

Superseded by Outline Business Case – March 2018



Transport for
Greater Manchester

GMCA **GREATER
MANCHESTER
COMBINED
AUTHORITY**

Greater Manchester Clean Air Plan Strategic Outline Case

Warning:

Printed copies of this document are uncontrolled

Date Prepared:	13 February 2018	Document Reference no.	15927-PM-BUC-000001
Version No.	V1.0	Prepared by:	[REDACTED]
Authorisation Level required:	Wider Leadership Team		
Authorised by:	Wider Leadership Team		
Date:	13 February 2018		
Contact Officer	Head of Logistics, Environment & Active Travel ([REDACTED])		

Change Control

Version No	Amendments made	Approved by / Date Approved
V0.1	Initial release, provided to Steering Group members for review	TfGM Transport Strategy Director 8 December 2017
V0.2	Inclusion of Executive Summary and updated for Steering Group further approvals	
V0.3	Updated short list of measures as agreed by Steering Group for further approvals	Bolton 19 February 2018 Bury 05 February 2018 Manchester 13 March 2018 Oldham 31 January 2018 Rochdale 06 February 2018 Salford 13 February 2018 Stockport 26 February 2018 Tameside 21 February 2018 Trafford 15 January 2018 Wigan 01 February 2018 WLT 13 February 2018
V1.0	Updated references required by WLT to charge-based CAZ	

Table of Contents

0.	Executive Summary	4
0.1	Background	4
0.2	Strategic Outline Case	4
0.3	Next Steps	5
1.	Strategic Case	7
1.1	Introduction	7
1.2	Objectives	8
1.3	The Case for Change	8
1.4	Strategic Policy Context	13
1.5	Opportunities, Risks, Dependencies and Success	16
1.6	Conclusion	17
2.	Economic Case	18
2.1	Introduction	18
2.2	Approach to Assessment	18
2.3	Derivation of Assessment Criteria	20
2.4	Sifting Process	22
2.5	Next Steps	24
3.	The Financial Case	26
3.1	Introduction	26
3.2	Financial Situation and Funding Sources	26
3.3	Affordability	26
3.4	Costing	26
3.5	Next Steps	28
4.	The Commercial Case	29
4.1	Commercial Viability	29
4.2	Procurement Strategy	29
4.3	Development of a Procurement Strategy	29
4.4	Sourcing Options	30
5.	The Management Case	32
5.1	Governance	32
5.2	Go/No-Go & Decision Milestones	33
5.3	Project Programme	33
5.4	Communication and Stakeholder Management	34
5.5	Project Reporting	34
5.6	Risk Management Strategy	35
5.7	Monitoring and Evaluation	36
5.8	Project Management	36
6.	List of Appendices	38

0. Executive Summary

0.1 Background

- 0.1.1 In July 2017, the Government set out the National Plan for tackling roadside nitrogen dioxide concentrations. The National Plan identified that within Greater Manchester (GM), seven local authorities have areas that will exceed the statutory NO₂ annual mean EU Limit Value of 40 µg/m³ (the EU Limit Value) in the year 2021. Those local authorities have been instructed by the Government to undertake detailed feasibility studies and develop plans for the implementation of appropriate measures to deliver compliance with the EU Limit Value in the 'shortest possible time'.
- 0.1.2 Transport for Greater Manchester (TfGM) is acting on behalf of the Greater Manchester Combined Authority and the ten Greater Manchester Local Authorities to undertake the feasibility study and develop a plan to meet the air quality challenge across the whole conurbation.
- 0.1.3 The feasibility study will include the following key stages:
- Strategic Outline Case (SOC)
 - Initial Evidence and Target Determination
 - Outline Business Case (OBC)
 - Full Business Case (FBC)
- 0.1.4 The Full Business Case of the feasibility study will ultimately act as the final GM Clean Air Plan. The preferred package of measures identified in the GM Clean Air Plan will then be implemented to deliver compliance with the EU Limit Value.

0.2 Strategic Outline Case

- 0.2.1 TfGM in collaboration with the ten GM Local Authorities has developed this Strategic Outline Case (SOC) to clearly articulate the process for the development of a coordinated plan that ensures the required improvements to local air quality are achieved in the 'shortest possible time'.
- 0.2.2 In accordance with the Government's Joint Air Quality Unit (JAQU) guidance, this SOC provides a clear narrative on the strategic need for the feasibility study and identifies the methodology and approach that GM will use for the selection of the preferred package of measures, to achieve the EU Limit Value.
- 0.2.3 The locations of exceedance within GM are spatially diverse with emissions produced from a range of vehicle types. Taking this into account, the SOC has been developed in terms of health and socio-economic factors, recognising the significant impact poor air quality has on people's lives and local economic growth aspirations. Securing a major enhancement in air quality across GM will not only be important for improving human health, but will also help to make GM a more attractive place to live, visit and invest, and so is essential to long-term economic growth prospects.
- 0.2.4 Based on the spatial locations and nature of the exceedances identified by JAQU, it is considered that no single measure could deliver compliance in GM on its own. A range of 96 potential measures have been identified and an initial sifting exercise (applying the primary Critical Success Factors) has been completed to assess the ability of the measures to deliver the required NO₂ reductions in the shortest possible time. From the initial sifting a short list of 17 potential measures was developed for potential incorporation in to packages of measures.

- 0.2.5 Costs have not been considered as part of the initial sifting process but the indicative low/medium/high/very high rating for costs associated with implementation and operation have been included.
- 0.2.6 The SOC identifies that a series of bespoke secondary Critical Success Factors will be developed as the metrics for assessment and in future business case iterations, the short list of measures will be modelled, assessed and appraised in more detail to determine the packages of measures and the preferred package. The modelling and assessment approach is currently under development and TfGM on behalf of the GM Local Authorities will work with JAQU throughout this process.
- 0.2.7 The short list of measures includes variations of a charge-based Clean Air Zone (CAZ), which is to be used as a reference case as required by Government through the JAQU guidance, as well as initiatives which could make up a package of measures that could be either an alternative to, or complementary with, a charge-based CAZ. At this stage, no decision has been taken over the precise mix of measures that will be developed into packages of measures or implemented as the preferred package.
- 0.2.8 A Clean Air Project Team has been established, a Project Sponsor and Senior Responsible Officer (SRO) appointed, the Project Board and Steering Group established and the overall reporting and governance arrangements approved. A robust governance structure for the project has been established, with an expectation that this will remain consistent as the project progresses. Further refinement of the governance structure and approvals may be required to reflect the preferred package of measures, although this will be fully articulated in further business case submissions.
- 0.2.9 A schedule to meet the extremely challenging timescales required by JAQU has been developed for the main activities of the feasibility study. It is not possible to develop a schedule past the feasibility study as this will depend on the preferred package of measures selected. The schedule will be further developed, as the packages of measures and the preferred package is developed, to include the design, consultation and approval requirement specific to the packages of measures.
- 0.2.10 The project will involve a wide range of teams within TfGM and the GM local authorities as well as external service providers. The Project is likely to gain a very high profile within the public domain.
- 0.3 Next Steps**
- 0.3.1 The HM Treasury Green Book five case approach, and supplementary JAQU guidance, has been applied to the development of this SOC and will continue to be applied through the Outline Business Case (OBC) and Full Business Case (FBC). A proportionate approach has been adopted to the development of the five cases, reflecting the fact that the Target Determination process has not yet been completed and a number of critical components are still not finalised. As the project progresses through the Target Determination process and the development of a preferred package of measures, further detail will be added to each of the cases to provide the necessary clarity that local air quality compliance will be achieved and the mechanisms are in place to deliver the preferred package.
- 0.3.2 Running in parallel to the production of this SOC, GM has been developing a robust model evidence base to identify the exact locations and scale of improvements required to deliver compliance with the EU Limit Value.
- 0.3.3 At the next stage of the process (to be included in the OBC), once the Target Determination process is concluded, the measures will be tested through an iterative modelling and assessment process. GM will be developing both OBC and FBC documents, in line with challenging JAQU timescales, to reflect the ongoing work in relation to the appraisal and refinement of a preferred package of measures.

- 0.3.4 Further work in terms of feasibility and design will be undertaken to fully develop the cost forecasts, and this will be reported as part of the OBC submission.
- 0.3.5 GM have and will continue to adopted a close working relationship with JAQU to ensure complete transparency in terms of progress as well as exploring opportunities for progress to be accelerated where practicable.

Superseded by Outline Business Case – March 2019

1. Strategic Case

1.1 Introduction

- 1.1.1 This Strategic Case sets out why the Greater Manchester Clean Air Plan is needed. It demonstrates a robust case for change, a clear rationale for making the investment, and explains why an investment in cleaner air aligns with national and GM's wider strategies.
- 1.1.2 Improving air quality is one of the key ambitions for Greater Manchester (GM). The Greater Manchester Strategy (Oct 2017) states Greater Manchester should be 'a place at the forefront of action on climate change with clean air and a flourishing natural environment' and states an ambition of 'reducing congestion and improving air quality'.
- 1.1.3 The Greater Manchester Urban Area Zone is one of 37 zones across the UK where, based on the Department for the Environment, Food and Rural Affairs (Defra) modelling for 2015, annual mean nitrogen dioxide (NO₂) concentrations exceeded the statutory Limit Values set by the European Union (EU) based on the World Health Organisation's air quality guidelines. Of the ten Local Authorities within GM, seven are predicted include road links which exceed the EU limits beyond 2020.
- 1.1.4 In order to address these exceedances, Defra and the Department for Transport (DfT) has set out an approach to introduce targeted local measures to bring NO₂ levels within legal limits in their Clean Air Zone Framework¹ and the National Plan². The Joint Air Quality Unit (JAQU), comprising teams from Defra and the DfT, has been set up specifically to deliver the National Plan to improve air quality and comply with the EU Limit Value. The JAQU guidance documents set out the assessment process and typical measures that an authority should consider to deliver compliance with the NO₂ annual mean EU Limit Value of 40 µg/m³ (the EU Limit Value).
- 1.1.5 Several local authorities across the UK (including the 7 within GM) have been instructed by JAQU to undertake detailed feasibility studies and develop plans for the implementation of appropriate measures to deliver compliance with the EU Limit Value in the 'shortest possible time'. According to the Supreme Court ruling the feasibility study must consider all options which are 'technically feasible' to be delivered in the shortest possible time and at least as quickly as a charged based clean air zone could. Local authorities need to consider a range of measures, including a charge-based Clean Air Zone (CAZ) as required by Government through the JAQU guidance. The charge-based CAZ scenario is to be used as the reference case in terms of timescales and cost, against which other alternative measures are considered. It is the Government's preference that a charge-based CAZ is only implemented if other measures cannot deliver compliance in similar timescales while providing the same value for money.

¹ Defra & DfT: Clean Air Zone Framework Principles for Setting Up Clean Air Zones in England, May 2017.

² Defra & DfT: Air quality plan for nitrogen dioxide (NO₂) in UK (2017): UK plan for tackling roadside nitrogen dioxide concentrations, Detailed plan, July 2017.

- 1.1.6 TfGM is acting on behalf of the Greater Manchester Combined Authority (GMCA) and the ten Greater Manchester Local Authorities to undertake the feasibility study and develop a plan to meet the air quality challenge. This document sets out the range of measures that are proposed to be assessed more thoroughly in order to understand the potential, as a stand-alone measure or part of a package of measures, to achieve the EU Limit Value. Measures to be assessed include a charge-based CAZ (as the reference case as required by Government), as well as a range of non-charge-based measures which could make up a package of measures designed to encourage behaviour change. The package of measures could be either an alternative to or complementary with a charge-based CAZ. At this stage, no decision has been taken over the precise mix of measures which will be put in place, and this will be developed through the assessment process and informed by the evidence produced, including the air quality modelling used for the Target Determination process.

1.2 Objectives

- 1.2.1 The primary spending objective of the project is to enable GM to reduce NO₂ concentrations, in the shortest possible time, to below the EU Limit Value on those road links identified through the Target Determination process; therefore delivering the Government's National Plan for tackling roadside nitrogen dioxide concentrations.
- 1.2.2 The secondary spending objective of the project is to put in place measures which will ensure that GM ambitions; to reduce NO₂ concentrations across the wider Air Quality Management Area; reduce air pollution's contribution to ill-health; and support economic growth, can be achieved.
- 1.2.3 These objectives are to be achieved whilst continuing to ensure that the policies pursued do not unduly undermine the achievement of Greater Manchester's economic and social policy objectives as set out in the Greater Manchester Strategy (2017), which is described in more detail in Section 1.4 Strategic Policy Context below.
- 1.2.4 Further information on the Critical Success Factors which define this project, and will drive the selection and refinement of potential measures, are provided in the Economic Case. The project, for the purpose of the objectives, includes the GM Clean Air Plan feasibility study and the implementation and operation of the preferred package.

1.3 The Case for Change

- 1.3.1 This section sets out why a GM Clean Air Plan is necessary from a health and socio-economic perspective, and summarises the existing status of air quality within GM.

Health Impacts

- 1.3.2 Poor air quality has a real and significant effect on people's lives, contributing to bronchitis, asthma and other respiratory illness, as well as cardiovascular problems and cancer. Long-term exposure to air pollution is understood to be a contributory factor in deaths from respiratory and cardiovascular disease. It is likely that air pollution (mainly in the form of particulate matter) contributes a small but noticeable amount to the deaths of a large number of people, rather than being the sole cause of the death of individuals. According to the publication 'Every Breath we take: the lifelong impact of air pollution'³, 29,000 deaths are attributable to particulate matter, specifically PM_{2.5} and this may rise to 40,000 when taking NO₂ into account. The link with NO₂ has yet to be made. Defra quote⁴ 'It is important to stress that significant uncertainties remain around the quantitative link between exposure to NO₂ and the health impacts.'

³ <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>

⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/460401/air-quality-econanalysis-nitrogen-interim-guidance.pdf

- 1.3.3 Short-term exposure to poor air quality can also have health effects. Some groups are at greater risk of symptoms, particularly adults and children with heart or lung problems⁵, and public health advice is now included within the national Daily Air Quality Index⁶.
- 1.3.4 There is a particular imperative, as set out in Section 1.4 Strategic Policy Context and specifically the Greater Manchester Strategy, to improve health in Greater Manchester, which has some of the lowest life expectancy at birth in England for both men and women. In 2016, 136,000 people in Greater Manchester were claiming either Incapacity Benefit or its successor, Employment and Support Allowance. This equates to 4.7% of the GM population, compared to the figure for England of 3.6% of the population. The inability to work not only impacts on those individuals' life chances, but also reduces Greater Manchester's productivity and increases the public cost of benefits. Devolution of responsibility for health and social care spending to Greater Manchester in 2015 presented an opportunity for a joined-up approach in dealing with matters, such as air quality, which have an impact on people's health across Greater Manchester.

Socio-Economic Impacts

- 1.3.5 Air pollution has social costs⁷ and threatens economic growth. It also impacts upon people of working age which, in turn can have economic effects, for instance if they have to take days off work. It is estimated that in 2012, poor air quality had a total cost of up to £2.7 billion nationally through its impact on productivity⁸.
- 1.3.6 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, and so is essential to long-term economic growth prospects.

Existing Information and the Source of the Problem

- 1.3.7 JAQU reported the outputs of the Pollution Climate Mapping (PCM) model in July 2017. This identified that road links operated by local authorities (as opposed to the Strategic Road Network operated by Highways England which are identified separately) in seven of the ten Greater Manchester Local Authorities are projected to be in exceedance of the NO₂ annual mean EU Limit Value of 40 µg/m³ (the EU Limit Value) beyond 2020.
- 1.3.8 The road links identified are the primary focus of the GM Clean Air Plan and are detailed in Table 1-1. These show that whilst on many links, cars (including taxis) and vans are responsible for the vast majority of emissions, there are links with notable contributions from HGVs (Manchester, Tameside & Salford). The main link with a meaningful contribution from buses is in Bury. The data indicates that a range of measures may be necessary to tackle GM's NO₂ concentrations due to the diverse spatial context and differing sources.

⁵ <https://www.nice.org.uk/ng70>

⁶ <http://uk-air.defra.gov.uk/>

⁷ Defra (2015) Valuing Impacts on Air Quality: Updates in Valuing Changes in Emissions of Oxides of Nitrogen (NO_x) and Concentrations of Nitrogen Dioxide (NO₂) www.gov.uk/guidance/air-quality-economic-analysis

⁸ Defra (2015) Report: Valuing the Impacts of Air Quality on Productivity http://uk-air.defra.gov.uk/library/reports?report_id=83

Table 1-1: PCM Model Results for Links in Exceedance in 2020

Road Name	Local Authority	PCM Model NO ₂ Conc. (ug/m ³)	
		2015	2020
A58	Bury	52.9	44.1
A666	Bolton	52.9	43.2
A635	Tameside	56.2	44.9
A57	Salford	51.3	41.1
A635	Manchester	53.4	42.9
A57	Manchester	54.8	44.2
A57M	Manchester	49.8	41.2
A56	Trafford	48.1	40.8
A5103	Manchester	52.9	43.8
A34	Stockport	51.3	42.8
A34	Stockport	52.0	43.1

1.3.9 Table 1-1 shows that the PCM model predicts significant reductions in NO₂ concentrations between 2015 and 2020, typically by 15% to 20%. Previous versions of Defra's Local Air Quality Management suite of tools, which will form the basis for this feasibility study, have predicted significant year on year reductions which have not been observed in roadside NO₂ monitoring trends. It is therefore possible that the modelling process for the 2020 year may also be optimistic and measured concentrations could prove to be greater than those predicted. TfGM will seek guidance from JAQU on how to manage this risk to scheme assessment and design.

1.3.10 Figure 1-1 shows the PCM exceedance links spatially, along with the vehicle emissions source apportionment. Figure 1-2 summarises the NO₂ monitoring and Air Quality Management Area (AQMA) within GM. For information, the PCM exceedance links on the Highways England network (which are not part of this feasibility study) are provided in the GM Air Quality Summary Report in Appendix A.

Figure 1-1: Source Apportionment for PCM Exceedance Links for 2020

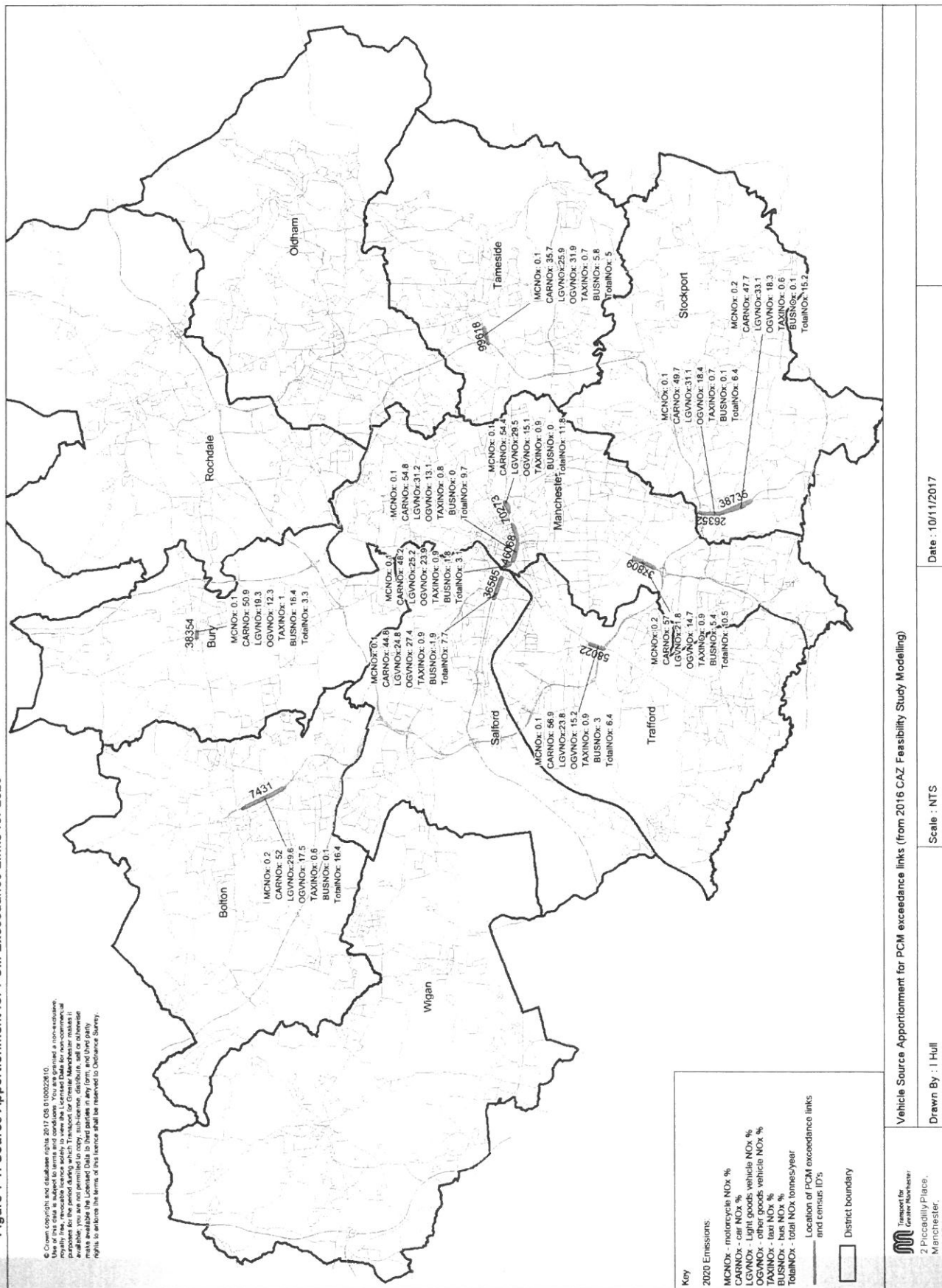
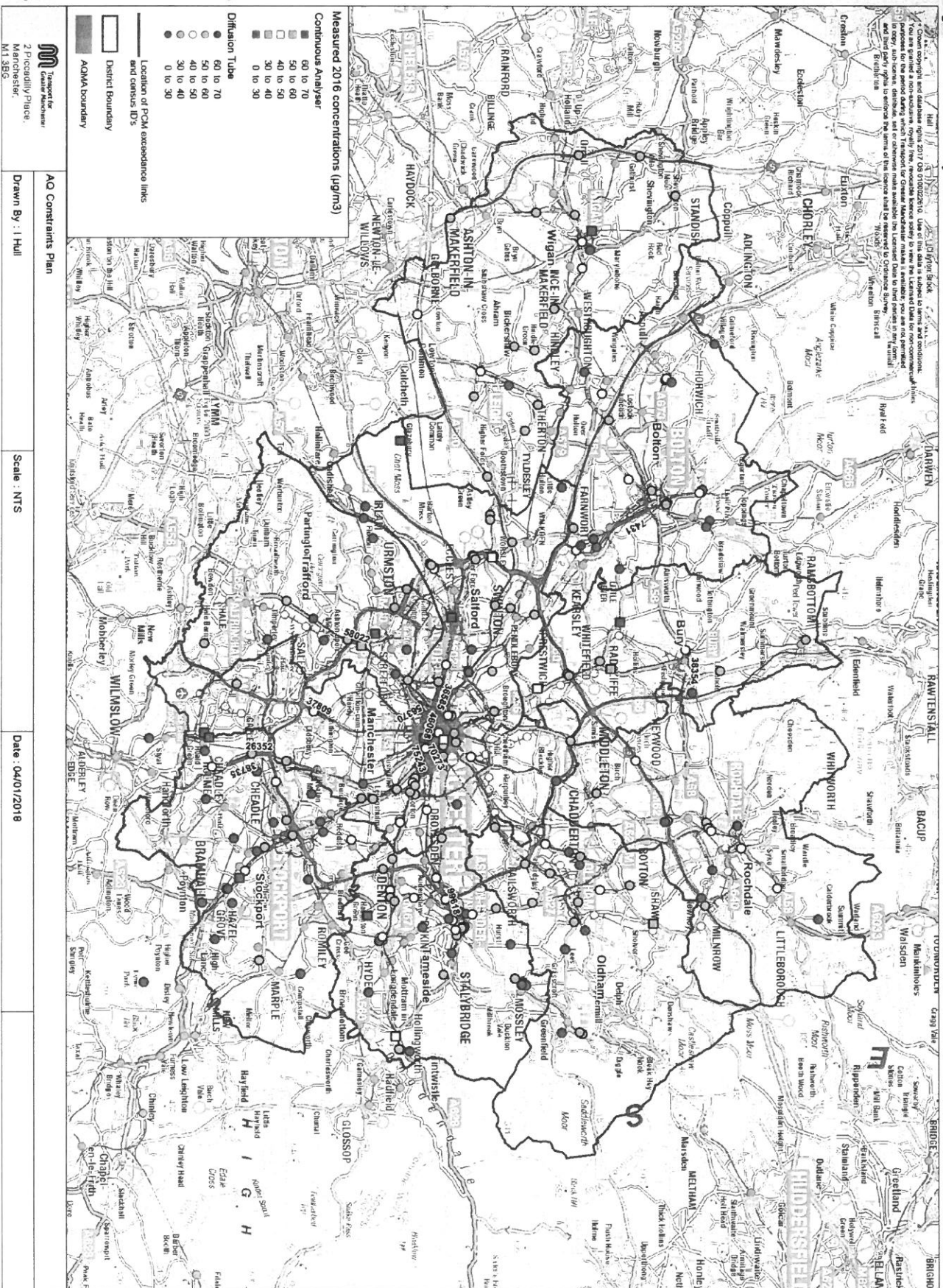
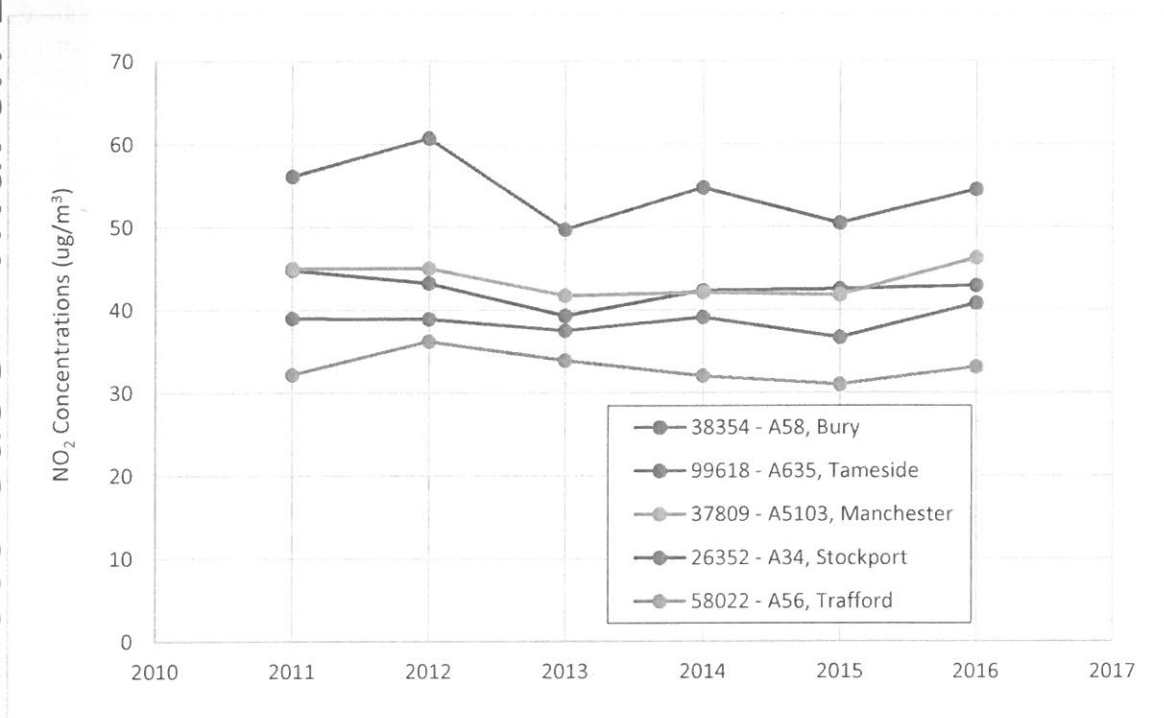


Figure 1-2: GM Air Quality Constraints Plan



- 1.3.11 In broad terms, local air quality monitoring and modelling for GM supports the conclusions of the PCM model, that there are widespread exceedances of the EU Limit Value.
- 1.3.12 Monitoring data adjacent to PCM exceedance links has been reviewed, and the sites where monitoring is within ~10m of the kerb, and therefore reasonable to compare with the PCM outputs (which are modelled at 4m from the kerb) is summarised in Figure 1-3.

Figure 1-3: GM NO₂ Monitoring Trends at the PCM Exceedance Links



- 1.3.13 The local monitoring and trend analysis indicates that air quality in these locations is likely to be in exceedance of the NO₂ annual mean objective of 40 ug/m³ in 2020, although the A56 site is not, however as monitoring is within ~10m of the kerb and the PCM outputs are modelled at 4m from the kerb the NO₂ values do not fully align. Overall, measured concentrations at these sites appear stable over the last 5 years, with the decreases that would have been predicted by modelling based on the LAQM TG(09) suite of tools not apparent.
- 1.3.14 Further details on the available monitoring and modelling data, and proposed methodology to develop the evidence are provided in the GM Air Quality Summary Report in Appendix A.

1.4 Strategic Policy Context

- 1.4.1 The feasibility study will be strategically aligned to various national and local policies, helping to achieve both their immediate goals and contribute to longer terms aims. Summaries of the relevant policies are set out below and further information is provided in Appendix B.

National Policy

- 1.4.2 The European Ambient Air Quality Directive 2008 (2008/50/EC) sets legally binding limits for key harmful air pollutants, based on World Health Organisation guidelines. EU member states must meet these EU Limit Values by a given date, which was originally 2010. The UK Government has therefore set national standards which local authorities must work to achieve. Consequently, Local Authorities have a statutory duty, under the provisions of the Environment Act 1995, the National Air Quality Strategy 2000 and Air Quality Standards Regulations 2010, to review and assess air quality against these standards.

1.4.3 The main pollutants of concern in the UK are oxides of nitrogen (NO_x), principally nitrogen dioxide (NO₂), and particulate matter (PM). The UK accepts that, under its current air quality plans, most major urban areas, including Greater Manchester, will not meet legal limits for NO₂ pollution until beyond 2020. The EU has stated that it would like 'to achieve full compliance with existing air quality standards by 2020 at the latest'.

1.4.4 In order to address the NO₂ exceedances, JAQU has set out an approach in the National Plan to comply with the EU Limit Value. The associated JAQU guidance documents set out the assessment process and typical measures that an authority should consider to deliver compliance with the EU Limit Value. The Government has written to the local authorities named in the National Plan directing them to produce a feasibility study as set out in the Environmental Act 1995 (Feasibility Study for Nitrogen Dioxide Compliance) Air Quality Direction 2017.

1.4.5 There is a similar policy commitment to reduce carbon emissions in response to concerns about climate change. In line with international frameworks and targets, including the UNFCCC Kyoto Protocol and the Paris Agreements, the EU has committed to reduce carbon emissions by 20% (relative to 1990) by 2020. At the national level, the UK's Climate Change Act 2008 included the obligation to reduce national greenhouse gas emissions by 80%, relative to 1990, by 2050. It also sets legally binding carbon budgets between now and 2020. The National Emission Ceiling Directive and the Gothenburg Protocol sets national emission limits for a range of pollutants.

Greater Manchester Policy and Strategy Documents

1.4.6 Much of Greater Manchester's current policy direction in transport, health, planning and other areas is driven by the need to improve air quality and reduce emissions across the conurbation. A brief overview of some of the key strategic policy documents is set out below.

Greater Manchester Strategy

1.4.7 The Greater Manchester Strategy sets out the ambitions for the future of Greater Manchester, which includes improving air quality. The strategy states that Greater Manchester should be 'a place at the forefront of action on climate change with clean air and a flourishing natural environment' and states an ambition of 'reducing congestion and improving air quality'.

1.4.8 The 10 priority areas in the strategy are:

- Children starting school ready to learn;
- Young people equipped for life;
- Good jobs, with opportunities for people to progress and develop;
- A thriving and productive economy in all parts of Greater Manchester;
- World-class connectivity that keeps Greater Manchester moving;
- Safe, decent and affordable housing;
- A green city-region and a high quality culture and leisure offer for all;
- Safer and stronger communities;
- Healthy lives, with quality care available for those who need it; and
- An age-friendly Greater Manchester.

1.4.9 The strategy sets a number of targets for each of the priority areas. These include targets to; increase journeys by none car mode, reduce harmful emissions, and reduce premature mortality.

Greater Manchester Spatial Framework

- 1.4.10 The Draft Greater Manchester Spatial Framework (GMSF) was published by the GMCA in October 2016. The GMSF is a joint Development Plan Document, which sets out spatial strategy for housing and employment land growth across Greater Manchester for the next 20 years. The second draft of the plan has a timetabled publication date of June 2018.

Greater Manchester 2040 Transport Strategy

- 1.4.11 The Greater Manchester Transport Strategy 2040, outlines a vision for Greater Manchester to have 'World class connections that support long-term, sustainable economic growth and access to opportunity for all'. There are four key elements to this vision, representing the goals of the strategy. Clean air is an important consideration for all four of these elements:

- Supporting sustainable economic growth;
- Protecting our environment;
- Improving quality of life for all;
- Developing an innovative city-region

Greater Manchester Low-Emissions Strategy

- 1.4.12 The Greater Manchester Low-Emission Strategy takes a long-term, integrated approach to carbon emissions and air quality in the period to 2040, allowing investment to be focused to the greatest effect. The Low-Emission Strategy gives a framework for policies and measures to:

- Reduce air pollution as a contributor to ill-health in Greater Manchester;
- Support the UK Government in meeting EU air quality thresholds;
- Help reduce Greater Manchester's carbon footprint; and
- Encourage a low-emission culture.

Greater Manchester Air Quality Action Plan

- 1.4.13 The Greater Manchester Air Quality Action Plan 2016-2021 (AQAP) sets out measures which will reduce air pollution while supporting the sustainable economic growth of the city-region.
- 1.4.14 The primary objectives of the plan are to improve air quality across Greater Manchester and to embed low-emissions behaviours into our culture and lifestyles, whilst supporting the Government in meeting EU thresholds for air pollutants at the earliest date. 'Key Priority Areas' are identified in the AQAP – locations with the highest levels of air pollution near major roads and areas with heavy traffic in towns and cities – where most work will be focused.
- 1.4.15 A number of policy changes and interventions set out in the plan are already under delivery. Examples include - public transport infrastructure and connectivity improvements; smart ticketing roll out; fleet upgrades and refuelling infrastructure investment; development of a network of active travel infrastructure and the roll out of a supporting package of measures to encourage modal shift; work with freight and logistics operators on general fleet and operations improvements as well as specific intervention pilots.

Greater Manchester Climate Change Strategy

- 1.4.16 The Climate Change Strategy sets out an ambition to build a greener, more sustainable region. The strategy sets out Greater Manchester's plan to build a low carbon economy by 2020; reducing carbon emissions by 48% and reacting to the changing climate while creating jobs and new industries in the 'green' sector.

Greater Manchester Highways Strategy

- 1.4.17 The Highways Strategy to 2025 is currently being developed and will set out in detail an integrated approach to the management, development and maintenance of the road network that contributes to delivering the Greater Manchester 2040 Transport Strategy.

Greater Manchester Freight and Logistics Strategy

- 1.4.18 The purpose of this strategy is to consider current GM freight distribution, delivery, servicing and logistics activities and set out the ambitions of the region to maximise the economic contribution of this industry whilst minimising the social and environmental impacts, as well as balancing the often conflicting needs of freight and passenger demand for our transport network and systems.

The Greater Manchester Congestion Conversation

- 1.4.19 Shortly after his election in 2017, the Mayor of Greater Manchester, Andy Burnham, launched the 'Greater Manchester Congestion Conversation' as a first step to the creation of a new Congestion Plan for Greater Manchester. The plan is due to be published in February 2018. Given the recognised links between congestion and poor air quality, measures identified in the Congestion Plan are expected to have a positive effect on air quality.

The Cycling and Walking Strategy

- 1.4.20 In September 2017 the Mayor appointed the first GM Cycling and Walking Commissioner. As the ambassador for cycling and walking within GM, part of the Commissioner's role is to drive forward the delivery of the GM Cycling and Walking Strategy and supporting Local Cycling and Walking Infrastructure Plan.

1.5 Opportunities, Risks, Dependencies and Success

- 1.5.1 Whilst the impact of air quality on health and the environment has long been understood, the evidence on direct health impacts and the related costs is strengthening constantly. GM has the opportunity to drive forward a change in the approach to improving its local environment using the current political and public awareness of the critical nature of the issue. As a result of this there is access to major sources of funding which have not previously been available, that can be used to reduce air pollution and bring forward measures from wider GM strategies that lead to improvements in air quality. A well designed package of measures has the potential to provide an investment legacy opportunity that enables economic growth whilst reducing congestion and environmental impacts, as well as protecting the health of our population.
- 1.5.2 There is now a recognition, across Europe and globally, that reducing harmful emissions is an imperative but highly complex issue. The types of measures required to address poor air quality could have been viewed as politically and economically impracticable in the recent past. However, because many cities are now required to act simultaneously, the risk of not taking action could lead to GM gaining a reputation for not protecting its citizens. Secondly, because other cities in the UK will be taking steps which will likely displace older more polluting fleet, weak regulation in GM could lead to these dirtier fleet being re-deployed in GM. This effect has previously occurred as a result of the implementation of the London Low Emission Zone leading to some of the Hackney Carriages transferring to Birmingham.

1.5.3 There is a risk that measures implemented as part of a GM Clean Air Plan could have unintended consequences, such as increasing carbon emissions or congestion, thereby resulting in damage to the local economy. A detailed and robust process to developing the supporting evidence is critical. It is also recognised that trends in NO₂ concentrations have not seen the decreases predicted by Government toolkits, and therefore appropriate sensitivity testing in the modelling, alongside air quality monitoring needs to be implemented. The assessment process will be developed so that it can be responsive to emerging evidence as it becomes available throughout the programme. A comprehensive risk register has been developed, and will be maintained as part of this project, and is provided in Appendix C.

1.5.4 The GM Clean Air Plan requires a multi-faceted cross-disciplinary approach, and is therefore dependent on a wide range of stakeholders. For example, the GM Congestion Conversation will be reviewed as it develops, and the impacts upon and from the motorway network will be incorporated in conjunction with Highways England.

Target Determination Process

1.5.5 The Target Determination process is a key step in the initial evidence review, the purpose of which is to confirm or refine the scope of the feasibility study. The process will involve a comparison of the local and PCM modelling outputs and agreement of the most appropriate concentration assessment to be compared to the EU Limit Value. This will then be used to identify how big an improvement is required in a particular location. As such, it is not feasible to define the packages of measures until the 'target' has been agreed. The Target Determination process is due to commence in February 2018 with the aim of agreeing the 'target' by 31st March 2018.

Measurement of Success

1.5.6 Measuring how the project achieves the primary and secondary spending objectives requires an understanding of the air quality across GM along with a range of other factors including transport behaviours and trends as well as the economic outcomes. It is expected that the primary measure of success will be related to the Primary Critical Success Factors of reducing NO₂ concentrations to below the EU Limit Value, in the shortest possible time. Further measures of success will be related to the Secondary Critical Success Factors which will be aligned with the primary and secondary spending objectives, but will also be used as a 'check' to ensure there are no detrimental impacts or dis-benefits. Further information on the Critical Success Factors which define this project, and will drive the selection and refinement of potential measures, are provided in Section 2.

1.5.7 The indicators for the measurement of success will be further developed and defined once the preferred package of measures becomes clearer through the Outline and Full Business Case assessments.

1.6 Conclusion

1.6.1 The importance of improving air quality is recognised in the strategic policy framework, both nationally and locally. There is an imperative to reduce NO₂ levels below the EU Limit Value, but also a recognition of the benefits of improved air quality for reasons of public health, environmental protection and quality of life, and a desire by all parties to bring about this improvement.

1.6.2 Meeting the statutory requirements for NO₂ in the context of a growing economy – and without unacceptable economic impact – will be challenging, and will require a concerted effort by all parties to reduce emissions and influence behaviour.

2. Economic Case

2.1 Introduction

2.1.1 This Economic Case presents the selection process including the measure sifting and impact assessment methodology as part of the GM Clean Air Plan. It should be noted that the JAQU options appraisal guidance had not been released at time of writing the Strategic Outline Case (SOC), and while the approach outlined below is expected to comply with the guidance, it is subject to change once the guidance has been released. The steps described below are ongoing and are not all expected to be completed in the SOC stage.

2.1.2 The Economic Case is structured as follows:

- Section 2.2 describes, at a high level, the assessment approach, and includes the definition of the Critical Success Factors (CSFs) that will guide the measures selection.
- Section 2.3 derives the assessment criteria, documents the move from CSFs to measurable metrics, and describes the tools that will be used.
- Section 2.4 details the process of sifting from a long list of measures to develop a short list of measures (Step 1) for further review and development in to packages of measures (Step 2).
- Section 2.5 provides more information about the next steps to be completed in the following business case (Steps 2 and 3).

2.2 Approach to Assessment

2.2.1 The GM Clean Air Plan is an objective-led initiative. The Economic Case will not produce a standard BCR based upon a 60 years discounted cash flow, but will identify the most cost-effective route, i.e. minimum cost to comply. The primary Critical Success Factors (CSF), described below, are those set by JAQU. The secondary CSF have been developed to support the evaluation and comparison of individual measures and packages. At this stage, the aim is to determine a short list of potential measures which can then be assessed for potential incorporation in to packages of measures. In future business cases the short list of measures / packages of measures will be developed, modelled, assessed and appraised in more detail. The modelling and assessment approach is currently under development and TfGM on behalf of the GM Local Authorities will work with JAQU throughout this process.

2.2.2 The Critical Success Factors cover the range of spending objectives defined in the Strategic Case. They have been developed following conversations with JAQU and local partners to reflect local circumstances. The Primary CSFs are 'pass or fail' criteria. Secondary CSFs relate to other metrics that are important but not critical as defined by JAQU guidance. At this stage only the Primary CSFs have been used in the process to move from the long list to the short list of measures. In the future a weighting system may be used to account for all CSFs. Table 2-1 below defines the seven critical success factors.

2.2.3 It is anticipated that because adherence to the CSFs will be the metric of assessment, the economic case will not present a benefit-cost-ratio to prioritise options. The economic appraisal will attempt to assess options on the Cost of Compliance with CSFs.