Report to CABINET

Greater Manchester's Clean Air Plan – Tackling Nitrogen Dioxide Exceedances at the Roadside – Update

Portfolio Holder: Cllr A Ur-Rehman, Cabinet Member for Neighbourhood Services

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Reason for Decision

To set out the progress that has been made following the Government's response to Greater Manchester's Outline Business Case to tackle Nitrogen Dioxide Exceedances at the Roadside (OBC), and the implications for the 10 Greater Manchester (GM) local authorities in relation to the schedule of work and statutory consultation on the Clean Air Plan.

Executive Summary

In March 2018 the Secretary of State issued a Direction under the Environment Act 1995 requiring Oldham Council to produce a feasibility study to identify the option which will deliver compliance with the requirement to meet legal limits for nitrogen dioxide in the shortest possible time. The Council complied with this Direction by the production of a feasibility study submitted to the government's Joint Air Quality Unit (JAQU) in July 2018. The Council is also required to address the exceedances that have been identified within its boundary during the Target Determination exercise and the Council confirmed in its supplemental plan that the exceedance identified in Oldham was being addressed as part of the Greater Manchester plan. This has been acknowledged by government.

Oldham Council has therefore been developing the study collectively with the other 9 Greater Manchester local authorities and the GMCA, coordinated by TfGM in line with Government direction and guidance and an Outline Business Case (OBC) was duly submitted in April 2019.

The key features of Greater Manchester's feasibility study and its Outline Business Case (OBC) to reduce nitrogen dioxide exceedances in Oldham and across Greater Manchester in the shortest possible time were approved on 25 March 2019 at the Council's Cabinet meeting for submission to the government's Joint Air Quality Unit (JAQU).

Recommendations

a) note progress made to date;

b) note the ministerial direction under the Environment Act 1995 (Greater Manchester) Air Quality Direction 2019 which requires all ten of the Greater Manchester local authorities to implement a charging Clean Air Zone Class C across the region;

c) agree the need to continue to proceed towards developing the implementation and contract arrangements of a charging Clean Air Zone in Greater Manchester utilising the initial tranche of £36m of funding as required by the ministerial direction / feedback;

d) delegate authority to Deputy Chief Executive, Helen Lockwood in consultation with the Cabinet Member for Neighbourhood Services, to determine the preparatory implementation and contract arrangements that need to be undertaken utilising the initial tranche of £36m of funding to deliver the CAZ and other GM CAP measures, as set out at paragraph 4.11;

e) note that the report to determine the timings for commencing the consultation will be received in the Spring of 2020;

f) note the outstanding need to secure a clear response from the Government on clean vehicles funding asks;

g) note that Highways England have not been directed to act in relation to tackling NO_2 exceedances in the same way as the Greater Manchester local authorities, and that this will leave some publicly accessible areas of GM adjacent to trunk roads managed by Highways England, with NO_2 exceedances that are not being addressed by the Highways England plan;

h) delegate authority to Deputy Chief Executive, Helen Lockwood in consultation with the Cabinet Member for Neighbourhood Services, to agree the final content and submission of the documents listed in Appendix One for formal submission to JAQU and note their publication status;

i) delegate authority to Deputy Chief Executive, Helen Lockwood in consultation with the Cabinet Member for Neighbourhood Services, to determine any further technical reports for formal submission to JAQU; and

j) note that the Cabinet Member for Neighbourhood Services will co-sign a letter from the GM Authorities to the Transport Secretary asking them to bring forward the launch of a statutory consultation to strengthen rules on vehicle idling.

Greater Manchester's Clean Air Plan – Tackling Nitrogen Dioxide Exceedances at the Roadside – Update

1 Purpose of the Report

1.1 To set out the progress that has been made following the Government's response to Greater Manchester's Outline Business Case to tackle Nitrogen Dioxide Exceedances at the Roadside (OBC), and the implications for the 10 Greater Manchester (GM) local authorities in relation to the schedule of work and statutory consultation on the Clean Air Plan.

2 Background

2.1 To set out the progress that has been made following the Government's response to Greater Manchester's Outline Business Case to tackle Nitrogen Dioxide Exceedances at the Roadside (OBC), and the implications for the 10 Greater Manchester (GM) local authorities in relation to the schedule of work and statutory consultation on the Clean Air Plan.

2.2 In March 2018 the Secretary of State issued a Direction under the Environment Act 1995 requiring Oldham Council to produce a feasibility study to identify the option which will deliver compliance with the requirement to meet legal limits for nitrogen dioxide in the shortest possible time. Oldham Council complied with this Direction by the production of a feasibility study submitted to the government's Joint Air Quality Unit (JAQU) in July 2018. Oldham Council is also required to address the exceedances that have been identified within its boundary during the Target Determination exercise. Oldham Council confirmed in its supplemental plan that the exceedance identified in Oldham was being addressed as part of the Greater Manchester plan. This has been acknowledged by government.

2.3 Oldham Council has therefore been developing the study collectively with the other 9 Greater Manchester local authorities and the GMCA, and coordinated by TfGM in line with Government direction and guidance and an Outline Business Case (OBC) was duly submitted in April 2019.

2.4 The key features of Greater Manchester's feasibility study and its Outline Business Case (OBC) to reduce nitrogen dioxide exceedances in Oldham and across Greater Manchester in the shortest possible time were approved on 25 March 2019 at the Council's Cabinet meeting for submission to the government's Joint Air Quality Unit (JAQU).

3.0 Introduction

3.1 Government has instructed many local authorities across the UK to take quick action to reduce harmful Nitrogen Dioxide (NO_2) levels following the Secretary of State issuing a direction under the Environment Act 1995 to undertake feasibility studies to identify measures for reducing NO_2 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), hereinafter collectively referred to as "Greater Manchester" or "GM", are working together to develop a Clean Air Plan to tackle NO_2 Exceedances at the Roadside, hereinafter referred to as GM CAP.

3.2 In its Outline Business Case (OBC) Greater Manchester proposed the following package of measures that delivers compliance in the shortest possible time, at the lowest cost, least risk and with the least negative impacts. They are:

- A charging Clean Air Zone (CAZ) which will target the most polluting commercial vehicles including older heavy goods vehicles, buses, coaches, taxis and private hire vehicles from the summer of 2021, and older polluting light goods vehicles from 2023 (i.e. a CAZ C with a van exemption until 2023). It has been assumed at OBC stage that the Clean Air Zone Charge would be £7.50 per day for taxis, private hire vehicles and light goods vehicles and £100 per day for heavy goods vehicles, buses and coaches.
- A Clean Freight Fund of c.£59m to provide financial support for the upgrade of light and heavy goods vehicles, minibuses and coaches, which will be targeted to support small local businesses, sole traders and the voluntary sector, registered in Greater Manchester.
- A Clean Taxi Fund of c.£28m, to support the upgrade of non-compliant Greater Manchester Licensed taxi and private hire vehicles.
- A Clean Bus Fund of c.£30m to provide, where possible, the retrofit of older engine standards to the less polluting Euro VI standard for those buses registered to run services across Greater Manchester.
- A package of supporting measures including a proposed Loan Finance scheme, sustainable journeys projects, additional EV charging infrastructure.

3.3 The OBC 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 with local authorities;
- Replacement of non-compliant buses; and
- A clear instruction to Highways England with regard to air pollution from the Strategic Road Network (SRN) in Greater Manchester.

3.4 The OBC outlining these proposals and the supporting evidence was submitted to Government at the end of March 2019. Ministerial feedback was received in July 2019 along with a further direction under the Environment Act 1995 which requires all ten of the Greater Manchester local authorities to take steps to implement a plan to deliver compliance with the requirement to meet legal limits for nitrogen dioxide in the shortest possible time.

3.5 The 2019 Ministerial Direction and accompanying letter proposed some key amendments to GM's OBC proposals, including the implementation of a charging Clean Air Zone Class C *without* a van exemption until 2023, with additional measures; and for local authorities to jointly submit to JAQU revised evidence by 2 August and a Full Business Case (FBC) by 31 December 2019 at the latest.

3.6 The Ministerial letter set out that the GM plan looks to be on track to deliver compliance in the shortest possible time and that on the evidence provided to date Greater Manchester authorities should continue to proceed towards developing the implementation and contract arrangements of a charging Clean Air Zone in Greater Manchester and that the Government would provide an initial tranche of £36m of funding to take this forward.

3.7 Full detail of the government's response was set out in the GMCA – Clean Air Update report on 26 July 2019.

4 Progress Since Last Update

4.1 Following the ministerial feedback and 2019 Ministerial Direction, the GM Authorities sought clarification on the 2019 Ministerial Direction and the accompanying ministerial letter, questioned the government's lack of assurances around financial support for the broader GM CAP, outlined GM's approach to the requests for further options analysis, and detailed the issues GM faces in preparing to implement the scheme in terms of the timetable for FBC and statutory consultation.

4.2 The ministerial letter requested from GM further options appraisal information (including transport and air quality modelling as well as due regard to economic, financial and deliverability considerations) to be submitted prior to public consultation, and by 2nd August 2019.

4.3 In the interests of the ongoing working relationship between the 10 GM Authorities and the government's Joint Air Quality Unit (JAQU) in developing the GM CAP, a total of 29 draft technical reports and notes have been issued to JAQU in draft form and are subject to approval as set out in Appendix One. These provide the specific information JAQU has requested about behavioural assumptions and sensitivity testing.

4.4 GM has also requested clarification of the 2019 direction, JAQU guidance and GM's legal obligations relating to the options appraisal process, and whether this impacts on the GM authorities' options appraisal work to date or the additional work required by the letter accompanying the 2019 Ministerial Direction.

4.5 In addition, GM set out that the delay of over two months in receiving Ministerial feedback on the OBC, compounded by the request for GM to submit further options appraisal information, has had a material impact on the timetable for the GM CAP.

4.6 The delay arising from the ministerial feedback and lack of clarity on the direction, JAQU guidance and GM's legal obligations relating to the options appraisal process means that consultation will now need to take place later than originally planned. Consultation must comply with the relevant public law principles which may be summarised as:

- consulting at a time when proposals are still formative;
- giving sufficient reasons for the proposals to allow intelligent consideration and response by consultees;
- giving adequate for consultees to respond; and
- ensuring that the responses to the consultation are conscientiously taken into consideration in finalising proposals.

4.7 In planning for a Statutory Consultation Officers have had to have regard to these principles. Given the continuing dialogue with Ministers to secure a clear response from government on our clean vehicles funding asks and lack of clarity on the 2019 Ministerial Direction, JAQU guidance and GM's legal obligations relating to the options appraisal process, Officers cannot at this time advise the GM Authorities to commence the Statutory Consultation.

4.8 In the absence of a Statutory Consultation GM Authorities will not be able to submit an FBC by the end of the year and therefore that aspect of the Ministerial Direction will not be fulfilled. Officers remain in dialogue with JAQU and have written to clarify GM's position in relation to our schedule of work. GM has been clear that improving air quality is a priority and to that aim we have set out how we have been progressing this work.

4.9 Despite this delay to undertaking a Statutory Consultation, in view of the 2019 Ministerial Direction GM must continue to proceed towards developing the implementation and contract arrangements of a charging Clean Air Zone in Greater Manchester utilising the initial tranche of £36m of funding.

4.10 GM Authority decision makers will receive a report next year to determine the timings for commencement of the consultation. The report will:

- Detail the outputs from the Public Conversation and deliberative research;
- Set out the outline of the proposals and what they mean for GM, including:
  - the basic key elements of the Clean Air Zone including the intended boundary and times of operation, proposed discounts/exemptions, vehicles affected and daily charges]
  - the supporting measures [the detail of proposals of the funds and vehicle finance scheme, sustainable journeys]

- An Equalities Impact Assessment that considers the draft proposals at a GM level.

4.11 In the interim, given the scale and challenging timeline to deliver a charging Clean Air Zone as required by the 2019 Ministerial Direction, there is preparatory work that needs to be undertaken. This is in order to maintain delivery momentum in line with the funding arrangements agreed with JAQU, for example in relation to automatic number plate recognition (ANPR) cameras, back office systems and service providers. Therefore, a delegation is sought to give Deputy Chief Executive, Helen Lockwood in consultation with the Portfolio Holder the necessary authority to determine the preparatory implementation and contract arrangements, utilising the initial tranche of £36m of funding that may need to be undertaken to deliver a Clean Air Zone and other GM CAP measures, ahead of the report that will determine progressing the statutory consultation.

4.12 The commencement of a charging Clean Air Zone scheme and the other measures are subject to both consultation as set out at 4.10 and to the GM authorities receiving the required government funding to enable them to meet the legal limits for nitrogen dioxide concentrations.

5.0 **Government Asks**

5.1 In addition to the response on the specific clean air proposals, additional asks were made of Government, as set out at 3.3

5.2 These include an ask for Government to direct Highways England to tackle NO_2 exceedances on the Strategic Road Network (SRN) in the same way that local authorities that have been directed to undertake a feasibility study are having to take action on the local road network. The ministerial feedback outlined that Highways England are working up plans for exceedances identified by national modelling on their network, and that this is not expected to include charging on the SRN but will instead focus on a range of measures such as traffic management, speed limits and barriers.

5.3 Officers have been advised that the measures proposed by Highways England in Greater Manchester focus on introducing 60mph speed limits on parts of the SRN. It highlights the concern that Highways England have not been directed to act in relation to tackling NO_2 exceedances in the same way as local authorities, and that this will leave some publicly accessible areas of GM adjacent to trunk roads managed by Highways England, with NO_2 exceedances that are not being addressed by the Highways England plan.

6 Vehicle Idling

6.1 The Clean Air conversation in Spring 2019 highlighted that many people are concerned about vehicle idling, prompting questions about what GM can do to crack down on people who leave their engines idling.

6.2 In the UK, it is illegal under the Road Vehicles (Construction and Use) Regulations 1986 to leave a vehicle's engine running unnecessarily while that vehicle is stationary on a public road. Doing this can incur a £20 fixed-penalty fine under the Road Traffic (Vehicle Emissions) Regulations 2002.

6.3 This is only imposed if the driver fails to turn off their engine when asked to do so. Enforcement of this legislation, either through a Fixed Penalty Notice (FPN) or via the magistrates' court sits with local authorities.

6.4 As the enforcing officer must give the driver the opportunity to switch off the engine first and the penalty for idling is relatively small (£20), Greater Manchester Local Authorities do not consider the Regulation to be an effective deterrent.

6.5 In addition, government has recently announced proposals to consult on toughen up rules on vehicle idling and increase fines for drivers who leave their engine running while parked.

6.6 Given the limited enforcement deterrent the GM Authorities are planning undertake more awareness raising campaigns to inform of the health impacts that idling has on air quality.

6.7 In parallel, GM Authorities write to the Transport Secretary asking them to bring forward the launch of the public consultation on this issue.

7 Next Steps

7.1 Officers will:

- Continue to work with JAQU to clarify the 2019 Ministerial Direction, JAQU guidance and GM's legal obligations relating to the options appraisal process, and the implications of that to our schedule of work and the timings for consultation on the Plan;
- Continue dialogue with JAQU to secure a clear response from government on our clean vehicles funding asks; and
- Continue stakeholder engagement and awareness raising with both groups in scope of the Clean Air Zone and the general public.

8 Recommendations

k) note progress made to date;

l) note the ministerial direction under the Environment Act 1995 (Greater Manchester) Air Quality Direction 2019 which requires all ten of the Greater Manchester local authorities to implement a charging Clean Air Zone Class C across the region;

m) agree the need to continue to proceed towards developing the implementation and contract arrangements of a charging Clean Air Zone in Greater Manchester utilising the initial tranche of £36m of funding as required by the ministerial direction / feedback;

n) delegate authority to Deputy Chief Executive, Helen Lockwood in consultation with the Cabinet Member for Neighbourhood Services to determine the preparatory implementation and contract arrangements that need to be undertaken utilising the initial tranche of £36m of funding to deliver the CAZ and other GM CAP measures, as set out at paragraph 4.11;

o) note that the report to determine the timings for commencing the consultation will be received in the Spring of 2020;

p) note the outstanding need to secure a clear response from the Government on clean vehicles funding asks;

q) note that Highways England have not been directed to act in relation to tackling NO_2 exceedances in the same way as the Greater Manchester local authorities, and that this will leave some publicly accessible areas of GM adjacent to trunk roads managed by Highways England, with NO_2 exceedances that are not being addressed by the Highways England plan;

r) delegate authority to Deputy Chief Executive, Helen Lockwood in consultation with the Cabinet Member for Neighbourhood Services to agree the final content and submission of the documents listed in Appendix One for formal submission to JAQU and note their Publication status;

s) delegate authority to Deputy Chief Executive, Helen Lockwood in consultation with the Cabinet Member for Neighbourhood Services to determine any further technical reports for formal submission to JAQU; and

t) note that the Cabinet Member for Neighbourhood Services will co-sign a letter from the GM Authorities to the Transport Secretary asking them to bring forward the launch of a statutory consultation to strengthen rules on vehicle idling.

9 Options/Alternatives

9.1 Agree to the recommendations as outlined in the report

9.2 Not to agree the recommendations

10 Preferred Option

10.1 The preferred option is to note the report update and agree the approach as outlined to enable compliance with air quality limits within the earliest possible time.

11 Financial Implications

11.1 It is currently anticipated that the implementation, contract arrangements and administration of the Clean Air Plan/Zone will be undertaken by the Greater Manchester Combined Authority and will be funded via government grant and fines income. As such there are no direct financial implications for the Council at this stage. However, the Council will need to review the implications of Clear Air Zone charges on both its directly operated fleet and any commissioned services that rely on vehicles subject to the proposed charges.

(James Postle)

12 **Legal Services Comments**

12.1 Legal matters are addressed in the body of the report. The approach and preferred option suggested are consistent with that of The Council's partner Authorities as outlined in the report. (Colin Brittain)

13 **Co-operative Agenda**

13.1 This work will require close working with businesses and general road users to modify behaviors which improve air quality across the region.

14 **IT Implications**

14.1 None

15 **Property Implications**

15.1 None

16 **Procurement Implications**

16.1 None

17 **Environmental and Health & Safety Implications**

17.1 There are proven health risks attached to poor air quality therefore this work is aimed at improving health impact for all.

18 **Equality, community cohesion and crime implications**

18.1 A full Equality Impact Assessment will be undertaken as part of the overall submission of a final business case.

19 **Equality Impact Assessment Completed?**

19.1 In progress

20 **Key Decision**

20.1 Yes

21 Key Decision Reference

21.1 NEI-19-19

22 Background Papers

22.1 The reports in Appendix 1, save for those marked with an asterisk, will be published once they have been approved. Upon publication, copies of these reports will be available at: www.CleanAirGM.com.

22.2 Those reports marked with a single asterisk (*) are unfinished documents and will remain unpublished until the beginning of the consultation.

22.3 As such, it is considered that the reports referred to above fall within the exception under regulation 12(4)(d) EIR and that, in all the circumstances of the case, the public interest in maintaining the exception outweighs the public interest in disclosing the information. Subject to the comments at 9.10 in relation to report number 11, all the reports referred to above will be made public shortly and in any event prior to public consultation so there will be an appropriate opportunity for public scrutiny of them. It is not considered that the public interest would be served by disclosing at this stage drafts which are incomplete.

22.4 In addition, reports numbers 4 and 11, marked with a double asterisk (**) contains commercial or industrial information in respect of which confidentiality is provided by law to protect a legitimate economic interest, and disclosure would adversely affect that confidentiality. As such, it is considered these reports fall within the exception under regulation 12(5)(e) EIR and that, in all the circumstances of the case, the public interest in maintaining the exception outweighs the public interest in disclosing the information.

23 Appendices

Appendix One - Summarises the purpose and contents of the additional supplementary technical Evidence Notes that are required to be formally submitted to JAQU to accompany the OBC and in response to the Minister's feedback.

Appendix One

23.1 This appendix summarises the purpose and contents of the additional supplementary technical Evidence Notes that are required to be formally submitted to JAQU to accompany the OBC and in response to the Minister's feedback.

23.2 Pursuant to the Ministerial Direction, and in discussions with the government's Joint Air Quality Unit (JAQU) GM has updated analysis that addresses issues raised around the behavioural assumptions used and provided assurance that the proposed Clean Air Zone will deliver compliance in the shortest possible time, and that compliance cannot be achieved earlier than 2024, such analysis includes:

- exploring whether measures targeted at the last remaining exceedance locations following implementation of a CAZ in 2021 would achieve compliance quicker;
- updating the behavioural assumptions used to model the impact of a CAZ, following the Technical Independent Review Panel's suggestions;
- providing further sensitivity testing on vehicle upgrade assumptions; and
- demonstrating that a Greater Manchester CAZ D cannot bring forward compliance, including outlining the delivery challenges discussed for a GM wide CAZ D.

23.3 In response 29 Evidence Notes, have been produced, namely:

1. GM CAP Data, Evidence and Modelling: post-OBC approach

2. GM CAP: Next steps for data collection and the development of analytical tools

3. GM CAP: Analysis of the freight market

4. GM CAP: Analysis of the coach market **

5. GM CAP: ANPR Surveys: Summary of Initial Findings

6. GM CAP: Behavioural response assumptions and available data sources*

7. GM CAP: LGV and HGV Operational Cost Models*

8. GM CAP: HGV Behavioural Responses Note*

9. GM CAP: LGV Behavioural Responses Note*

10. GM CAP: Taxi Behavioural Responses Note*

11. GM CAP: Analysis of Bus Upgrade Options to Deliver Air Quality Compliance**

12. GM CAP: Evidence of the impact of 2021 implementation of a CAZ C (without exemptions)

13. GM CAP Study: Traffic Impact on Neighbouring Authorities

14. GM CAP: Local exceedances: Update*

15. GM CAP: Implications of the EFT update for GM

16. GM CAP: Sensitivity testing of a CAZ C in 2023 with revised behavioural response assumptions.*

17. GM CAP: Evidence supporting the decision not to progress with a GM-wide CAZ D.*

18. GM CAP: Minibus Vehicle Research

19. GM CAP: Taxi and Private Hire Vehicle Fleet Research

20. GM CAP: Greater Manchester Specialised Goods Surveys: Results Summary

21. GM CAP: Sensitivity test: Full Electric Bus Fleet

22. GM CAP: Addendum to Note 3: GM Comparative Statistics

23. GM CAP: Summary update of ongoing work on local exceedances*

24. GM CAP: Updates to the Modelling Tools post-OBC Submission for the Do Minimum scenario

25. GM CAP: Modelling the impacts of Sustainable Journeys Measures*

26. GM CAP: Analysis of Funds*

27. GM CAP: Demand Sifting Tool Operating Manual*

28. GM CAP: Taxi and Private Hire Vehicle Operational Cost Model*

29. GM CAP: Option for Consultation Modelling Summary*

23.4 In the interests of the ongoing working relationship between the 10 GM authorities and JAQU in developing the GM CAP, all of the above reports have been issued to JAQU in draft form, and are now subject to approval.

23.5 The evidence base that will underpin the Full Business Case (FBC) is still being developed. Evidence was supplied to JAQU where it was possible to do so, with the recognition that the Notes represented a work-in-progress and that more work is required to properly understand the implications of the analysis from a policy, delivery, legal and analytical assurance perspective.

23.6 Contents of the supplementary Evidence Notes:

- **'Note 1: GM CAP Data, Evidence and Modelling: post-OBC approach'** sets out the process being undertaken to deliver the Data, Evidence and Modelling requirements in support of the FBC. It also describes the evidence to be supplied to JAQU and how this responds to the feedback received from JAQU and the Technical and Delivery Independent Review Panels (the T-IRP and D-IRP).

- **'Note 2: GM CAP: Next steps for data collection and the development of analytical tools'** provides information about further data collection and the development of tools planned as next steps, namely behavioural research of van drivers and other groups; the development of further Operational Cost Models for other vehicle types; on-street specialized goods vehicle surveys; and the analysis of evidence emerging from the Conversation and other bodies.

- **'Note 3: Analysis of the freight market'** describes the number of Heavy and Light Goods Vehicles operating in GM, the compliance status of those vehicles, and the business and usage patterns of those vehicles.

- **'Note 4: Analysis of the coach market'** describes the number of coaches operating in GM, the compliance status of those vehicles, and the business and usage patterns of those vehicles. This evidence, and that contained in Note 3, is being used to inform scheme design and to support the development of analytical tools and modelling assumptions.

- **'Note 5: GM CAP ANPR Surveys: Summary of Initial Findings'** sets out the results of an ANPR survey conducted in January 2019 at 42 sites across GM. The survey was designed to provide a representative profile of the vehicle fleet operating in Greater Manchester in terms of vehicle type (including fuel used) and age profile, in order to update the previous data used in the OBC with a more comprehensive and robust dataset. The results show that there are not major differences between observed levels of compliance in the overall GM fleet between the 2016 and 2019 surveys. This data set is now being used widely as part of the ongoing work to refine the proposals as part of the FBC development for the CAP.

- '**Note 6: GM CAP: Behavioural response assumptions and available data sources'** sets out evidence gathered from a number of sources offering an insight into the vehicle markets in question and how they might respond to the range of measures proposed in the GM CAP. These include Stated Preference surveys that have been carried out by other CAP authorities (Sheffield and Bradford) and shared with GM.

- **'Note 7: LGV and HGV Operational Cost Models'** describes a new analytical tool that has been developed in support of the GM CAP allowing the assessment of behavioural responses to a CAZ based on operational costs by vehicle type for HGVs and LGVs. It is proposed that this tool replaces the methodology for assessing behavioural responses as applied in the OBC.

- **'Note 8: GM CAP: HGV Behavioural Responses'** sets out what behavioural response assumptions were applied at OBC for HGVs, the revised behavioural assumptions proposed for future analysis based on the HGV Operational Cost Model, and proposed next steps for analysis.

- **'Note 9: GM CAP: LGV Behavioural Responses'** sets out what behavioural response assumptions were applied at OBC for LGVs, the revised behavioural assumptions proposed for future analysis based on the LGV Operational Cost Model, and proposed next steps for analysis.

- **'Note 10: GM CAP: Taxi Behavioural Responses'** sets out what behavioural response assumptions were applied at OBC for Hackney Cabs and Private Hire Vehicles (PHVs), and consider a possible approach to updating these assumptions based on evidence derived from stated preference surveys carried out in Sheffield. It sets out proposed next steps for analysis, including the development of an Operational Cost Model for Taxis (Hackney Cabs and PHVs).

- **'Note 11: Analysis of Bus Upgrade Options to Deliver Air Quality Compliance'** was produced in response to a request from JAQU for analysis scaling the proportion of bus compliance required to deliver compliance. Practically, this approach is very difficult to test in a way that would represent a real-world operational scenario that could be delivered as part of the CAP. Note 11 therefore presents two approaches to understand the influence of buses on compliance with the Air Quality Directive:

- how many of the GM bus service routes pass the predicted exceedance locations and the number of buses this represents compared with the GM bus operator vehicle fleet.
- how many of the modelled exceedances would remain if the preferred option (Option 8) excluded bus improvements at all (i.e. a CAZ that did not include buses as a type of vehicle to be charged).

- **'Note 12: Evidence of the impact of 2021 implementation of a CAZ C (without exemptions)'** 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. The Note sets out analysis of vulnerability by sector, based on the proportion of the fleet that would be non-compliant in 2021 compared to 2023; analysis exploring the risk of market distortion and the potential impact on small businesses; and analysis of the likely availability (or lack of availability) of second-hand compliant vehicles.

- **'Note 13: GM CAP Study: Traffic Impact on Neighbouring Authorities'** presents the results of highway modelling carried out to assess the likelihood and potential scale of traffic re-routeing to avoid a CAZ.

- **'Note 14: GM CAP Local exceedances Update'** sets out GM's approach to identifying and assessing sites where further measures may be required in order to achieve compliance in the shortest possible time. The Note presents the results of analysis carried out to assess real-world traffic conditions and to compare these to model outputs, and analysis of NOx source apportionment and any local conditions affecting concentrations, such as canyons, including checking how accurate the representation of such conditions is in the model itself. It also sets out an update on work carried out to identify possible local solutions.

- **'Note 15: Implications of the EFT update for GM**' considers the implications of Emission Factor Toolkit (EFT) version 9.1a, released by JAQU at the end of May

2019. GM's methodology for calculating traffic emissions applies emissions factors has been derived from DEFRA's Emission Factor Toolkit (EFT) version 8.0, which was originally released in November 2017. Version 9.1a of the EFT contains fleet figures which have resulted from a recent Department for Transport (DfT) project to develop new passenger car fleet projections in light of emerging evidence regarding changes in consumer purchasing behaviour which show a shift away from diesel cars and towards petrol cars, alongside a slowing in overall new car sales.

- **'Note 16: GM CAP: Sensitivity testing of a CAZ C in 2023 with revised behavioural response'** presents the results of a sensitivity test of the impacts of a CAZ C (without any supporting measures) in 2023, applying revised behavioural responses for HGV, LGV, PHV and Hackney Cab. The bus upgrade was assumed as 100% for the purposes of this test. This test was conducted at the request of JAQU.

- **'Note 17: Evidence supporting the decision not to progress with a GM-wide CAZ D'** sets out the options appraisal process applied at OBC and presents further evidence explaining why it is not considered that a GM-wide CAZ D cannot bring forward compliance.

- **'Note 18: Minibus vehicle research'** describes the number of minibuses operating in GM, the compliance status of those vehicles, and the business and usage patterns of those vehicles.

- **'Note 19: Taxi and Private Hire vehicle fleet research'** describes the number of taxis and PHVs licensed and operating in GM and the compliance status of those vehicles. This evidence, and that contained in Note 18, is being used to inform scheme design and to support the development of analytical tools and modelling assumptions.

- **'Note 20: Greater Manchester Specialised Goods Surveys: Results Summary'** 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.

- **'Note 21: Sensitivity test: Full Electric Bus Fleet'** describes the results of a sensitivity test carried out to understand the impact on compliance of a fully electric bus network across GM. This was carried out as a theoretical test at the request of JAQU.

- **'Note 22: Addendum to Note 3: GM Comparative Statistics'** presents the results of analysis carried out at the request of JAQU to test the reasonableness of GM's assumption that the region was typical of the UK in terms of economic and business activity. It acts as an Addendum to Note 3.

- **'Note 23: Summary update of ongoing work on local exceedances'** provides an updated position on the local exceedances project, acting as a follow-up paper to Note 14 which was supplied to JAQU in draft three weeks earlier.

- **'Note 24: '** describes a series of improvements that have been made to the underlying assumptions in the Do Minimum modelling scenario, in particular

reflecting the release of EFT v9.1a and newly available data on bus services and fleets.

- **'Note 25: GM CAP: Modelling the impacts of Sustainable Journeys Measures'** sets out the methodology that has been developed to test the impacts of a package of sustainable journeys interventions, and the results of those tests.

- **'Note 26: GM CAP: Analysis of Funds'** sets out how the available tools have been used to assess the impact of different funding offers in terms of likely uptake and impact on behavioural responses. This analysis has fed into the assessment of the funding offers, alongside other evidence.

- **'Note 27: GM CAP: Demand Sifting Tool Operating Manual' describes the Demand Sifting Tool and acts as a manual for use, settin**g out the underlying assumptions and methodology within the Tool. This Note has been developed to meet the TIRP request for further detail on the operation of the Tools.

- **'Note 28: GM CAP: Taxi and Private Hire Vehicle Operational Cost Model'** describes a new analytical tool that has been developed in support of the GM CAP allowing the assessment of behavioural responses to a CAZ based on operational costs by vehicle type for Hackney Cabs and Private Hire Vehicles. It is proposed that this tool replaces the methodology for assessing behavioural responses as applied in the OBC**.**

- **'Note 29: GM CAP: Option for Consultation Modelling Summary' presents the results of a series of** tests of the updated Do Minimum scenario and of the full package of measures proposed for consultation for the GM CAP. Test have been carried out for 2021, 2023 and 2025 and analysis has been carried out to estimate the forecast year of compliance, shown to be 2024 with the proposed package as per the Ministerial Direction. As such, this Note supersedes Note 16, which acted as an early test of a simplified CAZ-only scenario using an interim version of the updated tools.