

Bristol City Council Clean Air Plan Outline Business Case

Finance Case

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Bristol City Council

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Acronyms and Abbreviations

AED	Approved Enforcement Device
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

5. Finance Case

5.1 Introduction

This report sets out the Finance Case for the Bristol Clean Air Plan. It sets out the overall financial position for the preferred option (hybrid) and the benchmark option (Medium CAZ D + Option 1). These options can be summarised as follows:

- Hybrid Option, comprising of:
 - Medium Area Class C (charging non-compliant buses, coaches, taxis, HGVs and LGVs);
 - Diesel car scrappage scheme;
 - 8-hour Small Area diesel car exclusion (7am-3pm);
 - HGV exclusion on links within the city centre with exceedances;
 - Closure of Cumberland Road inbound to general traffic;
 - M32 Park and Ride with bus lane inbound; and
 - Holding back traffic to the city centre through the use of existing signals.
- Medium CAZ D + Option 1 components (benchmark option), comprising of:
 - Medium Area Class D (charging non-compliant buses, coaches, taxis, HGVs and LGVs);
 - Diesel car scrappage scheme;
 - HGV exclusion on links within the city centre with exceedances;
 - Closure of Cumberland Road inbound to general traffic;
 - M32 Park and Ride with bus lane inbound;
 - Holding back traffic to the city centre through the use of existing signals; and
 - 8-hour car diesel exclusion on Park Row/Upper Maudlin Street and Marlborough Street.

Information about the scheme development and the scope of the options 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 OBC, whilst costs have been forecast as accurately as possible, the cost and revenue items remain as estimates, and will continue to be developed. Actual/procured costs will be incorporated in to the FBC where available or provided as a separate update to JAQU.

This chapter is supported by the following OBC appendices documents:

- Appendix J Projects costs (OBC-33)
- Appendix L Quantified risk assessment (OBC-35)
- Appendix Q Financial model report (OBC-41)

5.2 Project costs

5.2.1 Summary of capital expenditure (CAPEX)

A summary of the scheme implementation costs is provided here for the preferred (Hybrid) and benchmark (Medium CAZ D + Option 1) options. The CAPEX estimates vary slightly between the two options, with a higher forecast estimated for the Hybrid option. This is due to the increased number of Approved Enforcement Devices (AED) and signage required to impose a small area diesel ban in addition to a CAZ under this option.

It should be noted at this stage that most of the costs listed below are high-level, initial estimates and that the full scope of works and associated costs is not yet defined. This further work will take place as part of the completion of the Full Business Case. For example, unforeseen ground conditions, services and network disruptions could all impact on the current estimates. Within this context, all costs outlined include 15% contingency and a separately defined risk pot.

A detailed breakdown of CAPEX costs is provided in 'Project Costs' in Appendix J of this OBC.

CAPEX will be incurred by BCC across a range of activities as listed below:

Enforcement System:

- Supply, installation, configuration and testing of fixed AEDs; a fully-equipped mobile enforcement vehicle (MEV) and a back office system;
- Provision of a control room facility including fitting out of the premises, fixtures, fittings, furnishing and ancillary items;
- Server system, including replacement after five years;
- Complete system test and site acceptance testing (SAT) integrating with existing systems;
- Design peer review and project management for systems integration and operational planning; and
- Project management of delivery phase.

Estimated costs of the enforcement system are £10.0 million (including contingency).

Street 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 minor realignment (kerbing alignments, traffic management required for installation, RPZ & design reviews plus site supervision).

Estimated costs for street works are £17.2 million (including contingency).

Non-Charging Measures for CAZ Implementation:

- M32 Park and Ride;
- Bedminster Bridge Improvements;
- Cumberland Road bus gate;
- Clean Air Fund requirements;
- Vehicle scrappage grant scheme;
- Air quality monitoring installations; and
- Variable Message Signs (VMS).

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Estimated costs for non-charging measures are £97.3 million (including contingency).

Quantified Risk Assessment (QRA) risk

- Risk has been calculated using @Risk software with risks established for the appropriate stage when it is relevant within the project. The QRA figure in line with WebTag guidance (P(80) is £6.5 million during the project implementation stage). The P(80) figure has been adopted due to the risk associated with obtaining necessary approvals for these options. Full details of the QRA are provided in OBC-35 'Quantified Risk Assessment' in Appendix L of this OBC.
- 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 £108.4 million and £113.5 million. Of these sums, around 60% of funding is requested from JAQU via the Implementation Fund with the residual 40% requested from the Clean Air Fund.

Table 5.1: CAPEX by broad theme and funding source (2019 prices)

CAPEX Item	Hybrid Option			Option 1 + Medium CAZ D		
	Implementation Fund	Clean Air Fund	Total	Implementation Fund	Clean Air Fund	Total
Enforcement System	10,527,100	0	10,527,100	8,225,950	0	8,225,950
Street Works	8,232,275	0	8,232,275	5,425,125	0	5,425,125
Non-Charging Measures - Implementation Fund	43,815,000	0	43,815,000	43,815,000	0	43,815,000
Non-Charging Measures – Clean Air Fund	0	44,390,000	44,390,000	0	44,390,000	44,390,000
Risk	6,500,000		6,500,000	6,500,000		6,500,000
Total	69,074,375	44,390,000	113,464,375	63,966,075	44,390,000	108,356,075

5.2.2 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:

- Operations and enforcement of the CAZ
- Maintenance of the CAZ and complementary infrastructure
- Telecommunications
- Power
- CAZ Project Delivery and Ongoing Operational Management
- Monitoring and Evaluation
- Other (including additional PCN administration processes, decommissioning etc)

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 are contingent on variations in vehicle non-compliance and contravention. As the type of vehicular non-compliance varies between the two options, the scale and nature of contraventions will also differ. This results in varying operational costs across the two options, linked to the differing degree of civil enforcement, appeals and associated activities that need to take place.

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Within this context, the central estimate for operational costs is between £33.6 million and £38.0 million across the appraisal period (2019 prices). A detailed breakdown of OPEX costs is provided in BoQ format in 'Project Costs' in Appendix J of the OBC.

5.2.3 Allowance of risk

As described above, a QRA recommended a risk allowance of £6.5 million to cover capital expenditure (calculated at P(80) level). In addition, contingency at 15% is included in all capital and operational costs. This reflects unspecified risks and unforeseen outcomes over and above the quantified risk component described above.

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. These are described below:

- Implementation Fund – The funding grant requested from central government through the implementation fund is £69.1 million grant for capital expenditure under the preferred (Hybrid) option. This request would fall to £64.0 million under the benchmark (Medium CAZ D + Option 1) option.
- Clean Air Fund - The funding grant requested from central government through the Clean Air Fund is £44.4 million for capital expenditure under both options.
- 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 OBC-41 'Financial Report' in Appendix Q of this OBC.

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.

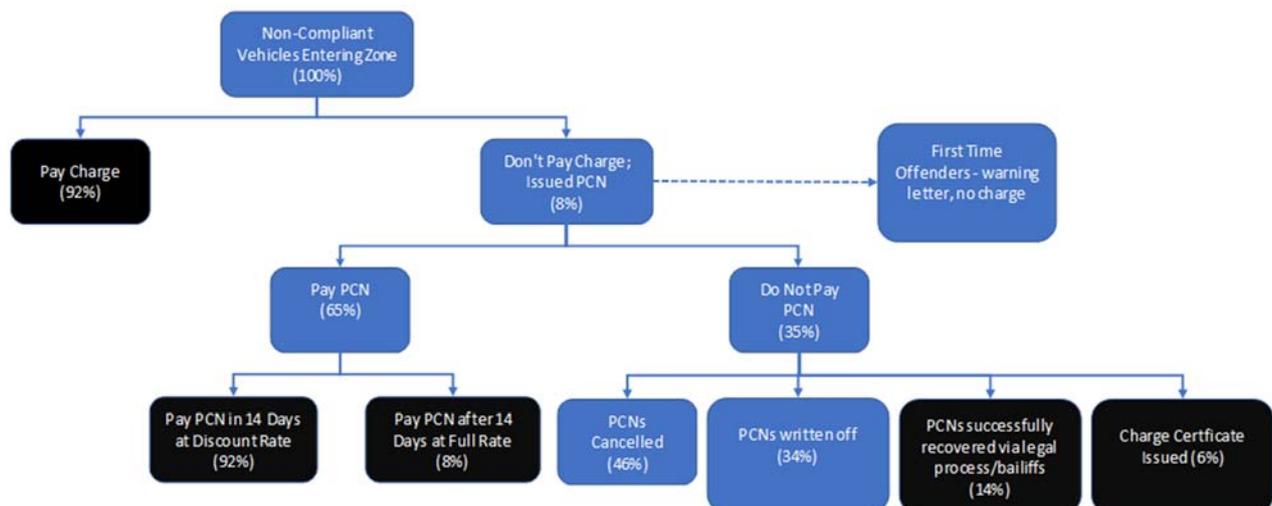
The financial model is underpinned by key assumptions, as listed below:

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- For the hybrid option, non-compliant buses, coaches, taxis, private hire vehicles, HGVs and LGVs are charged. Cars are not charged. All diesel cars are assumed to adhere to the small area diesel ban, meaning no additional fines are levied and no additional revenue is raised via this mechanism. This approach is aligned with assumptions adopted in the traffic modelling exercise and also reflects advice provided by JAQU (on the economic case), that fines imposed for any contravention of the diesel ban are set so high as to deter any prohibited entry.
- For the Medium CAZ D+ Option 1, non-compliant buses, coaches, taxis, private hire vehicles, HGVs, LGVs and cars are all charged.
- Operational phase begins in 2021, commencing until the primary objectives of the Clean Air Plan are achieved (i.e. compliance with the air quality limit values and objectives). The model assumes that the Clean Air Plan remains in operation until 2030 to ensure steady-state rather than temporary compliance. It should also be noted that the key conclusions of the financial analysis are not materially impacted by any reduction in operational period to an interim point, for example, if compliance may be achieved earlier (e.g. 2025). This is because revenue generation is skewed towards the earlier part of the appraisal period when more non-compliant vehicles exist. In comparison, costs are more equally distributed across the full period 2021-2030. Hence a shorter appraisal period will capture a higher proportion of operational revenue than incurred operational costs.
- The forecast number of non-compliant vehicles in 2021 is adopted from transport modelling outputs, with non-compliant vehicles forecasts for subsequent years based on interpolation also undertaken as part of transport modelling.
- Administration costs associated with reviewing and processing foreign vehicles are included within the model. However, any revenue generation is excluded on the basis that it is difficult to charge, fine and/or pursue payment for foreign vehicles. It is assumed that all operational activities associated with foreign vehicle enforcement would be outsourced to third parties, who typically operate on a 'no-win no-fee' basis. Based on ANPR data, 1.55% of all vehicles in the CAZ area are foreign vehicles; any revenue relating to these vehicles is ignored within the model, even though processing charges are captured.

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.

Figure 5.1: 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 declines to between £0.4 million and £3.9 million in 2030.

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. The key revenue generating assumptions adopted in the current analysis and shown in Figure 5.1 are listed below:

- 92% of vehicles entering the CAZ will pay the CAZ charge. This assumption is in line with evidence of contravention at Dartford Crossing and London’s Ultra Low Emission Zone.
- The residual 8% of vehicles are issued in contravention of the CAZ and are issued with a PCN.
- Based on BCC experience of bus lane enforcement, 65% of issued PCNs are paid. Of these:
 - 92% are paid within fourteen days and therefore pay a fine at the discount rate
 - 8% are paid after the fourteen day threshold and therefore pay a fine at the full rate
- BCC’s experience of bus lane enforcement also demonstrates that of the 35% of issued PCNs that are not paid:
 - 46% are cancelled, with no revenue generation;
 - 34% are written off, with no revenue generation;
 - 14% are successfully recovered via the legal process/bailiffs, resulting in recovery of PCN fine;
 - 6% are issued with a charge certificate, resulting in recovery of PCN fine (plus a 50% surcharge on initial PCN fine).

Table 5.2. CAZ revenue generation summary table

Variable	Total
Hybrid Option	
No. Non-Compliant Trips (000s)	3,882.90
No. Paying CAZ Charge (000s)	3,572.20
No. Contravening CAZ Charge (000s)	310.6
A) CAZ Charge Income (£'000s)	£88,778
No. Paying PCN (000s)	120.7
No. Paying After TPT (000's)	13
B) CAZ PCN Fine Income (£'000s)	£12,738
A + B) Total CAZ Income (£'000s)	£101,517
Medium CAZ D + Option 1	
No. Non-Compliant Trips (000s)	7,640.90
No. Paying CAZ Charge (000s)	7,029.60
No. Contravening CAZ Charge (000s)	611.3
A) CAZ Charge Income (£'000s)	£123,629

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Variable	Total
No. Paying PCN (000s)	304.3
No. Paying After TPT (000's)	32.8
B) CAZ PCN Fine Income (£'000s)	£29,094
A + B) Total CAZ Income (£'000s)	£152,723

5.3.3 Net operational position (before extended mitigations)

The current analysis indicates that cumulatively, revenue generation is predicted be more than operational costs, resulting in an estimated net operational surplus (before extended mitigations) of between £68.0 million and £114.8 million across the appraisal period (2019 prices). However, the scheme will generate a net operational deficit in the pre-implementation phase (as no revenue is forecast to materialise prior to 2021, but some costs are incurred¹), and in 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.

Table 5.3: Net Cash Flow Position: Current Analysis (£'000s)

Net Cash Flow Position (£'000s)	
Operational Item	Total
Hybrid Scheme	
Operating Revenue	101,517
OPEX	33,562
Net Operating Position	67,955
Medium CAZ D + Option 1	
Operating Revenue	152,723
OPEX	37,960
Net Operating Position	114,763

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 ongoing and long-term operational expenditure, particularly in years 2020 and 2028-2030 when the scheme is anticipated to face an operational deficit, as well as decommissioning.
- Creation of a sinking fund to cover any underestimation of operational costs. This sinking fund is currently set at £18 million under the preferred (hybrid) option.
- Schemes are being developed as part of a potential £50m fund to supplement the CAF measures, as well providing an opportunity to further invest in engagement with businesses and local residents affected by the CAZ and diesel ban, showing BCC's commitment to re-invest any revenue. For example, this funding source would support the following measures for which we are bidding to the CAF further:
 - An interest-free loan scheme to assist businesses to replace their vehicles
 - A scrappage grant (nonrepayable) scheme for diesel car drivers

¹ Operational expenditure is forecast in 2020 to cover monitoring and evaluation baseline, publicity and advertising and set-up of the health and wellbeing study.

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- 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.

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 – Current Analysis (£'000s)

Net Cash Flow Position (£'000s)	
Operational Item	Total
Hybrid Option	
Net Cashflow	67,955
Deficit Coverage	0
Contribution to Sinking Fund to Cover Underestimation of Costs	17,955
Reinvestment Reserve (residual monies)	50,000
Residual Cash Position	0

5.4 Sensitivity Testing

The key assumption around the operational position of the project relates to the number of non-compliant vehicles travelling within the CAZ and therefore required to pay the CAZ charge. As such, sensitivity tests have been undertaken to understand the impact of reducing the number of non-compliant vehicles in the CAZ area. The table below demonstrates that even if 50% of the core forecast of non-compliant vehicles travel in the CAZ area, the operational position for the scheme will continue to be generate a significant surplus.

Table 5.5: Sensitivity Test – Variation in Quantum of Non-Compliant Vehicles (£'000s)

Net Cash Flow Position (£'000s)	
Operational Item	Total
Hybrid Option	
100%	67,955
80%	50,226
70%	41,261
60%	32,409
50%	23,439

5.5 Summary

The financial analysis of the Hybrid and benchmark Medium CAZ D+ Option 1 options, demonstrates that the capital cost of implementation could amount to up to £113.5 million and £108.4 million respectively. BCC is requesting around 60% of this funding from the Implementation Fund to support capital expenditure. BCC is also requesting any potential 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 both Clean Air Plan option. However, there will be operational deficit in the year immediately before implementation and in the latter stages of the appraisal period. Further, there is outstanding risk that the CAZ income revenue stream identified in the operational analysis may not materialize. As a result, additional sensitivity testing is ongoing to understand the impact of variation in key assumptions on the operational position of the Clean Air Plan.

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

- Hybrid Option: £113.5 million in capital grant funding, of which:
 - £69.1 million from the Implementation Fund;
 - £44.4 million from the Clean Air Fund.
- Medium CAZ D + Option 1 (benchmark option): £108.4 million in capital grant funding, of which:
 - £64.0 million from the Implementation Fund;
 - £44.4 million from the Clean Air Fund.

The preferred option can achieve a net operational surplus up to c. £68.0 million (benchmark option can achieve up to c. £108.4 million). It is intended that any surplus can be used to:

- cover any initial or final operational deficits;
- cover underestimation of operational costs; and,
- support complementary air quality and transport projects in BCC, particularly in relation to expansion of CAF mitigation measures.