluding VAT)

Source: CAP HPI data request 2022 – data provided on 15th February 2022.

Review of Vulnerability in responding to GM CAP

How have Coach Operators Coped?

- 3.65 COVID-19 has had a big impact on the coach and minibus sector. In particular, the coach operators that serve the tourism and events-based sectors have suffered the most due to the tourism industry taking a significant hit during the pandemic. The operators that provide regular services between destinations have also been impacted but have, at least, been able to operate at a reduced capacity. Whilst those that provide transport for students have most likely seen an increase in business through the introduction of the Home to School scheme, if these trends persist or are fundamentally different to the original assumptions made on the GM CAP, this could have a significant impact on the vulnerability of the coach and minibus sector response to the GM CAP.
- 3.66 This section reviews the original vulnerability assessment of the coach and minibus sector undertaken in 2019 and assesses how the COVID-19 pandemic has impacted coach and minibus vulnerability to the GM CAP.
- 3.67 Smaller operators are the most vulnerable due to the small capital they are likely to have in reserve. Larger operators have been able to diversify, with National Express able to raise over £1 billion from stock market offerings.
- 3.68 As shown in **Table 3-7** the coach industry will be impacted differently depending on the service type. Occasional services are likely to be the most heavily impacted due to their reliance on the tourism and events-based industries that have seen continued reductions in visitors and demand. We cannot yet predict when this service type might fully recover, restrictions are being scaled back and demand is increasing as

confidence rises, however the lasting impacts to the tourism and events-based industries are unclear.

- 3.69 Regular services are also likely to be highly impacted but not as significantly as occasional services. Regular services, such as National Express and Megabus, were able to recommence services once the first national lockdown was lifted and were able to operate at reduced capacity. Though during the January 2021 lockdown, both operators had, once again, suspended their services. The reduced capacity on their timetable and number of passengers on each coach will mean that, financially they are still vulnerable, but are more likely to have a faster recovery when restrictions are fully lifted. Recovery is dependent on customer confidence in their ability to provide a safe and hygienic travelling environment. There will also be a dependency on the speed of international recovery.
- 3.70 The special regular services are likely to have experienced the smallest impacts of COVID-19 and, in some cases, even benefit from it. The HTS scheme from central government has given extra funding for Local Authorities to provide extra vehicles to transport students to and from school. This extra funding has meant that more coaches have been used to fulfil this need. Unfortunately, there is no data available to identify how many GM coach operators this has helped.

Table 3-7: COVID-19 effect on Coach Industry by Service Type

Market Segment	Example	Pre COVID-19 – Responding to GM CAP	COVID-19 Impact	Impact on Responding to GM CAP (Post COVID-19)
Special regular services	Regular, scheduled service, not open to all passengers, such as: school services	<p>Medium impact</p> <p>Primarily owned by larger companies that have higher percentage or newer, GM CAP compliant fleet already.</p> <p>For those larger companies with a larger fleet size of non-compliant vehicles, this will result in a significant cost to upgrade.</p>	<p>Likely to have a medium impact.</p> <p>Will have seen a reduced service from reduction in school trips during lockdown.</p> <p>Some operators will have gained more work from the Home to School Scheme, but this would only impact 15% to 20% of the market.</p>	<p>High impact.</p> <p>Market price of new coaches has fallen by over £25,000.</p> <p>Good availability of second-hand compliant vehicles, lower and mid-range have decreased in price, higher end has seen a price increase. The impact from COVID-19 reduced demand.</p>
Regular services	Regular, scheduled service open to all passengers	<p>Medium impact</p> <p>Primarily owned by larger companies that have higher percentage of newer, GM CAP compliant fleet already.</p> <p>For those larger companies with a larger fleet size of non-compliant vehicles, this will result in a significant cost to upgrade</p>	<p>High impact likely.</p> <p>Operating at reduced capacity, both in the number of routes and the number of passengers on board.</p> <p>Susceptible to any possible national or regional lockdown which is likely to affect number of passengers on board.</p> <p>Likely to recover when COVID-19 is under control and numbers can recover to pre-COVID-19 levels.</p>	<p>High impact.</p> <p>Market price of new coaches has fallen by over £25,000.</p> <p>Good availability of second-hand compliant vehicles, lower and mid-range have decreased in price, higher end has seen a price increase. The impact from COVID-19 reduced demand.</p>
Occasional services	<p>Multi-day visit, or tour requested by a customer or offered by a carrier.</p> <p>Excursion or day trip requested by a customer or offered by a carrier.</p> <p>Local excursion or day trip offered to those already on a multi-day visit or tour.</p>	<p>High impact</p> <p>Likely to be smaller companies, older fleets. Significant cost to upgrade vehicles.</p>	<p>Very high impact likely.</p> <p>Relies heavily on tourism and events sector which have seen a massive reduction in tourist numbers and heavy restrictions</p> <p>Will remain at high risk until the tourism and events sectors recover.</p>	<p>Very high impact</p> <p>Price of new and second-hand compliant vehicles have reduced; however, the price of second-hand non-compliant vehicles have reduced further resulting in a larger capital required to upgrade. Significant COVID-19 impacts to demand and operations.</p>

- 3.71 It is possible that larger companies may keep their compliant vehicles for longer than normal, due to the financial losses incurred from COVID-19 and as many of their coaches will not have been used during the first national lockdown and are currently operating at a reduced service therefore vehicles will have lower mileage than normal. This could therefore reduce the availability of second-hand compliant vehicles on the market, leading to a potential supply gap.
- 3.72 Alternatively, if the financial losses are too severe, more coach operators may go into administration, resulting in more compliant (as well as non-compliant) vehicles entering the second-hand market. This will likely drive the price down, potentially making it more affordable to buy compliant vehicles. It is more likely that this could particularly impact smaller companies, who typically operate a higher proportion of non-compliant vehicles and could result in an increase in this type of vehicle for sale, which the larger companies will be less likely to want to buy.
- 3.73 As mentioned previously, in 2019 there were 269 non-GM based coaches serving GM, of which 259 are non-compliant. This figure represents 12% of the total non-compliant vehicles serving GM. Being non-GM these vehicles would not qualify for any funding for an upgrade to a compliant vehicle. The CAZ could discourage these coaches from operating in GM, or if continuing to operate as a non-compliant vehicle they will be liable for the charge, hindering the success of the GM CAP and having a continued detrimental effect on air quality.
- 3.74 A factor that will have an impact on the industry's ability to respond to the GM CAP is how the UK economy responds post COVID-19. Coach operators that are dependent on the tourism and events-based sectors are tied to how long it takes these sectors to fully reopen and recover and whether they can return to pre-pandemic levels.
- 3.75 It is likely that larger operators will survive due to their ability to raise capital to cover the losses as well as their ability to diversify and acquire contracts from small companies.
- 3.76 If smaller operators do go out of business, it is likely that there will be a larger number of vehicles on the second-hand market, and the data shows many smaller operators have non-compliant vehicles.
- 3.77 During consultation undertaken in 2020, many operators noted that the combined impact of the GM CAZ and COVID-19 could force them to close their business. Operators specified that the GM CAZ charge would be 'too significant' in their ability to be able to afford the charge given their current financial situation due to COVID-19 and upgrading to a compliant vehicle would be 'too expensive', especially after COVID-19.

Minibuses Vulnerability Review

- 3.78 Local authorities and education establishments (as long as schools remain open) are both likely to have low impacts. This is due to neither sectors' reliance on customers to operate.
- 3.79 Community transport services are predicted to have a medium impact. Although the industry does rely on customers to operate, they do not operate for a profit so therefore not reliant on demand, and their overheads are likely to be small. It is important to note that community minibuses are exempt from the CAZ so will not affect the overall success of GM CAP.

- 3.80 Local bus operator, using minibuses, are likely to have been highly impacted during the lockdowns due to the large reduction in demand as a result of the restrictions on the movement of people. However, the industry has received help from the government so operators are likely to survive and, as the demand continues to increase, the industry should be able to recover.
- 3.81 Coach operators, using minibuses, are likely to be the most affected by COVID-19 due to the lack of financial support from the government and the reliance on the tourism and events-based sectors. The recovery of this industry will depend on whether they get financial support and the rate at which demand increases and returns to pre-COVID-19 levels.
- 3.82 The leasing and rental industry is also likely to be highly impacted as they have experienced a significant reduction in demand for their services. As tourism continues to return to pre-pandemic levels, these sectors should also recover.
- 3.83 Those classified as being in 'other' are also likely to have felt a high impact. In particular, the smaller operators are unlikely to have the capital to survive the impact of COVID-19 suppressing demand in 2020 and into 2021.

Table 3-8: COVID-19 effect on Minibus Industry by Service Type

Market Segment	Typical Example	Pre COVID-19 – Responding to GM CAP	COVID-19 Impact	Impact on Responding to GM CAP (Post COVID-19)
Local Authorities (13%)	Public sector owned and operated vehicles.	Low impact Public sector owned	Low impact likely. Do not rely on customers to operate so are likely to operate as normal. Those minibuses that provide a service to the community are likely to operate at a reduced service.	Medium impact Price of new minibus has increased by 7% due to vehicle supply issues. There has been an increase in price of second-hand compliant vehicles, however no increase in second-hand non-compliant so current vehicle value reduced.
Community Transport (9%)	Vehicles that are operated for community groups and charities. In this group there can be cross over between charities and local authorities as operators.	Medium impact Significant cost to upgrade if existing vehicles are non-compliant	Medium impact likely. Rely on customers in order to operate and are likely to have reduced demand due the customers they serve being older and at a greater risk of COVID-19 effects, but they are able to operate at reduced capacity.	High impact With the increase in price of compliant vehicles the impact will increase to a high level
Education Establishments (18%)	Institute that owns and operates their own minibus fleet, such as schools, specialist schools, colleges and universities.	Medium impact Cost to upgrade if existing vehicles are non-compliant	Low impact likely. Do not rely on customers to operate and most likely own their own vehicles. Most likely return to pre-COVID activity when safe to do so.	Medium impact Price of new minibus has increased by 7% due to vehicle supply issues. There has been an increase in price of second-hand compliant vehicles, however no increase in

Market Segment	Typical Example	Pre COVID-19 – Responding to GM CAP	COVID-19 Impact	Impact on Responding to GM CAP (Post COVID-19)
		Likely to own low volume of vehicles.		second-hand non-compliant so current vehicle value reduced.
Local Bus Operators (2%)	A local bus operator that offers minibus services in parallel to bus services.	Medium impact Significant cost to upgrade if existing vehicles are non-compliant.	High impact likely. Rely on customers in order to operate and have seen a large reduction in demand and revenue. Have received financial help from the government so are likely to survive.	High impact With the increase in price of compliant vehicles combined with the impact of reduced income due to COVID-19.
Coach Operators (2%)	Coach operators that offer minibus services in parallel to coach services (both commercial and private).	High impact Significant cost to upgrade if existing vehicles are non-compliant.	Very high impact likely. Rely on customers in order to operate and have seen a large reduction in demand. Have not received financial help from the government so face a precarious future.	Very High impact Business already highly impacted by COVID-19, on top of increased prices to upgrade to compliant vehicles
Leasing / Rental companies (10%)	Rental companies that offer a range of vehicles for leasing, which includes a range of minibuses	High impact Significant cost to upgrade if existing vehicles are non-compliant.	High impact likely. Have seen a large reduction in demand. Benefit from government schemes such as the Furlough scheme. Members of BVRLA state they are confident of being able to recover once COVID-19 is over.	Very High impact Business already highly impacted by COVID-19, on top of increased prices to upgrade to compliant vehicles
Other (36%)	Minibuses that are owned by individuals, such as sole traders or individuals for private use.	High impact Significant cost to upgrade if existing vehicles are non-compliant, sole traders or private use, non-commercial.	High impact likely. Sole traders rely on customers to operate. May not have capital to survive reduced demand.	Very High impact Business already highly impacted by COVID-19, on top of increased prices to upgrade to compliant vehicles – may not be business, could be for personal use so may not be eligible.
Taxi and Private Hire Vehicles (10%)	Not assessed within this Evidence Note			

4. Conclusion

Summary

- 4.1 This note has sought to address the following key considerations:
- A review of the current position of the coach and minibus fleet;
 - Report on the impact of COVID-19 in terms of changes to travel behaviour within GM, including changing transport trends and economic trends as a result of the COVID-19 pandemic;
 - Specific COVID-19 pandemic impacts on this vehicle type (Coaches and Minibuses); and
 - Comment on the extent to which those changes may be considered material to the success of the GM CAP given the vulnerability of the vehicle type (Coaches and Minibuses) to meet GM CAP compliance.
- 4.2 The most recent national datasets cover bus, coach and minibus combined. They show that this sector accounts for less than 2% of all vehicles and that is consistent locally, regionally and nationally.
- 4.3 Based on 2019 data, there are 1,700 coaches serving GM with 60% of those being compliant. There are 3,100 minibuses serving GM with 15% of those being compliant.
- 4.4 We do not have recent observed patronage data for the bus, coach and minibus sectors individually but public transport trip levels generally are between 60% and 75% of pre-pandemic / typical levels with bus performing more strongly than rail / Metrolink.
- 4.5 Coach operators can be categorised as offering three types of services:
- Special regular services (e.g. school travel provision);
 - Regular services; and
 - Occasional services.
- 4.6 Other than school services, which are largely back to normal, the ongoing impact on the coach market is dependent on how soon tourism and general travel returns to 'normal' levels. At the present time, that remains uncertain though there has been a general increase in leisure travel in recent months.
- 4.7 The impact of the pandemic has generally reduced prices for both new and second-hand coaches due to the reduced demand in the sector.
- 4.8 Conversely the price of new and second-hand minibuses has increased other than for second-hand non-compliant vehicles.
- 4.9 There is a wider range of organisations / businesses that use minibuses. Local authority, community transport and education related are all likely to be relatively unaffected as they are less demand dependant. But local bus and coach operators and leasing companies will be subject to the same travel demand uncertainties associated with the bus and coach sector.

Appendix A – List of Documents

This Appendix provides a list of documents and data sources used to inform this report.

Document Title	Date	Description	Relevance to GM CAP
Chapter 1			
Mayor of Greater Manchester writes to Government reiterating call for non-charging Clean Air Zone	May 2022	Announcement, provide background on current status of GM CAP https://www.greatermanchester-ca.gov.uk/news/mayor-of-greater-manchester-writes-to-government-reiterating-city-region-s-call-for-non-charging-clean-air-plan/	Current Status of GM CAP
GM CAP Technical Documents (various)	various	All available at Technical Documents Clean Air Greater Manchester (cleanairgm.com) https://cleanairgm.com/technical-documents/	Published Technical Reports for GM CAP
Chapter 2			
Definition of Vehicle Categories	Feb 2022	Definition of Vehicle Categories, Vehicle Certification Agency transportpolicy.net/standard/eu-vehicle-definitions/	Definition of Vehicle Categories
UK Coach Fleet Database - Transport Resources International Limited (2019)	2019	Provides information about coach makes and registrations	Coach makes and registrations
DfT (2018) Analysis of DVLA registered vehicle database records (version Q2 2016)	2018	Provides information about minibus registrations in GM	GM Minibus registrations
DfT, Statistical data set	Jan 2022	Provided the proportion of vehicle types registered by area	Vehicle types registered by area
T4 Appendix C, Vehicle Population Estimates	2019	Provided numbers of coaches/minibus serving GM by regions and compliances	Published Technical Reports for GM CAP
Chapter 3			
Online article from the Society of Motor Manufacturers and Traders (SMMT) -	Feb 2022	Stating falling demand and registrations of UK bus and coach: https://www.smmt.co.uk/2022/02/uk-bus-and-coach-registrations-fall-to-lowest-recorded-level-as-pandemic-dents-ridership/	Understand impacts of COVID on coach/minibus sector
Confederation of Passenger Transport (CPT) aid-to-trade-document	Various	Providing coach occupancy information https://www.cpt-uk.org/media/ijnl3w4f/aid-to-trade-document.pdf	Research

Online article from route-one.net	Aug 2021	Covid impact on coach and minibus sector https://www.route-one.net/news/difficult-road-ahead-for-incoming-coach-tourism-recovery/	Research
“New survey reveals shocking shortage of bus drivers” - Online article from Unite The Union	Nov 2021	This revealed the bus driver shortages https://www.unitetheunion.org/news-events/news/2021/november/new-survey-reveals-shocking-shortage-of-bus-drivers/	Research
“National Express takes next step into UK leisure travel market” - National express	Aug 2021	Impact of COVID-19 on Regular Coach Services: https://www.nationalexpressgroup.com/media/news-releases/2021/national-express-takes-next-step-into-uk-leisure-travel-market/	Research
“National Express shares fall as firm warns Covid-19 recovery will be slow” – The Guardian	Aug 2020	How COVID-19 Affected National Express: https://www.theguardian.com/business/2020/aug/13/national-express-shares-fall-warns-covid-19-recovery-slow	Research
“Half Year Results” – National Express	Jul 2021	How COVID-19 Affected National Express: https://www.nationalexpressgroup.com/media/j2tdj5xc/national-express-hy-2021-presentation-post-final-tweak-11-aug-2021.pdf	Research
“UK coach sector warns of looming disaster without government support” - FT	Sept 2020	The Home to School (HTS) scheme that was introduced by the Government in August 2020 helped some coach operators to gain extra revenue (to help cover lost revenue from suppressed passenger demand) as a result of the COVID-19 restrictions: https://www.ft.com/content/424808f0-c5d8-4b64-a127-c2e802b67d17	Research
Public Service Vehicles Accessibility Regulations 2000 and their application to home-to-school and rail replacement coach services	Dec 2021	The Government announced the intention to extend existing Vehicle Accessibility Regulations 2000 exemptions for HTS services: https://www.gov.uk/government/publications/public-service-vehicles-accessibility-regulations-2000-and-their-application-to-home-to-school-and-rail-replacement-coach-services	Research
Demand for trains plummets after timetables were slashed: Rail travel is 55% of pre-pandemic levels after Omicron wave saw firms axe services to cope with staff shortages	Jan 2022	Rail demand in January 2022 was at 55% of pre-pandemic levels, as a result of timetable reductions due to staff shortages following the Omicron wave, having previously returned to 70% of pre-pandemic demand: https://www.dailymail.co.uk/news/article-10394121/Demand-trains-plummets-timetables-slashed-Rail-travel-55-pre-pandemic-levels.html	Research
COVID-19: Positive change for	Jun 2020	Spencer Graham Coaches of Silloth invested in three PSVAR vehicles and have provided rail replacement	Research

the coach industry?		services, which has provided the company enough revenue to survive during COVID-19 https://www.route-one.net/features/covid-19-positive-change-for-the-coach-industry/	
Memorandum submitted by the Confederation of Passenger Transport	Oct 2000	The tourism industry forms an important part of the coach sector market: https://publications.parliament.uk/pa/cm200001/cmselect/cmtrdind/268/01101p11.htm	Research
£14bn and 10,000s of jobs at risk if coach travel sector collapses warns CPT	Sep 2020	Pre-pandemic, in 2019, coach travel catered for over 23 million tourism visits a year and contributed £14bn to the UK economy https://www.cpt-uk.org/news/14bn-and-10-000s-of-jobs-at-risk-if-coach-travel-sector-collapses-warns-cpt/	Research
Proposition of support that enables the coach to tourism industry to trade out of the Covid-19 crisis		Around 80% of the coach industry's income is derived from tourism related activities https://www.cpt-uk.org/media/ijnl3w4f/aid-to-trade-document.pdf	Research
Overseas travel and tourism: January 2019 provisional results	Jan 2019	The total amount spent by UK residents during visits abroad was higher than the total brought into the UK by foreign residents visiting https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/bulletins/overseastravelandtourism/january2019provisionalresults	Research
Overseas travel and tourism, UK, provisional: July to September 2021	Feb 2022	Overseas residents spent a total of £1.2 billion on their visits to the UK during this period (which covers the typical summer peak travel period); this is a decrease of 87% on the same quarter in 2019 https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/bulletins/overseastravelandtourism/julytoseptember2021	Research
2022 tourism forecast	Nov 2021	VisitBritain released its 2022 tourism forecast https://www.visitbritain.org/2022-tourism-forecast	Research
National Express reports £445m loss for 2020 after 80% drop in passengers	Mar 2021	National Express reported a £445m loss in 2020 due to the COVID-19 pandemic. However, they are optimistic as, throughout 2021, they have seen a rapid recovery in demand when travel restrictions have been lifted: https://www.theguardian.com/business/2021/mar/18/national-express-reports-445m-loss-for-2020-after-80-drop-in-passengers	Research
National Express targets smaller rivals struggling in pandemic	Mar 2021	Have Coach Operators Coped pandemic. https://www.ft.com/content/02a27f99-8955-4220-95c4-3e15e9844ad8	Research
'Difficult road ahead' for incoming coach tourism recovery	Aug 2021	Andersons Travel had returned to around 60% of pre-pandemic business by the end of 2021. A degree of this has been due to diversification, for example home-to-school is now a predominant area of work https://www.route-one.net/news/difficult-road-ahead-for-incoming-coach-tourism-recovery	Research
Minibus services relaunched across Greater	May 2020	The Ring and Ride service provided by TfGM was completely stopped for just over two months when the first national lockdown occurred but has since restarted	Research

Manchester to help vulnerable residents		https://www.wigantoday.net/news/uk-news/minibus-services-relaunched-across-greater-manchester-help-vulnerable-residents-2857659	
Aug 2020 Covid19 Research Presentation - UPDATE	Sep 2020	British Vehicle Rental and Leasing Association (BVRLA) states that 94% of their members expect reduced revenues compared to their forecasts pre-COVID-19. https://www.bvrla.co.uk/resource/aug-2020-covid19-research-presentation.html	Research
'They're leaving in droves': UK faces bus driver shortage as HGV industry offers better pay	Oct 2021	The Unite union stated that there are more than 4,000 vacancies for bus and coach drivers across the UK and some companies have been forced to cancel services because drivers are not available https://news.sky.com/story/theyre-leaving-in-droves-uk-faces-bus-driver-shortage-as-hgv-industry-offers-better-pay-12442971	Research
Bus services in England face axe as end to emergency Covid funding looms	Jan 2022	Passenger numbers on buses have decreased sharply from 80% of pre-pandemic levels to less than 60% since the rise of the Omicron variant and the re-introduction of work-from-home advice in December 2021, leaving firms reliant on recovery grants to run services https://www.theguardian.com/business/2022/jan/11/bus-services-in-england-face-axe-as-end-to-emergency-covid-funding-looms	Research
Third year of decline for UK bus & coach market	Feb 2020	The UK new bus and coach market was already in decline, with the market falling by 18.8% in 2019, with annual registrations falling for a third consecutive year to 5,874 units SMMT suggest that the reasons for this continued decline were due to a combination of weak business confidence, declining passenger numbers and some confusion over clean air zones https://www.smmt.co.uk/2020/02/third-year-of-decline-for-uk-bus-coach-market/	Research
UK bus and coach registrations fall to lowest recorded level as pandemic dents ridership	Feb 2022	Demand for new buses and coaches dropped further in 2021 and was the weakest year since records began in 1996, with a total of 3,467 new registered buses. https://www.smmt.co.uk/2022/02/uk-bus-and-coach-registrations-fall-to-lowest-recorded-level-as-pandemic-dents-ridership/	Research
Coaches For Sale	Feb 2022	Coach sale info: https://classifieds.busandcoachbuyer.com/classifieds/coaches/	Research
CAP HPI data	Feb 2022	New Minibus Purchase Price <i>(Raw Data not published).</i> Data request 2022 – data provided on 15th February 2022.	Research
Leger Holidays	Feb 2022	Evidence of larger operators with bigger fleets tend to have a higher percentage of compliant fleets https://www.leger.co.uk/content/business-update	Research

Chapter 4			
		(No additional sources in Chapter 4)	
Appendix A			
		(No additional sources in Appendix A)	
Appendix B			
Coronavirus (COVID-19) UK Government Dashboard	Oct 2020	https://coronavirus.data.gov.uk/	Background of Covid Timeline
“Greater Manchester’s COVID-19 Management Plan: how we control outbreaks”	2022	https://greatermanchester-ca.gov.uk/coronavirus/COVID-19-management-plan/	Background of Covid Timeline
“Prime Minister announces new local COVID Alert Levels”	Oct 2020	https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels	Background of Covid Timeline
TfGM’s C2 Database	various	Traffic flow data was extracted and analysed from TfGM’s C2 Database https://tfgmc2.drakewell.com/multinodemap.asp	Information on local traffic impacts
“Budget 2021: Fuel duty rise axed as petrol prices hit record highs”	Oct 2021	Fuel Prices Increase: https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-axed-petrol-prices-record-highs-b962832.html	Information on Economic Related Impacts
“GDP monthly estimate, UK : December 2021”	Dec 2021	GDP information https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021	Information on Economic Related Impacts
“Average weekly earnings in Great Britain: February 2022”	Dec 2021	Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022	Information on Economic Related Impacts
“UK economy latest”	Dec 2022	Information on Goods import and exports https://www.ons.gov.uk/economy/economicoutputandproductivity/output/articles/ukeconomylatest/2021-01-25#output	Information on Economic Related Impacts
“Cities Outlook 2022”	Jan 2022	Change in pub and restaurant sales in City Centres and Suburbs. Weekday footfall in Birmingham, Manchester and London https://www.centreforcities.org/wp-content/uploads/2022/01/Cities-Outlook-2022-2.pdf	Information on Economic Related Impacts

Appendix B – Review of COVID Impacts

Overview

- B.1 Travel behaviour and the economy have been impacted by the COVID-19 pandemic and have resulted in changes in the way that people travel and the way businesses operate. In this chapter we will assess some of the key data findings found throughout the period to better understand the levels of impact on transport and travel generally.
- B.2 Chapter 3 focuses on the impacts of COVID-19 on the coach and minibus sectors.

COVID Timeline

- B.3 In January 2020, COVID-19 first appeared in the UK. By 30th November 2020, there were an estimated total of 1.6 million people testing positive to the virus in the UK with 58,24537 cases resulting in deaths.³⁸
- B.4 As stated within the GMCA COVID-19 Management Plan Executive Summary, GM had more than 16,000 confirmed cases and nearly 2,800 people died during the first four months of the COVID-19 pandemic.³⁹
- B.5 In Summer 2020, North West England was one of the worst affected areas by the pandemic with GM placed under additional restrictions on 31st July 2020. Throughout 2020, GM continued to experience a disproportionate impact to the rest of the UK from these additional restrictions, such as the three-tier system for lockdowns across England. This three-tiered system was first announced by the Government in October 2020 to ‘*simplify and standardise local rules*’.⁴⁰
- B.6 On 5th November 2020, the Government imposed a second national lockdown with restrictions on continued business activity in England. These restrictions were in place between 5th November and 2nd December 2020, followed by a return to 3 Tier system restrictions.
- B.7 On 19th December 2020 the Government introduced an additional 4th Tier, with lockdown measures beginning in London and the South East, after having identified the Alpha (Kent) variant, coming into effect on 21st December 2020 until a third nationwide lockdown was re-introduced on 6th January 2021.
- B.8 March 2021 saw Step 1 of the Government’s roadmap being introduced, with schools reopening and outdoor gatherings being allowed with the proviso of staying local. April 2021 saw Step 2 of the roadmap allowing limited indoor contact, businesses such as hairdressers to reopen and outdoor hospitality. Step 3 came into effect in May 2021, allowing indoor meetings limited to 6 people and 10,000 people for large sport stadiums. Step 4, on 19th July 2021, saw the remaining venues such as nightclubs reopen, and the removal of most other restrictions.

³⁷ UK deaths is based on deaths within 28 days of a positive test and does not include excessive deaths.

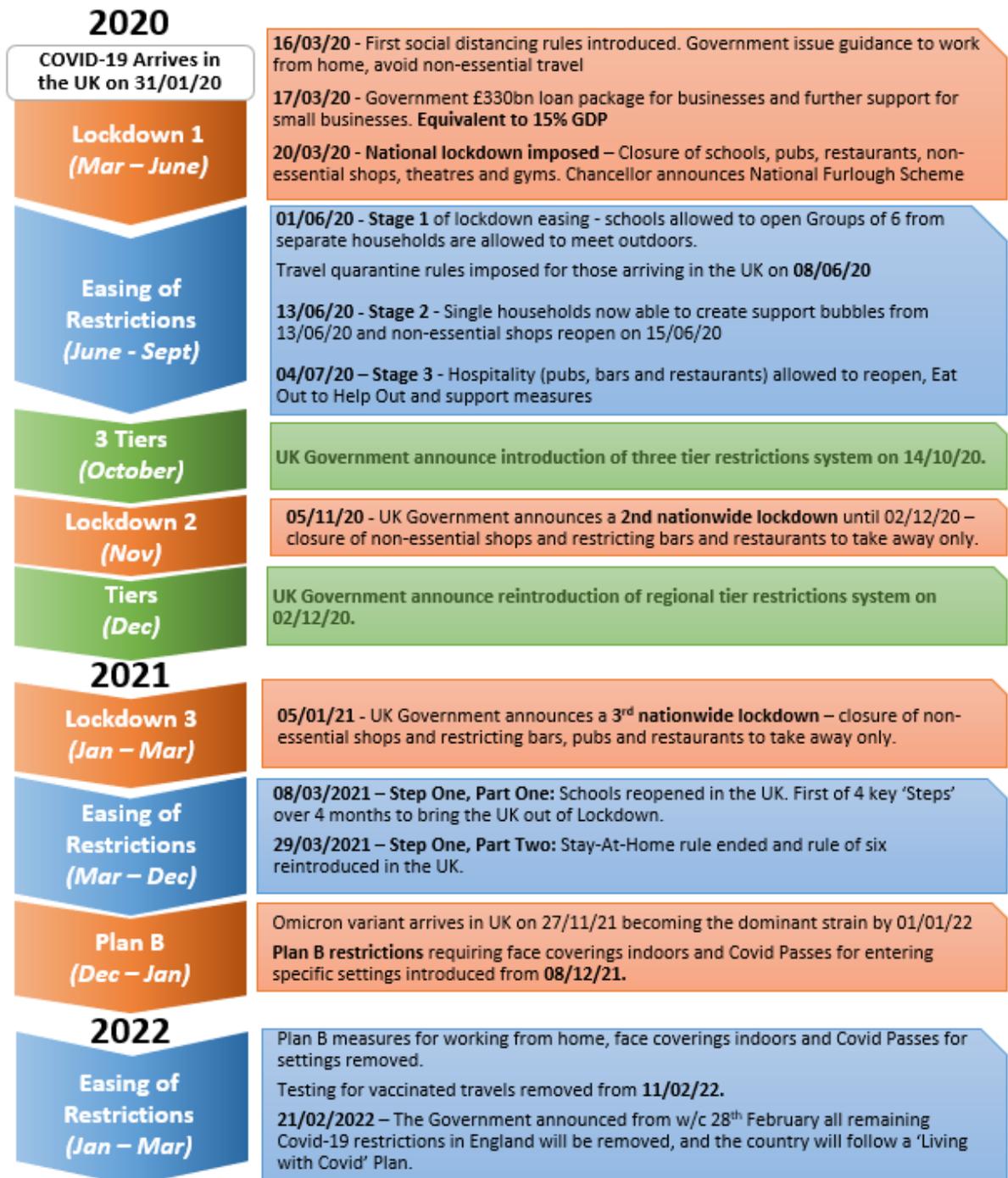
³⁸ Coronavirus (COVID-19) UK Government Dashboard <https://coronavirus.data.gov.uk/> (accessed 01/10/20)

³⁹ COVID-19 Management Plan – Executive Summary (GMCA) <https://greatermanchester-ca.gov.uk/coronavirus/COVID-19-management-plan/>

⁴⁰ Prime Minister announces new local Covid Alert Levels - <https://www.gov.uk/government/news/prime-minister-announces-new-local-covid-alert-levels>

- B.9 With the discovery of the Omicron variant, Plan B measures (face coverings indoors and use of Covid Passes at specific settings such as nightclubs), which also recommended working from home where possible, were implemented from 8th December 2021 to 27th January 2022.
- B.10 A summary of the key COVID-19 events and Government responses has been captured in **Figure B-1**.

Figure B-1 COVID-19 Timeline January 2020 to March 2022



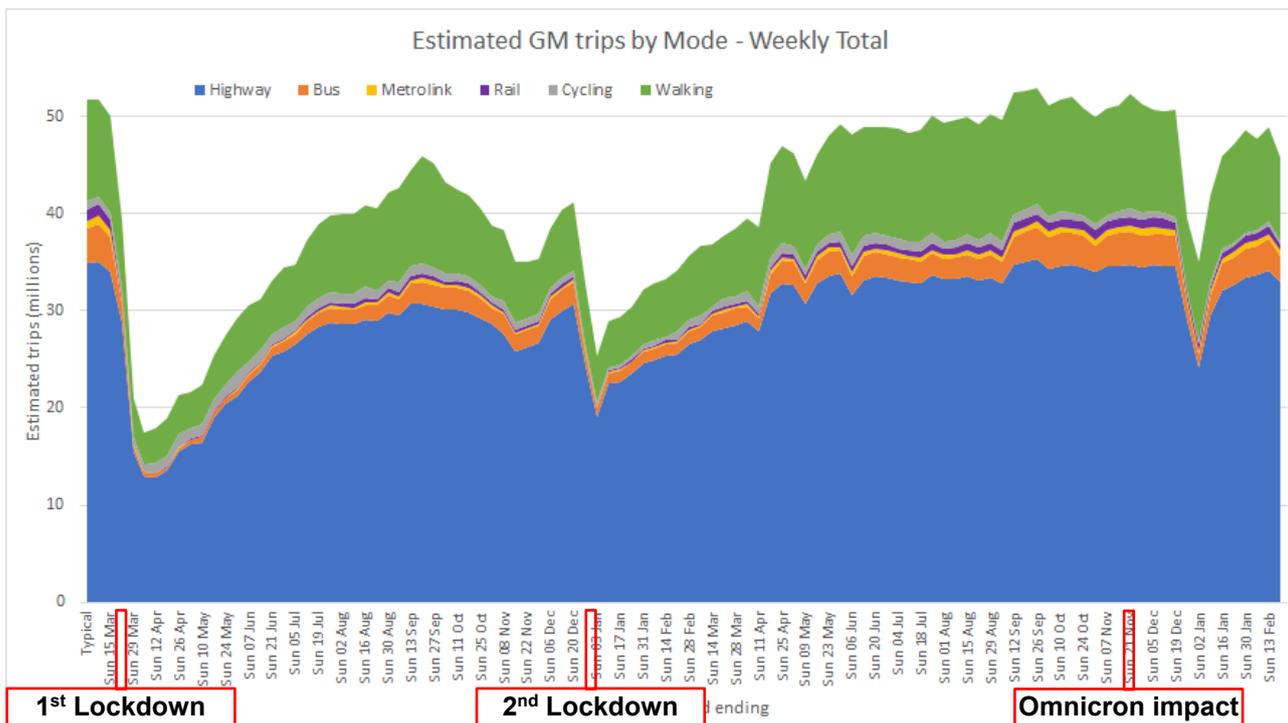
- B.11 The COVID-19 pandemic has had a transformative global impact to health, businesses, the economy, and way we live and interact with one another.

- B.12 At the time of the production of this note in March 2022, the UK appears to be exiting the pandemic. Case numbers are stabilising, death and in-patient numbers remain low, reflecting the positive impact of a successful vaccine programme rollout.
- B.13 However, emerging evidence gathered over the course of 2020 and 2021 has shown that there have been substantial changes to the economy, travel patterns and our behaviours. These changes have been driven by Government policy in the short term, however some of the behaviours adopted during Government lockdowns may continue as restrictions ease. In addition to this, economic impacts following the recent easing of restrictions have resulted in impacts which can be seen locally, nationally and globally within the economy.

COVID-19 Impacts on Travel Behaviour

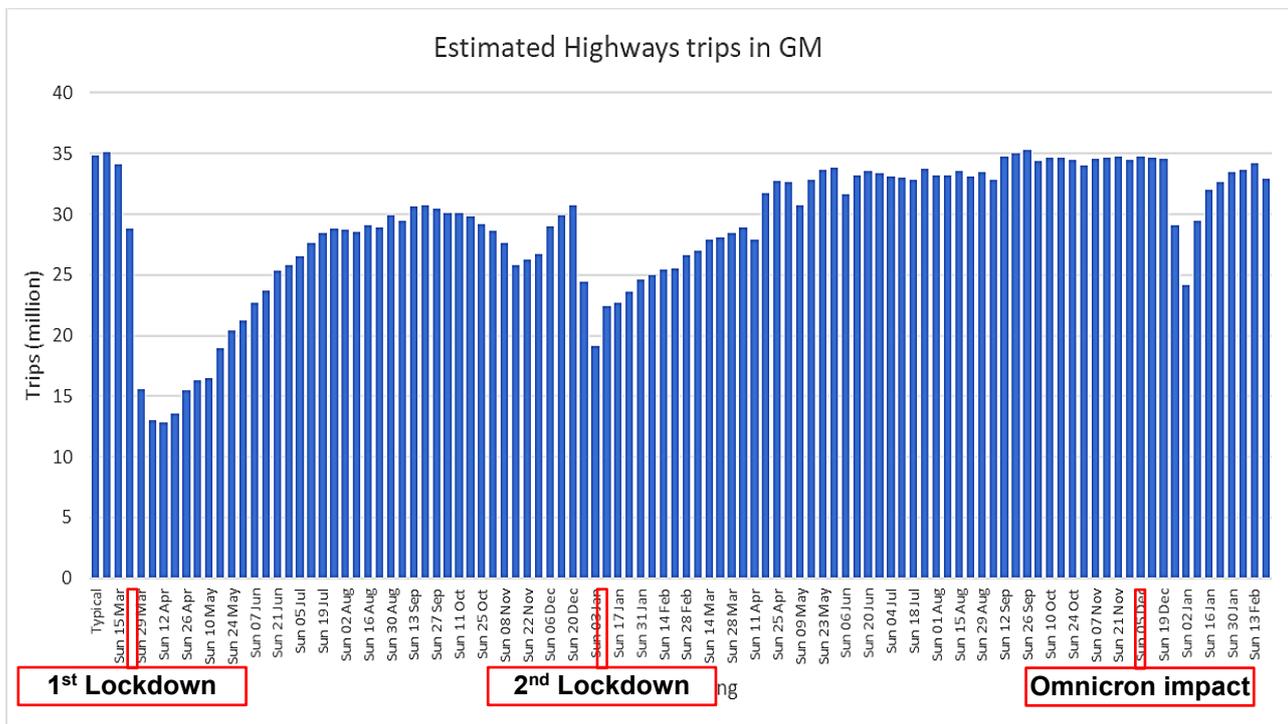
- B.14 Detailed analysis has been undertaken on the impacts of COVID-19 on travel demand within GM to compare 'pre-pandemic' and 'during pandemic' travel levels within GM.
- B.15 As shown in **Figure B-1**, there are a number of Government interventions which have had an impact on traffic levels (for all modes of transport). These include:
- Government guidance issued on 16th March 2020 to work from home 'where possible';
 - Closure of all UK schools to children, apart from those who have key worker guardians on 20th March 2020;
 - Closure of the hospitality and leisure sector on the 20th March 2020 including pubs, bars, restaurants, gyms, theatres etc.;
 - Re-opening of schools to all children in September 2020 alongside the UK Government encouraging workers to return to the office;
 - Implementation and extension of the Government Tiered restrictions;
 - Return to lockdown conditions on 5th November 2020, 2nd December 2020 and 6th January 2021; and
 - Hotel quarantine for travelers from high-risk countries.
- B.16 Since the beginning of the pandemic, travel patterns across the UK have significantly changed, driven by changing Government guidelines and the perception of transmission risks on certain forms of transport. An overview of the changing trends of travel behaviour by mode in Greater Manchester is provided in **Figure B-2 to Figure B-6**; the data has been provided by TfGM. Three key dates have been flagged in each figure: the first and second national lockdowns plus the emergence of the Omicron variant.

Figure B-2 Overview of travel behaviour – All Modes



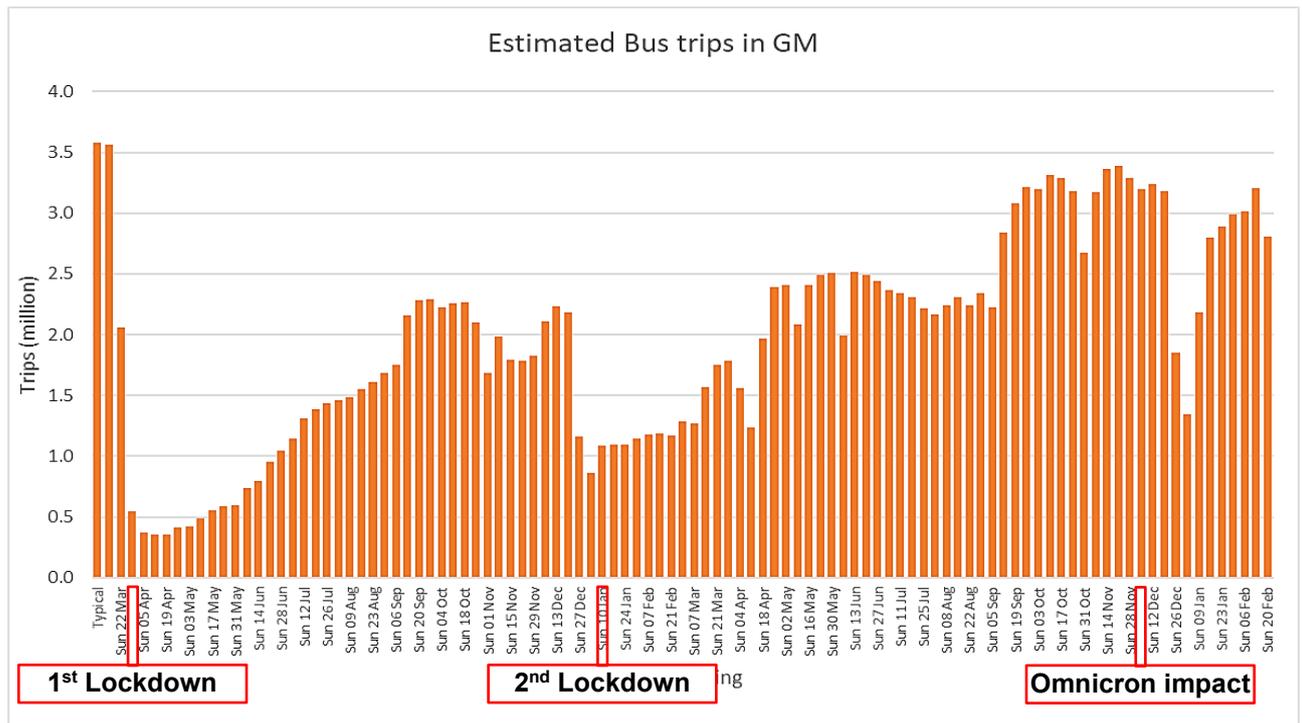
Source: TfGM

Figure B-3 Overview of travel behaviour – Highway



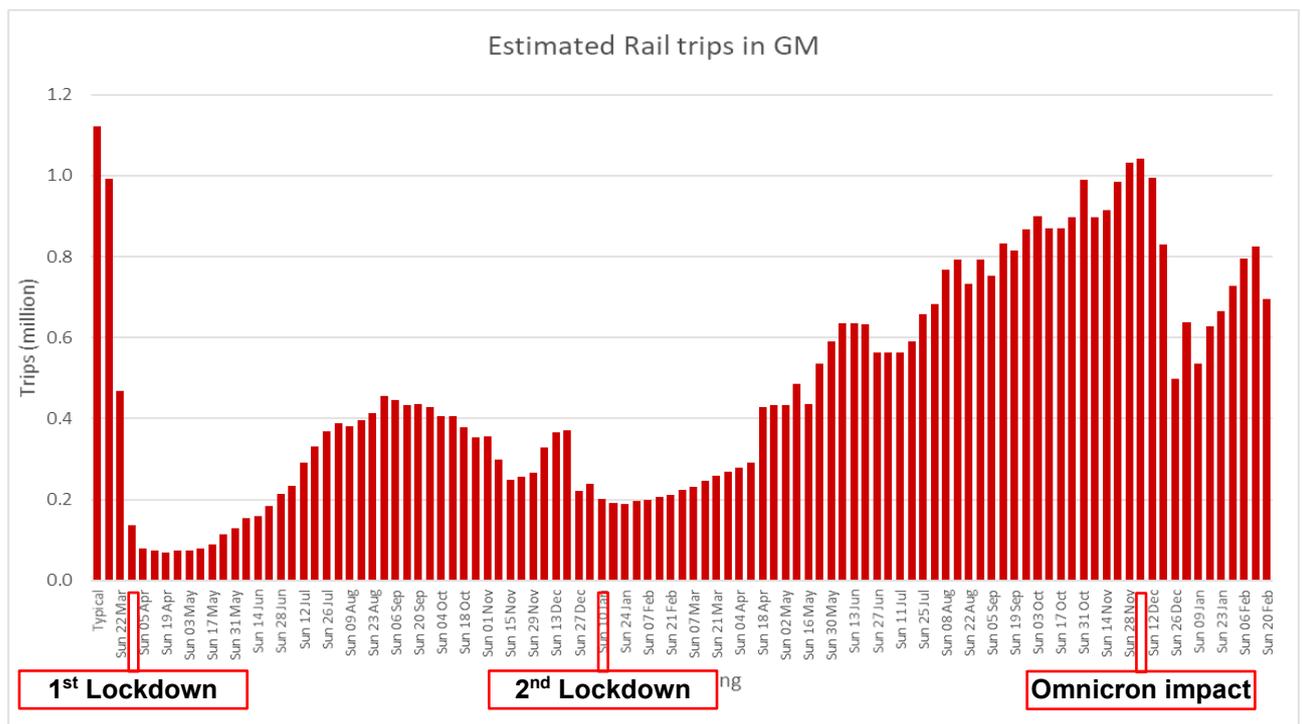
Source: TfGM

Figure B-4 Overview of travel behaviour – Bus



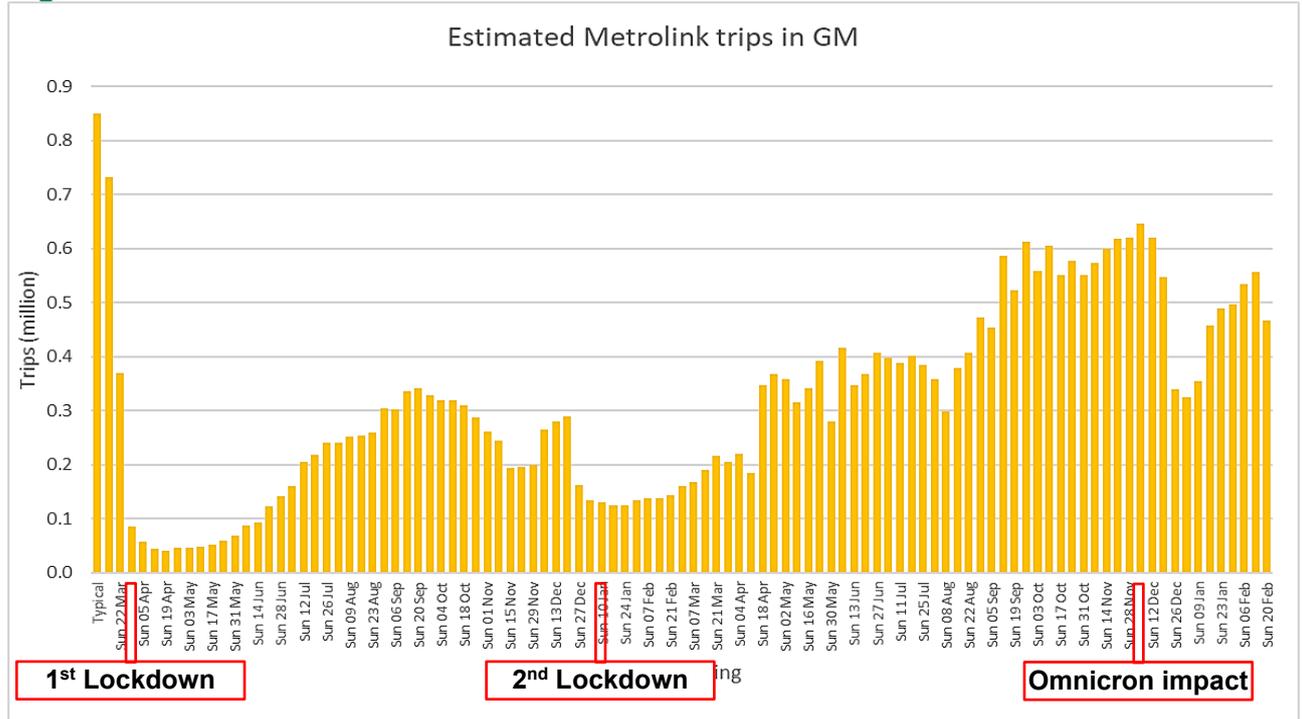
Source: TfGM

Figure B-5 Overview of travel behaviour – Rail



Source: TfGM

Figure B-6 Overview of travel behaviour – Metrolink



Source: TfGM

- B.17 These figures illustrate that the impact of the pandemic has been pronounced and the extent to which pre-pandemic travel volumes have returned varies by mode. In summary, at the aggregate level across GM:
- Highway trips are close to pre-pandemic levels (approximately 95% of 'typical'); and
 - Public transport trip levels are between 60% and 75% of pre-pandemic / typical levels with bus performing more strongly than rail / Metrolink.

Local Traffic Impacts

- B.18 Further analysis was undertaken regarding traffic flows on the local highway network, in order to understand the changing highway demand levels at various points through the pandemic. This has provided an insight into how the COVID-19 related travel guidance and changing behaviours because of the pandemic have impacted travel across GM.
- B.19 This analysis has considered changing travel levels at a range of locations across Greater Manchester, to understand how traffic flows have changed on the following:
- Roads near to the Regional Centre;
 - Key radial routes;
 - Roads adjacent to local centres within GM; and
 - Roads accessing centres of employment.
- B.20 The analysis has considered several points in time, comparing:
- September 2019 (before the pandemic);

- September 2020 (during the pandemic);
- November 2021 (during pandemic – pre Omicron); and
- January 2022 (most recent, though impacted by Omicron variant).

B.21 Traffic flow data was extracted and analysed from TfGM's C2 Database⁴¹. These have been reviewed and presented for the 2-way hourly link volumes, by hour, at the following locations:

- Manchester Rd (A56) / 15m South of Ashlor St, Bury (ATC);
- Princess Rd (A5103) / 100m North of Bonsall St, Hulme, Manchester (ATC);
- Washway Rd (A56) / 40m North of Hunston Rd, Sale, Trafford (ATC);
- Bury New Rd (A56) / 90m North of Kingswood Rd, Prestwich, Bury (ATC); and
- Centenary Way (A576) / 160m North of Guinness Rd, Trafford Park, Trafford (ATC)

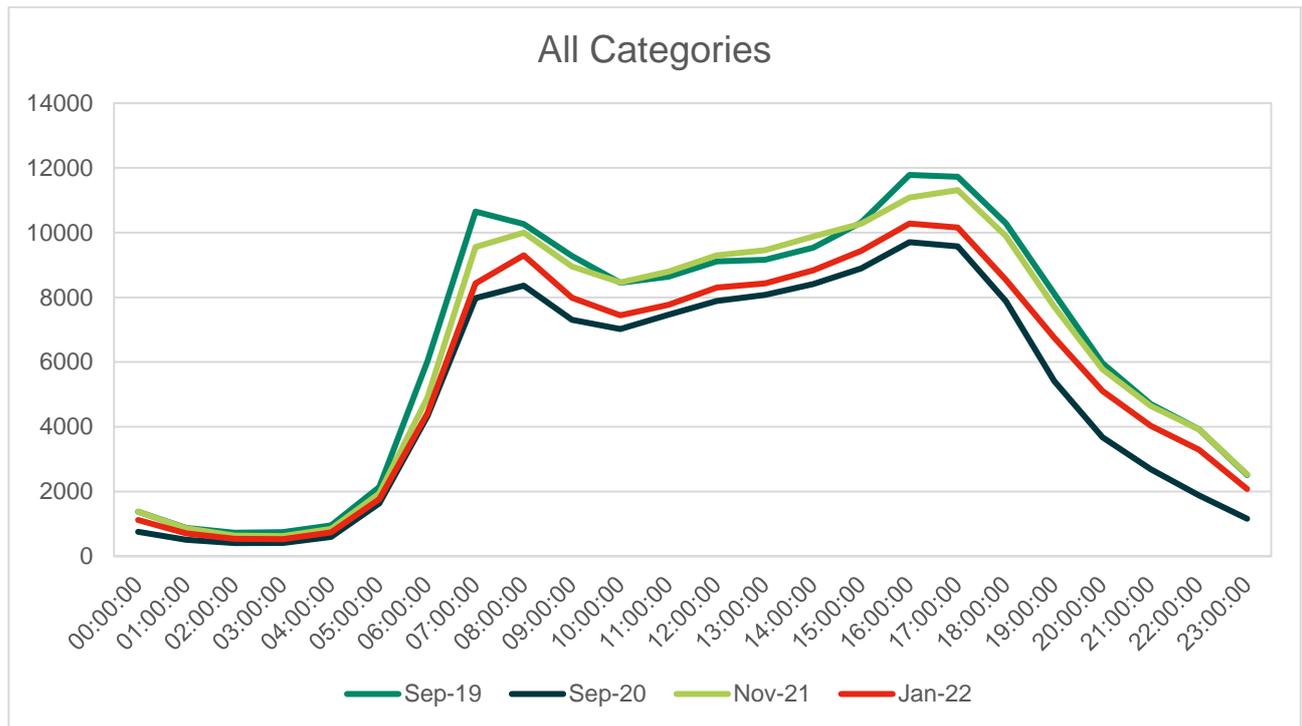
B.22 Using these specific locations around Greater Manchester the traffic behaviours at each location type can be assessed.

General Traffic Conditions

B.23 Averaging the sites identified above (see **Figure B-7**) suggests there has been a change in travel behaviour throughout the pandemic, noting the following key observations:

- The AM and PM peak periods have remained, although there is a dampening down effect on the peaks, with less variation between peak flows and interpeak flows, as the interpeak has continued to perform strongly.
- During late 2021, highway demand was almost back at pre-pandemic levels, there was then a noticeable drop again in demand as a result of the Omicron variant in December 2021.
- There has been some recovery during the peak periods, though they have not yet returned to pre pandemic levels.
- It is also noted that the earlier part of the AM peak is less strong than pre pandemic levels, with the AM peak now occurring 08:00 to 09:00, rather than 07:00 to 08:00 based on the sample of data sites.
- It also appears that the evening traffic (after 19:00) in 2022 is recovering at a slightly faster rate than the daytime traffic flows. This returned to pre-pandemic levels in November 2021 however, there has been a slight drop again in 2022, although it has been less impacted than other times of day. During the 2020 restrictions, the evening economy was significantly restricted by the COVID-19 restrictions in place at the time.

⁴¹ <https://tfgmc2.drakewell.com/multinodemap.asp>

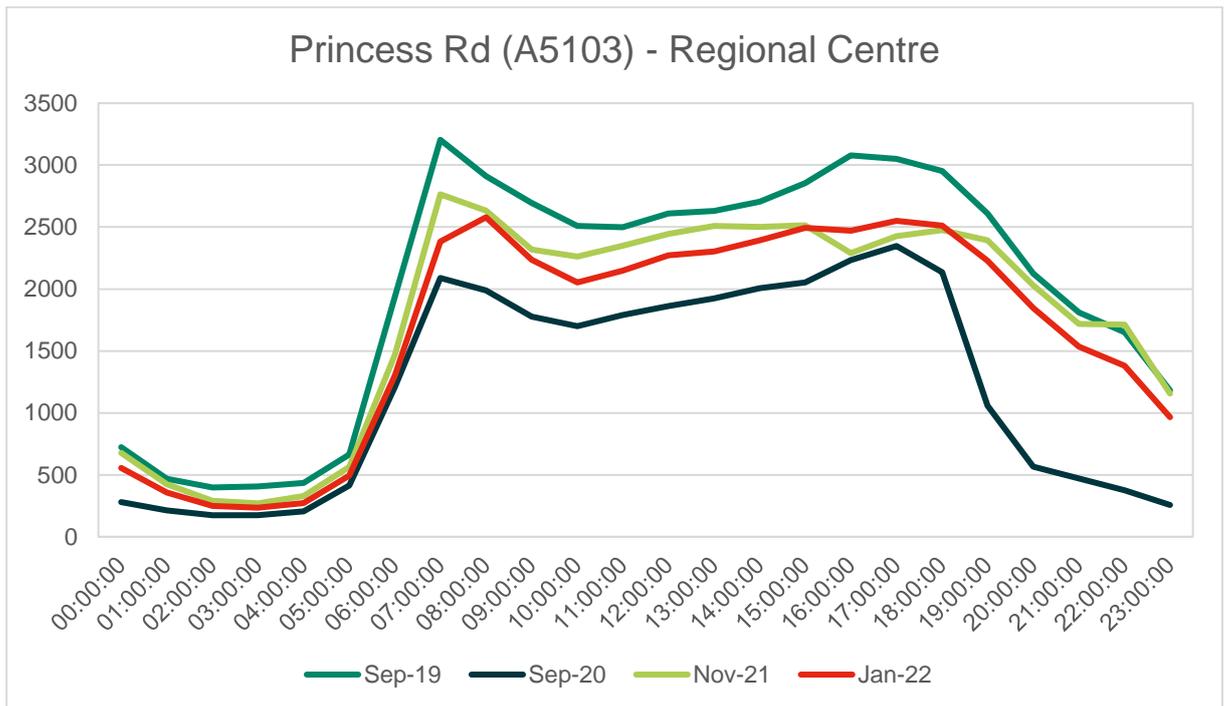
Figure B-7 Change in traffic flow levels by time of day (all areas)

Roads adjacent to the Regional Centre

B.24 Traffic flows adjacent to the Regional Centre have been significantly impacted throughout the pandemic (see **Figure B-8**). The following key trends have been identified:

- From the data assessed, the pandemic (and associated restrictions) appears to have had the greatest impact on regional centre flows, with the largest decrease in 2020 and the slowest recovery;
- The recovery of traffic flows in the peaks is still subdued, though traffic flows during the Omicron variant have been higher than in Autumn 2020, unlike what is seen at local centres;
- In 2020, COVID-19 restrictions had a considerable impact on demand for travel relating to the Regional Centre, with heavy restrictions placed on sectors such as leisure, tourism, and the night time economy. By November 2021, the easing of COVID restrictions resulted in a return of travel demand to the Regional Centre, showing considerable recovery at particular times of day, reaching close to 2019 levels. The 2022 travel demand to Mar-22 also showed a strong return of traffic during the evening periods, though the Omicron variant is likely to be keeping these slightly below pre-pandemic levels at present.
- The early part of the AM peak is now much weaker than prior to the pandemic, and the PM peak is less pronounced. In November 2021, traffic flows were slightly reduced from pre pandemic levels, with the PM peak most strongly impacted. In January 2022, the PM peak appears to be starting to recover, with a slightly later AM peak.

Figure B-8 Change in traffic flow levels by time of day (Regional Centre)

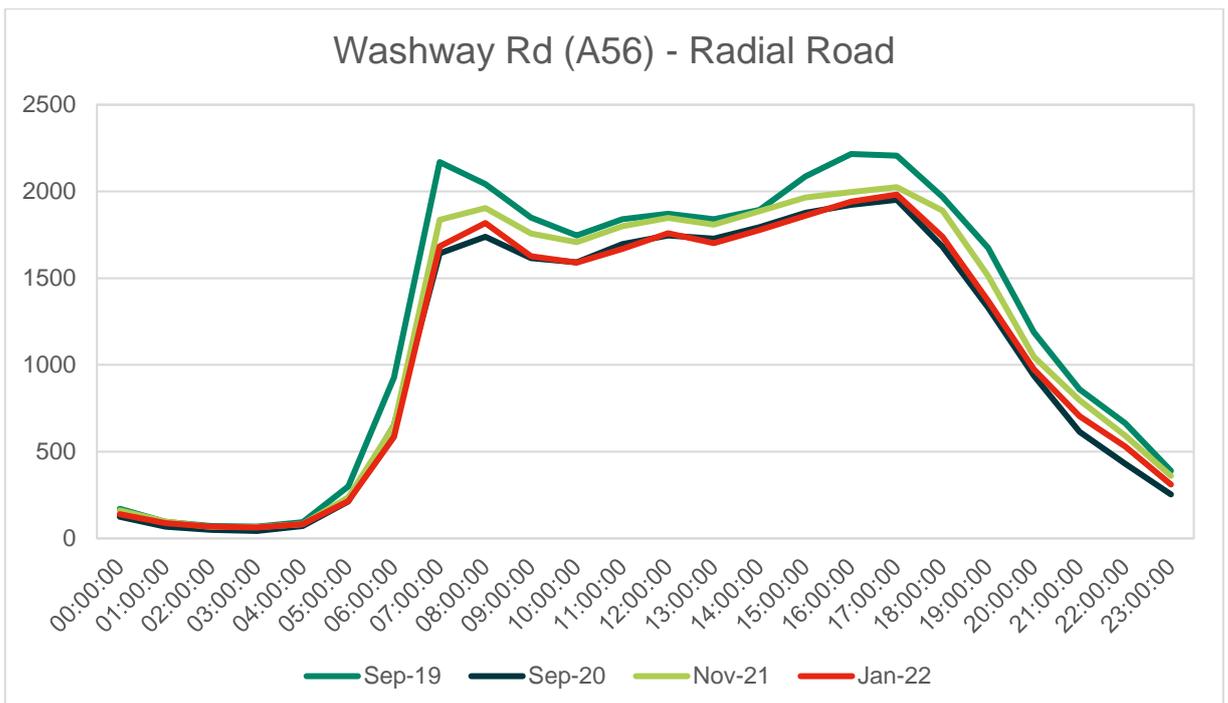


Source: TfGM C2 Database – Location N of Bonsall St, Hulme

Radial Roads

B.25 On Washway Road in Sale (see **Figure B-9**), its proximity close to the M60, and as a key radial route, has resulted in a high level of traffic demand at various points throughout the pandemic. The site is also close to the Local Centre of Sale. Demand has remained strong at the various points assessed although, as with most other locations, the peak periods are showing slightly lower demand in 2022.

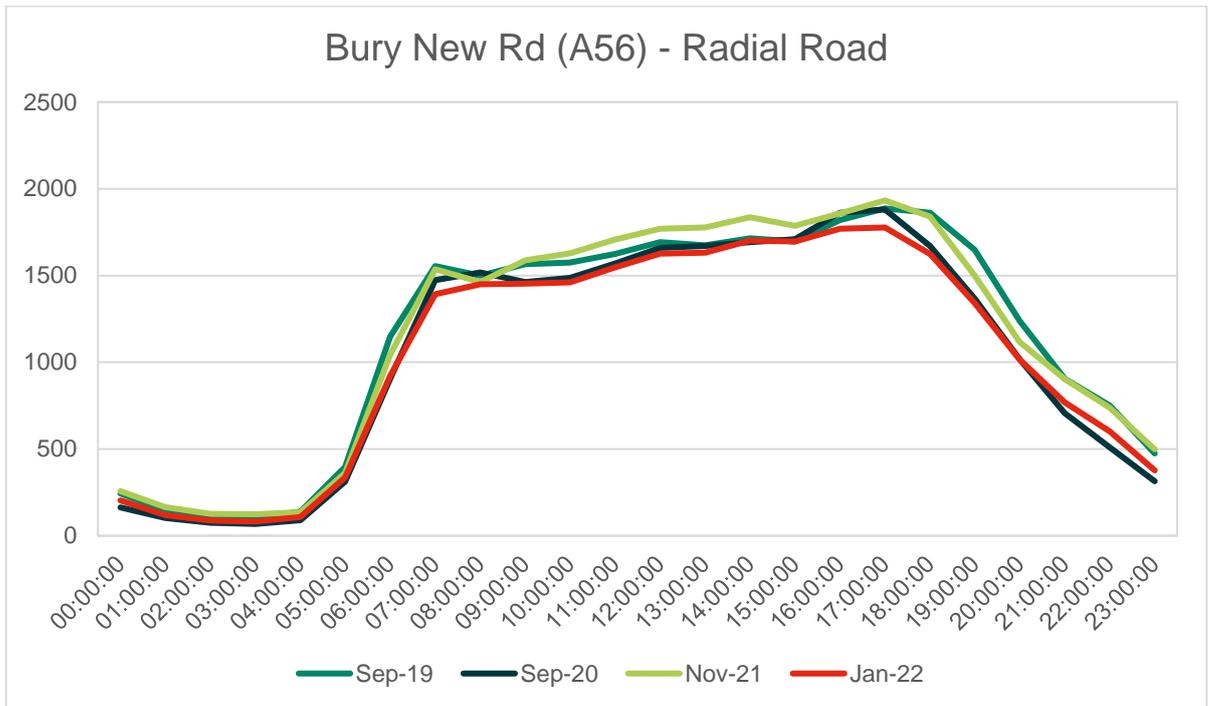
Figure B-9 Change in traffic flow levels by time of day (Radial Roads Outside M60)



Source: TfGM C2 Database – Location adjacent to Sale Local Centre

B.26 Another key radial route north of the Regional Centre is Bury New Road (see **Figure B-10**). This site is also a key radial, though also serves local centres, such as at Prestwich. This location has shown a strong recovery of travel behaviour with travel at certain times of day exceeding pre-pandemic levels, especially during the interpeak, both in autumn 2020, autumn 2021 and currently in 2022. The evening period has, however, shown a slower recovery.

Figure B-10 Change in traffic flow levels by time of day (Radial Roads Inside M60)



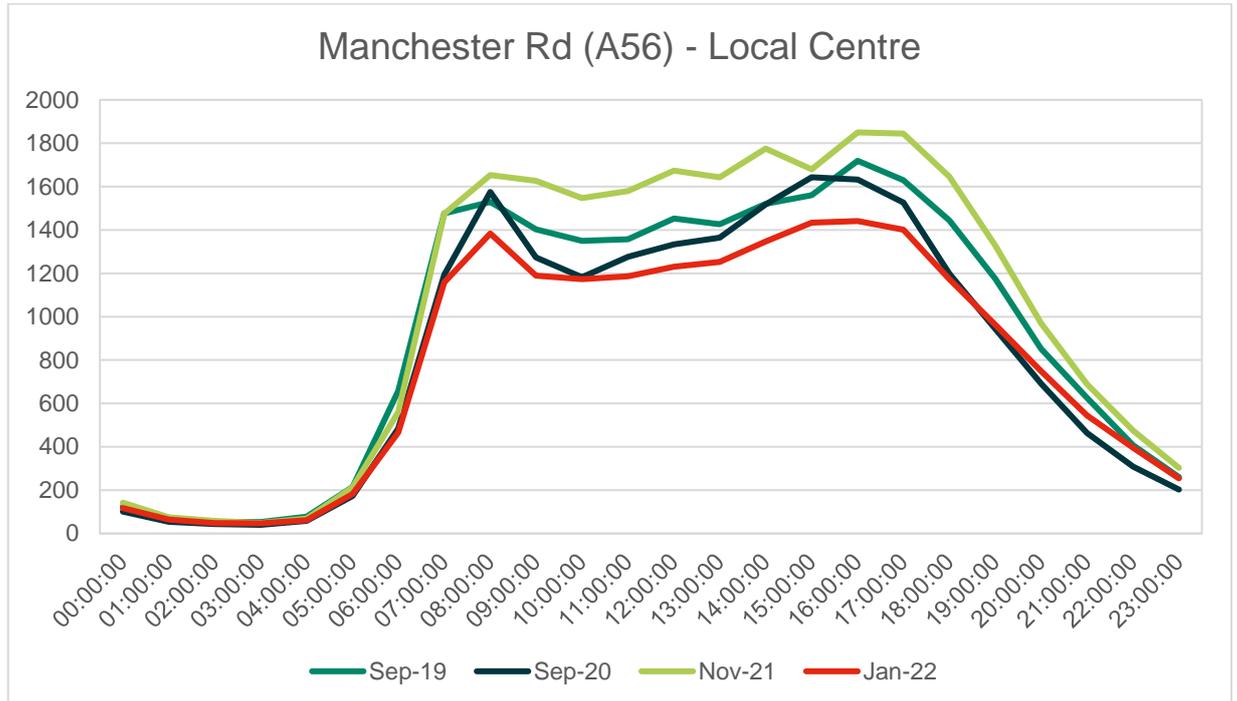
Source: TfGM C2 Database – Location N of Kingswood Rd, Prestwich (Near to M60 J17)

Local Centres

B.27 Throughout the pandemic, as the UK Government eased travel guidance, travel demand in the vicinity of local centres, have bounced back strongly. **Figure B-11**, shows the A56 Manchester Road near Bury, which experienced a strong bounce back effect in Autumn 2020, when travel restrictions were eased. **Figure B-11** shows the later part of the AM peak and the early part of the PM peak exceeding pre pandemic levels, plus a strong interpeak and was likely an impact of more localised travel.

B.28 By the end of 2021, demand had exceeded 2019 pre-pandemic levels by a clear margin, however this demand fell significantly in January 2022. The recent 2022 data shows the impacts of restrictions associated with the Omicron variant which has suppressed traffic flows once again.

Figure B-11 Change in traffic flow levels by time of day (adjacent to Local Centres)

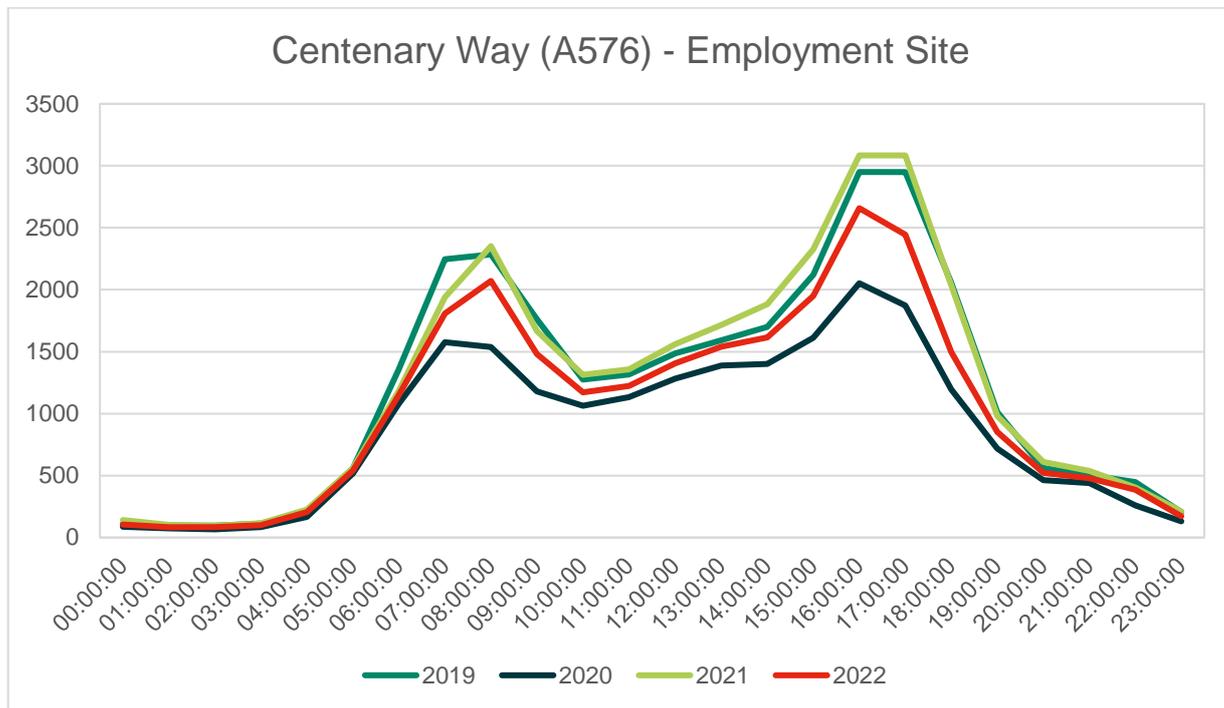


Source: TFGM C2 Database – Location S of Ashlor St, Bury

Centres of Employment (Trafford Park)

- B.29 Trafford Park is a major site of employment within Greater Manchester, with traffic flows accessing this employment area changing significantly during the pandemic.
- B.30 During the limited easing of travel restrictions in Autumn 2020, traffic flows to/from Trafford Park remained low, with limited return of higher peak time travel flows. This was possibly due to the higher levels of working from home at the time. The more recent data from November 2021 shows flows higher than pre-pandemic levels. January 2022, though impacted by the Omicron variant, shows a recovery of peak hour travel demand, close to pre pandemic levels, although the early part of the AM peak and the later part of the PM peak show a slightly weaker recovery. Interpeak travel is also similar to pre pandemic levels (See **Figure B-12**).

Figure B-12 Change in traffic flow levels by time of day (Centres of Employment)



Source: TFGM C2 Database – Location Trafford Park, Trafford

Summary

- B.31 The review of local traffic flows at various locations across GM has shown considerable variations in changing travel behaviour by location, when compared to pre-pandemic levels. This is likely to be impacted by changing travel habits, although the recent Omicron variant is likely to be impacting some travel behaviour in the 2022 data, as shown in **Figure B7**, general traffic levels in Autumn 2021 showed overall recovery in traffic flows above pre-pandemic levels.
- B.32 The change in travel behaviour by location since September 2019 is summarised in **Table B-1**.
- B.33 Considering the position in November 2021, when travel patterns were least affected, it is notable that Local Centre traffic flows were higher than previously whilst the Regional Centre flows were still much reduced. For radial routes and employment centres, overall (daily) levels were back to pre-pandemic but with some variation during the day; the morning peak being less pronounced but the interpeak higher.

Table B-1 Traffic flow changes by location type from September 2019 to January 2022

Location Type	Period	Change relative to Sep-19 (Index=100)			
		Sep-19	Sep-20	Nov-21	Jan-22
Regional Centre	AM	100	67	88	81
	IP	100	73	95	88
	PM	100	41	92	85
	Eve	100	26	95	85
	Daily	100	61	88	83
Radial inside M60	AM	100	98	98	93
	IP	100	98	105	96
	PM	100	101	102	96
	Eve	100	80	94	83
	Daily	100	92	101	91
Local Centres	AM	100	103	108	90
	IP	100	96	115	88
	PM	100	94	113	86
	Eve	100	74	110	87
	Daily	100	90	111	86
Employment Centre	AM	100	69	95	86
	IP	100	83	108	94
	PM	100	61	102	79
	Eve	100	74	99	91
	Daily	100	74	102	88

Source: TfGM C2 Database

Economic Related Impacts

Introduction

B.34 Changes in the economic situation are also likely to have had an influence on travel behaviour. The section below presents the trends for a range of factors impacting the economy, several of which are likely to impact the way people travel and businesses operate.

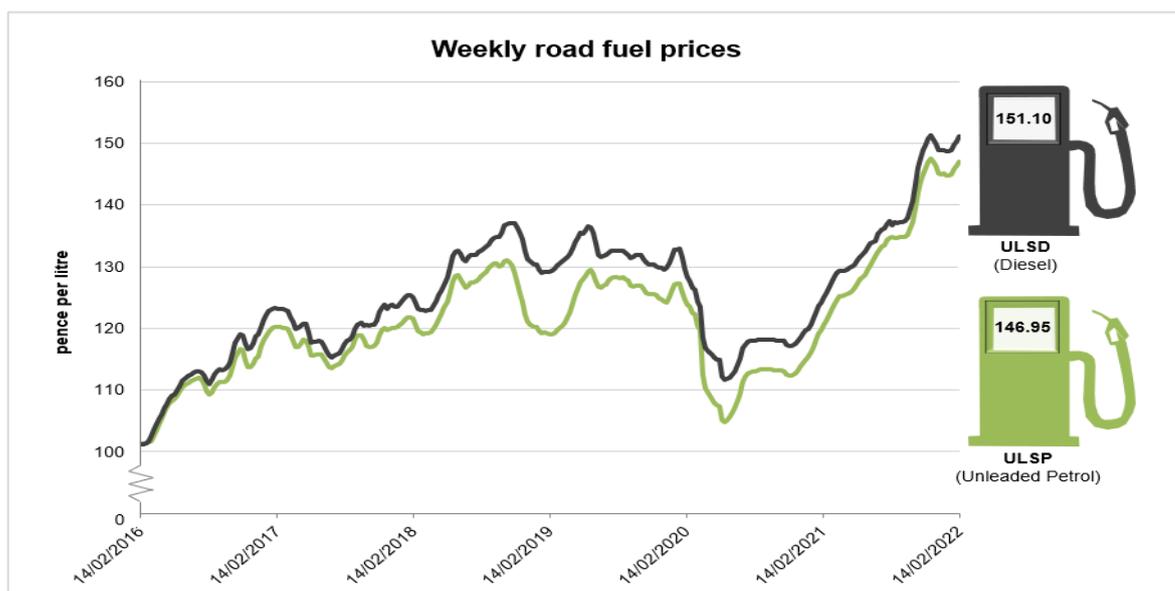
Fuel Prices

B.35 There are six companies (four oil companies and two supermarkets) that feed into the weekly fuel price survey prepared by the government. These companies cover around 65% of the market. The change in fuel price is displayed in **Figure B-13**.

B.36 The price of road fuel is volatile over shorter time periods, with prices regularly rising and falling. The key trends from during the pandemic are:

- At the start of 2020 prices appear to have been on the decline. There was then a significant fall in both Diesel and Unleaded Petrol in early 2020, corresponding with the first national lockdown.
- During the second part of 2020, prices appear to be stable, with prices beginning to rise steadily throughout 2021 in line with global oil market prices.
- There is a steep rise in prices towards the end of 2021, reaching record highs. This corresponds with a sudden rise in post-pandemic energy demand. This has triggered a tax freeze on petrol and diesel for the twelfth year in a row⁴².
- In September 2021 long queues and forecourt closures were witnessed, caused by panic buying throughout the country, sparking a fuel shortage in Britain.

Figure B-13 Weekly Road Fuel Prices



Source: gov.uk

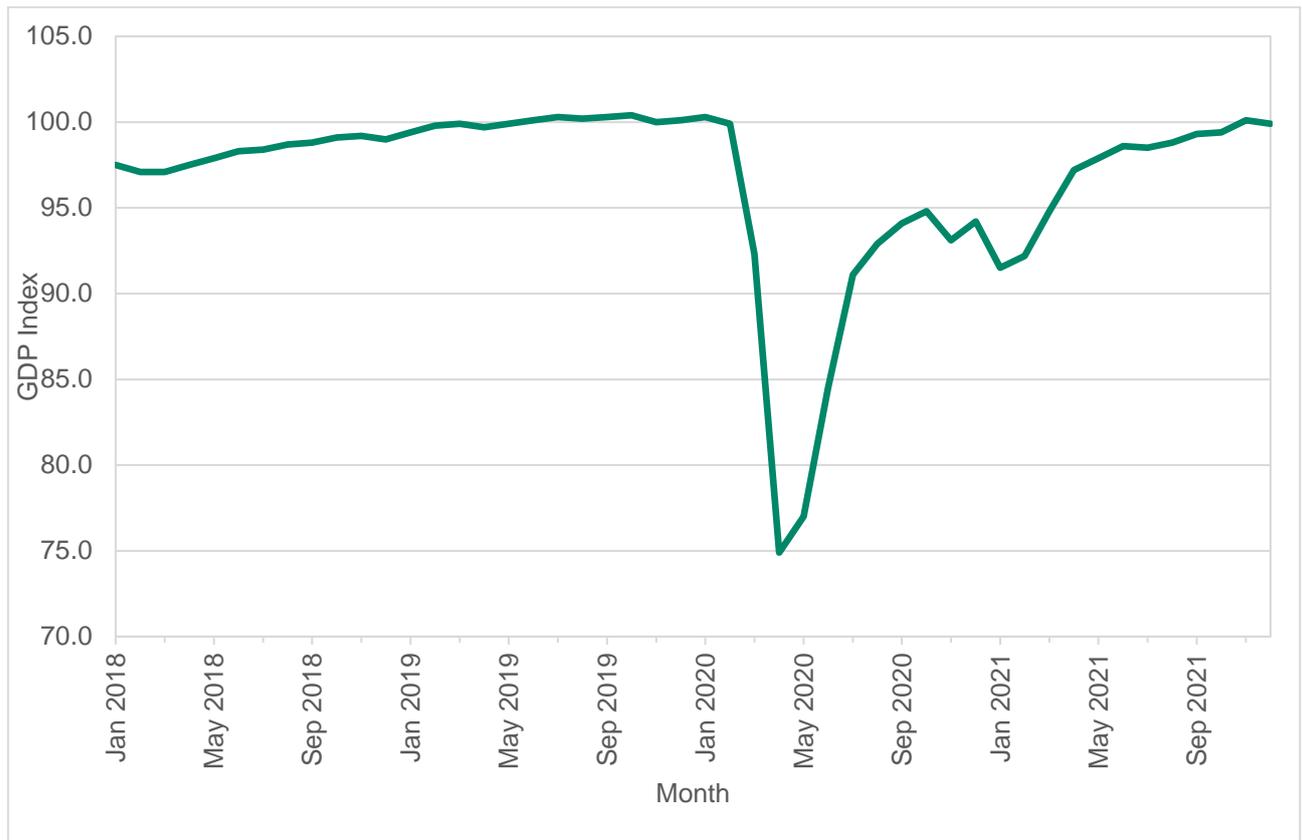
B.37 It was already likely that the price of fuel would remain unsteady for some time as a consequence of the impact of the pandemic and recent events in Ukraine have brought additional uncertainty to that market.

GDP

B.38 From bulletins on the ONS data website⁴³ the end of 2021 saw a drop in GDP by 0.2%, to equal the pre pandemic level of February 2020. In December 2021 services and construction are both above pre-pandemic levels, while production remained below. Consumer facing services fell within December, driven by a fall in retail, 8.4% below pre-coronavirus levels, contributing to the GDP fall in December 2021 (see **Figure B-14**).

⁴² <https://www.standard.co.uk/news/politics/budget-2021-fuel-duty-rise-axed-petrol-prices-record-highs-b962832.html>

⁴³ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpbulletin/2021/12>

Figure B-14 GDP in the UK (Index, 2019 = 100)

Source: ons.gov.uk/economy⁴⁴

- B.39 Growth in average total pay (including bonuses) of 4.3% and growth in regular pay (excluding bonuses) of 3.7% among employees was seen in October to December 2021⁴⁵. In real terms (adjusted for inflation), total and regular pay fell for the year by 0.1% and 0.8% respectively.

Imports and Exports

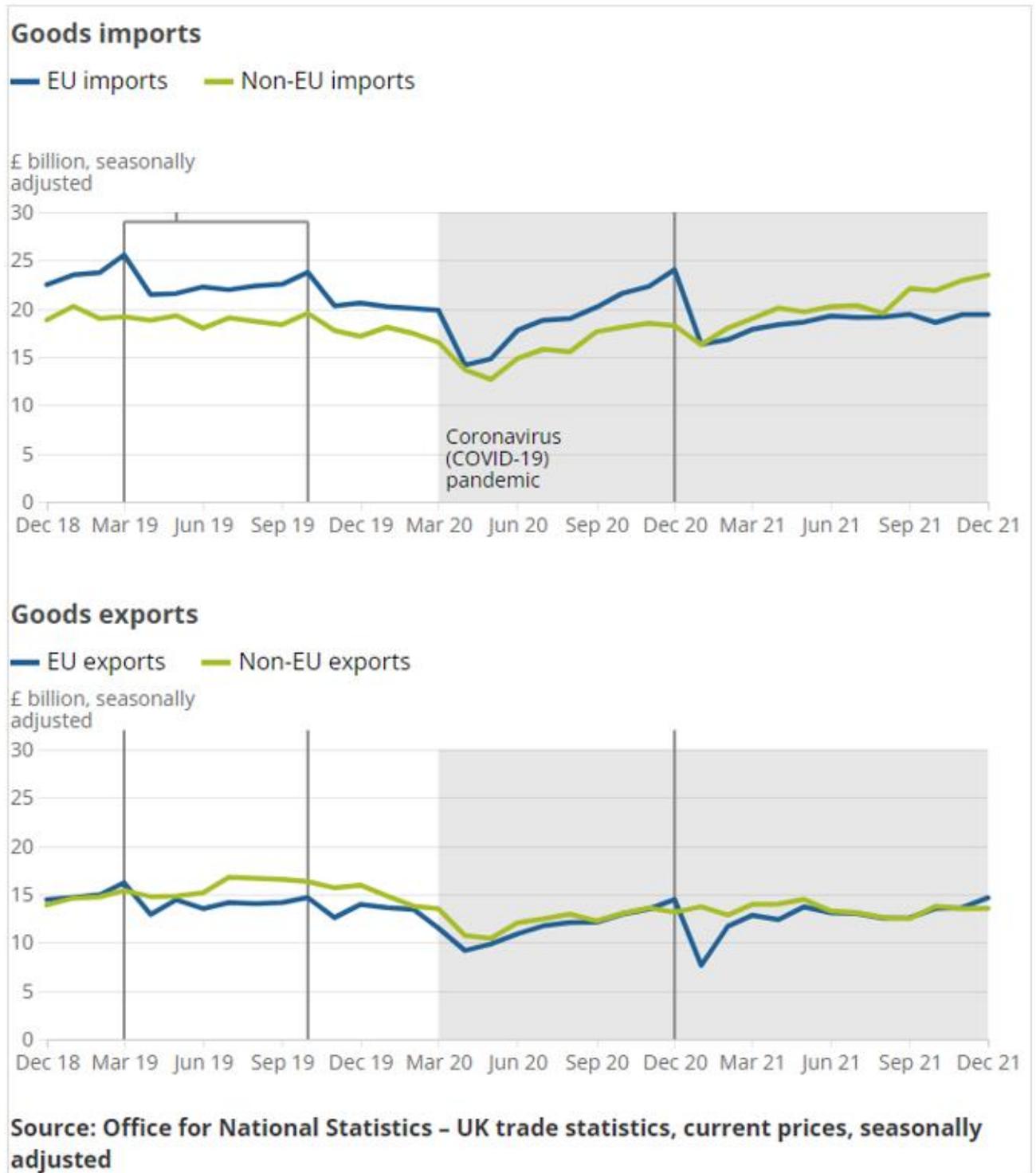
- B.40 **Figure B-15** shows the trends in UK goods imports and exports throughout 2019, 2020, and 2021. After an initial decrease in imports at the beginning of the pandemic, this appears to have recovered. There was another significant decrease at the end of 2020, however imported goods are on the increase back to pre-pandemic levels. There was less impact on exports, with these remaining steady throughout.

⁴⁴ <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/december2021>

⁴⁵

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/february2022>

Figure B-15 Import and Exports



Source: ons.gov.uk/economy⁴⁶

Centre for Cities – Cities Outlook

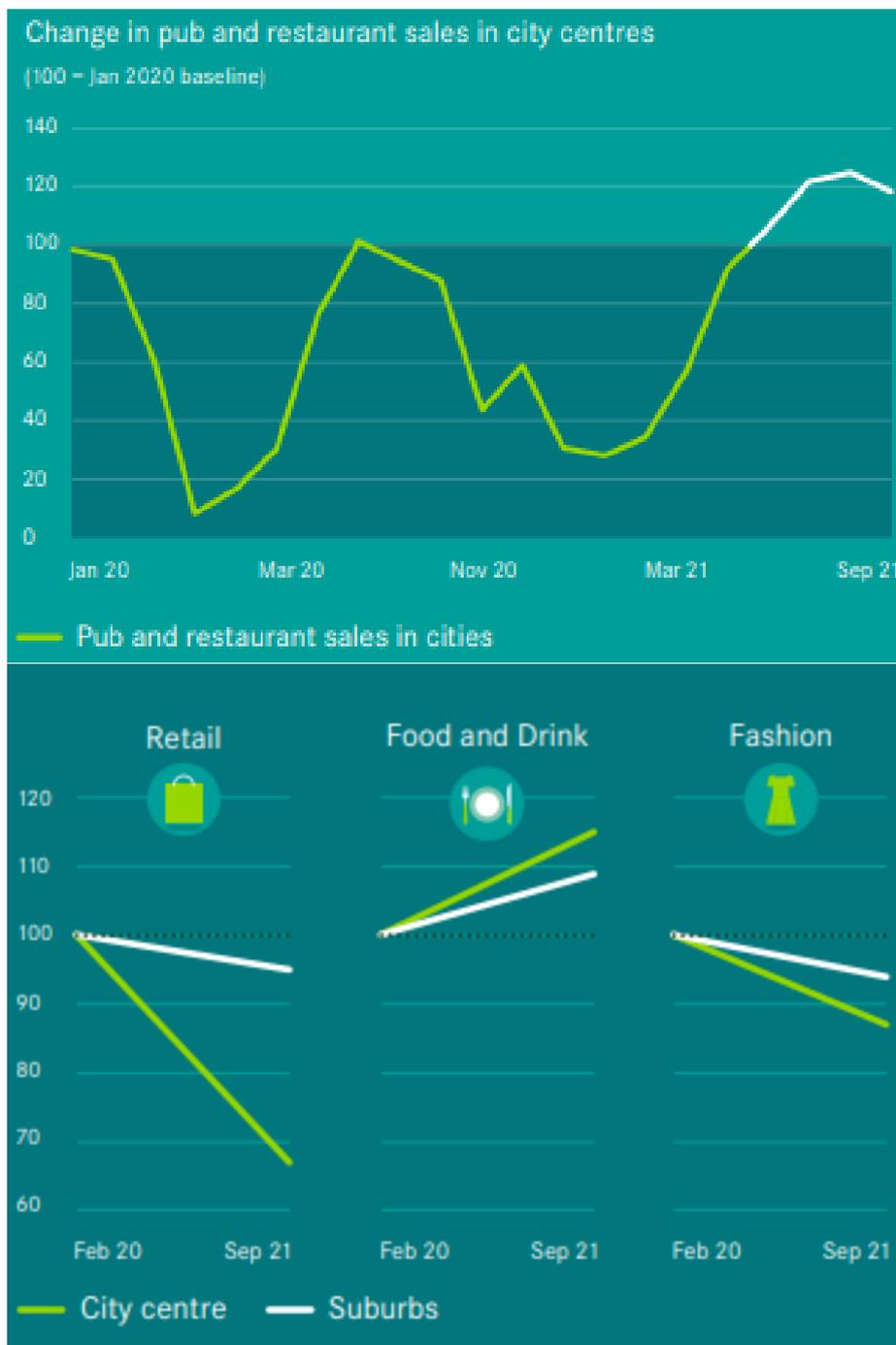
B.41 Centre for Cities produced the Cities Outlook 2022 report looking in-depth at the state of UK high streets, to get a sense of the short-term impact of the pandemic on Britain's town and city centres, and the long-term consequences and implications this has for the Government's levelling up agenda. This report showed that there was a quick and considerable shift away from high streets to online

⁴⁶ <https://www.ons.gov.uk/economy/economicoutputandproductivity/output/briefs/ukeconomy/latest/2021-01-25#output>

shopping during the pandemic. However, in most cities the shift stalled, or slightly fell again once shops reopened.

B.42 The Cities Outlook report also studies the impacts on pubs and restaurants, stating that the fashion sector was hit harder than pubs and restaurants. **Figure B-16** shows the trend in sales throughout 2020 and 2021. There are clear decreases in sales corresponding to the national lockdowns but in all instances, these soon recover when the sector reopens. This is also reflected in the suburbs, with retail and fashion experiencing a slight decline from Feb 2020 to September 2021 but food and drink on a steady incline.

Figure B-16 Change in pub and restaurant sales in City Centres and Suburbs



Source: ons.gov.uk/economy⁴⁷

⁴⁷ <https://www.centreforcities.org/>

- B.43 Due to the work from home regulations and, for many, working from home becoming a regular part of the working week, it is feared the reduced footfall in cities will have a lasting effect on retail, hospitality, and transport sectors. **Figure B-17** show the weekday footfall in London, Manchester and Birmingham. Although not yet back to pre-pandemic levels, there is a steady climb in footfall in the major cities with Manchester appearing to recover more quickly than Birmingham, and London taking considerably longer.
- B.44 The more significant impact on London may be related to the impact of COVID-19 on international tourism.

Figure B-17 Weekday footfall



Source: ons.gov.uk/economy

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

Appendix E: Changes in economic context since July 2021



Salford City Council



Oldham Council

TRAFFORD COUNCIL



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Version Status:	DRAFT FOR APPROVAL	Prepared by:	Transport for Greater Manchester on behalf of the 10 Local Authorities of Greater Manchester
Authorised by:	Nicola Kane		
Date:	June 2022		

Glossary

Term	Definition	Source
Base Rate	Bank of England base interest rate	Interest rates and Bank Rate Bank of England
BoE	Bank of England – UK central bank	What does the Bank of England do? Bank of England
CCI	Consumer Confidence Index - a measure of how people view the state of their personal finances and wider economic prospects	Leading indicators - Consumer confidence index (CCI) - OECD Data
CPI	Consumer Price Index – UK main economic inflationary index.	Consumer Price Indices: A brief guide - Office for National Statistics
CPIH	Consumer Price Index Harmonised - Harmonised Index of Consumer Prices, inclusive of housing cost	Consumer Price Indices: A brief guide - Office for National Statistics
CVL	Creditors Voluntary Liquidation	Liquidation and Insolvency Guidance UK Government
Economic inactivity	People not in employment who have not been seeking work within the last 4 weeks and/or are unable to start work within the next 2 weeks.	Economic inactivity - Office for National Statistics (ons.gov.uk)
Energy Price Cap	Ofgem (UK Energy Regulator) market price cap setting maximum tariff rates for gas and electricity	Check if the energy price cap affects you Ofgem
GDP	Gross Domestic Product - measures the value of goods and services produced in the economy	Gross Domestic Product (GDP) - Office for National Statistics (ons.gov.uk)
GC	Growth Company / Business Growth Hub	GC Business Growth Hub: Resources to support and grow your business GC Business Growth Hub
LTV	Loan-to-value ratio	Understanding LTV ratio Experian
MPC	Bank of England Monetary Policy Committee	Monetary Policy Committee Bank of England
OBR	Office for Budget Responsibility	What we do - Office for Budget Responsibility (obr.uk)
ONS	Office for National Statistics	About us - Office for National Statistics (ons.gov.uk)
OOH	Owner Occupiers Housing Cost	Consumer Price Indices: A brief guide - Office for National Statistics
Ofgem	UK National energy regulator	About us Ofgem
RPI	Retail Price Index	Consumer Price Indices: A brief guide - Office for National Statistics
Semi-conductor	Essential component for manufacture of electronic devices	About Semiconductors SIA Semiconductor Industry Association
SME	Small and Medium sized enterprise	SME definition (europa.eu)

1 Introduction

1.1 This note summarises notable changes in economic context since July 2021. It demonstrates how factors associated with the pandemic, global supply chain challenges, and the cost-of-living crisis have the potential to create additional financial hardship for local businesses and families.

1.2 The evidence is set out as follows:

- National / international drivers (many of which are interconnected).
- Regional (North West) - labour market review.
- GM specific factors.

2 National / international drivers

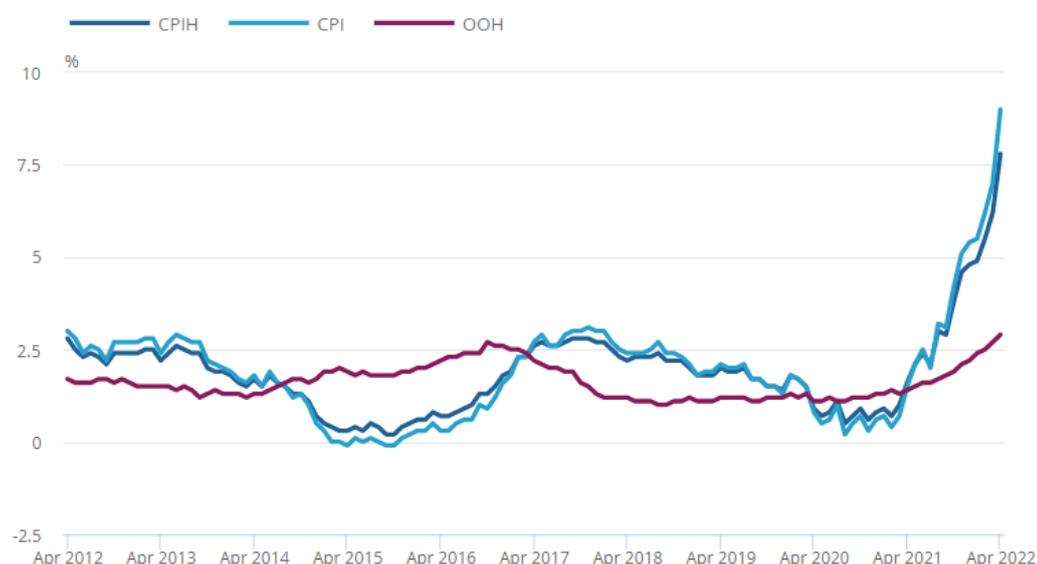
2.1 War in Ukraine (commenced late February and on-going)

2.1.1 *Global inflationary pressures have intensified sharply following Russia's invasion of Ukraine. This has led to a material deterioration in the outlook for world and UK growth. (Source: [Monetary Policy Summary, May 2022 Bank of England](#))*

2.1.2 In the May Report central projection, CPI inflation is expected to rise further over the remainder of the year, to just over 9% in 2022 Q2 and averaging slightly over 10% at its peak in 2022 Q4 (note: July 2021 CPI was 2.0% - Source: [Consumer price inflation, UK: April 2022, ONS](#)). On the 18th May 2022, CPI was announced as 9% in April.

Figure 1: The annual CPIH inflation rate was last higher in April 1991

CPIH, OOH component and CPI 12-month inflation rates for the last 10 years, UK, April 2012 to April 2022



- 2.1.3 Russia is a prominent exporter of energy, producing 17% of the world's natural gas supply and 12% of its oil. (Source: [BP Country Insight - Russia](#))
- 2.1.4 8% of UK oil demand is directly imported from Russia, this is to be phased out by end of 2022, a move which could serve to place extra stress on prices. (Source: [UK to phase out Russian oil imports](#))
- 2.1.5 Both Russia and Ukraine are major agricultural exporters: both keystone producers of grain for direct consumption, milling or animal feeds. Impacts are already significant on key food commodity prices (since the war began there has been a c.30% increase in the price of wheat, and c.20% in the price of maize/corn). (Sources: [FAO of the UN: The importance of Ukraine and the Russian Federation for global agricultural](#) and [Commodity prices, Trading Economics](#))
- 2.2 Increases in the cost of energy
- 2.2.1 The energy price cap calculated by Ofgem increased by 12% in October 2021 to £1,277 (based on 'typical' levels of dual fuel consumption paid by direct debit), and this has since been followed by the April 2022 price cap increase which resulted in about 18 million households on standard tariffs seeing their annual bill jump from £1,277 to £1,971 (54%) - an average increase of £693 (difference due to rounding).
- 2.2.2 A further increase to the price cap is expected in October 2022 of c.£700-£850 (OBR forecasts published alongside the Spring Statement assume £830 - Source: [Economic and fiscal outlook, March 2022, OBR](#)) on top of current bills remains a likely 'good case' scenario - one that assumes that won't be significant impact from limiting Russian imports and associated impact on wholesale prices. Nevertheless, UK wholesale gas price remains highly volatile so there is significant uncertainty about exactly what rise can be expected.
- 2.2.3 Unlike residential households, businesses on commercial energy tariffs are not protected by any price cap and tariff prices have been rising in reaction to the spike in wholesale energy prices around the world.
- 2.2.4 *"Unfortunately, there will also be a delayed impact from rising energy prices as they feed through into the prices of other goods and services. In this context it is worrying that UK manufacturers' input prices were rising at an annual rate of 18.6 per cent in April, with some of those costs set to feed through into higher prices for consumers."* (Source: [Cap off - understanding the April 2022 inflation increase, Resolution Foundation](#))

2.2.5 With a greater tendency for tight margins and restricted cash flow, small businesses are often less well placed than their large corporate counterparts to swallow increases in business running costs, such as a rise in energy bills. Small businesses are more likely to be forced to pass on their running cost increases to consumers through price hikes, just in order to survive. This has potential to put them at a competitive disadvantage. (Source: [Federation of Small Businesses urges government to tackle cost of living crisis at root](#))

2.3 Increases in the cost of fuel for motorists.

2.3.1 In early May the EU announced its intention to withdraw from Russian oil imports by the end of 2022; further threatening to push up fuel prices for motorists and businesses across Europe, who are already facing record high costs to fill up their tanks. In July 2021 pump price (per litre) for unleaded petrol was £1.32, and diesel £1.34 – on 15th June 2022 comparable prices were £1.87 (+42%) for unleaded petrol, and £1.93 (+44%) for diesel. (Source: [RAC Fuel Watch](#) - note dashed lines on the chart below represent wholesale costs)

UK pump and wholesale fuel prices over time

Latest prices in pence per litre for **unleaded petrol** and diesel



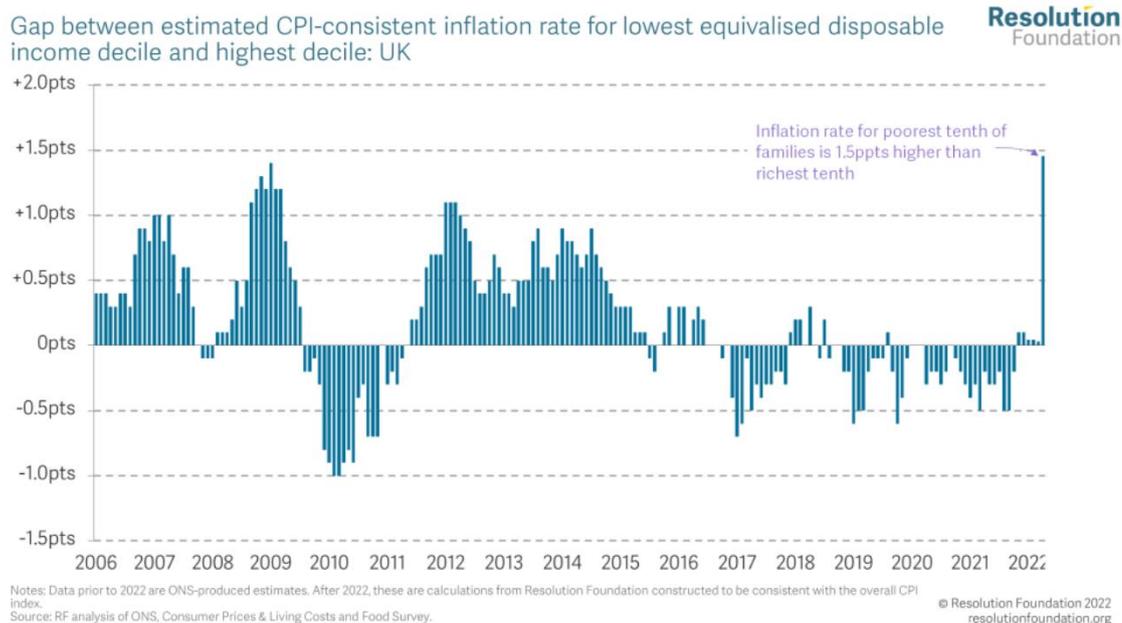
Errors and omissions excepted Based on latest available data
Source: [RAC Fuel Watch](#) · Embed



2.4 Increasing cost of food, and other products

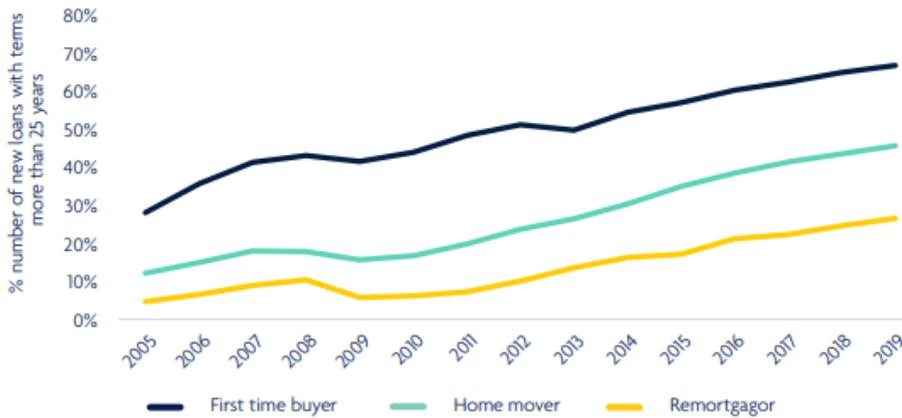
2.4.1 Like for like grocery price inflation stood at 5.9% in April 2022, its highest level since December 2011. The average household will now be exposed to a potential extra £271 per year. A lot of this is going on non-discretionary, everyday essentials which will prove difficult to cut back on as budgets are squeezed. This is translating to a clear flight to value as shoppers watch their pennies. (Source: [UK shoppers seek out value as grocery inflation hits 11-year high](#), Kantar)

- 2.4.2 The average asking price of a used car in the UK has risen 18% between July 2021 (£14,781) and April 2022 (£17,418). (Source: [AutoTrader Retail Price Index](#))
- 2.4.3 Regulated rail fare increase at highest in 9-years at 3.8%. (Source: [Highest rail fare rise in nine years takes effect - BBC News](#))
- 2.5 On-going global impacts of COVID e.g. lockdown restrictions in the east - notably China, are still affecting supply chains in the west, impacting cost and availability of materials/parts.
- 2.5.1 Shanghai, which is home to the world's largest container port, has been the subject of city-wide lockdown during April 2022 related to the Omicron variant. Global supply chains that were already stretched are being hampered further. (Source: [China lockdowns prompt domestic shortages](#))
- 2.5.2 The global semi-conductor shortage is still impacting consumer products with retailers expected to increase costs. (Source: [Understanding the global chip crisis](#)). Intelligence from the Bank of England's Agency network suggests that shortages of semiconductors have been exacerbated by recent lockdowns in China. Contacts also reported difficulties in obtaining components and other inputs owing to the war in Ukraine, and were seeking alternative suppliers or running down existing stockpiles to support output. (Source: [Monetary policy report, May 2022, BoE](#)).
- 2.6 How the impact of inflation is distributed across society
- 2.6.1 *"Lower income families are more exposed to the rising cost of living, and not just because poorer families have fewer opportunities to cut back spending. The poorest tenth of households (by income) spend three times as much as a share of expenditure on gas and electricity bills as the richest tenth. This means the lowest income tenth of people are facing an inflation rate at least 1.5 percentage points higher than the richest tenth (see chart below). The Bank of England has warned the UK could see double-digit inflation later this year. Poorer households are already living with it."* (Source: [Cap off - understanding the April 2022 inflation increase, Resolution Foundation](#))



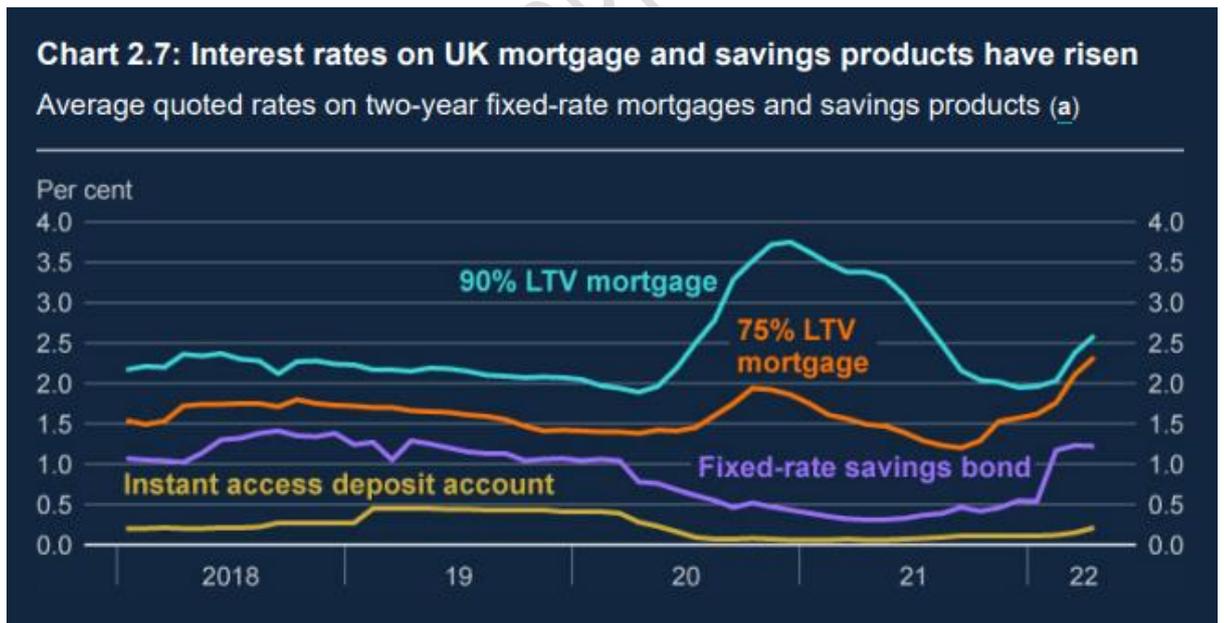
- 2.7 Changes to Bank of England base rate - 0.25% in Jan 2022, risen to 1.25% (16th June) - moving into a phase of more expensive borrowing.
- 2.7.1 *Rates on new lending to SMEs rose by around 110 basis points between January and March this year, and are now slightly above their 2019 levels. While larger firms' ability to access credit is broadly unchanged, credit conditions have tightened slightly for smaller firms since January 2022. (Source: [Monetary policy report, May 2022, BoE](#)).*
- 2.7.2 *'Surveys of business activity have generally remained strong. There have, however, been signs from indicators of retail spending and consumer confidence that the squeeze on real disposable incomes is starting to weigh on the household sector. The level of GDP is expected to be broadly unchanged in Q2.'* (Source: [BoE MPC May 2022 minutes](#))
- 2.7.3 About a third of UK adults have a mortgage. Of those, three-quarters have a fixed mortgage, so will not be immediately affected. The rest - about two million people - will see their monthly repayments rise.
- 2.7.4 The popularity of 5-year fixed deals has increased in recent years, in comparison to shorter 2-year fixes. This change in preference has taken place amidst a backdrop in which mortgage terms have lengthened (in part a response to rising house prices). This points to less flexibility for homeowners to reduce their monthly outgoings should they find themselves exposed to higher interest rates when their fixed product period ends. (Source: [The changing shape of the UK mortgage market - UK Finance](#))

Chart 8 - Lengthening mortgage terms



Source: UK Finance - restricted access data

- 2.7.5 “Quoted rates on mortgages have recently increased across all LTVs, reflecting the pass-through of higher risk-free rates. The quoted rate on a 75% LTV mortgage has risen by around 70 basis points since January, while the rate on a 90% LTV mortgage is up by 65 basis points.” (Source: [Monetary policy report, May 2022, BoE](#)).



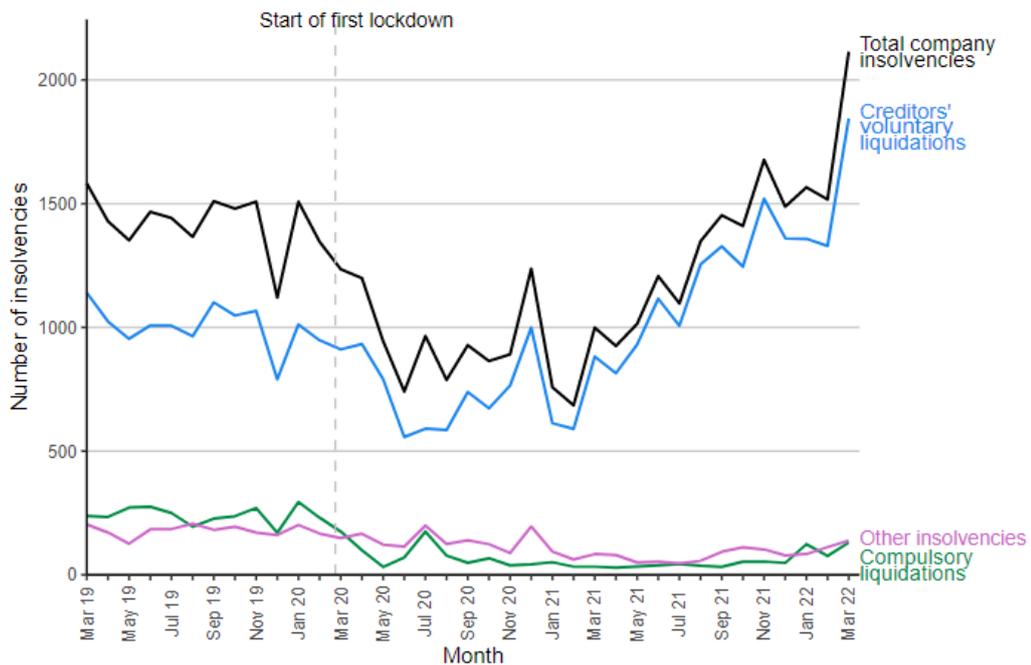
2.8 Removal of Government Covid-support schemes, such as furlough, enhanced sick pay, business rates pauses, and the Universal Credit uplift. Also, businesses are starting to have to pay back Covid loans.

2.8.1 *“Businesses that were just hanging on before the recent interest rate rises have seen the rise in borrowing costs push them over the edge. Between interest rates and inflation, this is the most difficult period for businesses since the height of the pandemic. This time they are having to manage without government support. UK businesses will be hit by the ‘cost of living crisis’, just as consumers will be.”* Rebecca Dacre, partner at Mazars.
(Source: [Business insolvencies increase amidst spiralling inflation](#))

2.8.2 The moratorium winding up petitions prevented creditors from applying to make a business insolvent because of unpaid debts during the Covid crisis, but this ended on 31 March. The end of this protection for struggling businesses will likely result in more insolvencies in the coming months - the number of registered company insolvencies in March 2022 (England and Wales) climbed above pre-pandemic levels. (Source: [Monthly insolvency statistics - March 2022](#))

Figure 1: The number of registered company insolvencies in March 2022 was higher than pre-pandemic levels, driven by a higher number of CVLs.

England and Wales, March 2019 to March 2022, Not seasonally adjusted

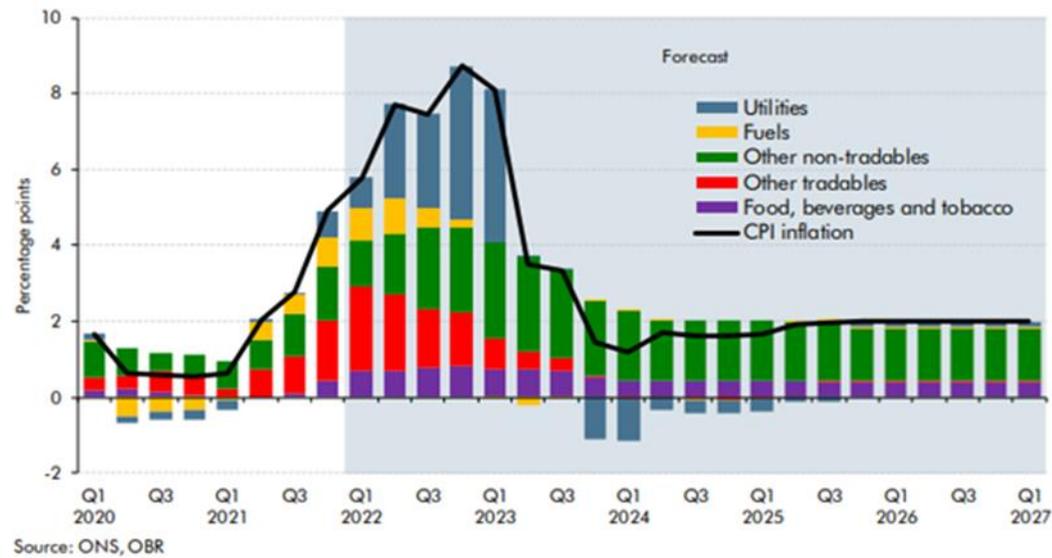


Sources: Insolvency Service (compulsory liquidations only); Companies House (all other insolvency types)

2.9 Since July 2021, time has passed for the ‘squeeze’ on consumer demand to take effect – whilst it is hard to judge exactly when the peak impact on society will be, it is clear that it is still to come.

2.9.1 The chart below demonstrates that inflation is expected to peak in Q4 2022 – it is important to note however that since this was published in March 2022, expectations for CPI have been revised upwards for Q4 2022 from the previous ‘close to 9%’ to 10.25% under a new central forecast for CPI from the Bank of England. Sources: [Economic and fiscal outlook, March 2022, OBR](#) and [Monetary policy report, May 2022, BoE](#))

Chart 2.7: Contributions to CPI inflation



2.9.2 See previous reference to ‘There have, however, been signs from indicators of retail spending and consumer confidence that the squeeze on real disposable incomes is starting to weigh on the household sector.’ (Source: [BoE MPC May 2022 minutes](#))

2.9.3 The UK consumer confidence index, a measure of how people view the state of their personal finances and wider economic prospects, crashed seven points to minus 38 in April, its lowest level since 2008 when it was minus 39, according to research company GfK. (Source: [UK consumer confidence plunges - Financial Times](#))



2.10 Revised projections for UK GDP Growth

2.10.1 BoE estimates that quarterly UK GDP growth was 0.9% in 2022 Q1. Growth slows sharply over the first half of the projection (see first chart below), reflecting the significant adverse impact of higher global commodity and tradable goods prices on UK demand. GDP is projected to fall in 2022 Q4 (see second chart below), driven largely by the decline in households' real incomes, including that stemming from the projected rise of around 40% in retail gas and electricity prices when the Ofgem price caps are next reset in October. Calendar year GDP growth is broadly flat in 2023. Four-quarter GDP growth picks up to around 0.75% by the end of the projection as the pressures on household incomes ease somewhat, although this is still below pre-pandemic rates. (Source: [Monetary policy report, May 2022, BoE](#)).

Chart 1.1: GDP growth projection based on market interest rate expectations, other policy measures as announced

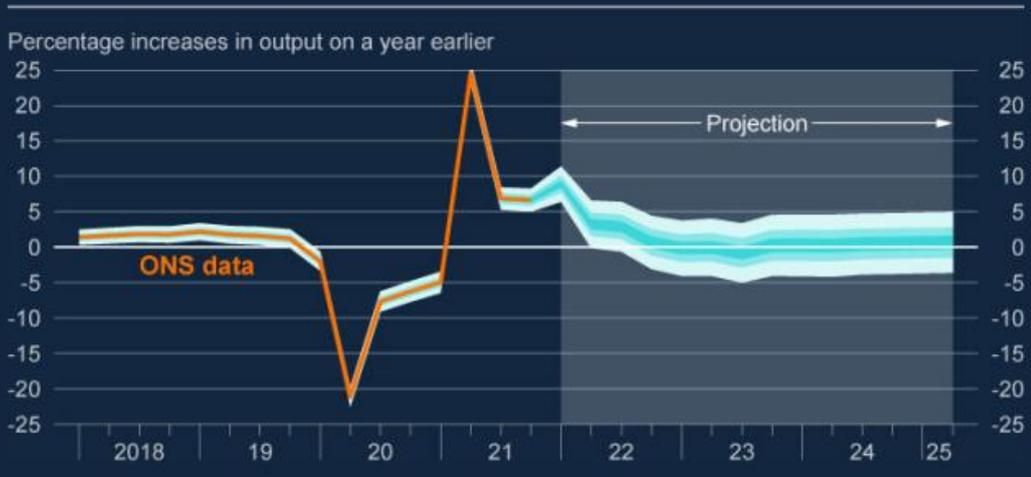
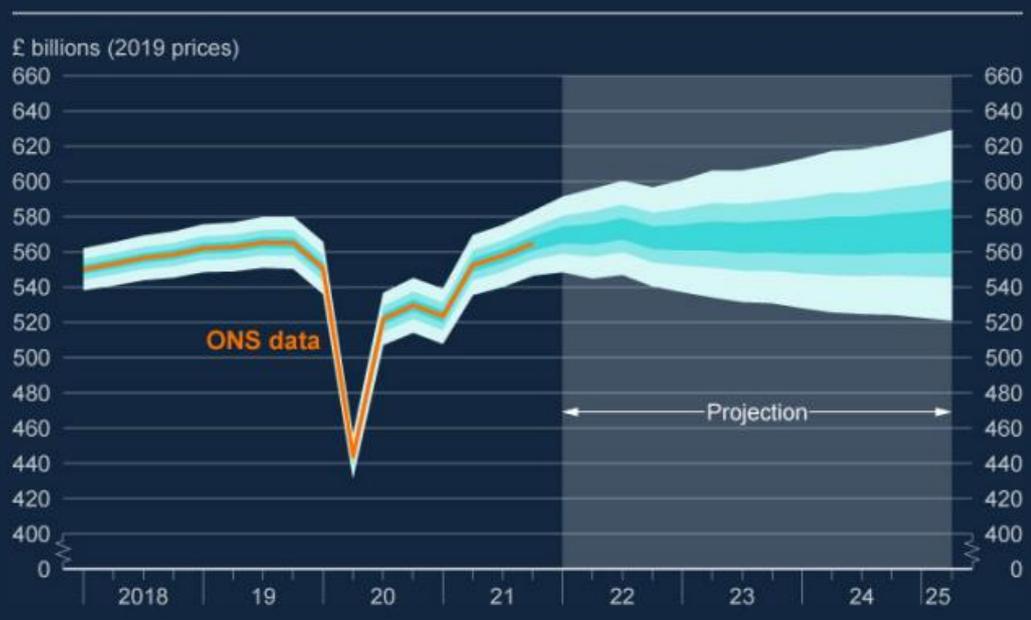


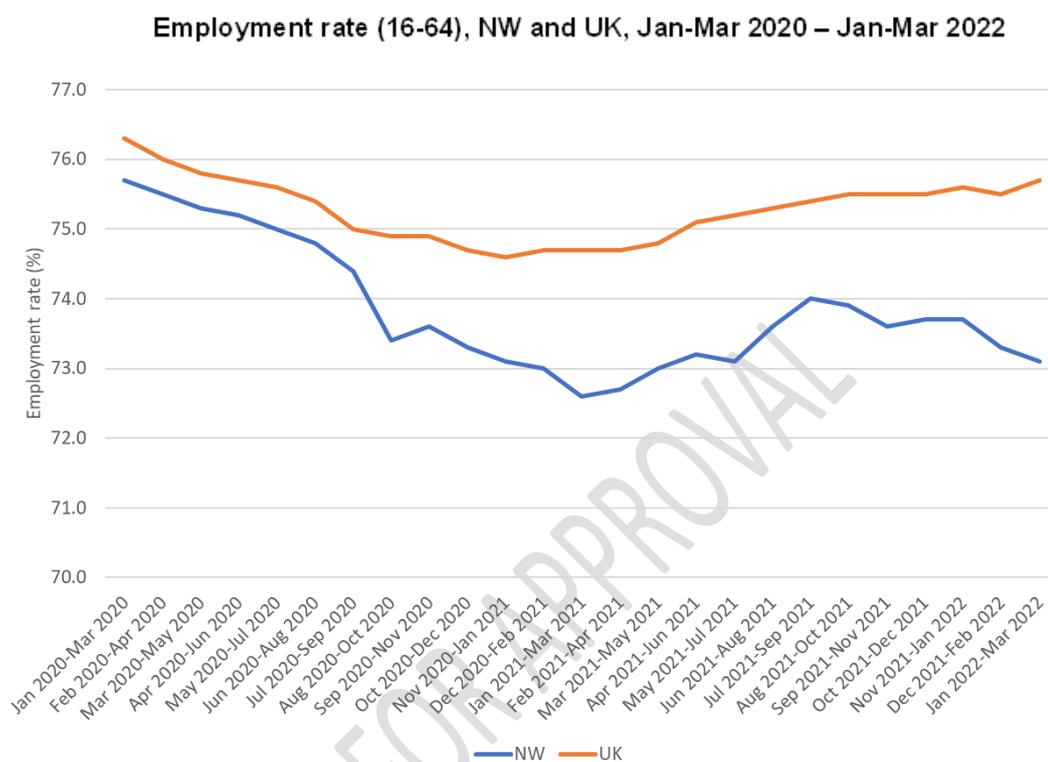
Chart 1.2: GDP projection based on market interest rate expectations, other policy measures as announced



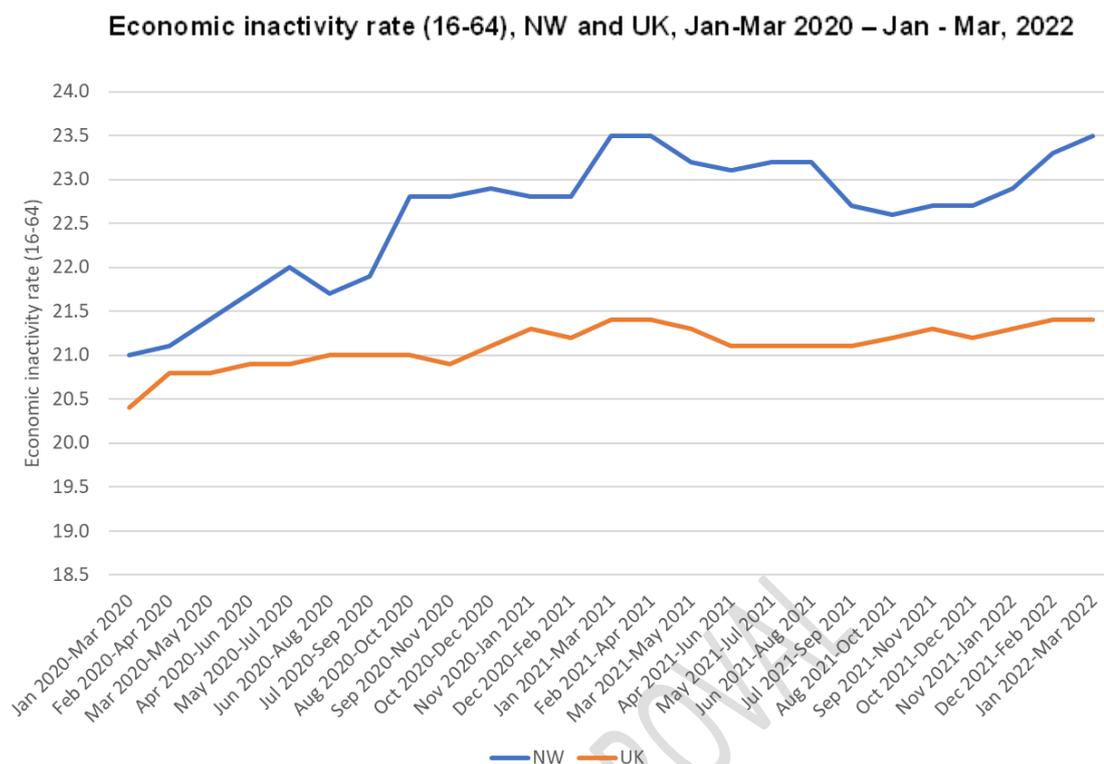
3 Regional (North West) - labour market review

3.1 Labour market data released by the Office for National Statistics on 17 May 2022 showed that the employment rate in the North West continued to fall. It was 73.1% in the three months to March 2022. At the start of the pandemic it was 75.7%. The North West has about 130,000 fewer jobs than before the pandemic.

3.2 The gap between the jobs performance of the North West and that of the UK was at its widest in two years in the Jan-Mar 2022 data (a gap of 2.6ppts). Nationally, the employment rate for the UK was 75.7% - up from 75.5% in the three months to February. The North West therefore seems to be on a different trajectory from UK patterns. (Source: [Labour market in the regions of the UK: May 2022](#))



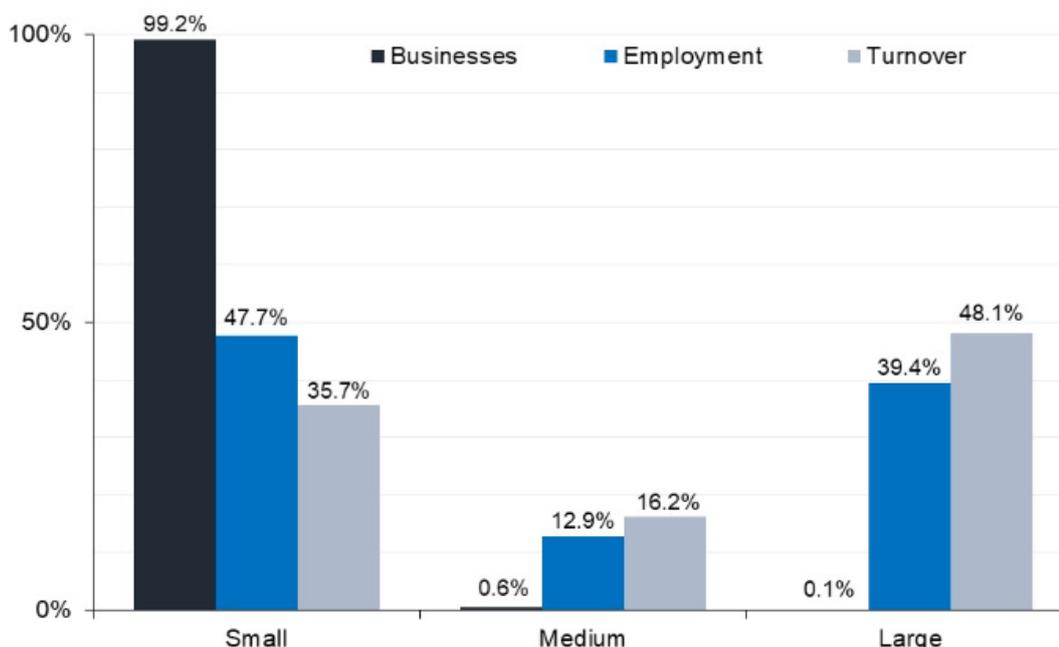
3.3 An increase in working age economic inactivity has attracted national attention. In the NW of England the Covid-driven rise is more marked than the national average. As well as the inactivity rate returning to a pandemic high of 23.5% in the most recent data the gap with the UK has widened once more (2.1ppts). (Source: [Labour market in the regions of the UK: May 2022](#))



4 GM specific factors

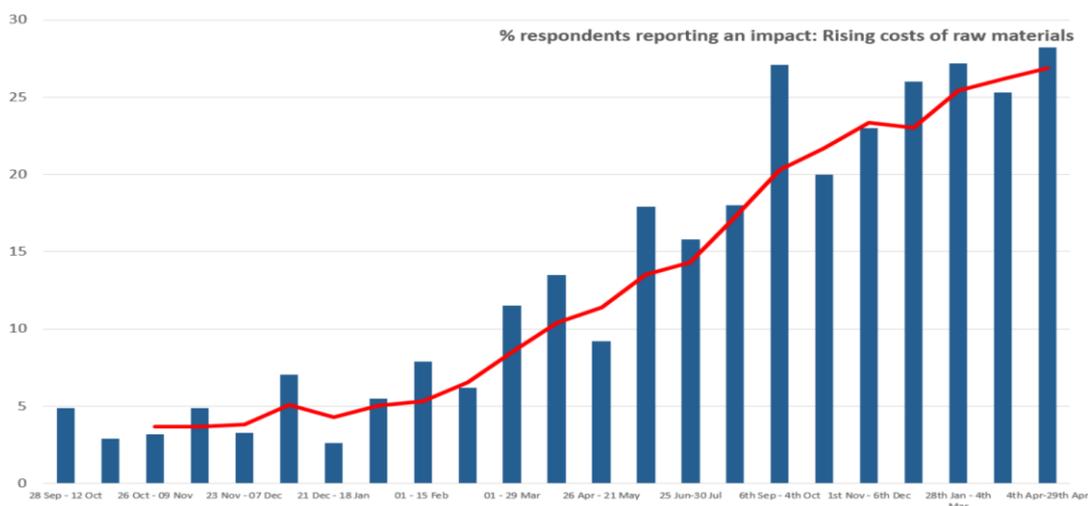
4.1 GM Business composition

- 4.1.1 In 2021 GM had c.107,000 registered businesses – 98% of which had less than 50 employees (defined here as ‘small’). Despite having comparable total and working age populations, GM has an additional c.15,000 ‘small’ businesses in comparison to the West Midlands combined authority area. (Source: [UK Business Counts 2021 - enterprises by industry and employment size band](#))
- 4.1.2 The chart below is based on UK wide data, but it is important for demonstrating the importance of ‘small’ businesses in terms of both employment and turnover. (Source: [Business population estimates for the UK and regions 2021, BEIS](#))



4.2 Outlook for GM Businesses

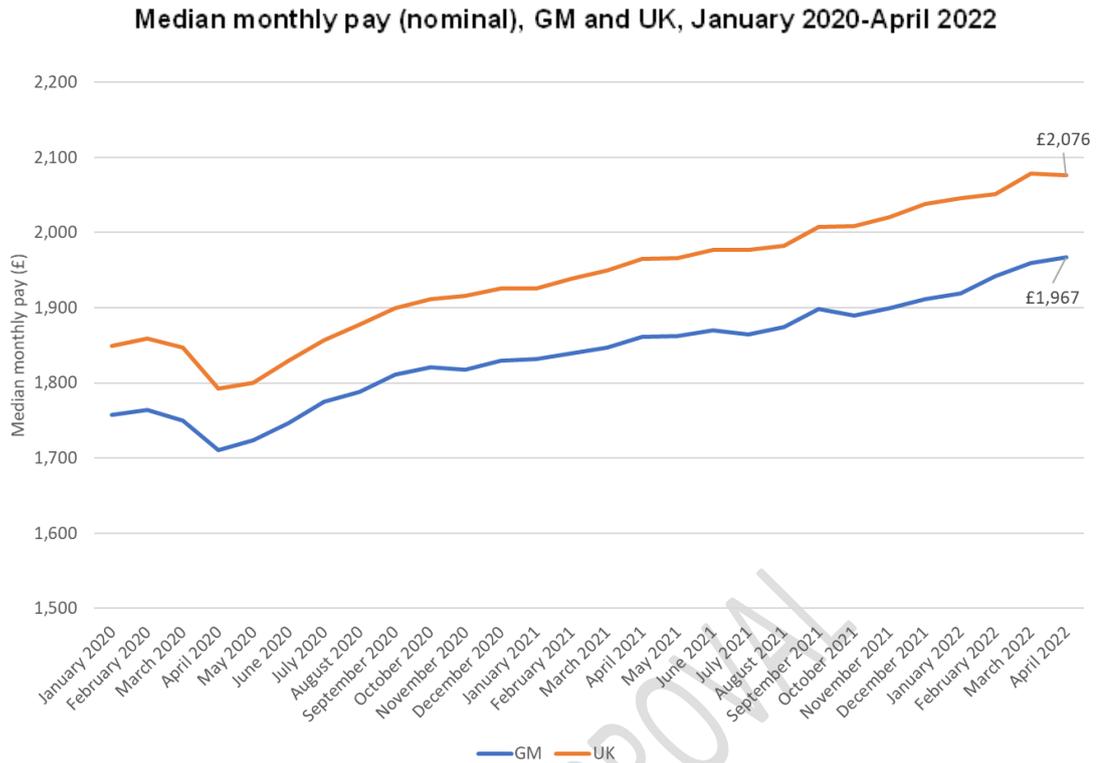
- 4.2.1 The GC Situation Report May 2022 contains findings based on 246 surveys completed with firms (almost all in Greater Manchester), between the 4th April and 29th April 2022.
- 4.2.2 The GC survey and other national statistics and surveys show that there is heightened concern about input prices and the volatility of supply chains.
- 4.2.3 The stand-out change in the survey results for April is the proportion of firms identifying the pressing challenges of managing overall business finances (43% vs 33% previously). This is mirrored by a four percentage-point rise in businesses reporting insolvency risk / financial stress in other third party risk data (RedFlagAlert).
- 4.2.4 The chart below points to the increasing proportion of GM businesses being impacted by the rising costs of raw materials - April 2022 reported a value of 28% vs. 16% for July 2021 (Source: [Growth Company Business Survey](#))



4.2.5 Recruitment remains a key challenge for business, with total vacancies across all sectors having been at high levels over the last year - this is meaning that some firms are finding significant challenges in staffing their operations - Manchester Airport being a key example. The previously noted increase in economic inactivity brought about by the pandemic has likely shrunk the size of the available workforce to GM businesses (in the North West during Jan-March 2022 the working age inactivity rate was 23.5% vs. a national inactivity rate of 21.4% - this is higher than it was at the beginning of 2020. (Source: [Labour market overview, UK: May 2022, ONS](#))

4.3 Wages in Greater Manchester (ONS 'experimental' data)

4.3.1 The chart below indicates that estimated median pay in GM is over £100 a month below the UK median (note: this data is unadjusted for inflation and indicates the trend only). The wage gap was at its widest in January of 2022 (£127 a month). The data suggests that GM nominal median pay has increased since last month, but fallen slightly in the UK. Real terms pay has been falling recently in the midst of cost of living increases. (Source: [Earnings and employment from Pay As You Earn Real Time Information, seasonally adjusted, ONS](#))

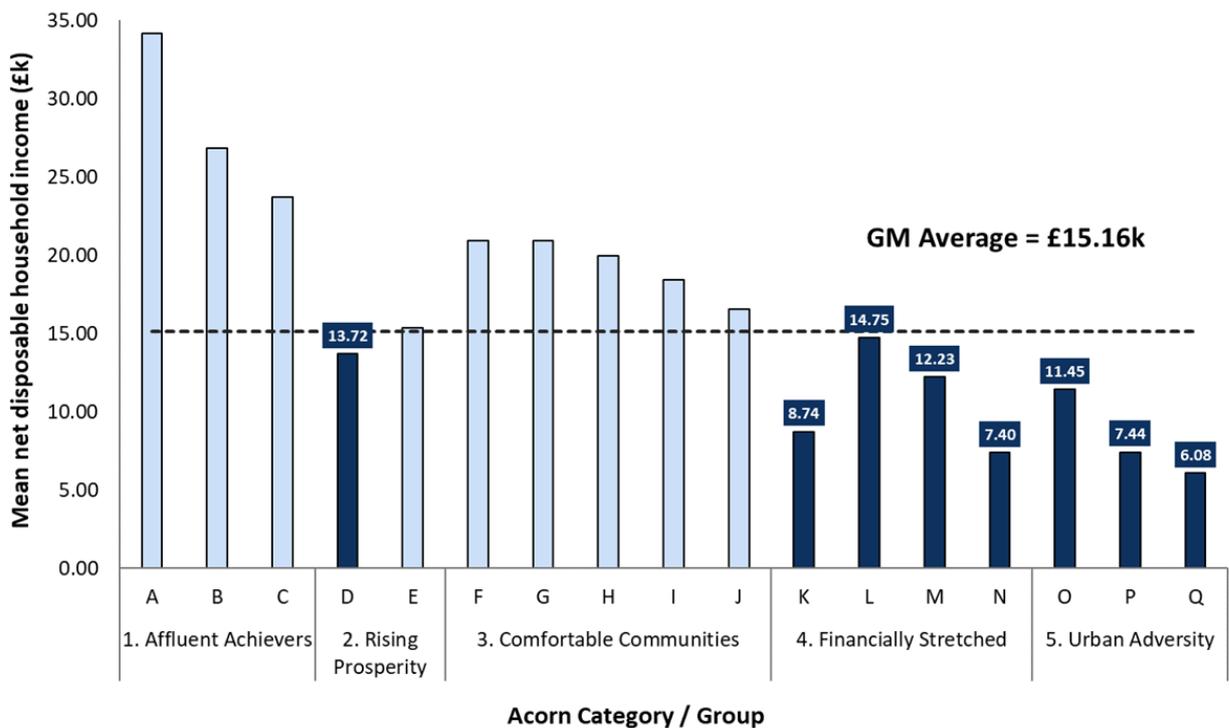
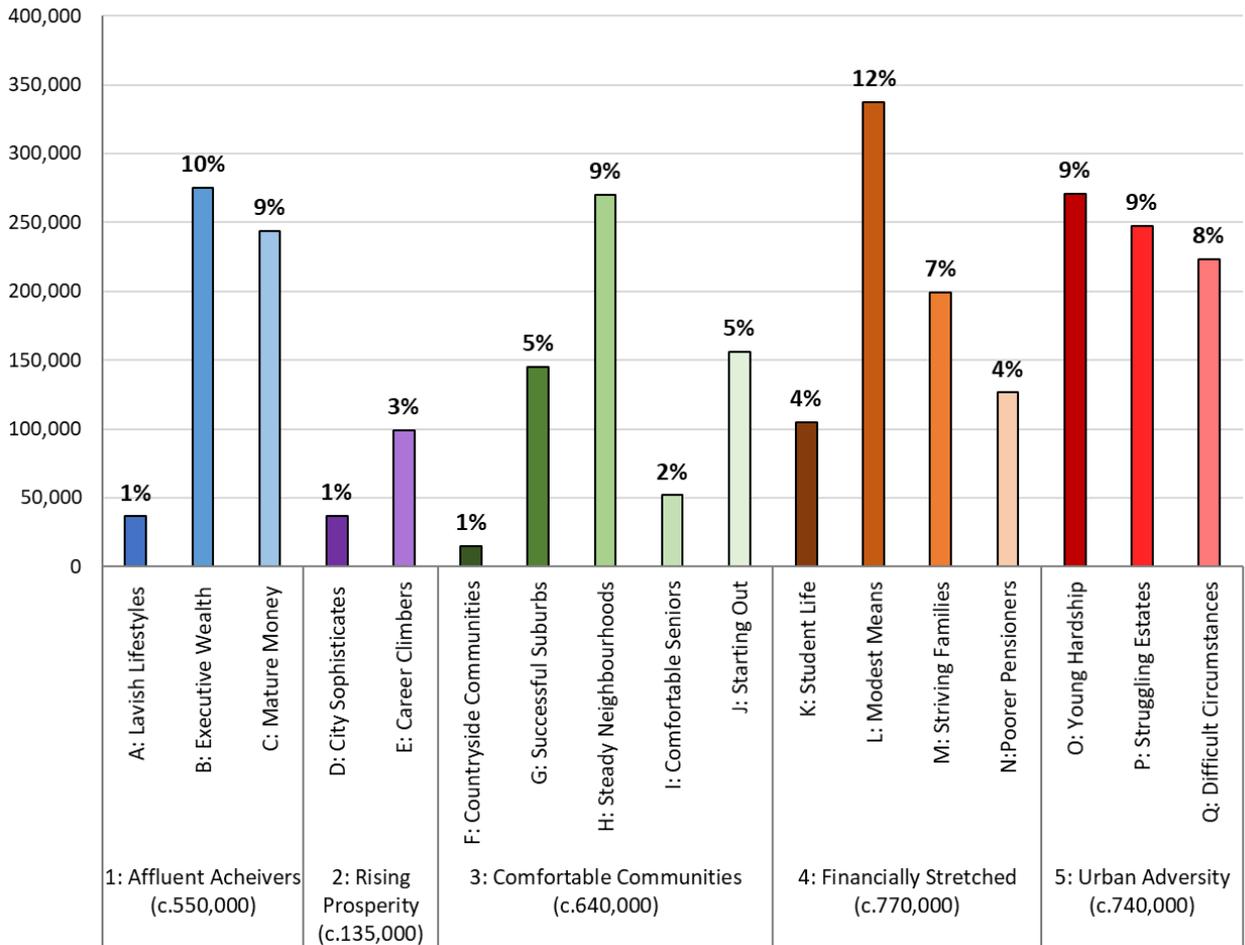


4.4 Understanding the GM residential population

4.4.1 53% of the GM resident population is classified as either ‘Financially Stretched’ or ‘Urban Adversity’, the corresponding value for the UK is just 40% - this demonstrates the greater vulnerability of the GM population to inflation associated with non-discretionary spend (Source: Acorn 2021. CACI Limited. The applicable copyright notices can be found at <http://www.caci.co.uk/copyrightnotices.pdf>)

4.4.2 For ‘Financially Stretched’ and ‘Urban Adversity’ households - disposable income is typically well below average, and often below £10k - note: the values shown in the chart below are prior to the full impact of the recent 2022 surge in inflation being felt. This means that those with limited disposable income as of 2021, are now likely to be even more vulnerable to any costs that may be passed onto them as a result of CAP related interventions. It also serves as a reminder that GM businesses that rely on demand from GM residents, could be particularly vulnerable to weakening consumer demand.

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(Source: Acorn 2021, Paycheck Disposable Income. CACI Limited. The applicable copyright notices can be found at <http://www.caci.co.uk/copyrightnotices.pdf>)

5 Conclusion

- 5.1 UK inflation reached a 40-year high of 9% during April 2022, up from 2% in July 2021. It is widely accepted that inflation will increase to higher levels still during the remainder of 2022, with evidence already pointing to consumer demand being dampened.
- 5.2 GM is not insulated from the impacts of high inflation, in fact in some respects it is particularly vulnerable - noting its relatively high volume of small businesses, and a higher than average (vs.UK) proportion of residents who typically have below average disposable household incomes.
- 5.3 The Bank of England has already responded by increasing base rate to 1.25% (up from 0.1% in July 2021) - signalling that further rate rises are likely. This in turn will increase the cost of borrowing to both businesses and residents who require finance and are not protected by fixed rates.
- 5.4 Meanwhile the Bank of England's Monetary Policy Report (May 2022) points to an expectation for GDP to fall in Q4 2022, and be 'broadly flat' during 2023.
- 5.5 In summary, any intervention, such as a charging clean air zone, that could see businesses forced to pay additional charges and potentially pass costs on to the consumer, could have severe consequences for those groups who are already struggling to cope with the cost of living crisis.

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

Case for a New Plan – Air Quality Modelling Report



Salford City Council



Oldham Council

Trafford Council



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Version Status:	DRAFT FOR APPROVAL	Prepared by:	Transport for Greater Manchester on behalf of the 10 Local Authorities of Greater Manchester
Authorised by: Date:	Ian Palmer July 2022		

1 Introduction

Purpose of Report

- 1.1.1 This report sets out the results of modelling carried out in Summer 2022 to forecast air quality in Greater Manchester (GM) in future years, taking into account the impacts of Covid-19 on vehicle fleet renewals and new investment in the bus fleet in GM.
- 1.1.2 The report documents minor refinements that have been reflected within the modelling methodology to reflect the impacts of the Covid-19 pandemic on air quality, and other changes that have been made to reflect the newest evidence on investment in ultra-low emission buses, as well as any other methodological changes that have been made to the 'Do Minimum' modelling methodology. These changes to the modelling apply the assumptions and methodology developed in agreement with JAQU (in Spring 2021) and the TIRP, based on the extant JAQU guidance for assessing the impact of Covid-19 provided to GM in 2021.
- 1.1.3 The report sets out how the relevant methodological changes have been reflected within the modelling to forecast the air quality without the GM CAP in place. The modelling has been conducted for 2025.

Background

- 1.1.4 The Government has instructed many local authorities across the UK to take quick action to reduce harmful roadside levels of Nitrogen Dioxide (NO₂) following the Secretary of State (SoS) for Environment, Food and Rural Affairs issuing a Direction under the Environment Act 1995 in 2017 requiring them to undertake feasibility studies to identify measures for reducing NO₂ concentrations to within legal limit values in the "shortest possible time". In Greater Manchester, the 10 local authorities, the Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM) are working together to develop a Clean Air Plan to tackle NO₂ exceedances at the roadside, herein known as Greater Manchester Clean Air Plan (GM CAP).
- 1.1.5 In March 2019 the GM Authorities agreed the submission of the Outline Business Case (OBC) that proposed a package of measures that was considered would deliver compliance in Greater Manchester in the shortest possible time, at the lowest cost, least risk and with the least negative impacts. This involved a Charging Clean Air Zone Class C with additional measures.
- 1.1.6 In July 2019 the SoS issued a Direction under section 85 of the Environment Act 1995 requiring the 10 Greater Manchester local authorities to implement the local plan for NO₂ compliance for the areas for which they were responsible, including a Charging Clean Air Zone Class C with additional measures, but with an obligation to provide further options appraisal information to demonstrate the applicable class of Charging Clean Air Zone

and other matters to provide assurance that the local plan would deliver compliance in the shortest possible time and by 2024 at the latest.

- 1.1.7 The SoS subsequently issued a Direction to the ten Greater Manchester local authorities in March 2020 that required them to take steps to implement the local plan for NO₂ compliance so that compliance with the legal limit for NO₂ is achieved in the shortest possible time, and by 2024 at the latest, and so that exposure to levels above the legal limit for NO₂ is reduced as quickly as possible.
- 1.1.8 A statutory consultation on the proposals took place in Autumn 2020.
- 1.1.9 The GMCA – Clean Air Final Plan report on 25 June 2021¹ endorsed Greater Manchester’s Final CAP and policy following a review of all of the information gathered through the GM CAP consultation and wider data, evidence and modelling work. Throughout the development of the previous Plan, JAQU reviewed and approved all technical and delivery submissions. The Plan was agreed by the ten Greater Manchester local authorities. Within this document, this is referred to as the Previous GM CAP.
- 1.1.10 On 20 January 2022 the Air Quality Administration Committee considered the findings of an initial review of conditions within the supply chain of Light Good Vehicles (LGVs) in particular which were impacting the availability of compliant vehicles. The Committee agreed that a request should be made to the SoS to pause opening of the next phase of Clean Air Funds to enable an urgent and fundamental joint policy review with Government to identify how a revised policy can be agreed to deal with the supply issues and local businesses’ ability to comply with the GM CAP.
- 1.1.11 On the 8th February 2022, a new Direction was issued by the SoS² which confirmed that the March 2020 Direction to implement a Class C charging Clean Air Zone (CAZ) had been revoked and required that a new plan be submitted to the SoS by 1st July 2022 which should:³
- review the measures specified in the local plan for NO₂ compliance and associated mitigation measures; and
 - determine whether to propose any changes to the detailed design of those measures, or any additional measures.
- 1.1.12 The Direction also requires that compliance with the legal limit value for nitrogen dioxide is achieved in the shortest possible time and no later than 2026 and that exposure to levels above the legal limit for nitrogen dioxide is reduced as quickly as possible.

¹ Also considered by the Greater Manchester authorities through their own constitutional decision-making arrangements.

² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1054931/Environment_Act_1995_Greater_Manchester_Air_Quality_Direction_2022.pdf

³ In addition to recommendations about interim arrangements for changes to delivery arrangements for the CAZ in the meantime, including signage, funding and discount/exemption applications.

1.1.13 Within this document, this new plan, and any subsequent further development of the new plan, is referred to as the New GM CAP.

Structure of the Note

1.1.14 Following this introductory chapter, the remaining sections of this report comprise:

- Chapter 2 provides details of methodology updates together with detail relating to the scenarios that have been modelled;
- Chapter 3 discusses the updated Do Minimum emissions modelling results;
- Chapter 4 Presents the updated Do Minimum Air Quality modelling results; and
- Chapter 5: provides the key summary and conclusions of the updated modelling, together with details of the proposed next steps.

1.1.15 In addition, **Appendix A**, set out the key data, approach and considerations for reflecting the latest position regarding delays to the natural turnover of the vehicle fleet.

2 Methodology

Overview of the Modelling Process

- 2.1.1 Air quality in Greater Manchester has been modelled as part of the GM CAP, and areas of exceedance of the Limit Values identified. This modelling has been updated at relevant stages throughout the development of the plan for a number of reasons; for example, to reflect changes to the key phasing dates, to revise underpinning assumptions such as vehicle fleet age (due to Covid-19), or as a response to policy refinements as a result of the public 'conversation' or consultations.
- 2.1.2 The core goal of the GM CAP is to address the legal requirement to achieve compliance with the legal Limit Value ($40 \mu\text{g}/\text{m}^3$) for NO_2 .
- 2.1.3 Air quality is expected to gradually improve over time as a result of the ongoing cycle of newly purchased vehicles replacing older more polluting equivalents. The Government has required that the GM CAP delivers compliant air quality, using modelling to forecast future concentrations and showing how potential measures might reduce concentrations.
- 2.1.4 The air quality problem for Greater Manchester is assessed by reference to the "Do Minimum" scenario, which sets out air quality as forecast if no action is taken by the GM CAP. The forecast takes into account other investment/interventions that are planned, funded and committed, where they have an impact on travel, traffic or the road network. The forecast appraisal years were developed for the original planned scheme commencement date for the GM CAP (2021 – not updated), the current expected scheme commencement date (2023) and a further year to inform the trajectory of improvement to compliance with the Limit Values (2025).
- 2.1.5 The GM CAP is underpinned by an evidence base derived from data collection, research, analysis and modelling. Throughout the technical development process from 2017 to date, Greater Manchester has used best practice methodology and assumptions and worked closely with Government including, for example, by delivering updates to incorporate the impacts of Covid-19 to the GM CAP in accordance with national guidance.
- 2.1.6 The modelling approach has been updated to reflect the impacts of Covid-19 in line with JAQU guidance and changes to the GM CAP Policy following public consultation and now in respect to changing market conditions and further Covid-19 related impacts.
- 2.1.7 The purpose of the modelling process is to quantify the impact of traffic by vehicle type on emissions and consequently on concentrations of NO_2 at the roadside in Greater Manchester.
- 2.1.8 The modelling for the study is being undertaken using the CAP modelling suite as illustrated below in **Figure 1**.

Figure 1 CAP Modelling Suite



2.1.9 The modelling system consists of five components:

- The demand sifting tool, which has been developed to allow measures to be tested in a quick and efficient way prior to detailed assessments being undertaken using the highway and air quality models. The sifting tool uses fleet specific Cost Response models to determine behavioural responses to the CAP proposals (pay charge, upgrade vehicle, change mode, cancel trip etc.) The outputs comprise demand change factors which are applied to the do-minimum Saturn matrices to create do-something demands for assignment.
- The highway (Saturn) model, which uses information about the road network and travel demands for different years and growth scenarios to estimate traffic flows and speeds for input to the emissions model and forecasts of travel times, distances and flows for input to the economic appraisal.
- The emissions model, which uses TfGM's EMIGMA (Emissions Inventory for Greater Manchester) software to combine information about traffic speeds and flows from the Saturn model with road traffic emission factors and fleet composition data from the Emission Factor Toolkit (EFT) to provide estimates of annual mass emissions for a range of pollutants including oxides of nitrogen (NO_x), primary-NO₂, particulate matter (PM₁₀ and PM_{2.5}) and CO₂.
- The dispersion model, which uses ADMS-Urban software to combine information about mass emissions of pollution (from EMIGMA) with dispersion parameters such as meteorological data and topography to produce pollutant concentrations.
- Finally, the outputs of the dispersion model are processed to convert them to the verified air quality concentrations, using Defra tools and national background maps.

2.1.10 The modelling suite has remained consistent with that used for the development of the Option for Consultation, updates to these tools to represent the revised Do Minimum scenarios are discussed within the later chapters of this report.

Refined Delayed Fleet Assumptions

2.1.11 The Do Minimum forecast has been updated because the evidence presented to the Government in February 2022 showed that business as usual (BAU) car sales were lower than expected in 2021, meaning that the fleet was older than forecast, and that this was likely to delay compliance with legal limits of NO₂ with the scheme as planned. Therefore, in order to

update the Do Minimum forecast, the underpinning assumptions have been reviewed to ensure they remain up-to-date. These changes are set out in **Table 1**.

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Table 1 Overview of Delayed Fleet Assumptions Applied in Do Minimum 2025 Scenario Modelling

Vehicle Type	Criteria	Changes
HGV	Fleet age	No changes made in 2021 version as evidence did not suggest HGV purchases had been affected by the pandemic in 2020 (given impact of regulatory change in 2019 which had distorted purchase patterns such that lower than normal purchases were expected in 2020 anyway) - No changes made in latest forecast
LGV	Fleet age	Delay (c1 month) applied in 2021 version. Evidence suggests sales in 2021 were similar to Greater Manchester's forecast and therefore no additional changes are proposed.
Car	Fleet age	Delay (c11 months) applied in 2021 version to reflect loss of sales in 2020 and SMMT forecast of gradual Covid recovery. New evidence suggests that car purchases were lower than expected in 2021 and therefore this additional delay has been reflected in this forecast version, with a delay of one year applied.
Taxi	Fleet age	Evidence in 2021 suggested that upgrades had been delayed but could not quantify impact, therefore a delay of one year was applied as a cautious estimate in that version. - No changes made in latest forecast.
Bus	Funding	Electric bus funding was represented in the model includes the removal of ULEB funding from Vantage and Free Bus routes, and addition of ZEBRA funding for Stockport. CRSTS funding not yet assigned so cannot be represented in Do Minimum scenario, but is considered separately.

2.1.12 Further details and background data that have been used to determine the identified modelled impacts for representing the delays to the natural turnover of the vehicle fleet is discussed in Appendix A, together with the changes that were applied within the modelling.

Updated Position Regarding Electric Bus

- 2.1.13 GM has reviewed the assumptions underpinning the highway assignment modelling including bus services and fleet, taxi upgrade assumptions, traffic volumes and composition and future schemes.
- 2.1.14 Since the previous review of bus services, a fleet of zero emission buses has been deployed on routes into the city centre and further zero emission buses are funded and planned to be in operation from 2024. The highway model was updated to reflect these new buses, operating on the following services:
- 111, 43 (Chorlton to Manchester City Centre, Manchester Airport to Manchester City Centre) – from 2020. [Included in previous modelling]
 - Full electrification of all services operating out of the Stagecoach Sharston depot, in Stockport as part of GM's successful ZEBRA⁴ funding award, from 2024. [Updated from previous modelling]
- 2.1.15 The Stockport depot ZEBRA funded buses are not expected to be fully deployed until 2024. To enable the extrapolation of modelled concentrations for 2026, using the available 2023 and 2025 forecast models, the Stockport ZEBRA electric buses have been applied in the 2023 model as well as the 2025 model. This means that the emissions and concentration predictions along these bus routes, which are predominantly on the corridors from central Stockport towards the Manchester regional centre, will be under-predicted in 2023 because many buses would still be diesel variants at that time.
- 2.1.16 However, some previously expected electrification of bus services based on Ultra Low Emission Bus funds (ULEB), as represented in the Post-Consultation modelling scenario are no longer available following the expiry of the relevant funds. The services below are now modelled as continuing with the projected diesel / hybrid fleets, in the Do Minimum scenario:
- Manchester Metroshuttle Free Bus Services (within the City Centre) – previously planned from 2023.
 - Vantage services (operating through Salford to Manchester City Centre, including along the A34 Bridge St/John Dalton St) – previously planned from 2023.

The locations of these services are shown in **Figure 2**, **Figure 3** and **Figure 4**.

⁴ Zero Emission Bus Regional Areas (ZEBRA) scheme - GOV.UK (www.gov.uk)

Figure 2: ULEB-funded Electric Bus Routes (Vantage [now diesel buses], 111 & 43 [retained as electric buses])

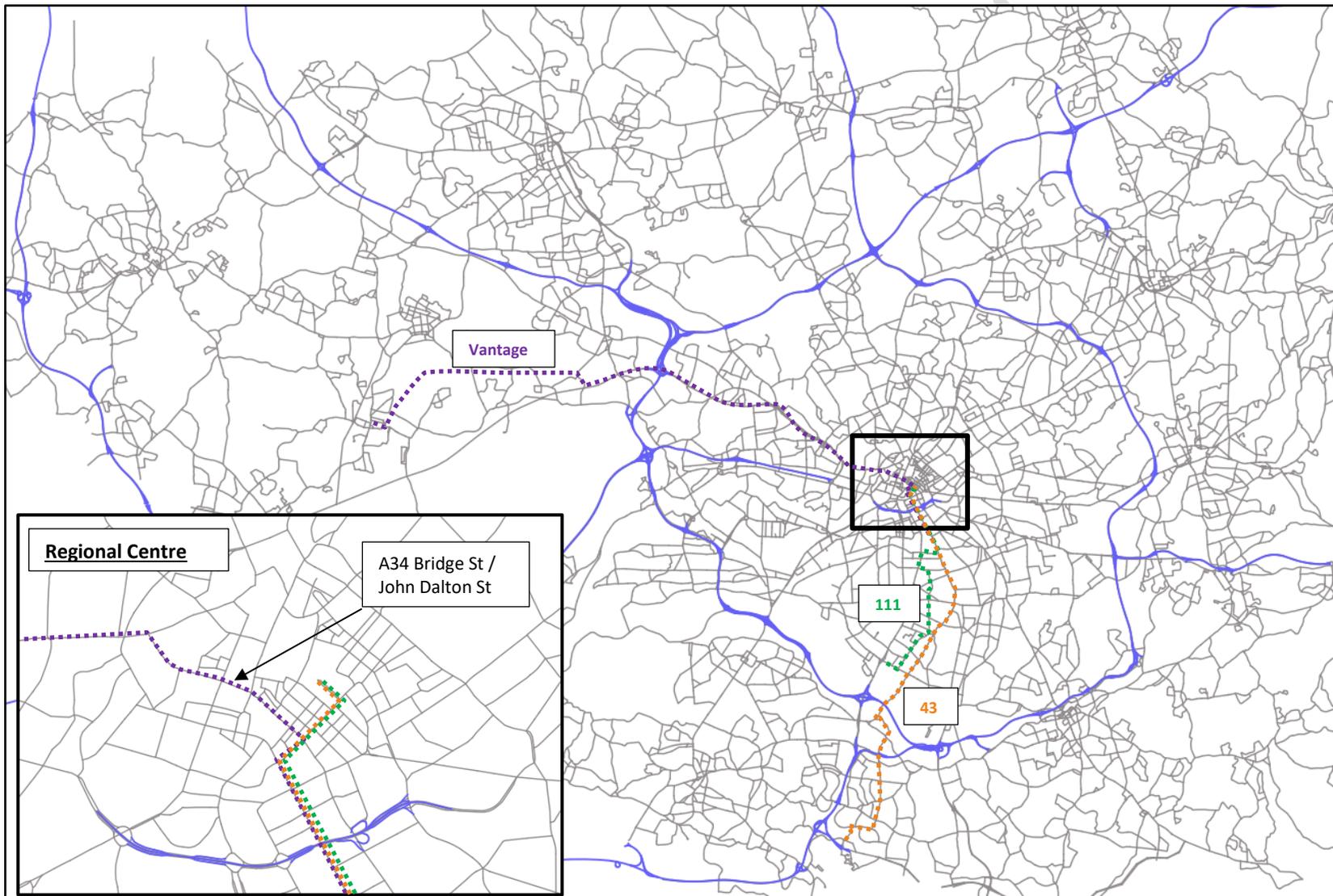


Figure 3: ULEB-funded Metroshuttle Free Bus Routes in the Regional Centre

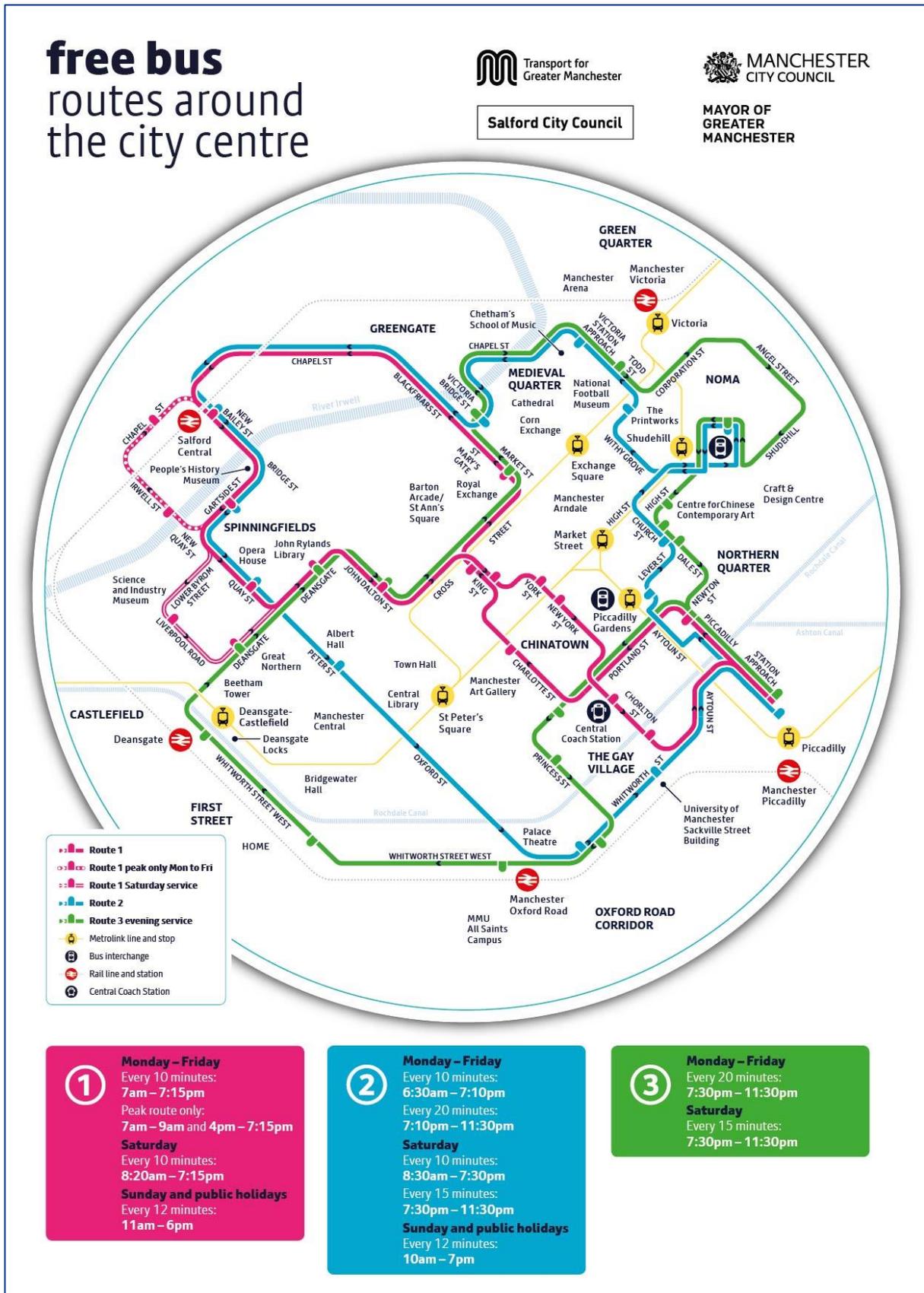
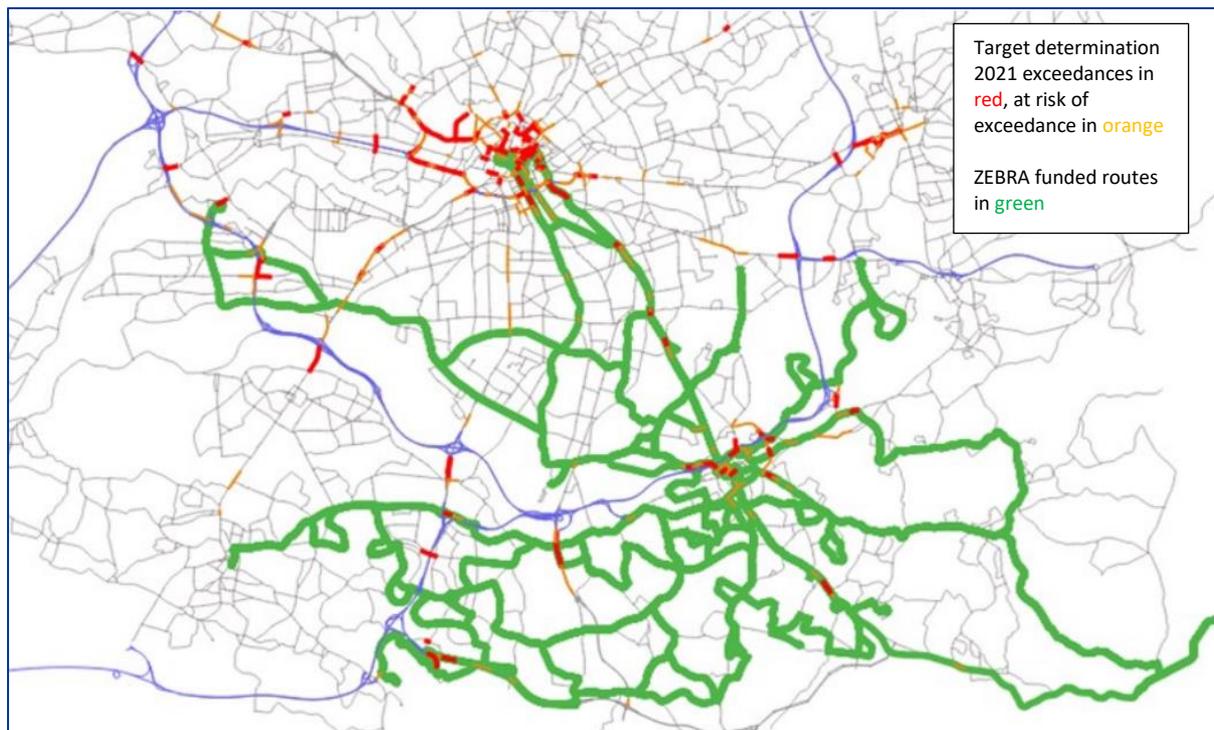


Figure 4: ZEBRA Funded Bus Routes, from the Stockport depot



Definition of Modelled Scenarios

2.1.17 Modelling has been undertaken for the following scenarios:

- **Do Minimum (i.e. No GM CAP)** - represents what would be forecast to happen in the absence of all GM CAP proposals. In reality this is overly pessimistic because funds for buses and HGVs have been available and successfully applied since these aspects of the GM CAP opened in 2021. This scenario is used to enable appraisal of the full impact of the GM CAP itself.
- **Do Minimum with CBF Grants** – represents what is forecast to happen with incorporation of approved GM CAP Clean Bus Fund (CBF) grants. The test is based upon the number of buses in each Greater Manchester operator's fleet where grants have been approved as of March 2022 (around 1,000 buses have been approved for retrofit or replacement funding, with 500 already on the road). The test was implemented in EMIGMA, with adjustments made to each specific operator's fleet mix to represent an increased proportion of newer (Euro VI) compliant buses running their service routes, so reducing forecast emissions.

- For those buses in an operator's fleet where no upgrade support funding had been allocated (to either replace or retrofit), these buses were locked at their existing Euro standard age, because under the CAP there is no longer a proposed disincentive CAZ charge to encourage upgrade. This is 387 vehicles, out of the GM operator bus parc of 2,313 buses. This is considered a pessimistic approach. These older non-compliant buses are more likely to be used on less profitable or lower frequent routes, which would be less likely to run along the last key links of compliance.
- Under this CBF grants scenario, the percentage of GM route mileage operated by Euro VI compliant buses increased by approximately 30% relative to the •Do Minimum (i.e. No GM CAP) scenario.
- Whilst it is not certain that all operators would now utilise an approved grant in the absence of a CAZ charge to penalise use of their non-compliant buses, many buses have already been upgraded and are on the road. Therefore, it is expected that given known on-going CBF investment into bus fleets and the transition to bus franchising in Greater Manchester which can set emissions standards at service level, it is considered that this test is the most likely scenario representing the nature of the air quality problem in GM for the CAP to tackle.
- **Full electric bus fleet test** – Electric buses can be very effective at reducing road traffic emissions, especially at sites with high bus flows. The purpose of this test was to investigate the air quality impacts that investments in electric buses could deliver on key routes, beyond Euro VI diesel models. The City Region Sustainable Transport Fund Settlement (CRSTS) has provided confirmed funding to enable the investment into electric bus provision rapidly and at scale in GM. This test identifies where electric bus fleet would further bring forward compliance on persistent locations of exceedance. The results have been used to define the deployment strategy of electric buses within the wider programme, to services crossing exceedance locations, to deliver earliest compliance in support of the GM CAP. The test was implemented in the modelling by assuming that the whole bus fleet would be fully electric, without making any changes to service patterns or frequencies in the forecasts.

2.1.18 In addition to those scenarios set out above, work is ongoing to carry out a sensitivity test representing the impact of key schemes affecting the road network in Manchester and Salford, as part of the City Centre Transport Strategy (CCTS), which are expected to have been opened by 2025. Further testing of the Do Minimum scenario is underway to better reflect the possible impact of these schemes and is discussed within the next steps section of the report.

3 Road Traffic Emissions in the Do Minimum and Test Scenarios

- 3.1.1 Summary results from the EMIGMA modelling for the tests are presented in **Table 2**, which shows modelled mass NO_x emission totals for 2023 and 2025 for Greater Manchester as a whole, disaggregated by vehicle type. The percentages in the table show changes in emissions for the test scenarios relative to the updated Do Minimum.
- 3.1.2 Total NO_x emissions for the updated Do Minimum are approximately 2% greater than in the previous Do Minimum modelling, in both 2023 and 2025. This is mainly a result of the increased age of the private car fleet, due to Covid-19 impacts leading to reduced new (cleaner) vehicle sales, with private car fleet emissions increasing by 5% in both years. The total change in the mass emissions also include a reduction in emissions associated with new electric buses, but these improvements are confined to specific bus route corridors, whereas the private car fleet delay leads to a more geographically even spread of increased vehicle emissions.
- 3.1.3 The NO_x totals in **Table 3** show that road traffic emissions within Greater Manchester are generated from a mixture of vehicle types, with private cars releasing most, followed by commercial vehicles (HGVs, LGVs) and then buses and taxis. The vehicle composition varies significantly across road types, however, and further detailed site-specific breakdowns of the sources at the most persistent exceedances are provided in the next section. It can be seen, though, that aggregate emissions for the updated Do Minimum are reducing into the future, with a reduction from 6,427T to 5,273T (18%) forecast from 2023 to 2025 as a result of the natural cycle of vehicle replacement and renewal with cleaner newer models.
- 3.1.4 The modelling for the CBF grant test indicates that bus emissions are forecast to reduce by 60% in 2023 (if the upgrades have been fully delivered by then) and 44% in 2025 compared to the updated Do Minimum forecasts for those years, delivering localised improvements along bus routes. This equates to potential reductions in total road vehicle NO_x emissions over Greater Manchester of approximately 4% relative to the new Do Minimum in 2023 and 3% in 2025. It needs to be borne in mind however, that the bus emission forecasts for 2023 are likely to be under-estimated, (as described in Section 2), as the Stockport ZEBRA funded buses are not expected to be fully deployed until 2024. (This was a simplifying assumption to allow the interpolation of modelled concentrations for 2024, using the available 2023 and 2025 models.)
- 3.1.5 The EMIGMA modelling for the Do Minimum plus electric bus scenario indicates that total NO_x road traffic emissions within the County are forecast to reduce by 7% in 2023 and 6% in 2025 compared to the updated Do Minimum forecasts for those years. The impacts will vary significantly by site, however, and will be greatest in corridors with high bus flows, but less marked at sites where emissions from other vehicle types predominate.

Table 2 Mass NOx Emission Totals from EMIGMA Modelling (Greater Manchester, Tonnes per Year (T), with Percentage Changes Relative to the Updated Do Minimum)

2023						
Scenario	Car	LGV	HGV	Taxi	Bus	Total
Updated Do Min.	2,938	1,888	796	357	449	6,427
Updated Do Min. with CBF	2,938	1,888	796	357	179	6,157
%Change (from Updated Do Min.)	0%	0%	0%	0%	-60%	-4%
Full Electric Bus Test	2,938	1,888	796	357	0	5,978
%Change (from Updated Do Min.)	0%	0%	0%	0%	-100%	-7%
2025						
Scenario	Car	LGV	HGV	Taxi	Bus	Total
Updated Do Min.	2,526	1,610	523	294	320	5,273
Updated Do Min. with CBF	2,526	1,610	523	294	179	5,133
%Change (from Updated Do Min.)	0%	0%	0%	0%	-44%	-3%
Full Electric Bus Test	2,526	1,610	523	294	0	4,954
%Change (from Updated Do Min.)	0%	0%	0%	0%	-100%	-6%
Notes:						
Taxis comprise Private Hire Vehicles and Hackney Carriages combined						
Totals may not sum due to rounding						

4 Air Quality Results in the Do Minimum and Test Scenarios

Do Minimum (i.e. no GM CAP)

- 4.1.1 **Table 3** summarises the updated Do Minimum scenario modelling results, which incorporate the current understanding of the impacts of Covid-19 on vehicle fleets, for the Do Minimum years of 2023 and 2025. It shows the distribution of non-compliant sites across Greater Manchester, both by spatial type and also in terms of how close they are to compliance. These results are then reported as the number of exceedances by each district in **Table 8**.
- 4.1.2 The location of the predicted exceedances in 2024 and 2025 are shown in **Figure 5** with the spatial pattern continuing to resemble that in the 'Option for Consultation' and 'Previous GM CAP' modelling iterations.
- 4.1.3 As shown in **Table 3**, there is an increase in the number of points of exceedance in 2023 from the Previous GM CAP model Do Minimum as modelled in spring/summer 2021 (from 71 to 79). This is primarily associated with the wider road network outside of the regional centre where private car emissions have increased due to an older fleet profile due to Covid-19, leading to increases in NO₂ concentrations of typically 0.5 µg/m³ up to 1.0 µg/m³. However, on the route corridors where the new electric buses will operate there are improvements, with a reduction in exceedances inside the Inner Relief Route (IRR) on these routes. Conversely, on the Vantage and FreeBus routes where the ULEB funding will no longer be available it is assumed that diesel variants would still be operating, with associated increases in NO₂ concentrations.
- 4.1.4 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet, which is expected to continue despite the depressive effect of Covid-19 on some markets, and which has been accounted for where relevant. Compared with the Previous GM CAP Do Minimum scenario, there has been an increase in the overall number of exceedances (from 11 to 13).
- 4.1.5 There are predicted to be exceedances in all districts with the exception of Wigan in the Do Minimum scenario for 2023. By 2025, exceedances are only predicted in Manchester, Salford, and Bury, which is consistent with the Consultation and Previous GM CAP modelling scenarios.
- 4.1.6 The updated modelling shows results are consistent with the methodological modelling alterations described previously. The locations where car flows are greatest have an increased number of exceedances, typically sites classed as 'Other Locations'. The last points of exceedance (13 in total) in 2025 still remain at:
- Inside the IRR, including the A34 Bridge St /John Dalton St, Lever St and the A56 Deansgate;
 - A57 Regent Rd, Salford;
 - A6 Chapel St, Salford; and

- A58 Bolton Road, Bury.

4.1.7 The modelling indicates that exceedances would remain in 2026 at 5 sites: 4 inside the IRR and on the A57 Regent Road. However, the A6 Chapel Street and the A58 Bolton Road would by this point have become compliant. All sites are predicted to be compliant by 2027 in the Do Minimum scenario.

4.1.8 Note that this does not include representation of the CCTS schemes which are expected to have been opened by 2025. A further sensitivity test of the Do Minimum modelling is underway to incorporate the CCTS schemes which are expected to be in place in the relevant forecast years.

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Table 1 Predicted annual mean NO₂ concentrations at points on the Greater Manchester road network – 2023 to 2026 without action ('Do Minimum')

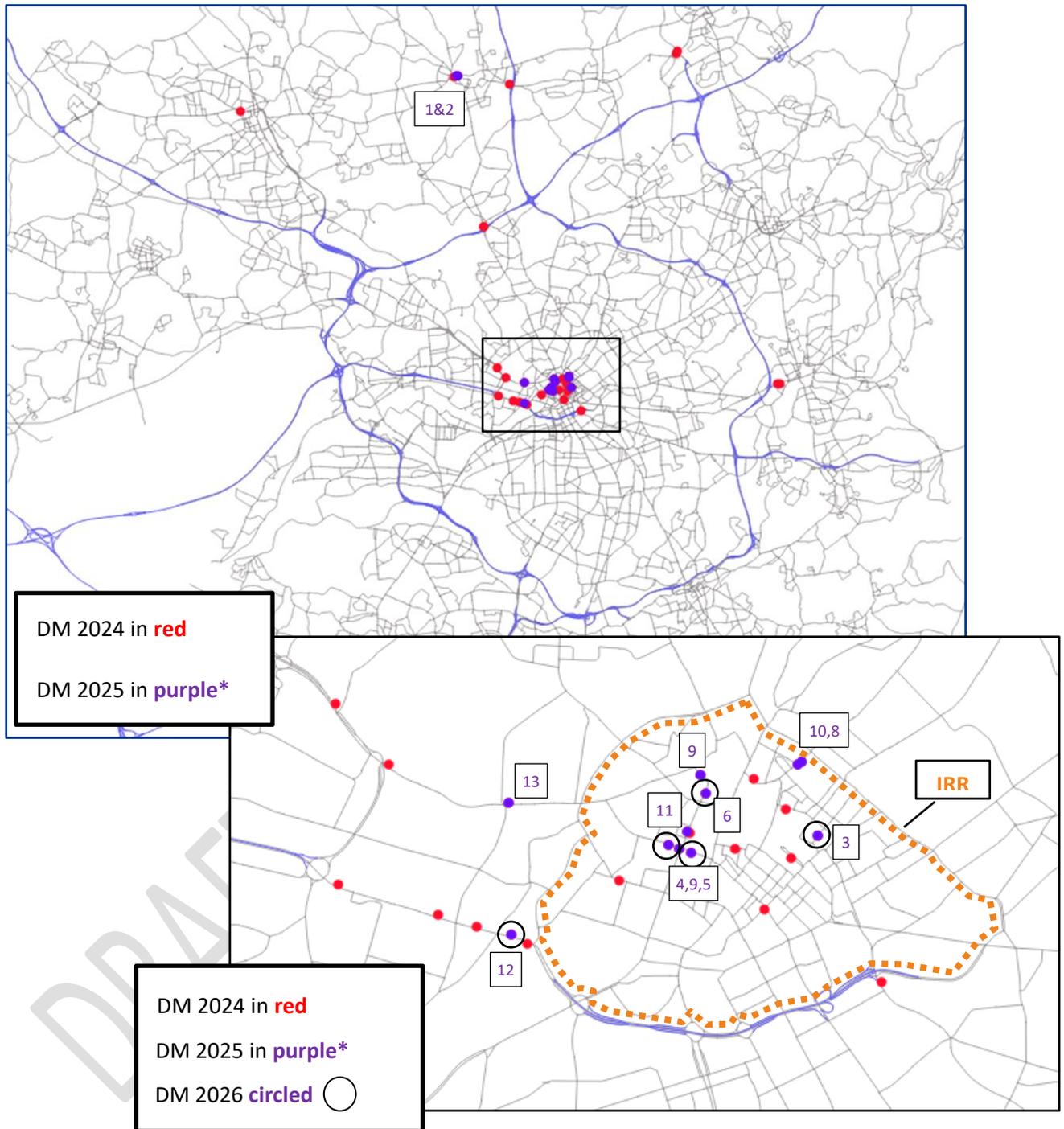
Road classification ⁵	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m ³)	Compliant but marginal (35 to 40 µg/m ³)	Non-compliant (>40 to 45 µg/m ³)	Very non-compliant (>45 to 50 µg/m ³)	Extremely non-compliant (>50 µg/m ³)	Total non-compliant (>40 µg/m ³)
2023						
Inside Manchester-Salford Inner Relief Route (IRR)	211	33	23	8	0	31
Urban centres	209	24	4	0	0	4
Other locations	1829	157	38	6	0	44
Total	2249	214	65	14	0	<u>79</u>
2024 (Interpolated)						
Inside IRR	227	32	11	5	0	16
Urban centres	223	12	2	0	0	2
Other locations	1936	75	18	1	0	19
Total	2386	119	31	6	0	<u>37</u>
2025						
Inside IRR	243	23	9	0	0	9
Urban centres	233	4	0	0	0	0
Other locations	1984	42	4	0	0	4
Total	2460	69	13	0	0	<u>13</u>
2026 (Extrapolated)						
Inside IRR	257	14	4	0	0	4

⁵ "Inside Inner Relief Route" is the area encircled by the Inner Relief Route. "Urban centres" are areas that met a definition used for the purposes of air quality modelling for OBC Option testing. "Other locations" are roads outside of Urban centres and the Inner Relief Route.

Road classification ⁵	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m ³)	Compliant but marginal (35 to 40 µg/m ³)	Non-compliant (>40 to 45 µg/m ³)	Very non-compliant (>45 to 50 µg/m ³)	Extremely non-compliant (>50 µg/m ³)	Total non-compliant (>40 µg/m ³)
Urban centres	235	2	0	0	0	0
Other locations	2008	21	1	0	0	1
Total	2500	37	5	0	0	<u>5</u>

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Figure 5 Greater Manchester Do-Minimum Exceedance Points in 2024, 2025 and 2026



*Exceedances in the Do Minimum (i.e. No GM CAP) scenario for 2025 have marked with an ID number to reference against the detailed model results tables.

4.1.9 The air quality modelling data and emissions source apportionment is provided in **Table 4** for 2025, for all of the 13 sites predicted to be in exceedance. This table shows how each vehicle type contributes to the total road transport emissions on a given road link, and how this varies.

4.1.10 The exceedance site results are discussed based on their spatial cluster.

Regional Centre / Within the IRR and Chapel St, Salford

4.1.11 The majority of the last points of exceedance are located within Manchester City Centre and the IRR. The source apportionment indicates that bus emissions dominate the contributions to the predicted exceedances at almost all locations, typically 70% to 100% of vehicle emissions. This reflects the higher frequency of buses running on these routes compared with wider Greater Manchester, but also the slower traffic speeds inside the IRR where queuing and congestion occurs more frequently, and signalised junctions occur at a greater density. At low speeds, buses and HGV NO_x emissions are elevated even for Euro VI models.

4.1.12 The maximum concentration of 45.2 ug/m³ is located A62 Lever St which is a road that is restricted to buses only. The A34 Bridge St / John Dalton St sites with a concentration of 44.0 ug/m³ are the next worst exceedances, again dominated by bus emissions.

4.1.13 The southern section A56 Deansgate and A6 Chapel Street show a different source pattern to the other exceedance locations, with a lower but still significant proportion of bus emissions (50% or less), and higher proportion of private car and LGV emissions.

A58 Bolton Road, Bury

4.1.14 The A58 Bolton Road, Bury, is a dual carriageway over the River Irwell, serving traffic from the confluence of the A58, B6196 & B6213 roads to and from the Bury town centre ring road. There are modelled exceedances on both of the carriageways but these essentially both represent the same traffic flows. The contribution from HGVs is low on this link, with the majority of emissions derived from private cars and LGVs. However, there is also a material proportion of emissions from diesel buses. Concentrations here are predicted to be 42.8 ug/m³ in 2025.

A57 Regent Road, Salford

4.1.15 The A57 Regent Road is an important highway corridor providing an East-West connection through Manchester City Centre and joining the M602, part of the Strategic Road Network which is managed by National Highways.

4.1.16 This route contains a relatively high proportion of commercial vehicles, with emissions from HGVs & LGVs at c50% of total emissions, and the remainder primarily derived from private cars c40%. Emissions from buses are very low (just 2% of total), with very few bus services operating on this corridor. This reflects the nature of this route as a primary arterial route from the Strategic Road Network, serving traffic demands of the Regional Centre and surrounding area.

4.1.17 Concentrations here are predicted to be 42.8 ug/m³ in 2025.

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Table 4: Predicted annual mean NO₂ concentrations and source apportionment at key compliance points on the Greater Manchester road network - 2025 Do Minimum (i.e. No GM CAP)

Map ID	Point ID	x	y	Census ID	Road name	Location Type	Local Authority	PCM/ LA/ HE	Annual mean NO ₂ conc (µg/m ³)	BG ⁶ NOx conc (µg/m ³)	BG NO ₂ conc (µg/m ³)	Road NOx contrib (µg/m ³)	Road NO ₂ contrib (µg/m ³)	Traffic Flow (veh per day)	NOx contribution by vehicle type (%)				
															Bus	Taxi	HGV	LGV	Car
1	2237_3790_DW	379830	410975	38354	A58 Bolton Road	Wider GM	Bury	PCM	42.8	20.1	14.4	66.3	28.4	80,272	16%	5%	17%	24%	38%
2	3790_3652	379874	410937	38354	A58 Bolton Road	Wider GM	Bury	PCM	41.2	20.1	14.4	63.1	26.8	80,272	16%	5%	17%	24%	38%
3	1242_1243	384483	398343	70154	A62 Lever St	Inside IRR	Manchester	PCM	45.2	33.2	22.1	90.8	23.0	1,444	100%	0%	0%	0%	0%
4	1268_1269	383558	398278	27974	A34 Bridge St	Inside IRR	Manchester	PCM	44.0	33.2	22.1	70.2	21.9	9,399	74%	2%	3%	7%	14%
5	1268_46301	383702	398229	7947	A34 John Dalton St	Inside IRR	Manchester	PCM	43.6	33.2	22.1	70.8	21.5	8,542	73%	1%	9%	7%	9%
6	2283_8544_DW	383791	398603	27992	A56 Deansgate	Inside IRR	Manchester	PCM	43.3	33.2	22.1	70.1	21.2	4,313	84%	1%	3%	7%	4%
7	NonPCM_207	383624	398258	N/A	A34 Bridge St / Deansgate	Inside IRR	Manchester	LA	42.8	33.2	22.1	64.8	20.7	14,035	14%	7%	8%	25%	46%
8	8546_14050	384384	398801	57427	A664 Shudehill	Inside IRR	Manchester	PCM	42.2	33.2	22.1	63.4	20.1	8,016	79%	2%	2%	4%	13%
9	1307_1317	383757	398717	36551	A6041 Blackfriar's Rd	Inside IRR	Manchester	PCM	41.2	33.2	22.1	61.9	19.1	4,313	90%	1%	1%	5%	3%
10	Jct285	384363	398784	N/A	A664 Shudehill	Inside IRR	Manchester	LA	41.2	33.2	22.1	59.1	19.1	8,016	79%	2%	2%	4%	13%
11	1267_1985	383672	398364	16536	A56 Deansgate	Inside IRR	Manchester	PCM	41.1	33.2	22.1	52.2	19.0	8,836	50%	3%	7%	15%	24%
12	1349_2993_DW	382580	397716	73792	A57 Regent Road	Access to IRR	Salford	PCM	42.8	23.2	16.3	59.6	26.5	57,844	2%	6%	20%	30%	42%
13	1216_14503_DW	382565	398546	17926	A6 Chapel St	Access to IRR	Salford	PCM	41.2	23.7	16.6	63.0	24.6	31,902	45%	3%	14%	15%	22%

⁶ BG = Background

Air quality in the Do Minimum with CBF Grants scenario

- 4.1.18 The assumption is that when the CBF grants have been utilised by the relevant operators to upgrade non-compliant buses to Euro VI diesel, this will lead to an improvement in air quality across bus corridors, and a reduction in the number of predicted exceedances. Note that Greater Manchester is assuming that all CBF grants will be utilised as planned.
- 4.1.19 As shown in **Table 5**, under this scenario, there is a predicted decrease in the number of points of exceedance in 2023 from the Do Minimum from 79 to 44. This is primarily associated with the regional centre inside the IRR, where bus emissions comprise a greater proportion of total emissions, alongside the arterial routes that lead into the IRR on wider road network outside of the regional centre.
- 4.1.20 There are predicted to be exceedances in all districts with the exception of Wigan, Trafford and Oldham in the Do Minimum plus CBF scenario for 2023.
- 4.1.21 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet. Compared with the Do Minimum scenario, there would be a decrease in the overall number of exceedances from 13 to 5 as a result of the CBF.
- 4.1.22 By 2025, whilst there are fewer exceedances predicted, the key locations remain as per the Do Minimum scenario at:
- Inside the IRR, including the A34 Bridge St /John Dalton St;
 - A57 Regent Rd, Salford; and
 - A58 Bolton Road, Bury.
- 4.1.23 The modelling indicates that exceedances would remain in 2026 at one site, on the A57 Regent Road. All sites are predicted to be compliant by 2027 in the Do Minimum plus CBF Grants scenario.

Table 5 Predicted annual mean NO₂ concentrations at points on the Greater Manchester road network – 2023 to 2026 Do Minimum with CBF Grants

Road classification ³	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m ³)	Compliant but marginal (35 to 40 µg/m ³)	Non-compliant (>40 to 45 µg/m ³)	Very non-compliant (>45 to 50 µg/m ³)	Extremely non-compliant (>50 µg/m ³)	Total non-compliant (>40 µg/m ³)
2023						
Inside Manchester-Salford Inner Relief Route (IRR)	241	26	8	0	0	8
Urban centres	219	14	4	0	0	4
Other locations	1881	117	30	2	0	32
Total	2341	157	42	2	0	<u>44</u>
2024 (Interpolated)						
Inside IRR	250	19	6	0	0	6
Urban centres	228	8	1	0	0	1
Other locations	1952	66	12	0	0	12
Total	2430	93	19	0	0	<u>19</u>
2025						
Inside IRR	259	13	3	0	0	3
Urban centres	233	4	0	0	0	0
Other locations	1995	33	2	0	0	2
Total	2487	50	5	0	0	<u>5</u>
2026 (Extrapolated)						
Inside IRR	265	10	0	0	0	0
Urban centres	237	0	0	0	0	0
Other locations	2011	18	1	0	0	1
Total	2513	28	1	0	0	<u>1</u>

- 4.1.24 The air quality modelling data and emissions source apportionment is provided in Table 6 for 2025. The exceedance site results are discussed based on their spatial cluster.

Regional Centre / Within the IRR and Chapel St, Salford

- 4.1.25 The majority of the last points of exceedance are located within Manchester City Centre and the IRR, but are now only on the A34 Bridge Street and John Dalton, adjacent to the A56 Deansgate. The A34 Bridge St / John Dalton St sites with a maximum concentration of 41.7 ug/m^3 , showing an improvement due to the CBF of -2.3 ug/m^3 .
- 4.1.26 The maximum concentration in the Do Minimum (i.e. no GM CAP) A62 Lever St has decreased by -6.3 ug/m^3 , and is no longer in exceedance. which a road that is restricted to buses only. All other sites have also improved and are no longer in exceedance.

A58 Bolton Road, Bury

- 4.1.27 The exceedance at the A58 Bolton Road, Bury is predicted to remain on the downwind side of the dual carriageway. The concentration is 41.6 ug/m^3 , showing an improvement due to the CBF of -1.2 ug/m^3 .

A57 Regent Road, Salford

- 4.1.28 The A57 Regent Road has very few bus services operating on this corridor. Therefore, the improvements associated with CBF are much lower at -0.2 ug/m^3 . The concentration is predicted to be 42.6 ug/m^3 in 2025, which is the highest predicted across GM under this scenario.

Table 6: Predicted annual mean NO₂ concentrations and source apportionment at key compliance points on the Greater Manchester road network - 2025 Do Minimum with CBF Grants

Map ID	Point ID	x	y	Census ID	Road name	Location Type	Local Authority	PCM/ LA/ HE	Annual mean NO ₂ conc (µg/m ³)	BG ⁷ NOx conc (µg/m ³)	BG NO ₂ conc (µg/m ³)	Road NOx contrib (µg/m ³)	Road NO ₂ contrib (µg/m ³)	Traffic Flow (veh per day)	NOx contribution by vehicle type (%)				
															Bus	Taxi	HGV	LGV	Car
1	2237_3790_DW	379830	410975	38354	A58 Bolton Road	Wider GM	Bury	PCM	41.6	20.1	14.4	61.8	27.2	80,272	9%	6%	19%	26%	41%
2	3790_3652	379874	410937	38354	A58 Bolton Road	Wider GM	Bury	PCM	40.1	20.1	14.4	59.0	25.7	80,272	9%	6%	19%	26%	41%
3	1242_1243	384483	398343	70154	A62 Lever St	Inside IRR	Manchester	PCM	38.9	33.2	22.1	56.8	16.7	1,444	100%	0%	0%	0%	0%
4	1268_1269	383558	398278	27974	A34 Bridge St	Inside IRR	Manchester	PCM	41.7	33.2	22.1	59.3	19.6	9,399	69%	2%	4%	8%	17%
5	1268_46301	383702	398229	7947	A34 John Dalton St	Inside IRR	Manchester	PCM	41.6	33.2	22.1	61.2	19.6	8,542	69%	2%	10%	8%	11%
6	2283_8544_DW	383791	398603	27992	A56 Deansgate	Inside IRR	Manchester	PCM	37.4	33.2	22.1	44.0	15.3	4,313	75%	2%	5%	12%	7%
7	NonPCM_207	383624	398258	N/A	A34 Bridge St / Deansgate	Inside IRR	Manchester	LA	40.6	33.2	22.1	54.8	18.5	14,035	16%	7%	8%	25%	45%
8	8546_14050	384384	398801	57427	A664 Shudehill	Inside IRR	Manchester	PCM	37.4	33.2	22.1	43.0	15.3	8,016	69%	3%	4%	6%	20%
9	1307_1317	383757	398717	36551	A6041 Blackfriar's Rd	Inside IRR	Manchester	PCM	35.3	33.2	22.1	37.1	13.2	4,313	82%	1%	2%	8%	6%
10	Jct285	384363	398784	N/A	A664 Shudehill	Inside IRR	Manchester	LA	36.5	33.2	22.1	40.0	14.4	8,016	69%	3%	4%	6%	20%
11	1267_1985	383672	398364	16536	A56 Deansgate	Inside IRR	Manchester	PCM	39.4	33.2	22.1	45.3	17.3	8,836	43%	4%	8%	17%	28%
12	1349_2993_DW	382580	397716	73792	A57 Regent Road	Access to IRR	Salford	PCM	42.6	23.2	16.3	58.6	26.3	57,844	1%	6%	21%	31%	42%
13	1216_14503_DW	382565	398546	17926	A6 Chapel St	Access to IRR	Salford	PCM	39.2	23.7	16.6	55.1	22.6	31,902	37%	4%	17%	17%	26%

⁷ BG = Background

Air quality in the Full Electric Bus test scenario

- 4.1.29 This scenario investigates what the potential improvement to air quality would be if electric buses were in operation. This information can be used to prioritise where the CRSTS funding would deploy buses to assist in delivering the maximum improvements to air quality and work towards compliance in the shortest possible time.
- 4.1.30 By 2025, compared with the Do Minimum with CBF Grants scenario, there could be a decrease in the overall number of exceedances from 5 to 1 as a result of prioritised electric bus deployment.
- 4.1.31 The only remaining exceedance is at:
- A57 Regent Rd, Salford.
- 4.1.32 The modelling indicates that by 2026 this location would have naturally improved such that all of GM is compliant in 2026.
- 4.1.33 The table of predicted annual mean NO₂ concentration bandings at all points on the Greater Manchester road network has not been produced, because the scenario has been modelled inform route prioritisation, and is not realistic at a full GM scale.
- 4.1.34 The air quality modelling data and emissions source apportionment is provided in **Table 2** for 2025. The exceedance site results are discussed based on their spatial cluster.

Regional Centre / Within the IRR and Chapel St, Salford

- 4.1.35 There are no exceedances located within Manchester City Centre and the IRR. The A34 Bridge St has a concentration of 31.5 ug/m³, showing an improvement due to electric buses of -10.2 ug/m³.
- 4.1.36 All of the modelled sites would have significant headroom below the Limit Value of 40 ug/m³, meaning that only a relatively low proportion of the bus fleet serving the city centre would need to be electrified to deliver compliance, beyond the CBF upgrades.

A58 Bolton Road, Bury

- 4.1.37 The A58 Bolton Road, Bury is predicted to be in compliance with electric buses in operation. The concentration is 40.1 ug/m³, showing an improvement due to electric buses of -1.5 ug/m³. The majority of services would need to be electrified to deliver compliance, based on the modelling.

A57 Regent Road, Salford

- 4.1.38 The A57 Regent Road has very few bus services operating on this corridor. Therefore, the improvements associated with electric buses are much lower at -0.2 ug/m^3 , beyond the CBF upgrades. The concentration is predicted to be 42.4 ug/m^3 in 2025. This is the last remaining exceedance in 2025, assuming electric bus deployment can be successfully delivered.
- 4.1.39 Whilst electric buses will be targeted for this location, GM is developing a additional package of measures aimed at further improving air quality at the A57 Regent Road, such that all of GM is predicted to be compliant in 2025.

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Table 2: Predicted annual mean NO₂ concentrations and source apportionment at key compliance points on the Greater Manchester road network - 2025 Full Electric Bus Test

Map ID	Point ID	x	y	Census ID	Road name	Location Type	Local Authority	PCM/LA/HE	Annual mean NO ₂ conc (µg/m ³)	BG ⁸ NOx conc (µg/m ³)	BG NO ₂ conc (µg/m ³)	Road NOx contrib (µg/m ³)	Road NO ₂ contrib (µg/m ³)	Traffic Flow (veh per day)	NOx contribution by vehicle type (%)				
															Bus	Taxi	HGV	LGV	Car
1	2237_3790_DW	379830	410975	38354	A58 Bolton Road	Wider GM	Bury	PCM	40.1	20.1	14.4	56.2	25.7	80,272	0%	6%	21%	28%	45%
2	3790_3652	379874	410937	38354	A58 Bolton Road	Wider GM	Bury	PCM	38.5	20.1	14.4	53.2	24.1	80,272	0%	6%	21%	28%	45%
3	1242_1243	384483	398343	70154	A62 Lever St	Inside IRR	Manchester	PCM	23.6	33.2	22.1	3.0	1.4	1,444	0%	0%	0%	0%	0%
4	1268_1269	383558	398278	27974	A34 Bridge St	Inside IRR	Manchester	PCM	31.5	33.2	22.1	20.6	9.4	9,399	0%	8%	12%	27%	54%
5	1268_46301	383702	398229	7947	A34 John Dalton St	Inside IRR	Manchester	PCM	31.1	33.2	22.1	20.6	9.0	8,542	0%	5%	33%	27%	35%
6	2283_8544_DW	383791	398603	27992	A56 Deansgate	Inside IRR	Manchester	PCM	28.1	33.2	22.1	13.0	6.0	4,313	0%	6%	20%	45%	29%
7	NonPCM_207	383624	398258	N/A	A34 Bridge St / Deansgate	Inside IRR	Manchester	LA	30.9	33.2	22.1	19.2	8.8	14,035	0%	8%	10%	29%	53%
8	8546_14050	384384	398801	57427	A664 Shudehill	Inside IRR	Manchester	PCM	29.2	33.2	22.1	15.2	7.0	8,016	0%	9%	11%	18%	63%
9	1307_1317	383757	398717	36551	A6041 Blackfriar's Rd	Inside IRR	Manchester	PCM	26.3	33.2	22.1	8.9	4.2	4,313	0%	7%	13%	47%	33%
10	Jct285	384363	398784	N/A	A664 Shudehill	Inside IRR	Manchester	LA	28.6	33.2	22.1	14.1	6.5	8,016	0%	9%	11%	18%	63%
11	1267_1985	383672	398364	16536	A56 Deansgate	Inside IRR	Manchester	PCM	34.0	33.2	22.1	26.5	11.9	8,836	0%	7%	14%	31%	49%
12	1349_2993_DW	382580	397716	73792	A57 Regent Road	Access to IRR	Salford	PCM	42.4	23.2	16.3	57.9	26.1	57,844	0%	6%	21%	31%	43%
13	1216_14503_DW	382565	398546	17926	A6 Chapel St	Access to IRR	Salford	PCM	34.3	23.7	16.6	37.9	17.7	31,902	0%	6%	27%	27%	41%

⁸ BG = Background

Air Quality exceedances by local authority

4.1.40 The number of exceedances by local authority is presented for each scenario in **Table 8**. This shows that with the electric buses that are expected to be deliverable as part of the CRSTS funding, all of GM would be compliant by 2026.

4.1.41 It is not predicted that all of the electric bus test services could all be in place by 2023 or 2024, so the results in **Table 8** are only presented for this scenario for 2025 and 2026.

Table 8 Number of sites remaining in exceedance of legal limits for NO₂ concentrations by year, Greater Manchester, by local authority for the Do Minimum (i.e. No GM CAP), Do Minimum with CBF Grants Scenario and the Full Electric Bus Test

District	2023		2024 (interpolated)		2025			2026 (extrapolated)		
	Do Min.	Do Min with CBF	Do Min.	Do Min. with CBF	Do Min.	Do Min with CBF	Electric Bus Test	Do Min.	Do Min. with CBF	Electric Bus Test
Bolton	3	2	1	0	0	0	0	0	0	0
Bury	11	7	6	4	2	1	0	0	0	0
Manchester	40	16	18	7	9	3	0	4	0	0
Oldham	1	0	0	0	0	0	0	0	0	0
Rochdale	2	2	2	2	0	0	0	0	0	0
Salford	14	10	8	5	2	1	1	1	1	0
Stockport	3	3	0	0	0	0	0	0	0	0
Tameside	4	4	2	1	0	0	0	0	0	0
Trafford	1	0	0	0	0	0	0	0	0	0
Wigan	0	0	0	0	0	0	0	0	0	0
GM Total	79	44	37	19	13	5	1	5	1	0

Note: Calculation of 2024 and 2026 was undertaken using linear interpolation or extrapolation from 2023 and 2025 year's modelled NO₂ results for each model output point.

4.1.42 It is important to note that the modelled scenarios do not include representation of the CCTS schemes which are expected to have been opened by 2025. A further update to the Do Minimum modelling is underway. There are a number of schemes which could alter the nature of local traffic flows and routing, especially on the A34 Bridge St/John Dalton St, A56 Deansgate, A57 Regent Road and A6 Chapel St and these schemes have the potential to interact.

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5 Summary, Conclusions and Next Steps

Summary & Conclusions

- 5.1.1 This report sets out the results of modelling carried out in Summer 2022 to forecast air quality in Greater Manchester (GM) in future years, taking into account the impacts of Covid-19 delaying vehicle fleet renewals and changes to the expected provision of electric buses. These changes are the removal of ULEB funded electric buses operating on certain routes serving the regional centre, and the inclusion of new ZEBRA funding of routes from Stockport.
- 5.1.2 As a result, there is an increase in the number of points of exceedance in from the Previous GM CAP model Do Minimum as modelled in spring/summer 2021 (from 71 to 79 in 2023, and from 11 to 13 in 2025).
- 5.1.3 However, this Do Minimum scenario is considered pessimistic, because the GM CAP has already delivered a significant amount of support funding to buses and HGVs to help them upgrade. Much of the approved funding in the Clean Bus Fund is already out on the GM network, with further funding still to be deployed. This is considered the most representative scenario of future air quality that the New Plan needs to tackle.
- 5.1.4 Under the Do Minimum with CBF Grants scenario, there is a predicted decrease in the number of points of exceedance in 2023 from the Do Minimum from 79 to 44. This is primarily associated with the regional centre inside the IRR, where bus emissions comprise a greater proportion of total emissions, alongside the arterial routes that lead into the IRR on wider road network outside of the regional centre.
- 5.1.5 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet. Compared with the Do Minimum scenario, there would be a decrease in the overall number of exceedances from 13 to 5 as a result of the CBF.
- 5.1.6 By 2025, whilst there are fewer exceedances predicted, the key locations remain as per the Do Minimum scenario:
- Inside the IRR, including the A34 Bridge St /John Dalton St;
 - A57 Regent Rd, Salford; and
 - A58 Bolton Road, Bury.
- 5.1.7 The modelling indicates that exceedances would remain in 2026 at one site, on the A57 Regent Road. All sites are predicted to be compliant by 2027 in the Do Minimum with CBF Grants scenario.

- 5.1.8 A further scenario has been run to investigate what the potential improvement to air quality would be if electric buses were in operation. This information can be used to prioritise where the CRSTS funding would deploy electric buses to assist in delivering the maximum improvements to air quality and work towards compliance in the shortest possible time.
- 5.1.9 By 2025, the number of exceedances reduces due to the natural upgrade of the vehicle fleet. Compared with the Do Minimum with CBF Grants scenario, there could be a decrease in the overall number of exceedances from 5 to 1 as a result of prioritised electric bus deployment, with the only remaining exceedance at the A57 Regent Road, Salford.
- 5.1.10 Whilst electric buses will be targeted for this location, GM is developing a additional package of measures aimed at further improving air quality at the A57 Regent Road, such that all of GM is predicted to be compliant in 2025.

Next Steps

- 5.1.11 A further note will be provided separately for the methodology for the next steps. A summary of the approach includes the following:
- Production of approved report summarising modelling submitted on 1st July (by early August) (this document is the unapproved draft version, shared in confidence);
 - Modelling to represent impact of CCTS;
 - Analysis of bus emissions and ZEB requirements, and modelling of ZEB proposition;
 - Taxi data analysis, development of updated cost models, development of upgrade scenarios to test in cost models;
 - Cost gap analysis and redevelopment of cost models into segmentation tools that can be used to develop/assess different upgrade scenarios;
 - Analysis of air quality/traffic/congestion/fleet/travel patterns at Regent Road;
 - Modelling and development of 'target analysis tool' for assessing different scenarios at Regent Road (and roll out to other locations if appropriate);
 - Package modelling of revised package, when available, and benchmarking against Do Minimum and CAZ options;
 - Sensitivity testing of revised package; and
 - Production of Technical Reports, as per requirements to be agreed with JAQU.

Indicative Timeline

- 5.1.12 The below is a timeline of tasks which need to be completed:

- July 2022 – December 2022: Development of preferred scheme – Policy definition (through participatory approach) and agreeing parameters;
- December 2022 – January 2023: Consultation materials, evidence sign off, governance;
- February 2023 – July 2023: Consultation, analysis, and reporting; and
- August 2023: Scheme opening.

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Appendix A: Technical Note: Review of Delayed Fleet Upgrade Projections

A1 Introduction

Overview

Greater Manchester (GM) local authorities have been mandated by the Government to take action to reduce harmful Nitrogen Dioxide (NO₂) levels, issuing a direction under the Environment Act 1995 to undertake feasibility studies to identify measures for reducing NO₂ concentrations to within legal limit values in the “shortest possible time”. In GM, the 10 local authorities have worked together with the support of Transport for Greater Manchester (TfGM) to develop a Clean Air Plan (CAP) to tackle NO₂ exceedances at the roadside, referred to as GM CAP.

GM is reviewing its CAP with government and has been directed to submit, by 1st July 2022, a new plan for clean air in the city-region which should:

- review the measures specified in the local plan for NO₂ compliance and associated mitigation measures; and
- determine whether to propose any changes to the detailed design of those measures, or any additional measures.

The Direction also requires that compliance with the legal limit value for nitrogen dioxide is achieved in the shortest possible time and no later than 2026 and that exposure to levels above the legal limit for nitrogen dioxide is reduced as quickly as possible.

The GM CAP has been developed based upon the best evidence available at the time, whilst also following prescribed Government guidance. Since the GM CAP proposals were approved in Summer 2021, it has become increasingly clear that there have been pressures on the vehicle markets affecting the availability of sufficient suitable vehicles to meet demand. Feedback from users and the vehicle industry suggests limited vehicle availability is impacting the price of used vehicles, lead times for new ones and may be impacting the on-road vehicle age profile resulting in delays to the natural upgrade of vehicles.

The purpose of this technical note is to review the impacts of changes and possible delays to the natural turnover of the vehicle fleet, through analysis of the following data sets:

- Vehicle sales data and forecasts prepared by Society of Motor Manufacturers and Traders (SMMT); and

The purpose of this analysis is to review the impacts of changes and possible delays to the natural turnover of the vehicle fleet, through analysis of the following datasets:

- Vehicle sales data and forecasts prepared by the Society of Motor Manufacturers and Traders (SMMT); and

- GM taxi licensing data for Hackneys and PHVs licensed to GM Local Authorities.

These datasets have been used to understand the current position regarding the natural upgrade of the fleet and the on-road fleet mix operating within GM. The data analysis has also supported the review of vehicle fleet assumptions in the context of any revisions required to the Do-Minimum modelling, updating assumptions previously developed by GM in Spring 2021.

Automatic Number Plate Recognition (ANPR) camera data held by Greater Manchester Police (GMP) has also been analysed in **Annex A**, of this appendix, to understand the changing fleet operating on the road. It is noted that this data is impacted by behavioural changes during the pandemic, which might be temporary and could skew the overall results. Therefore, the analysis is not used to directly inform the recommendation for delays to the fleet.

It should be noted that, within the remainder of this document, the term taxi is taken to refer to both Private Hire Vehicles (PHVs) and Hackney Cabs unless otherwise stated.

Structure of Appendix Note

The remaining sections of the report are structured as follows:

- Section 2 provides an overview of the fleet profile position used to inform the Option for Consultation (Pre-COVID-19), and the resulting delayed fleet upgrade assumptions that were current in Autumn 2021;
- Section 3 reviews COVID-19 impacts on the SMMT vehicle sales market in terms of the delay to the fleet;
- Section 4 describes the methodology and assumptions adopted for the review of the taxi licensing database to inform understanding of the taxi age profile; and presents the findings of the data review;
- Section 5 provides a summary of the key findings and recommendations for updates to the Do Minimum modelling regarding delayed fleet upgrade assumptions for each vehicle mode; and
- **Annex A** describes the methodology and assumptions adopted for the review of the new ANPR data and presents the findings of the data review.

A2 Position in Autumn 2021

In Autumn 2021, following a review of the impacts of COVID-19, and in agreement with JAQU, a delay to the natural turnover of the vehicle fleet was included within the core modelling of the Approved GM CAP. This was based on the reduction in actual and predicted new vehicle sales by the Society of Motor Manufacturers and Traders (SMMT) and on estimates of impacts on taxi based on licensing and ANPR data.

This included the following fleet turnover delays for the 2023 forecast year, with the delay period representing the proportion of a typical year of new vehicles sales entering the fleet, as shown in **Table A1**.

Table A1 Delayed Fleet Upgrade Assumptions Developed for Autumn 2021 Modelling

Vehicle Type	Delay to Fleet	Justification
Bus	No	Fleet mix assumptions will not be altered. Bus operators already responding to CAZ in terms of upgrading their fleet (retrofit funds have been made available already) and so it is not considered likely that bus fleet will age more than expected. Electric bus routes will be incorporated when funding is secured or the fleets are already in operation.
HGV	No	Purchases were disrupted in 2019 and 2020 by factors other than Covid. Analysis suggests that overall purchases across the two years were fairly typical of an average year.
LGV	Yes (3 months)	Purchases were depressed in 2020, with some recovery in early 2021. Analysis suggests that a delay of c.3 months is plausible, with the age of the fleet gradually converging to close to the Pre-Covid-19 Forecast by 2025 if sales recover over time.
Hackney	Yes (12 months)	Consider that significant impact likely – based on licensing data, propose applying a delay of one year to the upgrade of the Hackney & PHV fleet, to be maintained throughout the lifetime of the GM CAP i.e. to 2025.
PHV	Yes (12 months)	
Private Cars	Yes (7 months)	Although not in scope for a CAZ C, important contributor to background emissions. Evidence suggests a significant delay in fleet upgrade and that this is likely to be maintained in future years. Delay of c7 months proposed, to be maintained throughout the lifetime of the GM CAP i.e. to 2025.
Coach & Minibus	No	No changes to the transport and air quality modelling are applicable, because not directly represented in these tools.

Table A2 presents the number of vehicles by type that were in scope for the approved GM CAP in 2019 for both the Option for Consultation (August 2020) and work undertaken in Autumn 2021. As can be seen, most numbers are the same between the submissions apart from a slight update on Hackney numbers in Autumn 2021. This is because the key data source for Hackney was changed from the ANPR database to the Taxi Licensing database.

Table A2 Do-Minimum vehicle numbers serving GM 2019

Year	Mode	Compliance	Option for Consultation (Pre-COVID-19)		Autumn 2021	
			Total Serving GM	% Compliant	Total Serving GM	% Compliant
2019	LGV	Compliant	101,437	37%	101,437	37%
		Non-Compliant	175,991		175,991	
		Total	277,428		277,428	
	HGV	Compliant	42,064	59%	42,064	59%
		Non-Compliant	28,728		28,728	
		Total	70,792		70,792	
	Hackney	Compliant	237	10%	296	12%
		Non-Compliant	2,139		2,080	
		Total	2,376		2,376	
	PHV	Compliant	4,979	29%	4,978	29%
		Non-Compliant	12,196		12,196	
		Total	17,174		17,174	

Technical Note 37: Vehicle Population Estimates⁹

Local Plan Transport Model Forecasting Report (T4) - (Updated at FBC Draft for Approval) Appendix C: Vehicle Population Estimates

⁹ https://assets.ctfassets.net/tlpgbvy1k6h2/3fR4HEB016Z572eIRIs8wx/ddfa01e92fb972d2d5297e04c78f046a/37_-_GM_CAP_Vehicle_population_estimates.pdf

5.1.13 Projection of the estimated vehicle numbers, as set out in **Table A2**, was undertaken to forecast the natural change in compliant vehicles into the future, without any interventions applied (Do-Minimum – No GM CAP measures). This was undertaken to understand the market’s proportion of natural upgrades. Natural upgrades have been incorporated into the key forecast years (2022, 2023 and 2025). **Table A3** summarises the vehicle number projections of all modes in 2023, as per the Option for Consultation and Autumn 2021 analysis. As would be expected, the proportion of compliant vehicles serving GM increases between 2019 and 2023 through natural churn, as vehicle owners upgrade their vehicles and the oldest vehicles are scrapped out of the fleet.

Compared to the Option for Consultation, the Autumn 2021 forecast more non-compliant vehicles for certain vehicle types which were severely impacted by the COVID-19 pandemic, with a noticeable delay in the normal cycle of purchasing new and second-hand vehicles.

Table A3 Projection of Do Minimum vehicle numbers serving GM 2023

Year	Mode	Compliance	Option for Consultation (Pre-COVID-19)		Autumn 2021	
			Total Serving GM	% Compliant	Total Serving GM	% Compliant
2023	LGV	Compliant	147,067	53%	145,056	52%
		Non-Compliant	130,360		132,371	
		Total	277,428		277,428	
	HGV	Compliant	57,191	81%	57,272	81%
		Non-Compliant	13,600		13,520	
		Total	70,792		70,792	
	Hackney	Compliant	1,013	43%	844	36%
		Non-Compliant	1,363		1,532	
		Total	2,376		2,376	
	PHV	Compliant	13,004	76%	11,668	68%
		Non-Compliant	4,170		5,506	
		Total	17,174		17,174	

Technical Note 37: Vehicle Population Estimates¹⁰

Local Plan Transport Model Forecasting Report (T4) - (Updated at FBC Draft for Approval) Appendix C: Vehicle Population Estimates

¹⁰ https://assets.ctfassets.net/tlpgbv1k6h2/3fR4HEB016Z572eIRIs8wx/ddfa01e92fb972d2d5297e04c78f046a/37_-_GM_CAP_Vehicle_population_estimates.pdf

A3 Review of COVID-19 impacts on the vehicle sales market

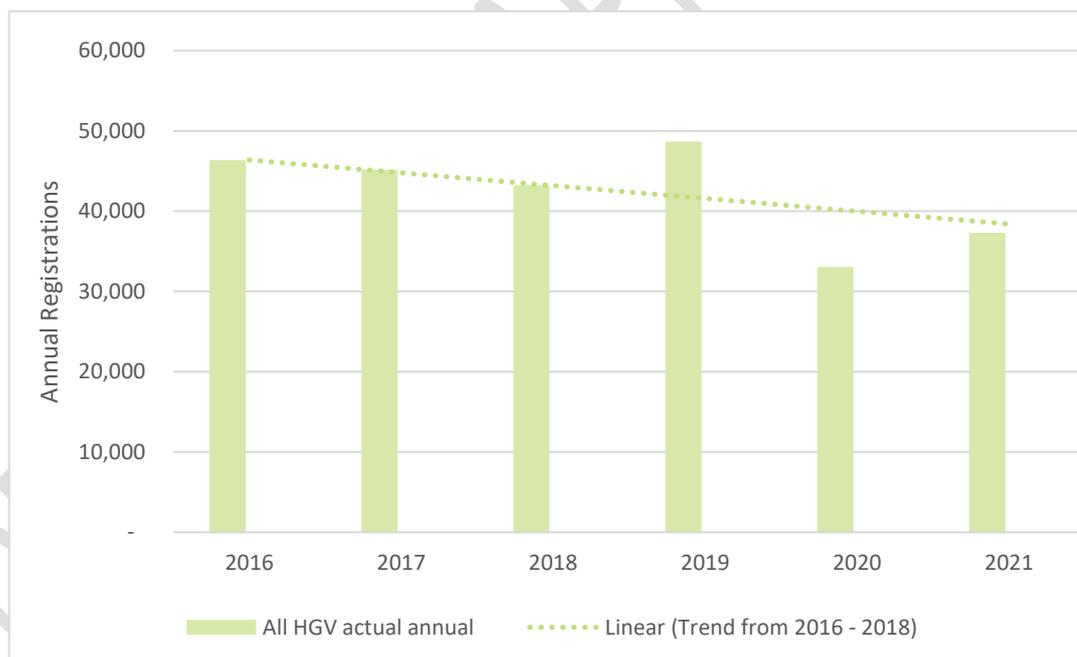
Overview

This section provides an update on the changes in the latest vehicle sales based on figures published by SMMT as a result of the COVID-19 global pandemic.

Figure A1 shows the annual UK HGV registrations between 2016 and 2021. It should be noted that HGV sales was brought forward to 2019 due to a change in regulation in 2020, which led to atypical high registrations in year 2019 when compared to previous years as shown in the figure below. Consequently, the sales in 2020 would have been expected to be atypically low regardless of the pandemic, which makes it more difficult to assess the impact of Covid on HGV sales.

Typical annual registrations from the pre-existing 2016-2018 have been projected from 2019 to 2021 as shown in the dotted line in **Figure A1**, where HGV registrations were recovering but still slightly below the projected registration level in 2021.

Figure A1 UK HGV Registrations (Annual and Cumulative) 2016 – 2021



Source: <https://www.smmt.co.uk/vehicle-data/heavy-goods-vehicle-registrations/>

The global shortage of semi-conductors began in the first quarter of 2021 due to the impact of COVID-19. Conversations with SMMT in 2021 & 2022 indicate that:

- The semi-conductor shortage has had a significant impact on vehicle production, with the typical vehicle comprising of 1,500 semi-conductor chips;

- Due to COVID-19 restrictions in South-east Asia, approximately 19 semi-conductor plants have been closed, affecting supply. In addition, due to 'stay-at-home' restrictions, demand from other sectors such as the gaming industry has risen, further reducing supply; and
- Car producers have been hit hardest as it is more difficult for high volume manufacturers to source chips. HGV manufacturers have more specialist providers which means they can source chips more easily and overall volumes are much lower.

The evidence presented in GM CAP- Impact of COVID Report demonstrates that, as a result of the pandemic, vehicle owners will not be starting from the same position as had been previously assumed in terms of their fleets or their ability to upgrade for the following reasons:

- It is evident that businesses overall have lost revenue, used up reserves and are more indebted and less able to borrow than prior to the pandemic.
- Capital investment in replacement vehicles has been delayed and as a result the fleet on GM's roads is older. This, along with potential constraints on the supply of compliant vehicles, means that vehicle owners may be less able to upgrade their vehicles in response to the CAZ
- Covid-19 appears to have had the greatest impact on passenger vehicles – Hackney Cabs, PHVs and coaches – who have faced a major drop in passenger demand and long periods of low or no operations.
- Hackney Cabs and coaches in particular entered the pandemic with a highly non-compliant fleet and face high costs to upgrade. Vehicle upgrades have been further delayed during the pandemic
- Some LGV sectors have also been badly affected by the pandemic with extensive periods of closure, whilst others have experienced shorter periods of shutdown and reduced turnover.

HGVs

New HGV Registrations

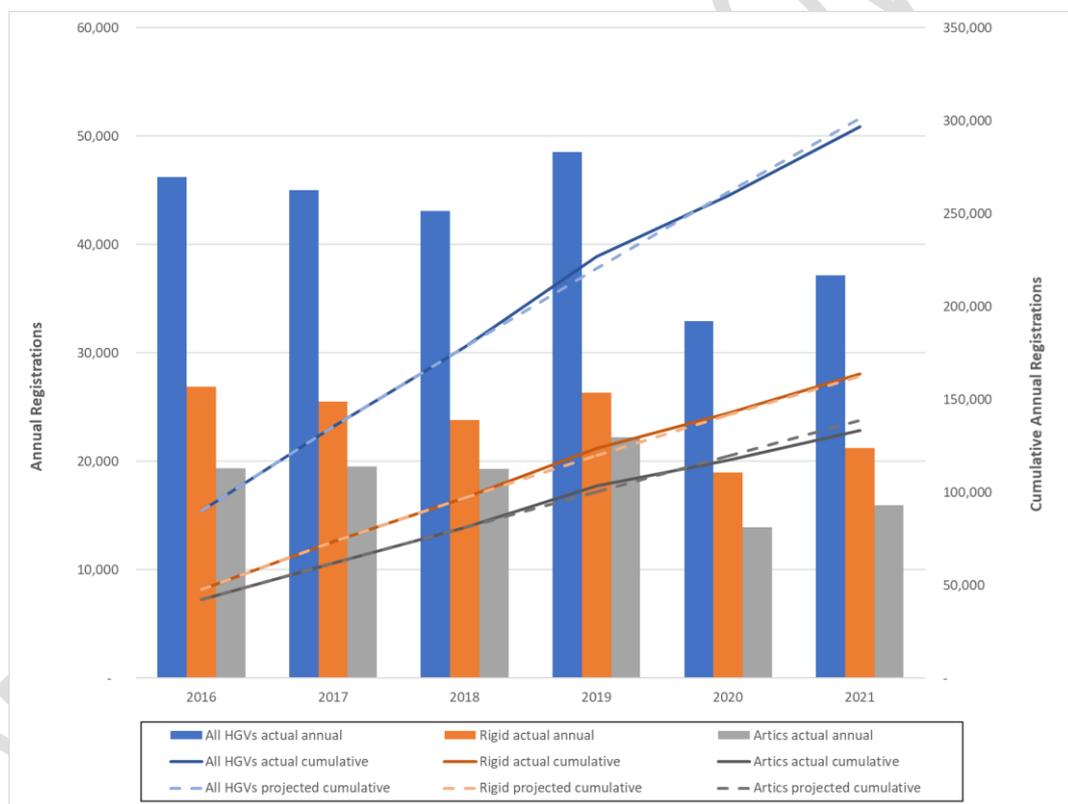
Data produced by SMMT shows that despite an initial decrease in HGV registrations, particularly noticeable in quarter two of 2020, HGV registrations are recovering but still not at the same levels as pre-pandemic. Figure 3 2 shows annual and cumulative UK HGV registrations between 2016 and 2021.

A review of HGV sales shows that whilst there has been a reduction in 2020, this was in part a consequence of increased sales in 2019 due to regulatory changes coming into effect the following year, leading to hauliers bringing forward vehicle purchases.

This effect would be expected to produce a knock-on impact of reduced 2020 sales irrespective of the impacts of COVID-19.

To understand trends in HGV registrations without the distortion of 2019, typical annual registrations from 2019 to 2021 have been projected from the pre-existing 2016-2018 trends out to 2021 (dotted lines). The cumulative actual sales over 2019 to 2021, which account for a 3-year structural sales shift altering investment cycles associated with bringing forward of purchases into 2019 and reduced sales over 2020 and 2021 when COVID-19 impacts are in effect, show that total HGV registrations are 4% below pre-existing 2016-2018 trends. Registrations of rigids (which would be most relevant to air quality in urban centres) are 2% above pre-existing trends, whereas articulated HGVs (which operate more frequently on the more strategic road network) are 10% as shown in **Figure A2**.

Figure A2 UK HGV Registrations (Annual and Cumulative) 2016 – 2021



Source: <https://www.smmmt.co.uk/vehicle-data/heavy-goods-vehicle-registrations/>

Analysis of traffic count data for HGVs from March 2020 onwards indicates that this vehicle group were less impacted compared to cars and vans, with movements returning to Pre-COVID-19 levels by late summer 2020. This would also suggest that the HGV market may have been less severely impacted than cars and vans, although it is recognised that distribution patterns within different industry or commodity sectors may have varied.

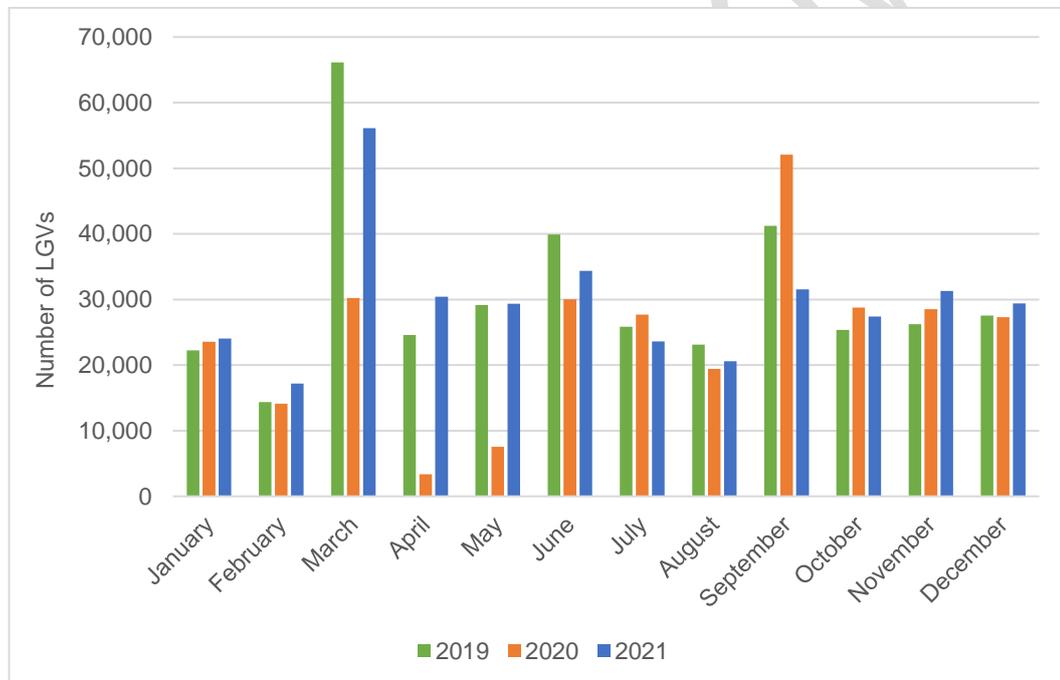
Forecast future sales estimates for HGVs are not published by SMMT and given the relatively low divergence of HGV registrations over the 2019-2021 period, it is not possible to distinguish how COVID-19 has impacted on the longer-term pattern of HGV investment cycles.

LGVs

New Vehicle Registrations

To review the impact of COVID-19 on national van sales, new vehicle registration data from 2019 to 2021 has been reviewed from SMMT. As shown in **Figure A3**, van sales have been impacted by pressures associated with COVID-19. SMMT data shows April and May 2020 being particularly poor months for new van registrations.

Figure A3 Registration of New Vans from 2019 to 2021



Source: SMMT

Table A4 Total number of new vans registered in 2019-2021

Year	Total	% Change from 2019
2019	365,778	-
2020	292,657	-20%
2021	355,380	-3%

Source: SMMT

Table A4 displays the total number of vans registered in 2020 and 2021 compared to the pre-pandemic year of 2019. Annual sales of new vans have been stable from 2016 up to the pandemic, and sales in 2019 were very similar to the previous 4-year average of 366,000, and 2019 is therefore a reasonable comparator to Pre-COVID-19 sales. In 2020 there were significantly fewer new sales with the total registered down 20%. There was a strong recovery in 2021, although sales remained 3% below pre-pandemic levels. The net effect is a reduction of over 80,000 new vans in circulation compared to what would have been expected based on pre-pandemic sales.

However, it can also be inferred that despite the constraints in place, manufacturing in 2021 has broadly managed to deliver at previous levels of supply, and owners purchasing new vehicles have been able to afford them. This indicates that there is strong and resilient demand in some sectors, at least for those companies able to purchase new vehicles. Furthermore, sales in several months of 2021 were greater than those recorded historically and it is therefore considered reasonable that vehicles sales per year could be forecast to exceed those in the Pre-COVID-19 reference level.

Alongside historic new vehicle sales data, SMMT publishes sales projections two years ahead. Using this data, the following approach to incorporate the impacts of COVID-19 into the modelling has been undertaken, as set out in **Table A5**.

This approach aligns to the previous modelling methodology undertaken to support both the Option for Consultation and Autumn 2021 modelling which has been updated using more recently available data and includes the following approach:

- The typical Pre-COVID-19 sales have been set at those recorded in 2019.
- Evidence of reduced vehicle sales for 2020/21 and projections of sales recovery have been published recently by the SMMT for vehicles in 2022/23. These were used to calculate the number of cumulative lost sales between 2020 and the forecast years of 2021, 2023 and 2025 by vehicle type, which is then applied to GM's existing OBC fleet-rollover method used for vehicle fleet projection.
- The SMMT predictions for 2022/23 have then been extrapolated forward to 2025. The number of vans sold per year has been limited to the maximum rate suggested by the SMMT in 2023. The difference between the predicted annual sales (or actual for 2020/21) and typical Pre-COVID-19 levels (2019) have been summed cumulatively, and are reported as the equivalent of lost typical sales each year.
- For vans, the rate of lost vehicle sales is equivalent to 18% of a year's worth of renewal in 2023, reducing to 7% in 2025, because future sales have been extrapolated to levels above those in 2019 allowing lost sales in 2020 to 2022 to be recovered.

- These lost renewal rates are then be applied into the existing fleet roll over model, for each year, creating a slightly older fleet profile for use in the behavioural response and emissions modelling.

Table A5 Predicted Van Fleet Renewal Versus Pre-COVID-19 Rates (thousands)

Data Source	Year	Vans sold	Lost sales/yr	Cumulative lost sales	Lost % of annual sales
Actual	2016	376			
Actual	2017	362			
Actual	2018	357			
Actual	2019	366	typical sales per yr		
Actual (during pandemic)	2020	293	-73	-73	<u>-20%</u>
Actual (during pandemic)	2021	355	-11	-84	<u>-23%</u>
<i>SMMT prediction</i>	2022	363	-3	-87	<u>-24%</u>
<i>SMMT prediction</i>	2023	387	21	-66	<u>-18%</u>
<i>Extrapolation</i>	2024	387	21	-45	<u>-12%</u>
<i>Extrapolation</i>	2025	387	21	-24	<u>-7%</u>

Source: SMMT

This level of fleet age impact predicted for 2021/22 agrees with measured increase in average age of vans reported in the ANPR data for 2020 compared with 2019, and a smaller increase again in the 2021 dataset.

It should be noted that the available ANPR data was collated from slightly different periods of the year, therefore the forecast figures from the ANPR analysis should be treated with some caution as analysis outputs may be slightly skewed from actual fleet age delay due to variability in the month during which surveys were made. This is likely to have introduced variance to the relative proportion of newer vehicles in the overall fleet age.

Private Cars

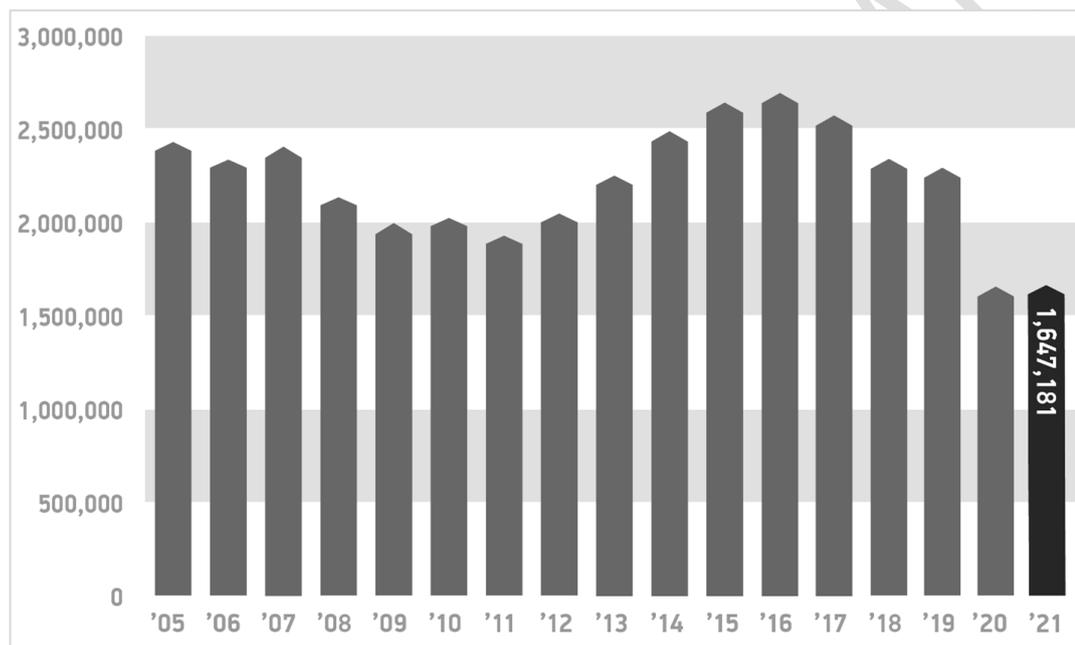
New Vehicle Registrations

Although cars are not impacted by the GM CAP, the age of the car fleet is important as it contributes to the emissions produced by general traffic. Car producers have been hit hardest as it is more difficult for high volume manufacturers to source semiconductor chips.

Applying the same methodology to review the impact of COVID-19 on national private car sales, data on the registration of new vans has been used from SMMT.

As the registration data demonstrates in **Figure A4**, car sales have been heavily impacted by pressures associated with COVID-19. Whilst the Pre-COVID-19 sales pattern for private cars shows that sales have been falling year-on-year since 2016, sales in 2020 and 2021 are both approximately 30% lower than those in 2019. Unlike the sales of vans, car sales did not recover in 2021 and continue to underperform.

Figure A4 Annual New Car Registrations from 2019 to 2021



Source: SMMT

Table A6 displays the total number of new cars registered in 2020 and 2021 compared to the last pre-pandemic year of 2019.

Using SMMT sales projection data, the following approach to incorporating the impacts of COVID-19 into the modelling has been undertaken, as set out in **Table A6**, consistent with the approach taken on LGVs. This approach aligns to the previous modelling methodology undertaken to support both the Option for Consultation and Autumn 2021 modelling which has been updated using more recently available data and includes the following approach:

- The typical Pre-COVID-19 sales have been set at those recorded in 2019.

- Evidence of reduced vehicle sales for 2020/21 and projections of a gradual sales recovery have been published recently by the SMMT for vehicles in 2022/23. These were used to calculate the number of cumulative lost sales between 2020 and the forecast years of 2021, 2023 and 2025 by vehicle type, which is then applied to GM's the existing OBC fleet-rollover method used for vehicle fleet projection.
- The SMMT predictions for 2022/23 have then been extrapolated forward to 2025. Given the Pre-COVID-19 trend of falling year-on-year car sales, the number of cars sold per year has been limited to the rate recorded by the SMMT in 2019. The difference between the predicted annual sales (or actual for 2020/21) and typical Pre-COVID-19 levels have been summed cumulatively, and are reported as the equivalent of lost typical sales each year.
- For cars, the rate of lost vehicle sales is equivalent to 96% of a year's worth of renewal in 2023, reaching 100% in 2025.
- These lost renewal rates will then be applied into the fleet roll over model, for each year, creating an older fleet profile for use in the behavioural response and emissions modelling.

Table A6 Predicted Car Fleet Renewal Versus Pre-COVID-19 Rates (thousands)

Data Source	Year	Car sold	Lost sales/yr	Cumulative lost sales	Lost % of annual sales
Actual	2016	2317			
Actual	2017	2179			
Actual	2018	2010			
Actual	2019	1945	typical sales per yr		
Actual (during pandemic)	2020	1338	-607	-607	-31%
Actual (during pandemic)	2021	1292	-653	-1260	-65%
SMMT prediction	2022	1534	-411	-1671	-86%
SMMT prediction	2023	1740	-205	-1876	-96%
Extrapolation	2024	1874	-71	-1947	-100%
Extrapolation	2025	1945	0	-1947	-100%

Source: SMMT

This level of fleet age impact predicted for 2021/22 agrees with measured larger increase in average age of cars reported in the ANPR data for 2020 compared with 2019.

However, it should be noted that the available ANPR data was collated from slightly different periods of the year, therefore the forecast figures from the ANPR analysis should be treated with some caution as analysis outputs may be slightly skewed from actual fleet age delay due to variability in the month during which surveys were made. This is likely to have introduced variance to the relative proportion of newer vehicles in the overall fleet age.

Separately, there are a range of compounding factors which affect how emissions would be altered, since the way that new vehicles are used on the road is not necessarily linearly related to sales themselves. For example, generally newer vehicles drive more miles per annum than older vehicles, as do vehicles purchased for primarily business use rather than private use. Range anxiety concerns with battery-electric vehicles (BEV) also mean that BEVs are often purchased as second cars or for shorter local trips. These effects cannot be quantified or represented in the modelling process.

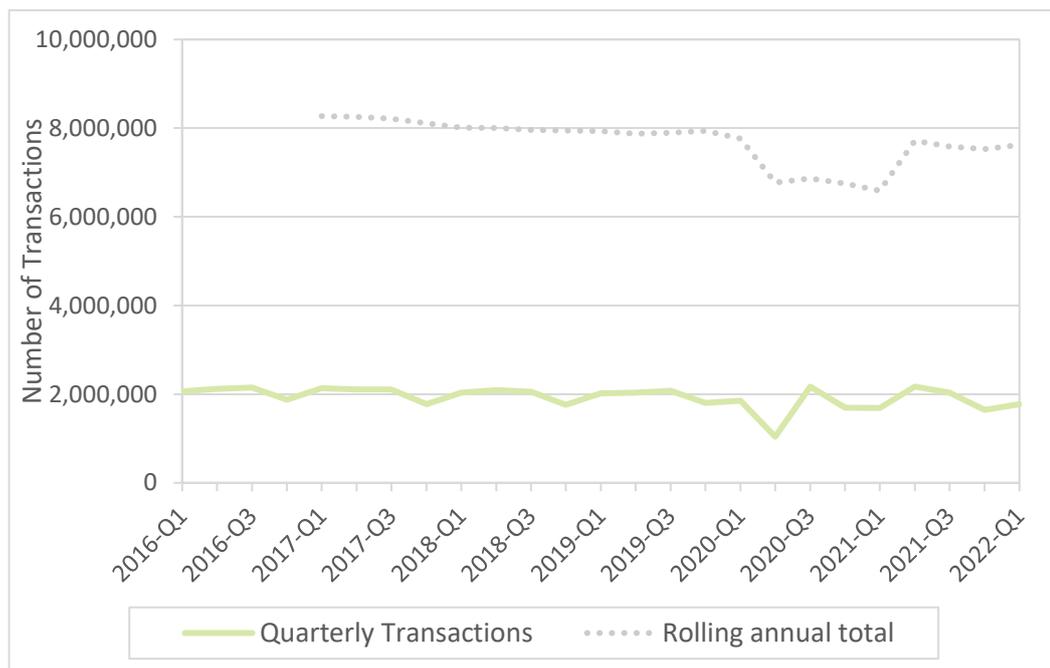
The current split between diesel, petrol and electric car mileage for each forecast year is based on projections from the Department for Transport. The trend in a switch from diesel cars towards petrol and electric powered vehicles is represented in this modelling process following JAQU guidance, and assumptions will be reviewed against available evidence. However, whilst the reduction in new and used vehicle sales is related to the impacts of COVID-19, the influence of COVID-19 altering projected rates of fuel switch is not clear or at this stage considered a first order impact.

Used Vehicle Registrations

Used car sales have also been heavily impacted by the pandemic, with an annual reduction of over 15% in the 12-month period from the start of the pandemic. Quarterly used car sales transactions reported by SMMT is presented in **Figure A5**, together with rolling annual totals.

The review of sales data has shown that sales in late 2021 and early 2022 have risen substantially from the major drop in 2020 and are close, although not fully recovered, to pre-pandemic levels. However, there is no evidence that the lost sales have been recovered.

Figure A5 Used Car Sales from 2016 to 2022



Source: SMMT

Taxis

The UK vehicle market has made a slow recovery due to a combination of manufacturing issues and lack of consumer purchasing. The vehicle market has seen a slow return to pre-pandemic manufacturing levels, experiencing supply chain interruptions, export disruption and the closure of manufacturing plants. In January 2021, commercial vehicle production, including the production of taxis, was 31.5% lower when compared to pre pandemic production in January 2020.

A lack of consumer purchasing could explain the reduction in the number of Hackney Carriages and PHVs registered between 2019 and 2022 shown in Figure 4 1 in taxi licensing analysis. According to PwC Research's QuantiBus survey, there has been a lack of vehicle purchasing as uncertainty has increased and the demand outlook has declined, this is likely due to financial constraints following the pandemic. The lack of vehicle upgrades resulted in a limited second-hand car market during the pandemic, as shown in **Figure 3 5**.

Due to the limited bespoke vehicles sales data on taxi, GM taxi licensing data is used as best source for estimating the fleet delays.

A4 Review of GM Taxi Licensing Data

Overview

The 10 local authorities (LAs) in GM provided their records of registered taxis and PHVs to TfGM for analysis.

Three datasets have been received; these represent data collated at the following points in time:

- July 2019 (Pre-COVID-19 pandemic);
- November 2020 (mid-pandemic, post easing of first lockdown restrictions); and
- January 2022 (post lifting of most legal limits on social contact).

Comparisons of vehicle profiles were made to review the changes over time. The information provided in the taxi licensing data for the profile analysis is shown in **Table A7**.

Table A7 Key Taxi licensing data

Data Points	Description
Registration Plate	Vehicle Registration Number (Number Plate)
Licensing LA	Local Authority where taxi is licensed to
License type	PHV or Hackney
Make	Brand of the vehicle
Model	Model of the vehicle
Fuel Types	Type of fuel used by vehicle
Date of 1st Registration	Date when the vehicle is first registered

From this, the data was processed and cleaned to remove any erroneous records. Following the cleaning process, the data was then analysed to provide a clearer picture of the fleet profiles based on these methodologies:

a) Total GM registered taxi volumes

- i) Based on the identification of the unique number plate system – based on unique numbers and characters in VRN; and
- ii) A number of taxis were found to be licensed to more than one LA, and those duplicates were removed to gain an accurate number of unique taxis operating within GM.

b) Identification of taxi type (Hackney or PHVs)

i) Based on taxi license type.

c) Fleet age profile

i) Vehicle ages in years are calculated based on the date of 1st registration and date when the dataset was obtained; and

ii) Consistent age categorising methodology was adopted across all datasets. E.g., vehicles are categorised as 0-years-old where the time gap between receiving date of dataset and the date of 1st registration of the vehicle is less than 12 months, and 1 year-old where the time gap is between 12 months and 24 months.

d) Identification of Euro Standards

i) Based on registration year and vehicle and fuel types.

e) Compliancy status

i) Based on vehicle/fuel types and Euro Standard;

ii) According to CAZ framework policies, Euro 6 diesel engines and Euro 4 and above petrol engines will be considered as compliant; and

iii) Note all Electric Vehicles (EVs) and hybrid-electric vehicles whose engines are Euro 4 or later are considered compliant for the purpose of this study.

f) Market natural churn

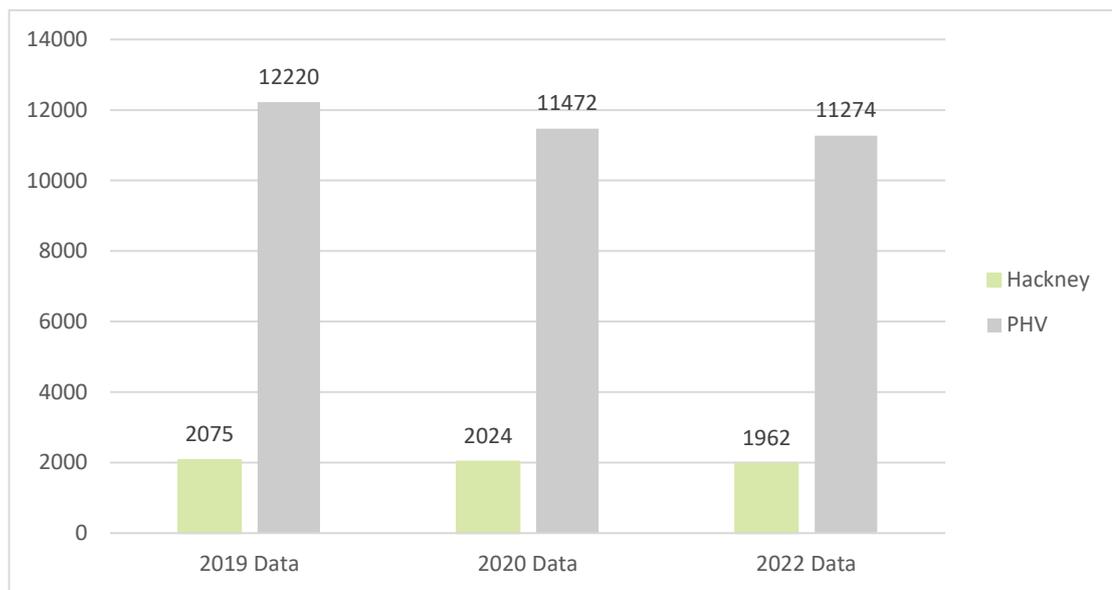
i) By identifying unique registration plate numbers across different data years.

Taxi Licensing Data Analysis

This section provides summary information about the current taxi sector based on the GM licensing datasets for both PHVs and Hackneys. The changes in vehicle age profiles from July 2019 (Pre-COVID-19) to January 2022 (Post-COVID-19) has also been further reviewed.

Figure A6 illustrates the total number of taxis registered in GM from 2019 to 2022. There have been reductions in the total number of taxis licensed in GM over that period. The total number of GM licensed Hackneys decreased by 113 (5.4%) from 2,075 in 2019 to 1,962 in 2022. The total number of GM licensed PHVs reduced by 964 (7.7.%) from 12,220 in 2019 to 11,274 in 2022. This trend of a fall in the number of licensed vehicles has also been seen nationally.

Figure A6 Total GM Registered Hackney and PHV Numbers



Hackney

Figure A7 provides an insight into the change of the GM-licensed Hackney age profile over time.

Only 12 brand-new Hackneys (0-year-old) were bought and licensed in GM within the year before November 2020 which is significantly lower than that for 2019 when 76 brand-new Hackneys were purchased and licensed. The significant reduction in purchasing new vehicles is suspected to be due to the COVID-19 lockdown implemented in March 2020.

The number of new Hackneys purchased recovered from 12 to 23 in January 2022. This seems to be due to the ease of lock-down in 2021-2022. Although it is still lower than the pre-COVID-19 numbers in 2019.

The Hackney age profile has slightly “shifted” to the right from 2019 to 2022, which indicates that fleet age has grown older, and fleet natural upgrade process had been delayed slightly due to the impact of COVID-19.

This can also be evidenced in **Table A8**, where the average Hackney age increased by 0.9 years from July 2019 to January 2022, and the peak of age profile shifted from 8-year-old in 2019 to 9-year-old in 2020 and further increased to 10-years-old in 2022.

Figure A7 Change in Hackney Fleet Age Distribution

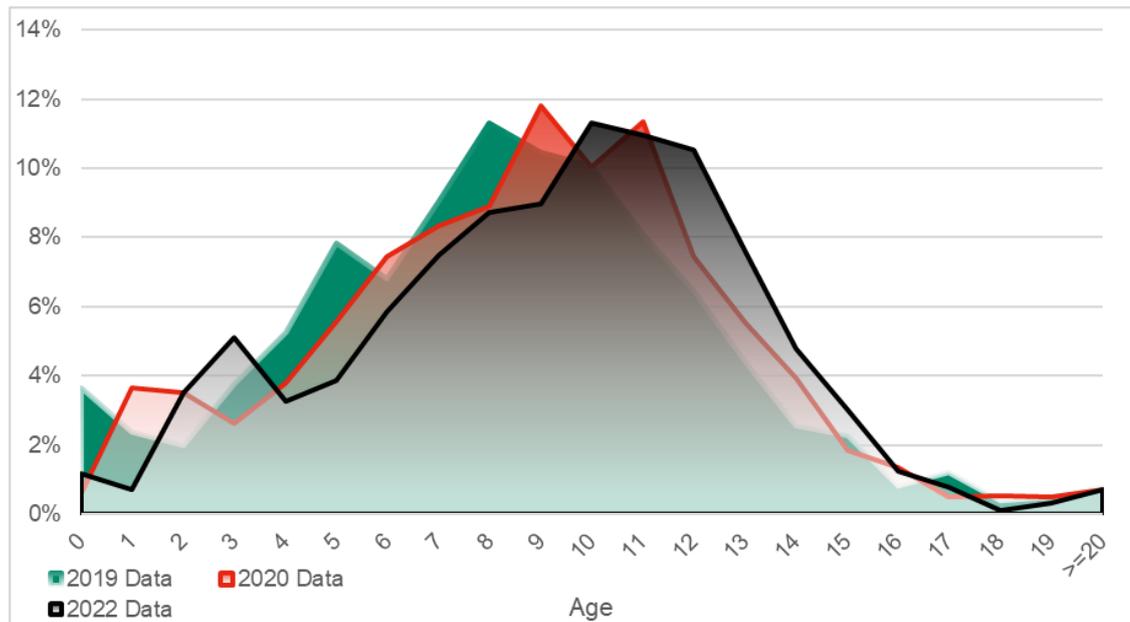


Table A8 Average Hackney Age

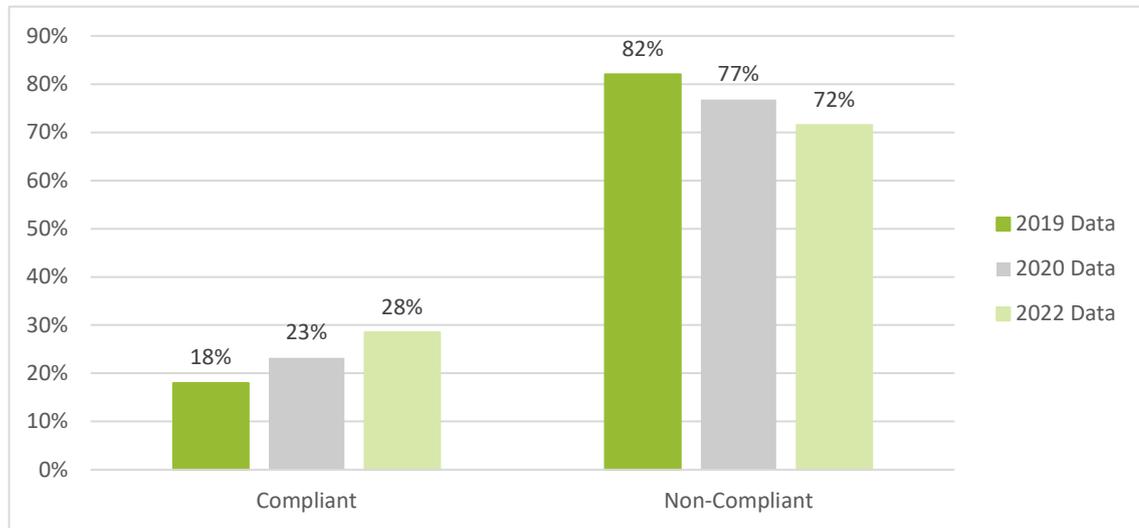
Taxi Type	Data year	2019	2020	2022
Hackney	Average Age	8.2	8.7	9.1
	Most common age group	8	9	10

Note: vehicles older than 20 years are excluded from calculation to avoid unreasonably skewing the average age

In relation to the GM CAZ, compliant vehicles are determined by fuel types and whether the engine standards comply with those set by the EU. Based on current GM CAP policies, Euro 6 diesel engines (2015) and Euro 4 and above petrol engines (2005) will be considered as compliant. It should be noted that all EVs and hybrid-electric vehicles whose engines are Euro 4 or later are considered compliant for the purpose of this study.

Figure A8 shows that the hackney compliance rate has increased from 18% in 2019 to 28% in 2022.

Figure A8 Hackney Compliance Rates



PHV

A similar story can be seen in PHVs as shown in **Figure A9**, with 147 brand-new PHVs purchased and licensed within GM in the year before November 2020, less than half of the number in 2019 (327). 181 brand-new PHVs were purchased and licensed in GM in 2022, a slight increase from 2020 due to the lift of lockdown in 2021, although still lower than the Pre-COVID-19 number (327).

As suggested in **Figure A9** and **Table A9**, the PHV fleet age profile had also grown older in 2020 and 2022 compared to 2019, which indicates that the rate of natural upgrades has also been delayed due to the impact of COVID-19. However, the upgrade delay seems to be less significant when compared to that of Hackney, with the average age increasing by 0.7 years from 2019 to 2022.

Figure A9 PHV fleet age distribution

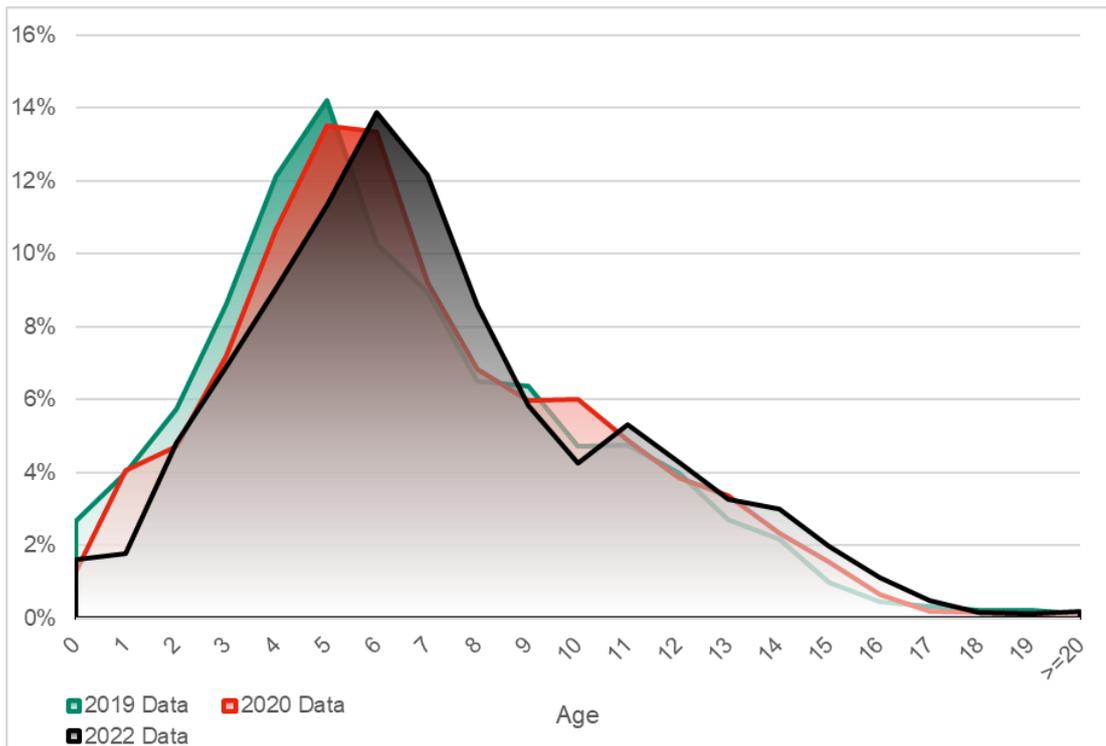


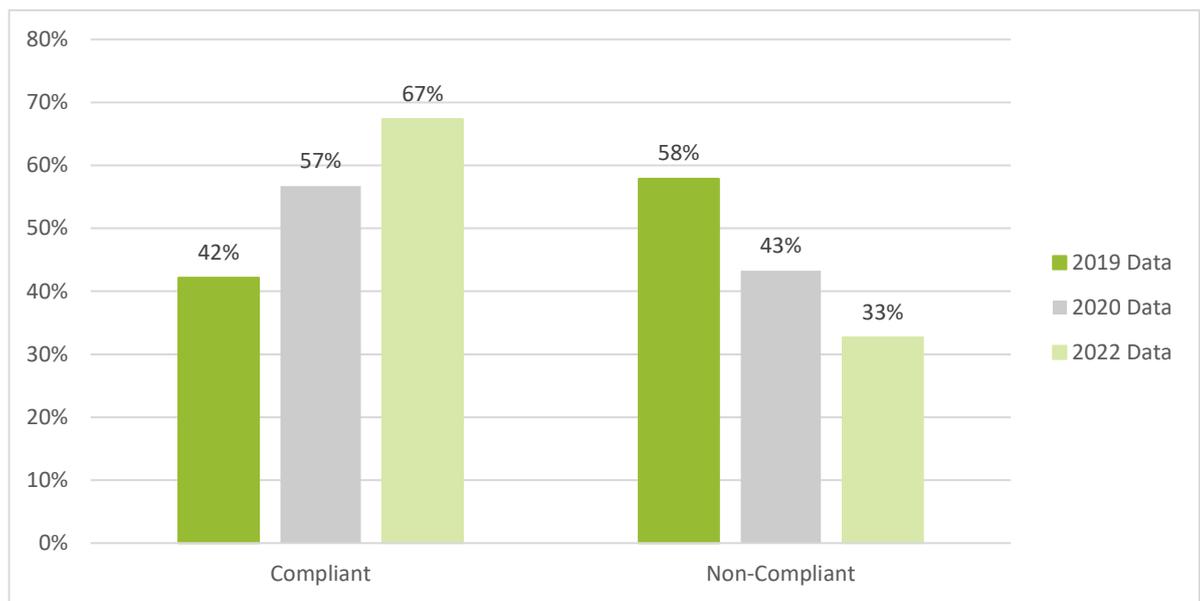
Table A9 Average PHV Age

Taxi Type	Data year	2019	2020	2022
PHV	Average Age	6.4	6.8	7.1
	Most common age group	5	5	6

Note: vehicles older than 20 years are excluded from calculation to avoid unreasonably skewing the average age

Figure A10 shows the change of PHV compliance between 2019 to 2022. The compliance has increased from 42% in July 2019 to 57% in November 2020, up by 15% and further increased to 67% in January 2022.

Figure A10 PHVs Compliance Rates



A5 Summary and Recommendations

Summary

This section provides a summary of the key findings from the review of SMMT vehicles sales data and GM taxi licensing data, to understand any delays to the natural turnover of the vehicle fleet serving GM, for each vehicle type. Recommendations, based on this data, are also provided identifying any updates to the Do- Minimum modelling regarding delayed fleet upgrade assumptions.

SMMT Vehicle Sales market review

HGVs:

- The latest figures from SMMT, as this document was produced, shows that HGV registrations are on the rise, but have still not reached the numbers seen prior to the pandemic; and
- Sales of new HGVs had been brought forward into 2019 by many hauliers. Given the relatively low divergence of HGV registrations over the 2019-2021 period, it is not yet possible to say with confidence how COVID-19 has impacted on the longer-term pattern of HGV investment cycles, though the 2021 HGVs sales data

Vans:

- The pandemic had a large impact on the number of new vans sold in the UK in 2020, but sales recovered to near Pre-COVID-19 levels in 2021; and
- Sales forecasts indicate that the majority of lost sales will be recovered by 2025.

5.1.14 Private Cars:

- The pandemic had a major impact on the number of new cars sold in the UK, initially due to the halting of production lines and local lockdowns around the world, with 2020 sales c.30% below 2019. New cars sales continue to be much lower than pre-pandemic levels in 2021; and
- Sales forecasts indicate that new car sales will gradually recover but the lost sales between 2020 and 2022 will not be recovered, leaving the equivalent of a full year of lost car sales by 2025.

5.1.15 Taxis (Hackney and PHVs):

- In January 2021, commercial vehicle production, including the production of taxis, was 31.5% lower when compared to pre pandemic production in January 2020.

GM Taxi Licensing data review

5.1.16 Hackney:

- The total number of GM licensed Hackneys decreased by 113 (5.4%) from July 2019 to January 2022.
- The number of newly registered hackneys decreased significantly (76 to 12) from 2019 to 2020 due COVID-19 impacts, although recovered slowly (23) at the beginning of 2022 following the easing of lockdown restrictions.
- The data source shows there has been delay in upgrade for hackneys with the peak of hackney age profile shifting from 8-year-old to 10-years-old between 2019 and 2022.
- Hackney compliance rate has increased from 18% in July 2019 to 28% in January 2022.

5.1.17 PHVs:

- The total number of GM licensed PHVs decreased by 964 (7.7%) from July 2019 to January 2022.
- Similarly, the number of registered brand-new PHVs decreased significantly (327 to 147) from 2019 to 2020 due COVID-19 impacts, although recovered (181) in 2021 due to the easing of lockdown restrictions.
- There has been delay in upgrade for PHVs with the peak of the peak of PHV age profile shifting from 5-year-old to 6-years-old between 2019 and 2022.
- PHV compliance rate has increased from 42% in July 2019 to 67% in January 2022

Summary of Findings

Based on the review of SMMT sales market and GM Taxi Licensing data, the average fleet age delays, and fleet turnover delays (as a proportion of typical annual sales) are summarised in **Table A10**.

Table A10 Data Review Summary Table

Mode	SMMT delayed sales		Taxi Licensing Data
	2023	2025	
HGV	No delay	No delay	n/a
LGV	2 months	1 months	n/a
Hackneys	n/a	n/a	10.8 months
PHV	n/a	n/a	8.4 months
Private Cars	12 months	12 months	n/a

When developing recommendations for the do minimum modelling, the following approach was adopted:

- SMMT vehicle sales data, together with forecasts, where available, is recommended to determine changes to the natural turnover of the fleet due to the pandemic;
- The GM taxi licensing data provides a useful and reliable data source to understand the changing trend of taxi licensing within GM; and

Automatic Number Plate Recognition (ANPR) camera data held by Greater Manchester Police (GMP) has been analysed in Annex A to understand the changing fleet operating on the road. It is noted that this data is impacted by behavioural changes during the pandemic, which could change following COVID-19 and has therefore been used to support the analysis of delayed fleet upgrade assumptions, though has not been included within the recommendations for modelling.

Conclusions

Following review of the data discussed above, **Table A11** presents the delayed natural fleet upgrade assumptions which were developed to inform the Autumn 2021 modelling (see Table 2), together with the latest position regarding natural delays to the fleet. The recommended approach for the updated Do Minimum modelling, for each vehicle type, following the Spring 2022 data review is also noted within the table and where this has changed from assumptions developed to support the Autumn 2021 modelling.

Table A11 Recommended delay of fleet upgrade

Mode	Option for Consultation (Pre-COVID-19)	Delay as at Autumn 2021 ¹¹		Forecast Delay (Spring 2022)	
		2023	2025	2023	2025
HGV	No delay	No delay	No delay	No delay	No delay
		Purchases were disrupted in 2019 and 2020 by factors other than Covid. Analysis suggests that overall purchases across the two years were fairly typical of an average year. Retain Autumn 2021 Assumption No Delay			
LGV	No delay	3 months	1 month	2 months ⁽²⁾	1 month ⁽³⁾
		Purchases were depressed in 2020, with some recovery in early 2021. Analysis suggests that a delay of c.2 to 3 months is plausible, with the age of the fleet gradually converging to close to the Pre-COVID-19 forecast by 2025 if sales recover over time. Retain Autumn 2021 Assumption 3 months delay in 2023, no delay in 2025			
Hackney	No delay	12 months	12 months	10.8 months ⁽¹⁾	10.8 months ⁽¹⁾
		Consider that significant impact likely – based on licensing data, propose maintaining a delay of one year to the upgrade of the Hackney & PHV fleet, to be maintained throughout the lifetime of the GM CAP i.e. to 2025. Retain Autumn assumption of 12 months given significant COVID-19 impact on the taxi sector			
PHV	No delay	12 months	12 months	8.4 months ⁽¹⁾	8.4 months ⁽¹⁾
		Consider that significant impact likely – based on licensing data, propose maintaining a delay of one year to the upgrade of the Hackney & PHV fleet, to be maintained throughout the lifetime of the GM CAP i.e. to 2025. Retain Autumn 2021 assumption of 12 months given significant COVID-19 impact on the taxi sector			
Private Car	No delay	7 months	7 months	12 months	12 months
		Although not in scope for GM CAP, private car is an important contributor to background emissions. Evidence suggests a significant delay in fleet upgrade and that this is likely to be maintained in future years. Delay of c12 months proposed, to be maintained throughout the lifetime of the GM CAP i.e. to 2025, this has increased from the 7 months assumption assumed for Autumn 2021 following review of the new data			

NB: (1) 12 months delayed fleet upgrade assumed within the modelling; (2) 3 months delayed fleet upgrade assumed within the modelling (3) no delayed fleet upgrade assumed within the modelling

¹¹https://assets.ctfassets.net/tlpqbyv1k6h2/2vJXVuLxfXON7HexGli29Q/4726e8696145d9f10bd1b19c16bdc1dd/Appendix_5_Impacts_of_COVID-19_Report.pdf (Table 7.2).

Based on the recommendations identified above in **Table A11**, the following adjustments were applied in the GM SATURN model to reflect the latest position regarding delayed fleet upgrades, applied in May 2022 (see above).

The forecast delayed fleet upgrades discussed above, aligned closely to existing demand forecasts previously prepared to support the Autumn 2021 modelling and sensitivity testing associated with these model runs. Due to time constraints to develop the updated Do Minimum scenario, the nearest existing demand forecasts have been applied within the GM SATURN model, which have been rounded up to the nearest 3 months forecast delay, ensuring a more conservative approach to delayed fleet upgrades.

DRAFT FOR APPROVAL

Annex A: ANPR Analysis

Overview

GMP has provided ANPR data for a representative week in each of the following three periods (Monday to Sunday):

- January 2019 (Pre-COVID-19 pandemic) – defined as GMP19 data;
- September 2020 (post easing of first lockdown restrictions) – GMP20 data; and
- November 2021 (post lifting of most legal limits on social contact) – GMP21 data.

Data was processed to identify the common camera locations available across the three datasets. A total of 15 camera locations were taken forward to the analysis. Only a general description of the camera locations is available due to confidentiality regarding exact locations. A total of 3 cameras are located within Manchester's Inner Ring Road (IRR), 9 are between the IRR and the M60, and 3 are located within GM, but outside the M60 boundary.

The GMP dataset was anonymised to comply with confidentiality requirements, with the year of registration determined from the age codifier in the Vehicle Registration Number (VRN). The dataset also comprised vehicle make and model, fuel type and vehicle tax class as listed in **Table A12**. These were used to filter through the dataset and derive key information required to summarise the GM fleet profile.

Table A12 GMP Data Content

Data Point	Description
Anonymised VRN	Vehicle Registration Number (Number Plate)
Date	Date of record
Time with seconds	Time of record
Camera Name	Road name
Make	Brand of the vehicle
Model	Model of the vehicle
Specification	Additional specific details of the vehicle (not always available)
Tax Class	Vehicle tax classification

A consistent approach was developed to apply several filters to the three GMP datasets. Briefly, key steps included:

- Identification of the number plate system – based on length / number of characters in VRN (7: current system (2002-today); 6: prefix system (1983-2001); 5: suffix system (1963-1983);
- Identification of registration year based on the VRN system and VRN (e.g. current system and 14 (or 64) = 2014);
- Identification of vehicle type (car, LGV, HGV, etc.) based on vehicle tax class, whitelists and/or on make/model/specification.
- Identification of fuel type (petrol, diesel, hybrid-electric, electric, other) based on vehicle tax class and/or vehicle specification (e.g., TDI = Diesel; PHEV = Hybrid Electric);
- Identification of Euro Standard based on registration year and vehicle type/fuel; and
- Compliancy status based on vehicle type, fuel and Euro Standard.

ANPR Review Findings

Data outputs from the ANPR data processing were subject to analysis to understand the evolution of the fleet profile of vehicles captured by the GMP cameras across the three distinct datasets. Data records for which no specific vehicle registration year and/or vehicle/fuel type could be defined have been excluded from the analysis.

HGV, LGV and car figures presented in this section all derive from the ANPR data analysis. Taxi (Hackney and PHV) figures have been taken directly from the analysis of the licensing data provided by the GM local authorities.

The ANPR data is analysed on both the number of unique vehicles captured by the ANPR cameras as well as the total frequency of records. Sample sizes vary between the three GMP data sets, mostly due to on-going impacts induced by the COVID-19 pandemic. However, it is also worth noting that other variables are likely to impact the sample size, such as the time of the year these surveys have been undertaken ranging from winter (GMP19) to late summer just after schools reopening (GMP20) and mid-autumn (GMP21).

HGV

Figure A11 presents the vehicle age profile of HGVs in each survey on both the number of unique vehicles as well as the total trips captured by the ANPR cameras during three specific weeks. The figure shows that the age distributions based on individual vehicles are very close to that based on total trips. **Table A13** shows that average ages of fleet on total trips are younger than that on unique vehicles for all three years, which indicates that younger HGVs tend to be used more frequently in GM than the older HGVs.

The analysis indicates that half of the HGVs captured by the cameras were 3 years old or less in the 2019 survey. The data shows that in both 2020 and 2021 this figure becomes 4 years old or less. This is the case for both unique vehicles as well as the total trips.

The average age of fleet for both individual vehicles and trips, as shown in **Figure A11**, has increased since 2019 suggesting a slower uptake of new vehicles compared to previous years. This is further supported by the much lower fraction of 0-year-old (brand-new) HGVs in 2020/21 compared with 2019, despite the month of the survey being later in the year. This match reported new HGV sales, which were above typical levels in 2019 due to forthcoming regulatory changes, such that 2020 levels were expected to be lower than average regardless of COVID-19.

However, given that compliant Euro VI HGVs were first available in 2013, this recent new vehicle sales trend will have a more limited impact on the HGV fleet mix of compliant versus non-compliant vehicles on the road.

Figure A11 HGV fleet age distribution

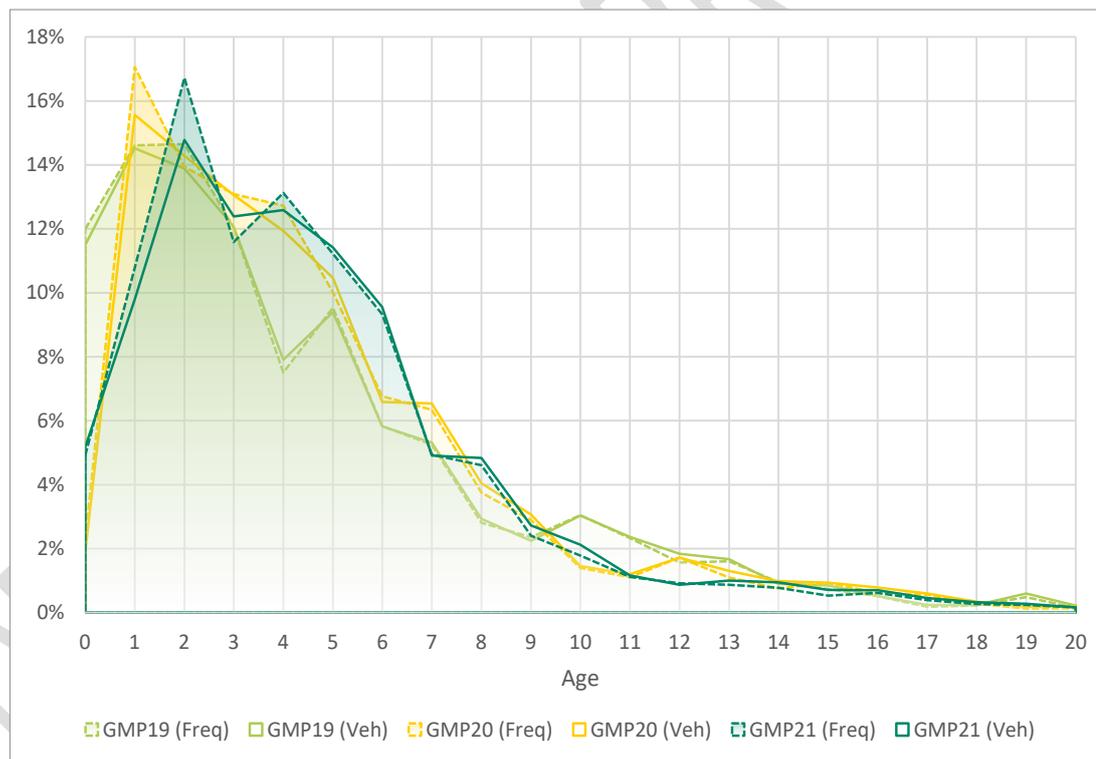


Table A13 Average HGV Age

Data set	GMP19	GMP20	GMP21
Frequency			
Average Age	4.6	5.0	5.0
Most common age group	2	1	2
Unique Vehicles			
Average Age	4.8	5.2	5.3
Most common age group	1	1	2

LGV

The LGV vehicle age profile change is presented in **Figure A12** on both the number of unique vehicles as well as the total trips captured by the ANPR cameras during three specific weeks. The figure shows that the age distributions based on individual vehicles are close to that based on total trips. However, **Table A14** shows that average vehicle ages based on total trips are younger than that based on unique vehicles for all three years, which indicates that younger vehicles tend to be used more frequently in GM than the older vehicles.

The data indicates that half of the valid ANPR records were 4 years old (or less) in the 2019 survey. The same figure changes to 5 years when considering the 2020 and 2021 datasets. This is the case for both unique vehicles as well as the total trips. The average ages of the fleet based on both individual vehicles and total trips, as shown in **Table A14**, have increased since 2019 suggesting a slower uptake of new vehicles compared to previous years.

It is noticeable that the vehicles aged 4-7 years as a proportion of the fleet had increased in 2020/21 compared to that in 2019, whereas the profile of older vehicles has remained more similar. This suggests that the biggest impacts in terms of fleet have been on those who would normally operate a fairly new vehicle, and who may have delayed their upgrade.

Figure A12 LGV fleet age distribution

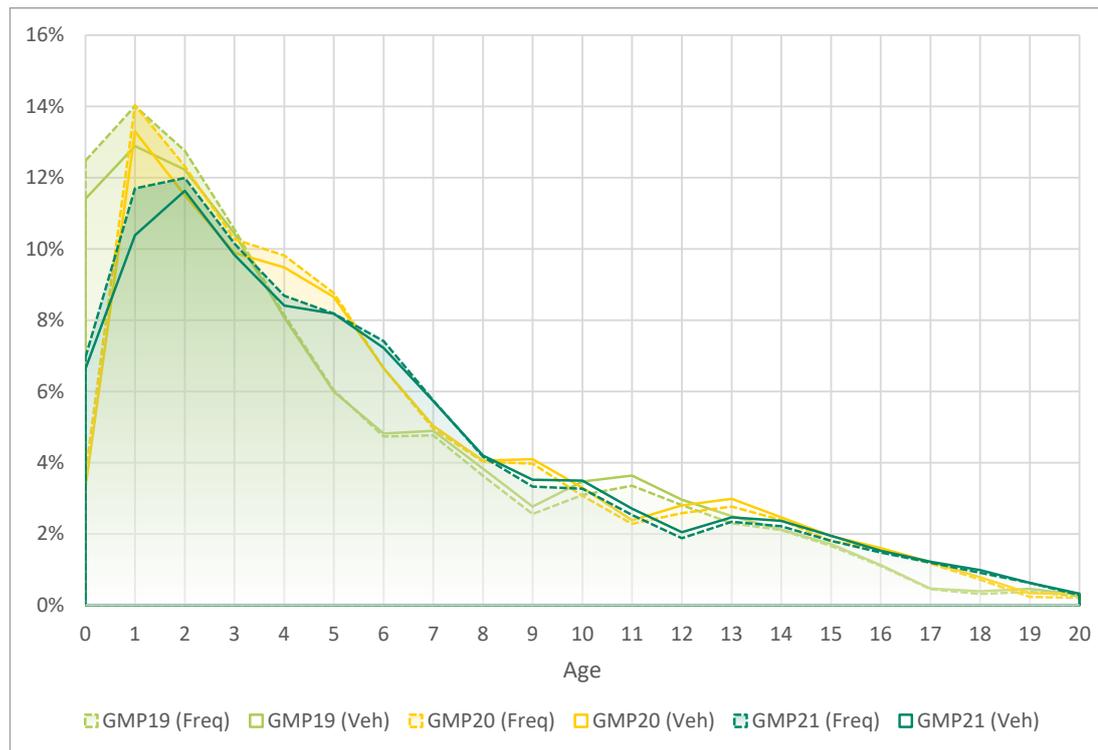


Table A14 Average LGV Age

Data set	GMP19	GMP20	GMP21
Frequency			
Average Age	5.3	6.0	6.1
Most common age group	1	1	2
Unique Vehicles			
Average Age	5.8	6.5	6.6
Most common age group	1	1	2

Private Car

Figure A13 presents the car fleet profile across the three GMP datasets (both in terms of trips and unique vehicles). The figure shows that the age distributions based on individual vehicles and total trips are consistent with each other.

Table A15 shows that average vehicle ages based on both total trips and vehicles. It is noticeable that the average vehicle ages based on total trips are younger than that based on unique vehicles across all three years, which indicates that younger vehicles tend to be used more frequently in GM than the older vehicles.

The data seems to confirm that the impact of recent events has slowed down the car market. The GMP20 and GMP21 data shows a notably reduced proportion of newer (less than 3-year-old) vehicles than the GMP19 equivalent. This is the case for both unique vehicles and the total trips. The data in **Table A15** shows the increased average age, for both unique vehicles and the total trips, since 2019, suggesting a slower uptake of new vehicles compared to previous years.

Unlike vans, the Covid impacts on cars appear to be sustained all the way down the fleet in terms of age – showing that it is not just new car sales that have been affected, but people upgrading to a newer second-hand car as well. This is likely to be as a result of both supply and demand issues (such as the semi-conductor shortage) but also people having done lower mileage than normal during the pandemic, or financial issues caused by the pandemic.

Figure A13 Car fleet age distribution

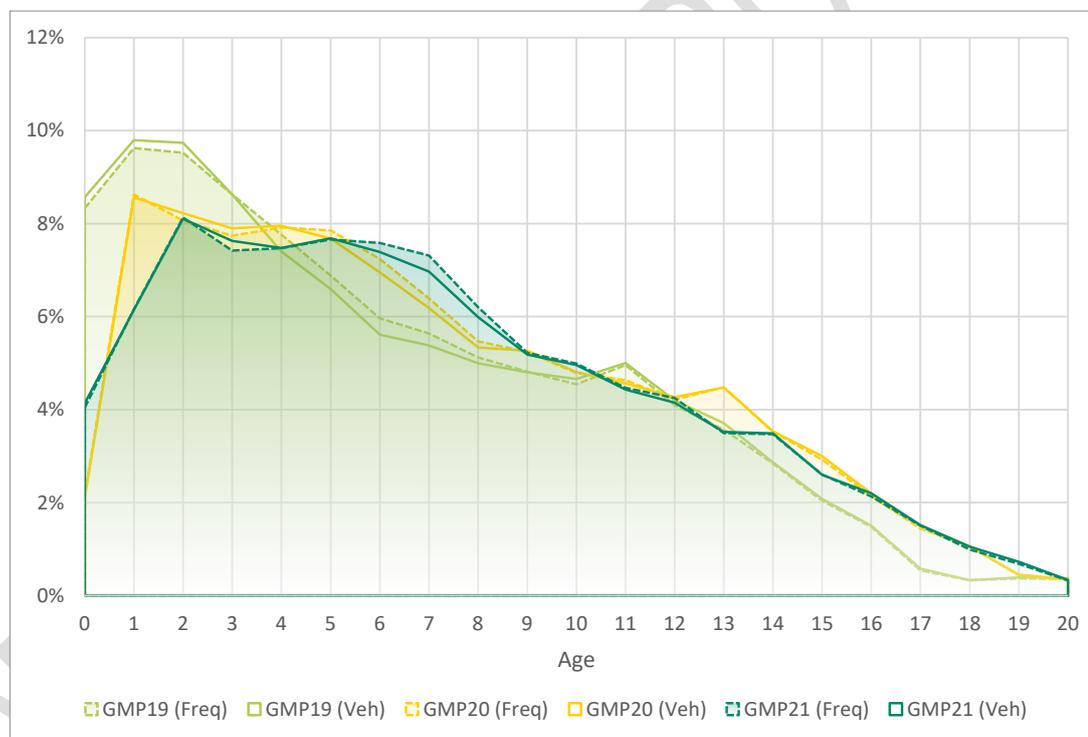


Table A15 Average Car Age

Data set	GMP19	GMP20	GMP21
Frequency			
Average Age	6.6	7.7	7.8
Most common age group	1	1	2
Unique Vehicles			
Average Age	6.7	7.8	7.9
Most common age group	1	1	2

Coach / Minibus

It was not possible to undertake a similar analysis for these vehicle types due to the very limited relevant data within the GMP datasets. Further data disaggregation would be required in order to provide further insights over the coach/minibus fleet profiles (e.g. using the DVLA data set to match with the number plate records).

Data Review Summary

Three sets of ANPR data were compared, covering the following time periods:

- GMP19 - January 2019 (pre COVID-19 pandemic);
- GMP20 - September 2020; and
- GMP21 - November 2021.

The available data was collated from slightly different periods of the year, therefore the forecast figures from the ANPR analysis should be treated with some caution as analysis outputs may be slightly skewed from actual fleet age delay due to variability in the month during which surveys were made. This is likely to have introduced variance to the relative proportion of newer vehicles in the overall fleet age.

Also the ANPR data, whilst accounting for delayed fleet impacts, is also impacted by trip making behaviour which may be temporary in nature due to changing government guidance and recovery of the economy following the lifting of restrictions. This may therefore impact the observed vehicles from the ANPR dataset.

Based on the above points, the ANPR data is being used as useful supporting information, though is not used to directly inform the recommendations for any changes to the natural turnover of the vehicle fleet serving GM. The key findings of the ANPR data analysis are discussed below.

HGVs:

- The analysis suggests that the average age of HGVs increased by 0.5 years from the beginning of 2019 to the end of 2021; and
- The proportion of newly purchased HGVs (i.e. less than 1 year-old) captured by ANPR cameras decreased from near 12% to 2% from 2019 to 2020¹² and recovered to close to 6% by the end of the 2021. These figures are likely to be slightly overestimated due to differences in the sample size (10 months' worth of 'new vehicles' captured in the January 2019 survey compared to 6 and 8 months captured in the September 2020 and November 2021 surveys).

LGVs:

- The analysis suggests that the average age of LGVs increased by 0.8 years from the beginning of 2019 to the end of 2021; and
- The proportion of newly purchased LGVs (i.e. less than 1 year-old) captured by ANPR cameras decreased from near 12% to 3% from 2019 to 2020⁶ and recovered to close to 7% by the end of the 2021. It is noted that these figures are likely to be slightly overestimated due to differences in the sample size (10 months' worth of 'new vehicles' captured in the January 2019 survey compared to 6 and 8 months captured in the September 2020 and November 2021 surveys).

Private Cars:

- The analysis suggests that the average age of the car fleet increased by 1.2 years from the beginning of 2019 to the end of 2021; and
- The proportion of newly purchased cars (i.e. less than 1 year-old) captured by ANPR cameras decreased from near 9% to 2% from 2019 to 2020⁶ and recovered slightly to 4% by the end of the 2021. These figures are likely to be slightly overestimated due to differences in the sample size (10 months' worth of 'new vehicles' captured in the January 2019 survey compared to 6 and 8 months captured in the September 2020 and November 2021 surveys).

¹² Acknowledging that 2020 is missing at least 3 months of data since the survey was taken in September.

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

Issues Leading to Delayed Compliance Based on the Approved GM CAP Assumptions



Salford City Council



Warning: Printed copies of this document are uncontrolled

Version Status:	APPROVED	Prepared by:	Transport for Greater Manchester on behalf of the 10 Local Authorities of Greater Manchester
Authorised by: Date:	Ian Palmer February 2022		

1 Introduction

- 1.1 This Report sets out a summary of how the recent analysis conducted since the modelling for the post-Consultation version of the Greater Manchester Clean Air Plan (GM CAP) in June 2021 means that the conclusions relating to delivery of compliance by 2024 are no longer robust.
- 1.2 The June 2021 modelling was undertaken to incorporate the outcomes of the 2020 Consultation and approved GM CAP Policy, along with the approach to incorporating the then known Covid-19 impacts on vehicle fleet, for scheme approval and submission with the Full Business Case (FBC). This modelling was based on the methodology agreed with JAQU and the Technical Independent Review Panel (TIRP), and utilised the input datasets and assumptions that were available and appropriate at March 2021 when the modelling conducted to feed into the reporting and governance process. The modelling outputs and deliverables have been submitted to and reviewed by JAQU and the TIRP, however the final FBC has not been submitted or published.
- 1.3 Subsequently, evidence has been assembled of significant vehicle availability issues for businesses. The findings of the GM-commissioned review of the light goods vehicles (LGVs) supply chain (see Appendix A) demonstrate significant price increases in the second-hand used van market, ranging between 13% and almost 60%, alongside longer lead times for new vehicles.
- 1.4 At the same time, sales of new cars have been significantly reduced during 2020 and 2021, slowing the natural turnover of the private car fleet on the road network. This will worsen the baseline position with respect to roadside concentrations of nitrogen dioxide (NO₂), meaning that compliance being delivered in 2024 was already less likely, even if the assumptions around commercial vehicle prices and behaviour were not altered.
- 1.5 This document discusses how the separate issues around used van prices and slower than projected sales of private cars are expected to impact on the conclusions of the Approved GM CAP modelling. It will reflect upon the sensitivity testing available in preparation of the FBC to inform a view of where the risk of exceedance beyond 2024 would be most likely to occur.

2 Background & Modelling Framework

- 2.1 The GM CAP is underpinned by an evidence base and modelling. The modelling for the study is being undertaken using the CAP modelling suite as illustrated below in Figure 2-1:

Figure 2-1 CAP Modelling Suite



2.2 The modelling system consists of five components:

- The demand sifting tool, which has been developed to allow measures to be tested in a quick and efficient way prior to detailed assessments being undertaken using the highway and air quality models. The sifting tool uses fleet specific Cost Response models to determine behavioural responses to the CAP proposals (pay charge, upgrade vehicle, change mode, cancel trip etc.) The outputs comprise demand change factors which are applied to the do-minimum Saturn matrices to create do-something demands for assignment.
- The highway (Saturn) model, which uses information about the road network and travel demands for different years and growth scenarios to estimate traffic flows and speeds for input to the emissions model and forecasts of travel times, distances and flows for input to the economic appraisal.
- The emissions model, which uses TfGM's EMIGMA (Emissions Inventory for Greater Manchester) software to combine information about traffic speeds and flows from the Saturn model with road traffic emission factors and fleet composition data from the Emission Factor Toolkit (EFT) to provide estimates of annual mass emissions for a range of pollutants including oxides of nitrogen (NO_x), primary-NO₂, particulate matter (PM₁₀ and PM_{2.5}) and CO₂.
- The dispersion model, which uses ADMS-Urban software to combine information about mass emissions of pollution (from EMIGMA) with dispersion parameters such as meteorological data and topography to produce pollutant concentrations.
- Finally, the outputs of the dispersion model are processed to convert them to the verified air quality concentrations, using Defra tools and national background maps.

2.3 The purpose of the modelling is to identify the preferred option for delivering air quality compliance in the shortest possible time, and to provide supporting analyses for the development of the business case submissions.

2.4 The results of the modelling are set out in the following reports:

- Local Plan Transport Modelling Tracking Table (T1), which is intended to demonstrate that the modelling requirements for the study are being met;
- Local Plan Transport Highway Model Validation Report (T2), which explains in detail how the road traffic model was validated against real-world data in the base year (2016);
- Local Plan Transport Modelling Methodology Report (T3), which describes the approach taken to forecast traffic in 2021 and beyond to 2023 and 2025;

- Local Plan Transport Model Forecasting Report (T4), which describes the transport modelling process and results for the Greater Manchester Clean Air Plan Project;
 - Local Plan Air Quality Modelling Tracker Table (AQ1) and Methodology Report (AQ2), which provides an overview of the air quality modelling process and evidence base; and
 - Local Plan Air Quality Modelling Report (AQ3), which provides details of modelled NO_x and NO₂ concentrations for the base and forecast years, including comparisons with measured concentrations for the base year.
- 2.5 Versions of these reports were produced at Outline Business Case (OBC) stage and revised versions were produced setting out the process applied to testing of the Package for Consultation and the results of that modelling¹. Revised versions of the reports have been produced to support the FBC, based on the updated modelling methodology reflecting the impacts of the Covid-19 pandemic, and the approved Policy following Consultation. The assumptions used for this modelling reflected the best available datasets and evidence at approximately March 2021 when the modelling conducted to feed into the reporting and governance process.
- 2.6 The changes made to the modelling methodology for the FBC are set out in the Reports T3: Local Plan Transport Modelling Methodology Report, T4: Local Plan Transport Model Forecasting Report and AQ3: Local Plan Air Quality Modelling Report, and are discussed in the Analytical Assurance Statement.
- 2.7 The Policy for Consultation sets out the proposals and measures contained in the GM CAP as approved by GM's ten local authorities in July and August 2021².
- 2.8 Fundamentally, the air quality improvement predicted in the GM CAP's modelling appraisal is dependent on assumptions around how commercial vehicle owners will respond to the proposed Clean Air Zone (CAZ) charge and associated set of funding support packages.

¹ Available at <https://cleanairgm.com/technical-documents/>

² GM CAP Policy following Consultation:

https://assets.ctfassets.net/tjpbvvy1k6h2/2VNncClzeiAvGh3CrVn0oo/54d03145b03adfdab15e4323e76d7781/Appendix_1_-_GM_Clean_Air_Plan_Policy_following_Consultation.pdf

3 Limitations, risks and uncertainty

- 3.1 The reporting is supported by an Analytical Assurance Statement (AAS). The purpose of the AAS is to consider the limitations, uncertainties and risks in the evidence base, and the implications of these for decision makers. It considers whether an appropriate procedure has been followed, in terms of the modelling process and the source data, and whether appropriate checks have been carried out. It considers whether appropriate expertise has been utilised, and whether sufficient time and resources have been allocated to the analysis.
- 3.2 An AAS was prepared in spring 2019 to support the package of documents submitted as part of the Outline Business Case (OBC) submission, and in January 2020 to support the proposed Package of Measures for Consultation.
- 3.3 An updated AAS was prepared and submitted to JAQU to support the final development of the FBC. That analysis was needed to support the following decisions by GM:
- The agreement of forecast exceedances that must be tackled by the GM CAP through the **revised Do Minimum forecasting** exercise, taking into account the impacts of Covid-19 on vehicle fleets;
 - The **specification of policies and scheme design for each of the identified measures**, to form the GM CAP Policy following consultation designed to meet the requirements of the Ministerial Direction; and
 - The **decision to proceed** with submission of the FBC in order to secure funding.
- 3.4 The updated AAS, already reviewed by JAQU, means that GM and JAQU have a greater understanding of the uncertainties and limitations associated with current modelling, which is useful given the rapidly evolving evidence base.

Sensitivity Testing

- 3.5 In order to inform the AAS and its assessment of the limitations, uncertainties and risks in the evidence base, GM has carried out a programme of sensitivity testing for the FBC submission.
- 3.6 The purpose of the sensitivity testing is to understand the possible impact of uncertainty in the appraisal of the Plan. In particular, to understand whether variations in the assumptions underpinning the modelling, or the modelling methodology, would lead to a different decision or outcome or provide additional confidence in the conclusions.
- 3.7 For the GM CAP, the key questions were:

- Are there any plausible circumstances under which the GM CAP would no longer be required, or would not be required in its current form? How confident can GM be in the results of its analysis?
- Are there any plausible circumstances under which the GM CAP would not achieve compliance in the shortest possible time, compared to another deliverable option? How confident can GM be in the results of its analysis?

3.8 A summary of the sensitivity testing report has been provided in the next section, setting out the derivation of the relevant tests and their key conclusions, as carried out to support the assessment of uncertainty for the FBC.

4 Sensitivity testing

4.1 GM developed a programme of sensitivity testing based on the following inputs:

- JAQU guidance
- Feedback from JAQU's Technical Independent Review Panel (TIRP)
- JAQU's Covid-19-related guidance
- Joint working between the GM CAP and JAQU Technical Teams

4.2 Tests of the Do Minimum scenario were run to consider the impact on the GM CAP of variations to assumptions in terms of traffic flow and composition, delays to the delivery of planned schemes (other than the GM CAP), travel patterns and factors affecting the calculation of emissions and concentrations. This specifically included tests relating to the age of vehicle fleet. Tests that affect the Do Minimum scenario were then run for the Do Minimum and Do Something scenarios, in order to understand the impact on compliance.

4.3 Further sensitivity tests were carried out considering variations in the assumed impact of the GM CAP on bus, taxi and freight upgrades to cleaner vehicles. These tests affect the Do Something scenario only.

4.4 For freight vehicles (HGV and LGV), tests were carried out to estimate the 'break point' of the scheme, in other words, testing the percentage increase in 'stay and pay' responses for each vehicle type that would be sufficient to delay the first year of compliance to 2025, all other things remaining equal.

4.5 Following the identification of this estimated 'break point', analysis was undertaken to understand the scale of change required for each contributing factor to reach the 'break point'. For example, how much would LGV prices need to rise to increase the proportion of vehicles choosing to 'stay and pay' enough to delay the year of compliance?

4.6 This break point analysis was undertaken based on a request from TIRP.

- 4.7 It is this break point analysis that is most informative on how recent evidence regarding increased used vehicle prices would affect the predictions of improvements to air quality as a result of the CAP. The tests relating to fleet age can be used to understand how the latest information on vehicle sales would impact on the projected concentrations.

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5 Sensitivity testing programme for FBC summary

- 5.1 Table 5-1 sets out the sensitivity testing that has been carried out for the FBC relating to fleet age and the break point analysis.
- 5.2 It provides a description and brief methodology, information on the source of the test and whether it has been run before. It also sets out whether the test is being applied to the Do Minimum (DM) and/or Do Something (DS) scenarios and which years are being modelled.
- 5.3 For more details on these sensitivity tests, refer to Appendix B.

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Table 5-1 FBC Sensitivity Testing Programme (excerpt from the Sensitivity Testing Report)

Test no.	Test	Description	Brief methodology	Source information	DM	DS	2023	2024 (i)	2025	Has test been run before?
A: Fleet age										
1	Older fleet	Fleet is older than modelled due, for example, to greater-than-expected impacts of Covid-19 pandemic or other factors.	<ul style="list-style-type: none"> HGV, LGV, Car +1 year older than Consultation Option Do Minimum (DM) Taxi +2 years older than Consultation Option DM No change to Bus 	Test as per JAQU Covid-19 guidance, adapted for taxi to reflect inclusion of one year delay to fleet replacement in the core scenario. Test responds to feedback from TIRP (April 2021).	Yes	Yes	Yes	Yes	Yes	Partially – an earlier iteration run as part of Covid-19 impacts testing.
D: Freight										
15	Freight stay and pay 'breakpoint analysis'	More HGVs and/or LGVs may choose to 'stay and pay' than currently forecast.	Analysis using AQ modelling and behavioural response models to identify what scale of change to behavioural responses of HGV and LGV owners could cause a delay in the year of compliance.	JAQU and TIRP (OBC) feedback.	No	Yes	Yes	Yes	Yes	No
16	Cost of charge	Non-compliant vehicle owners may be able to pass on some or all of the cost of the charge to customers, effectively reducing the impact of the charge on them.	Reduce the cost of the charge within the LGV/HGV cost models to test impact on behavioural responses.	JAQU guidance/feedback and TIRP feedback (OBC and January 2020).	No	Yes	Yes	No	No	A version of this test was run previously, reported as Technical Note 31.
17	Vehicle pricing	The cost of a compliant vehicle may be higher than assumed.	Increase the cost of upgrade within the LGV/HGV cost models to test impact on behavioural responses.	JAQU guidance/feedback and TIRP feedback (OBC and January 2020).	No	Yes	Yes	No	No	No

6 Sensitivity testing results summary: Fleet Age

- 6.1 This section sets out a summary of the sensitivity testing results carried out in relation to vehicle fleet age. This is distinct from the break point analysis for freight vehicles, considered in section 7.
- 6.2 The Do Minimum fleet mix as modelled at Consultation assumed a normal pattern of vehicle upgrades, including the purchase of new vehicles, trading of second-hand vehicles and the scrapping of the oldest vehicles from the fleet. For more discussion on the methodology applied to estimate the do minimum vehicle fleet, see Appendix B.
- 6.3 GM's analysis of the impacts of the Covid-19 pandemic concluded that capital investment in replacement vehicles has been delayed and as a result the fleet on GM's roads is likely to be older and more non-compliant than would otherwise have been the case. The impacts of the Covid-19 pandemic on fleet upgrade include:
- Reduction in the number of new vehicles manufactured due to lockdowns;
 - Delay in transactions due to lockdown constraints;
 - Reduction in vehicle upgrades due to direct economic impact of lockdown or wider recessionary impacts, or because vehicles are not being used as heavily as before; and therefore
 - The oldest vehicles remaining in the fleet for longer.
- 6.4 Analysis shows that these impacts vary between different vehicle types and business sectors with some more affected than others. For further information, see the Impacts of Covid-19 on the GM CAP Report³⁴.
- 6.5 Adjustments were made to the car, van and taxi fleets to reflect the emerging evidence in spring 2021 that the normal pattern of vehicle upgrades had been affected for those fleets. This was represented by calculating the difference between the predicted annual sales (or actual for 2020) and the typical pre-Covid levels which are reported as the equivalent of typical sales each year.
- 6.6 This resulted in the quantum of lost new private car sales equivalent to 62% (or approx. 7 months) of a year's worth of renewal from 2023 onwards. For vans, where sales had been more resilient, the rate of lost vehicle sales was equivalent to 28% of a year's worth of renewal in 2023, reducing to 7% in 2025, because sales had been extrapolated to levels above those in 2019 to reflect the strong demand evident in the market. These adjustments are described in more detail in T3 & AQ3.

³ GM CAP Impacts of Covid-19
https://assets.ctfassets.net/tlpqbyv1k6h2/2vJXVuLxfXON7HexGli29Q/4726e8696145d9f10bd1b19c16bdc1dd/Appendix_5_Impacts_of_COVID-19_Report.pdf

- 6.7 By implementing a change to the fleet in response to the pandemic in the core modelling for the Approved GM CAP scenarios, GM sought to mitigate the risk that the fleet is older than forecast. However, the latest evidence suggests that these adjustments were not sufficiently pessimistic for private cars.
- 6.8 Table 6-1 sets out the results of the Older Fleet Age sensitivity test.
- 6.9 The conclusion of this test is that the GM CAP is sensitive to assumptions about fleet age, with an older fleet creating a risk of delay to the year of compliance.

Table 6-1 Sensitivity test results: (A) Fleet Age (excerpt from the Sensitivity Testing Summary Report)

Test no.	Test	Narrative as at summer 2021	Change in max concentration in 2023	Change in no. of exceedances in 2023	Forecast Compliance Year	Impact
1	Older fleet	This test showed increased concentrations and was sufficient to delay the year of compliance. The roads outside of the IRR are more sensitive to this test, because car and LGV emissions are more prevalent. However, it is considered unlikely that the fleet age would be as pessimistic as this test, given that changes have already been applied to the core to reflect Covid-19 related delays in vehicle upgrades. Current evidence suggests that whilst vehicle sales have not caught up with pre-pandemic conditions, LGV and car sales have not been delayed to the extent of a full year.	+2.0	+13	2026	Risk of delay to year of compliance with the CAP in place.

- 6.10 In preparation for the implementation of a Performance Management Plan, (which is the mechanism by which GM proposed to monitor relevant factors, identify issues and propose solutions), GM has continued to monitor vehicle sales and forecast information.
- 6.11 In relation to the assumptions and datasets tested under the fleet age test, for those vehicles in scope for the GM CAP:
- **HGVs:** GM is reviewing all available information relating to HGV sales and supply issues over 2021, with the key dataset from SMMT sales due to be available in February 2022.
 - **Taxis:** GM is reviewing the latest licensing records to understand the composition of the current GM-licensed taxi fleet (including Hackney Cabs and PHVs). GM has also sought data from JAQU on the composition of the taxi fleet serving GM but licensed elsewhere. A full further one-year delay in the sensitivity test (beyond the one-year delay already applied as a result of COVID 19) is expected to be pessimistic about the real-world rate of taxi fleet upgrades. Whilst taxi drivers' profitability was significantly impacted in 2020/21, the relaxation and removal of Covid-related restrictions in 2021/22 is assumed to have resulted in a return towards more typical operations. However, a number of factors, including drivers awaiting confirmation of CAP and Minimum Licensing Standards policies and the opening of the Funds may have acted to delay upgrades somewhat.
 - **Vans:** Sales forecasts projections from the SMMT are released quarterly and reflected the volatility in the van manufacturing sector. In the latest information (October 2021), the SMMT has slightly upgraded van sales forecast compared to the January 2021 forecast which the GM modelling pivots from⁵. This change is not currently considered to be sufficient to materially change the projections. However, GM will continue to monitor vehicle sales patterns and projections with the next update due in February 2022.

⁵ <https://www.smmt.co.uk/2021/10/uk-new-car-and-van-forecast-october-2021/>

- 6.12 Private cars, whilst not in scope for the GM CAP, form an important contribution to overall road traffic emissions. New vehicle sales rates have fallen and sales projections have been reduced by the SMMT further since the Approved GM CAP modelling. Based on the latest data, the forecast for cars now approaches the assumptions made in the Older Fleet test, equivalent to 91% (or approx. 11 months) of a year's worth of renewal from 2023 onwards. GM will review the latest available ANPR data, to better understand private car fleet data, versus projections undertaken in the modelling, including in relation to the uptake of hybrid and battery electric models. However, these data will need to be treated with caution because driving patterns are not yet considered to have recovered from the restrictions in place as a result of Covid-19.
- 6.13 The pro-active approach taken by GM to representing local fleet age, which already builds in assumptions around the adverse impacts of Covid-19, plus the suite of sensitivity tests already produced, has helped to increase the insight on the scale of potential impacts based on the latest revisions to vehicle sales and fleet on the predicted year of compliance.

Impact on the CAP Modelling Predictions

- 6.14 Modelling carried out to support the decision to approve the GM CAP, supplied in June 2021, demonstrated that the Plan was forecast to achieve compliance with legal limits of NO₂ concentrations by 2024, based on the proposals set out in the Policy and the assumptions made at that time in terms of the age of the fleet and the cost of upgrade amongst other factors.
- 6.15 The target determination process set out the NO₂ concentrations position, against which measures were needed to reduce vehicle emissions and deliver compliance with the NO₂ limits. The revised CAP modelling for the Approved GM CAP package, took into account the impacts of Covid-19 leading to lost vehicle sales for private cars, vans and taxis based on data published by the SMMT, using a methodology agreed with JAQU and reflecting the position up to March 2021. The recorded sales from 2020 and revised projections of future sales in 2021 to 2025, used for this analysis were published in February 2021. The SMMT have subsequently published update projections in October 2021.
- 6.16 These projections were similar for vans to those used for the Approved CAP modelling, but the new private car sales were revised down such that emissions from the private cars would now not be predicted to have improved at the rate modelled. This means that the starting position in the Without CAP or Do Minimum scenario, is worsened and therefore the improvements in NO₂ concentration in response to the CAP package of measures as they were predicted in June 2021 may no longer be sufficient.
- 6.17 Evidence on how HGV and taxi fleet age may have been impacted by Covid-19 is not yet available, and is still under review. Further analysis of on-road vehicle fleet data from recent ANPR data would also be beneficial to confirm analysis from sales data, if possible.

7 Sensitivity testing results summary: Freight Break Point Analysis

- 7.1 The freight tests were more complex, as they operated in two parts. The purpose of these tests is, firstly, to assess the extent to which the Plan is sensitive to assumptions about the behavioural responses of HGVs and LGVs and secondly, to understand what specific factors underpin those behavioural responses and how sensitive the GM CAP is to those factors.
- 7.2 The analysis shows that a relative change of 10% in the proportion of either HGVs or LGVs upgrading is sufficient to delay compliance by one year, all other things being equal.
- 7.3 The analysis set out in Table 7-2 considers what changes would be required to assumptions underpinning the modelling of behavioural responses for this change to be realised. Where it states that behavioural responses are sensitive to a factor, that means that changes in that factor could lead to a reduced upgrade response, and therefore to increases in emissions and concentrations.

Table 7-1 Sensitivity test results: (D) Freight- behavioural responses (excerpt from the Sensitivity Testing Report)

Test no.	Test	Narrative	Change in max concentration in 2023	Change in no. of exceedances in 2023	Forecast Compliance Year	Impact
15	Freight stay and pay 'breakpoint analysis'	The purpose of this test was to identify how much change would be required to upgrade assumptions (i.e.: the proportion choosing to upgrade vs stay and pay) in order to delay compliance by one year. The test found that an increase of 10% in the proportion of HGVs or LGVs choosing to upgrade was sufficient to delay compliance to 2025.	+0.3	+2	2025	Risk of delay to year of compliance.

Table 7-2 Sensitivity test results: (D) Freight - parameters affecting behavioural responses (excerpt from the Sensitivity Testing Report)

Test no.	Test	Narrative as at summer 2021	Sensitivity
16	Cost of charge	<p>This parameter is tested not to reflect changes to the CAZ charge itself, but rather how much business owners are able to pass on the charge to their customers and thus reduce the impact of the CAZ charge on their business. This is relevant because if they are not bearing the cost of the charge, it is less likely to represent good value for money for them to upgrade their vehicle.</p> <p>Behavioural responses would be substantively affected if LGVs could pass on between £1.50-£2 of the daily charge, or if HGVs could pass on £30 of the daily charge. Because this represents a lower cost and proportion of the charge, this is considered a greater risk for LGV than HGV.</p>	Behavioural responses are sensitive to this factor
17	Vehicle pricing	<p>This refers to the purchase cost of upgrading to a compliant vehicle. There are several reasons this value could be impacted, such as reduced production of new vehicles due to supply shortages or a sudden increase in demand, as well as the possible risk of market distortion as a result of the GM CAZ and other similar schemes.</p> <p>An increase of 8% in LGV prices could be sufficient to substantively affect behavioural responses, whilst an increase of over 50% would be required to achieve the same effect for HGVs. The evidence shows that LGV prices do fluctuate and given that a relatively small change in prices could be sufficient to delay the year of compliance, GM considers LGV vehicle prices to be a higher risk source of uncertainty in the performance of the Plan than HGV prices, given HGV prices have remained more stable and it seems unlikely that a price change of this scale would be borne by the market.</p>	Behavioural responses are sensitive to this factor, particularly for LGVs

- 7.4 The LGV Cost Response Model is more sensitive to changes in the parameters than the HGV Cost Response Model.
- 7.5 For HGVs, very substantial changes would be required to most parameters in order to realise a sufficient decrease in upgrades to delay the year of compliance, and the model was not found to be sensitive to assumptions around depreciation costs for HGVs. On balance, this scale of change was not considered likely, although all elements to continue to be monitored and kept under review.
- 7.6 In contrast, the LGV Cost Response Model is sensitive to changes in the parameters, with the model showing that a delayed year of compliance is possible at relatively low proportional changes. The model shows particular sensitivity to changes in vehicle pricing and CAZ charging impacts (representing the ability of non-compliant vehicle owners to pass on some or all of the cost of the charge to customers), and to a lesser extent to assumptions around trip frequency.

Recent Analysis of Van Markets

- 7.7 GM-commissioned a review of the LGVs supply chain, which can be used in the light of the breakpoint analysis to determine whether the sensitivity test criteria is likely to have been exceeded. The full report is available in Appendix A, with a summary of the key conclusions below.
- 7.8 Pre-pandemic, there was significant growth in van mileage and van stock over a number of years and the expectation was that both growth trends would continue.
- 7.9 However, whilst the early phases of the pandemic and subsequent lockdowns and constraints in 2020 constrained demand, it appears that this effect was temporary and has been offset by growth in demand from some van-owning sectors.
- 7.10 The pandemic had a major impact on the number of new vans sold in the UK, initially due to the halting of production lines and local lockdowns around the world. Whilst new van sales recovered to some extent, they are still not back to 2019 levels and so there is a substantial 'lost supply' that has not been recovered equating to 80,000 vehicles on a conservative assumption that 2019 levels had been maintained.
- 7.11 The industry is reporting significant supply issues with extended lead times for new orders. It is also anticipated that the introduction of clean air zones at particular locations in the UK will introduce some regional disparity in terms of the availability of certain vehicles and place additional demand pressure on the market in general.

- 7.12 Whilst reliable data on the variation in the price of new vans is not readily available, there is substantial evidence of significant price increases in the second-hand van market. The scale of those rises has a high degree of variability depending on the particular vehicle. The extent of the reported rise varies between 13% and almost 60%.
- 7.13 Overall, the evidence suggests that demand for new and second-hand vans remains strong, and therefore that the loss of supply caused by lockdowns in 2020 and more recently by the semi-conductor shortage is leading to price rises in the new and second-hand markets, and to long lead times for new vehicle orders.

Impact on the CAP Modelling Predictions

- 7.14 Modelling carried out to support the decision to approve the GM CAP, supplied in June 2021, demonstrated that the Plan was forecast to achieve compliance with legal limits of NO₂ concentrations by 2024, based on the proposals set out in the Policy and the assumptions made at that time in terms of the age of the fleet and the cost of upgrade amongst other factors.
- 7.15 Sensitivity testing carried out in 2021 suggested that whilst HGV behavioural responses are relatively insensitive to vehicle price increases, for vans an increase of 8% in the price of vehicles (compared to the price as assumed in the modelling) could be sufficient to delay compliance by one year, all other things being equal.
- 7.16 The evidence suggests that currently price rises well in excess of 8% are being experienced in the van market. Therefore, given the reported constraints to new van supply into 2023 and the knock-on effect to the used van market it is anticipated that price rises would be sufficiently sustained into 2023. Assuming prices rises remain above the test threshold, and all other things being equal, it is not likely that compliance in GM would be achieved in 2024
- 7.17 This is because as van prices rise, more van owners are expected to stay-and-pay rather than upgrade their vehicle, and the emissions reductions would then be less than previously forecast. Therefore, more van owners would incur the charge, imposing costs on GM's businesses and their customers but without the associated air quality benefits. This is the opposite of what a CAZ aims to deliver.

8 Consideration of Locations at Risk of Exceedance in 2024

- 8.1 Both the assumptions associated with private car fleet age due to lower new car sales, and increases to the price of used vans, would be expected to increase the predicted NO₂ concentrations. These effects will act additively in the Approved GM CAP scenario modelling, such that roads where compliance with the limit value in 2024 was marginal would now be expected to exceed until 2025 with the CAP in place.

- 8.2 The Approved GM CAP modelling and the sensitivity tests prepared for the FBC have been reviewed, to consider those sections of road most at risk of exceedance beyond 2024. The most relevant test scenario to provide insight is the Older Fleet Age sensitivity test. This scenario increased the fleet age of private cars and vans to one year older beyond pre-Covid-19 levels, with an additional year added for HGVs and taxis. Whilst this doesn't incorporate the poorer upgrade response for vans, this is still likely to be slightly pessimistic overall, on the balance of the differing factors under review.
- 8.3 The test results have been considered using the factors below, to gain an insight on the level of likelihood of delayed compliance. These factors are:
- Predicted concentration in 2024
 - Proportion of NOx emissions contribution from private cars
 - Proportion of NOx emissions contribution from vans
- 8.4 Under this sensitivity test scenario there were four points at three locations that were predicted to still exceed in 2024, with their associated risk level:
- A57 Regent Road, Salford - (High Risk)
 - A34 John Dalton Street, Manchester - (Medium Risk)
 - A58 Bolton Road, Bury (2 points) - (High Risk)
- 8.5 Model scenarios are only available for 2023 and 2025, with the 2024 concentration interpolated. Table 9 from AQ3 has been amended below to provide the 2024 sensitivity test concentration, in addition to the Approved GM CAP 2023 data as would be reported with the current (June 2021) model assumptions.

Table 8-1: Predicted annual mean NO₂ concentrations and source apportionment at key compliance points on the Greater Manchester road network – Approved GM CAP 2023 (excerpt from AQ3 with Older Fleet Age Sensitivity Test Results – interpolated for 2024)

Point ID	Census ID	Road name	Local Authority	Annual mean NO ₂ conc (µg/m ³) CAP 2023	Background NOx conc (µg/m ³)	Background NO ₂ conc (µg/m ³)	Road NOx contrib (µg/m ³)	Road NO ₂ contrib (µg/m ³)	AADT	NOx contribution by vehicle type (%)					Change in Annual mean NO ₂ conc (µg/m ³) (CAP-Do Min)	Older Fleet 2024 Sensitivity Test: Annual mean NO ₂ conc (µg/m ³)
										Bus	Taxi	HGV	LGV	Car		
2799_3118_DW	58048	A673	Bolton	36.8	26.0	18.1	40.4	18.7	27,735	0%	6%	25%	24%	45%	-3.9	36.6
2650_2653_DW	7431	A666	Bolton	36.9	24.8	17.3	39.7	19.5	69,341	0%	6%	3%	39%	51%	-3.2	36.7
2237_3790_DW	38354	A58	Bury	42.3	21.4	15.2	60.7	27.1	79,421	7%	6%	15%	23%	47%	-5.6	42.1
3424_4940_DW	17924	A56	Bury	39.1	17.0	12.4	57.9	26.8	19,893	3%	6%	22%	22%	47%	-6.6	39.6
3056_3842_DW	26157	A6	Manchester	39.0	32.2	21.6	36.9	17.4	38,555	6%	8%	4%	27%	55%	-6.5	38.5
1268_1269	27974	A34	Manchester	41.3	35.6	23.4	51.5	17.9	9,285	63%	3%	3%	9%	22%	-7.8	40.8
1268_46301	7947	A34	Manchester	40.8	35.6	23.4	52.0	17.3	8,483	65%	2%	10%	9%	14%	-6.4	40.3
14523_14524	36632	A62	Oldham	36.3	24.5	17.1	39.5	19.2	24,917	0%	7%	9%	25%	58%	-3.3	35.3
2210_14216_DW	17322	A664	Rochdale	39.5	17.9	13.0	61.2	26.5	34,409	0%	5%	36%	25%	35%	-5.0	39.8
1349_2993_DW	73792	A57	Salford	41.7	24.7	17.2	52.5	24.5	57,324	0%	7%	11%	29%	52%	-5.0	42.5
1216_14503_DW	17926	A6	Salford	39.1	25.2	17.6	51.0	21.5	31,568	33%	5%	14%	16%	32%	-7.2	38.8
3973_14181_DW	58034	A5145	Stockport	38.4	20.9	14.9	50.7	23.5	26,274	10%	6%	17%	25%	43%	-4.4	38.4
2887_2430_DW	26352	A34	Stockport	38.6	19.0	13.8	51.3	24.9	40,144	0%	7%	7%	25%	61%	-3.4	38.7
3812_14478_DW	99618	A635	Tameside	38.4	25.5	17.7	44.2	20.7	41,231	4%	6%	15%	30%	45%	-4.6	38.5
7606_17100_DW	N/A	B5214	Trafford	33.6	19.6	14.1	43.1	19.4	28,949	22%	6%	15%	14%	43%	-7.5	33.8
3492_3511_DW	8566	A577	Wigan	32.5	29.1	19.7	26.3	12.8	22,366	2%	7%	13%	26%	52%	-3.3	32.5

Note: The IAQ definition of compliance is >40.4 µg/m³.

9 Other Sensitivity Tests

- 9.1 The FBC sensitivity tests covered a wide range of factors and assumptions, affecting underlying issues that would impact on the Do Minimum position, and then those which might alter the behavioural responses and performance of the CAP.
- 9.2 Whilst some factors could worsen air quality, such as older vehicle fleets or high traffic growth, emerging evidence may be available to confirm trends that could act to reduce car or bus traffic for example. These factors include:
- Increased working from home;
 - Lower than forecast traffic growth, as result of poor economic performance or changes in patterns of activity;
 - Higher than forecast fuel prices; and
 - Lower than forecast bus mileage as a result of falling passenger demand.
- 9.3 GM would seek to review aspects of the sensitivity testing where new information is available, and the FBC testing indicated further analysis is warranted.

10 Conclusions

- 10.1 As part of the CAP, and in preparation for the implementation of the Performance Management Plan, GM has continued to monitor vehicle sales and forecast information, and a range of wider assumptions and metrics that supported the development of the Plan.
- 10.2 This process has now identified two factors where emerging evidence suggests the divergence from expected trends is beyond the thresholds identified in the sensitivity testing as putting compliance by 2024 at risk. Independently either factor could be sufficient to delay compliance beyond 2024. This risk is amplified if both factors are occurring simultaneously.
- 10.3 Firstly, evidence suggests that the used van market has materially changed since the modelling was undertaken, with evidence suggesting that second-hand van prices have increased by between 13% and c.60% since the modelling was undertaken. If van prices have increased, this makes it less likely that van owners will choose to (or be able to) upgrade in response to the CAZ and devalues the funding offer for vans. If fewer vans than forecast upgrade to a cleaner vehicle, emissions reductions will be lower and compliance in 2024 becomes less likely.

- 10.4 Sensitivity testing shows a delayed year of compliance is possible at relatively low proportional changes in LGV upgrade responses to the CAZ charges and associated financial support packages. In particular, an increase of 8% in van prices (all other things being equal) – compared to those assumed in the modelling - could be sufficient to affect behavioural responses such that compliance is delayed by a year.
- 10.5 Therefore, the Plan is very sensitive to LGV prices and to whether businesses can afford to upgrade to a compliant van. Given the evidence supplied on price increases by the research on the van sector, suggesting price rises which clearly exceed the 8% threshold, this aspect in the modelled test increases the risk that the Plan will fail to deliver compliance in 2024.
- 10.6 Secondly, sales of new private cars have been lower than expected in 2021, reducing the natural rate of fleet upgrade. The approach taken by GM to representing local fleet age, which already builds in assumptions around the adverse impacts of Covid-19, plus the suite of sensitivity tests already produced, has provided insight on the scale of potential impacts based on revisions to vehicle sales and fleet on the predicted year of compliance. This indicates that the impacts of an older fleet of private cars based on recorded sales (in the absence of a corresponding modelled test), would be expected to lead to a delay in the predicted year of compliance for the Approved GM CAP, irrespective of any other changes to the assumptions (i.e. used van prices).
- 10.7 On balance, the latest emerging evidence suggests that with the Approved Plan in place, it is no longer more likely than not that compliance would be achieved in 2024.

Appendix A – Technical Note: Current Issues in the Van Sector

As previously supplied

Appendix B – Sensitivity Testing at FBC Report

Previously supplied

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