

SHEFFIELD AND ROTHERHAM CLEAN AIR ZONE FEASIBILITY STUDY OUTLINE BUSINESS CASE

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DOCUMENT CONTROL

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TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY	6
1.1	CONTEXT	6
1.2	THE 5 CASE MODEL	6
1.3	OUR PREFERRED OPTION – CATEGORY C CAZ WITH ADDITIONAL MEASURES ('+')	7
1.4	IMPROVING THE VEHICLES ON OUR ROADS – SUPPORTING DRIVERS AND BUSINESSES	7
1.5	IMPACT OF OUR PREFERRED OPTION ON AIR QUALITY	9
1.6	CONCLUSIONS	10
2.	STRATEGIC CASE	11
2.1	NATIONAL CONTEXT	11
2.2	LOCAL TRAFFIC, EMISSIONS AND AIR QUALITY MODELLING	12
2.3	AIR QUALITY IN SHEFFIELD	13
2.4	AIR QUALITY IN ROTHERHAM	15
2.5	HEALTH IMPACTS	19
2.6	RELEVANT LOCAL AUTHORITY POLICIES AND STRATEGIES	21
2.7	SPENDING OBJECTIVES	25
2.8	BENEFITS, RISKS, CONSTRAINTS AND DEPENDENCIES	26
2.9	OTHER STRATEGIC ISSUES	28
3.	ECONOMIC CASE	29
3.1	INTRODUCTION	29
3.2	OVERVIEW OF THE OPTIONS BEING APPRAISED	29
3.3	THE LEVEL OF THE CAZ CHARGES	31
3.4	WHAT WOULD THE MONEY FROM CHARGES BE USED FOR	32
3.5	TIME-SCALES AND TIME-RELATED PROFILES	33
3.6	MONETISING THE EMISSIONS REDUCTIONS	33
3.7	SCHEME COSTS	36
3.8	CHARGES PAID/REVENUE GENERATED	38
3.9	BENEFIT TO COST RATIOS	39
3.10	CONCLUSIONS FROM THE ECONOMIC CASE	40
4.	COMMERCIAL CASE	41
4.1	INTRODUCTION	41
4.2	PROCUREMENT CONTEXT AND STRATEGY	41
4.3	CAZ PROCUREMENT OBJECTIVES:	42
4.4	PROCUREMENT PACKAGES OVERVIEW	42

4.5	DETAILED PROCUREMENT APPROACHES	46
4.6	PROJECT CATEGORY B: PROVISION OF SUPPORT PACKAGES TO PROMOTE CAZ COMPLIANCE	53
4.7	PROJECT CATEGORY C: RESOURCES TO SUPPORT CAZ IMPLEMENTATION	56
4.8	PROJECT CATEGORY D:- MONITORING & EVALUATION OF THE CAZ	56
4.9	PROJECT CATEGORY E: ROTHERHAM METROPOLITAN BOROUGH COUNCIL (RMBC) LOCATION SPECIFIC MEASURES	57
4.10	USE OF THE COUNCIL’S HIGHWAY DELIVERY TEAM	58
5.	FINANCIAL CASE	63
<hr/>		
5.1	INTRODUCTION	63
5.2	PROJECT COSTS	63
5.3	OPERATING EXPENDITURE REQUIREMENTS	65
5.4	AFFORDABILITY	66
5.5	FUNDING SOURCES	66
5.6	FUNDING APPLICATIONS	67
5.7	FINANCIAL CONTINGENCY	68
5.8	FINANCIAL MODEL	68
5.9	KEY FINANCIAL RISKS	69
5.10	ACCOUNTING IMPLICATIONS	70
5.11	REVENUE GENERATION	70
5.12	NET OPERATIONAL POSITION	71
5.13	SENSITIVITY ANALYSIS	72
5.14	NEXT STEPS	72
6.	MANAGEMENT CASE	73
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6.1	INTRODUCTION	73
6.2	TRACK RECORD AND LINKAGES	73
6.3	OUR CORPORATE GOVERNANCE	79
6.4	SHEFFIELD AND ROTHERHAM CAZ PROJECT GOVERNANCE	84
6.5	PROGRAMME AND PROJECT DELIVERY APPROACH	86
6.6	PROJECT CONTROLS	87
6.7	RESOURCE REQUIREMENTS FOR DELIVERY OF THE CAZ PREFERRED OPTION	90
6.8	PROJECT PLAN	95
6.9	ASSUMPTIONS, DEPENDENCIES AND RISKS	96
6.10	COMMUNICATION STRATEGY	98
6.11	MONITORING AND EVALUATION	101
6.12	DECOMMISSIONING	106

LIST OF FIGURES

Figure 1 Potential Breaches of the Annual Average NO ₂ Limit in 2021 Predicted by Defra's National Modelling	12
Figure 2 Sheffield Air Quality Management Area	13
Figure 3 Monitored Locations in Sheffield Exceeding the Annual Average Limit Value of NO ₂ in 2017	14
Figure 4 Current Trend in Annual Average NO ₂ Concentrations at the Monitored AQ Hot-Spots in Sheffield	15
Figure 5 Air Quality Management Areas in Rotherham	16
Figure 6 Monitored Locations in Rotherham Exceeding the Annual Average Limit Value of NO ₂ in 2017	16
Figure 7 Current Trend in Annual Average NO ₂ Concentrations at the Monitored AQ Hot-Spots in Rotherham	17
Figure 8 AQ Monitoring Sites in Rotherham Showing Recent Increase in NO ₂ Concentrations	17
Figure 9 Hospital Admissions for Circulatory Diseases in Sheffield (Source: 2013 LEZ Study)	19
Figure 10 Emergency Admissions for Coronary Heart Disease in Sheffield	20
Figure 11 Potential Charging Area 1	30
Figure 12 Potential Charging Areas 2	31
Figure 13 Potential Charging Area 3	31
Figure 14 The Sector System Used to Aggregate the Emissions Benefits	34
Figure 15 Damage Cost-based Values of the Emissions Reductions	35
Figure 16 Predicted benefits from the reduction in three keys emission types in 2021	36
Figure 17 Comparison of the Total Package Costs (2018 Prices and Values)	37
Figure 18 Costs to Owners of Non-Compliant Vehicles	38
Figure 19 CAZ Charges Paid (and Revenue Generated)	38
Figure 20 Total 4-year Emissions Benefits per £ Spent (2018 prices and values)	39
Figure 21 Net Present Values (NPV) (2018 prices and values)	40
Figure 22 Sheffield and Rotherham CAZ Outcome Board Roles and responsibilities	85

1. EXECUTIVE SUMMARY

1.1 Context

- 1.1.1 The UK Government has identified Sheffield and Rotherham as one of a number of areas in England which contains locations where the annual average concentrations of Nitrogen Dioxide (NO₂) exceed statutory limits and are projected to continue to do so for a number of years.
- 1.1.2 The two Councils were therefore tasked with developing a strategy which will help ensure that their Council areas become compliant with this statutory limit in the 'shortest possible time'.
- 1.1.3 A Feasibility Study has been carried out which aims to deliver legal compliance in the shortest possible time, maximising the health and wellbeing benefits to people in Sheffield/Rotherham, whilst minimising the financial cost to them through charging. Both Sheffield and Rotherham councils are committed to making the air safe to breathe for all their communities.
- 1.1.4 The Preferred Option developed in the Outline Business Case brings scale, pace and proportionality to the air quality challenge and aims to help the two Councils achieve their ambitions of safe air for all. Achieving legal compliance with the statutory limit value in the both the short term and long-term requires wider population behaviour change.
- 1.1.5 The Preferred Option developed here will initiate a high profile joint communications campaign to encourage and incentivise people to make different travel choices, laying the foundations for a cleaner, healthier and more sustainable city/city region transport network.

1.2 The 5 Case Model

- 1.2.1 In line with the guidance provided by the Government's Joint Air Quality Unit (JAQU)¹, the overall approach to this Study is aligned to follow the UK Treasury's '**5 Case Model**', as set out in the HM Treasury Green Book. The five components of this approach are as follows:
 - Strategic Case – this aims to answer why are we doing this. It details the local and strategic context, outlining the situation and the case for change;
 - Economic Case – this aims to answer what option optimises public value. It conducts options appraisal against criteria and outlines the benefits and the costs of the options;
 - Commercial Case – this aims to answer, 'can this be delivered?' It details the service needs, supplier capability and capacity, and the procurement route;
 - Financial Case – this aims to answer, 'can and how will this be financed?' It details the funding needs, profile, sources of finance, and financial model;
 - Management Case – this aims to answer how this will be delivered successfully. It details the governance and management arrangements to ensure benefits are delivered, the delivery programme, and the monitoring and evaluation programme.
- 1.2.2 These five cases are being developed through three key sequential deliverables-: the **Strategic Outline Case (SOC)**, the **Outline Business Case (OBC)** and the **Full Business Case (FBC)**. Different levels of completion of each of the 5 Cases will be achieved at each of the three stages.
- 1.2.3 This document presents the **Outline Business Case**.

¹ Made up of staff from Defra and the DfT

1.3 Our Preferred Option – Category C CAZ with additional measures (+)

- 1.3.1 Our 'preferred option' is to introduce a charging Clean Air Zone (CAZ) Category C in an area covering Sheffield city centre from the inner ring road inwards.
- 1.3.2 Category C charging applies to non-compliant² buses, taxis/private hire vehicles, Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs). It will not apply to private cars.
- 1.3.3 We are proposing that the charge is £50 a day for non-compliant buses and HGVs and £10 a day for non-compliant vans and taxis/private hire vehicles.
- 1.3.4 Our preferred option is for the charging zone to be accompanied by a suite of support packages, to enable owners and drivers to replace older, polluting vehicles more quickly than they otherwise would. We have made clear that we do not want people to pay the CAZ charge, as this would increase their outgoings whilst not delivering the air quality improvements that we need. The charging zone is designed to encourage people to move away from dirty vehicles ('the stick'), while the proposed supporting packages are designed to provide positive incentives to finance, support and enable that change ('the carrot').
- 1.3.5 This will bring significant improvements to the buses, taxis, lorries and vans on Sheffield and Rotherham's roads, reducing emissions and improving the air that our communities breathe across the area (ie. cleaner buses, taxis, vans run across the city, not just within the CAZ).

1.4 Improving the vehicles on our roads – supporting drivers and businesses

- 1.4.1 This OBC contains more developed proposals on how we want to support the drivers and businesses that are most impacted on by the charging zone to replace their vehicles. We are seeking funding from Government to deliver this support.

² We are defining non-compliant to mean pre-EURO 6 (typically pre-2016) for diesel, pre-EURO 4 (typically pre-2004) for petrol and Ultra-low Emission Vehicle (ULEV) standard for taxis

<p>Hackney-style taxis (857 max licences in Sheffield)</p> <p>Ambition – over 90% of Hackney fleet to be Ultra Low Emission vehicles by 2021 (100% in the long term) and almost all of the Private Hire Vehicles</p>	<p>Liquid Petroleum Gas (LPG) upgrade (available to around 230 vehicles)</p> <ul style="list-style-type: none"> • Estimated 234 black cabs (25%) suitable for LPG upgrade • Retrofit cost of £8k-10k will be met through a grant (Government funded) • £1,000 in-kind contributions (eg. £500 standards upgrade; Free Initial and subsequent Compliance Test; Free Initial and subsequent Licence; MyTaxi app). • Vehicle will need to be under 8 years old, be in A1 condition and have never failed a compliance test. <p>Electric vehicle replacement (around 600 vehicles / 70%)</p> <ul style="list-style-type: none"> • Cost £40k (<i>cost difference between the value of their existing vehicle / new Euro 6 diesel black cab</i>) • 100% 5-year Interest Free Loan paid for with Government funding • Drivers pay back around £10k a year but avoid £40k cost of a new cab in 5 years' time • £1,000 in kind incentives – as above plus 2yrs of free MOT; • 15 year life for taxi (standards pending); £500 fuel charging points.
<p>Taxi - Private Hire Vehicles (PHVs)</p> <p>Ambition – upgrade the PHV fleet in Sheffield and Rotherham to ULEV by 2021</p>	<p>Petrol hybrid / electric upgrade (1,900 / 98% upgrade)</p> <ul style="list-style-type: none"> • Cost £20,000 (net cost of the upgrade from their existing £5,000 car to a £25,000 petrol hybrid) • 100% 5-year Interest-Free Loan • £500 incentive grant / £1,000 if upgrade to a full electric plus 2yrs of free MOT; 15 year life for taxi (standards pending); £500 fuel charging points.
<p>Buses</p> <p>Ambition – all buses in Sheffield and Rotherham to be replaced or retrofitted to Euro VI standard</p>	<p>Retrofit and replacement</p> <ul style="list-style-type: none"> • 100% retrofit/replacement of buses using Government funding sources • Ongoing retrofit of 117 non-Euro 6 diesel buses operating in Sheffield retro-fitted with technology (£1.9m from Clean Bus Technology Fund). 93 First buses and 24 Stagecoach buses will be upgraded by Spring 2019.
<p>LGVs</p> <p>Ambition – replace/upgrade sufficient LGVs to achieve compliance with support targeted at small local businesses</p>	<p>Upgrade to lowest emissions vans</p> <ul style="list-style-type: none"> • 5-year interest free loan for the full cost of this upgrade of vans to lowest emission vehicles available – enough to reach compliance (around 57% of non-compliant LGVs). • Target at smaller business with least capacity to resource upgrades • Assumes that the existing levels of support for LGV owners for clean vehicles (eg Plug in Van grant) are maintained or expanded.
<p>HGVs</p> <p>Ambition – support local small businesses with small numbers of vital HGVs to upgrade</p>	<p>Upgrade to lowest emissions lorries</p> <ul style="list-style-type: none"> • a small proportion of Rigid and Artic HGV owners are offered a 5-year interest-free loan to cover the full cost of their vehicle upgrade • Support targeted at smallest local businesses • Assumed that national logistics businesses and fleets will upgrade without support.

1.4.2 A number of location-specific measures are proposed in Rotherham in order to ensure compliance including:

- a Government-funded support package as part of the CAZ Business Case for the major bus companies to ensure that all buses operating on Rawmarsh Hill are upgraded or replaced to the Euro VI standard as a minimum, the diversion of a number of bus routes onto Barbers Avenue, and to improve the junctions at Dale Road and undertake minor works to Barbers Avenue itself, to support this measure;
- This measure will include junction improvements and bus priority measures to support the diversion of buses away from Rawmarsh Hill;

- support to the major bus operators to upgrade buses that operate on Fitzwilliam Road (A630), Eastwood to the highest level of Euro VI bus that is available (Euro VI 6B), and optimisation of traffic signals to minimise traffic emissions;
- implementation of an HGV ban on the northbound Upper Wortley Road and Wortley Road towards the M1 junction, through the use of a Traffic Regulation Order; and
- A reduction of the speed limit on the A630 Sheffield Parkway, from 70mph to 50mph.

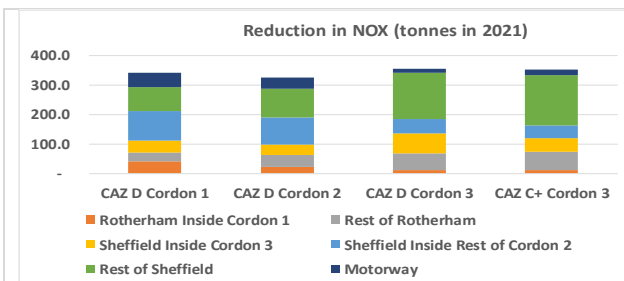
1.4.3 Our OBC proposals also include a number of other supporting measures including:

- improvements to traffic flow with traffic signal improvements (eg. Abbeydale Rd/Springfield Rd junction);
- extension of the Controlled Parking Zone around the city centre; and investment in extensive electric charging infrastructure in the city to support electric vehicles; and
- a major communications campaign – initially to drive engagement with our consultation but then focused on encouraging behaviour change in the wider Sheffield/Rotherham population (eg. warning of dangers of diesel; active travel; anti-idling etc).

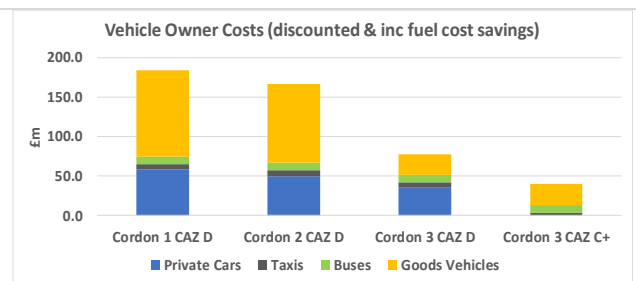
1.4.4 With the above package of support and the cost of implementing the charging zone, the overall ask of Government in the OBC is around £45m (2018 prices).

1.5 Impact of our preferred option on air quality

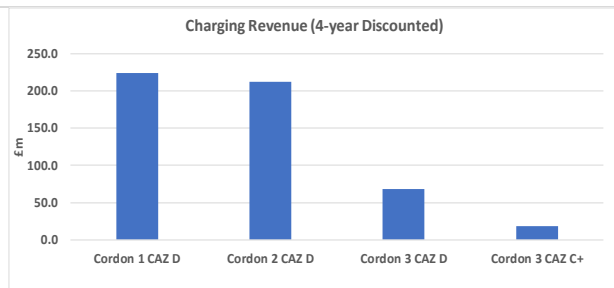
1. The OBC includes a detailed assessment of the economic impact of our preferred model on Sheffield and Rotherham. The charts below summarise the key impacts.



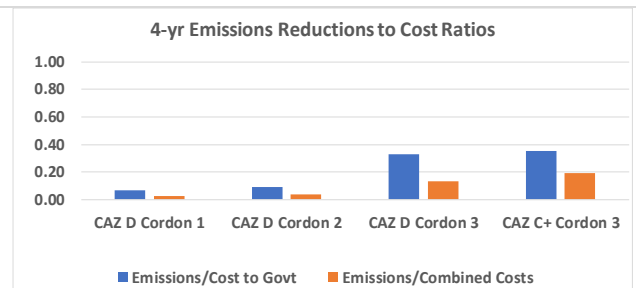
Despite the charging zone being in Sheffield city centre, the CAZ C+ proposal delivers a significant improvement in the air quality (NOx) in the city as a whole because of the replacement of significant proportion of the most polluting vehicles.



The CAZ C+ proposal with a city centre charging zone is the most effective approach to clean up our air whilst limiting the financial impact on drivers and residents. Alternative approaches with larger zones and/or charging for private cars significantly increase the impact on road users.

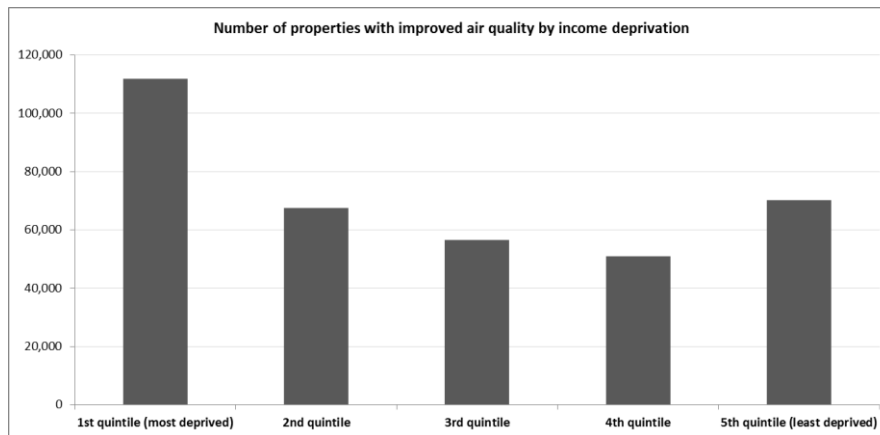


Similarly, by limiting the physical coverage of the charging zone and by not including private cars, the CAZ C+ proposal limits revenue from charging.



The chart above suggests that our preferred option of the CAZ C+ is pound-for-pound the most effective at delivering air quality improvements for the investment made.

- 1.5.1 In addition to the above, the Economic Case includes a distributional impact assessment which demonstrates that the improvement in air quality is felt far beyond the CAZ boundary into the neighbourhoods and communities across Sheffield and Rotherham.
- 1.5.2 The preferred option also delivers significant improvements to lower income communities in Sheffield/Rotherham, with households in the most income deprived communities seeing the greatest improvements in air quality from the CAZ proposal.



1.6 Conclusions

- 1.6.1 Our ambitious proposal delivers legal compliance in the shortest possible time, maximising the health and wellbeing benefits to people in Sheffield/Rotherham whilst minimising the financial cost to them through charging. Both Sheffield and Rotherham councils are committed to making the air safe to breathe for all our communities.
- 1.6.2 We have a unique geography, economy and road traffic fleet and our proposals are designed to rapidly deliver our legal duties whilst being fundamentally shaped by what we know will work our communities and businesses. This will be further enhanced through an extensive and meaningful consultation in early 2019.
- 1.6.3 The change we are proposing is significant, but our ask is specifically targeted to remove the vehicles from our roads that make the biggest contribution to our NO_x problem whilst ensuring that those least able to afford the change are supported and incentivised to switch to clean vehicles
- 1.6.4 Our preferred option of a CAZ C with additional interventions delivers the best pound-for-pound investment to the reduction of NO_x, with the overhaul of the most polluting buses, taxis and vans bringing clean air to people, communities, neighbourhoods across Sheffield and Rotherham, not just within the CAZ. Critically, it is the very communities that often suffer the worst effects of polluted air that are the major beneficiaries of our proposals.
- 1.6.5 The CAZ C+ proposal brings scale, pace and proportionality to our air quality challenge but our ambitions are for safe air, not just legally compliant air. Achieving legal compliance in the short term and long-term requires wider population behaviour change and our proposal will initiate a high profile joint communications campaign to encourage and incentivise people to make better travel choices, laying the foundations for a cleaner, healthier and more sustainable city/city region transport network.



2. STRATEGIC CASE

2.1 National Context

- 2.1.1 There are legally binding health-based limit values for concentrations of several pollutants in outdoor air, notably NO₂. The UK Government have used a combination of national modelling and monitoring in accordance with legislation to determine the concentrations of these pollutants in order to assess compliance.
- 2.1.2 The Pollution Climate Mapping (PCM) model is the UK's national air quality model and provides outputs of pollutant concentrations in the UK at a 1x1 km resolution and also at around 9,000 roadside locations for urban major roads (A and M class roads).
- 2.1.3 This national modelling identified Sheffield and Rotherham as one of 29 areas in England where concentrations of Nitrogen Dioxide (NO₂) exceed statutory limits and are projected to continue to do so over and beyond the next 3-4 years.
- 2.1.4 In particular, the Government's [National Air Quality Plan](#)³ (NAQP) identified a small number of corridors in the Sheffield and Rotherham area⁴ (See Figure 1 below) which are predicted to still be breaching the statutory 40 µg/m³ limit on the annual average concentration of NO₂ by 2021, under a 'Business as Usual' forecast scenario.

³ DEFRA (2017) *UK plan for tackling roadside nitrogen dioxide concentrations*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/633022/air-quality-plan-detail.pdf

⁴ A630 – A57 Parkway (from M1 J33 to City Centre, and sections of the A61 Inner Relief Road).

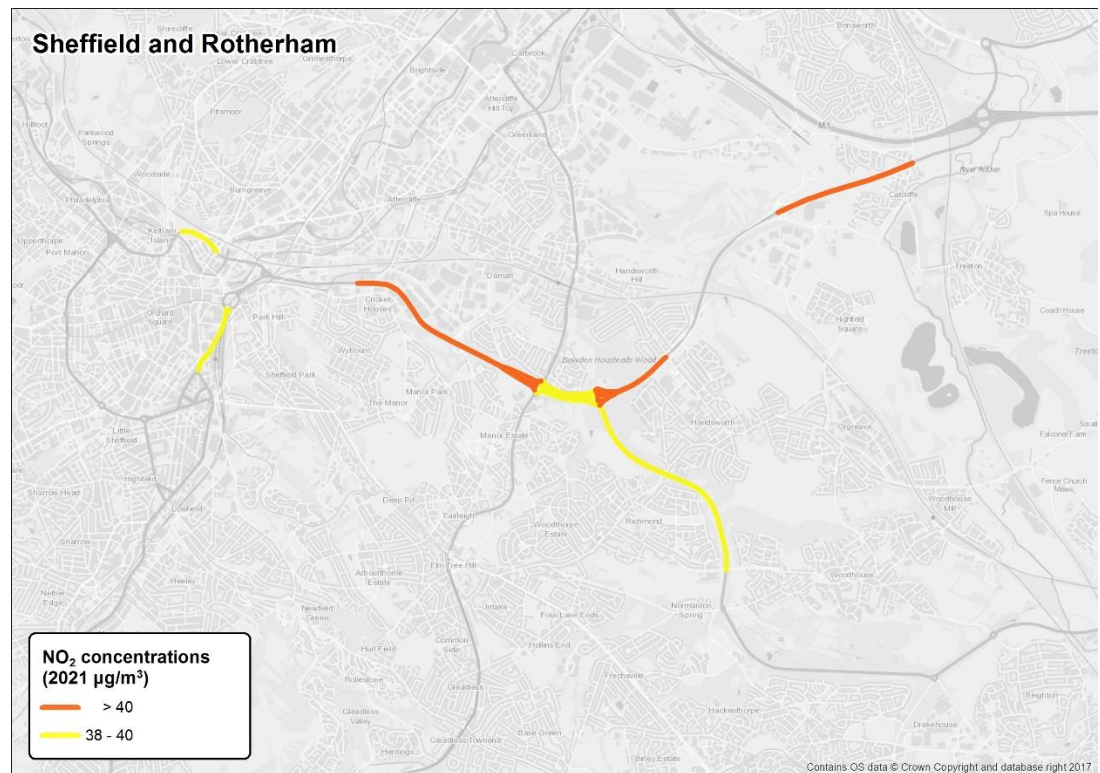


Figure 1 Potential Breaches of the Annual Average NO₂ Limit in 2021 Predicted by Defra’s National Modelling

- 2.1.5 However, Sheffield and Rotherham’s own local air quality monitoring suggests that there are a large number of sites across the combined area which currently breach this annual NO₂ limit (see Sections 2.3 and 2.4 below for details) and projecting forward using recent time series data for the air quality at these locations suggests that NO₂ concentrations at many of them will continue to be problematic up to and beyond 2021, under a ‘Business as Usual’ forecast scenario.
- 2.1.6 The current version of DEFRA/DfT’s standard emissions forecasting tool - Emissions Factor Toolkit (EFT) V8.0.1 - is predicting a rapid decline in NO_x emissions from road traffic over the next few years, which is likely to help bring down levels of NO₂ across the two authorities.
- 2.1.7 However, there is a risk that the relevant emissions technologies will not deliver all the required emission reductions as quickly as predicted by the EFT and, even if they do, some of the locations may still be above the required annual NO₂ limit by 2021, especially those currently exceeding 50 µg/m³ and/or where other non-traffic-based sources of pollution are contributing significantly to the local NO₂ levels.
- 2.1.8 Sheffield and Rotherham are therefore working together to undertake a Local Feasibility Study which identifies a package of measures which will help ensure area-wide compliance with the relevant limits ‘in the shortest possible time’.

2.2 Local Traffic, Emissions and Air Quality Modelling

- 2.2.1 To achieve a full understanding of the location and causes of poor air quality across the two Council areas, we have used a combination of a detailed traffic model (to provide estimates of traffic flows and speeds), a traffic emissions model (based on the DfT’s EFT vehicle emission methodology) and an air pollution dispersal model, based on South Yorkshire’s Airviro model. The data underpinning these models comes from extensive local ANPR data collected over a 12 month period. This approach has enabled us to:

a) predict future NO₂ levels across the two Council areas (and hence identify all potential non-compliant areas);

b) understand the main sources of the NO_x emissions which are contributing to these local air quality hot-spots – in particular, to identify which vehicle types and EURO emission categories are contributing most to the various problem areas; and

c) test the likely impacts of the measures which might be introduced to tackle these current and future air quality problems, including the effects of any measures which significantly alter traffic flows across the two Council areas and beyond.

2.2.2 The calibration of these three inter-linked models required, among other things, a detailed understanding of the local traffic fleets, derived by linking observed number plate data (from 12 month local ANPR data) with the vehicle type and emission characteristics (e.g. fuel type and EURO class) available from the DVLA's database.

2.3 Air Quality in Sheffield

2.3.1 Sheffield approved an Air Quality Action Plan (AQAP) 2015, to try and reduce air pollution in order to bring Sheffield into compliance.

2.3.2 The AQAP relates to Sheffield's Air Quality Management Area (AQMA), shown in Figure 2 below, which is the urban area of Sheffield. A key contributor is road traffic, in particular diesel vehicles, where engine technology is not performing as expected in urban areas like Sheffield.

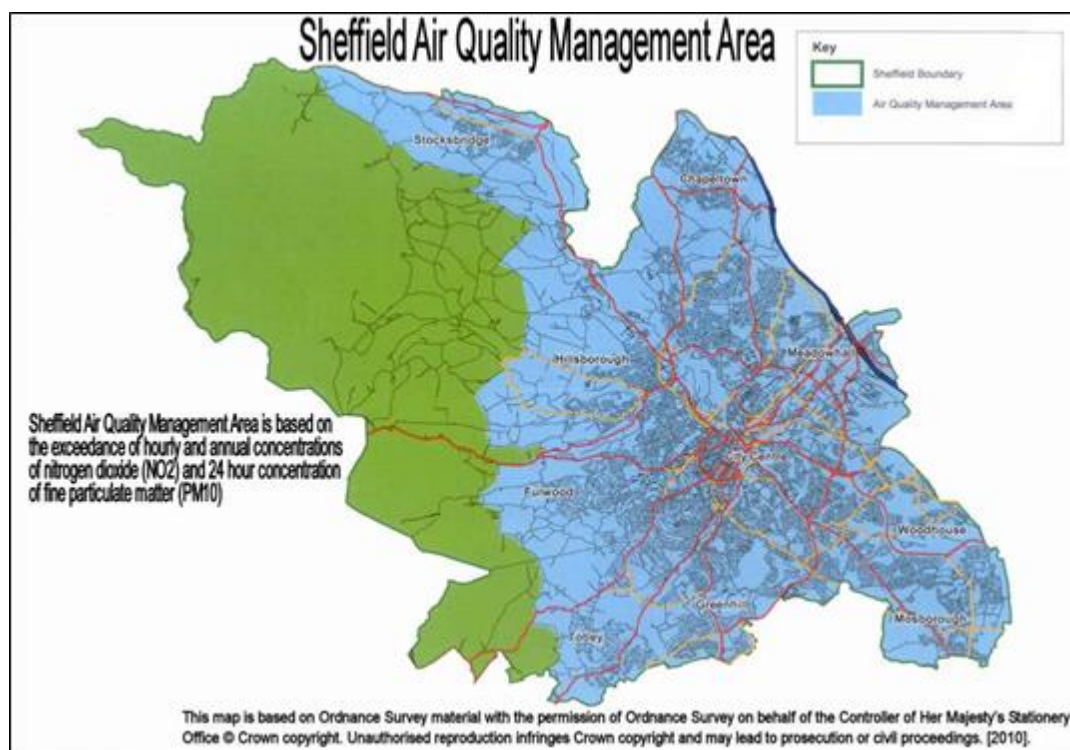


Figure 2 Sheffield Air Quality Management Area

2.3.3 Sheffield City Council currently measures Sheffield's NO₂ concentrations 24 hours a day, 365 days a year using automatic (continuous) monitoring at 5 sites and non-automatic (passive – diffusion tube) monitoring at 163 sites. In addition, there are 2 sites owned by DEFRA. These are stationary sites in the city centre and Tinsley.

2.3.4 This NO₂ monitoring data shows that while levels of NO₂ are gradually coming down, they still breach the 40 µg/m³ limit on the annual average concentration limit at a large number of locations across the AQMA.

2.3.5 Figure 3 below shows the air quality monitoring locations in Sheffield where the annual average concentration of NO₂ exceeded 40 µg/m³ in 2017, with the gradated colour scheme highlighting the scale of the current exceedance.

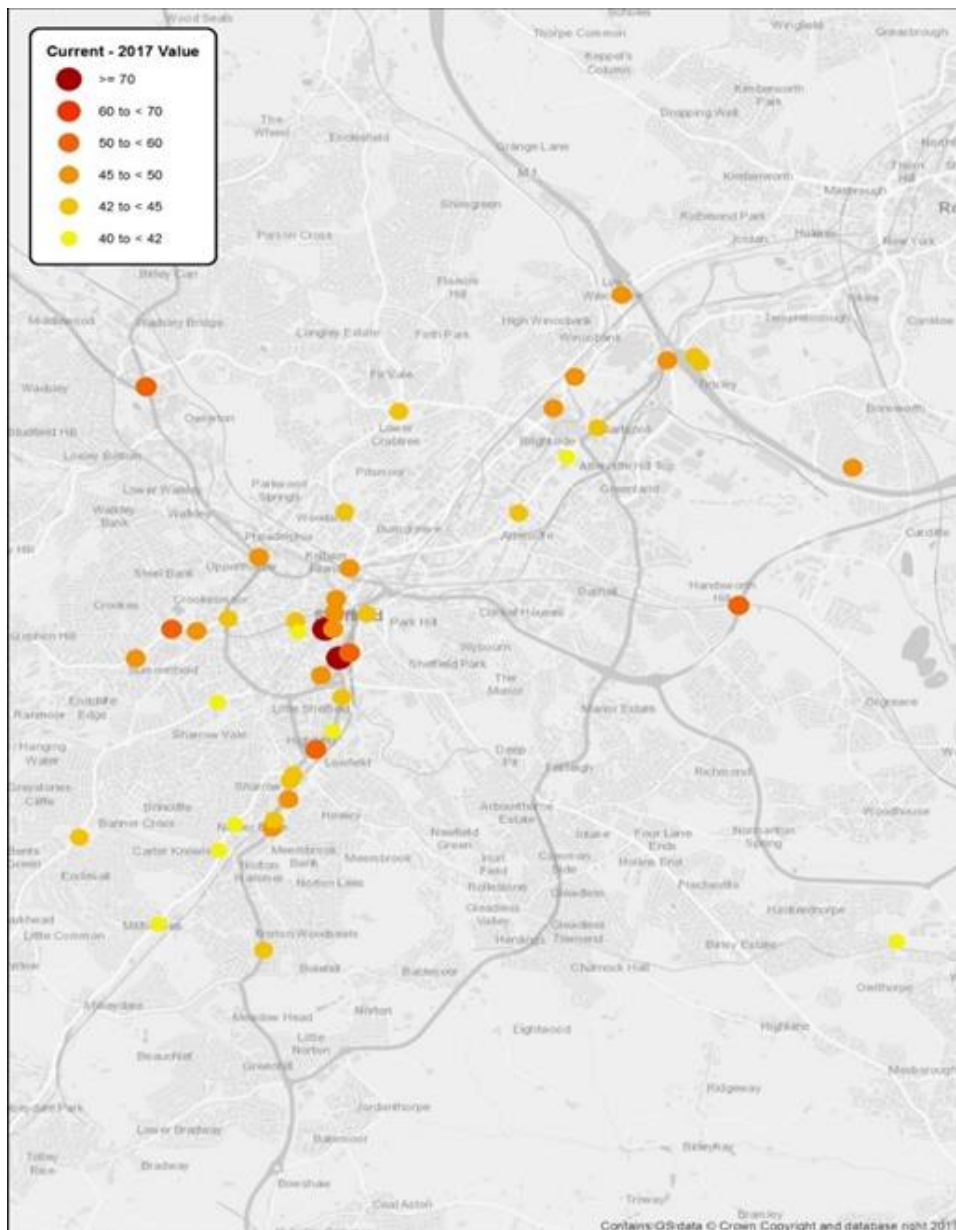


Figure 3 Monitored Locations in Sheffield Exceeding the Annual Average Limit Value of NO₂ in 2017

2.3.6 As can be seen from the map in Figure 3, some of the key transport corridors into and out of Sheffield city centre are of particular concern.

2.3.7 The observed and forecast levels of NO₂ for the Sheffield area are summarised in Supporting Document OBC_SD07 (AQ3 Local Air Quality Modelling Report).

2.3.8 The recent trends at these monitored ‘Hot-spots’ in Sheffield suggest that the annual average concentration of NO₂ is now falling steadily by around 6% per annum on average, as illustrated by the chart in Figure 4 below.

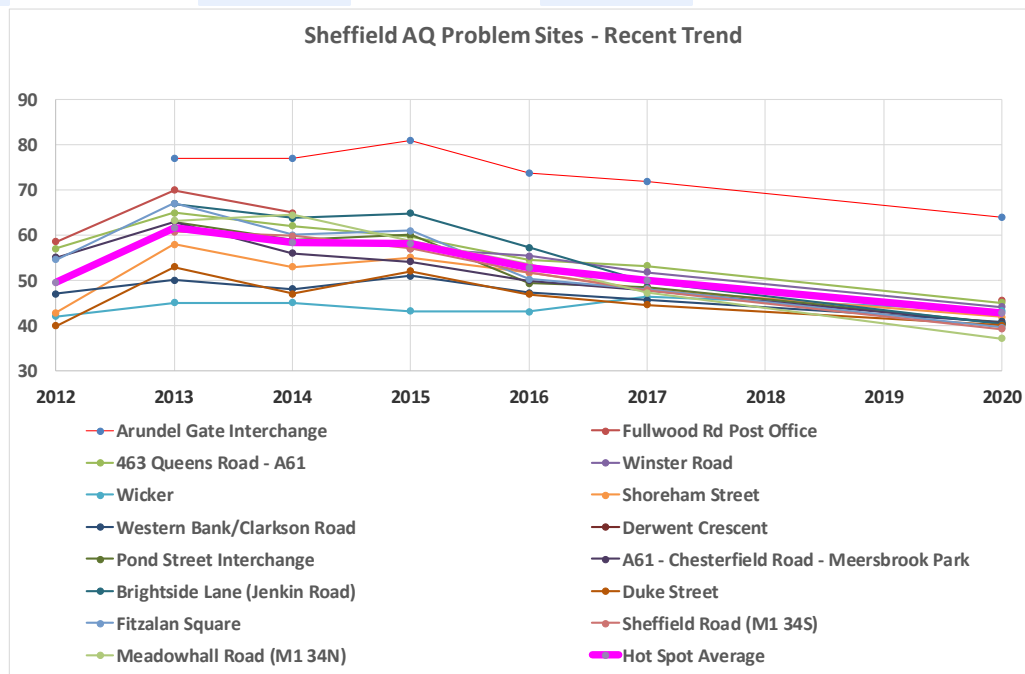


Figure 4 Current Trend in Annual Average NO₂ Concentrations at the Monitored AQ Hot-Spots in Sheffield

- 2.3.9 However, this downward trend will not be sufficient to achieve compliance at all locations by 2021. The significant residual locations for Sheffield in terms of compliance with the Air Quality Directive (AQD) are the A57 Parkway, A61 Sheaf Street close to Sheffield train station, the A6178 Sheffield Road close to J34S M1 Motorway, A61 Derek Dooley Way and C710 Arundel Gate. These four locations are likely to have non-compliant (or close to non-compliant) annual average NO₂ concentrations in 2021, under 'Business as Usual' assumptions.
- 2.3.10 In particular, Arundel Gate operates as a busy bus interchange and is exposing a significant number of pedestrians and bus passengers to its non-compliant levels of NO_x/NO₂ and will therefore need to be treated as a 'special case'.
- 2.3.11 The locations for target determination in Sheffield are Parkway (A57), Sheaf Street (A61), Sheffield Road (A6178) and Arundel Gate (C710).

2.4 Air Quality in Rotherham

- 2.4.1 In the Rotherham urban area, only one location (namely the A630 Sheffield Parkway) is predicted to be non-compliant in 2021 by the national PCM-based modelling. This location was predicted to remain non-compliant until 2022.
- 2.4.2 However, although air quality in most of the rest of Rotherham is good a number of areas have been identified as having elevated air pollution and have been declared as Air Quality Management Areas (AQMA) and can be seen (shaded in green) on the map below. The red dots on this map indicate the location of the key air quality monitors. All Rotherham's AQMAs have been declared because of road traffic.

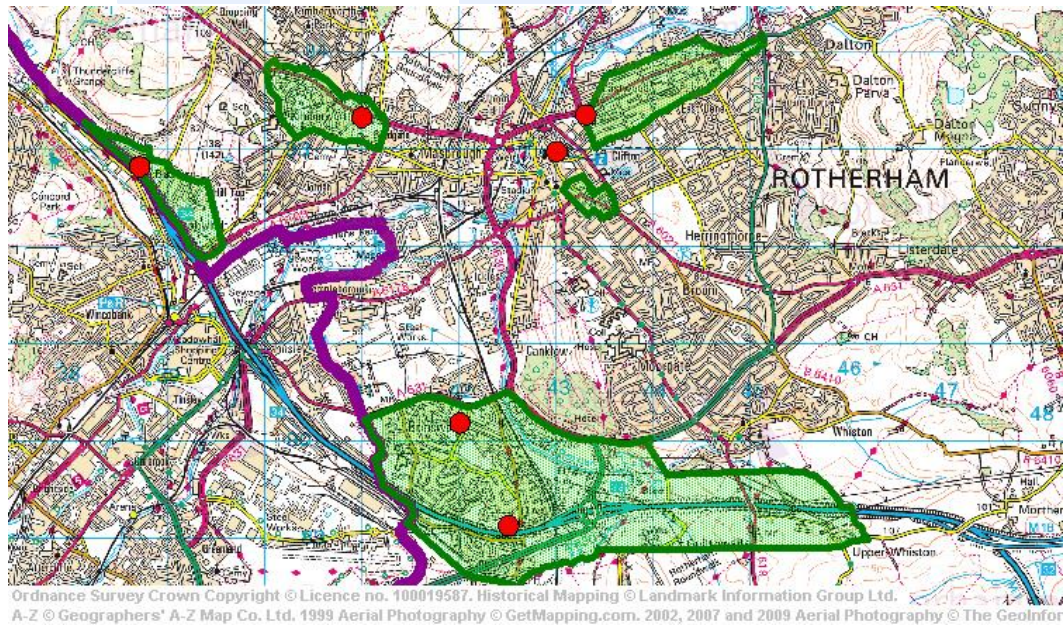


Figure 5 Air Quality Management Areas in Rotherham

2.4.3 The monitoring locations within Rotherham which exceed the National Air Quality Strategy objective of $40\mu\text{g}/\text{m}^3$ in 2017 are illustrated in the map in Figure 6 below.

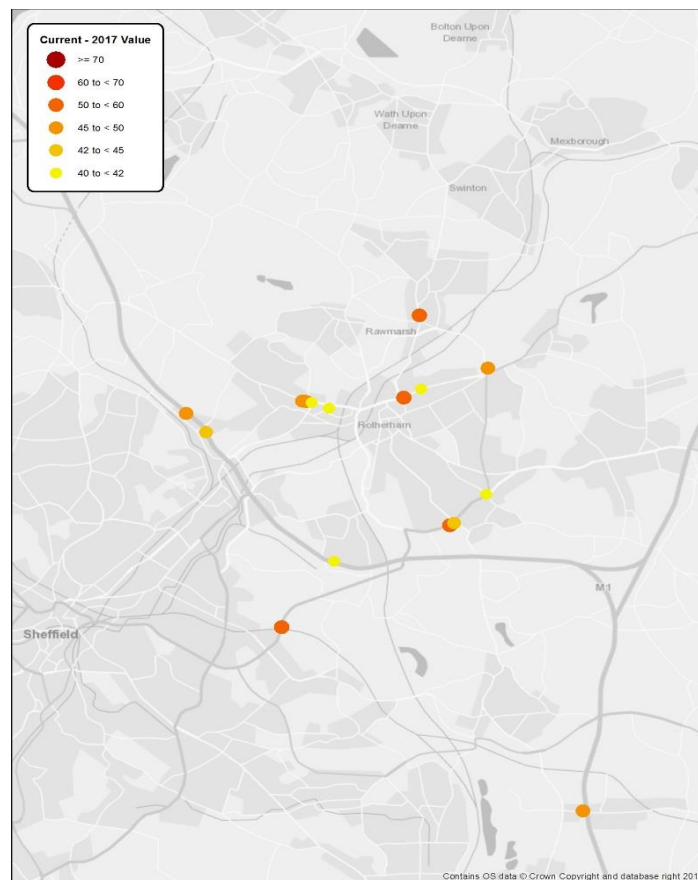


Figure 6 Monitored Locations in Rotherham Exceeding the Annual Average Limit Value of NO_2 in 2017

2.4.4 Analysis of the recent trend in Rotherham’s monitored air quality at these ‘hot-spot’ sites (illustrated in Figure 7 below) suggests a significant amount of local variation, with little evidence of any significant downward trend. This suggests that the emission reductions from fleet

improvements have been offset by growth in traffic levels and/or congestion in Rotherham over recent years.

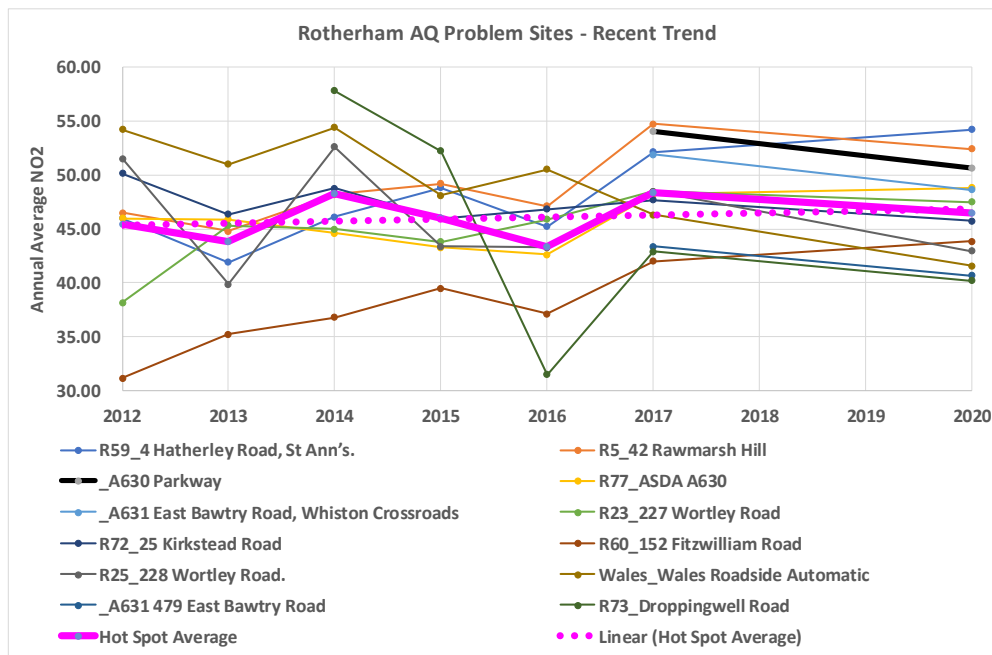


Figure 7 Current Trend in Annual Average NO₂ Concentrations at the Monitored AQ Hot-Spots in Rotherham

2.4.5 More-worryingly, there appears to have been a significant deterioration in the average NO₂ levels at some of these sites over recent years, as illustrated in

2.4.6 Figure 8 below.

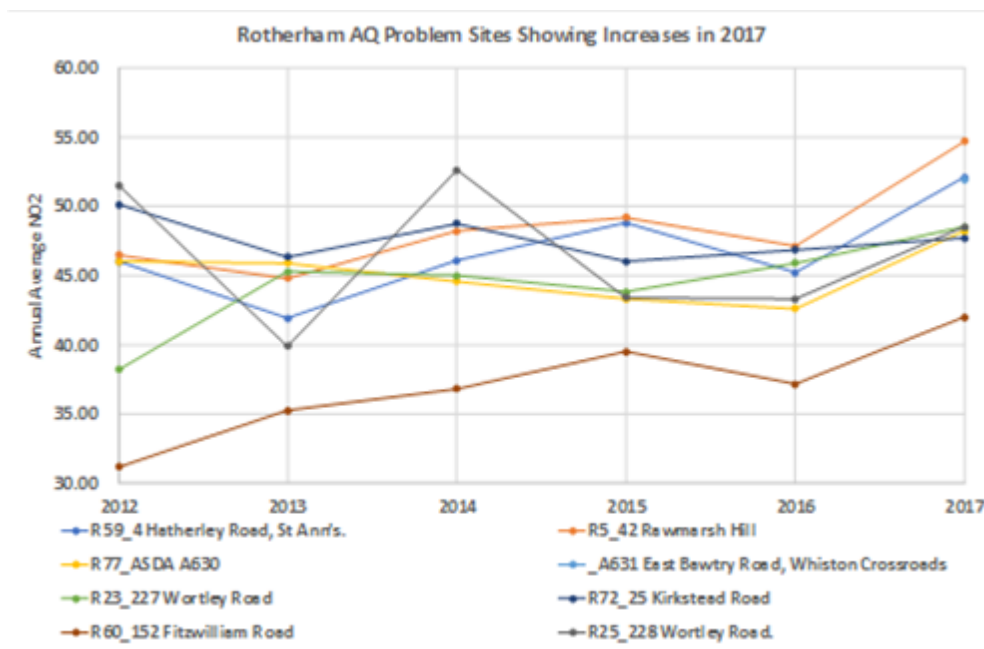


Figure 8 AQ Monitoring Sites in Rotherham Showing Recent Increase in NO₂ Concentrations

2.4.7 Many of these sites have been affected by temporary traffic rerouting through Rotherham to avoid major roadworks on the M1, which may help explain some of the particularly-large rises in annual average NO₂ levels between 2016 and 2017.

2.4.8 More-generally, we have used the ANPR-based fleet data, historic traffic counts from the DfT's traffic count website⁵ and our EFT-based emissions profiles to ensure that we understand these recent average annual NO₂ concentration profiles.

2.4.9 At all the above sites, our local monitoring shows exceedance of the NAQS Objective and EU Limit Values. The key locations in terms of compliance with the AQD in 2021 are expected to be the A629 Wortley Road, A633 Rawmarsh Hill, A630 Fitzwilliam Road and the A630 Parkway. Two of these roads have significant gradient issues (A629 and A633). Additional Information on the non-compliant road links in 2021 is as follows:

- The A633 Rawmarsh Hill has a steep uphill gradient (which is not accounted for in the emissions data from the transport model), which results in acceleration from standing at traffic lights uphill (it should be stressed that we do not assess compliance within 25m of a junction as per JAQU requirements), and the presence of buildings close to the road. The link which is forecast to be non-compliant in 2021 without measures is in an Air Quality Management Area. The Council has monitored data going back many years. The highest measured nitrogen dioxide roadside annual mean 2017 was 54 µg/m³, however, this monitoring location is not the point with the highest level of nitrogen dioxide annual mean along the route. The road is close to a major shopping centre which attracts a significant number of vehicle trips. For 2017, buses have been calculated to contribute 20 % of NO_x emissions at roadside.
- The A629 has a steep uphill gradient (which is not accounted for in the emissions data from the transport model), which results in acceleration from a roundabout uphill and is a route used by HGVs to the M1 J35, in spite of signage directing them to J34 (N) being present. The link which is forecast to be non-compliant in 2021 without measures is in an Air Quality Management Area. The Council have monitored data going back many years. The highest measured nitrogen dioxide roadside annual mean 2017 was 48 µg/m³, however, this monitoring location is not the point with the highest level of nitrogen dioxide annual mean along the route.
- The Parkway (A630) is the main route from J33 of the M1 to Sheffield City Centre. It has no sensitive receptors in terms of LAQM within 4m of the carriageway. The only possible pedestrian public exposure in the section which goes through Rotherham is a footpath crossing. The speed in that section is currently 70mph. The road experiences congestion, in particular during the pm peak period when drivers are heading for M1 J33 from Sheffield City Centre.
- A630 Fitzwilliam Rd is on the main route from east to west through Rotherham town centre. The link which is forecast to be non-compliant in 2021 without measures is in an Air Quality Management Area. We have monitored data going back many years showing exceedance of the AQD.

2.4.10 Levels of nitrogen dioxide at 4m from the M1 (DfT census point 36007) are the highest in the borough and much higher than any of the levels at 4m from local roads. Rotherham, has relevant exposure of residents at distances of around 20m from the carriageway and the Council has declared several Air Quality Management Areas as a result of emissions from the M1. However whilst the M1 is outside the scope of this study and Highways England have not been directed in the same way to undertake a CAZ Feasibility Study the expectation of both SCC and RMBC is that further action must be undertaken to address poor Air Quality related to the Strategic Road Network.

⁵ <https://www.dft.gov.uk/traffic-counts/cp.php?la=Rotherham>

2.5 Health Impacts

- 2.5.1 Air pollution is a mixture of particles and gases that can have an adverse effect on human health. Although air pollution has improved over recent decades, there are still significant public health challenges mainly related to Particulate Matter (PM_{2.5} and PM₁₀) and nitrogen dioxide (NO₂) in ambient air. Air pollution is associated with a number of adverse health impacts and is recognised as a contributing factor in the onset of heart disease and cancer and particularly affects the most vulnerable in society: children and older people, and those with existing heart and lung conditions (The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. The Committee on the Medical Effects of Air Pollutants (COMEAP) (2010)⁶.
- 2.5.2 Additional guidance on the health impacts of poor air quality and the cost/benefit values of different interventions have been published by the National Institute for Health and Care Excellence (NICE)⁷

Health Impacts in Sheffield

- 2.5.3 Poor air quality adversely affects human health, and has recently been estimated to account for up to 500 premature deaths per year in Sheffield, with health costs of around £160 million per year. It has short and long-term health impacts, particularly for respiratory and cardiovascular health, including increased admissions to hospital. Overall, the adverse effects of poor air quality are likely to be having a bigger negative impact on SCC's residents' life expectancy than road traffic accidents or passive smoking.
- 2.5.4 Analysis of Sheffield's hospital admissions for 'Circulatory diseases' and for coronary heart disease (undertaken as part of the DEFRA funded 2013 Sheffield Low Emission Zone Study) both show a strong correlation with the annual average concentration of small particulate matter in the various Sheffield neighbourhoods – see and Figure 9 and Figure 10 for details.

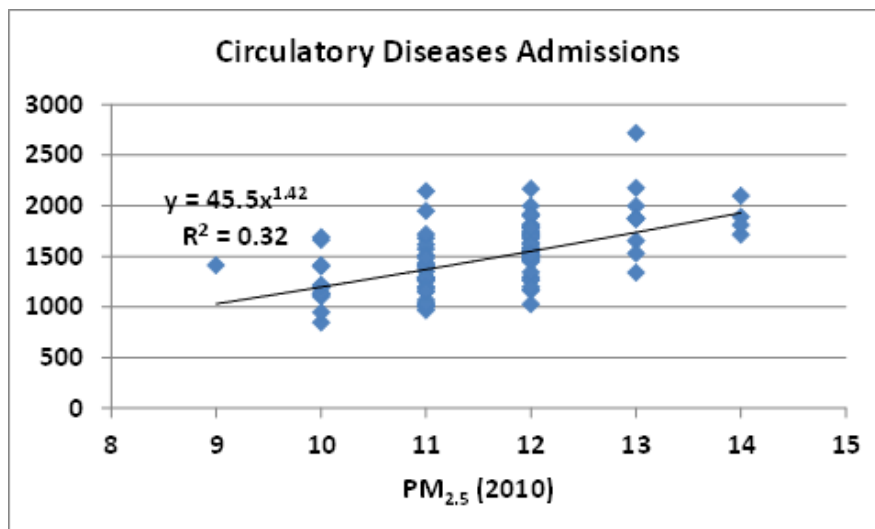


Figure 9 Hospital Admissions for Circulatory Diseases in Sheffield (Source: 2013 LEZ Study)

⁶ <https://www.gov.uk/government/publications/comeap-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk>

⁷ <https://www.nice.org.uk/guidance/ng70>

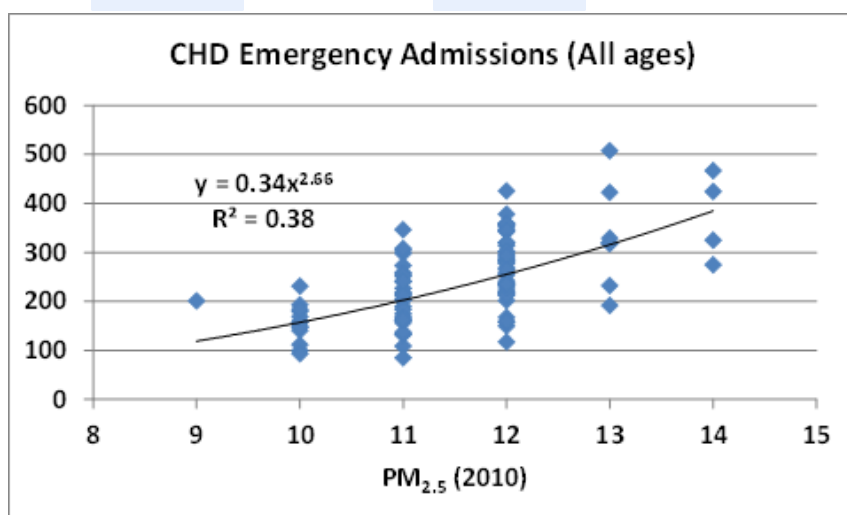


Figure 10 Emergency Admissions for Coronary Heart Disease in Sheffield (Source: 2013 LEZ Study)

- 2.5.5 The Defra-funded Sheffield Air Aware campaign aims to raise awareness about Particulate Matter (PM₁₀) and Nitrogen Dioxide (NO₂) gas. The campaign encourages individuals to reduce air pollution for example by switching to sustainable modes or switching car engines off whilst stationary. Further information can be found at: <https://www.sheffield.gov.uk/airaware>.

Rotherham

- 2.5.6 The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion (Defra. Abatement cost guidance for valuing changes in air quality, May 2013). Rotherham's Director of Public Health recognises air quality as a priority, as can be seen in the latest Joint Strategic Needs Assessment:

http://www.rotherham.gov.uk/jsna/info/50/places/70/air_quality

- 2.5.7 Our South Yorkshire 'Care4Air' film to communicates key messages about air pollution and health to the public in an accessible way: <http://www.care4air.org/>

RMBC's 2014 Health Impact Assessment

- 2.5.8 Rotherham MBC's Public Health Registrar carried out a Health Impact Assessment in 2014 with the aim of aims were stated as follows:

'... to collate and apply the international evidence of the detrimental effects on health from outdoor air pollution to the Borough of Rotherham. By examining and describing the relationship between inequalities in both health outcomes and poor air quality, it will enable future decision-making regarding development to include consideration of the health consequences of any likely change in air quality. It will also assist communities in better understanding the effects on their health of policy decisions regarding air pollution generated by development.'

- 2.5.9 The key findings of this assessment were:

1. There are widespread inequalities in the spatial distribution of health outcome indicators in Rotherham, that to a large extent mirror the inequalities in distribution of socio-economic deprivation.
2. There is considerable variation in the spatial distribution of Nitrogen Dioxide air pollution across Rotherham, again mirroring the distribution of socio-economic deprivation.
3. There is a statistically significant association between these two sets of inequalities (Health Outcomes and NO₂ µg/m³) after adjustment for confounders (deprivation), suggesting that in part poorer air quality in some areas of Rotherham may independently

affect health outcomes (CHD Deaths in under 75's (P=0.04); Circulatory Disease Deaths in under 75's (P=0.03); and the Percentage of Low Weight Births (P=0.048).

2.5.10 Estimated effect sizes for these associations per increase of 1 $\mu\text{g}/\text{m}^3$ NO_2 are:

- CHD Deaths <75 3.11 (95% CI 0.11 to 6.11);
- Circulatory Disease Deaths <75 2.38 (0.21 to 4.55); and
- Low Weight Birth (%) 0.15 (0.001 to 0.30).

2.6 Relevant Local Authority Policies and Strategies

Sheffield City Council

2.6.1 Sheffield carried out a Defra-funded Low Emission Zone Study in 2013. This indicated that to achieve legal compliance levels, Sheffield needed to reduce NO_x by 30% in the city. It estimated that a 20% reduction of those city-wide emissions could be achieved by making all buses and taxis Euro 6 standard or better. The remaining 10% reduction could be achieved by improving public sector fleets and increasing public transport use, active travel and public awareness of air quality issues.

2.6.2 Sheffield built on this work to develop a city Clean Air Strategy⁸ which was approved by Cabinet in December 2017. It set out the following vision: We want the air in Sheffield to be safe to breathe, regardless of where people live, work or visit. We will work together to tackle the sources of air pollution and to create a healthy, thriving city where many more journey are made using active travel and low emission public transport.

2.6.3 The strategy stated that “Sheffield City Council has no intention to charge private car users. Key actions in the Strategy include:

- Carrying out a feasibility study to determine the measures required to improve air quality in the short-term, including considering the effectiveness of a charging clean air zone – this feasibility study will actively consider charging the largest and most polluting vehicles such as buses, coaches, HGVs and other goods vehicles, for driving through a Clean Air Zone;
- Buses – improve the bus fleet and reduce emissions through replacement low-emission buses or retrofitting vehicles with cleaner engine technology;
- Taxis – consult and work with the taxi operators to ensure we have the right standards in place; seek Government investment for a fund to help taxi operators/owners to improve their vehicles; and take action to reduce taxi idling in the city.;
- Cars – consider specific schemes to support people on lower incomes to change to lower emission vehicles, particularly where their job or responsibilities require unavoidable and frequent use; and
- Idling – roll out Anti-Idling Zones around schools and other sensitive locations.

2.6.4 The Strategy recognised that tackling the most polluting vehicles is important, but in the long term Sheffield want to help people make more journeys by active travel and public transport in order to ease congestion and to realise the health benefits of an active population:

⁸ Item 10 of Cabinet Meeting 13th December 2017

<https://imgmeetings.sheffield.gov.uk/ieListDocuments.aspx?CId=123&MId=6624&Ver=4>

- Transport and infrastructure - evidence indicates that the future additional development that the city needs to create housing and economic growth will place pressure on the existing transport infrastructure and by 2024 the congestion in the city will lead to significant and unreasonable delays, particularly at peak times. This is one of our key economic challenges.
- A congested and unreliable road network will limit the capacity for future growth and lead to increased levels of stationary traffic and worsening levels of air quality. A holistic approach towards delivering infrastructure that supports a sustainable transport network that promotes and enables sustainable growth across the city is therefore essential.
- The new Transport Vision suggests a clearer categorisation of the road network where we need to intervene to alleviate congestion on the city's key arteries, improve air quality and provide the right infrastructure and services to incentivise more sustainable travel options.
- Healthy and Active Population – improving the health of the city is not just about reducing air pollution. Finding cleaner vehicle solutions, for example with more electric cars, will help tackle air pollution, but it will not help people in Sheffield to realise the physical and mental health benefits of being more active. As part of our approach to improving air quality, Sheffield want to create a city where people want to walk, run and cycle more and where active travel is safe and pleasant.
- The opportunities for our economy of a clean air city are significant. The majority of these benefits lie in the fact that improving the long-term health and wellbeing of residents, through better air and a more active population, will mean that they will have fewer days off sick, and will cost less to the health service. In addition, a city which is easier to get around using an efficient and sustainable public transport system and easy, safe types of active travel, is one which is well connected and attractive to businesses.

Rotherham Metropolitan Borough Council

Rotherham Air Quality Action Plan⁹

- 2.6.5 The Rotherham Air Quality Action Plan (AQAP) has been produced in response to the Council's statutory duty in accordance with the Local Air Quality Management Framework. It outlines the actions that the Council will take to improve air quality in the borough between 2016 and 2020. The AQAP follows the standard format published by Defra in statutory guidance (LAQM 2016).
- 2.6.6 The AQAP reaffirms the Council's commitment to improve the health and wellbeing for the people of Rotherham, and a key component of this is protecting and improving air quality. Elevated levels of air pollution have a negative impact on our health, particularly on the young and the elderly, resulting in significant levels of illness, early death and financial costs to the NHS and wider society.
- 2.6.7 To achieve this, the AQAP outlines a number of actions, which have been prioritised to maximise the impact of measures to ensure the most effective use of resources to improve air quality. These priority areas are:
- Priority 1 – Implementation of Policy Guidance and mitigation of air quality impacts through Development Control;
 - Priority 2 - Promoting Low Emission Transport in particular cleaner buses, taxi licensing and recharging infrastructure;
 - Priority 3 - Promoting Travel Alternatives to the private car;

⁹ Rotherham Air Quality Action Plan; http://www.rotherham.gov.uk/info/200075/pollution/375/a_guide_to_air_pollution/2

- Priority 4 - Raising public awareness through Public Information; and
- Priority 5 - Efficiency of the Rotherham MBC Vehicle Fleet

2.6.8 To deliver against these priorities, the AQAP set the policy ambition for an internal governance review which created a Steering Group, with represents across various disciplines to help promote air quality within the forefront of decision making. As a result, a number of measures were developed, with these being constantly discussed in light of new evidence, funding opportunities and available technologies. Typical examples include, a Low Emission Strategy, Infrastructure for refuelling low emission vehicles, Electric Vehicle Infrastructure, communication campaigns, fleet improvement and close working relationship with key stakeholders such as bus operators, the NHS and Highways England to change operational practices to improve air quality.

Rotherham Transport Strategy¹⁰

2.6.9 The Rotherham Transport Strategy explains how on a local level, Rotherham will contribute to the strong policy direction set out in the Sheffield City Region Transport Strategy (2011-2026). It features proposals to work in partnership to continue to improve the local road network in Rotherham and to support sustainable and affordable transport modes of travel. There is a commitment to ensuring improvement and focused investment in reducing congestion, promoting public transport and promoting more walking and cycling. The Strategy outlines two primary reasons for doing so:

- To support economic recovery in the Rotherham and;
- To adapt to and reduce the transport systems impact on safety, health and climate change to help safeguard its benefits for future generations.

2.6.10 In accordance with the second point, there are a number of themes which have cross cutting implications for air quality. The Strategy references the need to integrate land use to ensure new developments are focused around key public transport corridors whilst recognising the benefits that walking and cycling can deliver in relation to reducing congestion and more sustainable behaviour.

2.6.11 The Strategy includes a specific scheme (Theme 19) which outlines the commitment to “To work to improve the efficiency of vehicles and reduce carbon emissions and to improve air quality, especially in designated areas”. This Theme identifies a number of specific actions;

- The use of Intelligent Transport Systems to improve traffic flow and therefore reduce emission of pollutants that compromise local air quality and have a significant effect on Health.
- The promotion of the ECO Stars Fleet Recognition Scheme (Efficient and Cleaner Operations). The ECO Stars programme is a free, voluntary scheme designed to provide recognition, guidance and advice to operators of goods vehicles, buses and coaches across South Yorkshire.
- Internal working relationships within the Council between the Transportation and Air Quality teams promote schemes that will reduce emissions from transport sources (these are the major contributor to pollution) particularly in Air Quality Management Areas.
- Actively promote the installation of an electric charging network to aid the adoption of low carbon fuels. This is a long-term project, but the council has been (and will continue to be) at the forefront in adoption of new technologies, evidence through the provision of a hydrogen demonstration project to provide a refuelling station (at Waverley AMP).

¹⁰ Rotherham Transport Strategy; http://www.rotherham.gov.uk/downloads/file/2687/rotherham_transport_strategy_2016-26

Rotherham Local Plan Core Strategy¹¹

- 2.6.12 The Core Strategy sets out a “spatial” strategy identifying the towns and settlements where new housing schemes and land to support new industry and business are required. Provision will also be made for retail, leisure and supporting community facilities, as well as green infrastructure. It also sets out the strategic policies to make all this happen, taking into consideration potential environmental impacts and the implications of climate change.
- 2.6.13 The Local Plan supports the provision for improvements to air quality, either through physical interventions such as restricting where development takes place, but also through softer measures such as the need to promote a healthier lifestyle through walking / cycling and the provision of open spaces and recreation facilities. The Strategy has several policies which directly contribute towards improving air quality, as follows:
- Policy CS 14 - Accessible Places and Managing Demand for Travel; Not allowing new development in Air Quality Management Areas unless traffic and air quality impacts are appropriately mitigated.
 - Policy CS 27 - Community Health and Safety; Development should seek to contribute towards reducing pollution and not result in pollution or hazards which may prejudice the health and safety of communities or their environments. Appropriate mitigation measures may be required to enable development.
- 2.6.14 Air quality is a concern in parts of the borough, particularly in the M1 corridor and close to Rotherham town centre, mostly caused by traffic. A number of Air Quality Management Areas have been designated where pollution levels may exceed guidelines set by the government. Town centres and urban areas are the places where the Core Strategy concentrates most new development, so without action, air quality in these areas might deteriorate. It is important that new development throughout the borough does not worsen air quality. Proposals will need to take into account the cumulative impacts on air quality from individual sites in local areas. New development in Air Quality Management Areas is required to be consistent with the local air quality action plan. Air quality in Air Quality Management Areas will inevitably be influenced by factors beyond their and individual Local Authority boundaries. It is therefore important that the possible impact on air quality of developments close to Air Quality Management Areas is also considered.

Rotherham Economic Growth Plan¹²

- 2.6.15 Commensurate with regional economic growth priorities set out in the Sheffield City Region Strategic Economic Plan, the Rotherham Economic Growth Plan outlines specific objectives and improvements to certain policy areas to maximise employment opportunities and contribute towards growth on a more granular level. Although the key theme in this document is how to grow the productivity output of the area, there is clear recognition that this growth must be undertaken in a sustainable way, to ensure inclusive and long term economic growth.
- 2.6.16 The Plan considers transport as an enabler to growth and as such details the important role that connectivity plays in business development and access to education, training and employment. Persuasion of active travel choices, modal shift away from private car trips and more efficient journeys through reduced congestion features prominently within the delivery aspect of the plan, further making the link between the need to control air quality as the economy grows in the future.
- 2.6.17 Subsequent versions of the Strategic Case might contain a short summary and/or a link to the main results from the consultation on the SCR Transport Strategy which was undertaken in Q1 of 2018.

¹¹ Rotherham Local Plan Core Strategy; http://www.rotherham.gov.uk/downloads/file/1571/adopted_rotherham_core_strategy

¹² Rotherham Economic Growth Plan; http://www.rotherham.gov.uk/downloads/file/2710/rotherham_economic_growth_plan_2015-25

2.7 Spending Objectives

2.7.1 The discussions in this Chapter have highlighted a number of objectives for any package of measures recommended (and ultimately delivered by) this project, as follows:

- Spending Objective 1: deliver a package of measures that leads to compliance with annual average NO₂ concentration limits (at all relevant locations) in the shortest possible time.
- Spending Objective 2: ensure that local residents, disadvantaged groups and businesses are supported where appropriate with the changes we need to improve local air quality for everyone.
- Spending Objective 3: Create a place where people choose public transport and active travel more often, thereby reducing congestion and emissions, improving people's health and improving their access to key services.

2.7.2 Spending Objective 3 is a priority for both Councils. We are therefore keen to ensure that this 'longer-term' Spending Objective is not undermined by the 'short-term' Spending Objective 1.

2.7.3 These three spending objectives have been used to appraise the main components of the emerging package of measures identified, refined, appraised in this OBCy.

2.7.4 A set of five 'scorable' attributes of potential measures (equivalent to 'Critical Success Factors' referred to in the guidance provided by the JAQU) have also been identified and used to inform this OBC, as follows:

- effectiveness (ability to remove NO_x emissions from SCC/RMBC's relevant air quality problem areas, measured in Kg of NO_x emission removed from the relevant areas in a specified time period);
- cost-effectiveness (effectiveness divided by the likely cost of the scheme);
- deliverability (no barriers to delivering the scheme within the required timescales);
- acceptability ('no losers' and likelihood of public/political support); and
- strategic fit (how well does the measure and its outcomes match with SCC's and RMBC's broader aims/vision/responsibilities).

2.7.5 Table 1 below shows how schemes which score well against these attributes will help deliver the three spending objectives.

Table 1. Links Between Spending Objectives and Critical Success Factors

CRITICAL SUCCESS FACTOR	SPENDING OBJECTIVE 1	SPENDING OBJECTIVE 2	SPENDING OBJECTIVE 3
Effectiveness	✓		
Cost-effectiveness	✓ (by ensuring the available funds deliver as much NO _x reduction as possible)		
Deliverability	✓		
Acceptability		✓	
Strategic Fit			✓

2.8 Benefits, risks, constraints and dependencies

Benefits

2.8.1 The benefits of a package of measures which delivers the three objectives described above are summarised below:

- Schemes which deliver Spending Objective 1 will reduce NO₂ concentrations in the relevant air quality hotspot locations (and possibly elsewhere), which will deliver health benefits for those spending time in these locations;
- Schemes which meet Spending Objective 2 will ensure that local residents, disadvantaged groups and businesses are supported where appropriate which the changes needed to improve local air quality for everyone and will help ensure that no groups are disproportionately impacted by the Preferred Option; and
- Schemes which deliver Spending Objective 3 will reduce congestion and emissions and improve public health and access to services.

2.8.2 The full detailed appraisal of the costs and benefits of the emerging Preferred Package of measures has been undertaken as part of this OBC.

Risks

2.8.3 A full risk management exercise has been undertaken and is reported in detail in the Management Case.

Constraints

2.8.4 The main constraints affecting the delivery of compliant air quality in the Sheffield and Rotherham area are as follows:

- C01 – inability to significantly influence emissions from non-traffic sources in the time available – the local air quality modelling identifies how much of the relevant NO2 concentration can be influenced by traffic-related measures – given the significant of major NOX-producing industries (notably steel and glass production) – this may show that some of the poor air quality issues cannot be adequately addressed by traffic-related measures alone;
- C02 – inability for SCC and RMBC to influence traffic emissions from the M1 (and M18);
- C03 – inability for SCC and RMBC to influence the emissions from diesel trains ('anytime soon');
- C04 - Resource constraints created by lack of funding for local government.
- C05 - The need to consider the local capacity to supply and install the various retro-fitting technologies; and
- C06 – the need to consider the ability of the owners of non-complaint vehicles to upgrade within the time available to them.

2.8.5 Where constraints have the potential to affect delivery these are covered in our Management Case.

Dependencies

2.8.6 The main dependencies which needed to be borne in mind during the design and delivery of the preferred package of measures are as follows:

- D01 – the need for close working between SCC and RMBC and with neighbouring authorities, particularly with respect to bus and taxi regulations, but potentially also when considering measures to influence fleets which operate across the South Yorkshire area and beyond
- D02 - The impact of 'fleet cascading', where vehicles pushed out of one area (including neighbouring cities across the UK) reduce the average emissions performance in other (uncontrolled) areas;
- D03 – the 'chicken-and-egg' inter-relationship between the supply of public chargers for electric vehicles and the uptake of electric vehicles;
- D04 - the links between road capacity and traffic levels – any junction or corridor currently experiencing congestion is almost certain to be prone to 'suppressed demand', which will re-appear almost immediately after any increase in road capacity to remove the congestion pinch-point; and
- D05 - a number of the individual measures (discussed in the next chapter) are alternatives to each other (eg different levels of charging CAZ at a given location), while others provide synergies between each other (eg tightening taxi regulation in neighbouring authorities),

while others may conflict with each other (eg providing more road capacity for traffic (to reduce congestion) and using available road space to give more-priority to low emission/sustainable modes – these inter-relationships will be picked up on a scheme-by-scheme basis, as this Feasibility Study progresses.

2.9 Other strategic issues

- 2.9.1 Both Sheffield and Rotherham Councils are committed to making the air safe to breathe for all our communities. Achieving legal compliance in the short term and maintaining it for the long-term will require wider population behaviour change, which is likely to require a high profile joint communications campaign to encourage and incentivise people to make better travel choices, laying the foundations for a cleaner, healthier and more sustainable city/city region transport network.
- 2.9.2 The key strategic issue is the need to balance the tension between the short-term objective to deliver a package of measures that leads to compliance with annual average NO₂ concentration limits in the shortest possible time), with the 'Bigger Picture'/longer term objectives of the two Councils.
- 2.9.3 In particular, the two Councils are keen to avoid introducing short-term measures which make it harder to achieve a long-term switch to more-sustainable modes, or for local short-term air quality issues to be used to block plans and schemes which deliver other significant long-term benefits.
- 2.9.1 Similarly, the two councils are very keen to ensure that the recommended package of measures does not add to problems faced by any disadvantaged groups, for example by unfairly impacting those on low incomes.

3. ECONOMIC CASE

3.1 Introduction

- 3.1.1 In this section we compare the costs and (monetised) benefits of a set of different packages of measures identified during the Feasibility Study and use these comparisons to justify the list of measures which make up the final Preferred Option.
- 3.1.2 A large number of alternative packages have been tested throughout the Feasibility Study, using (as agreed with JAQU) the SRTM3B strategic transport model, SYSTRA's ENEVAL emissions software (consistent with EFT v8.0.1b) and SCC/RMBC's Airviro Air Quality Model.
- 3.1.3 The early results from these modelling tests and consideration of the timescales needed to introduce a charging Clean Air Zone suggested that:
- compliance with the required annual average NO₂ concentration 40 µg/m³ limit could be achieved in the year following the introduction of a large-area CAZ D13 charging scheme covering all of the known air quality hot-spots in Sheffield and Rotherham;
 - the earliest such a widespread scheme could be operational would be January 2021; and
 - it would not be possible to achieve 100% compliance within this timescale without some form of charging scheme; and
 - a CAZ A14 or CAZ B15-based scheme would be unlikely to achieve compliance by 2021 at a number of air quality problem locations.
- 3.1.4 The set of options considered for detailed appraisal therefore all include a CAZ-C or higher based charging component.

3.2 Overview of the Options Being Appraised

- 3.2.1 A large number of alternative packages of measures have been considered during this Feasibility Study, including CAZ C and CAZ D versions applied in three different charging areas and with a wide variety of supporting measures.
- 3.2.2 Broadly speaking, the approach adopted was to start from the CAZ D version in a large charging area covering most of the known air quality hot-spots in Sheffield and Rotherham, test the impact of reducing this to either a CAZ C version or a smaller charging area, identify any air quality problem locations that risk falling back into non-compliance in 2021, identify local cost-effective measures for tackling these problems and repeat this process to produce the most cost-effective package of measures which is still predicted to achieve area-wide compliance by 2021.
- 3.2.3 To avoid unnecessary detail, complexity and the reporting of various 'non-compliance-achieving' options which failed to achieve the Primary 'Critical Success Factor' (i.e. predicted area-wide compliance by 2021), we have reduced the reporting of these modelling iterations to the following 'pathway' sequence of alternative packages of measures:
- **CAZ 1D** - a CAZ D covering a large area of the Lower Don valley and straddling both Sheffield and Rotherham (excluding the M1) – see Figure 12 below for details, with charging levels assumed to be £100/day for buses & HGVs, £12.50/day for taxis, cars and LGVs, with fleet improvements and other vehicle owners responses (trip suppression etc) in line with JAQU-recommended defaults;

¹³ I.e including taxis, buses and coaches, heavy goods vehicles, light goods vehicles and private motorised vehicles

¹⁴ i.e including taxis, buses and coaches

¹⁵ I.e including taxis, buses and coaches and heavy goods vehicles only

- **CAZ 2D** - reducing the CAZ D charging area to exclude Rotherham (see Figure 12), using JAQU default vehicle owner responses, and introducing a set of local measures to address three specific air quality problem areas in Rotherham;
- **CAZ 3D** - reducing the CAZ D charging area to central Sheffield i.e. within and including the Inner Ring Road (see Figure 13 for details), reducing the charges to £50/day for buses and HGVs and £10/day for cars, taxis and LGVs, adopting the local trip-frequency-based behavioural parameters derived from the local behavioural research (see Supporting Document OBC_SD14 for details), and including further improvements¹⁶ to the Sheffield and Rotherham bus fleet; and
- **CAZ 3C+** - changing the charging-CAZ on the Charging Area 3 from a Category D to a Category C (i.e. excluding private vehicles) and introducing a package of policy measures, local traffic schemes, vehicle owner incentives and other behavioural change measures designed to target NOX emissions at a number of the air quality problem locations in central Sheffield.

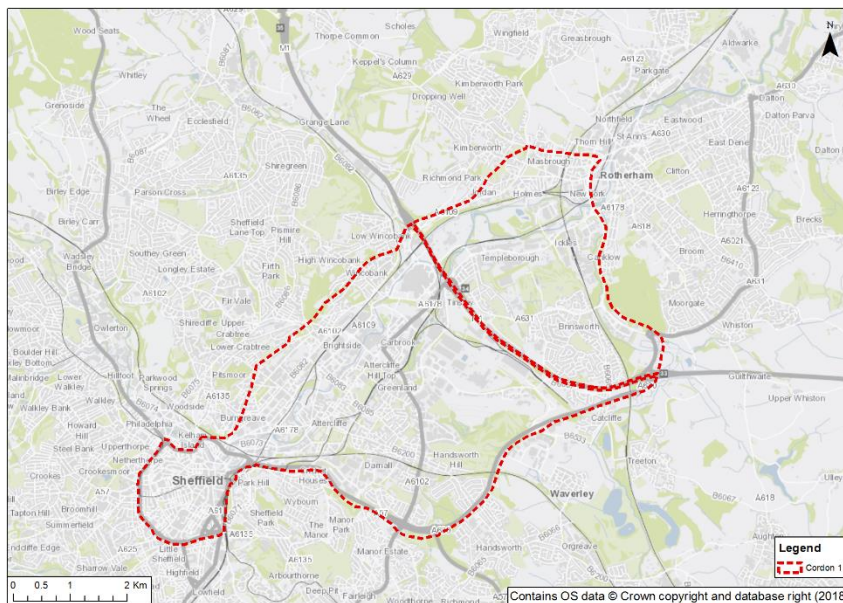


Figure 11 Potential Charging Area 1

¹⁶ All buses are upgraded to Euro 6 or retrofitted to Euro 6 equivalent across all Sheffield and Rotherham

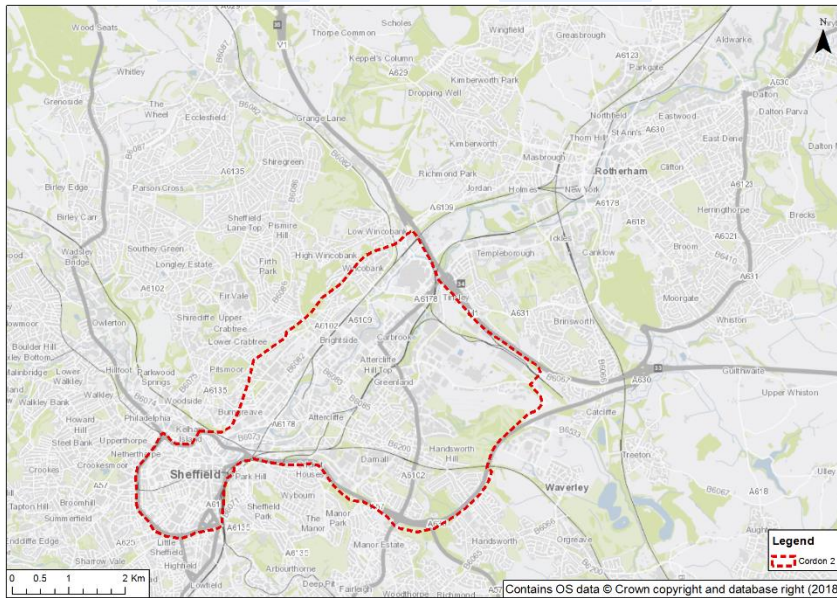


Figure 12 Potential Charging Areas 2



Figure 13 Potential Charging Area 3

3.2.4 The full details of the Preferred Option and the assumed costs of these are summarised in Supporting Document OBC_SD17.

3.3 The level of the CAZ charges

3.3.1 Based on the initial local Behavioural Research undertaken in Sheffield and Rotherham and proposals elsewhere (e.g. Leeds, Birmingham), our modelling and appraisal has assumed the following charges for non-compliant vehicles driving in the various CAZ charging areas described above.

Table 1. Proposed Charges

VEHICLE TYPE	PROPOSED CHARGES	PROPOSED CHARGES
	CAZ 1D AND CAZ 2D	CAZ 3D AND CAZ 3C ⁺
Buses, Coaches and HGVs– CAZ-compliant	£0	£0
Buses, Coaches and HGVs – non-compliant	£100/day	£50/day
Taxis, Private Hire Vehicles, Vans/LGVs – CAZ-compliant	£0	£0
Taxis, Private Hire Vehicles, Vans/LGVs – non-compliant	£12.50/day	£10/day

3.3.1 Sheffield City Council (SCC) and Rotherham Metropolitan Borough Council (RMBC) will consult on these charging levels as part of the Statutory Public Consultation in early 2019.

3.4 What would the Money from Charges be Used For

- 3.4.1 In line with other national charging schemes, the charge is likely to be payable by midnight of the following day. Government are currently developing a central national payment portal which will allow all charges from CAZs to be made via one point.
- 3.4.2 In the Cost Benefit Analysis (CBA) reported here, the charges are treated as a simple transfer of money, appearing as a disbenefit to the drivers of non-compliant vehicles with 5% of this amount shown as a benefit to Central Government and the remaining 95% showing as benefit to Sheffield and Rotherham Councils.
- 3.4.3 The Economic Case excludes the cost of setting up the central national payment portal, though does include the 5% of the charging revenue which we have assumed will be retained by the Government . The Economic Case also excludes the costs and benefits of any scheme funded by the revenue stream, especially since the aim is to achieve a CAZ-compliant fleet (and hence reduce the income stream) as quickly as possible.
- 3.4.4 This simplifying assumption will tend to under-estimate the benefits of any CAZ charging scheme, provided the local schemes which are funded by the charging revenue have a positive Net Present Value (NPV) i.e. will generate more benefits than costs.
- 3.4.5 However, the aim is for the revenue to initially be as low as possible and for it to then fall as quickly as possible, because the aim of the scheme is to remove the non-compliant ‘dirty’ vehicles from the local traffic as quickly as possible, not to generate a revenue stream. Care is therefore, required when considering any potential benefits which might be generated by schemes funded by the charging revenue. This will limit the ability to fund other things, particularly given the ongoing maintenance and management costs of the CAZ infrastructure / back office systems and the need to fund the costs associated with the potential removal of the infrastructure from 2025.

- 3.4.6 The charging revenue stream is assumed to cover the operating cost of the local back office system (responsible for chasing up payment of fines from any non-compliant vehicles seen in the Charging Area without having paid the daily charge) and the cost of removing the cameras at the end of the CAZ Charging period (assumed here to be December 2024), as our modelling suggests that Business as Usual fleet renewal will achieve area-wide compliance by 2025¹⁷.
- 3.4.7 This assumption (i.e. that the charging revenue can be used to fund the back office and decommissioning) can be 'turned off' in the funding model, if a clean separation between costs and revenues is required.

3.5 Time-scales and Time-related Profiles

- 3.5.1 The current assumption is that the measures which are required to deliver compliance with the relevant air quality standards across Sheffield and Rotherham will largely be delivered during 2019, 2020 and the first half of 2021 i.e. in time to have a beneficial impact on the annual average concentration of NO₂ for the 2021 calendar year.
- 3.5.2 In particular, the Preferred Option assumes that a charging CAZ scheme comes into operation on 1st January 2021 and the main behavioural responses to this will take place over the period between now and the end of June 2021.
- 3.5.3 The appraisal of the Preferred Option currently assumes that the charging of non-compliant vehicles will continue until 31 December 2024 and the relevant signing, enforcement infrastructure and back office system will be decommissioned during 2025.
- 3.5.4 The appraisal also assumes that any improvement to the fleet is based on pulling forward vehicle purchases that would have taken place in 2025 into the Business as Usual scenario, so that there is no net improvement in fleet operating costs, emissions or air quality beyond 2024.
- 3.5.5 Similarly, the benefits (or disbenefits) of any infrastructure beyond 2024 have either been ignored or dealt with qualitatively.
- 3.5.6 The Economic Appraisal has not attempted to quantify the costs or benefits of the (as-yet-unspecified) measures delivered by the CAZ charging revenue stream, either up to the end of 2024 or beyond, other than the back-office system running costs and camera decommissioning costs discussed above.
- 3.5.7 Full details of the various input assumptions can be found in the main Economic Cost & Funding Model (Supporting Document OBC_SD11).
- 3.5.8 In the remaining sections of this Economic Case we 'compare and contrast' various key economic indicators for the four options whose appraisal is being reported here.

3.6 Monetising the Emissions Reductions

- 3.6.1 SRTM3B and SYSTRA's ENEVAL emissions software have been used to estimate the annual change¹⁸ in emissions of NO_x, PM₁₀ and CO₂ (e)¹⁹ for each of the four alternative packages on a link-by-link basis for the set of roads included in the SRTM3B model (excluding zone centroid connectors) for 2021 and 2024.

¹⁷ In reality, operation of the charging CAZ might be able to end earlier than this, once the required fleet upgrades have achieved a sufficient level of compliance to offset any 'back-sliding' by local vehicle owners and assuming no significant increase in traffic levels or congestion

¹⁸ relative to the Business as Usual

¹⁹ i.e. total greenhouse gases, expressed as the equivalent weight of CO₂

3.6.2 These emissions have then been aggregated into the set of 6 geographic sectors shown in Figure 12, which are designed to highlight the main differences between the various charging area alternatives, as follows:

- The area of central Sheffield inside Charging Area 3 – classified as Inner Conurbation;
- The area of north-east Sheffield which lies inside Charging Area 1 and 2 (classified as Outer Conurbation);
- The rest of Sheffield (classified as Outer Conurbation);
- The ‘Lower Don Valley’ area of Rotherham which lies inside Charging Area 1 (classified as Outer Conurbation);
- The rest of Rotherham (classified as Urban Medium); and
- The Motorway network, since it is excluded from the CAZ charging schemes being appraised here (classified as Rural).

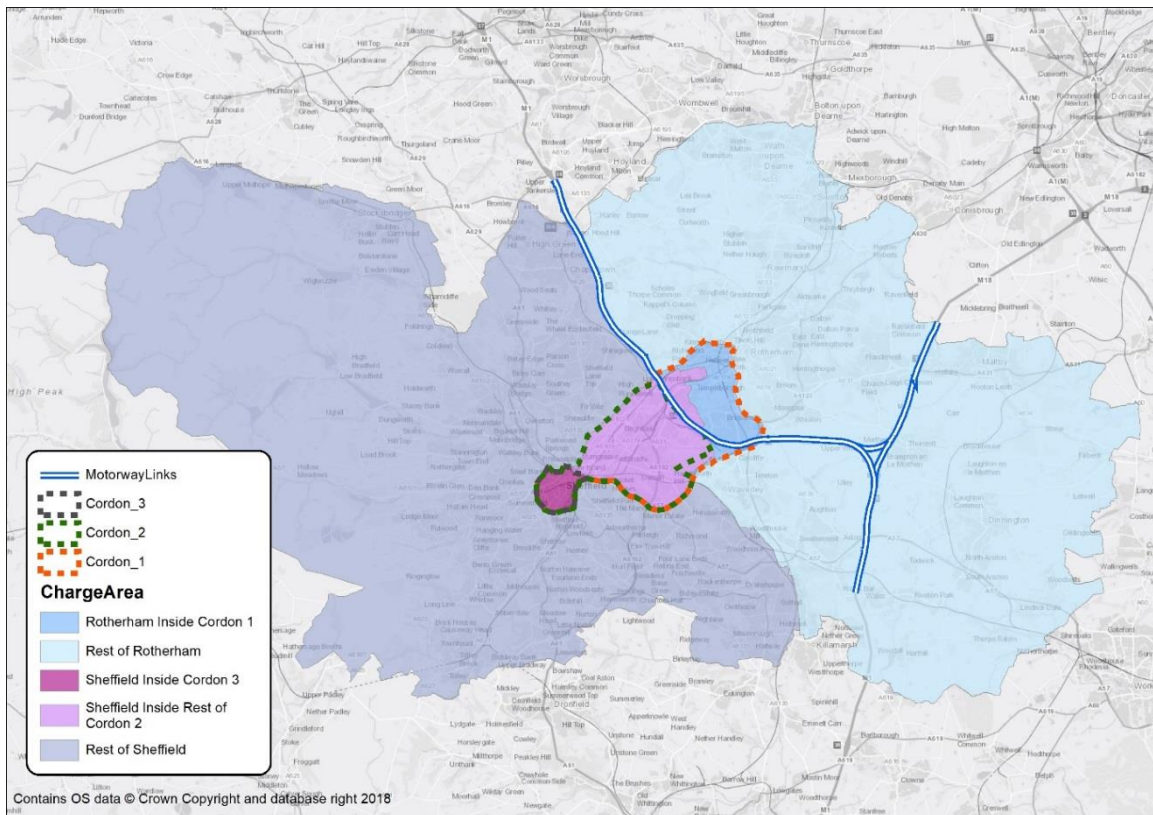


Figure 14 The Sector System Used to Aggregate the Emissions Benefits

3.6.3 The set of changes in tonnes of the three types of emission are reported in the emissions monetisation model (Supporting Document OBC_SD11).

3.6.4 The Damage Cost-based values for the reduction in NO_x emissions in 2021, by geographic sector are illustrated in Figure 15 below.

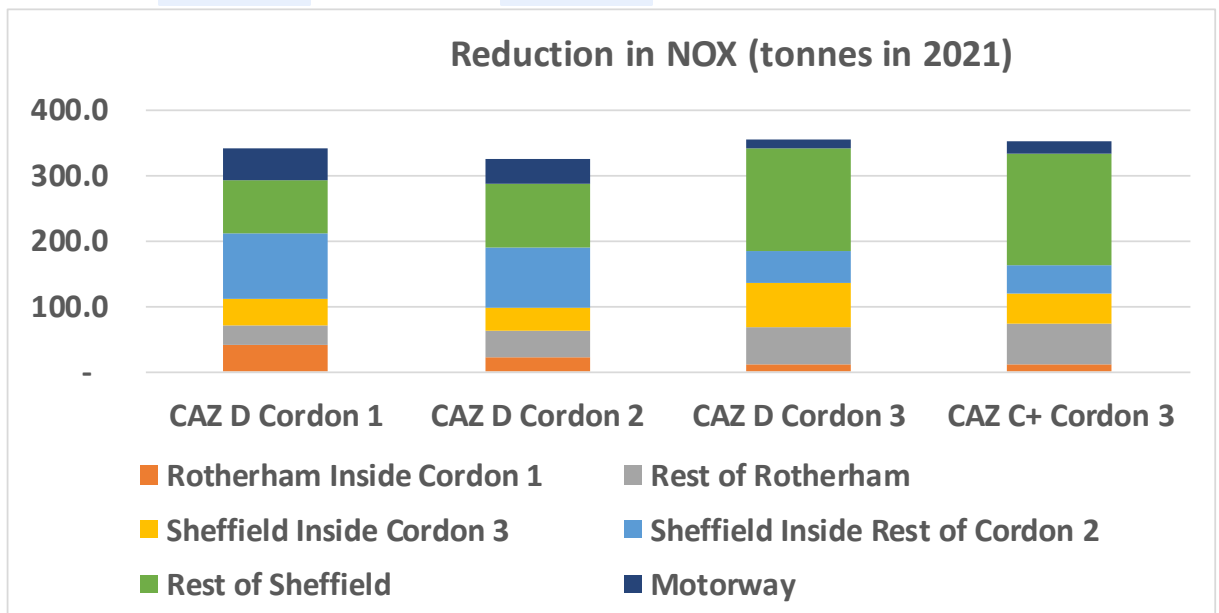


Figure 15 Damage Cost-based Values of the Emissions Reductions

3.6.5 The key features to note are:

- The drop in the reduction of emissions as the areas move from inside to outside the relevant charging area (Rotherham Inside Cordon 1 from CAZ 1D to CAZ 2D and Sheffield Inside Rest of Cordon 2 between CAZ 2D and CAZ 3D);
- The large amount of additional benefits generated in the ‘Rest of Sheffield’ area (which lies outside all three of the charging areas) by each of the 4 packages; and
- The increase in the benefits in the ‘Rest of Sheffield’ and ‘Inside Cordon 3’ sectors as we move from CAZ 2D to CAZ 3D, due to the combined effects of a reduction in the rerouting effects created by Charging Areas 1 and 2, the benefits from the improved bus and taxi fleets in the CAZ 3D and CAZ 3C+ packages, the NOX emission reductions from the switch from diesel to petrol in the car fleet generated by the additional ‘Hearts and Minds’ campaigns included in the CAZ 3C+ package, and the impact of using the local trip-frequency-based behavioural parameters, rather than the JAQU defaults in the two CAZ 3 tests.

3.6.6 Linear interpolation was then applied to the 2021 and 2024 results to estimate the corresponding changes in emissions for 2022 and 2023.

3.6.7 These changes in annual emissions were then monetised (in undiscounted 2018 prices), using the damage cost values from the emissions appraisal spreadsheet downloaded from Huddle in late November 2018.

3.6.8 The detailed results of this emissions monetisation process are reported in the emissions monetisation model (Supporting Document OBC_SD11) and the values for 2021 are summarised in Figure 16 below.

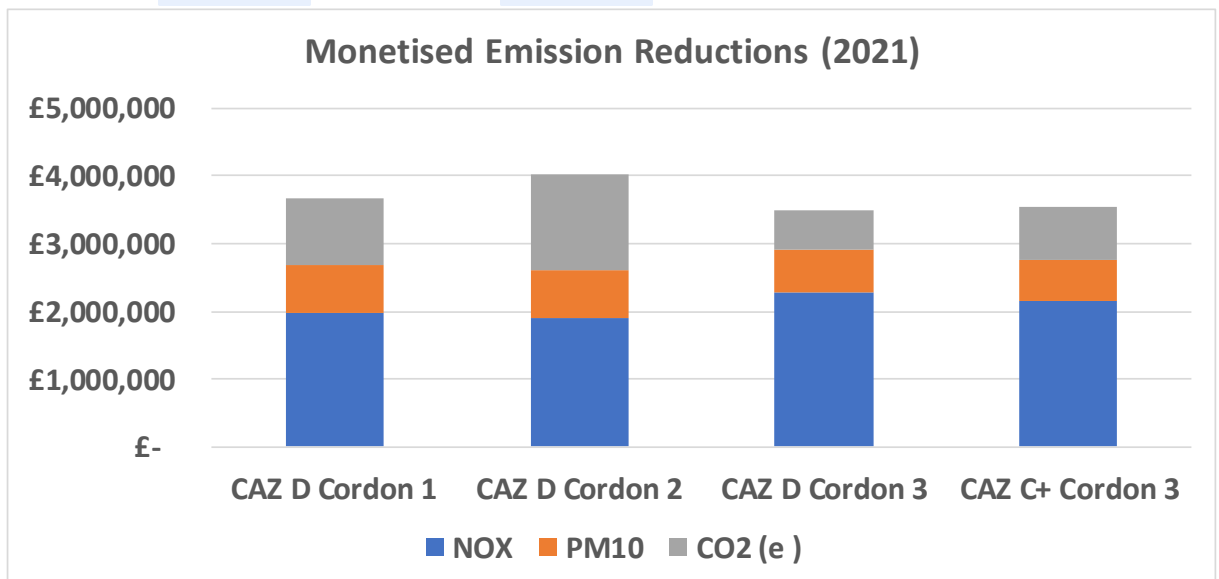


Figure 16 Predicted benefits from the reduction in three keys emission types in 2021

- 3.6.9 These results suggest that the smaller cordon CAZ C and its additional measures C+ (and the local behavioural parameters) is generating a similar overall amount of emission reduction as the larger stand-alone CAZ packages (with JAQU default responses).
- 3.6.10 Note that there is a risk of double-counting the health benefit component of the damage costs by including both NO_x and PM₁₀ in a combined total – see JAQU Guidance for further discussion of this risk. However, this potential double counting does not change any of the conclusions of this Economic Case.
- 3.6.11 The annual benefits are then discounted to 2018 values (using a 3.5% per annum discount factor) to give the set of compounded values²⁰ reported in the economic summary model (OBC_SD11).

3.7 Scheme Costs

- 3.7.1 The costing & funding model in supporting document OBC_SD11 and the Components of the Preferred Option (OBC_SD17) provide a detailed break-down of the costs of the various components of the four packages of measures.
- 3.7.2 Figure 17 below compares these package costs, aggregated by the mode/category of the various measures.

²⁰ 2018 prices & values

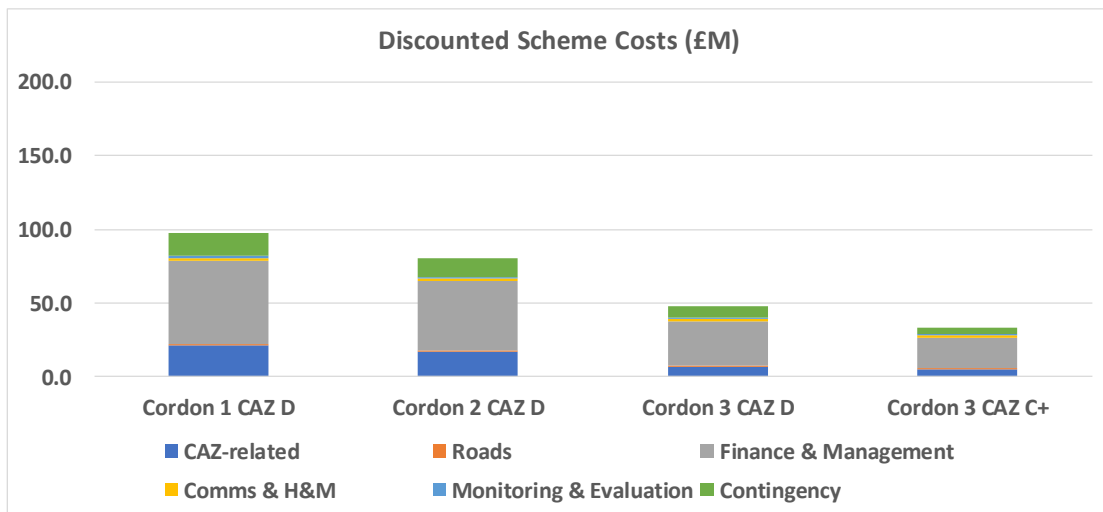


Figure 17 Comparison of the Total Package Costs (2018 Prices and Values)

- 3.7.3 The most-significant difference between the packages is the amount of budget required to provide interest free loans and other incentives to the relevant subset of the affected vehicle owners – see OBC_SD11 for details of the proportions assumed to be offered these loans and incentives in each of the four packages and for a summary of the total costs associated with providing these loans and incentives.
- 3.7.4 The reduction in the cost of the CAZ scheme (due to the combination of the reduced number of cameras and the lower back-office running costs (due to the lower number of non-compliant vehicles, leading to a reduction in the number of fines issued and processed) is also discernible from the chart in Figure 17 above.
- 3.7.5 Given that all four packages achieve area-wide compliance, this reduced cost for the Preferred Option suggests that it is out-performing the other three options in terms of affordability.

Figure 18 below shows the discounted²¹ costs to vehicle owners, including the perceived benefits generated by the new vehicles, the costs of the need for the 5-year-earlier-than-Business-as-Usual vehicle purchase, the CAZ charges paid by those who do not upgrade their vehicle and any benefits from the switch of fuel-type.

²¹ 2018 prices and values

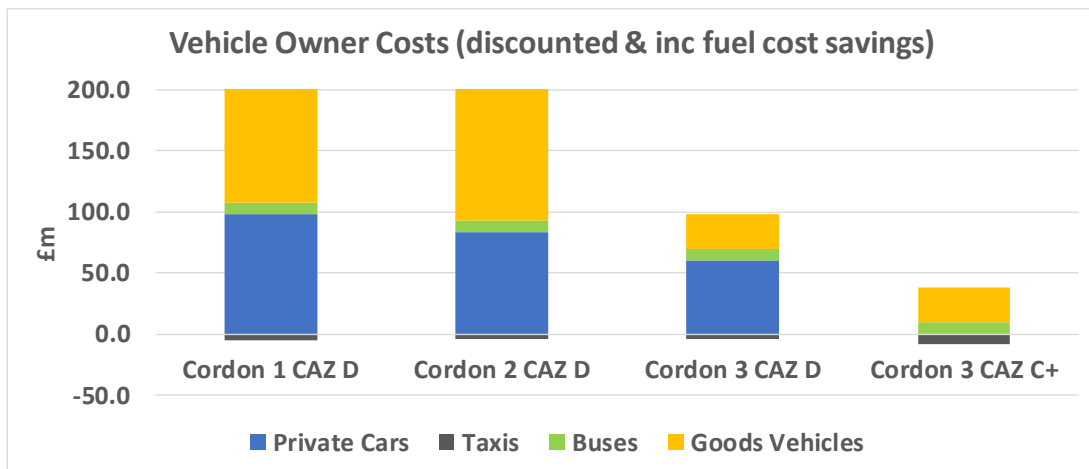


Figure 18 Costs to Owners of Non-Compliant Vehicles

- 3.7.6 These results highlight how much more-tightly focussed the smaller charging area (Cordon 3) is compared to the other two larger charging areas and the obvious removal of the large cost to private car owners achieved by switching from CAZ 3D to CAZ 3C+.
- 3.7.7 The chart in Figure 18 above shows that the Preferred Option is again performing well, based on the 'non-compliant vehicle owner cost' measure.

3.8 Charges Paid/Revenue Generated

- 3.8.1 Figure 19 below summarises the total²² amount of charges which we predict would be paid in each of the four CAZ options during the four years of operation of the CAZ charging that we have assumed.

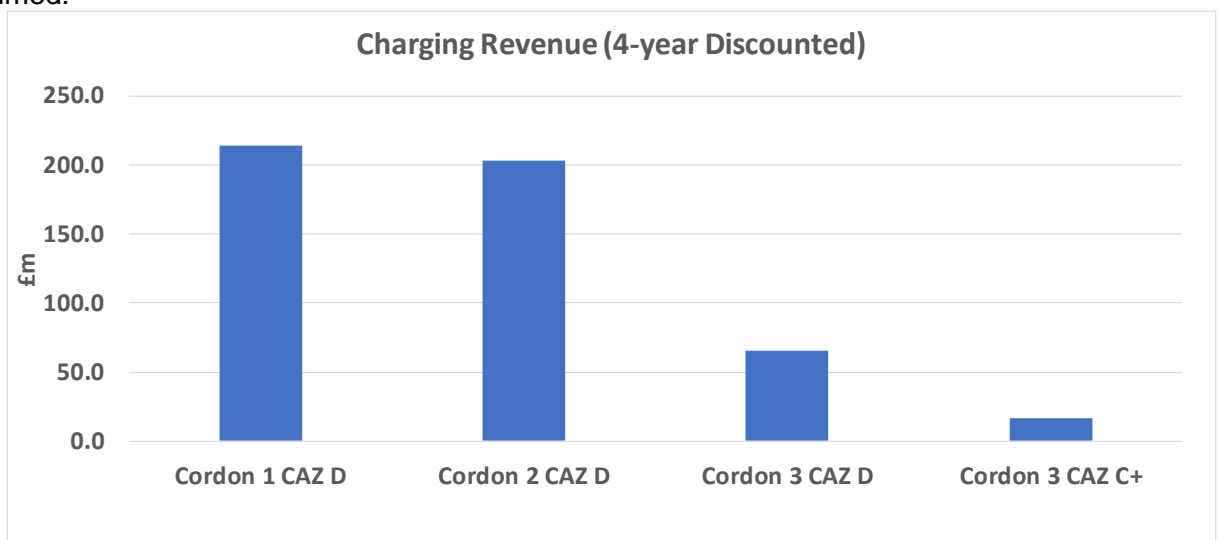


Figure 19 CAZ Charges Paid (and Revenue Generated)

- 3.8.2 This chart again highlights how more tightly focussed the Charging Area 3 scheme is, compared to the other two larger cordons.
- 3.8.3 Note that, technically, the charge paid is neither a benefit nor a disbenefit, as in economic terms it is simply a transfer from non-complaint vehicle owner to the Council (and/or central Government) who are operating the scheme. However, given that the scheme is designed to

²² Discounted 2018 prices and values

tackle air quality, not generate revenue for local or central Government, the results in Figure 19 again support our choice of the Preferred Option (CAZ 3C+).

3.9 Benefit to Cost Ratios

- 3.9.1 In this section, we consider various versions of the benefit to cost ratios (BCRs) for the four packages, using either emission-only or total benefits and either the Cost to Government or the total cost (including the non-compliant-vehicle owners' vehicle replacement costs) and fuel-switching related operating cost benefits.
- 3.9.2 Figure 20 below compares the damage-cost-based monetised emissions (4 years compounded to 2018 prices and values) with a) the cost to Government and b) the total cost (including the additional costs experienced by the owners of non-compliant vehicles).
- 3.9.3 Note that this comparison does not attach any value to the achievement of area-wide compliance with the required NO₂ air quality standard, which is presumably a fixed benefit which would be generated by all four packages of measures. This aspect is covered in the JAQU Appraisal Guidance, which makes it clear that the primary critical success factor is achieving compliance in the shortest possible time and that this 'trumps' any other appraisal indicator.

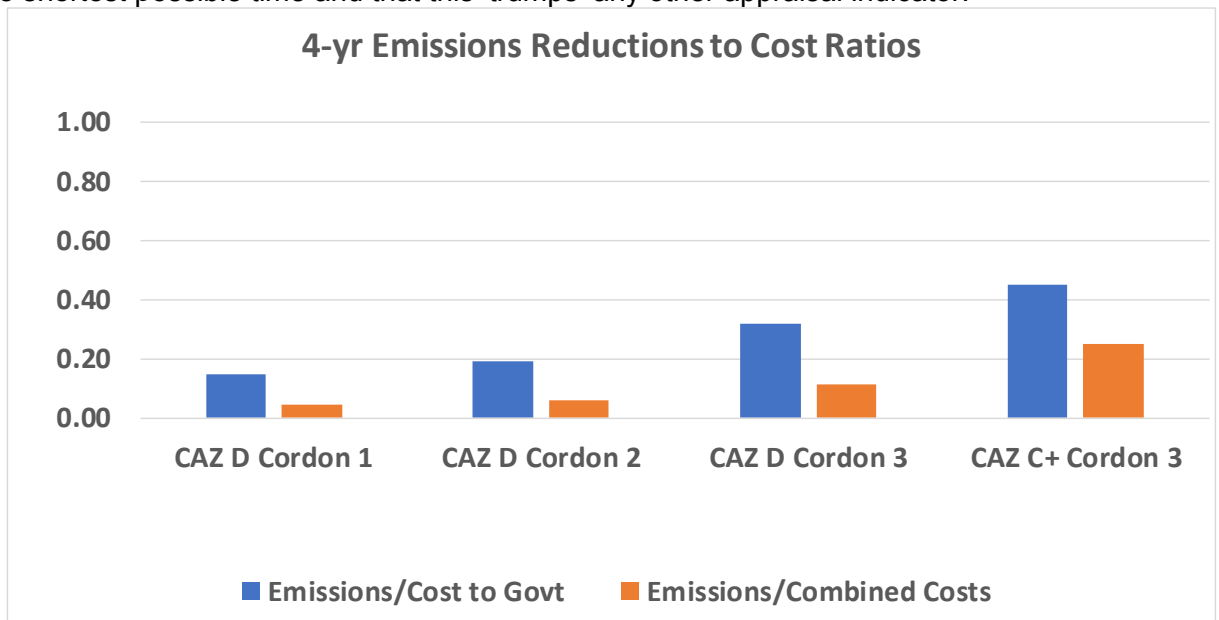


Figure 20 Total 4-year Emissions Benefits per £ Spent (2018 prices and values)

- 3.9.4 The chart reveals that the cost-effectiveness ratios are all significantly less than one, highlighting that the monetised damage-cost-based value of the emissions reductions is significantly lower than the cost of the schemes.
- 3.9.5 However, the Preferred Option again out-performs the other options.
- 3.9.6 This pattern is confirmed by the chart in Figure 21 below, which illustrates the predicted net present value (NPV) of the schemes in 2018 prices and values.

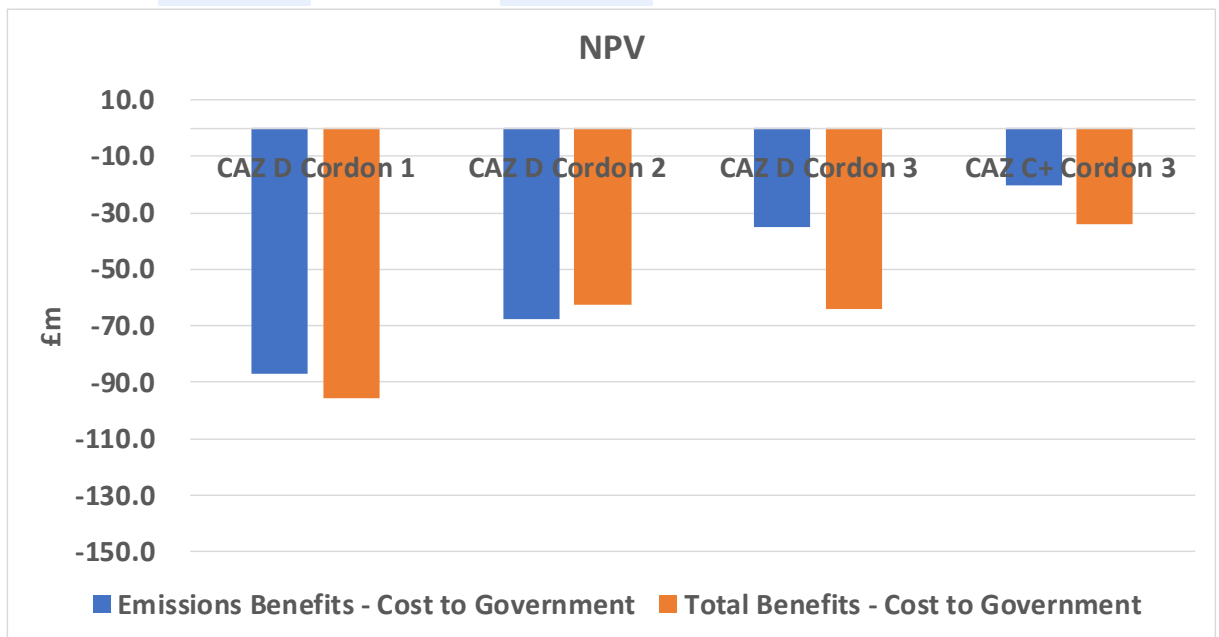


Figure 21 Net Present Values (NPV) (2018 prices and values)

- 3.9.7 These values again exclude any valuation of the benefit of achieving area-wide compliance with the required NO₂ standard, since this objective is given 'primary critical factor' status.
- 3.9.8 Without this 'missing benefit' all four options have a negative NPV, with the Preferred Option having less-negative NPVs than the other three alternatives.

3.10 Conclusions from the Economic Case

- 3.10.1 We believe that the economic and cost benefit analysis (CBA) reported here confirms that our Preferred Option (CAZ C+) for delivering area-wide Sheffield and Rotherham compliance with the required NO₂ air quality standard by 2021 is the best of the four alternatives reported here.
- 3.10.2 Given that none of the other packages which we have tested during this Feasibility Study were predicted to achieve area-wide compliance by 2021, we would conclude that our Preferred Option described here (and in more detail in Supporting Document OBC_SD17) is the most cost-effective way to achieve this area-wide compliance in the shortest possible time.

4. COMMERCIAL CASE

4.1 Introduction

4.1.1 The commercial case demonstrates how the implementation of the Clean Air Charging Charging Zone (CAZ) and associated programmes of work will be achieved, detailing the procurement and implementation routes selected by Sheffield City Council ('SCC'; 'the Council') and key partners. In covering the procurement strategy, this document will also seek to detail:

- The required procurement packages and their outputs
- the preferred procurement routes and options appraisal undertaken
- the allocation of risk
- contract timescales
- contract management
- appropriate resources to successfully deliver the strategy

4.1.2 Unless stated otherwise, the commercial activity referenced in this paper relates to that being undertaken by Sheffield City Council, rather than Rotherham Metropolitan Borough Council (RMBC), though in some instances RMBC and its residents may be recipients of the goods/services referenced. A separate section on RMBC measures is included at Section 6 of this Commercial Case.

4.1.3 Delivery of the CAZ will be facilitated by a blend of in-house delivery, 3rd party arrangements delivered via existing contractual arrangements, and the commissioning and procurement of new goods/services/works.

4.1.4 The procurements will all be delivered by the core project team with the support of multiple other internal SCC teams, alongside specialist external expertise where required (eg in relation to specific technical requirements around ANPR cameras and supporting infrastructure).

4.2 Procurement Context and Strategy

4.2.1 Sheffield City council is a Public Body and must comply with all pertinent EU and UK Procurement Legislation and therefore, staff must, by law, adhere to the same. A number of policies and procedures have been developed to help us achieve these objectives and to ensure that our procurement activities:

- Comply with European Union (EU) and UK procurement legislation
- Conform to the councils Contract Standing Orders
- Achieve evidenced value for money in terms of quality and the price paid
- Are open and transparent and safeguard against allegations of corruption, fraud or bias
- Are well documented to provide a clear audit trail
- Manage and address risks as well as opportunities

4.2.2 In addition to the requirements above, SCC has an Ethical Procurement Policy which aims to drive ethical behaviour as a standard through the supply chain and deliver more effective, efficient procurement outcomes.

4.2.3 The full Policy is included at Appendix CC1.

4.3 CAZ Procurement Objectives:

4.3.1 The procurement strategy utilised throughout the CAZ implementation programme shall achieve:

- • The best option to deliver the infrastructure and services to achieve compliance with statutory limits for NO₂ concentration within the shortest possible timescales. Delivery of the CAZ relies on critical delivery timelines; as such procurement decisions will need to be informed by identification of options that will minimise procurement timeframes, or which present the least delays or barriers to expediting delivery.
- • Ensure compliance with all legal, statutory and regulatory requirements
- • Deliver value for money, where possible ensuring that secondary uses are developed from CAZ-specific infrastructure/services provided

Risk Allocation & Transfer

4.3.2 Contracts issued to the private sector will endeavour to transfer risk where possible to minimise risk for both Sheffield City Council and Central Government. Risks will be flagged at and managed by Sheffield City Council's Clean Air Implementation Board. Further details regarding the identification and transfer of key risks are referenced in the procurement strategies for each package.

4.4 Procurement Packages Overview

4.4.1 To deliver Sheffield's preferred Clean Air Zone proposal, a number of goods and services shall have to be procured. These goods & services can be broken down into the following project categories:

- A. CAZ Enforcement System & Infrastructure Works
- B. Provision of support packages to promote CAZ compliance
- C. Resources to support CAZ implementation
- D. Monitoring & Evaluation of the CAZ

4.4.2 A full breakdown of the procurements is set out in Table 1 with outline timescales - individual programme areas are expanded upon throughout the remainder of the Commercial Case.

4.4.3 Where procurement/delivery packages are delivered internally, an internal service level agreement shall be utilised to ensure outcomes are delivered against expected timescales and costs.

Table 1 Summary of Procurement Packages

Project Category	Procurement Package	Code	Procurement Detail	Internal / External	Indicative Procurement Approach	Indicative Contract Value	Indicative Procurement Timescales
CAZ Enforcement System & Infrastructure Works	ANPR Cameras & Infrastructure	A1.1	Design, Supply & Install of ANPR Cameras	External	Restricted tender via Yortender Using suppliers from Crown Commercial Services (CCS) framework Traffic Management Technology (TMT2) Lot 2. Target cost contract.	£2.16m	Procurement start: February 2019 Procurement complete: April 2019
		A1.2	Operation & Maintenance of ANPR Cameras & associated software	External	Included in A1.1 procurement - Lump Sum contract.	£1.40m	As per A1.1 above
		A1.3	Installation of camera and communications network Infrastructure including cabinets, posts, cabling and connection to the network	External	Existing Highways PFI Contract with AMEY	TBC	See CAZ Programme plan
		A1.4	Ongoing Maintenance of camera and communications network Infrastructure including cabinets, posts, cabling and connection to the network	External	Existing Highways PFI Contract with AMEY	TBC	See CAZ Programme plan
	SCC Back Office	A1.5	Back Office ('Instation') Enforcement System	External	Procurement via ESPO OJEU compliant Framework	£600k	Procurement start: June 2019 Procurement complete: August 2019
	Signage & Road Based Infrastructure	A1.6	Local sign supply	External	Existing Contract with Highways PFI contractor AMEY	TBC	See CAZ Programme plan

		A1.7	Local sign installation	External	Existing Contract with Highways PFI contractor AMEY	TBC	See CAZ Programme plan
		A1.8	Local road infrastructure works, including road marking and other minor realignment works	External	Existing Contract with Highways PFI contractor AMEY	TBC	See CAZ Programme plan
	Central Government Systems	A1.9	CAZ Payment System & DVLA database (CGCAZS)	External	System to be developed by JAQU centrally.	TBC	TBC
Support Packages	Grants, Loans & Incentives	B1.1	Retrofitting coaches and buses - Grant administration	Internal	Build on existing resource to manage the grant administration.	TBC	See CAZ Programme plan
		B1.2	Administration of zero interest loan for taxi, private hire, LGV	External	Procurement via OJEU 'Open' tender.	TBC	Procurement start: June 2019 Procurement complete: August 2019
		B1.3	Administration of Incentive Packages for Taxis, Private Hire & LGV	Internal	Blend of in-house and external.	TBC	n/a
		B1.4	Electric taxi loan scheme	External	OJEU Open Procurement or Voluntary Ex Ante Notice if determined that a single supplier solution only available	£485k	Procurement start: March 2019 Procurement complete: May 2019
	Charging infrastructure	B1.5	Installation of rapid chargers to be located at key locations across the Sheffield city area to support roll out of low emission vehicles across the city.	External	Procurement via OJEU compliant Framework or OJEU 'Open' tender. TBC once outcome of bid finalised.	£650k	Procurement start: March 2019 Procurement complete: May 2019

Resources to support Implementation	Specialist Resource	C1.1	Systems Integration Manager - responsible for ensuring that the different systems are successfully integrated	Internal	Resourced in-house or recruitment of interim undertaken	TBC	Procurement start: June 2019 Procurement complete: August 2019
	Specialist Resource	C1.2	ANPR Specialist to inform specification development & Implementation	External	Consultant appointed via existing SCC contract with temporary staffing provider.	TBC	Procurement start: February 2019 Procurement complete: April 2019
	Temporary Staff	C1.3	As required to support implementation of the CAZ	External	Appointed via existing SCC contract with temporary staffing provider.	TBC	TBC
	Communications	C1.4	A range of communications activities to engage with Sheffield and Rotherham residents including stakeholder engagement and public consultation.	Internal & External	Blend of in-house and external. Any requirements for 3rd party providers to be sourced via existing contractual / sourcing arrangements, including SCC Dynamic Purchasing System	TBC	TBC
Monitoring & Evaluation	Research	D1.1	M&E Campaign Awareness Research Combined	Internal & External	Predominantly delivered in-house, but likely to be augmented by some specialist external resource.	TBC	TBC
	Behaviour Change	D1.2	M&E Behavioural Change Monitoring/Evaluation Combined	Internal & External	Predominantly delivered in-house, but likely to be augmented by some specialist external resource.	TBC	TBC

4.5 Detailed Procurement Approaches

Project Category A: CAZ Enforcement System & Infrastructure Works

Scoping

4.5.1 To enforce a Clean Air Zone, the following elements are required:

- Central Government Clean Air Zone System (CGCAZS), comprising:
 - Vehicle checking function with datasets including details of Euro emissions standard, retrofit, taxi & private hire national database, and local exemptions
 - Payment portal, to be implemented by central government, to enable those travelling within a CAZ to pay the relevant charge;
- Network of ANPR cameras and supporting systems to collect Vehicle Passage Records and interface to multiple external systems;
- Local enforcement 'back office' system to process fines for payments not made via CGCAZS; and
- The scale of this element of CAZ implementation, in reference to cost, importance and timescales of delivery, results in the camera network & supporting systems being the critical procurement to ensure an enforceable CAZ is in place by 1st January 2021.

4.5.2 JAQU guidance proposes the use of a 'hybrid' model of CAZ implementation. This 'hybrid' model includes the centralised delivery of some elements of the charging infrastructure, with other elements sitting at a local level

4.5.3 SCC will continue to work closely with JAQU between OBC and FBC to ensure that the CGCAZS developed meets the authority's needs, and that rigorous testing with local systems takes place to ensure that all systems interface effectively to deliver a comprehensive enforcement CAZ infrastructure.

4.5.4 At present, SCC understands it will be required to deliver:

- A network of ANPR cameras and supporting ICT systems capable of capturing VPRs of all vehicles travelling within the CAZ, and hosting necessary data to interface with the centrally delivered system and existing LA enforcement system;
- An ANPR system delivered on a 'non-trigger payment' basis;
- A local enforcement system for non-payments; and
- A local list of exempt vehicles hosted within central CAZ system

A1.1 Design, Supply & Install of ANPR Cameras

A1.2 Operation & Maintenance of ANPR Cameras & associated software

4.5.5 Sheffield' preferred option of a CAZ C+ will require a comprehensive network of ANPR cameras.

4.5.6 Modelling to date indicates a requirement for 108 cameras to support the Sheffield CAZ. The cameras will be a mix of fixed, portable & mobile camera types, noting the need for different

solutions for different challenges in terms of detecting non-compliance and, in the case of the portable and mobile units, supporting a flexible approach to deployment over the term of the CAZ.

Secondary Uses

4.5.7 SCC will be investigating further potential uses of the ANPR cameras to maximise the usefulness of installing this technology to the Sheffield region including for security and traffic flow. Potential uses include:

- SCC – Urban Traffic Control
- Use of ANPR cameras for greater understanding of urban traffic flow and opportunities to reduce congestion through traffic planning.
- SCC – Planning & Transport Strategy
- Understanding of traffic flows to inform future planning developments and where road infrastructure upgrades are required to avoid increased congestion.

4.5.8 The data produced by the CAZ could have significant secondary uses for SCC and other local organisations. To increase the value for money of implementing the CAZ, where possible, and with particular consideration to the requirements of GDPR & terms relating to JAUQ funding, SCC shall give consideration to these secondary users having CAZ data made available to them.

Options Appraisal

In determining the appropriate procurement route to deliver the Camera Network and Software procurement, three options were considered as outlined in

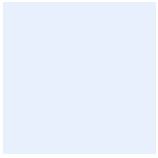


Table 2 below.

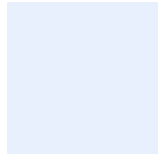
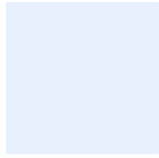


Table 2 Camera Network & Software - Procurement Routes

Procurement Route	Pros	Cons
OJEU Procurement	Captures all available companies capable of delivering the solution.	Minimum timescales would need to be adhered to, likely to add to overall procurement timescale. Additional resource needed to develop Ts&Cs, pre-qualify suppliers and evaluate bids.
Crown Commercial Services Traffic Management Technology 2 framework	Established OJEU compliant framework for specific purpose of procuring ANPR cameras and associated technology, with appropriate Ts&Cs reflected. Framework has 28 suppliers so captures significant spectrum of the market. Supports expedited delivery	Restricted framework – may not include all potential suppliers in the market. A % of final contract price will incorporate framework 'management fee'.
Amend current SCC Bus Lane Enforcement (BLE) Camera contract	Expedited timescales given that existing contract already in place for similar requirement.	Given scale of the CAZ requirements a contract variation would not be a compliant route to market.

Preferred Procurement Route - TMT2 Framework

- 4.5.9 NEC3 contract documentation is used, with the frameworks fully mandated for use by all public sector organisations. The full range of contracts and optional clauses within each of the NEC3 contracts can be used at call off. Two access options are available, direct award or further competition. Further competition is our chosen route for the purpose of this exercise due to the high value and complexity of what is required.
- 4.5.10 The Framework provides a degree of flexibility around evaluation questions, call off term and service specification to facilitate an appropriate 'fit' with SCC's specific requirements. The price / quality split must fall within 10 : 90 to 50:50 range, with no more than 50% being awarded to price. The precise price / quality split to be used will be determined post OBC.
- 4.5.11 28 suppliers are available via the Framework. Whilst not all suppliers are likely to be in a position to bid for the opportunity, it is noted that a significant number of major providers are available and likely to be in a position to deliver the requirement in whole.
- 4.5.12 A market engagement event has been held, with 9 suppliers from the framework attending. This event allowed SCC to prime the market ahead of the mini-competition in January, set out the scope and ambitions of the CAZ, test key assumptions and issues and gather market intelligence to feed into the commercial strategy. Further engagement with the market will be required ahead of the mini competition to develop the strategy and tender documentation further. Some of this engagement is likely to take the form of 1:1 meetings to enable discussions to enter a level of detail not practicable in a group setting.

- 4.5.13 A key insight garnered from the market engagement to date has been that there is limited capacity in the market for suppliers with the requisite internal capability to deliver both the ANPR infrastructure and the back office enforcement system as part of a single ‘turnkey’ solution. These 2 elements effectively represent distinct segments of the supply market, and whilst some suppliers have indicated a willingness to engage on the basis of this ‘turnkey’ approach by entering into partnerships or adopting a prime provider model, there are risks associated with this approach. In particular, in ‘forcing’ the market into partnerships or subcontracting arrangements, there is a likelihood of increased costs and a lack of control over key elements of the solution, with limited added value to SCC. A decision has therefore been made to procure the ANPR infrastructure and back office enforcement system via separate procurement exercises.

Procurement Approach

- 4.5.14 Tender documentation will be prepared with support from an external consultant to provide appropriate technical expertise into the specification, alongside input from collaborating services.
- 4.5.15 Specifications will, as far as practicable, be output based, setting out to the market through the mini-competition process the key outputs and performance requirements, and seeking solutions from the market in their bids.
- 4.5.16 It is acknowledged that, whilst SCC has identified a CAZ C+ as the preferred option, there may be a requirement, either as determined through the OBC / FBC approvals process, or during the life of the CAZ itself, to move to a CAZ D in order to ensure compliance on NOx.
- 4.5.17 The tender documentation will therefore include requests for costs and proposals in relation to the delivery of infrastructure to support a CAZ D, alongside the core requirement for delivery of the CAZ C+. This CAZ D element will be optional and triggered at the discretion of SCC, either at contract award following FBC, or as a contract change once the contract is in place. Market engagement to date on this issue has suggested that in terms of technical requirements there will be limited difference between a CAZ C+ and a CAZ D, with the major impact likely to be on the volume of images required to be reviewed at the Instation.
- 4.5.18 To ensure that the tender is presented in a logical format and in a way that is attractive to the market, and to identify any areas requiring clarification prior to the tender process itself, a draft of the tender and specification documentation will be shared with suppliers prior to opening of the mini competition. Whilst this may add some time and resource to the project timetable at the outset, it is proposed that it will ultimately foreshorten the overall implementation programme by reducing the number of clarification questions and identifying risks and issues regarding the drafting at an early stage.
- 4.5.19 The procurement will invite potential contractors to tender to design, install, operate and maintain the ANPR cameras & supporting. Two separate contract forms and associated payment mechanisms will be used in the contract documentation, reflecting the distinct stages in delivery of the infrastructure, however a single supplier will be required to deliver the entirety of the requirement. This is illustrated in Table 3 below:

Table 3 Division of the Procurement into Two Contracts

Contract	Indicative Payment Type	Detail
Design, Supply & Installation of camera network and associated software	Target Cost with an element of risk/gain share in the event of under/over performance	To include all hardware, civils, works and software required to deliver the camera network and interface with external and internal systems.
Operation & Maintenance of camera network and associated software	Lump sum. Costs also established for decommissioning at contract end.	To include operation and maintenance of all cameras and software.

Design and Build

- 4.5.20 Sheffield City Council will fully outsource the design and installation of all cameras and supporting systems to enforce the Clean Air Zone. This will ensure one Contractor has oversight of the whole scheme, reducing the number of interfaces and in turn reducing the risk of programme slippage through clear accountability.
- 4.5.21 SCC Commercial Services will work closely with other internal departments to ensure that sufficient information and detail is provided within the procurement and contract documentation to allow contractors to tender and for SCC be comfortable that both the quality and price is representative of the scheme that needs to be delivered.
- 4.5.22 Site surveys of identified camera locations will be a key element in ensuring that suppliers are aware of the precise works required and so minimise the degree of risk/contingency that is built into their cost models. Whilst SCC Highways service will be able to provide some information to bidders regarding the identified sites, the intention is to allow bidders the opportunity to carry out their own site surveys during the procurement process.
- 4.5.23 Where possible, the supplier shall install cameras on existing facilities such as masts, traffic signal poles, and street lighting columns.
- 4.5.24 ANPR camera and associated components must be very low maintenance, robust and suitable for an operational lifetime of at least 7 years.
- 4.5.25 The camera shall where possible use mobile data communications to transmit data.
- 4.5.26 Assumption is that sufficient capacity is available within existing wireless infrastructure as required (though noted as a risk in the key risk summary)

Milestones

- 4.5.27 Market engagement has confirmed a willingness of suppliers to have payments structured around specified Milestones.
- 4.5.28 The detailed Milestone payment schedule will be developed following OBC, however we would anticipate milestones being payable upon satisfactory completion of initial design; installation and testing; and post 'go-live'.

Operation and Maintenance of ANPR Cameras

- 4.5.29 Sheffield City Council has two options for maintaining the camera network following installation – SCCs Highways contractor AMEY, or using the external contractor who completed the design & build contract.
- 4.5.30 An external contractor would be required as a minimum to operate and maintain:
 - 4.5.31 • The Installation and all accompanying systems to ensure maximum availability
 - 4.5.32 • Ensuring Outstations meet performance standards
- 4.5.33 An external contractor's accountability for issues could be challenged if AMEY were partly responsible for maintenance of the Outstations. As a result the intention is to have the external contractor hold responsibility for all operation & maintenance activities.

Contract Management

- 4.5.34 Essential to achieving compliance within the shortest possible time and ensuring that the broader benefits of the CAZ are realised is a robust contract management function. A range of skills and expertise will be required to support, including project managers and technical specialists working alongside commercial and cost control resources.
- 4.5.35 The design & build contract will be managed by Sheffield City Council's Capital Delivery Service. An officer with sufficient technical knowledge will be appointed to contract manage the implementation of the camera network, and contract manage the contractor's operation and maintenance of this network.
- 4.5.36 The operation & maintenance contract will be managed by the Council's Parking Services team to ensure KPIs are met and the system continues to operate to meet the intended function of the CAZ. SCC's Commercial Services team will provide

Decommissioning

- 4.5.37 SCC will request contractors to provide a cost to decommission all elements of CAZ ANPR cameras and supporting systems at the end of 2022. Utilisation of this option will be optional only, with SCC retaining the option to continue to use the assets beyond the life of the CAZ itself.

A1.3 Installation of camera and communications network Infrastructure

A1.4 Maintenance of camera and communications network Infrastructure

- 4.5.38 Sheffield City Council's Highways PFI contract with Amey provides a swift and compliant route to market for the installation of ANPR camera and communications infrastructure, including cabinets, posts, cabling and connection to the network. Any new infrastructure will be accrued into the contract for maintenance for the remaining duration of the contract (20 years, providing for robust transfer and ownership of risk over the life of the asset).

A1.5 SCC Back Office Enforcement System

- 4.5.39 Sheffield City Council has existing arrangements in place for the provision of a back office software system to allow internal staff to review non-payments and appeals for parking and bus lane infringements. SCC's contract is currently with Capita as part of a wider ICT Managed Service; the ultimate supplier of the system is Imperial Civil Enforcement Solutions (ICES).

- 4.5.40 Technical support and updates for the existing ICES system in place are due to cease during 2019, and the intention is therefore to procure a new back office system, incorporating both the existing requirements around parking and bus lanes, and the requirements of the CAZ.
- 4.5.41 Given issues around system obsolescence and commercial complexities around the Capita managed service contract, along with uncertainty around the development of the central government charging portal and DVLA databased, procurement of the back office system is likely to need to commence without sight of the precise requirements relating to key CAZ interfaces. Further market engagement will determine the final approach, however the intention is to reference the indicative requirements of the CAZ in the tender docs to ensure that they can be incorporated via contract change once the contract has been awarded and in place. An indication of costs for incorporation of CAZ will also be sought, through market engagement and the tender process itself, to inform indicative costs for inclusion in FBC.
- 4.5.42 The Eastern Shires Purchasing Organisation (ESPO) Parking Management Solutions framework (509) Lot 3 has been identified as a suitable route to market to meet the requirement. This Lot contains 5 back office suppliers, and is preferred to the CCS framework owing to the availability of more specialist suppliers to meet the requirement.

A1.6 Local Sign Supply

- 4.5.43 Sheffield City Council's Highways PFI contract with Amey provides a swift and compliant route to market for the production of traffic and commercial signs through the Non-Core element of the contract. AMEY provide a range of related services including traffic sign production, street nameplate and bespoke signage. There is sufficient capacity within the AMEY contract to produce, install and maintain the necessary signage across the CAZ boundary on Local Authority roads.
- 4.5.44 Using the AMEY contract negates the need for a procurement exercise to be undertaken and allows for signage to be installed as soon as possible following Full Business Case approval with the subsequent accrual of new signs into the contract for maintenance for the remaining duration of the contract (20 years).

A1.7 Local Sign Installation

A1.8 Local Road Infrastructure Works

- 4.5.45 Sheffield City Council's Highways PFI contract with Amey provides a swift and compliant route to market through the Non-Core element of the contract for the installation of traffic and commercial signs, alongside local road infrastructure works, and includes provision for power supply necessary for the ANPR cameras and infrastructure.
- 4.5.46 Package Orders placed through the Non-Core element of the Streets Ahead Contract are based on price only. Internal engineers use a catalogue of rates to price individual jobs. The Project Manager will meet with Amey and discuss the scope of the work including any constraints and a price is agreed using the established rates.

A1.9 CAZ Payment System & DVLA database (Central Government Clean Air Zone System (CGCAZS))

- 4.5.47 In order for charges to be collected from drivers of non-compliant vehicles, it is necessary for a CAZ Payment System to be in place. This system will be required to determine which vehicles are non-compliant, which will involve checks against multiple databases some of which are in the process of creation:

4.5.48 JAQU have confirmed their intent to create a Central Government Clean Air Zone System (CGCAZS). This will provide one portal for all CAZ users nationally to utilise when paying a CAZ charge, creating consistency and clarity particularly for users who may make inter-CAZ journeys such as the HGV sector. The creation of a CGCAZS also avoids duplication of efforts across authorities and should therefore provide value for money through:

- Lower capital costs to develop and implement; and
- Lower revenue costs to operate and maintain.

4.5.49 Given the multiple interfaces & dependencies with other elements of the CAZ, this CGCAZS represents a key product in the critical path to successful implementation of the Sheffield CAZ.

4.6 Project Category B: Provision of Support Packages to Promote CAZ Compliance

4.6.1 Additional packages, alongside those directly relating to the charging Cleaning Air Zone, have been identified as part of the Preferred Option, and are detailed below.

B1.1 Retrofitting for Bus and Coach Operators – Grant Administration

4.6.2 SCC and RMBC will offer a support package to operators to provide a grant to support retrofitting non-compliant bus & coaches to a compliant standard. Without an attractive support package there is a risk that bus or coach operators may choose not to supply services if they do not receive support to make their vehicles compliant.

4.6.3 SCC and RMBC propose to administer this grant award internally, building on the resource and expertise already in place around grant administration programmes.

4.6.4 In relation to the actual retrofitting works, national bus and coach operators already have established supply chain arrangements in place to implement the retrofitting works themselves. The situation is potentially a little more complex for smaller local coach and bus firms, who won't have established routes to carry out the retrofitting themselves, and for which the issue of State Aid compliance is likely to be more complex.

B1.2 Administration of zero interest loan for Taxi, Private Hire & LGV

- 4.6.5 SCC and RMBC are seeking to establish a loan fund to support taxi private hire and LGV drivers in the acquisition of new vehicles to enable the workforce to meet the compliant emissions standards of the Sheffield Clean Air Zone.
- 4.6.6 The Councils are seeking to appoint a third party supplier to undertake the credit and affordability checks, case management, account management and early enforcement aspects of the process.
- 4.6.7 Early market engagement has been undertaken, including discussion with the Energy Saving Trust (EST), which administers a similar loan administration scheme in Scotland. The Scottish scheme is funded by Scottish government, and is available to all Scottish residents, including taxi drivers but also private passenger cars.
- 4.6.8 Certain key elements of the EST model are listed below, and will need careful consideration as to how such a scheme could effectively be implemented in Sheffield, particularly in relation to provision of loan capital, liability for bad debt, and the availability of the scheme for those who may not have a strong credit rating (potentially a large number of local taxi drivers):
- Scottish government provide the loan capital, not EST;
 - Loans are made directly between Scottish Government and the individual loanee, and are unsecured (rather than being secured against the vehicle);
 - EST do not take liability for bad debt, which instead rests with Scottish government;
 - The volume of defaults and bad debt is low at <5%, principally owing to a robust credit checking process which effectively filters out individuals with a poor credit rating from receiving a loan; and
 - Alongside the loan administration, EST provide consultation to loan applicants around the availability and suitability of vehicles to meet specific user needs..
- 4.6.9 Alternatives to the model proposed by EST will be available in the market in the form of commercial lenders, who will be in position to provide the loan capital directly and take the risk around bad debt etc, but who will consequently price in a significant amount of risk into their offer. The loan administration offer is therefore the more likely of the options identified at this point, though further modelling is required to finalise the optimum approach.
- 4.6.10 The option to deliver the service in-house has been discussed but the initial assessment is that the internal expertise and financial systems are not available in-house to deliver such a scheme efficiently.
- 4.6.11 Whilst Crown Commercial Services (CCS) do have a Framework covering administration of grant schemes, the provision of loan administration is thought to be outside the scope of this arrangement, and does not provide the required vehicle specific expertise. In light of the likely requirement for multiple Local Authorities to utilise a loan scheme or similar as part of CAZ implementation, SCC have approached CCS to discuss the viability of a framework being established. The anticipation is that CSS will not be in a position to offer a compliant route to market in timescales required however, and therefore the preferred option is for SCC to undertake an OJEU Open tender for the service.

B1.3 Administration of Incentive Package for Taxi, Private Hire & LGVs

- 4.6.12 SCC is developing proposals seeking to incentivise drivers purchasing cleaner vehicles. Incentives for this particular scheme are likely to be 'in kind', and could include, for example, free/discounted licences, compliance tests or fuel cards.
- 4.6.13 A twin track approach to implementing the incentive scheme administration is currently preferred. Administration of the taxi incentive scheme is assessed as benefitting from in-house delivery, allowing SCC to utilise existing structures and 'levers' such as the taxi Licencing process to administer the process, whilst ensuring close ownership of the process and management of related risks.
- 4.6.14 SCC does not possess the same degree of control over the LGV market, and this element may best be administered by a third party. Though further work is needed to develop the approach, it is likely that both elements could be delivered via the supply chain, whether as part of a bundle of other services within the group of wider support packages (eg alongside the loan administration), or as a standalone procurement.

B1.4 Electric taxi loan scheme

- 4.6.15 SCC are proposing the delivery of a scheme to lend electric taxis to taxi drivers in Sheffield. The scheme would provide for 10 electric taxis to be purchased by SCC and made available to loan to taxi drivers in the city to encourage drivers to purchase similar vehicles themselves.
- 4.6.16 Market engagement has been undertaken with potential suppliers. 3 manufacturers were initially identified, though only 1, London Electric Vehicle Company, has responded to confirm that they are able to meet SCCs desired requirements, particularly around vehicles with appropriate wheelchair access which will provide a genuine like for like offer for existing Hackney cab drivers.
- 4.6.17 Market engagement is ongoing, with SCC to further explore options around the vehicle manufacturer both providing the vehicle and administrating the loan process itself, including promotion and marketing, customer advice and engagement.

B1.5 Charging infrastructure to support ultra-low emissions vehicles

- 4.6.18 SCC proposes to implement a number of rapid chargers located at key locations across the Sheffield city area to support roll out of low emission taxis across the city.
- 4.6.19 Initial due diligence has been undertaken around the ESPO Vehicle Charging Framework (636), which includes 12 suppliers and provides for a quick and compliant route to market via mini-competition or direct award.

4.7 Project Category C: Resources to Support CAZ Implementation

C1.1, C1.2, C1.3 Specialist Resource & Temporary Staff

- 4.7.1 In order to successfully deliver the CAZ, it is recognised that specialist expertise will be required across the following areas in particular:
- Systems Integration Manager: to be responsible for ensuring that the various different software systems (eg. SCC back office software, ANPR data feed, central government payment system and DVLA database) integrate successfully. SCC will look to recruit or backfill this post within the internal establishment to enable the Council to retain control over what is assessed as a key resource in mitigating critical risks around integration.
 - ANPR Specialist: to inform the specification development, tender documentation & evaluation and implementation in relation to the ANPR cameras and associated network. SCC has employed an external consultant with the relevant skillset to inform the approach to this OBC, and will look to extend this arrangement, or appoint a similarly qualified consultant. The route to market for this position has been identified as the Yorkshire Purchasing Organisation (YPO) Consultancy One Framework, accessed via the Council's temporary staffing contract with Reed Specialist Recruitment Limited. Reed provide a managed service for temporary staffing procured in compliance with Public Contract Regulations 2015.
 - Implementation and ongoing management of the CAZ will have resource implications for SCC. Where temporary staffing is identified as the optimal approach to provide additional capacity, Sheffield City Council shall use the aforementioned Reed contract.

C1.4 Communications

- 4.7.2 To ensure that local residents and businesses are made aware of implementation of the CAZ, a comprehensive communications exercise shall take place in 2019 using a multitude of communications mechanisms. The internal SCC Communications Service shall be utilised to ensure value for money, however internal services are likely to require augmentation from specialist external suppliers where specialist or additional input is required.
- 4.7.3 SCC has an OJEU compliant Dynamic Purchasing System in place covering a range of design, print, communications and marketing markets, and any requirements for third party communications services would be subject to a mini-competition process run through this system.

4.8 Project Category D:- Monitoring & Evaluation of the CAZ

D1.1 M&E Campaign Awareness Research Combined

D1.2 M&E Behavioural Change Monitoring/Evaluation Combined

- 4.8.1 SCC envisages delivering the majority of these services in-house, but this is likely to be augmented by some specialist external resource. The procurement strategy will be developed as the proposals progress.

4.9 Project Category E: Rotherham Metropolitan Borough Council (RMBC) Location Specific Measures

4.9.1 The CAZ C+ -based Preferred Option includes a programme of capital schemes in Rotherham which will be managed, designed and delivered through existing internal resource. The consultation on the wider CAZ preferred option will provide the general public, members and businesses with the outline of the options. The concerns expressed within each element of the preferred option will be considered, and addressed if possible, to help mitigate any objections at the implementation stage.

4.9.2 Detailed design work has not yet been undertaken, so precise costs and impacts are not known at this stage. The exact details of the supporting traffic regulation orders (TROs) in conjunction with the schemes are also unknown at this stage. As part of RMBC's usual scheme development process, proposed traffic regulation orders are advertised and residents, business, ward members and statutory consultees (South Yorkshire Police) will be informed of the proposals. Under this process, all consultee objections/support are considered and RMBC will take action as appropriate.

18T HGV restriction A629 Wortley Road and Kimberworth Road

4.9.3 The delivery of the TRO will be conducted by RMBC in line with statutory powers of the Highway Authority. The bus stop layby will fall under the category of minor works which can be delivered in house through RMBC internal design resource and Highway Delivery Team (Highway Delivery Team).

4.9.4 The TRO is subject to public consultation and stakeholders have the legal right to object. Any objection will need to be considered on its merits and the proposal may need to change in accordance with any feedback. The bus stop layby alteration will also be subject to public consultation and an agreement with SYPTTE and bus operators will need to be obtained.

4.9.5 The HGV restrictions have been discussed with Highways England. No objections have been expressed. Given the nature of the TRO, proactive engagement with interested organisations including the Road Haulage Association and Freight Transport Association will be undertaken as part of the initial CAZ consultation and as part of the TRO and scheme implementation.

4.9.6 Widening of A6109 Meadowbank Road

4.9.7 The highway works will fall under the category of minor works which can be delivered in house through RMBC's internal design and Highway Delivery Team teams. Consultation with stakeholders (including Highways England) will commence to understand level of impact through the CAZ consultation. Discussions have already taken place with Highways England and no objection has been communicated.

A630 Fitzwilliam Road - Linking of traffic signals and Bus stop near Hatherley Road

4.9.8 Equipment will be purchased via an existing framework and works delivered in house through the Council's signal design team and implemented through the Highway Delivery Team. The bus stop layby will fall under the category of minor works which can be delivered in house through the Council's internal design and Highway Delivery teams. The bus stop layby alteration will also be subject to a public consultation and agreement with SYPTTE and bus operators will need to be obtained.

A633 Rotherham to Rawmarsh

- 4.9.9 Barbers Avenue - The highway works will fall under the category of minor works, which can be delivered in house through RMBC's internal design and Highway Delivery Team.
- 4.9.10 Dale Road junction A633 signalise - The highway works will fall under the category of minor works which can be delivered in house through RMBC's internal design and Highway Delivery Team teams.
- 4.9.11 Dale Road Green Lane mini roundabout - The highway works will fall under the category of minor works which can be delivered in house through RMBC's internal design and Highway Delivery Team teams.
- 4.9.12 A633 Warren Vale Road bus lane - The delivery of TRO will be conducted by Rotherham Council in line with statutory powers of the Highway Authority. The bus stop layby will fall under the category of minor works which can be delivered in house through RMBC's internal design and Highway Delivery Team teams. It should be noted that this proposal was a late addition in the development of the OBC and, as such, was not included in RMBC's Cabinet report prior to submission.

4.10 Use of the Council's Highway Delivery Team

- 4.10.1 The majority of the works will be undertaken by RMBC's Highway Delivery Team. The Council has its own in house Highway Delivery Team to deal with emergency situations such as gritting and winter services, as well as providing a responsive and adaptable workforce to undertake minor works on the highway network. The costs associated with the Highway Delivery Team have been commercially tested and offer value for money compared to other similar organisations. In addition, the schemes contained within the CAZ preferred option are considered to be minor and business as usual interventions. It is not therefore considered appropriate to use framework contracts for the delivery of these works.
- 4.10.2 However, RMBC are members of the Midlands Highway Alliance Framework which enables the appointment of design and construction contracts. If there are any issues with design or delivery, the Council can utilise this framework to procure services. This framework builds on previous experience and includes a series of KPIs to ensure that contractor performance is constantly revised and fed back into contractor selection models. Contractors are therefore incentivised to continue to deliver schemes on time and within budget. Membership also gives access to a professional services framework contract for design services. The framework and in-house teams will allow for an early mobilisation in the event of a successful bid.
- 4.10.3 Further details regarding RMBC's Highways Delivery Team, including benchmarking and performance data, can be found in in the following appendices:
 - Appx CC2 RMBC CQC Executive Summary 2017/18
 - Appx CC3 RMBC APSE Performance Report '16-17

5.5 KEY PROCUREMENT RISKS

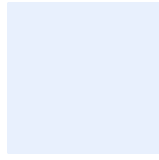
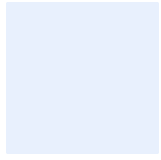
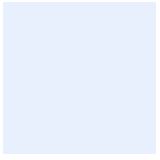
A summary of the key risks identified is set out in the table below:

Table 4 Key Procurement Risks

Procurement Package	Risk Title	Description	Mitigation
Project Wide	Market Capacity	SCC are one of numerous Local Authorities across the country looking to implement a Clean Air Zone, all working within a similar timescale and likely to be working up similar requirements in terms of goods/services to be procured. There is a risk that, as multiple authorities approach the different segments of the market for the same requirement at the same time, the market will not have sufficient capacity to deliver to the required standards and within the required timeframes.	Market engagement to date has indicated that there is sufficient capacity in the market, with suppliers broadly aware of the forecast national demand and in a position to respond accordingly. Continued engagement with the supply market will be critical, including early indication of timescales for procurement and delivery and packaging the requirements to ensure they are attractive to suppliers. Evaluation of supplier capacity and supplier programme plans will be a factor in tender evaluation.
Project Wide	Time Constraints - Failure to Deliver on time	Implementation of the CAZ is reliant on external suppliers; there are therefore certain limitations in terms of the control that SCC has to ensure delivery within the 'shortest possible time'.	<p>Measures to include</p> <ul style="list-style-type: none"> - Robust contract management; - early & ongoing engagement with suppliers; - appropriate contract drafting - eg Time of the Essence clause; KPIs focussed on critical success factors; payments linked to Milestones; - appropriate commercial project resource involved throughout.

Project Wide	Time Constraints - Associated Risk	Requirement to deliver CAZ in 'shortest possible time' negatively impacts on 'quality' and 'price' assessments. Risk of non-compliant procurement process or failure to ensure vfm.	Whilst SCC will ensure delivery of services and goods as quickly as practicable, standard internal governance processes will be utilised to ensure that the Council's statutory and best practice framework is adhered to. Wherever possible and with due consideration to best value duties, in-house services, existing contracts and OJEU compliant frameworks will be utilised to provide expedited, compliant routes to market.
Project Wide	Dependencies with Central Government Systems	A lack of detail around the central payment system and DVLA database in particular introduces a number of technical, logistical, financial and reputational risks to the Council. Aside from the inherent risks themselves, JAQU have not confirmed to date how these contingencies will be managed. It is unclear for example, as to whether central government will hold a contingency 'pot' for SCC to draw down against as financial risks materialise, or if SCC will be responsible for managing the pot directly, drawing on contingency funds as required before returning any surplus to central government.	SSC to continue to request a project plan and details of the proposed interface with other ICT systems. On the basis that risk is best allocated to those best able to manage it, the ongoing assumption is that JAQU will maintain responsibility for all risks relating to central government initiatives. Where risks and contingencies are best managed by SCC, confirmation will be required from JAQU as to how funding to manage these risks will be administered.
ANPR	System Integration	Risk that the various back office systems and related processes (SCC back office software, ANPR data feed, central government payment system and DVLA database) required do not integrate successfully with each other.	Appointment of a systems integration post seen as a key enabler of successful integration. Limitations of this post in relation to ongoing dependency identified with systems being developed by central government to be continue to be treated as a separate risk.

ANPR	Wireless infrastructure capacity	Whilst existing infrastructure is in place, further work is required to understand whether sufficient capacity is in place to host the entirety of the CAZ infrastructure required, if 4G mobile solutions are not sufficient. The addition of further capacity would require additional civil works with consequential impact on time and cost.	Detailed assessment of current and anticipated capacity to be undertaken January 2019 to allow contingency measures to be built into programme plan. SCC has existing arrangements in place and subject to value and scope, a variation to existing contractual arrangements or a separate tender process will need to be undertaken as required.
Loan Administration Scheme	Multiple Risks	The development of this measure brings risks in relation to a number of areas, including supply risk (capacity of the market to deliver in line with SCC requirements, for which there is limited supply in the market currently), financial risk (liability for bad debt) and reputational (providing an equitable scheme whilst minimising risk exposure to SCC)	Continued market engagement to understand the available options, to enable SCC to develop a commercial strategy which is attractive to the market whilst managing risk exposure.



5. FINANCIAL CASE

5.1 Introduction

- 5.1.1 This chapter sets out the overall financial case for the delivery of the project. The purpose is to present the costs of the preferred option in terms of capital and revenue needs with associated profiling of costs along with a wider consideration of the financial implications of the project. This section is supported by the financial model which outlines the costs, funding and timing of the expenditure. Consideration has been given to the whole life costs, future sustainability and the ongoing revenue impacts to the authority.
- 5.1.2 In summary, this chapter thus focuses solely on setting out:
- Indicative costs for the preferred option including capital and operational expenditure;
 - Identification of the funding sources to enable the intervention
 - Overall affordability of the scheme
 - Revenue generation forecasts
 - Next steps in order to further develop and refine the financial case, including a more detailed cashflow analysis of costs and funding requirements, including funding requirements from JAQU.
 - Costing of the other 3 options included in the economic case
- 5.1.3 Further details of project costs, funding assumptions and revenue estimations can be found in the financial model Appendix FC1

5.2 Project costs

Capital Expenditure (Capex) Requirements

- 5.2.1 This section presents the upfront capital costs required to implement the preferred option. A detailed breakdown is provided in Appendix FC1 and the main costing/funding model (Supporting Document OBC_SD11). Capex costs associated with the alternative 3 options explored have also been included for reference. It is assumed that SCC and RMBC will own and operate the hardware and software required to carry out the charging CAZ processes, except for the cost of setting up and running the national payment portal which is being developed by central government.

Capex Scope; the Preferred Option Requirements

- 5.2.2 CAZ Enforcement System and Infrastructure works:
- ANPR cameras including installation and associated equipment
 - Camera and communications network infrastructure, including cabinets, posts, cabling and connection to the network
 - Zone signage, road marking and any other minor realignment works
 - Back office system including installation of hardware and software necessary and system integration and implementation (but exclusive of any costs associated with the national central government payment portal infrastructure)
 - Project management and other services
 - **Measures: non-compliant vehicles support packages**

- Black cabs in Sheffield – A mixture of funding support and interest free loans to enable drivers to meet new standards through retrofitting or upgrading to compliant vehicles
- Car based taxis/ PHVs in Sheffield and Rotherham– support to convert the private hire fleet to ULEVs as quickly as possible.
- Buses in Sheffield and Rotherham – Sheffield City Council have already been awarded funding from the Government’s Clean Technology Fund (CBTF) to retrofit 117 of the 450 buses operating in the city to compliance. The proposals included in our preferred option will support more buses in Sheffield and Rotherham to upgrade.
- Light Goods Vehicles - providing interest free loans to support the cost of upgrading to compliance.
- **Measures associated with Road-based Infrastructure**
 - Optimisation of traffic signals at key junctions in Sheffield and Rotherham
 - Speed limit reductions on the Sheffield Parkway
 - Junction improvements and bus priority measures
 - Signage for the implementation of HGV restrictions in Rotherham
- **Measures associated with Parking**
 - Provision for the implementation of a change to parking policy and associated infrastructure
- **Charging infrastructure to support ultra-low emissions vehicles**
 - Inclusion of costs to enhance the network of public charging points in Sheffield and Rotherham, £1.16m funded by the Early Measures Fund
 - The provision of rapid chargers for electric taxis in Sheffield, with the inclusion of some funding from the OLEV bid submitted in November 2018
 - Further chargers in Sheffield and Rotherham as part of the ‘Charger Strategy’
- **Costs of Communications Campaign**
 - A range of costed communications activities to engage with Sheffield and Rotherham residents covering programmed activity until 2021 including stakeholder engagement and public consultation.
- **Monitoring and Evaluation Costs**
 - Inclusion of costs for the measurement and evaluation of the impacts of the measures including the strengthening the air quality monitoring and modelling team and provision for post implementation behavioural impact evaluations.
- **Programme, Project and Financial Management and Professional Support**
 - The costs associated with project management, financial and commercial support alongside technical fees associated with design, supervision, contract management, quality assurance and strategic systems integration

Table 5 Capex Requirements

Capex £'000s	Item	Early Measures Fund	OLEV Funding	Implement ation Fund	Clean Air Fund	Council Funded	TOTAL
CAZ Enforcement & Infrastructure works	System& works	-	-	3,174	-	-	3,174
Measures: non-compliant vehicles support packages		485	-	6,184	3,303	-	9,972
Measures associated with Road-based Infrastructure		159	-	1,010	-	-	1,169
Measures associated with Parking		-	-	100	-	100	200
Charging infrastructure to support ULEV		1,160	1,913	-	-	163	3,235
Costs of Communications Campaign		80	-	1,686	-	-	1,766
Monitoring and Evaluation Costs		-	-	560	-	-	560
Project, Financial Mgmt & Prof Support		-	-	18,836	2,699	-	21,535
Contingency		-	-	534	-	-	534
TOTAL		1,884	1,913	32,084	6,002	263	42,144

Other Options

5.2.3 The options analysis illustrates the cost sensitivity of the cordon to the geographic scale rather than the charging classes; cordon 3 covers a smaller geography so results in lower implementation costs. The category of charging does not dramatically impact on the funding required to implement the scheme.

Table 6 Other Options

Comparison of Options £000's	Early Measures Fund	OLEV Funding	Implementation Fund	Clean Air Fund	Council Funded	Total
Cordon 1 CAZ D	£1,952	£2,153	£43,653	£68,755	£163	£116,676
Cordon 2 CAZ D	£1,952	£1,988	£35,979	£57,041	£163	£97,122
Cordon 3 CAZ D	£1,952	£1,913	£29,163	£29,356	£163	£62,547
Cordon 3 CAZ C+	£1,952	£1,913	£36,741	£8,317	£263	£49,185

5.3 Operating Expenditure Requirements

5.3.1 Operating expenditure required for the ongoing activity to support the Clean Air Zone includes the cost of enforcement, operation, monitoring, evaluation and financial support. Estimates are provided at 2018 prices and summarised in Table 7 below; further supporting detail can be found in the main costing/funding model (Supporting Document OBC_SD11)

Table 7 Opex Requirements

Opex £'000s	Item	Early Measures Fund	OLEV Funding	Imple- ment- ation Fund	Clean Air Fund	Counc- il Funde- d	Privat- e Sector Funde- d	TOTAL
	CAZ Enforcement System - Back office running costs	-	-	2,064	-	-	-	2,064
	Monitoring and Evaluation Costs	65	-	760	-	-	-	825
	Programme, Project & Financial Management & Prof Support	3	-	81	194	-	-	279
	Contingency	-	-	2,466	3,193	-	-	5,660
	TOTAL	68	-	5,372	3,388	-	-	8,827

5.3.2 The values in the table above exclude the ongoing operating costs of the CAZ back office beyond 2021, which are assumed to be covered by the income from the CAZ.

5.3.3 This revenue is included in the cashflow table below (Table 9).

5.3.4 It should also be noted that it has not been possible to fully validate the cost estimates at this stage. This reflects the fact that these options are currently not sufficiently developed to be able to undertake a reasonable cost assessment. The cost estimates for these measures will be refined through market development and procurement activity as described in the commercial case as part of the development of the Final Business Case.

5.4 Affordability

5.4.1 Over the next five years, the Councils face a large gap in funding in order to sustain the services we deliver to our residents. As we have through the eight years of austerity to date, our approach to manage the Council's finances will be to: improve services so that they are preventative, modern and more effective at meeting the needs of local residents; increase incomes and opportunities for all by investing in our economy; and maintain a prudent management of the Council's finances. We have set an ambitious Clean Air Strategy for both Sheffield and Rotherham and have a duty to ensure NO₂ pollution in Sheffield and Rotherham has been brought to the legal limits within the shortest possible time. This directive from JAQU provides a challenge to the authorities to obtain optimum value for money in the market place given the time available. Our preferred option is the one most likely to deliver the best value to achieve compliance with respect to the benefits and the risks associated with project delivery and ultimately provide a sustainable solution given the constraints on the public purse.

5.5 Funding Sources

5.5.1 There are seven main funding sources for the delivery, operation and maintenance of the CAZ. These are:

1. An Early Measures Fund - this is expected to support small ambitions and good value early measures to improve air quality and start to reduce concentrations in Clean Air Zone. A maximum of £3m per local authority has been allocated for this funding which is part of the Clean Air Fund.

2. The Implementation Fund - this is designed to support local authorities in the planning and delivery of targeted action to improve air quality to directed compliance levels within the 'shortest possible time'
3. The Clean Air Fund - an opportunity for local authorities to implement additional measures tailored to their area which minimise the potential impact of local air quality plans - either by enabling the local authority to implement local plans that collectively impact on fewer people, or by providing direct support to those impacted.
4. Office for Low Emissions Vehicles (OLEV) Fund – this funding is available to local authorities for install charging points for electric vehicles
5. Revenue from CAZ Charges - Funding will become available from the charges for non-compliant vehicles driving into and within the CAZ
6. Council Funding – funding provided by the local authority
7. Private Sector – investment by the private sector for the upgrade of vehicles to compliance with the proposed CAZ.

5.6 Funding Applications

5.6.1 Sheffield City Council and Rotherham Metropolitan Borough Council (RMBC) are reliant on funding from the following sources listed above to deliver this Clean Air Plan:

1. Early Measures Fund – A grant of £1.956k was awarded in summer 2018 to install public charging points for electric vehicles, carry out electric taxi leasing to hackney drivers, improve signal timings at key congestion points Sheffield and support communications activities.
2. The Implementation Fund - The funding requested from central government is £36,741k to cover implementation of the preferred scheme and associated costs and measures as detailed above
3. The Clean Air Fund – funding of £8,317k is requested to provide incentive schemes for taxis, LGVs and buses costs associated with communications and on-going financial management
4. Office for Low Emissions Vehicles (OLEV) Fund – A bid of £1,913k was submitted in November 18 for the installation of charging points for electric vehicles; this bid is supported by an element of match funding from SCC and local transport funds.
5. Revenue from CAZ Charges - Funding will become available from the charges for non-compliant vehicles into the CAZ. The forecast revenue is assumed to decline as compliance is achieved. In the first instance this funding will be used to facilitate the operation of the CAZ from 2021-2024. If any net surpluses are delivered as a result of charges, they will re-invested into the achievement of the Clean Air Plan for Sheffield in line with the scheme guidance.
6. Council Funding – a commitment of £263k has been made by in principle by Sheffield City Council to support the OLEV bid and for the implementation of a new parking policy in Sheffield to support the clean air ambitions of the city.
7. Private Sector – the funding model assumes investment of working capital to fund the loans by the private sector to upgrade of vehicles to compliance with the proposed CAZ.
8. Other – The Clean Bus Technology Fund have awarded £1.947m for the retrofit of 117 buses in Sheffield with Clean Vehicle Retrofit Accreditation Scheme technology. This additional source of funds is not contingent upon the successful application to the implementation or clean air funding but demonstrates the city's commitment to the achievement of the clean air plan.

5.7 Financial Contingency

- 5.7.1 An element of contingency has been built into the financial model as described in tables 1 and 3 totalling £4,407k includes allowances for an optimism bias on the roads infrastructure schemes, CAZ signage, programme management and a provision for the cost of financing an unexpected additional uptake on the loan scheme of a further 20%. Some of the contingency for the interest on the loan scheme is apportioned to the request from the Implementation Fund as is deemed a necessity to achieve compliance, some from the Clean Air Fund additional uptake may see a staggered phasing into years 2- 4 of operations.
- 5.7.2 The revenue generated as a result of the CAZ is based on transport modelling data of non-compliant vehicles that enter or move within the zone each day and a charging levy of £10 for taxis, private hire vehicles, vans and LGVs, £50 per day for buses coaches and HGVs. The charging structure is based on behavioural research and will be consulted on in early 2019. Income forecasts are uncertain and therefore within the funding proposal, we anticipate this will be initially earmarked to support the operation of the scheme and any surpluses may provide an additional contingency to facilitate our achievement of the CAZ. The level of this is unknown as is based on many variables as detailed in table 3.
- 5.7.3 The contingency fund will be managed by SCC as the lead commissioning organisation.

5.8 Financial Model

Overview

- 5.8.1 Due to the size, significance and complexity of the project, detailed financial modelling has been undertaken to ascertain the whole life costs and overall affordability of the project. Full details can be found in the main costing/funding model (Supporting Document OBC_SD11).

Key Assumptions

- 5.8.2 The financial model is underpinned by key assumptions:
- Operational phase begins 1st January 2021 and commence until 31st December 2024. Signing, enforcement infrastructure and back office will be decommissioned in 2025;
 - The forecast number of non-compliant vehicles in 2021 comes from transport modelling outputs;
 - Only charges are collected from taxis, LGVS, buses, coaches and HGVS, not from private cars within the proposed Category C+ solution;
 - Interest free loans will be offered as part of the support to enable drivers and businesses to upgrade vehicles to compliance;
 - The loan fund will be established in partnership with a third party organisation, the scope of the funding request includes a requirement to cover the cost of capital from this organisation. A provision of 7% has been included to cover the cost of borrowing which incorporates an allowance for the risk of defaults which will be managed by this provider. Further calculations to support this can

be found in Appendix FC1 and in the economic costing/funding model (Supporting Document OBC_SD11);

- The administration of the fund including eligibility, affordability and credit checks, loan issue and on-going scheme management will be accessed through an external provider. An allowance of 5% is built into the proposal to manage this scheme
- A provision for administration of the incentive scheme has been included at 5%. This may be undertaken in house or through an external provider, further development of the procurement options will be completed prior to FBC.
- The charge for the central government portal is assumed to be 5%
- The funding request to support the ULEV infrastructure from the OLEV fund is successful
- All prices and cost assumptions are stated at 2018 base prices and no inflationary uplift has been applied at OBC, further development of inflationary impacts on the funding model will be completed for FBC.
- SCC are assumed to be the lead commissioning organisation that will manage the funding of the whole scheme, with the exception of the elements entirely delivered by RMBC who shall be wholly accountable for such costs and risk for which back to back funding agreement will exist to passport the funding from SCC to RMBC in these scenarios.

5.8.3 Full costing assumptions are included in the main costing/funding model (Supporting Document OBC_SD11)

5.9 Key Financial Risks

5.9.1 The key financial risks from the proposed scheme are outlined in the following section and refer to some key assumptions of the financial model.

Loan scheme

- The proposed offer assumes capital injection from a third party lender not SCC, RMBC or JAQU. There is a risk that we are unable to source commercial capital within the financial envelope costed in this proposal.
- There is a risk that quantity of loans offered would therefore have to be limited within the financial envelope of the proposal costed.
- The risk-share relationship underpinning the loan scheme, between external providers and local authorities is yet to be developed. SCC may have to underwrite the loans offered to secure a viable cost of capital.
- The cost of capital used in the model doesn't account for the potential level of default in the market to this demographic. This may in turn limit the availability of the loans to all.
- The eligibility checking process required by the loan administration partner whilst limiting financial risk, may limit the availability of finance to the general public.

Revenue

- There is a risk the revenue forecasts are not achieved due to limited national behavioural research
- A risk of non-collection of charges reduces available resources

- The 5% charge of income to central government is not adequate and reduces the revenue available to fund the sustainability.
- Behavioural assumptions on conversion rates impact on the funding requirement profile and income streams received.
- Further sensitivity analysis is required to fully understand the impact on revenue with regards to the transport modelling.

Costs

- The payment portal will be national governments responsibility and not that of SCC/RMBC. The funding request is not sufficient to cover the cost of developing this.
- It should also be noted that it has not been possible to fully validate the cost estimates at this stage. This reflects the fact that these options are currently not sufficiently developed at this stage.

5.10 Accounting Implications

5.10.1 Based on the preferred option as outlined in this business case, there are further accounting implications that need further development into the Final Business Case. The development of the commercial strategy and procurement of the items presented in this business case will have a consequential impact on the accounting considerations for the Authorities. In the development of FBC, consideration will be given to the following: asset ownership, depreciation policy, useful life impact on the MRP requirements of the organisation, possible lease accounting considerations, whole life costing implications, possible loan impairments, accounting for risk and contingent liabilities and consideration to VAT and tax implications in respect of the incentives offered. The detailed implications associated with the general fund will be considered through the further development of the FBC.

5.11 Revenue Generation

5.11.1 The charging elements of the preferred option will generate revenue. Defra's Clean Air Zone Framework states that the level of charging for a CAZ should not be set in order to raise revenue, however any excess revenue above the costs of operation should be 're-invested to facilitate the achievement of local transport policies and these should aim to improve air quality and support the delivery of the ambitions of the zone'. This is interpreted as any additional revenues received above the operating and maintenance costs for CAZ could be used by the Council to pursue other 'Clean Air' initiatives that are outside of the compliance criteria of the CAZ scheme. Schedule 12 to the Transport Act 2000 tells us the purposes for which we can use the income from a charging scheme – the CAZ being a charging scheme as defined by that act.

5.11.2 The way in which money is to be accounted is similar to that associated with parking charges. An account must be kept for each financial year, documenting the income/expenditure and published as part of our annual accounts (para 6). If the account is in deficit, it is to be balanced by the authority from their general fund (para 7), and where there is a surplus it must be spent on "facilitating the achievement of

local transport policies” (para 8) – anything not spent must be carried forward to the next year.

5.11.3 Most significant is paragraph 10:

(1) A relevant scheme made by one or more non-metropolitan local traffic authorities must include —

(a) a general plan relating to the application of their shares of the net proceeds of the relevant scheme during the opening ten year period, and

(b) a detailed programme for the application of their shares of the net proceeds of the relevant scheme during the opening five year period

5.11.4 Calculations indicate the level of revenue generated by the CAZ could be in excess of £5.6m in 2021 reducing to £4m by 2024, net of charges paid for the payment portal.

Table 8 Revenue Generation

Revenue £'000s	2021	2022	2023	2024	Total Cost
Charges paid by taxis	486	486	486	488	1,946
Charges paid by LGVs	4,216	3,758	3,301	2,851	14,126
Charges paid by HGVs	1,241	1,150	1,059	970	4,419
Charges Paid to gov't (5%)	- 297	-270	-242	- 215	- 1,025
TOTAL	5,646	5,125	4,603	4,093	19,467

(Stated at 2018 prices)

5.12 Net Operational Position

5.12.1 Under our preferred option CAZ C+ Cordon 3 scenario, the analysis indicates that the revenue generated will be greater than the costs of operating the CAZ from 2021 to 2024 resulting in an overall surplus position. Based on the uncertainty of this revenue given the sensitivity to transport modelling inputs; only revenue used to fund the operational requirements of the CAZ has been included in the below table. The surplus position will be used as described in sections 5.3.4 and 5.4.4 above. Upfront financial support from the Implementation fund is therefore essential to ensure delivery of the proposal with further support from the Clean Air Fund.

Table 9 Cashflow

Cashflow £'000s	2019	2020	2021	2022	2023	2024	2025 & beyond	Total Cost
Cost Category								
Capex	3,928	19,532	10,258	4,576	2,584	861	406	42,144
Opex	886	2,732	2,012	1,418	940	657	0	8,647
TOTAL EXPENDITURE	4,814	22,264	12,269	5,994	3,524	1,519	406	50,791
Funding Source								0
Early Measures Fund	832	771	348	0	0	0	0	1,952
OLEV Funding	444	657	812	0	0	0	0	1,913
Implementation Fund	1,108	14,761	10,734	5,694	3,224	1,219	0	36,741
Clean Air Fund	2,400	5,918	0	0	0	0	0	8,317
Council Funding	30	157	75	0	0	0	0	263
Funding used from CAZ income	0	0	300	300	300	300	406	1,606
TOTAL INCOME	4,814	22,264	12,269	5,994	3,524	1,519	406	50,791
TOTAL	0	0	0	0	0	0	0	0

5.13 Sensitivity Analysis

5.13.1 The Financial model is underpinned by its key assumptions. Sensitivity analysis has been undertaken to test and validate these key assumptions but further work is necessary in the development of the final business case to understand the impact of changes to key variables, notably within the following broad categories:

- Transport modelling – movement in and out of the CAZ number of non-compliant trips and vehicles observed from current ANPR data
- Cost of back office operations based on the variable traffic volumes
- Fleet assumptions – costs of upgrading the fleet including retrofits, upgrades and market values of current vehicles, behavioural impact of number of drivers upgrading and impact on the financial support packages and incentive schemes.
- Loans scheme – sensitivity around principals, interest, and administration fees can be tested following further market development
- Timing of cashflow assumptions needs further testing and will have implications around the total cost of capital with respect to the funding request.

5.14 Next Steps

5.14.1 In order to progress the financial case from this OBC to FBC we will:

- Commence the procurement phase of the project and identify the options that include the most economically advantageous tender in each of the required procurements;
- Confirm the affordability of the scheme;
- Put into place the agreed management arrangements for the successful delivery of the project including monitoring and post evaluation arrangements;
- Undertake continual review and development of the financial model; and
- Further-develop the benefits realisation strategy.

6. MANAGEMENT CASE

6.1 Introduction

6.1.1 The purpose of this Management Case is to define the arrangements that will be put in place to enable successful delivery of the Sheffield and Rotherham CAZ preferred option; it aims to give assurance to JAQU that the preferred option can be delivered as proposed.

6.1.2 In summary this Management Case covers:

- Governance and Assurance
- Programme and Project Delivery arrangements
- Resource Requirements including Stakeholder Management
- Project Plan
- Communications

6.2 Track Record and Linkages

6.2.1 The use of charging zones to specifically manage vehicle emissions to improve air quality has not previously been undertaken by Local Authorities in England, therefore the CAZ project is a variation from Business as Usual (BaU). The Legal Directive to deliver air quality improvements within the 'shortest possible time' adds additional challenge and complexity.

6.2.2 To meet these challenges, Sheffield City Council (SCC) and Rotherham Metropolitan Borough Council (RMBC) will draw on their Service, Programme and Project Delivery experience, outlined below.

Sheffield City Council - Experience and Track Record

SCC Programme and Project Management

6.2.3 Sheffield City Council's Capital Delivery Service (CDS). CDS is Sheffield City Council's Centre of Excellence for the Delivery of Capital Projects. The service consists of multi-disciplinary professionally qualified staff and delivers all capital construction projects on behalf of the City Council. This includes delivery of all of CYPF's capital programme for school expansions and remodels.

6.2.4 Examples of the types of projects undertaken include school expansions, new schools, improvements to parks and recreational facilities, shop front improvements, improvements to roads and cycle paths and construction of flood defences. The schemes range in value from £100k to £30m. The City Council has a capital programme in the region of £200m per annum.

6.2.5 CDS employs 70 staff across the full range of technical disciplines for the delivery of capital projects. These include architects, civil/structural engineers, cost managers, mechanical/electrical engineers, project managers and clerks of works. The Programme Management Office (PMO) provides support across the whole service and takes a lead on quality assurance in respect of project delivery and compliance. The Service operates an ISO 9001 Service management System to maintain the quality and consistency of project delivery. In order to maintain the ISO9001 accreditation the service is subject to annual external audit and inspections.

6.2.6 The Service has delivered a wide range of Department of Education funded schemes, through condition and basic need funding. The Service was also responsible for successful delivery of the City's £400m Building Schools for the Future programme. Our current Head of Service was the Authorities Representative for the delivery of this programme. The Service therefore has considerable experience in the delivery of education capital projects.

6.2.7 The City Council has robust financial standing orders and procurement guidelines to ensure Public sector procurement regulations are adhered to. This project would be delivered in accordance with the Authorities policies and approvals.

SCC Parking Services

6.2.8 Parking Services maintains an in house service for bus lane and parking enforcement.

- The Service is leading on delivery of the Councils anti-idling campaign to improve air quality especially around schools; with drivers signing a pledge to switch off, when picking up or dropping off.
- The Service manages around 4,200 on street pay and display spaces, 1500 within the City Centre. In addition, there are around 900 off street parking spaces with a further 2,200 'other' bays (including time limited, unlimited and disabled) within the peripheral parking zone in Sheffield.
- The service makes use of an ANPR CCTV enabled car to carry out additional enforcement of School Keep clear zones, bus lanes and bus stops.

SCC Bus Lane Enforcement

- The Council currently utilises 14 ANPR cameras for bus lane enforcement - bus stop clearway or bus stand clearways as well as use of an ANPR CCTV enabled car.
- The current contracts for this equipment are with Systems Engineering & Assessment Ltd and Imperial Civil Enforcement Solutions Limited procured and managed through the Councils current IT provider CAPITA. These contracts are under review and programmed for change during 2019 as part of SCC Tech 2020 programme (see below and 7.3).

SCC Smarter Parking

6.2.9 The Council has embarked on a programme of improvements including:

- The ongoing removal of outdated pay and display equipment, replaced with cashless alternatives of which 193 pay and display terminals have started to be installed.
- Virtual permit parking to manage the 13,500 residents parking permits in circulation.
- With almost 100,000 Penalty Charge Notices (PCN's) issued per year, on street officers make use of smarter services to monitor parking, ensuring coverage for the whole City. This includes enforcement of Keep Clear zig-zag area's outside schools, utilising an ANPR enabled vehicle as an additional resource.

SCC Enforcement Back Office System Support

6.2.10 The existing system has reached its end of life and is currently due to be replaced in 2019. As part of the CAZ requirement and the Sheffield City Council Tech 2020

programme, this presents the opportunity to plan to align the CAZ charging system to better ensure integration and to maximise best value.

- 6.2.11 Additional resources and changes will need to be considered and procured to deliver the preferred CAZ option.

SCC Early Measures Fund (EMF)

- 6.2.12 The Council successfully bid for £1,247,100 of capital grant from the Early Measures Fund to carry out the following schemes in 18/19 and 19/20:

- Electric Taxi Trial
- Public Chargers
- Abbeydale Rd junction improvements
- Communications Campaign
- Monitoring and Evaluation

- 6.2.13 The taxi trial will be focused on Hackney Carriages (Black Cabs) and the Council will purchase up to 10 taxis and lease them to drivers for 2 – 3 months at a time to allow them to get a feel for the vehicle, the costs of running it and the impact on their daily routine, in order to allow them to make an informed choice about switching to an electric vehicle. The installation of chargers is vital to the success of the taxi trial, as without the supporting infrastructure drivers will be reluctant to make the switch.

- 6.2.14 The junction improvements at Abbeydale Road aim to improve traffic flow, thus reducing emissions through this busy junction having a direct impact on air quality in that area.

Clean Bus Technology Fund (CBTF)

- 6.2.15 SCC successfully worked in partnership with South Yorkshire Passenger Transport Executive (SYPTTE) and First Group and Stagecoach to bid for and secure funding to deliver 117 bus retrofits to fleet in Sheffield. This project will be successfully complete in early 2019. Through our Sheffield Bus Partnership we continue to work closely with SYPTTE and Operators to deliver a wide range of bus priority measures on key bus corridors and deliver improvements to ticketing, marketing and communications, and a range of other areas to make bus a more attractive offer.²³

SCC OLEV bid

- 6.2.16 On 30 November 2018, SCC submitted an application to OLEV for 20 Rapid Chargers to be located at 7 key locations across the Sheffield urban area. The new infrastructure will be vital to the roll out of low emission taxis across the city, which is essential to the Sheffield City Council plan to tackle air quality in the city and the CAZ Preferred Option.

²³ ²³ Sheffield Clean Air Strategy,

<http://democracy.sheffield.gov.uk/ieDecisionDetails.aspx?ID=2156>

²³ Sheffield City Council (2018) *Transport Strategy*,
<http://democracy.sheffield.gov.uk/documents/s31437/Transport%20Strategy%202.pdf>

The Urban Flows Observatory

6.2.17 This is being developed by the Urban Institute at the University of Sheffield (<https://urbanflows.ac.uk/about-us/>) and Sheffield City Council is a key partner involved in supporting this initiative. SCC aims to further develop this partnership and work with the University of Sheffield's Urban Institute to use the new Urban Flows Observatory's capacity to have a real, live and rich understanding of the air quality challenge in Sheffield and assess the impact that our ambitious CAZ interventions on are having on the cleanliness of the air that the city breathe's. This opportunity will be expanded on further at FBC stage.

Rotherham Metropolitan Borough Council – Experience and Track Record

6.2.18 RMBC has already taken a number of steps to improve air quality through actions identified in the Council's Air Quality Action Plan and Rotherham Transport Strategy.

Clean Air Zone (CAZ) Early Measures Fund (EMF)

6.2.19 RMBC secured £705k from Government to promote sustainable travel behaviour through two work-streams:

- to install a minimum of 25 electric vehicle charging points across the Borough; and
- a marketing and communications campaign to raise awareness of the Council's commitment to improve air quality and to promote behavioural change, with particular focus on the uptake of electric vehicles.

6.2.20 Following successful implementation of the EMF there will be regular monitoring, evaluation and benefits realisation meetings and, where possible, in line with reporting requirements. Lessons learnt from the project implementation will shape any future similar project initiation and will be considered during any future related funding opportunities.

DfT's Sustainable Transport Access Fund

6.2.21 A £7.5m South Yorkshire bid to promote and support a range of active travel initiatives to encourage more sustainable modes of transport, including:

- Cycleboost – Bike loans, Cycle training, Bike Doctor and maintenance sessions, Cycle parking facilities, and support to Cycle events held in the City including the partnership with British Cycling and HSBC (mass participation event and local led rides);
- Sustainable and Active Travel support for schools – a support package run by Modeshift STARS to promote walking and cycling behaviour for the journey to and from school;
- Independent Travel Training – providing personalised support for young people to use public transport and walk as an independent alternative to home to school transport;
- Support for a range of walking programmes primarily through the "Walk Rotherham" project;
- Busboost – a focussed support programme to encourage people to try public transport as an alternative to commuting by car; and
- EcoStars – an award based system for vehicle fleets to encourage more economical driving habits.

6.2.22 A number of current and future infrastructure projects have also been delivered, or are in planning, including:

- **National Productivity Investment Fund** – A £4.6m highway capacity scheme at the heart of the Town Centre to reduce traffic congestion.
- **Tram Train Pilot** – a revolutionary tram train pilot scheme utilising the regional heavy and light rail system. The project ensures an integrated transport solution between Rotherham, Meadowhall and Sheffield, complemented with park and ride opportunities in the Town Centre and Parkgate Shopping Centre.
- **Rotherham Interchange** – a refurbishment of the borough main transport interchange to encourage greater public transport use and improved bus service operation.
- **A630 Parkway Widening** – The Council is working with Highways England to deliver considerable capacity relief at the M1 Junction 33. The scheme will be complemented by a reduction in speed limit from 70mph to 50mph.

Care4Air

6.2.23 In relation to wider project engagement and delivery, a partnership across the South Yorkshire Local Authorities continues to deliver the ‘Care4air’ Campaign to encourage and influence changes that support cleaner air outcomes, using social marketing and other communications mechanisms.

Highways England

6.2.24 RMBC has undertaken work with Highways England to tackle air pollution from and around the M1. This includes the introduction of the current 60mph speed limit between J35A and J31 during the morning and afternoon peaks as an air quality mitigation measure. The Council is also committed to continue to work with the Sheffield City Region on the wider strategic transport ambitions for the functioning economic area.

Sheffield and Rotherham – Joint Track

6.2.25 Sheffield and Rotherham benefit from a considerable experience of delivering shared strategic interventions across a number of policy areas. The Sheffield-Rotherham economic conurbation is the primary centre of economic growth and the joint vision between both Local Authorities has enabled the concentration of world-leading industrial innovation. This has led to thriving business, professional and creative industries in major urban centres, busy independent retail centres, authentic and unique arts and culture and high quality urban and suburban living connected by modern transport networks. In light of this, there is a dedicated shared political and strategic leadership, which confirms a commitment to enable the further flourishing of the interdependent economic and social relationship between the two areas, enabling a coherent alignment of short, medium and long term investment decisions.

6.2.26 Through collaborative working, Rotherham and Sheffield have developed a clear strategic aim: to enhance the connections between residential and employment/training opportunities whilst also providing the conditions necessary to enable the sharing of knowledge and expertise amongst local businesses and support the needs of local residents.

6.2.27 Both authorities recognise the paramount need for continued investment in the transport network to ensure growth is not constrained. In light of this there are a number of large, jointly managed, infrastructure schemes which will deliver the enabling infrastructure to promote growth in specific sectoral industries which are unique to Rotherham and Sheffield.

- **Tram-train and Bus Rapid Transit** - in recent years, the economic case for investing in the Rotherham to Sheffield transport corridor has been recognised by central government. Strategic, integrated transport projects such as Bus Rapid Transit (BRT) and Tram Train are examples of this, with both schemes receiving major scheme business case approval. The primary objective has been to deliver fast, efficient and sustainable public transport links in this area to ensure that alternative modes to the private car are attractive to workers and local residents. These schemes have subsequently confirmed that providing additional capacity in this area will contribute positively to the local economy.
- **Wider mass-transit connectivity for the Advanced Manufacturing Innovation District (AMID) (direct links to Sheffield and Rotherham centres)** - public transport connectivity to the AMID is a well-known challenge to the existing strategic transport network. The area is served by a number of bus services but this is not considered to be convenient or attractive. As a result, a number of alternative large scale interventions have been identified, including the rerouting of tram train and the creation of a Waverley train station with Park and Ride.
- **Additional rail connectivity** - the provision of a heavy rail station on the Lincoln Line (south of the Waverley New Community) would provide a step change in the public transport accessibility of the area. The ability to have direct connectivity to the national rail network would build on the existing offer of the Advanced Manufacturing Park (AMP) employment sites. The station would also play a critical role in ensuring a multimodal transport offer for residents of the Waverley New Community, ensuring that the additional traffic generated can be diverted to other modes of transport, reducing the impact on local traffic congestion and fostering sustainable travel behaviour.
- **Transforming Cities** – the SCR led project will focus on delivering transformational change on the regions transport network, particularly focused on reducing car dependency and improving productivity through walking, cycling and public transport initiatives. A corridor approach is being taken to ensure a joined up route based approach which supports cross boundary ambitions and project delivery. The Sheffield to Rotherham corridor is a key part of this work and a both Local Authorities will be working together to ensure a seamless delivery of a suite schemes across both geographies.

6.3 Our Corporate Governance

SCC PLACE Directorate Governance

- 6.3.1 Corporate ownership of the SCC CAZ project sits within the PLACE portfolio. The vision for the Portfolio is to make: *Sheffield a great place for people to live, work and visit - successful, vibrant city with excellent infrastructure, a strong and inclusive local economy, thriving neighbourhoods with an attractive, clean and safe environment.*
- 6.3.2 The PLACE portfolio includes the following directorates:
- Business Strategy and Regulation - including Parking Services
 - City Growth - including the Capital Delivery Service
 - Culture and Environment
 - Housing and Neighbourhoods Service
 - Strategic Transport and Infrastructure
- 6.3.3 The Chief Executive of the Place Portfolio is Laraine Manley who also Chairs the current CAZ Project Board and would be Lead SRO for the proposed CAZ Outcome Board for the delivery stage of the project. The SCC CAZ Project Sponsor is the Head of Strategic Transport and Infrastructure Directorate which forms part of the PLACE Portfolio.

The PLACE Change Programme

- 6.3.4 The Place Change Programme reports directly to Laraine Manley via the Place Leadership Team. The Heads of Service for each of the Services in scope work as part of the Delivery Team with staff across their respective Service Areas. The Place Change Programme is about reviewing how the portfolio does things in order to make the changes that are need to:
- Make it easier for customers to access and receive the help they need and for our staff to operate in an efficient and cohesive way.
 - Be more focused on priorities.
 - Create a greater sense of pace into the things that we do, not just what we do but how we do it.
 - Be more affordable - able to deliver our priorities at a sustained reduced cost.
- 6.3.5 The Programme has included a review of Parking Services digital operations and changes are planned in 2019, potentially offering the opportunity to fully join-up and integrate these with the additoanl work required for the CAZ charging ANPR and back-office processes.

CC Gateway Approval Process

- 6.3.6 The Governance for programmes and projects sits within the PLACE portfolio. All capital projects are governed by a Programme (outcome) Group and by the Capital Programme Group. Each project will have a Project Board and / or Steering Group who will be responsible for make key decisions throughout the life of the project.

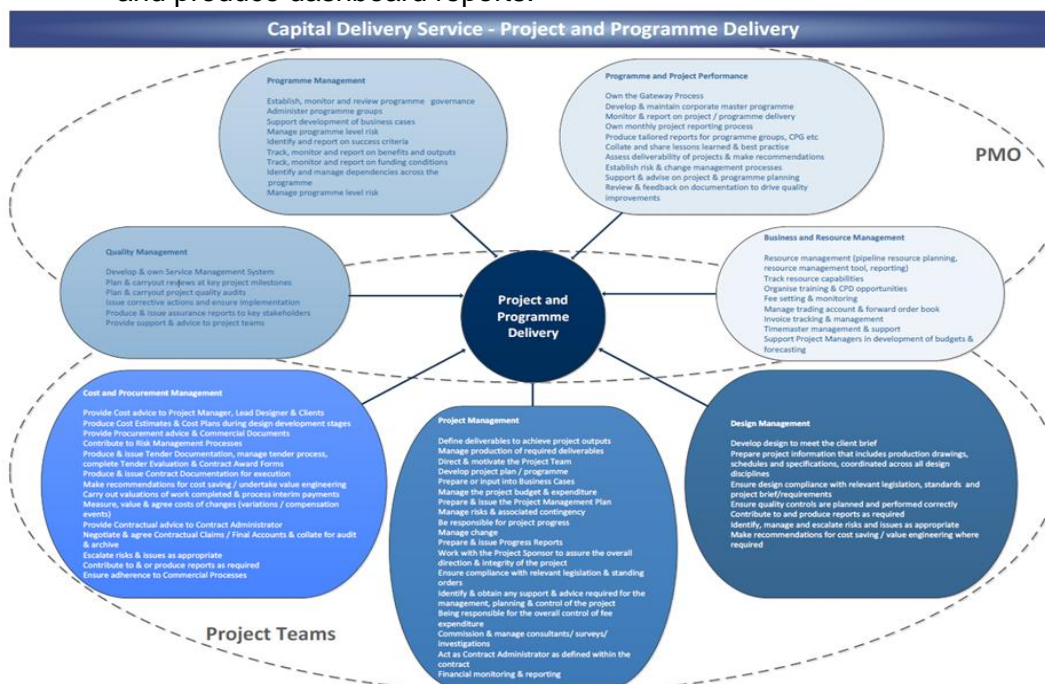
All projects are subject to quality assurance reviews and challenge at key stages, outlined below - See the appended SMS Service Delivery Manual, Part A – Appendix MC1.

Lifecycle Phase	Gateway	Key Outcome
Start-up	Gateway 0 – Programme Group	Develop the Initial Business Case
	Gateway 1a – Programme Group	Project Sponsor allocated and Initial Business Case approved
	Gateway 1b – Capital Programme Group	Project enters the Capital Programme
Planning	Gateway 2a - Programme Group	Outline Business Case and Project Management Plan (PMP) approved
	Gateway 2b – Capital Programme Group (CPG)	Procurement strategy and Capital Approval Form (CAF) approved.
Delivery	Gateway 3a – Programme Group	Final Business Case, including selected tenderer, approved
	Gateway 3b – Programme Management Office	Contract Award approval granted
Closure	Gateway 4 – Programme Group	Benefits Realisation Project is complete and can be closed

SCC Programme and Project Management Process

6.3.7 The Capital Delivery Service (CDS) leads on programme management and delivery across the Council – see the diagram below and the SMS Service Delivery Manual, Part B – Appendix MC2 for further detail. Within CDS there is an established Programme Management Office (PMO) with an embedded ISO 9001 accredited Service Management System (SMS) Appendix MC1 and MC2.

6.3.8 The PMO administer the flow of projects to CPG for approval and organise the specified technical reviews, own the monthly capital performance reporting process and produce dashboard reports.



Quality Assurance

6.3.9 The SCC SMS incorporates 4 types of internal audits for quality assurance purposes:

- service audits;
- SMS health checks;
- technical reviews; and
- project audits (by exception)

6.3.10 These are summarised in 7.5 and detailed within the SMS Service Delivery Manual, Part A Appendix MC1.

RMBC Regeneration and Environment Directorate Governance

6.3.11 Corporate ownership of the CAZ project sits within the Regeneration and Environment Directorate. The Directorate is committed to delivering services for Rotherham which focus on economic regeneration, whilst at the same time ensuring it keeps its neighbourhoods safe, clean, green and well maintained. It is reforming its approach to delivering these services through a review and restructure of the resources at its disposal to ensure these services are delivered in a flexible, efficient and sustainable way.

6.3.12 In order to achieve this, the Directorate has identified four key underlining themes to assist in shaping and developing services and service delivery over the next three years. These themes are:

- 1 Economic and Housing Growth
- 2 Modernisation
- 3 Being more commercial and maximising income generation
- 4 Engaging with and empowering communities

6.3.13 These four themes will guide the Directorate and provide a framework for future direction, service provision, and prioritisation, and help guide budget decisions. They complement the key Corporate Plan priorities which provide the overall vision for the Council and which impact most directly on the delivery of services within the Regeneration and Environment Directorate. These are:

- 'A strong community in a clean and safe environment' and
- 'Extending opportunity, prosperity and planning for the future'

6.3.14 They are underpinned by the cross cutting commitment 'to be a modern and efficient Council.'

6.3.15 With this as our backdrop, the Directorate will support the economic growth of the Borough by working with our partners on the Business Growth Board to deliver the 10 year Economic Growth Plan, producing a Cultural Strategy for the Borough which plays into and supports the economic growth agenda and delivering on key, major regeneration projects including the Town Centre regeneration (e.g. Forge Island), Gulliver's, Higher Level Skills Centre, Advanced Manufacturing Park/Advanced Manufacturing Innovation District (AMID), Transport interventions and key housing developments such as Bassingthorpe Farm and Waverley.

6.3.16 This will require the Directorate to play an influential role in the Sheffield City Region to ensure that Rotherham receives tangible benefits and especially funding to deliver

on priorities. We will achieve this by developing a culture of innovative service delivery, including different delivery methods and vehicles, exploring the use of new technologies, identifying and optimising income generation opportunities, encouraging creativity in service design and delivery across departments which will inform future operational asset management requirements across the Council and its partners. The success of this approach will be monitored and evaluated through a comprehensive performance management framework across the Council as a whole.

- 6.3.17 The Strategic Director of the Regeneration and Environment Directorate is Paul Woodcock who also chairs the RMBC Internal CAZ Working Group and Joint Member Update meeting. Paul Woodcock also attends the SCC/RMBC CAZ Project Board for the Feasibility stage of the project. The RMBC CAZ Project Sponsor is the Assistant Director for Community Safety and Street Scene, which forms part of the Regeneration and Environment Portfolio.

RMBC Approval Process

- 6.3.18 The internal governance for the programme of interventions associated with the CAZ will be managed, where possible, through existing boards and delivery groups within the Regeneration and Environment Directorate. For the transport schemes, delivery will be managed through the monthly Transportation Capital Programme Meeting, where progress, risks and issues for the delivery of each specific project will be discussed. This proposed management approach will ensure that delivery is focused on both cost and our target delivery dates. In addition, project and programme related internal and external risks will also be discussed and addressed.
- 6.3.19 The monthly Capital Programme Meeting provides a highlight report into the monthly Major Schemes Project Board (MSPB), raising issues for escalation and action. The MSPB is chaired by Paul Woodcock (Acting Strategic Director Regeneration and Environment) and consists of senior individuals from Finance, Transportation, Drainage, Structures, Landscapes and other internal and external specialists as required. Collectively, the MSPB will monitor and control progress against financial targets and construction milestones. The Project Board will provide regular updates and report to the Cabinet Members responsible for the CAZ.
- 6.3.20 This structure and process of decision making is consistent with the approach adopted on all other major infrastructure construction schemes.

RMBC Performance, Programme and Project Management Process

- 6.3.21 The Council's Performance Management Framework is a critical means by which the Council can make use of performance information to challenge its effectiveness.
- 6.3.22 The framework follows four principles:
- Honesty and Transparency
 - Timeliness
 - Working together
 - Council-wide responsibility
- 6.3.23 Performance and Quality support the services within Regeneration and Environment by lending their experience in the fields of Performance Management and Service Improvement and Transformation. Customer Insight through the volunteer Customer Inspection Group helps to ensure honesty and transparency.

- 6.3.24 Individual services within Regeneration and Environment have in place their own suite of service level performance indicators which are monitored and reported at the Services' Management Team meetings. If any issues are highlighted which may require support from Performance and Quality, they can be raised directly with the Performance and Quality lead officer for Regeneration and Environment.
- 6.3.25 Key service measures and the Corporate Plan measures are reported on the Regeneration and Environment Performance Scorecard. This scorecard and the update report that accompanies it are produced by the Council's Performance and Quality Team who collate the relevant data against indicators and report to Regeneration and Environment Directorate Leadership Team on a quarterly basis. Again, issues on performance that require support will be offered 'Performance Clinics' to drill down on the reasons for poor or failing performance and to identify actions to be taken to improve performance.
- 6.3.26 Directorate reporting protocols also align with the Corporate Reporting timetable. Data for Corporate measures is collected by the Performance and Quality Team on a monthly, quarterly or annual basis to populate the Council's Corporate Scorecard. To ensure that the Corporate Plan is effectively performance managed, formal quarterly performance reports are presented to DLT and meetings with Cabinet Members. Performance and Quality Team, with the support of senior managers, produce the Regeneration and Environment section of the report.

Quality Assurance

- 6.3.27 The RMBC elements of the project will be managed primarily through the assurance processes established through SCC's role as the project management office. However, each capital scheme and project delivered by RMBC is subject to an internal assurance process and is required to undertake service audit, technical review and project audits based on Prince 2 Project Management principles and methodologies.
- 6.3.28 Service Audits – dependant on the project's level of risk and prior history of issues or management concerns, project specific risks are highlighted through individual service planning and mitigation is outlined. The risk register associated with each Service Plan is reported and reviewed every 6 months and procedures are put in place to escalated issues for further action.
- 6.3.29 Technical Reviews - Projects are reviewed at key stages through the project management process to understand technical expertise and effectiveness/suitability of the proposal, as agreed by Service Delivery Manager. In relation to costs, the potential escalation of project expenditure is controlled via the project management process. This process continually monitors the cash flow of the project using in-house financial systems to ensure costs remain within budget.
- 6.3.30 Project Audits - Projects will be selected on the basis of their level of risk. To prevent scope creep, and reduce impact on successful delivery against the programme, the CAZ project will implement a change control process.

6.3.31 The process is laid out as follows:

- Change request is reported to the RMBC CAZ Working Group.
- A high level assessment of the request is undertaken to grade the priority of the request (low/medium/high).
- Change request is logged on the change log by the Project Manager and will be monitored by the CAZ PMO
- The grading results in the following timescales for attention from the Project Manager. The Project Manager assesses the impact of the project tolerances.

6.4 Sheffield and Rotherham CAZ Project Governance

6.4.1 Governance of the Sheffield and Rotherham CAZ project builds on that included in the SOC and established during the feasibility stage. This has been reviewed for the implementation stage to ensure that the required roles and responsibilities for project delivery are appropriately covered. A further major consideration is the scale change to be achieved within ‘the shortest possible timescale’ as dictated by the Legal Directive.

6.4.2 The proposed governance structure aims to align Sheffield City Council (SCC) and Rotherham Metropolitan Borough Council (RMBC) Executive decision and approval making processes to accelerate and support the joint programme delivery approach.

6.4.3 The proposed structure:

- Focuses on senior / executive level decision making roles
- Streamlines decision making by merging the functions of current Joint EMT, Project Board and Outcome programme Board/s
- Aims to align SCC and RMBC Programme and Project Management processes
- Covers Prince 2 roles and responsibilities following HM Treasury ‘Green Book’ and ‘Developing Project Business Case’ Guidance.

6.4.4 The governance structure is outlined in the diagram below:

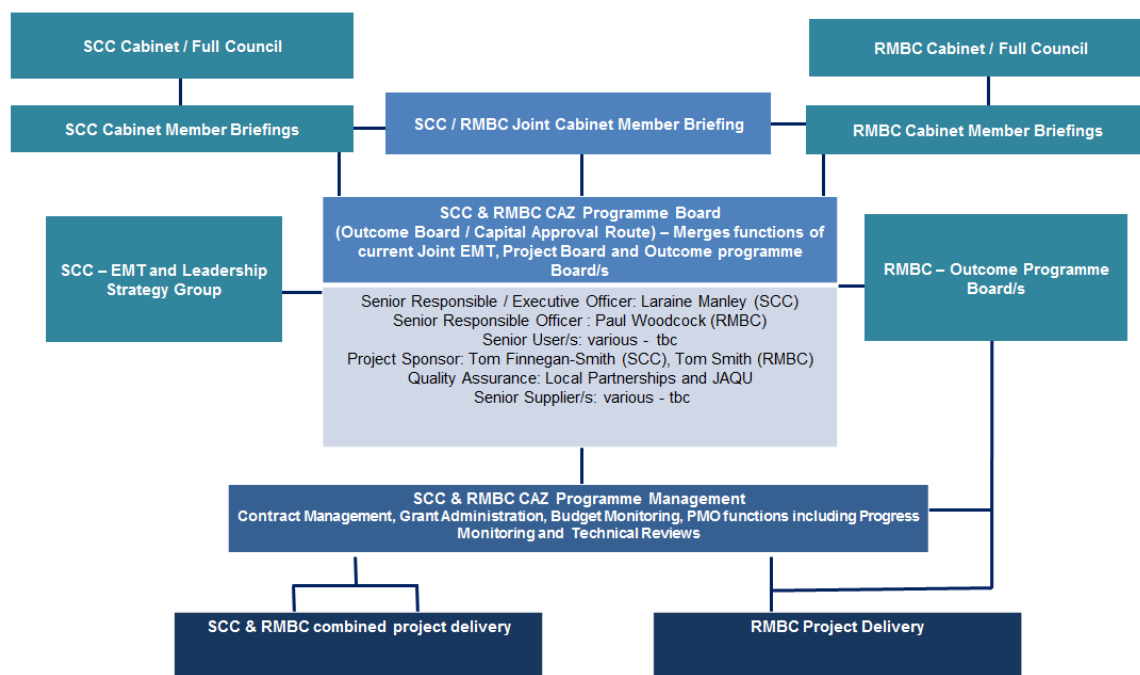


Figure 22 Sheffield and Rotherham CAZ Outcome Board Roles and responsibilities

- 6.4.5 Roles and Responsibilities are based on Prince 2 incorporating aspects of Association of Project Management methodologies. Whilst there is some overlap between the Senior User and Project Sponsor functions the latter is included as a separately as it is a key in both SCC and RMBC programme and project management processes.
- 6.4.6 The proposed SCC and RMBC shared CAZ Outcome Board is based on a similar model currently being applied to successfully deliver the Sheffield Retail Quarter (Heart of the City II).
- 6.4.7 The proposed Outcome Board will incorporate both the current Project Board and Steering Group functions, eliminating the need for separate boards for these purposes. Inclusion of Executive level representatives with delegated authority for both organisations eliminates the need to report to multiple-outcome boards, therefore streamlining the decision making process.
- 6.4.8 The joint Outcome Board will have the appropriate level of authority across the two organisations and necessary cross Service representation. The lead SROs will have delegated authority to make decisions needed and to provide the direction needed; the Board will meet on a monthly basis. The Outcome Board Terms of reference will be included with the Full Business Case, proposed roles and responsibilities are outlined below:
- **Quality Assurance (QA) Roles:** Whilst all roles have quality assurance responsibilities, external QA is required. It is proposed that JAQU and Local Partnerships are represented at the Programme Board to provide external QA.
 - **Senior Responsible Officer –** SCC Executive lead (lead SRO) and RMBC Executive lead (both) with delegated authority: accountable for the project

success and has the veto on any decision making, responsible for the Business Case including benefits realisation.

- **Project Sponsor – SCC and RMBC:** Responsible for steering day-day delivery of the project and ensuring benefits are realised. Will ensure that the Business Case continues to be valid and approved during the life of the project, and that the project has sufficient resources to deliver the benefits. The Project Sponsor must be committed to hands-on involvement.
- **Senior User** - There will be a number of Senior Users involved: lead 'Client' role, specifier of the requirements / benefits and owner of the end 'product'. Links with aspects of the Senior Supplier role.
- **Senior Supplier** - There will be number of Senior Suppliers: responsible for the technical integrity of the project and represents those who will design, develop, facilitate, procure, and implement the project's products. This role is likely to be covered by internal and external suppliers. Links with Senior User.

6.5 Programme and Project Delivery approach

Sheffield and Rotherham programme

- 6.5.1 A dedicated Programme Manager will lead the CAZ Programme with a team specifically formed to manage the delivery stage of the SCC and RMBC CAZ project. Programme Management will follow SCC methods and process as described in section 7.3. The CAZ Programme will report to the CAZ Outcome Board (see diagram in section 7.3).
- 6.5.2 The Programme Manager will allocate work packages and defined projects to the Project Manager/s and the CDS Programme Management Office (PMO) will initiate a Project Management Plan (PMP) for each CAZ project. The PMP is a suite of documents and process which form part of the SCC SMS (see section 7.3) used by all programme and project managers across the Council, see the SMS Service Delivery Manual Appendix MC1 and MC2.
- 6.5.3 All CDS project Managers are qualified Association of Project Management practitioners. The Project Manager/s will lead delivery of allocated work packages following the SCC / RMBC established programme and project management process as described in section 7.3. SCC will be responsible for delivery of the SCC and RMBC combined Preferred Option measures. RMBC will be responsible for delivery of Rotherham specific preferred option measures as outlined below.

RMBC Specific Preferred Option Delivery approach

- 6.5.4 The implementation of the physical works specific to Rotherham will be delivered by a dedicated part of the Transportation Infrastructure Service in coordination with other areas of the Council in relation to the other supporting measures within the bid. In addition to working on the business cases and planning for the CAZ implementation, the Council is currently in the process of delivering the JAQU funded Early Measures Fund which supports lowering emissions and increasing awareness. These are the subject of fortnightly monitoring meetings to ensure that the necessary controls are in place to achieve delivery and spending targets
- 6.5.5 Rotherham MBC adopts a Prince2 approach to project management and operates under the Managing Successful Programmes philosophy to ensure the successful delivery of transformational change.

- 6.5.6 See the Commercial Case for a more detailed description of the delivery methods for the Rotherham road schemes included within the CAZ preferred option.
- 6.5.7 Resource requirements are covered in more detail in the Resources section below, and resource allocation is shown on the project plan.

6.6 Project Controls

Commercial

- 6.6.1 Procurement of products, services and resources will follow SCC and RMBC 'Standing Orders' and other applicable Government and EU legislation and will follow the appropriate Human Resources process where relevant – see the Commercial Case for more detail of the SCC and RMBC preferred option procurement.

Contract management

- 6.6.2 Contract Administration (CA) will be undertaken in line with standard SCC and RMBC established procedures.
- 6.6.3 The JCT (Joint Contracts Tribunal) standard form of contract describes the role as 'Architect / Contract Administrator' but the Contract Administrator could be the Project Manager, Cost Manager or Design Team Leader.
- 6.6.4 NEC (New Engineering Contract) contracts describe the Contract Administrator as the 'Project Manager'.
- 6.6.5 Design and Build contract such as JCT DB 05 (design and build) refer to the 'Employer's Agent'.
- 6.6.6 In terms of the CAZ project the CA role will be undertaken by the Project Manager. Owner of the Principle Design role will vary dependent on the work, delivery method and contractual arrangements.
- 6.6.7 The Contract Administrators role will generally include:
- administrating change control procedures
 - seeking instructions from the client in relation to the contract
 - issuing instructions such as variations, or relating to prime cost sums or making good defects
 - considering claims
 - chairing site meetings
 - coordinating and instructing site inspectors
 - agreeing commissioning and testing procedures
 - agreeing defects reporting procedures
 - ensuring that project documentation is issued to the client
 - issuing certificates of practical completion and interim certificates
 - collating and issuing schedules of defects
 - issuing the certificate of making good defects
 - issuing the final certificate

6.6.8 The Contract Administration Log will be used for all contracts, this covers:

- Frequency
 - Weekly – informal review meeting/conversation (Project Manager and Cost Manager) and Contract Administration Log updated if required. Formal instructions to be issued as required (see review and approval below).
 - Monthly – formal site meetings, record of the Contract Administration Log issued at the meeting. Timed to coincide with the monthly progress meeting.
- Instructions/Compensation Events – wording to be clear and avoid ambiguity
 - Clarification / confirmation
 - Variation
 - Request for quote

Record Keeping

6.6.9 - Use of emails & meeting minutes - informal / record keeping only

- No contractual elements should be formally exchanged with a main contractor other than through the formal instructions, CEs etc (i.e. forms generated through the CA log)
- Review and Approval - Draft Instructions / Compensation Events
- Project Manager & Cost Manager to review all regardless of value
Cost Manager to be aware of all Instructions / Compensation Events and agree the wording prior issuing to the contractor
- Cost Manager to provide a cost estimate / range for each Instruction / Compensation Event
- Cost Manager & Technical Manager Cost Management / Project Manager & Service Delivery Manager – escalated for review and discussion if deemed to be 'significant'

Quality Assurance

6.6.10 The SCC SMS incorporates 4 types of internal audits for quality assurance purposes:
service audits

- SMS health checks
- technical reviews
- project audits (by exception)

6.6.11 **Service Audits** - Service wide procedures are selected for audit on the basis of their level of risk, prior history of issues or management concerns, procedures will be audited at least once within a three year period.

6.6.12 **SMS Health Checks**- Projects will be reviewed for compliance with the SMS at key stages / milestones throughout the project lifecycle. The Service Management Team may ask the Best Practice & Standards Manager to organise health checks of individual projects, or activities for any other purpose at any time.

6.6.13 **Technical Reviews-** Projects are reviewed, as standard, at key stages / milestones throughout the project; however these are scalable dependant on complexity of the project as agreed by Service Delivery Manager:

6.6.14 **Project Audits** - Projects will be selected for a full audit against Part B & D by exception. Projects will be selected on the basis of their level of risk, prior history of issues or management concerns.

6.6.15 Monthly Progress Reports - The Programme Management Office establishes the monthly reporting process at the start of the Planning Phase. The Project Manager is responsible for preparing the Monthly Progress Reports. The Service Delivery Manager is responsible for reviewing and approving the reports ensuring they are accurate and contain quality information. Progress Reports are controlled documents.

Change Control

6.6.16 The Project Manager (PM) will be lead day to day management of projects and any change requirements that occur. The PM must ensure that the change process is carried out and approved in accordance with the requirements of the Project Management Plan (PMP).

6.6.17 Tolerances will be agreed that will set definitions and parameters for the PM's decision making authority and these will be set-out in the Project Management Plan (PMP). Change decisions that are outside or beyond the PM's authority will be communicated to the appropriate person / forum following the change control process. The process for managing changes (and fault corrections) includes evaluation of the implications so that the appropriate authority can make a decision whether or not it is sensible and viable to procede with the change or fault correction.

6.6.18 Once the PM has been notified of a potential change or fault correction issue by anyone associated with the project, the process for managing it involves:

- recording and tracking its progress
- confirming whether the issue is a definitely a new requirement i.e. a Request for Change, or is perhaps an omission or other fault in a product that has already passed through quality checking
- calculating the impact on the work already done and the plans for the rest of the current phase and project
- analysing the implications for the organisation, other projects and delivery partners
- calculating the overall costs of the change
- calculating the impact on planned benefits
- identifying risks and evaluating methods and costs for their mitigation
- taking a decision at an appropriate level
- implementing amended plans to achieve the new scope / objectives / requirements
- quality checking any existing products that have been modified, and any new products created.

Financial Management

6.6.19 Allocated resource will be provided as part of the PMO function and will monitor income and expenditure across the programme. Project Managers will be responsible for day-day budget management of work packages. Both SCC and RMBC have included resource provision for Financial Services to administer grant income from JAQU and relevant other sources. See the Financial Case for more detail and description in respect to loans and other incentives.

Risk and Issue Management

6.6.20 The risk and issue management will follow the SCC established process which is designed to ensure that:

- risks and issues are identified
- managers of each risk and issue are identified
- risks and issues are prioritised
- impact is understood
- mitigation and action measures are agreed and implemented
- mitigation and action measures are reviewed and managed
- risks and issues are escalated at the appropriate time

6.6.21 The Project Manager will lead a risk identification workshop when the parameters of the Preferred Option are agreed with JAQU and a full risk register will be provided with the FBC. The section below identifies current key risks. It is the responsibility of all members of the Project and Design Team to ensure that risks and issues are identified and properly reported for inclusion in the Risk and Issue Register. All risk and issue managers are responsible for carrying out the associated action(s).

6.6.22 The Project Manager owns the Risk and Issue Register and ensures that it is monitored and updated throughout the life of the project.

6.6.23 The risk register will be monitored by the CAZ Project Management Officer within SCC and reviewed, updated and reported via the programme management processes. Any outstanding risk actions will be tracked and reported via the relevant risk owner.

6.6.24 RMBC's Corporate Risk Register, which is reported quarterly to the council's Senior Management Team, includes a risk of Non-Compliance with Air Quality Legislation. The Council's lead Officer for the CAZ resource is a member of the Senior Management Team (SMT) and liaises directly with the Corporate Risk Team to update the register.

6.7 Resource requirements for delivery of the CAZ preferred option

6.7.1 The resource requirements described are based on the CAZ C+ Preferred Option and are subject to associated change as more detail is developed for the FBC. The planning resource requirements are linked with the project plan - see below and Appendix MC3.

6.7.2 The approach for SCC and RMBC combined delivery is to utilise existing knowledge and expertise to sustain continuity and in order to deliver within the 'shortest possible time'.

6.7.3 SCC has identified the need for additional resource to enable delivery of the Preferred Option. This would be procured via the SCC CDS Delivery Partner (Turner Townsend) and financial provision to allow this incorporated within the Programme and Project delivery cost estimates. Specialist consultants will be procured where the resource/ expertise required is not available internally or via Delivery Partner and where recruitment would not be possible in the timescales needed to ensure that we deliver in the 'shortest possible time'.

6.7.4 The advantages of this approach are:

- Secures the resources required within the 'shortest possible time'
- Allows existing knowledge / expertise to be utilised – e.g. experience of SCC processes and procedures is a key requirement for some roles as there will not be time to learn these on the job following a recruitment process (which itself will take several months)
- Allows continuity of existing CAZ project staff
- Allows gaps in knowledge and capacity to be appropriately resourced

Programme Management and Project Management Delivery resource roles:

- Programme Management
- PMO functions including project and business support
- Project Management
- Budget Monitoring
- Stakeholder Management / Coordination
- Cost management
- Financial Management
- Commercial / Procurement Services
- Resource Management
- Legal Services
- Technical services

6.7.5 The CAZ Preferred Options includes a programme of capital schemes in Rotherham which will be managed, designed and delivered through existing internal resource. RMBCs intention is to deliver within their current resources and have assessed the associated requirements to cover the Project Delivery roles outlined above, excluding those relating to ANPR systems and infrastructure.

6.7.6 See Appendix MC4.

ANPR Charging Back-Office and System

6.7.7 With regard to the implementation and operation of the charging CAZ, the following have been considered:

- Traffic Management;
- Design and Specification;
- Communications and Engagement (linked to the CAZ Communications Strategy);
- Roadside Technology (ANPR cameras);
- On-street Infrastructure (signs, road markings, physical changes to the network);

- Communications Networks (roadside to back office and back office system-to-system);
- Back Office Databases and Data Processing facilities;
- Back Office Payment and Penalty Systems;
- Operations (staffing, provision of facilities);
- Enforcement / Review of Non-Payment (for example appeals, civil proceedings);
- Maintenance and Support;
- Ongoing Development (for example expansion of CAZ area, back office system functionality); and
- Continued work on the SCC Anti-idling enforcement

6.7.8 The ANPR supplier event undertaken early in December 2018 (see Commercial Case) reinforced the need to secure additional specialist expertise in respect to ANPR infrastructure to assist SCC in defining system integration requirements, producing outcome and output based specifications, supporting tender evaluation and providing external quality assurance. Plans are in place to secure this additional support (via an existing SCC framework) early in 2019 (subject to JAQU further feasibility funding confirmation) to support the ANPR infrastructure and systems procurement in advance of FBC submission (31st May 2019).

6.7.9 Additional staff will be required to manage and operate the back-office and enforcement functions required for the Preferred Option (charging CAZ C+), and an initial financial provision is therefore, included in the ANPR back-office cost estimates within the Preferred Option funding model. The scale and form of these staff resources will be informed and determined as the FBC is developed and via the ANPR procurement process.

ANPR Local Signs

6.7.10 Sheffield City Council's Highways Design team (HD) have carried out early-stage cost estimates for the ANPR charging scheme following JAQU guidance and based on the current preferred option likely charging network. The HD team would undertake detail design and specification post approval of the FBC.

6.7.11 The supply and implementation would be via SCCs PFI contract with Amey. There is sufficient capacity within the AMEY contract to produce, install and maintain the necessary signage across the CAZ boundary on Local Authority roads.

Sheffield Road Infrastructure Works

6.7.12 Sheffield City Council's Highways Design team (HD) have carried out early-stage cost estimates for the proposed signal changes. The HD team would undertake detail design and specification post approval of the FBC.

6.7.13 The supply and implementation would be via SCCs PFI contract with Amey. Package Orders placed through the Non-Core element of the Streets Ahead Contract are based on price only. Internal engineers use a catalogue of rates to price individual jobs. The Project Manager will meet with Amey and discuss the scope of the work including any constraints and a price is agreed using the established rates.

Charging Order

- 6.7.14 The current intention is to make and seek approval for the charging order prior to the FBC; implementation will be contingent upon the FBC approval. SCC Legal Services are in discussion with Leeds City Council in respect to charging order that they have drafted, with the intention of adopting a similar approach. The charge order cannot be progressed until after the statutory consultation on the preferred option has been undertaken.

State Aid

- 6.7.15 Legal advice has been sought in relation to State Aid and the preferred option aims to mitigate potential issues at this OBC stage. However, SCC and RMBC Legal Services advise that there isn't enough information available at this stage to advise conclusively as State Aid is very detail specific, and that this can therefore only be done as more detail is worked up during the next stage of feasibility project as we move towards FBC.

Administration of Incentive Packages and Loans for Taxi, Private Hire & LGVs

- 6.7.16 SCC is developing proposals seeking to incentivise drivers purchasing cleaner vehicles. Incentives for this particular scheme are likely to be 'in kind' and could include for example, free/discounted licences, compliance tests or fuel cards.
- 6.7.17 A twin track approach to implementing the incentive scheme administration is currently preferred. Administration of the taxi incentive scheme is assessed as benefitting from in-house delivery, allowing SCC to utilise existing structures and 'levers' such as the taxi Licencing process to administer the process, whilst ensuring close ownership of the process and management of related risks.
- 6.7.18 SCC does not possess the same degree of control over the LGV market, and this element may best be administered by a third party. Though further work is needed to develop the approach, it is likely that both elements could be delivered via the supply chain, whether as part of a bundle of other services within the group of wider support packages (e.g. alongside the loan administration) or as a standalone procurement.

Stakeholder Engagement and Management

- 6.7.19 Stakeholder Engagement has taken place during the Feasibility project to date. Importantly, Local Behavioural Research (focus groups and quantitative surveys) has been undertaken with several types of drivers in Sheffield and Rotherham to understand potential responses to a CAZ charge. Focus groups (involving 70 participants in total) were undertaken with private hire vehicle (PHV), black cab and LGV drivers to gain an in-depth understanding of current and likely future behaviours, and insights into the underlying rationale for the views. In parallel to this quantitative research was undertaken with 50 PHV drivers, 50 black cab drivers, 100 LGV drivers and 300 private car drivers to understand majority views and behaviours.

6.7.20 The topics researched in the qualitative and quantitative research included:

- Current vehicle use (mileage, weeks operated, ownership, fuel, maintenance costs, industry-specific costs e.g. taxi license);
- Vehicle replacement considerations (timescales, how the decision is made, which models);
- Empathy for cleaner air; Hot-spot areas; Appeal of alternative vehicles (LPG, electric or newer petrol/diesel); and Likely response to CAZ charging scenarios

6.7.21 Significant engagement has also taken place through meetings with Bus Operators and South Yorkshire PTE to keep the local bus operator sector apprised of the Sheffield and Rotherham CAZ proposals. Updates regarding charges, alternative fuels and ultra-low emission vehicles (ULEVs) and infrastructure improvements have also been provided to operators to help determine the level of intervention required to meet compliance.

6.7.22 Stakeholder Engagement and Management will continue to require input from all those involved in delivery of the project to varying degrees. Stakeholder management will be key to success at delivery stage, therefore a Full Time Stakeholder Coordination role is included within the CAZ PMO to support and coordinate stakeholder management across the delivery programme.

6.7.23 At key stages during the delivery project critical stakeholders will be informed of progress to maximise stakeholder benefit and ensure constructive feedback and endorsement. Benefits will be regularly communicated to ensure interest and involvement is maintained. An active approach to consultation with interested parties will be delivered through the existing partnership boards such as the Sheffield Bus Partnership, Rotherham Bus Partnership and Strategic Transport Group etc.

6.7.24 Stakeholder engagement will take place with key groups throughout the development and delivery of the schemes. If a scheme requires a traffic regulation order as part of the implementation (as is expected in Rotherham), this will be subject to its own statutory consultation requirement, in addition to the consultation process supporting development of the Final Business Case. An active dialogue about the initial outline of the Preferred Option will have been undertaken as part of the higher level CAZ consultation. This will enable the Council to gauge the likely support or objection to each traffic regulation order at the earliest possible stage.

6.7.25 Early consultation with the Leaders of the Councils, Cabinet Members and Local Ward Members in the areas affected by proposals, has also been undertaken to capture political and community issues which might arise, as early as possible. Where feasible, the Preferred Options take this early feedback into account to assist with delivery. Officers will continue to update on progress.

6.7.26 **Communication Strategy** – the resource requirements for the Communication Strategy implementation have been assessed to cover a three year period spanning 2019 > 2021 and costs are included in the economic funding model.

- 1 x FTE Communications Officer (to be recruited)
- 1 x FTE Communications Coordinator (to be recruited)
- Communications & Marketing Manager (provided by existing team)
- Press Officer support (provided by existing team)
- Design Officer support (provided by existing team)

6.7.27 Additional temporary staff will be recruited and consultants procured to support delivery of the Strategy; recruited staff may be used to back-fill to enable continuity and allow experienced staff to remain working on the CAZ project.

6.7.28 **Monitoring and Evaluation** – the Monitoring and Evaluation section describes the additional resource requirements, which includes 2 x Full Time Air Quality Officers and consultant expertise for aspects of data gathering and analysis.

6.8 Project Plan

6.8.1 The Project Plan, Appendix MC3 incorporates both SCC and RMBC aspects of the delivery programme and shows resource allocation against tasks.

6.8.2 The Project Plan forecast assumes that JAQU will give advanced ‘informal’ notification of the OBC funding award offer in / by June 2019 in order to allow resource to be mobilised to ensure set-up of the PMO from the 1st July in order to be prepared to commence project delivery activities from the 1st August 2019 the Communication Strategy timeline is included in section 7.8.

6.8.3 The Project Plan is based on the assumptions outlined below:

- ANPR Infrastructure and Back-office System procurement prior to FBC submission
- That the Sheffield CAZ Charging Order is written and approved in advance of FBC submission (subject to confirmation of full CAZ ask award)
- JAQU Informal confirmation of full OBC award offer in / by June 2019
- JAQU formal confirmation of full FBC award July 2019
- Start date 1st August 2019 to achieve completion by 1st January 2021

RMBC Forecast Project Timescale (Project Plan)

6.8.4 The delivery of the Preferred Option highway improvement schemes in Rotherham are incorporated into the Project Plan, Appendix MC3. As discussed previously, the approach is to use existing internal resources to design and deliver the works and therefore this element is in the control of the council. Once government grants approval, design work can commence.

6.8.5 The timescales associated with the programme are challenging and the above timetable includes a number of general assumptions. The consultation period for RMBC road schemes assumes that early feedback on proposals has been achieved. There is an assumption that the design and delivery can be accommodated by in house resources which, given the scale of the proposals, will require a backstop position with a framework contractor. However, given the familiar nature of the works, there is confidence that this can be achieved.

6.9 Assumptions, Dependencies and Risks

Assumptions:

- ANPR Infrastructure and Back-office System procurement will take place prior to FBC submission (dependant on JAQU additional feasibility funding)
- That the Sheffield CAZ Charging Order is written and approved in advance of FBC submission (subject
- That the OBC will be approved by JAQU by 14th February 2019 and that the FBC will be submitted for assessment by JAQU on 31st May 2019
- That JAQU Informal confirmation of full OBC award offer in / by June 2019
- JAQU formal confirmation of full FBC will be confirmed in July 2019
- That a start date of the 1st August 2019 can be met (subject to above) in to achieve completion by 1st January 2021
- That JAQU will deliver the central charging portal and that this will be ready to enable charging to commence on 1st January 2021
- CAZ charging operational phase begins 1st January 2021 and commence until 31st December 2024.
- Signing, enforcement infrastructure and back office will be decommissioned in 2025
- The forecast number of non-complaint vehicles in 2021 comes from transport modelling outputs.
- Only charges are collected from taxis, LGVS, buses, coaches and HGVS, not from private cars within the proposed Category C+ solution
- Interest free loans will be offered as part of the support to enable drivers and businesses to upgrade vehicles to compliance.
- The loan fund will be established in partnership with a third party organisation, the scope of the funding request includes a requirement to cover the cost of capital from this organisation. A provision of 7% has been included to cover the cost of borrowing which incorporates an allowance for the risk of defaults which will be managed by this provider. The administration of the fund including eligibility, affordability and credit checks, loan issue and on-going scheme management will be accessed through an external provider. An allowance of 5% is built into the proposal to manage this scheme
- A provision for administration of the incentive scheme has been included at 5%. This may be undertaken in house or through an external provider, further development of the procurement options will be completed prior to FBC.
- The charge for the central government portal is assumed to be 5% (as per JAQU recommendation)
- The funding request to support the ULEV infrastructure from the OLEV fund is successful
- All prices and cost assumptions are stated at 2018 base prices and no inflationary uplift has been applied at OBC, further development of inflationary impacts on the funding model will be completed for FBC.
- SCC are assumed to be the lead commissioning organisation that will manage the funding of the whole scheme, with the exception of the elements entirely delivered by RMBC who shall be wholly accountable for such costs and risk for which back to back funding agreement will exist to passport the funding from SCC to RMBC in these scenarios.

Dependencies

- That JAQU support the and award funding for the full CAZ C+ Preferred Option
- That JAQU deliver the central charging portal to the current forecast programme
- That JAQU provide CAZ charging LAs with access to the updated DVLA database (which includes a National Taxi database; reflects vehicles which have been retro-fitted and will therefore be exempt; reflects nationally agreed exemptions)
- That JAQU commits advance contingency cost allocation and ensures timely release of the contingency / risk allowance funding as required in order to avoid programme delay
- That the supply market has capacity to meet retrofitting / conversion demands
- That Bus companies / operators are in apposition to continue to upgrade fleets as pre their current plans
- That behaviour change happens as predicted by the feasibility modelling
- That implementation of the CAZ is reliant on external suppliers; there are therefore certain limitations in terms of the control that SCC has to ensure delivery within the 'shortest possible time'.

Loan Scheme Risks

- The proposed offer assumes capital injection from a third party lender not SCC, RMBC or JAQU. There is a risk that we are unable to source commercial capital within the financial envelope costed in this proposal. There is a risk that quantity of loans offered would therefore have to be limited within the financial envelope of the proposal costed.
- The risk-share relationship underpinning the loan scheme, between external providers and local authorities is yet to be developed. SCC may have to underwrite the loans offered to secure a viable cost of capital.
- The cost of capital used in the model doesn't account for the potential level of default in the market to this demographic. This may in turn limit the availability of the loans to all.
- The eligibility checking process required by the loan administration partner whilst limiting financial risk, may limit the availability of finance to the general public.

Revenue Risks

- There is a risk the revenue forecasts are not achieved due to limited national behavioural research
- A risk of non-collection of charges reduces available resources
- The 5% charge of income to central government is not adequate and reduces the revenue available to fund the sustainability.
- Behavioural assumptions on conversion rates impact on the funding requirement profile and income streams received.
- Further sensitivity analysis is required to fully understand the impact on revenue with regards to the transport modelling.

Cost Risks

- The payment portal will be national governments responsibility and not that of SCC/RMBC. The funding request is not sufficient to cover the cost of developing this.
- It should also be noted that it has not been possible to fully validate the cost estimates at this stage. This reflects the fact that these options are currently not sufficiently developed at this stage.

Commercial Risks

- That as multiple authorities approach the different segments of the market for the same requirement at the same time, the market will not have sufficient capacity to deliver to the required standards and within the required timeframes.

Legal

6.9.1 **State aid** - Legal advice has been sought in relation to State Aid and the preferred option aims to mitigate potential issues at this OBC stage. However, SCC and RMBC Legal Services advise that there isn't enough information available at this stage to advise conclusively as State Aid is very detail specific, and that this can therefore only be done as more detail is worked up during the next stage of feasibility project as we move towards FBC.

- That at this stage there is insufficient detailed information for Legal service to advise conclusively on State Aid, therefore State Aid issues in relation to the preferred option may become apparent as more detail is worked up during the next stage of feasibility project.

6.10 Communication Strategy

6.10.1 **Strategy Remit** - With the assumption of a Category CAZ C+ communications activity up to December 2021 will fall into three distinct areas;

6.10.2 **Information (I)** – information about the Sheffield and Rotherham CAZ, the consultation, what it means to you and how you can get involved. This is important for all who live or work in. or visit Sheffield and Rotherham, so they can have their say and shape proposals. Timescales around the proposed CAZ implementation, specific information (direct in-depth information for individuals who are directly/most regularly affected such as PHVs and black cabs). Localised information, targeted at residents and businesses likely to be affected by proposals in particular areas, such as proposals in Rotherham on Worley Road and Rawmarsh Hill, will be provided.

6.10.3 **Marketing (M)** – Why not get the bus? Leave the car at home, try active commuting, and promote cycle lane use. Try a different form of commuting. Encourage people/businesses to replace polluting vehicles with cleaner ones. Little steps to help clean up our air.

6.10.4 **Hearts and Minds (Behaviour Change) (HM)** – this would form hard hitting messaging around diesel shift, air pollution kills, switch to petrol, little lungs, Diesel, health damage etc. We intend to use strong, thought provoking imagery and nudge tactics to increase the likelihood of behaviour change.

Service Objectives

- 6.10.5 Objectives will be agreed following the outcome of the OBC but it is suggested we would include a target % reduction in vehicle emissions and reduction in diesel use. There will also be some behavioural objectives around small changes and pledges to contribute towards air quality.

Communications Outcomes

- 6.10.6 A range of communication outputs will be used to measure the effectiveness of all elements of communications activity, these outputs will help to achieve the service objectives. Outputs based on % increase on baseline research data (research activity to be carried out), web hits, consultation response rates, pledge sign ups and positive sentiment analysis on social media will all help inform.

Target Audiences

- Taxi & Private Hire Drivers/Operators/companies & representative organisations;
- Black Cabs;
- LGV drivers; -
- Freight & Haulage Drivers/Organisations (HGVs);
- Buses/Coaches;
- Businesses - Sheffield/Rotherham/SCR;
- Public transport providers;
- Public transport users (regular);
- Diesel drivers (in relation to the 10% shift);
- General public – residents who live or work in the Sheffield/commuters/visitors;
- General public – residents who live near to local proposals, e.g. Wortley Road and Rawmarsh Hill in Rotherham.

Products, Channels and Resources

- 6.10.7 Consultation exercises will include:

- Outdoor advertising -
- Digital
- Maildrop (whole conerbatations & businesses)
- Maildrop (targeted to residents and business near to local proposals in Rotherham)
- Busrears & sides
- Supertram,
- Advans,
- Taxi ads
- Press & media activity

- 6.10.8 Campaign activities will include:

- Brand development (one off cost)
- Research activity (one off cost)
- Website development (one off cost)
- Outdoor advertising - billboards, digital screens, bus stop advertising
- Online advertising - Facebook, google adwords, youtube adverts
- Radio advertising

- Advertorials
- Press & media activity
- Bus rears, supertram advertising, advans, taxi advertising

Timeline

6.10.9 We intend to run quarterly campaigns focusing on key demographics. Activity for certain groups such as PHV and black cabs will be direct communications and promote the engagement part of the OBC; such as the promotion of community based consultation events. Activity is broken down into the three types of activity mentioned above.

Timescales	Activity
Feb 2019 – Apr 2019	<ul style="list-style-type: none"> • (I) Consultation communications • (I) Promotion of the engagement • (I) Information – what is CAZ? What it means to you.
Apr 2019 – Jun 2019	<ul style="list-style-type: none"> • (I) Consultation communications • (I) Promotion of the engagement • (I) Information – what is CAZ? What it means to you. • Research activity to form basis of all campaign activity • Direct mail drop to all businesses/residents
Jul 2019 – Sep 2019	<ul style="list-style-type: none"> • (HM) Diesel shift campaign • (HM) Clean Air Day links • (M) Small steps to better air quality • (I) Engagement with target groups
Oct 2019 – Dec 2019	<ul style="list-style-type: none"> • (M) Bus use/tram use public transport swap • (HM) DIEsel • (I) consultation outcome • (I) Implementation of CAZ
Jan 2020 – Mar 2020	<ul style="list-style-type: none"> • (HM) little lungs
Apr 2020 – Jun 2020	<ul style="list-style-type: none"> • (M) Active travel campaign • (I) Where are we 1 year on?
Jul 2020 – Sep 2020	<ul style="list-style-type: none"> • (HM) Diesel shift campaign • (HM) Clean Air Day links • (M) Small steps to better air quality • (I) Infor re Sunset period for taxis/HPVs etc
Oct 2020 – Dec 2020	<ul style="list-style-type: none"> • (I) Get the bus/tram • ((HM) poor air quality campaign
Jan 2021 – Mar 2021	<ul style="list-style-type: none"> • (HM) Diesel shift campaign
Apr 2021 – Jun 2021	<ul style="list-style-type: none"> • (HM) How are we doing?
Jul 2021 – Sep 2021	<ul style="list-style-type: none"> • (HM) Diesel shift campaign • (HM) Clean Air Day links • (M) Small steps to better air quality
Oct 2021 – Dec 2021	<ul style="list-style-type: none"> • (I) how are we doing in comparison to 2019, 2 years on?

6.11 Monitoring and Evaluation

- 6.11.1 The table below summarises the desired impacts & key indicators that will be used to measure the outcomes of the various initiatives included with the Preferred Option and summarises how these will be measured.
- 6.11.2 The remainder of this section describes the various tasks associated with this monitoring and evaluation.

Table 10 Outcomes, Indicators and Proposed Monitoring Methods

Mode	Funded Measure	Desired Impact	Key Indicators	Measured How	Responsibility
CAZ	Clean Air Zone	Cleaner fleets	Fleet in and around central Sheffield	Regular analysis of ANPR from existing ANPR sites	SCC
Cars	None in the Preferred Option (H&M included later)	n/a	n/a	n/a	n/a
Taxis	Upgrading taxis to ULEV	Cleaner taxis	Number of electric taxis registered in Sheffield (black cabs & car-based)	Data from SCC's Taxi Licensing Team	
Taxis	Retrofitting SCC Black cabs to LPG	Cleaner taxis	Number of black cabs retro-fitted to LPG	Direct monitoring of the LPG scheme (plus data from SCC's Taxi Licensing Team)	SCC
Buses	Improving the Sheffield Bus Fleet	Cleaner buses	EURO-mix of Sheffield's bus fleet (inc retro-fitting)	Collation of SCC bus fleet data	
Buses	Improving the Rotherham Bus Fleet	Cleaner buses	EURO-mix of RMBC's bus fleet (inc retro-fitting)	Collation of RMBC bus fleet data	
Buses	Improving the bus fleet on Arundel Gate	Cleaner buses on Arundel Gate	EURO-mix of the bus fleet using Arundel Gate	Analysis of ANPR data for Arundel Gate	SCC
Buses	Improving the bus fleet on Fitzwilliam Road	Cleaner buses on Fitzwilliam Road	EURO-mix of the bus fleet using Fitzwilliam Road	ANPR Data	RMBC
LGVs	Providing loans and incentives to LGV owners	Cleaner LGVs	EURO-mix of SCC's LGVs	Monitoring data collected as part of the funding & incentive schemes	SCC
Roads	Signal timings on Derek Dooley Way	Reduced emissions on Derek Dooley Way	Emissions modelling of 'Before and After' traffic conditions	Traffic & emissions modelling	SCC
Roads	Signal timings on Fitzwilliam Road	Reduced emissions on Fitzwilliam Road	Emissions modelling of 'Before and After' traffic conditions	Traffic & emissions modelling	RMBC
Roads	Junction improvements and bus priority to support bus diversion from Rawmarsh Hill	Reduced emissions on Rawmarsh Hill	Emissions modelling of 'Before and After' traffic conditions	Traffic & emissions modelling	RMBC
Roads	HGV Northbound on Wortley Road	Reduced emissions on Wortley Road	Emissions modelling of 'Before and After' traffic conditions	Traffic & emissions modelling	RMBC
Parking	Implement a revised parking policy in SCC	Reduced car use in central Sheffield (particularly for journeys with good PT alternatives)	None identified	n/a	SCC
Comms/H&M	H&M Campaigns - SCC	Reduced ownership and use of diesel cars, particularly in central Sheffield	Awareness of the need to reduce use of diesels/EURO mix of Sheffield car fleet/EURO mix of cars in central Sheffield	Before & After Monitoring of attitudes, DVLA data for SCC & RMBC, regular time series analysis ANPR data from central Sheffield	SCC
Comms/H&M	Targeting local goods vehicle owners (to encourage upgrading)	Reduced ownership and use of older diesel vans, particularly in central Sheffield	EURO mix of SCC LGV fleet/EURO mix of LGVs in central Sheffield	DVLA data for SCC & RMBC, regular time series analysis ANPR data from central Sheffield	SCC
Comms/H&M	Hearts & Minds/Ecostars on big HGV fleets	Reduced ownership and use of older diesel goods vehicles in the SCC/RMBC area	Reduced use of diesel by the targeted fleets	Before & After Evaluation of Ecostars campaigns	RMBC
All	The full Preferred Option	Compliant Air Quality	Annual Average Concentrations of NO2	Air Quality Monitoring	SCC/RMBC

6.11.3 The various components of the Monitoring and Evaluation program which will be used to monitor the impacts listed in the table above and feed into the evaluation of the full CAZ package are summarised in the table below.

Table 11 Proposed Components of the Monitoring and Evaluation Program

Component	Cost Estimate	
M&E EMF - SCC	£ 45,000	
M&E EMF - RMBC	£ 20,000	
M&E_Maintain existing ANPR cameras_SCC	£ 17,000	pa
M&E_Maintain existing ANPR cameras_RMBC	£ 8,000	pa
M&E_Regular analysis of ANPR data - SCC	£ 15,000	pq
M&E_Regular analysis of ANPR data - RMBC	£ 7,500	pq
M&E_Checking compliance with Rotherham schemes	£ 20,000	pa
M&E_Strengthening the AQ Monitoring/Modelling Teams_SCC	£ 50,000	pa
M&E_Strengthening the AQ Monitoring/Modelling Teams_RMBC	£ 50,000	pa
M&E_Regular analysis of AQ data_SCC	£ 30,000	pa
M&E_Regular analysis of AQ data_RMBC	£ 30,000	pa
M&E_Campaign Awareness Research_SCC	£ 80,000	
M&E_Behavioural Change Monitoring/Evaluation_SCC	£ 80,000	

6.11.4 Further details of each of these monitoring and evaluation tasks is provided in turn below

Monitoring & Evaluation of the Early Measures Fund

6.11.5 A total of £65,000 was awarded to Sheffield (£45,000) and Rotherham (£20,000) in 2018, to monitor the delivery and ‘Benefits Realisation’ of the schemes which were included in the Early Measures Fund Bid.

6.11.6 Full details of the monitoring & evaluation of the EMF can be provided on request.

6.11.7 The links between the desired outcomes/benefits of each of the components of the Early Measures Fund package and the relevant KPIs is illustrated in the table below.

Table 12 Monitoring and Evaluation of the Early Measures Fund Schemes

Scheme	Schemes	Desired Outcome	Achieved How?	KPI	Measured How?	Comment
1	Public charging points	Reduced number of diesel/petrol car miles	Motorists using EVs, rather than diesel/petrol vehicles for trip to/from/through the cities	Number of charge events per day and the total amount of charge delivered	Data collected by the charging infrastructure	Includes visitors as well as local residents, assumes no change in the total number of trip made by car
		Reduction in the 'Perceived lack of charging infrastructure' barrier to EV purchase, leading to higher EV ownership	Visibility of the charging units	% of respondents who believe this is a barrier to local EV Ownership	Residents' Survey	Probably not worth collecting as stand-alone, but could be included within more-general EV Strategy surveys
2	Electric Taxi Trial	Reduced number of diesel taxi miles	Use the trials to encourage the take-up of electric taxis among the participants and publicise the scheme (and the cost savings) to encourage others to follow suit	Number of EV taxis in the fleet	Taxi licensing records	Some assumptions will be needed about what proportion of the vehicles are close to AQ hot-spots
				Miles driven by EV taxis	Taxi licensing records	
				Number of taxi drivers participating in the scheme	Taxi Driver Survey (and PM's records)	
3	Signal Timing	Reducing queuing at the improved junction(s), leading to a reduction in emissions	More-efficient operation of the signals	Total vehicle hours spent queuing at the improved junction(s)	'Before and After' Surveys	
				Local concentrations of NO2	Nearest AQ monitoring sites	
4	Communication Campaign	Reduction in the total emissions from local residents' vehicles	Raising awareness of 'good' and 'bad' behaviour and promoting various forms of behaviour change	Awareness of the relevant campaigns	Resident survey	
				Change in attitudes regarding emissions/EVs etc	Resident survey	
				Stated Intention to change behaviour	Resident survey	
		Greater local acceptance of the measures needed to achieve compliance in the shortest possible time, reducing the barriers to delivery of this later in the main Feasibility Study	Using the campaigns to clearly explain the problems to local residents	Probably not measurable	n/a	

6.11.8 The key components of the Monitoring and Evaluation plan for the EMF schemes are:

- Data collected via the new charging infrastructure (Number of charging events per day and the amount of charge delivered etc);
- One or more attitudinal and awareness surveys conducted with the two Councils' residents in the same month in 2018, 2019 and 2020 to inform the various indicators which require information about the attitudes and behaviours of the local resident communities
- Data collected and provided by the Taxi Licencing team in Sheffield, including the total numbers of electric taxis in the fleet and the number of miles driven by each;
- A regular survey of taxi owners to understand their awareness of and attitudes to the various 'clean technology' trials and opportunities; and
- Direct observation of 'Before and After' queuing at the improved junction(s), including the information required to estimate the total time spent queuing (vehicle hours per day) and the average traffic speeds on the various approaches.

ANPR-based Time Series Analysis of the Emissions Profiles of Local Fleets

- 6.11.9 It is vitally important to undertake regular time series analysis of the various fleets using the roads in the areas which have been identified as having non-compliant air quality.
- 6.11.10 This will require ongoing ANPR data collection at the various sites which were used to inform the initial evidence base for this study and the periodic analysis of this ANPR data, to track how the emissions profiles (EURO class and fuel type etc) of the various fleets are changing over time.
- 6.11.11 This analysis will provide an early warning, if the improvements in the various fleets are falling behind the predicted improvements predicted by the fleet forecasting used in this Feasibility Study and which is required to achieve compliance with the required annual average NO₂ concentration by 2021.
- 6.11.12 This ongoing time series analysis of the relevant traffic fleet mix will therefore require the existing network of ANPR cameras in Sheffield & Rotherham to be maintained and operated, particularly those that were used to provide the initial evidence base for this Feasibility Study.
- 6.11.13 We have estimated the cost of the maintenance and operation of this existing network of ANPR cameras in Sheffield & Rotherham to be around £25,000 per annum.
We are proposing to undertake the relevant update to the local fleet profiles (using the ANPR data) on a **quarterly basis**, starting from **Q1 of 2019**, at a cost of £15,000 per update (Sheffield) and £7,500 per update (Rotherham).

Checking Compliance with the Rotherham Schemes

- 6.11.14 The Preferred Option includes three location-specific measures in Rotherham, as follows:
- HGV ban northbound on Wortley Road;
 - Bus fleet improvements on Fitzwilliam Road; and
 - Diversion of buses from Rawmarsh Hill
- 6.11.15 We have identified a cost of £20,000 per annum, to monitor and evaluate these three localised schemes. This will include:
- Monitoring the delivery of the bus route diversion and junction improvements associated with the Rawmarsh Hill scheme;
 - Maintaining a record of the EURO Class (including any retro-fitting) of the bus fleets operating on Rawmarsh Hill and along Fitzwilliam Road; and
 - Regular classified counts or ANPR data collection on Wortley Road, to monitor compliance with the HGV ban.

Strengthening the Air Quality Monitoring Teams in SCC and RMBC

- 6.11.16 We have identified a need for additional resources to support the Air Quality Monitoring and Modelling Teams in both SCC and RMBC, to ensure that the data required to monitor progress towards compliance can be collected and analysed and the relevant air quality modelling and predictions can be undertaken regularly and in a timely fashion.

6.11.17 We have estimated that one additional Full Time Equivalent member of staff is required in each of the two Air Quality teams, at a cost of £50,000 per annum for each.

Regular Analysis and Modelling of Air Quality Data in SCC and RMBC

6.11.18 There is a need to undertake regular (quarterly) reviews of the air quality data being collected in Sheffield and Rotherham, particularly in the areas with the greatest risk of non-compliance. These reviews may also require updates to the local Airviro air quality model, particularly when the air quality monitoring data suggests there has been some significant change in the local air quality, traffic conditions and/or sources of non-transport-related emissions at specific locations.

6.11.19 We have identified a budget of £7,500 per quarterly update of the relevant air quality monitoring and modelling data in each of the two Authorities.

Monitoring Changes in Attitudes & Awareness

6.11.20 We propose to undertake two large attitudinal/behavioural/awareness surveys among Sheffield residents, the first in 2021 and the follow-up in 2022.

6.11.21 These surveys will be designed to support the evaluation of the various Hearts & Minds campaigns and the impact of (and support for) the SCC CAZ scheme and its various supporting measures.

6.11.22 We have estimated a provisional budget of £80,000 for each of these two surveys (so £160,000 in total). The scale, scope and cost of these attitudinal surveys will be reviewed during the Full Business Case preparation process.

6.12 Decommissioning

6.12.1 It is currently proposed that decommissioning of ANPR charging infrastructure will be funded via an allocation from the charging income source. However, the Commercial Case includes the option to secure cost for decommissioning via the tender process.