



**Bristol City Council Clean Air Plan
Full Business Case**

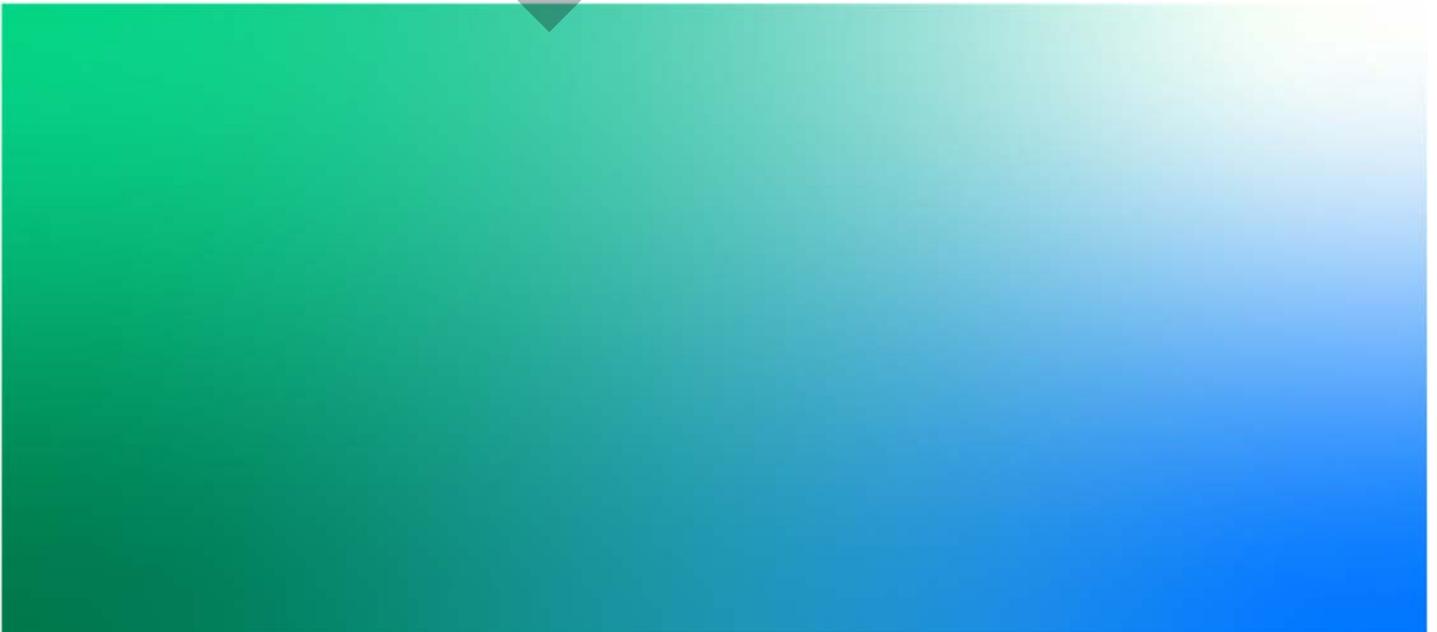
Finance Case

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Bristol City Council

Draft



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Acronyms and Abbreviations

ANPR	Automatic Number Plate Recognition
BCC	Bristol City Council
CAF	Clean Air Fund
CAP	Clean Air Plan
CAPEX	Capital expenditure
CAZ	Clean Air Zone
EU	European Union
HGV	Heavy Goods Vehicle
JAQU	Joint Air Quality Unit
LGV	Light Goods Vehicle
NO ₂	Nitrogen Dioxide
OBC	Outline Business Case
OPEX	Operational expenditure
PCN	Penalty Charge Notice

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5. Finance Case

5.1 Introduction

Poor air quality is the largest known environmental risk to public health in the UK¹. Investing in cleaner air and doing more to tackle air pollution are priorities for the EU and UK governments, as well as for Bristol City Council (BCC). The Mayor of Bristol has often cited Bristol's 'moral and legal duty' to improve air quality in the city and the administration recognises that achieving improved air quality is not solely a transport issue. Notwithstanding the Council's work on a Clean Air Zone, efforts have been made to make citizens more aware of – and take personal responsibility for – various sources of air pollution, from traffic fumes to solid fuel burning. The Mayor has articulated a 'call to action' for local people, businesses and organisations to consider how small changes can make a significant difference in cutting toxic fumes across the city. BCC has monitored and endeavoured to address air quality in Bristol for decades and declared its first Air Quality Management Area in 2001. Despite this, Bristol has ongoing exceedances of the legal limits for Nitrogen Dioxide (NO₂) and these are predicted to continue until around 2027 without intervention.

The added context is that of the COVID-19 pandemic. Recent research suggests that poor air quality may be correlated with higher death / infection rates from COVID-19. This is further compounded by growing evidence that suggests that those from black, Asian and minority ethnic communities are more at risk of catching and dying from the virus and the fact that individuals from these communities are more likely to live in areas where air quality is poor. The challenge of maintaining public health and supporting economic recovery while also achieving legal air quality levels after lockdown restrictions are lifted will remain live and intersecting issues for the foreseeable future.

The UK Government continue to transpose European Union law into its Environment Bill², to ensure that certain standards of air quality continue to be met, by setting air quality assessment levels (AQALs) on the concentrations of specific air pollutants. It's very unlikely that these AQALs will differ to EU Limit Values prescribed by the European Union's Air Quality Directive and transcribed in the UK's Air Quality Standards Regulation 2010. Therefore, these Limit Values will remain in enforcement post-Brexit. In common with many EU member states, the EU Limit Value for annual mean nitrogen dioxide (NO₂) is breached in the UK and there are on-going breaches of the NO₂ limit value in Bristol. The UK government is taking steps to remedy this breach in as short a time as possible, with the aim of reducing the harmful impacts on public health. Within this objective, the Government has published a UK Air Quality Plan and a Clean Air Zone Framework, both originally published in 2017 (noting there have been subsequent revisions). The latter document provides the expected approach for local authorities when implementing and operating a Clean Air Zone (CAZ). The following business cases have been submitted to JAQU for the Clean Air Plan; Strategic Outline Case (April 2018), and an Outline Business Case (November 2019 and updated between April and June 2020).

The Finance Case sets out the overall financial position for the preferred Clean Air Plan appraised in the economic case. The preferred option can be summarised as follows:

- Small Area Class D CAZ (charging non-compliant cars, buses, coaches, taxis, HGVs and LGVs);
- Fast Track measures;
 - a) Closure of Cumberland Road inbound to general traffic; and
 - b) Holding back traffic to the city centre through the use of existing signals.

¹ Public Health England (2014) Estimating local mortality burdens associated with particular air pollution.

<https://www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution>

² Environment Bill 2019-21 <https://services.parliament.uk/bills/2019-21/environment.html>

Information about the scheme development and evolution of the preferred option is set out in detail in the strategic case.

The Finance Case outlines the funding and expenditure requirements for the CAP, as well as outlining wider financial impacts and consequences of the proposed arrangement for BCC and the Government. It outlines the revenue and capital needs (and associated profile) to deliver the project and is underpinned by a financial model which profiles the scale and sources of proposed funding alongside the timing of expenditure. In summary, this section thus focuses on outlining:

- Capital and operational expenditure for the project.
- Funding sources for this expenditure and the funding that has been bid for to allow delivery and operations of the intervention and affordability of the scheme.
- Revenue generation estimates from the operation of a charging CAZ.
- The net operational position of the project.

Note that, for the purposes of this version of the FBC, whilst costs have been forecast as accurately as possible, some cost and revenue items remain as estimates, and will continue to be developed. Whilst some costs reflect tender prices, there is ongoing uncertainty around other costs.

This chapter is supported by the following FBC appendices documents:

- Appendix J Projects costs (FBC-33); and
- Appendix L Risk Management Strategy - QRA (FBC-35).

5.2 Project costs

5.2.1 Note on Project Costs

The project costs presented for the core scenario in this chapter are based on the current version of the costs detailed in Appendix J to the FBC. Sensitivity test 9 also pivots from this final set of costs. However, all other sensitivity analysis pivots from a historical set of costs and have not been updated to reflect the latest cost assumptions. That said, there is minimal variance in costs between the historical and current set. As such, the conclusions drawn in Sections 5.4 and 5.5 would not be affected by updating all sensitivity analysis to the current set of costs.

Cost differences between historical costs and current costs can be summarised as follows:

- CAPEX: increased due to:
 - Additional ANPR cameras required
 - Additional non-charging measure added
- OPEX: decreased due to:
 - Reduction in system operations and maintenance, partially offset by increase to camera, communications, signage and building maintenance and operation, CAZ project delivery and operational management team (staff resources) and CAZ publicity and advertising costs.

5.2.2 Summary of capital expenditure (CAPEX)

A summary of the scheme implementation costs is provided here for the preferred option. A detailed breakdown of CAPEX costs is provided in 'Project Costs' in Appendix J of this FBC, noting the point raised in section 5.2.1. CAPEX will be incurred by BCC across a range of activities as listed below:

Enforcement System:

- Supply, installation, configuration and testing of fixed ANPR cameras and back-office system;
- Fully-equipped mobile enforcement vehicle (MEV) and a back office system;
- System integration and interfacing with other systems

Estimated costs of the enforcement system are £0.7 million (2021 prices).

Highway works:

- Camera and communications network infrastructure (all required cabinets, mounting posts, ducting and cabling for camera installation as well as ducting, power supply, cabling and connection of the data communications network); and
- Road signing, marking and traffic management.

Estimated costs for street works are £3.6 million (2021 prices).

Non-Charging Measures for CAZ Implementation:

- FastTrack traffic management measures
- Closure of Cumberland Road to inbound general traffic;
- Replacement of existing Variable Message Signs (VMS).

Estimated costs for non-charging measures for CAZ implementation are £1.3 million (2021 prices).

Non-Charging Measures for Clean Air Fund:

- Estimated costs for non-charging measures for Clean Air Fund are £35.9 million (2021 prices).

Other CAPEX:

- Air quality monitoring installations, estimated to cost c. £20,000 (2021 prices)

Risk:

- Estimated at £2.8 million, based on use of P(80) output from QRA (2021 prices).

A summary of the total capital costs incurred by the proposed scheme is provided in Table 5.1 below, which demonstrates that total capital costs will be in the range £44.3 million (2021 prices). As these capital works are forecast to take place in 2021, no inflation adjustments are considered necessary. Around 19% of CAPEX funding is requested from JAQU via the Implementation Fund with the residual funding requested from the Clean Air Fund.

Table 5.1: CAPEX by broad theme and funding source (£2021 prices)

CAPEX Item	Small CAZ D
Implementation Fund	
Enforcement System	700,291
Highway Works	3,603,044
Other CAPEX	20,149
Non-Charging Measures - Implementation Fund	1,265,726
Risk	2,801,000
Clean Air Fund	
Non-Charging Measures – Clean Air Fund	35,878,344
Total	44,268,554

5.2.3 Summary of operational expenditure (OPEX)

OPEX will be incurred by BCC across a range of activities, throughout the operation life of the CAZ, these include:

- Systems operations and maintenance
- Camera, communications, signage and buildings maintenance
- CAZ delivery and ongoing operational management
- Monitoring and evaluation
- Decommissioning
- PCN production
- CAZ publicity and advertising

The majority of these operational costs are accrued on either a fixed, annual basis for the lifecycle of the project or as one-off costs. However, cost items relating to PCN/Traffic Penalty Tribunal (TPT) activities and enforcement staff requirements are contingent on variations in vehicle non-compliance and contravention. This results in operational costs being sensitive to key operational assumptions. In particular, changes in compliance levels can result in differing degree of civil enforcement, appeals and associated activities that need to take place. Also the cost associated with revenue payment to support ongoing operation of JAQU central payment system will vary in line with compliance. As a starting point, for the purposes of the 'core' scenario, the revenue payment to JAQU is assumed to include 10% of all CAZ charge revenue only (i.e. exclusive of PCN revenue).

In addition, two operational scenarios have been considered:

- Three year operation from October 2021 to September 2024
- Ten year operation from October 2021 to December 2030 (i.e. end of appraisal period)

The shorter operational period recognises that the CAP is anticipated to reduce the annual mean concentrations of NO₂ to below the EU limit value threshold by 2023. Continuing the scheme until September 2024 will allow a further period of consolidation of NO₂ concentrations, supporting a stabilised, long-run concentration level within the EU limit values. The longer operational period is also considered to reflect the potential for the CAP to be extended into a long-term programme and to ensure steady-state compliance with EU limit values. This longer operational period could provide transport operators with a more stable environment in which to make investment decisions.

With reference to the longer term operational period in particular, it is acknowledged that the schemes are forecast to achieved compliance well before 2030. Hence, the scale of revenues and costs are both expected to diminish towards the end of the appraisal period.

Note that the CAZ Project Delivery and Ongoing Operational Management Team roles and CAZ Publicity and Advertising line items are represented as lasting for nine months in the financial model (i.e. Jan 2021-Sep 2021). However, it is now acknowledged that these roles will be required for a longer duration, beyond scheme switch on. This is not reflected in the costs presented at this stage. Also note that the CAZ Project Delivery and Ongoing Operational Management Team roles are presented as OPEX in the current financial modelling presented in this report. However, it is acknowledged that these roles will switch to CAPEX.

Within this context, the central estimate for operational costs is between £7.7 million (shorter operational period) and £15.9 million (longer operational period) in 2021 prices. This estimate increases to between £7.9 million and £17.3 million taking into account inflation (labour costs inflated at 2% per annum based on BCC's annual wage uplift estimates and other operating costs inflated at 2.9% in line with OBR's retail price index growth forecast). A detailed breakdown of OPEX costs is provided in BoQ format in 'Project Costs' in Appendix J of the FBC.

5.2.4 Funding sources

There are four main funding sources for the set-up and operation of CAZ. These are:

- An Early Measures Fund - this is expected to support small, ambitious and good value early measures to improve air quality and start to reduce concentrations in CAZ. A maximum of £3 million per local authority has been allocated for this funding which is part of the CAF.
- A £255 million Implementation Fund - this is designed to support local authorities in the planning and delivery of targeted action to improve air quality
- A £220 million 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.
- Revenue from CAZ charges - funding will become available from the charges that are applied to each CAZ.

5.2.5 Funding applications

BCC is reliant on funding from the Implementation Fund, Clean Air Fund and anticipated revenue to deliver this Clean Air Plan. Funding requirements are described below:

- Implementation Fund – The funding grant requested from central government through the implementation fund is £8.4 million grant for capital expenditure. Further, BCC request £1.0 million in operational cost funding from the Implementation Fund to cover staff costs and publicity/advertising in advance of CAZ commencement (and therefore revenue generation). This funding requirement is consistent across both the shorter and longer operational period scenarios. In the absence of Implementation Fund support, BCC are unable to cover these costs in this pre-commencement period. That said, BCC recognise that in the event

that the CAZ generates sufficient operational surplus in financial year 2021/22, there is scope to refund the requested Implementation Fund grant of £1.0 million to cover upfront pre-opening operational costs. This position will be determined through full reconciliation and audit at the end of the financial year.

- Clean Air Fund - The funding grant requested from central government through the Clean Air Fund is £35.9 million for capital expenditure.
- Revenue from CAZ charges – BCC will utilise anticipated revenue from the CAZ schemes to finance the ongoing operational cost of running the scheme.

5.3 Financial model

5.3.1 Overview

Modelling of the finances for the Bristol CAP has been undertaken to analyse the potential financial performance of the project. Full details of the financial model development and results are included in FBC-41 'Financial Report' in Appendix Q of this FBC.

The Clean Air Zone Framework states that local authorities should not set the level of charge as a revenue raising measure. The Transport Act 2000 requires any excess revenue that may arise from charges above the costs of operation to be re-invested to facilitate the achievement of local transport policies. These should aim to improve air quality and support the delivery of the ambitions of the zone. The revenue re-investment reserve described below provides a mechanism for utilising any excess revenue generated within these parameters.

The financial model is underpinned by key assumptions, as listed below:

- Two scenarios, as described in Section 5.2.3:
 - Three year operation from October 2021 to September 2024
 - Ten year operation from October 2021 to December 2030 (i.e. end of appraisal period)
- Non-compliant buses, coaches, taxis, private hire vehicles (PHVs), HGVs, LGVs and cars are all charged for travel into/through the small area CAZ boundary. CAZ charges are imposed as follows:
 - £9 for cars, taxis, PHVs and LGVs;
 - £100 for buses, coaches and HGVs
- No change in CAZ charges are assumed over the appraisal period. The current CAZ charges proposed are kept constant for the entire appraisal period. In contrast, operational costs are assumed to increase at the prevailing rate for general operational costs (2.9% per annum) and staff costs (2.0% per annum)
- Operational phase begins in October 2021. The forecast number of non-compliant vehicles in 2021, 2023 and 2031 is adopted from transport modelling outputs, with non-compliant vehicles forecasts for intervening years based on interpolation also undertaken as part of transport modelling. Note that given the traffic modelling outputs provide average annual daily flows, the 2021 non-compliant vehicles are profiled from October 1st to December 31st only, rather than for the full year.
- To reflect the introduction of exemptions from CAZ charges, some 11% of unique non-compliant cars that would otherwise be expected to pay the CAZ charge are exempt in the first year of operation (October 2021-September 2022). Informed by traffic modelling, this reflects the proportion of non-compliant cars registered to low income households that are interacting with the CAZ for work/education purposes and residents of the CAZ that travel out of the zone for work. This assumption informs the 'core' scenario.
- To reflect the anticipated roll out of the financial assistance schemes as part of the CAF bid, the following further adjustments are made to the basic non-compliant vehicle forecast for the duration of the appraisal:
 - 17% reduction in non-compliant cars

- 95% reduction in non-compliant taxis
- 48% reduction in non-compliant LGVs
- 52% reduction in non-compliant buses/coaches
- 43% reduction in HGVs

These assumptions inform the 'core' scenario.

- A contravention rate of 5% is applied to capture non-compliant vehicles that do not pay the charge and are instead issued with a penalty charge notice (PCN). The contravention rate remains static across the appraisal period. This assumption reflects BCC's experience of contravention of other schemes (e.g. car parking, bus lane enforcement), but also the wider national experience provided by contravention of schemes such as ULEZ and Dartford Crossing
- Based on BCC's experience of the contravention and resulting PCN process, some 65% of vehicles issued with a PCN are assumed to pay the resulting charge. The vast majority pay at the discount rate (92% at £60, plus the original CAZ charge), with the residual contraveners paying at the full rate (8% at £120, plus the original CAZ charge). Of the 35% of contraveners that do not pay the charge, the following outcomes are anticipated:
 - 46% of PCNs cancelled; no charge incurred
 - 6% issued with a Charge Certificate (50% increase on full PCN rate)
 - 15% followed up with Traffic Enforcement Centre (TEC) proceedings (at full PCN rate)
 - 34% of PCNs written off
- First time offenders are not charged or issued with PCNs. Instead, individuals are issued with a warning letter only
- All charge and PCN income is assumed to be accrued in the same month that the non-compliant vehicle enters the CAZ. No delay or deferment of charge or PCN income is assumed³.
- As advised by BCC, PCN operations incur costs of £0.30 per PCN for Traffic Penalty Tribunal (TPT) charges, £1.43 per PCN for stationary and supplies and £0.85 per PCN for postage. A multiplier of 1.35 is applied to postage costs to reflect additional communication efforts resulting from unresponsive contraveners.
- Further, BCC advised that staff costs to manage PCN operations include civil enforcement officers (CEOs) and appeals officers (£38,508 per role per annum). Based on current operations, BCC indicated that 50,000 PCNs per annum necessitated 2 CEOs and 5 Appeals Officers.
- A proportion of revenue secured through CAZ charge payments are transferred to JAQU. Although the exact figure has not been determined at this stage, a 10% and 20% transfer of CAZ charge revenue is considered.

The overarching framework for revenue generation as a result of CAZ is outlined in Figure 5.1, see Section 5.3.2 for further details on revenue generation assumptions.

³ It is accepted that this approach to profiling revenue represents a simplification of the charge and fine payment process. However, in the absence of detailed evidence regarding the extent of deferment or delay in payments, including potentially lengthy delays related to tribunal and legal activity associated with some PCN payments, a simplified approach to revenue forecasting was considered most robust.

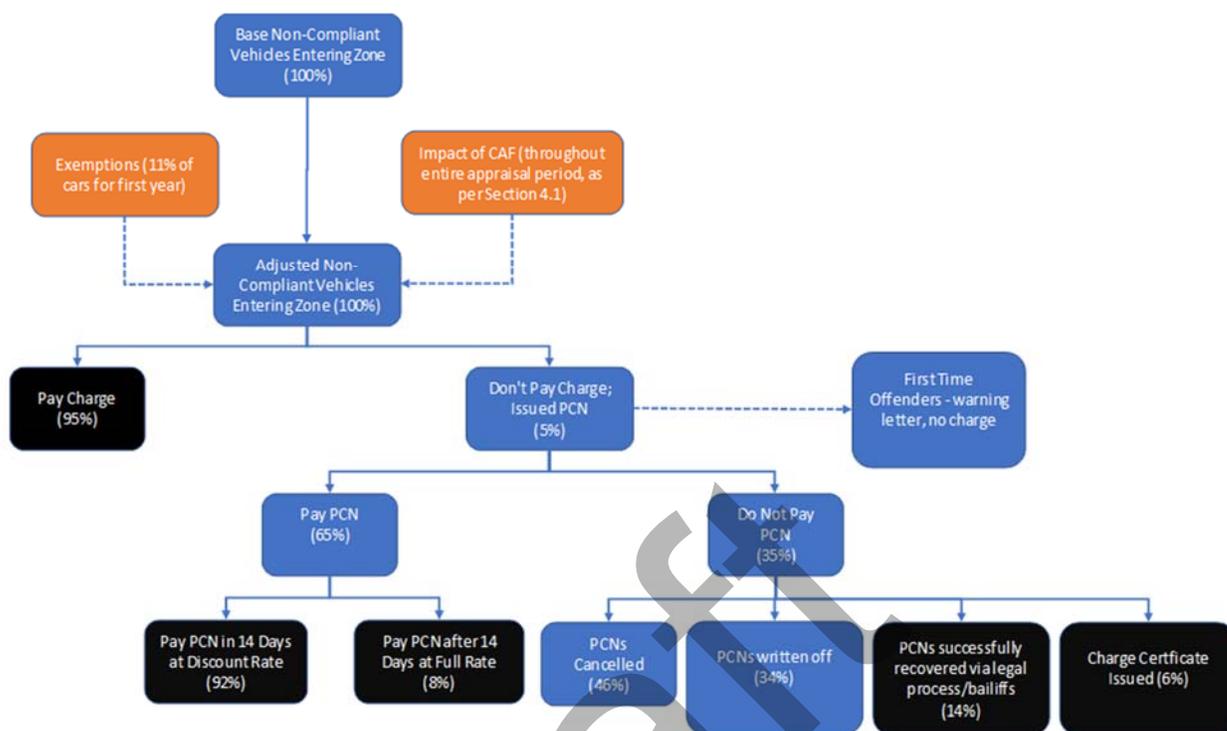


Figure 1: CAZ revenue generation framework

5.3.2 Revenue generation

Table 5.2 summarises the anticipated income from the CAZ including direct CAZ income (from the charge) plus the indirect CAZ income (from the PCN process). Calculations suggest the CAZ could generate a stream of revenue over the appraisal period that amounts to £24.4 million at the end of a three year operational period, or £47.7 million in 2030 across the ten year operational period. Note that for the longer operational period in particular, the scale of total income generation declines rapidly over time from £8.8 million in the first full year of operation (2022/23) to £1.1 million at the end of the appraisal period (2030/31).

It should be noted that the revenue generation is reliant on a number of key assumptions which have some uncertainty. BCC has made reasonable attempts to estimate these assumptions based on similar schemes delivered in the UK or experience of enforcement within the authority, but since a CAZ has not yet been implemented the available evidence is limited and hence the forecasts are uncertain. In addition to the analysis above, a range of detailed sensitivity tests are being undertaken to understand the impact of amending key assumptions on the forecast revenue generation and will be presented when available.

Table 5.2: CAZ revenue generation summary table

Variable	Total
Three Year Operation	
No. Non-Compliant Vehicles ⁴ (000s)	2,470.2
No. Paying CAZ Charge ⁵ (000s)	1,599.8

⁴ This figure represents the base number of non-compliant vehicles before any adjustments to account for exemptions/CAF-related financial assistance (as per Section 5.3.1)

Variable	Total
No. Contravening CAZ Charge ⁶ (000s)	76.3
A) CAZ Charge Income (£'000s)	£19,794
No. Paying PCN (000s)	49.6
No. Paying After TPT (000's)	5.3
B) CAZ PCN Fine Income (£'000s)	£4,594
A + B) Total CAZ Income (£'000s)	£24,387
Ten Year Operation	
No. Non-Compliant Vehicles (000s)	4,813.8
No. Paying CAZ Charge (000s)	3,165.7
No. Contravening CAZ Charge (000s)	151.0
A) CAZ Charge Income (£'000s)	£38,587
No. Paying PCN (000s)	98.1
No. Paying After TPT (000's)	10.6
B) CAZ PCN Fine Income (£'000s)	£9,077
A + B) Total CAZ Income (£'000s)	£47,665

5.3.3 Net operational position (before extended mitigations)

The current analysis indicates that in the 'core' scenario, cumulatively revenue generation is predicted to exceed operational costs, resulting in an estimated net operational surplus of between £17.5 million (three year operation) and £31.4 million (ten year operation) across the appraisal periods in outturn prices.

However, the scheme will generate a net operational deficit before October 2021 (as no revenue is forecast to materialise prior to CAZ commencement, but some staff costs and publicity/advertising costs are incurred). In the longer term operational period scenario, a deficit is also forecast in some of the later years of the appraisal period (as the number of non-compliant vehicles falls but scheme operations are maintained). The analysis demonstrates that the CAZ revenue is sufficient to cover operational costs of the scheme, as indicated in the table below. Hence, it is possible for BCC to safeguard revenue from early years of the scheme to offset any operational deficit in later years. However, BCC are requesting c. £1.0 million of upfront operational cost grant funding from JAQU's Implementation Fund to cover costs incurred in the period prior to CAZ commencement (and therefore revenue generation)⁷.

⁵ This figure takes into account the introduction of exemptions and the availability of CAF-related financial assistance for some non-compliant car users (see Section 5.3.1)

⁶ This figure takes into account the policy to waive first time offenders charges

⁷ BCC recognise that in the event that the CAZ generates sufficient operational surplus in financial year 2021/22, there is scope to refund the requested Implementation Fund grant of £1.0 million to cover upfront pre-opening operational costs. This position will be determined through full reconciliation and audit at the end of the financial year

Table 5.3: Net Operating Position (£000s)

Variable	2021 Prices	Outturn Prices
Three Year Operation		
Operational Income	24,387	24,387
CAZ-Related OPEX	7,692	7,948
Net Operating Position (pre IF grant)	16,695	16,439
Implementation Fund Operational Grant Request	1,016	1,016
Net Operating Position (post IF grant)	17,712	17,455
Ten Year Operation		
Operational Income	47,665	47,665
CAZ-Related OPEX	15,862	17,316
Net Operating Position (pre IF grant)	31,802	30,349
Implementation Fund Operational Grant Request	1,016	1,016
Net Operating Position (post IF grant)	32,819	31,365

With revenue grant funding in place, the Operational Summary demonstrates that the Clean Air Plan is forecast to generate a significant positive cash flow over the appraisal period. Any cashflow surplus associated with the scheme will be ringfenced for the following purposes, in order of priority:

- Deficit coverage for ongoing and long-term operational expenditure, particularly in latter years of operation when the various schemes are anticipated to face an operational deficit, as well as decommissioning.
- Potential repayment of £1.0 million request from Implementation Fund to support operational costs incurred prior to October 2021 switch-on (subject to sufficient surplus and full reconciliation and audit).
- Creation of a reinvestment reserve to support:
 - any underestimation of operational costs.
 - Delivery of BCC's 'Liveable Neighbourhoods' aspirations (estimated cost range £45m to £283m);
 - supplementary schemes to the CAF measures, as well providing an opportunity to further invest in engagement with businesses and local residents affected by the schemes. For example, this funding source would support or extend some of the following measures which may form part of the CAF bid:
- Additional financial support to businesses and residents to upgrade vehicles;
- Increase, Improve, update Legible City Signage on key radials and in city centre;
- An 'unintended consequences' fund for minor local implementations such as one-ways;
- Support for additional buses to the Bristol Royal Infirmary.

Within this context, the residual cash position for the CAP in Bristol is expected to be neutral throughout the appraisal period, as demonstrated in Table 5.4 below.

Table 5.4: Residual Cash Flow Position –Outturn Values (£'000s)

Net Cash Flow Position (£'000s)		
Operational Item	Three Year Operational Period	Ten Year Operational Period
Net Cumulative Cashflow	17,455	31,365
Deficit Coverage	251	694
Reinvestment Reserve (residual monies)	17,455	31,365
Residual Cash Position	0	0

5.4 Sensitivity Testing

In light of the significant uncertainty and lack of precedent regarding operation of Clean Air Plan's, extensive sensitivity testing is being undertaken to better understand the potential range of net operating positions for the project, based on variance in key assumptions. The following key sensitivities are considered:

- Base Non-Compliant Traffic Analysis: no consideration of exemptions or CAF impacts on base traffic flows.
- Base + Exemptions Non-Compliant Traffic Analysis: consideration of exemptions but not CAF impacts on base traffic flows.
- Sensitivity Test 1: As per 'core' scenario, but with 20% JAQU revenue payment instead of 10%
- Sensitivity Test 2: As per 'core' scenario, but increase in contravention rate from 5% to 20%
- Sensitivity Test 3: As per 'core' scenario, but reduction in CAZ and PCN Charges by 50%
- Sensitivity Test 4: As per 'core' scenario, but reduction in non-compliant traffic flows by 25% compared to core scenario
- Sensitivity Test 5: As per 'core' scenario, but increase in non-compliant traffic flows by 25% compared to core scenario
- Sensitivity Test 6: As per 'core' scenario, but exponential profile of non-compliant traffic flow reduction rather than more gradual profile suggested by traffic modelling
- Sensitivity Test 7: Combination of Sensitivity Tests 3, 4 and 6, plus an assumption that the contravention rate declines at an exponential rate rather than stabilising at 5% across the appraisal period, representing a worst-case revenue generating scenario that has:
 - 20% JAQU revenue payment instead of 10%
 - Reduction in CAZ and PCN Charges by 50%
 - Reduction in non-compliant traffic flows by 25% compared to core scenario
 - Exponential profile of non-compliant traffic flow reduction rather than more gradual profile suggested by traffic modelling
- Sensitivity Test 8: As per 'core' scenario, but reduction in non-compliant traffic flows to 82% of 'core' scenario levels, reflecting traffic patterns for Bristol in wake of COVID19 pandemic
- Sensitivity Test 9: As per 'core' scenario, but with an increase in CAZ & contravention charges of 25% to reflect the possibility of increase the charges if the level of compliance is not achieved.

The outputs of these sensitivity tests in terms of outturn cashflow is presented in the following table. The outputs demonstrate that a change in the profile of non-compliant traffic reduction and the value of the CAZ/PCN charges are the key drivers of net operating position. In particular, any acceleration in the reduction of non-compliant traffic over time (as modelled through Sensitivity Test 6 and captured as part of Sensitivity Test 7) has a particularly significant impact on operating position.

Table 5.5: Sensitivity Test Analysis–Outturn Net Operational Position Values (£'000s)⁸

Variable	Three Year Operation	Ten Year Operation
Base	29,003	52,264
Base + Exemptions	28,361	51,622
Core Scenario	17,455	31,365
Sensitivity Test 1	15,117	26,068
Sensitivity Test 2	25,825	47,089
Sensitivity Test 3	5,893	8,024
Sensitivity Test 4	11,684	19,354
Sensitivity Test 5	22,578	40,553
Sensitivity Test 6	870	-7,023
Sensitivity Test 7	-2,815	-10,886
Sensitivity Test 8	13,235	22,324
Sensitivity Test 9	23,314	43,770

5.5 Summary

The financial analysis of the Clean Air Plan options demonstrates that the capital cost of implementation will amount to £44.3 million (outturn values). BCC is requesting between 19% of this funding from the Implementation Fund to support capital expenditure. BCC is requesting the residual funding from the Clean Air Fund to support capital expenditure on mitigation measures.

From an operational perspective, the financial analysis demonstrates that CAZ revenue is sufficient to cover operational costs for all Clean Air Plan options based on core scenario analysis. However, it is likely that the operational stage of the CAZ will incur costs prior to any revenue being accrued. As such, BCC are requesting upfront funding support of c. £1.0 million to cover operational staff costs and publicity and advertising costs prior to CAZ commencement and accrual of CAZ revenue.

Further, there is significant uncertainty around the timing, profile and scale of CAZ revenue generation. Sensitivity testing demonstrates that changes to profiling of the reduction in non-compliant traffic have the largest impact on the operational position of the Clean Air Plan. For example, significant acceleration in the reduction of non-compliant vehicles (e.g. because the rate of vehicle upgrading or behavioural choices towards non-car travel materialise faster than forecast) could significantly reduce CAZ income and transform any operational surplus into an operational deficit.

⁸ Note that only the 'core scenario' and Sensitivity Test 9 reflect the latest cost estimates. However, as noted in Section 5.2.1, the change in costs between the historic cost estimates used for other scenarios and the latest cost estimates is insufficient to fundamentally change the scale of net operational positions outlined in the table.

In summary, the total request to central government for the delivery of the Clean Air Plan can be summarised as follows:

- £44.3 million in capital grant funding, of which:
 - £8.4 million from the Implementation Fund
 - £35.9 million from the Clean Air Fund
- £1.0 million in operational funding from the Implementation Fund

The operational revenue funding request is necessary to cover upfront operational costs associated with staff costs and publicity/advertising costs, which will precede CAZ commencement (and therefore any revenue generation). As noted, BCC recognise that in the event that the CAZ generates sufficient operational surplus in financial year 2021/22, there is scope to refund the requested Implementation Fund grant of £1.0 million to cover upfront pre-opening operational costs. This position will be determined through full reconciliation and audit at the end of the financial year.

That said, under the core scenario for financial modelling, both operational period scenarios can achieve a net operational surplus of between c. £17.5 million and c. £31.4 million over the appraisal period. It is intended that any surplus can be used to:

- Cover any operational deficits in later stages of the appraisal period;
- Potential repayment of £1.0 million request from Implementation Fund to support operational costs incurred prior to October 2021 switch-on (subject to sufficient surplus and full reconciliation and audit).
- Creation of a reinvestment reserve to support:
 - Any underestimation of operational costs;
 - Delivery of BCC's 'Liveable Neighbourhoods' aspirations (estimated cost range £45m to £283m);
 - Supplementary schemes to the CAF measures, as well providing an opportunity to further invest in engagement with businesses and local residents affected by the schemes. For example, this funding source would support or extend some of the following measures which may form part of the CAF bid:
- Additional financial support to businesses and residents to upgrade vehicles;
- Increase, Improve, update Legible City Signage on key radials and in city centre;
- An 'unintended consequences' fund for minor local implementations such as one-ways; and
- Support for additional buses to the Bristol Royal Infirmary.