

Greater Manchester's Outline Business Case to Tackle Nitrogen Dioxide Exceedances at the Roadside

Note 30: Alternative Sensitivity Test Modelling Summary Note



Salford City Council



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Authorised by: Date:	Ian Palmer 7 th February 2020		

COVID-19 Pandemic Statement

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

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

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

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

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

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1 Introduction

- 1.1 This note summarises the results of an additional modelling sensitivity test, which has been undertaken on the 'Option for Consultation' (the updated package modelling since the OBC, which was discussed in *Note 29: Option for Consultation Modelling Summary Note* - submitted to JAQU in Autumn 2019).
- 1.2 The Sensitivity test includes:
- A GM-wide CAZ C introduced in 2021, with the following exemptions until 2023: LGVs, minibuses, coaches registered in Greater Manchester, and wheelchair accessible taxis licensed with a Greater Manchester authority, all as per the Option for Consultation;
 - A series of supporting measures including Clean Bus, Taxi and Commercial Vehicle Funds and investment in Sustainable Journeys measures, as per the Option for Consultation; and
 - The addition of an Inner Ring Road CAZ D in 2021 (not included in the Option for Consultation). The Inner Ring Road CAZ D will also include the charging of LGVs entering the city centre in 2021, which are assumed to be exempt GM-wide until 2023 in the Option for Consultation.
- 1.3 The sections below discuss the modelling process and present the results of this sensitivity test.

2 Updates to the Modelling Process post-OBC

2.1 Base Model

2.1.1 There have been no updates to the 2016 Base model applied.

2.2 Do Minimum 2021, 2023 & 2025

2.2.1 The do minimum model for this sensitivity test, is the revised Do Minimum model, which was updated in Autumn 2019, and includes the following updates since the OBC submission:

- Update to the assumptions to the future year Bus Routes and services and fleets to reflect more recent data;
- Updates to use the most recent version of the DfT's Emission Factor Toolkit;
- Update to reflect higher growth rates of LGVs; and
- The application of a reduced number of modelled output points to reduce model run times.

2.2.2 These updates are discussed in more detail in Note 29. No further changes have been made in this sensitivity test.

2.3 Do Something Modelling post-OBC (Option for Consultation)

2.3.1 Updates to the Do Something modelling for the 'with Consultation' Option are reported in Section 4. A table summarising the methodology and assumptions has been supplied separately to JAQU as "Summary of method and assumptions at Consultation package Oct 2019.docx".

2.3.2 Note that the results presented herein have under-represented the effect of the Clean Taxi Funds, which allow for upgrade to both a compliant diesel Hackney Carriage or an EV. However, analysis of the impact on NOx emissions has been undertaken and is very marginal so unlikely to materially alter the conclusions as reported. This will be updated and finalised at FBC.

2.4 Do Something Modelling - Sensitivity Test Inner Ring Road CAZ D

2.4.1 This sensitivity test follows the 'Option for Consultation', with the inclusion of a CAZ D within the Inner Ring Road (IRR).

2.4.2 It should be noted that the CAZ D related behavioural assumptions have not been updated or refined since the submission of the OBC and so the CAZ D responses have been applied in the same way as at OBC, though based on the new Do Minimum and Do Something Model updates.

3 Impacts on the Do Something model results

3.1.1 Table 3-1 in this section summarises the results of testing for the Consultation Option and sensitivity test including a CAZ D within the IRR, for the years 2021, 2023 and 2025.

3.1.2 The key results in terms of the impact on the year of compliance are:

- All sites are compliant in 2024 with this sensitivity test, as per the Consultation Option.
- Two sites remain non-compliant in 2023 with the inclusion of a CAZ D within the IRR:
 - John Dalton Street within the IRR has lower concentrations than under the Consultation Option but remains non-compliant at ~40.5 ug/m³; and
 - The A58 Bury Bridge is largely unaffected by the measure and remains non-compliant at 40.9 ug/m³.
- Bridge Street within the IRR is non-compliant in 2023 with the Consultation Option, but becomes compliant in that year with the introduction of a CAZ D within the IRR. No other sites are forecast to be non-compliant in 2023 with the Consultation Option or this sensitivity test.
- Figure 3-1 shows the location of non-compliant sites in 2023 under the Consultation Option and sensitivity test scenarios.

3.1.3 The key results in terms of the impact on human exposure in early years are:

- The Consultation Option reduces the number of sites in exceedance in 2021 from 203 (without action) to 57, a 72% reduction.
- With the introduction of a CAZ D within the IRR, the number of sites in exceedance in 2021 reduces by a further 10 to 47 sites, a 77% reduction compared to the Do Minimum scenario.
- The introduction of a CAZ D within the IRR brings nine sites in Manchester and one site in Salford into compliance in 2021 and reduces the number of sites with concentrations greater than 45 ug/m³ from five to two as compared to the Consultation Option. Figure 3-2 shows the location of non-compliant sites in 2021 under the Consultation Option and sensitivity test scenarios.
- The introduction of a CAZ D within the IRR has delivers an 18% reduction in total NO_x emissions GM-wide, against the Do Minimum in 2021, compared to a 17% reduction with the Consultation Option, shown in Figure 3-3.

Table 3-1: Number of sites by scale of exceedance by year, Greater Manchester road network - 2021, 2023 and 2025

Scheme Option	Compliant sites		Non-compliant sites			
	Very compliant (below 35 µg/m³)	Compliant but marginal (35 to 40 µg/m³)	Non-compliant (>40 to 45 µg/m³)	Very non-compliant (>45 to 50 µg/m³)	Extremely non-compliant (>50 µg/m³)	Total non-compliant (>40 µg/m³)
2021						
Do Minimum	1851	485	143	49	11	203
Consultation Option	2266	216	52	5	0	57
Sensitivity Test	2300	192	45	2	0	47
2023						
Do Minimum	2287	209	55	13	1	69
Consultation Option	2485	51	3	0	0	3
Sensitivity Test	2496	41	2	0	0	2
2025						
Do Minimum	2463	109	12	0	0	12
Consultation Option	2525	14	0	0	0	0
Sensitivity Test	2529	10	0	0	0	0

Figure 3-1: Sites in exceedance in 2023, with the Consultation Option and sensitivity test

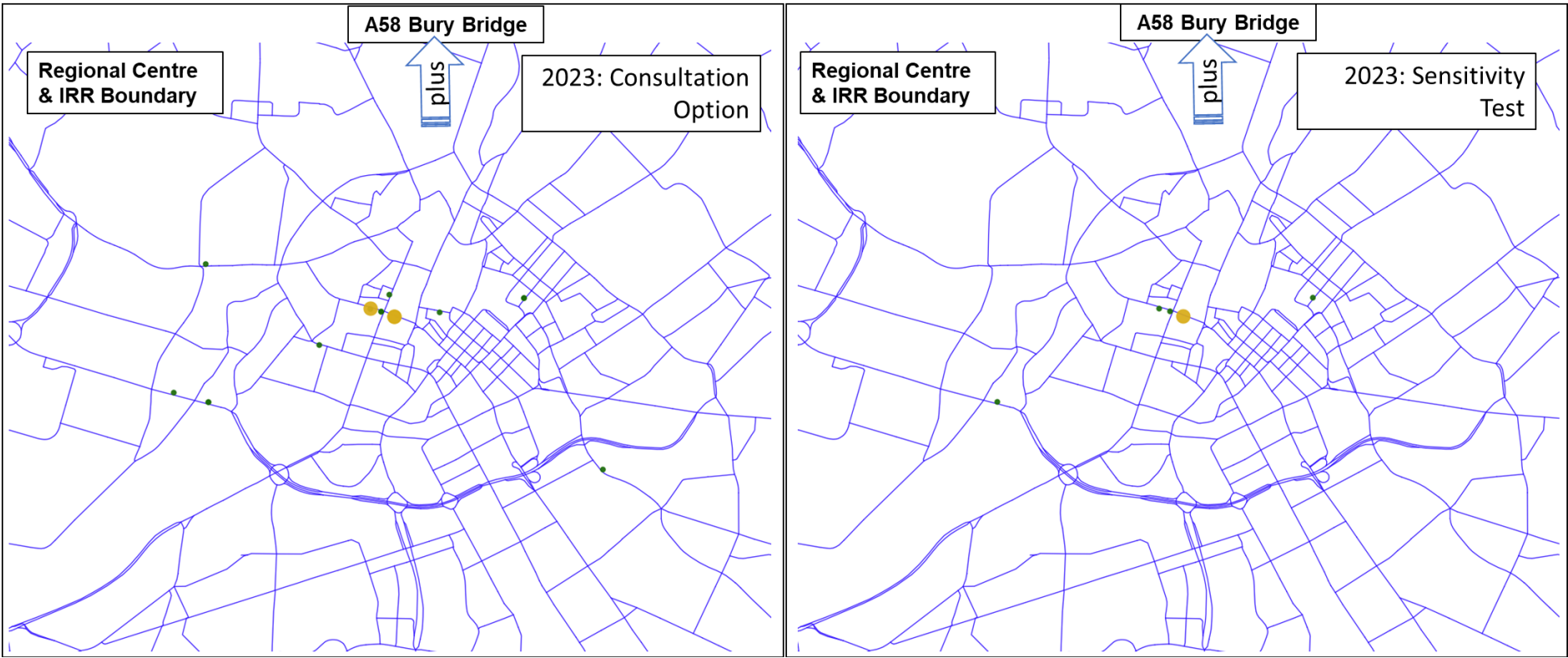


Figure 3-2: Sites in exceedance in 2021, with the Consultation Option and sensitivity test

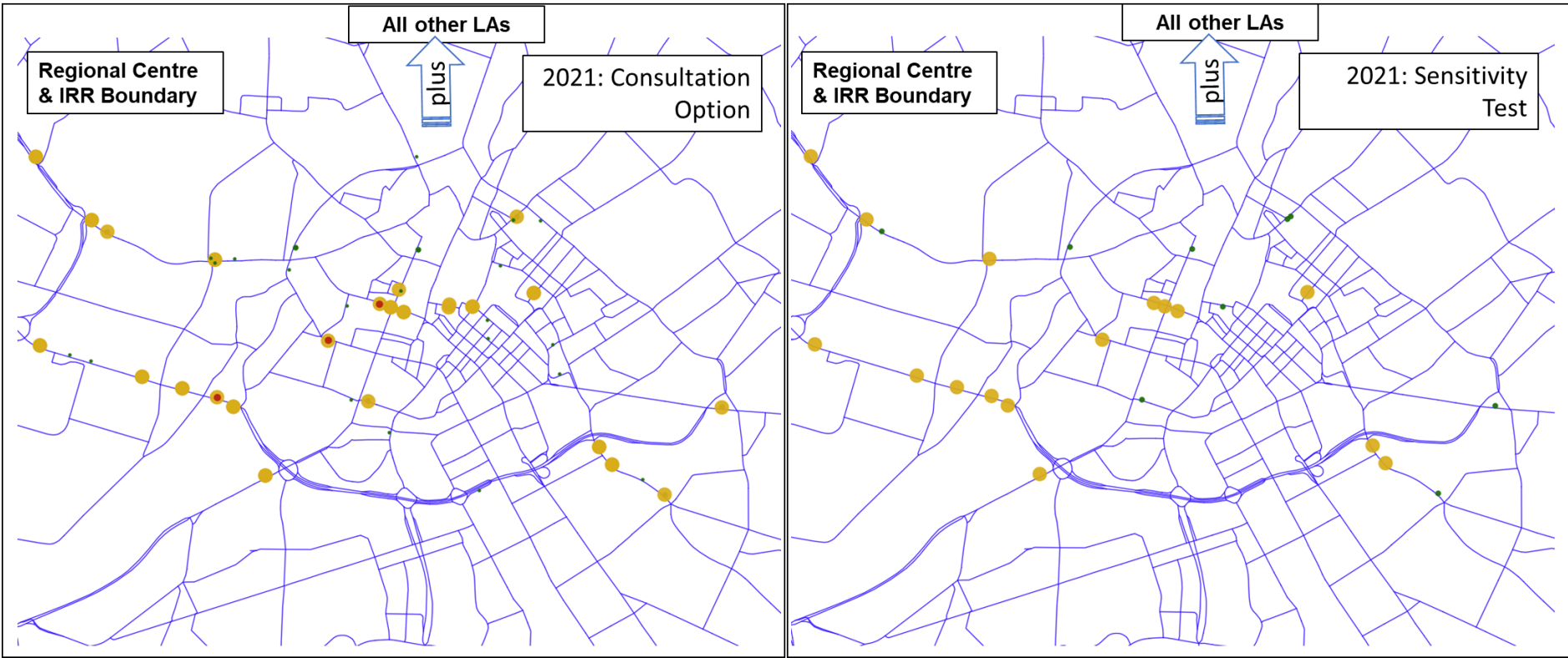


Figure 3-3: Mass NOx emissions GM-wide in 2021, with the Consultation Option and sensitivity test

