

Chapter 5: Financial Case

Bradford Clean Air Plan



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Notes

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Section 1: Introduction

1. This Financial Case reflects the updated position of the Council's Clean Air Plan proposals following the initial non-statutory consultation which was undertaken at the beginning of 2020, together with the detailed design development which has taken place since the publication of the Outline Business Case, together with the incorporation of actual tendered values for the supply of ANPR cameras and associated servers on the CCAZ infrastructure requirements.
2. This Financial Case sets out the budgetary requirements of the Council in terms of support required from government for the implementation of the Clean Air Plan measures, including:
 - Implementation of the Clean Air Zone, with support for these costs being requested by the **Clean Air Implementation Fund**;
 - The mitigation measures to assist those most impacted by the introduction of the Clean Air Zone, with these costs supported by the **Clean Air Fund**; and
 - Funding for complementary measures to ensure that the Clean Air Plan will achieve compliance with Clean Air Standards in the shortest possible time.
3. The Financial Case also confirms:
 - The rationale behind the implementation fund requirements;
 - The detailed financial make-up of the proposed support packages; and
 - The evidence base for the support package needs, linked to detailed distributional analysis.
4. Since the publication of the Outline Business Case the Council has undertaken significant cross-service work to develop a revised financial model which supports this business case. In developing this Full Business Case the Council have sought to minimise any areas of uncertainty by the preparation of detailed designs and as a result of this work the level of contingency and optimism bias applied has been significantly reduced. The approach to both risk and contingency applied to the elements of this Financial Case is described in detail in this Chapter.

Further detailed assessment that goes beyond the previous iterations of the financial business case have been undertaken to establish revised operational expenditure models as well as identify the costs of associated support measures and the estimated income from the Clean Air Zone. The revised Financial Model is appended to this Full Business Case in [Appendix 19](#).
5. Further work has also been undertaken on understanding the non-compliant fleet composition likely to be impacted by the Clean Air Zone based on a variety of sources including updated Strategic Transport Model, responses to the non-statutory consultation questions relating to upgrade choices and development of the Council's approach to

exemptions to the Clean Air Zone charge which have been modified as work on developing the Transport Act 2000, Charging Scheme Order has progressed.

6. The Council have also been working closely with JAQU on ensuring that appropriate allowances have been made in the Financial Model to account for the running costs of the Central CAZ service and use of the associated GOV.UK payment portal and 'Go Cardless' service.
7. Finally, the Financial Case describes the following elements of the Clean Air Plan proposals, including their associated interdependencies and risks:
 - Implementation (including costs incurred prior to FBC);
 - Business as Usual, including Monitoring and Evaluation; and
 - Arrangements for CAZ decommissioning.

Background

8. On the 8 February 2020 the Council's Executive approved the arrangements for public consultation on the initial Clean Air Plan proposals developed in the Outline Business Case. This non-statutory consultation on the introduction of a Category 'C' clean air zone, supported by a range of 'plus' measures and support grants was planned to be undertaken for an initial period of 6 weeks from mid-February. However, as a consequence of the Covid-19 pandemic and the national lock-down instruction which led to the cancellation of the local elections this consultation period was extended through to the end of March 2020. The geographic extents of the proposed Clean Air Zone covered an area encompassing the outer-ring road (A6177), along the Canal Road corridor to the north of the district and an area covering Shipley and the nearby World Heritage Site of Saltaire.
9. During the consultation, and prior to the national lockdown, a substantial programme of face-to-face events and drop-in events were held with impacted business sectors and local residents. Together with these events a dedicated website consultation portal was launched providing both detailed justification and descriptions of the proposals together with an online version of the consultation survey. The input from the consultation responses has helped the Council further refine its proposals for the Clean Air Plan support packages, sunset periods and exemptions to mitigation the anticipated impacts.
10. As a result of this non-statutory consultation no changes were made to the boundary of the proposed Clean Air Zone or its category.
11. Whilst further work on the Charging Scheme Order has continued since the completion of the non-statutory consultation it has not been possible to complete drafting to a suitable degree to allow commencement of the necessary statutory consultation. The Council are currently anticipating that it will be in a position to seek advertisement authority from its Executive in February 2021. Consequently, whilst the Council believe that they have been able to address many of the concerns which were raised by business sector

representatives in its revised Charging Scheme Order it is possible that when formal consultation takes place a challenge to these proposals is raised which may have an impact on the financial projections contained in this Financial Case and the anticipated 'go live' date of any CAZ. A summary of the range of exemptions to the CAZ charge which are currently expected to be required are described in [Appendix 26](#).

Section 2: Summary of the Funding Requirement

Introduction

12. This section of the Financial Case summarises the financial requirements of the Clean Air Plan proposals in relation to funding sought by the Council for implementation of the Clean Air Plan proposals.
13. Support from the **Implementation Fund** is required to:
 - Deliver the Clean Air Zone infrastructure, including cameras, signage, communications network infrastructure and interfaces with all required systems;
 - Deliver a sector awareness campaign to support the 'go live' date;
 - Deliver funding for the initial internal and external resources required to deliver every aspect of the scheme until the 'go live' date; and
 - Provide a risk post in the case of certain risks, outside of the Council's control, occur.
14. Support from the **Clean Air Fund** is required to:
 - Finance the identified 'support package' schemes that will enable emission reductions that will target meeting Air Quality standards in the shortest possible time.
 - Mitigate the worst impacts of the Clean Air Zone charge on affected sectors of the community; and
 - Facilitate the set up and mobilisation of the Support Package measures.
15. Table 1 shows the level of grant support requested by Bradford Council for the delivery of its Clean Air Plan broken down under the respective funding streams highlighted above. It should be noted that following approval of the Council's Outline Business Case JAQU allocated the following levels of funding to Bradford:
 - £2.9m capital funding from the Implementation Fund; and
 - £1.1m revenue funding from the Implementation Fund

The figures quoted in Table 1 are inclusive of these values and therefore the total funding requirement from the Implementation Fund shown needs to be adjusted to account for the £4m of funding already received.

Table 1: Summary of Funding Requirement - Bradford Clean Air Plan

Funding Source and Element Description	Financial Model Worksheet	Value (£)
Implementation Fund		
Cameras & Network Infrastructure	CAPEX - Camera & Comms	£3,159,548
Signage	CAPEX - Signing	£244,291
Staff Resources (prior to Go Live)*	CAZ Revenue Costs	£784,936
Project Management & Admin	OPEX - PM	£717,003
Communications & Marketing	CAPEX - Marketing & Comms	£375,000
Accommodation & Software Upgrade	CAPEX - Instation	£440,214
Risk	Risk	£270,000
Contingency (10%)		£572,099
SUB-TOTAL		£6,563,092
Clean Air Fund		
Buses	CAPEX - CAF Bid	£1,632,000
Taxi & Private Hire (grant)	CAPEX - CAF Bid	£10,042,200
Taxi Demonstration Project	CAPEX - CAF Bid	£480,000
HGVs (grant)	CAPEX - CAF Bid	£6,416,000
LGVs (grant)	CAPEX - CAF Bid	£11,505,000
Coaches (grant)	CAPEX - CAF Bid	£2,080,000
Grant Defrayment Costs	CAPEX - CAF Bid	£1,140,000
TOTAL		£33,295,200
Funding Requested from Implementation Fund & Clean Air Fund		£39,858,292
Notes:		
* Initial staffing resource costs have been included to cover salaries of staff engaged on implementation of the CCAZ infrastructure and operations (Year 0), together with the initial 6 month period following commencement of CAZ operations to ensure that the Council has sufficient revenue resources to operate the CCAZ until income from charges is sufficient to provide this revenue funding stream.		

Implementation Fund Summary

16. The total value of assistance required from the Implementation Fund for the delivery of Bradford's Clean Air Zone is £6,563,092. Following confirmation of the Outline Business Case total advance funding of £4m was provided to the Council in order that it was in a financially secure position from which to procure the critical ANPR infrastructure for this plan.

The additional funding requirement from the Implementation Fund to support Bradford's Clean Air Plan is £2.563m.

Clean Air Fund Summary

17. The calculation of grants and grant defrayment costs shown in the above table is detailed in [Appendix 22](#) of the Full Business Case.

The total funding requirement from the Clean Air Fund to support Bradford's Clean Air Plan is £33.295m

Section 3: The Clean Air Plan Financial Model

Introduction

18. A fully re-designed Financial Model has been prepared to support this Financial Case and is attached as [Appendix 19](#). This model provides a greater degree of resolution of costs for the CAPEX and OPEX requirements of the Clean Air Plan proposals and has been independently audited and verified by the Council's Section 151 Officer as being fit for purpose. This section of the Financial Case describes in detail the configuration and operation of the model, its input parameters and assumptions together with summarising its scenario modelling capabilities.

Overview

19. Modelling of the finances for the Bradford Clean Air Zone has been undertaken to analyse the potential financial performance of the project. The Clean Air Zone Framework states that local authorities should not set the level of charge as a revenue raising measure and 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 and these should aim to improve air quality and support the delivery of the ambitions of the Clean Air Plan. Whilst the Clean Air Zone Framework seeks to achieve a balance of charging regime appropriate to that required to run the CAZ it should be recognised that a prime reason for introducing a charge for the most polluting vehicles is to encourage fleet upgrades to newer less polluting vehicles. Therefore, in setting its pricing strategy for the Clean Air Zone the Council have been cognisant of these factors, together with the potential impact of a CAZ on the local economy and believes that the levels of charging proposed achieve the best balance between each of these drivers.
20. The Financial Model is underpinned by a range of key assumptions listed below –
- Bradford Council will be implementing a Class 'C' CAZ. This class of CAZ imposes charging on buses, coaches, taxis, private hire vehicles, HGV's and LGVs, private cars are unaffected.
 - Operational phase for the CAZ will begin in early 2022, continuing until the primary objectives of the Clean Air Plan have been achieved (i.e. compliance with the air quality limit values and objectives). The model assumes that the Clean Air Plan remains in operation until 2027 to ensure steady-state compliance rather than temporary compliance. Decommissioning of the CAZ will then commence late 2027 and into early 2028.
 - 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.

- As the CAZ will be introduced subsequent to the bus grant measures contained in the Clean Air Plan proposals it is assumed that 100% of local commercial buses within the CAZ boundary will be compliant. Local exemptions have been assumed for school buses and buses and coaches operating on a non-commercial basis (i.e. community buses/coaches).
- Locally based and licenced taxis will benefit from the taxi grant measures contained in the Clean Air Plan proposals and hence will be substantially compliant within the first three-year period. However, as hackney carriage and private hire vehicles operate across West Yorkshire it is assumed that a residual level of non-compliant vehicles will continue to access Bradford through the CAZ from adjoining districts through the assessment period, although as described previously income from this vehicle class has been excluded from the financial model for the purposes of this outline business case.

Financial Model Appraisal Methodology

21. The Financial Model is used to assess the financial viability of the Council’s Clean Air Zone proposal taking account of all known aspects of the design, implementation, operation and decommissioning of the CAZ. Figure 1 illustrates an overview of the operation of the Financial Model and how its outputs will be used to inform operational decisions relating to the Clean Air Zone.

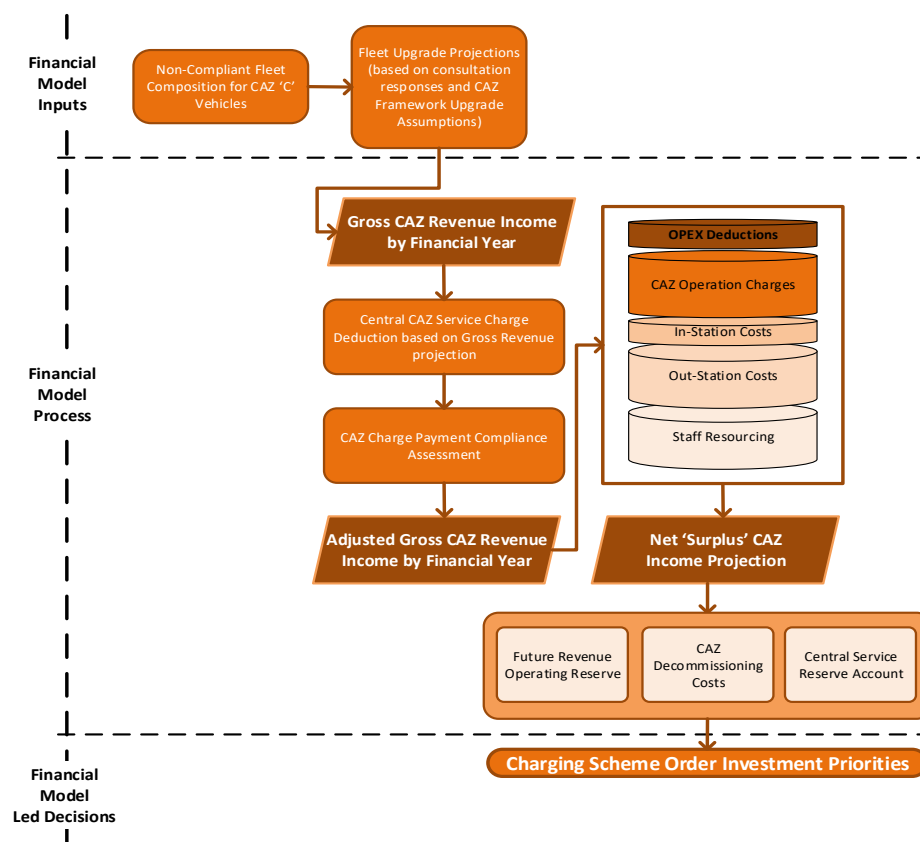


Figure 1: Financial Model Appraisal Overview

Model Description

22. The Financial Model comprises an Excel Workbook containing a number of inter-related worksheets and national dataset extracts as described below. For ease of reference a standard cell colouring configuration has been adopted throughout the Workbook as follows:

Table 2: Financial Model Cell Convention

Cell Format	Description
Calculation	Calculation cells show outputs from associated formula based on user inputs.
<i>Explanatory</i>	Explanatory cells are used to describe the purpose of Tables within the model or the inter-relationship between worksheets.
User Input	User Input cells are where user intervention is required to enter data directly into the model upon which calculations are performed.
Output	Output cells are used to highlight details from the Financial Model which are carried forward into the output summaries contained in this Financial Case.

23. Within the Financial Model the following Worksheets can be found:

Table 3: Financial Model Composition

Worksheet Name	Contents
CAZ Financial Model Outputs	This worksheet merges together the CAPEX and OPEX costs with projected income from the Financial Model computation to show the net income expected of the CCAZ. This section also contains the tables reproduced in this Financial Case of the outputted scenario modelling.
CAZ Revenue Summary Model	<p>This worksheet is used to assess the viability of the Clean Air Zone proposal by examining how income from the Clean Air Zone Charge can be used to offset the OPEX costs which the Council will incur to operate a Clean Air Zone.</p> <p>Where surplus funding after all OPEX and central government defrayments have been subtracted from the income projection the model examines how funding can be allocated to ensure future years' viability of the scheme (via a Future Revenue Operating Reserve) and identifies potential capital</p>

Worksheet Name	Contents
	investment potential for the Council in further air quality improvement measures as identified in the Charging Scheme Order.
CAZ Revenue Income	This worksheet shows the expected non-compliant fleet levels for the period 2022-2028 together with the associated projected revenue income from CAZ adjusted to allow for various factors including ANPR camera read accuracy, a proportion of charges proceeding to Penalty Charge Notice stage and calculation of elements of OPEX charges including card payment processing, enforcement charges and the Central CAZ service charge.
CAPEX – Camera & Network Communications	Summary of CAPEX costs for the Out-station network, In-Station System, Project Management and Risk Register Costs.
CAPEX – Signing	Details of the costs associated with the delivery of the required CAZ signage (Entry Signs, Exit Signs, Advance Warning Signs, Camera Enforcement Signs etc).
CAPEX – Marketing & Comms	Summary of the anticipated costs of the public engagement and awareness raising campaigns prior to the CAZ 'go-live' date.
CAPEX – In-Station	Summary of the CAPEX expenditure required to facilitate building and accommodation modifications for the CCAZ team together with internal IT requirements and equipment provision.
CAF Bid Summary	Summary sheet of the associated CAF bid (see Appendix 22) used to calculate the grant defrayment costs (based on activity projections).
3a OPEX – CCAZ Operations	This worksheet shows the projected CAZ operational costs as identified at Full Business Case stage. These costs, calculated on an annual basis throughout the life of the CAZ include assessment of sign maintenance, software licencing, M&E costs together with the calculation of depreciation on the capitalised assets of the CAZ.

Worksheet Name	Contents
3b – OPEX In-Station Costs	This worksheet considers the financial costs of associated with the operation and maintenance of the In-station CAZ infrastructure including calculation of the dedicated energy usage and IT replacement costs throughout the duration of the CAZ.
3c – OPEX Out-Station Costs	This worksheet contains details of the financial costs associated with the operation and maintenance of the out-station (on site) CAZ infrastructure including the projected energy costs (based on un-metered supply charges) and routine maintenance activities.
3d - OPEX Resourcing	This worksheet shows the initial and on-going (Business as Usual) revenue implications for the staff resources required to implement and deliver the CAZ and supporting measures covering the implementation, split by resource area. (excluding the staff resources required for grant defrayment which are covered in the CAF Bid Summary worksheet.
Risk	This worksheet contains a summary of the current identified implementation phase financial risks together with the calculation of the additional risk layer allowance associated with them.
Construction Prices Index	Extract of the latest version of the ONS Construction Prices Index dataset. Used for adjusting construction unit costs.
Background Data	Council AP&T pay-grade structure used for calculation of staff revenue costs.

Calculation Methodology

24. This section of the Financial Case outlines the methodology adopted in each worksheet of the Financial Model to determine the CAPEX and OPEX costs associated with the operation of the Category 'C' Clean Air Zone.

CAZ Revenue Income

25. The CAZ revenue worksheet is used to calculate the potential cohort of non-compliant vehicles across all CAZ Category 'C' classes and their associated revenue income (assuming 100% payment of the charge) based on the 2022 Transport Model composition

figures. A series of factors are applied to these base traffic volume figures through subsequent tables to take account of:

- Levels of vehicles operating under both national and local exemptions who whilst not compliant in terms of their emission standards would not be subject to payment of the CAZ charge;
 - The impacts of the proposed exemptions and sun-set periods defined in the Charging Scheme Order;
 - The impact of fleet renewals on the numbers of non-compliant vehicles over the period 2023-2028;
 - An assessment of the level of CAZ activity based on the day of the week (i.e. HGV movements will be less on a weekend than during the working week);
26. Revenue income for subsequent years beyond the 'go live' date has been adjusted to reflect fleet renewals to compliant vehicles. To calculate the revenue for subsequent years, the figures generated for 2022 have been used as a baseline for the level of compliance expected for the vehicles. Natural upgrade assumptions, based upon the anticipated lifetime of a vehicle, have been applied to calculate compliance in the years 2023 – 2027 as well as the revenue generated. The revenue has been calculated up to 2027 as it is anticipated that the CAZ will reach NOx compliance levels by 2026, and therefore the removal of the CAZ will occur by 2028.
27. To reflect the actual revenues expected to be generated by the CCAZ an assumed reading accuracy rate of 80% has been applied to all movements (i.e. the ANPR cameras will capture an image which is of sufficient quality to identify the VRM of the vehicle entering the zone).
28. It is anticipated that whilst the majority of vehicles entering the CCAZ will pay the CAZ charge within the allowed payment window it is anticipated that a proportion of the total volume of charges payable will proceed to the issue of a Penalty Charge Notice (PCN) for non-payment. A rate of 8% of volumes has been allowed in the Financial Model to reflect this situation.
29. Once a CAZ charge becomes subject to a PCN a further income becomes payable in addition to the CAZ charge. On the basis of 8% of the total volume of CAZ Charges being subject to the PCN process the Financial Model also assumes that a certain proportion of each of these PCNs will be payable at each of the defined periods as set out in the Charging Scheme Order. These proportions and charges are set out in Table 4.

Table 4: PCN Charges and Payment Assumptions

Days After CCAZ Payment Window	PCN Charge	Proportion of PCNs settled at this stage
0 – 14 days	£60 + CAZ Charge	82%
15 – 28 days	£120 + CAZ Charge	12%
29 days +	£160 + CAZ Charge	4%
Note: The above allowances assume also that 2% of all PCN Charges will be un-recoverable and therefore will need to be written-off by the Council. This assumption is based on the potential for non-UK vehicles being captured in the CAZ or fraudulent VRMs being recorded.		

30. A further exercise is then undertaken in relation to the additional costs to be borne by the Council for issuing and processing each PCN comprising the following –
- Payment charges for the PCN and CAZ charge when paid by credit card;
 - Charges for use of the DVLA KADOE service to provide registered keeper information for VRMs subject to charge; and
 - Costs of printed stationary, postage and legal services support.

These allowances are set out in the CAZ Charge / PCN / Enforcement Payments table within the Financial Model.

Finally, the operation of the CCAZ will be reliant upon the use of government's Central Clean Air Zone Service. Based upon the final advice from JAQU in relation to the mechanism for funding the central service a charge of £2 per vehicle has been deducted from each CAZ fee which is paid within the allowable payment window¹. Where vehicles fail to pay the CAZ charge within this window the responsibility for chasing payment reverts to the Council. In this scenario the model does not allow for the payment of the central service charge and the full value of the CAZ charge plus the PCN value are recoverable by the Council.

Sensitivity Analysis

31. For the purpose of the Full Business Case assessment a sensitivity analysis on two scenarios is then undertaken within this worksheet to reflect the following –
- An over-estimation of the non-compliant fleet composition representing a 40% reduction in non-compliant vehicles entering the CAZ; and

¹ Payment of the CAZ charge is permitted up to 7 days before and 7 days after the journey into the CAZ.

- An under-estimation of the non-compliant fleet by 20% represented by an increase in non-compliant vehicles each year.
32. This variation on input revenues is then assessed against the levels of PCN transactions and the resulting fee payable to the Central CAZ service. The summary of the projected revenue income is presented in both weekly and annualised tables and carried through to the **CAZ Revenue Costs** tab for assessment against payment of the projected OPEX expenditure in the CAZ Financial Model Outputs worksheet.

CAZ Revenue Summary Model

33. This worksheet combines the outputs from the Financial Model elements into an overall assessment of the financial viability of the CAZ operation arrangement. The main analysis is performed on the Baseline scenario level with the outputs of the sensitivity analysis calculation then shown in summary form.
34. Income projections are transferred to this worksheet directly without modification. However, expenditure lines are adjusted to account for inflation over the life of the Clean Air Zone. The levels of adjustment applied for this purpose are shown in the Inflation Assumption input line.
35. The residual funding arising from the revenues minus the OPEX costs is then assessed in line with the Finance Model operating arrangement against three initial defrayments:
- Deposit into a Future Revenue Operating Account – this account would be used to off-set any future years where the OPEX costs exceed the income projection. Where funds are transferred into this account the value of transfer is recorded as a positive (+) value and where funds are transferred out of this account into the general CAZ operational budget these values are recorded as negative (-);
 - The cost of decommissioning the CAZ once sustained compliance has been achieved will lie with the Council and therefore one of the first priority defrayments which will be made against all revenue surpluses will be deposit of a sum of money sufficient to allow decommissioning activities to be funded by the Council at a future year; and
 - Finally, a value of 1.5% of all gross revenues collected in each financial year will be deposited in a general suspense account and held by the Council until government determines if any final reconciliation payment is required from Local Authorities on 31 March 2027² to recover its capped maximum charge of £77m.
36. After the initial defrayment calculation any further residual reserves are identified in the assessment as Charging Scheme Order Investment Priorities. This funding will be applied by the Council in accordance with its published investment priorities in the Charging Scheme Order to additional interventions in air quality improvements which will

² This arrangement is based on the latest guidance issued by JAQU on the arrangements for financing the central service. The final confirmed arrangements are still being considered by HM Treasury and therefore the figures allowed for in the Financial Model assessment may vary from those finally levied on the Council.

be targeted to ensure the Council achieves compliance with EU Limit Values in the shortest possible time.

37. Where the Financial Model indicates that a CAZ solution is financially unviable due to OPEX costs and the central service suspense account obligations exceeding projected income the worksheet displays 'Unsustainable' in the Charging Scheme Order Investment Priorities section of the assessment.

CAPEX - ANPR Cameras & Communications

38. The methodology of calculation of the ANPR and communications infrastructure elements of the Clean Air Zone is based upon a range of data sources. As described previously following approval of the Outline Business Case detailed designs of each camera site location both on the perimeter and internally within the Clean Air Zone were prepared. These designs were based on site surveys rather than previous desktop assessment activities and therefore are considered to be robust in the way they reflect the requirements for infrastructure within Bradford.
39. A range of communications networks will be utilised to service the ANPR camera infrastructure including-
- The Council's existing fibre-optic network;
 - Dedicated microwave network points linked to key fibre-optic network nodes; or
 - Deployment of new fibre-optic hubs and spurs.

In developing the communications network backbone to the system the Council have sought wherever possible to utilise its existing infrastructure assets in order to minimise the overall cost of the implementation of the Clean Air Zone. Utilisation of a private fibre-optic network (which is predominantly already in existence) has significant revenue advantages for the operation of the CAZ in limiting the reliance on 3G/4G communications.

40. Camera locations have been reviewed by the Council's CCTV Manager to ensure that appropriate fields of vision can be achieved through the use of existing street lighting, traffic signal and new pole infrastructure installations.

Civil Engineering Works Rates

41. The costs of installation of the communications network are calculated on this worksheet for only those sites where new fibre-optic installations are required and the rates used for calculation purposes are based on the Council's General Highway Works contract (2016-2020), To reflect the potential for these rates to be unrealistic in the implementation year

an uplift based on the Construction Prices Index dataset produced by the Office of National Statistics has been applied to rates between March 2016 and June 2020³.

Out-Station Equipment

42. Rates for communications network equipment (including fibre optic cable) have been taken from the Council's current CCTV Infrastructure Contract which was awarded in 2020. The rates for equipment quoted are therefore considered to be robust and based on a competitively procured exercise albeit not a dedicated procurement exercise specifically for the Clean Air Zone infrastructure.
43. The costs included in the model for the ANPR cameras, associated servers and software licencing costs are the actual costs stated by the selected contractor (Videalert Limited) following the recently completed tender exercise for these elements of the project. This contract provides full consideration of the future years licencing costs for up to 7 years post implementation together with providing fixed costs for the provision of replacement ANPR cameras throughout this period. No allowance has therefore been made within the model for increasing costs over the maximum 7-year period in which the CAZ is anticipated to be operational.

In-Station Equipment

44. In a similar way to the calculation of the out-station costs the rates for equipment to be used for the in-station installation have been taken from the CCTV Infrastructure Contract. It is proposed that the in-station for the Clean Air Zone will be based in the Council's CCTV control centre located in Bradford city centre in Britannia House. Data servers will be located at the Council's data centre which is remote from this building.

CAPEX - CAZ Signing

45. The Signing calculation worksheet has been developed to reflect the costs associated with the manufacture and installation of a range of signs associated with the Clean Air Zone including –
- Entry & Exit signs;
 - Camera enforcement signs;
 - Advance warning signs;
 - 'Green' direction signs modifications advising of CAZ ahead;
 - 'White' direction signs modifications advising of CAZ ahead;
 - Other information and regulatory signs.
46. Signs sizes representing a range of 'x'-heights have been assessed for each location and the aggregation of numbers transferred to this workbook. Rates for the manufacture of the signs are based on the Council's Sign Shop rates as this is the principal source of delivery of the CAZ signs proposed by the Council. The DfT have provided authorisation (21

³ The Construction Prices index data currently only includes information up to and including June 2020.

September 2020) for the sign designs which are proposed for the Clean Air Zone. Production of these signs will be undertaken using the Council's own sign shop facility during Q2, 2021/22 and will be installed during Q3, 2021/22.

47. Rates for sign poles have been obtained from the Council's current supply contract and incorporated in the workbook based on the following calculation approach which was undertaken outside of the Financial Model. The size of poles is determined by two factors, (a) the size of the sign and (b) the level of exposure on site to wind loading. Pole sizes have been calculated using a dedicated calculation software package based on these two factors.
48. Three types of sign pole have been allowed for in the design – 100mm diameter circular section, 100mm and 50mm square section poles. The larger entry/exit signs are mounted on 100mm square poles whilst the advanced direction signs (ADS) which advise of Bradford's Clean Air Zone are mounted on 100mm diameter poles.
49. Installation of all signs (excluding those on the Strategic Road Network (SRN)) will be undertaken by the Council's Street Lighting Unit. Funding for the contract management for this activity is included in the Implementation Fund bid. However, it should be noted that a limited number of advance notification signs (and associated diversionary signs) will be required within the Leeds City Council administrative boundary. Discussions on the specific arrangements for the installation of these signs will take place during the pre-planning stages of implementation in Q4, 2020/21.
50. As installation of new poles will require a street works permit an allowance for an appropriate short-duration works permit has been calculated together with provision for appropriate temporary traffic management whilst the sign is installed.

Strategic Road Network Signage

51. Drivers approaching the CAZ require adequate warning to enable them to make a decision whether to enter the CAZ or follow a diversionary route. Since the publication of the Outline Business Case the Council have been in discussions with Highways England to determine the cost and delivery mechanism for advance warning signs on the SRN.
52. The M606 motorway extends from junction 26 of the M62 northwards to Bradford's outer ring road (A6177). The M606 terminates at the outer ring road, which is the boundary of the Bradford Clean Air Zone at junction 3. Therefore, to simplify the signing requirement on the SRN the design of the Clean Air Zone boundary at Staygate roundabout (junction 3) has been amended to allow drivers to divert away from the Clean Air Zone by remaining on Staygate Roundabout to re-join the M606 motorway southbound. This approach avoids the need for any additional signing on the SRN and Highways England have confirmed that they will fund modification to the existing signage on the M606 through their own budgets allocated for supporting the introductions of CAZs.
53. As a result of the discussions with Highways England it has been confirmed that the modification of existing SRN signage to provide advance warning of the Bradford Clean

Air Zone will be undertaken by Highways England on behalf of the Council using their dedicated budgets for the support of Clean Air Zones nationally.

CAPEX - Marketing and Communications Strategy

54. The Council considers that the national CAZ signage is not self-explanatory, in order for it to be effective there is a requirement for the National Framework and the meaning of the signs to be promoted. The arrangements for a government backed national awareness campaign has been discussed with JAQU as its launch has been impacted by a number of Wave 1 and Wave 2 authorities now suspending, or removing, their requirement to have a Clean Air Zone. The delay in this national campaign will place an additional burden on the Council to raise awareness of Bradford CAZ and its standards both locally, regionally and nationally.
55. The Council have therefore revisited its Marketing and Communications arrangements submitted in the Outline Business Case to take account of this changing situation. In addition to retaining the services of a specialist communications consultant the scope and extent of engagement pathways has been totally revisited in the financial model.

Clean Air Fund Bid

56. The detailed calculation methodology for the elements of funding through the Clean Air Fund is set out in [Appendix 22](#) of this Full Business Case. The outputs of the calculation of Clean Air Funding have simply been transposed into the Financial Model to provide a comprehensive appraisal of all financial aspects of the project.
57. The cost of grant defrayment is computed within the model based on expected transaction volumes per employee processing grants at various stages of the grant defrayment process. The high level activity assessment table is used to calculate the size of grant team which will be required for the Bradford CAZ and converted to a revenue charge via the **3d OPEX – Resourcing** worksheet. Specifically, the funding for the following roles are attributed to this cost.
- Grant Support Programme Manager;
 - Grant Assessor;
 - Compliance Officer; and
 - Customer Service Assistant.

CAPEX – In Station

58. The calculations of CAPEX expenditure on CAZ operations are based on accounting for such items as:
- Building accommodation modification for the CAZ team and 1:1 / PACE interview rooms for officers dealing with appeals to CAZ charges;
 - Office furniture; and
 - IT and telephony equipment for CAZ staff.

59. Accommodation space for the CAZ team has been identified by the Council's Facilities Management service within the core estate building of Britannia House. However, before this space can be made available for the CAZ team a range of modification works are required to both the building fabric and the internal IT network systems to enable feeds from the ANPR servers located elsewhere to the proposed accommodation location. In line with Council policies funding for any building or accommodation modifications must be fully met by the service for which the modification is being undertaken. The anticipated cost of these works have been obtained from both Facilities Management and the Council's IT service and have been included in the financial model's calculation.

OPEX – CCAZ Operations

60. OPEX expenditure calculations for CAZ operations have been included in a separate worksheet analysis. Again these items of expenditure include:
- Sign Maintenance;
 - Software licensing;
 - Monitoring & Evaluation activities; and
 - Depreciation.
61. Annual maintenance of CAZ signage has been calculated based on 607 signs identified in the Financial Model.
62. The Monitoring & Evaluation of the CAZ will be an essential element of the reporting to JAQU on the performance of the CAZ in achieving compliance and will rely on maintaining an on-going asset of air quality sensors and traffic counts within and around the CAZ zone.
63. As all assets used to deliver the CAZ will be capitalised the annual depreciation calculation for these assets is included in this worksheet. As assets used for the CAZ will have differing life expectancies ranging from 3 to 7 years the depreciation assessment has therefore been carried out on each asset class based on a straight line interpolation of an equivalent duration to the manufacturer's recommended service life. Certain assets have been specifically excluded from the depreciation calculation including Hard Disk Drives, fibre optic cable, traffic signs and other IT consumables. Included assets (and their anticipated lifespan) are:
- ANPR Cameras – 5 years;
 - Network switches – 5 years;
 - Servers – 5 years;
 - Telephony devices - 5 years; and
 - Laptops / Desktops – 5 years.
64. Software licensing and support costs have been included in the OPEX calculation for the following systems:

- ANPR camera engine;
- Bradford.gov.uk (eforms); and
- 3Sixty back office system;

OPEX – In-Station Costs

65. The calculation of the expected OPEX in-station budget comprises consideration of a range of costs including:
- Office accommodation;
 - ANPR Camera servers and associated network infrastructure including refresh costs at manufacturer recommended periods;
 - Software licensing and support charges; and
 - Dedicated utility costs (electricity).
66. Office accommodation costs have been calculated on a cost per desk charge provided by the Council's Facilities Management Service. This basic charge of £1,260/desk/year covers supply of office space, general office utility charges, welfare facilities and personal storage provision. As the Council have adopted a mobile and flexible working regime the allocation of desks to CAP staffing is based on a 7:10 desk ratio (i.e. 7 desks for every 10 employees).
67. Energy costs associated with the dedicated servers, desktop PCs and in-station network infrastructure have been calculated on the basis of the Council's current energy supply contract. This contract provides two charging levels £0.08/kWh for energy used between 00:00 and 07:00 and £0.10/kWh for energy used outside of this period. For simplicity of calculation and average unit rate cost of £0.0942/kWh has been applied to the energy calculation for the cost of energy used per year.
68. Operation of the CAZ relies heavily on IT infrastructure which will be in constant use. Based on the Council's experience of operating its current CCTV infrastructure elements of IT infrastructure which are service critical will be replaced in accordance with the manufacturer's recommendations. As the CAZ could be operational from 2022 to 2027 the expected replacement/refresh programme for these items will include:
- ANPR servers – replaced every 5 years;
 - Hard Disk Drives – replaced every 3 years; and
 - User laptop / desktops – replaced every 3 years.

Based on a commencement date of early 2022 replacement of these devices has been included in the OPEX calculation for 2023 (3-year replacement cycle) and 2026 (5-year replacement cycle).

69. The Council propose to externalise enforcement of the CAZ for non-UK registered vehicles to a third-party organisation. These organisations work on a 'no win-no fee' basis and therefore it is difficult to identify any OPEX costs associated with this function as part

of the Full Business Case assessment. Therefore, whilst the Council recognise that there is potentially an OPEX cost which is not accounted for in its Financial Model allowing for these costs is only possible via the Risk pot funding identified in the Financial Model.

OPEX - Out-Station Costs

70. The OPEX costs for the out-station ANPR network have been calculated based on the Council's current maintenance support arrangements for its CCTV and ANPR networks. Specific elements covered in the Out-Station costs include:
- Emergency maintenance allowance;
 - Routine camera maintenance / cleaning;
 - Communications backbone maintenance costs; and
 - Energy costs.
71. As the additional CAZ ANPR camera network is deployed a risk has been highlighted that cameras may be prone to increased vandalism during the initial operating periods. Recent experience in Bradford has seen such vandalism being disproportionate in nature to the camera installation itself leading to additional repair costs over and above the camera itself. The Out-Station allowance for emergency maintenance has been calculated based on a potential 5% of sites located in known areas of the district being subject to vandalism. The unit rate for these works is based on the full replacement of the ANPR camera alone.
72. Routine camera cleaning will be required throughout the duration of the CAZ operation on a quarterly basis to ensure effective image capture. With 376 cameras deployed throughout the CAZ it is anticipated that a full CAZ camera clean will take approximately 30 days to complete for 1 FTE. An hourly rate of £12.11 for cleaning has been used to calculate the annual charge based on 4 cleans per year, a total of 900 hours of work.
73. Maintenance of the fibre optic network (including network switches and associated infrastructure has been estimated to be require a budget of 2% of the outstation delivery budget per year.
74. The cost of energy usage by the CAZ system has been calculated based on an energy unit rate cost of £0.12/kWh based on the Council's un-metered street lighting energy supply charge.

OPEX - Resourcing

75. The revenue cost of the proposed staffing structure outlined in the Commercial Case is detailed in this section of the Financial Model. Since the original estimation provided in the Outline Business Case work has been undertaken on preparing job profiles for the roles identified and taking these through the Council's job grading process. The grades quoted therefore in this section of the Financial Model have, in large, been confirmed as final.

76. To reflect the true revenue cost of these roles to the Council an allowance has been made within the calculation to reflect both the National Insurance contributions and superannuation payments for these roles using a basic percentage uplift on the salary value of 9.95% for National Insurance and 17.78% for superannuation.
77. As each pay grade has a number of spinal column increments within its pay scale the model allows for annual progression⁴ within the pay grade each year up to the maximum pay of each grade (as illustrated in the SCP column for each year). All roles are spot graded and therefore progression within the wider pay grade structure is not possible.
78. The resource workbook also recognises that not all roles will be required from the start of the implementation phase and therefore in the calculation of resource costs in the first two years of the project permits a pro-rata allowance to be applied to reflect how many months pay will occur within that financial year. Therefore, if a pro-rata allowance of 5 has been entered in the 'Pro-rata allowance' column the pay calculation will be reduced to 5/12^{ths} for that year.

OPEX – Project Management

79. This worksheet tabulates the anticipated Project Management costs for the Clean Air Plan project through to the 'go live' date, including:
- Overseeing the installation of the CAZ ANPR, signing and communications infrastructure;
 - Establishing the Council's Monitoring and Evaluation arrangements;
 - Monthly programme boards of the Clean Air Plan team;
 - Establishment of internal finance arrangements for the CAZ revenue receipts, defrayment accounts and configuration of internal financial systems;
 - Development of web portals supporting the operation of the CAZ and wider CAP communication and engagement; and
 - Technical management of third-party suppliers for the installation, commissioning and configuration of IT hardware and software to operate the CAZ.

Risk

80. This worksheet contains a summary of all the currently identified implementation phase risks which have financial impacts on the project. The financial consequence of each risk is calculated based on information contained in the CAPEX worksheets to define its Risk/Opportunity Impact value (expressed in kGBP). The probability of each risk then being realised is assessed via a RAG assessment. The outcome of this assessment produces a Weighted Risk / Opportunity Value, again expressed in kGBP. The total value

⁴ Following the initial 6-month probationary period within each role an automatic incremental pay award is made but each subsequent progression will only occur on 1 April each financial year thereafter.

of all Weighted Risk / Opportunity Values is them summated and transferred to the CAZ Financial Model Outputs worksheet.

Section 4: CAPEX and OPEX Expenditure Assessment

Introduction

81. This section of the Financial Case describes the anticipated levels of both capital and revenue expenditure necessary to deliver the implementation and operation of the Clean Air Zone.

Capital Expenditure (CAPEX)

82. The CAPEX costs for the Clean Air Plan include design and all other ancillary work associated with the following elements of implementation:
- Signage (on local road network) including new poles where required;
 - ANPR cameras;
 - ANPR software and back office system upgrades;
 - M&E Assessment tool purchases;
 - Camera communications network infrastructure (all required cabinets, mounting posts, ducting and cabling for camera installation as well as ducting, cabling and connection of the data communications network);
 - Complete system testing and site acceptance testing (SAT) integrating CAZ systems with existing Council systems and the central Government service;
 - Provision of office accommodation including fitting out of the premises, fixtures, fittings, furnishing and ancillary items;
 - Design peer review and project management for systems integration and operational planning;
 - Project management of the delivery phase; and
 - Delivery of a local, regional and national awareness campaign.
83. The approach adopted by the Council towards delivery of the CAZ is heavily dependent upon the use of its own internal resources for delivery. This has the advantage of reducing the number and complexity of procurements which are required whilst ensuring that cost certainty can be included in this Financial Case whilst simultaneously reducing the period of time between the OBC and FBC development. Appropriate pre-programming of these resources has already taken place to confirm that resources are available from the commencement date of the project through to the completion of the installation phase.
84. The summary of the calculation of the CAPEX element of the Clean Air Plan assessment is shown in Table 1.

Operational Expenditure (OPEX)

85. Operational Expenditure (OPEX) will be incurred by the Council across a range of activities, throughout the operational life of the CAZ and an evaluation of these has been included in the Financial Model. Examples of identified OPEX expenditure include:
- Staff resource costs;
 - Maintenance costs for cameras, signs and on-street infrastructure;
 - Software licensing and support costs;
 - Telecommunications and fibre-network maintenance;
 - Electricity charges for operation of the CAZ infrastructure (both in-station and out-station);
 - Charges for the Central CAZ Service (payable to central government);
 - Services of recovery agency services for non-UK vehicles entering the CAZ;
 - Staffing operation and enforcement of the CAZ;
 - Maintenance of the CAZ infrastructure and supporting dedicated IT infrastructure;
 - Software licencing costs;
 - Telecommunications and fibre network maintenance;
 - Electricity for on-street and off-street assets (ANRP cameras);
 - Charges for the Central CAZ service (payable to central government);
 - Council overheads on staff costs (e.g. accommodation); and
 - Other charges (including additional PCN administration processes, ongoing monitoring and evaluation etc).
86. Table 5 below summarises the outputs from the Financial Model in relation to projected OPEX costs for the Clean Air Zone over its operational period.

Table 5: OPEX Expenditure Summary

CAZ OPEX Cost Summary	2020	2021*	2022	2023	2024	2025	2026	2027
- Resourcing (less CAF resourcing)		£784,936	£1,307,191	£1,341,875	£1,362,942	£1,371,262	£1,379,710	£1,379,710
- Sign Maintenance			£20,499	£21,277	£22,107	£22,992	£23,612	£24,061
- M&E		£80,000	£130,000	£50,000	£130,000	£50,000	£50,000	£50,000
- Software Licencing		£235,000	£235,000	£235,000	£235,000	£235,000	£235,000	£235,000
- CAZ Costs		£334,522	£389,867	£322,861	£413,229	£344,275	£356,046	£364,310
- Out-Station		£95,563	£100,341	£104,154	£108,216	£68,263	£70,106	£71,438
- In-Station		£25,069	£25,437	£26,331	£52,562	£89,475	£317,975	£54,263
- Depreciation			£345,958	£345,958	£345,958	£345,958	£345,958	£345,958
Total OPEX	£0	£1,555,091	£2,554,292	£2,447,456	£2,670,014	£2,527,225	£2,778,408	£2,524,740
TOTAL		£1,077,208	£7,974,904	£8,081,740	£2,782,150	£731,589	£480,406	£734,074

* Assumes revenue costs calculated on a pro-rata basis for operation of the CAZ for Q4,2020/21 only based upon the projected 'go live' date of 4 January 2022.

Section 5: CAZ Income and Revenue

Introduction

87. Revenue to support the operation and maintenance of Charging CAZ schemes is based on charging an entry fee for non-compliant vehicles to enter the charging zone (i.e. vehicles which fail to meet the required emission standards). Therefore, the expected revenue forecast for the Bradford CAZ is based on charges for non-compliant vehicles entering the CAZ, which for the purposes of this Financial Case is based on outputs from the latest iteration of our Strategic Transport Model.
88. CAZ entry charges are set at different levels for different vehicle types to reflect the contribution of each vehicle classification to air pollution and to ensure that vehicles with the worst emissions are incentivised to comply with the minimum standard. The daily charge proposed for Bradford's CCAZ were initially developed based on the responses to the stated preference survey, and subsequently re-consulted upon as part of our non-statutory consultation. The proposed levels of charge are currently set at:
- Buses, coaches - **£50 / day**
 - Taxis - **£12.50 / day**
 - HGV - **£50 / day**
 - LGV - **£9 / day**

The daily charge will be levied on non-compliant vehicles to permit unlimited access to the clean air zone within the licenced 24-hour period. Information extracted from the transport model is based on output flows, not unique vehicles and therefore to ensure that a robust Financial Model has been prepared an assessment of unique vehicle trips operating in the zone has been undertaken by applying appropriate factors to the vehicle trips output from the transport model. **Error! Reference source not found.** shows the anticipated number of trips, by vehicle classification, which are expected through the Bradford CAZ.

Table 6: Non-Compliant Fleet Composition

Vehicle Class	Daily Non-Compliant Vehicles (2022)	Daily Non-Compliant Vehicles (2023)	Daily Non-Compliant Vehicles (2024)	Daily Non-Compliant Vehicles (2025)	Daily Non-Compliant Vehicles (2026)	Daily Non-Compliant Vehicles (2027)	Daily Non-Compliant Vehicles (2028)
LGV	2,125	2,125	1,138	1,147	1,147	1,147	1,147
HGV	373	373	185	0	0	0	0
Buses/Coaches	0	0	0	0	0	0	0
T/PH Vehicles	0	0	0	0	0	0	0

89. The number of non-compliant vehicles entering the CAZ is expected to reduce over time as older, non-compliant vehicles are exchanged at the normal replacement rate with compliant vehicles. As a result, the revenues collected are expected to decrease. The

revenue analysis was conducted from the opening year (2022) and factors applied to each subsequent year to account for this decrease. This assessment has further been refined from the linear upgrade approach adopted in the Outline Business Case to a more representative 'step change' model which reflects the responses about vehicle upgrade decisions taken from our consultation responses.

- 90. The above traffic estimates do not include any provision for exemptions, discounts and/or sunset periods at this point in time i.e. it is assumed that all non-compliant vehicles within a vehicle class are subject to the full charge from day one though based on further modelling and consultation these matters could be subject to change.
- 91. It is also assumed that all locally-registered hackney carriages and private hire vehicles will be compliant by 2022 therefore are exempt from the charge for the purposes of the modelling. Data on non-local T/PH's (which may be subject to charge) will be incorporated as part of the Full Business Case. Due to this factor, in addition to the potential impact of non-locally registered T/PH's entering the Bradford CAZ the financial model will underestimate any income from this vehicle classification at this stage.
- 92. Penalty fees are charges paid by users who do not pay the daily CAZ charge within a pre-determined timeframe (up-to 7 days after entering the clean air zone). It has been assumed that these users will subject to a penalty charge notice (PCN) and would be required to pay a fine in addition to the daily CAZ access charge. The assumed penalty charge rates are in keeping with the PCN's currently issued by the Council (i.e. with 50% discount penalty rates being applicable if the PCN is paid within 14 days, 100% PCN if paid with 28 days and 150% of the PCN if paid after 28 days). This income pathways is illustrated in Figure 2 below. It is assumed that the majority of this income will be paid via credit or debit card payment and therefore an allowance has been made for the cost of the financial transaction. Where payment progresses to any of the PCN stages additional costs have been factored into the recovery model to reflect the cost of stationary, postage, legal service support and addition administration costs, together with a separate fee payable to the DVLA for providing the Council the registered keeper details of the vehicle subject to challenge.

The respective charge for the use of the Central CAZ service has been calculated on the basis of the tiered contribution levels set out previously based on the levels of transaction income for each year of operation of the CAZ.



Figure 2: Payment Point Pathway

93. The predicted revenue associated with the proposed Clean Air Zone have been calculated at a baseline value as shown in Table 7 below.

Table 7: Baseline Income Projection

	2022	2023	2024	2025	2026	2027	2028
Income - CAZ Charge	£8,267,998	£8,267,998	£4,261,837	£2,304,071	£2,304,071	£2,304,071	£2,304,071
Income - PCN (stage 1)	£2,960,183	£2,960,183	£1,559,022	£1,259,559	£1,259,559	£1,259,559	£1,259,559
Income - PCN (stage 2)	£745,884	£745,884	£394,908	£344,609	£344,609	£344,609	£344,609
Income - PCN (stage 3)	£364,269	£364,269	£192,862	£168,297	£168,297	£168,297	£168,297
Total Adjusted Income	£12,338,334	£12,338,334	£6,408,629	£4,076,536	£4,076,536	£4,076,536	£4,076,536
Card Payment Fees	£165,109	£165,109	£86,034	£58,158	£58,158	£58,158	£58,158
DVLA Lookup Fees	£5,782	£5,782	£3,061	£2,671	£2,671	£2,671	£2,671
Stationary Charges	£530,021	£530,021	£280,620	£244,877	£244,877	£244,877	£244,877
Central Service Charge	£1,108,225	£1,108,225	£586,750	£512,016	£512,016	£512,016	£512,016
TOTAL ADJUSTED REVENUE	£10,529,196	£10,529,196	£5,452,164	£3,258,814	£3,258,814	£3,258,814	£3,258,814

94. To model the potential under or over-estimation of the non-compliant fleet daily movements the two sensitivity scenarios described in Section 3 were undertaken. The comparative income projections are shown in Table 8.

Table 8: High / Low Scenario Income Projections

	2022	2023	2024	2025	2026	2027	2028
<i>HIGH SCENARIO</i>	£12,635,035	£10,788,710	£6,542,597	£3,910,576	£3,910,576	£3,910,576	£3,910,576
<i>LOW SCENARIO</i>	£6,542,247	£6,072,886	£3,360,388	£2,059,116	£1,955,288	£1,955,288	£1,955,288

95. Annual operating costs for the CCAZ are summarised in Table 9 below and are incorporated within the financial model and significantly refined and updated since the publication of the Outline Business Case. The figures quoted are applied in both the baseline, high and low assessment scenarios.

Table 9: CAZ OPEX Cost Summary

CAZ OPEX Cost Summary	2020	2021*	2022	2023	2024	2025	2026	2027
- Resourcing (less CAF resourcing)		£784,936	£1,307,191	£1,341,875	£1,362,942	£1,371,262	£1,379,710	£1,379,710
- Sign Maintenance			£20,499	£21,277	£22,107	£22,992	£23,612	£24,061
- M&E		£80,000	£130,000	£50,000	£130,000	£50,000	£50,000	£50,000
- Software Licencing		£235,000	£235,000	£235,000	£235,000	£235,000	£235,000	£235,000
- CAZ Costs		£334,522	£389,867	£322,861	£413,229	£344,275	£356,046	£364,310
- Out-Station		£95,563	£100,341	£104,154	£108,216	£68,263	£70,106	£71,438
- In-Station		£25,069	£25,437	£26,331	£52,562	£89,475	£317,975	£54,263
- Depreciation			£345,958	£345,958	£345,958	£345,958	£345,958	£345,958
Total OPEX	£0	£1,555,091	£2,554,292	£2,447,456	£2,670,014	£2,527,225	£2,778,408	£2,524,740
TOTAL		£1,077,208	£7,974,904	£8,081,740	£2,782,150	£731,589	£480,406	£734,074

Affordability Assessment

96. The operational baseline assessment demonstrates that the Clean Air Zone is forecast to generate a significant positive cash flow over the appraisal period. Any cashflow surplus

associated with the scheme will be ring-fenced for the following purposes as described in the Charging Scheme Order in the priority of:

- Creating a suspense account surplus for the final reconciliation payment for the use of the Central CAZ Service on 31 March 2027.
- Supporting the on-going and long-term operation of the Clean Air Plan team particularly in the period 2025-2027 when revenues are projected to decline significantly.
- Funding the decommissioning of the Clean Air Zone.
- Creation of a Clean Air Revenue Re-Investment Reserve fund where any residual surplus in the first five-year period will be used by Bradford Council to:
 - Provide an innovation fund to provide capital finance to support on-street trials of innovative air quality improvement technologies.
 - Support and extend the operation of the Council's Park and Ride programme (included in the Transforming Cities Fund programme);
 - Fund non-charging measures to address exceedances in the district.
 - Maintain and enhance the cycling and walking network;
 - Maintain and enhance the public electric vehicle charging point network; and
 - Support and enhance sharing schemes such as an electric cycle hire scheme, e-scooter facility and car and van club networks.

Within this context the residual cash position for the Clean Air Plan is expected to be in surplus throughout the appraisal period as demonstrated in Table 10 below. The output from the Financial Model demonstrates that an annual residual surplus position will be achieved of circa £3m p.a. to invest in the Council's Charging Scheme Order Investment Priority programme. The total accrual of funds for any potential balancing payment to Government over this period is projected to be £583,789.

Table 10: Baseline Revenue Projection Summary

	2020	2021*	2022	2023	2024	2025	2026	2027
Revenue Income:		£3,084,583	£12,338,334	£12,338,334	£6,408,629	£4,076,536	£4,076,536	£4,076,536
Less Payment Charge Costs		£175,228	£700,912	£700,912	£369,715	£305,707	£305,707	£305,707
Less Contribution to JAQU		£277,056	£1,108,225	£1,108,225	£586,750	£512,016	£512,016	£512,016
Adjusted Revenue		£2,632,299	£10,529,196	£10,529,196	£5,452,164	£3,258,814	£3,258,814	£3,258,814
CAZ OPEX Cost Summary								
Total OPEX	£0	£1,555,091	£2,554,292	£2,447,456	£2,670,014	£2,527,225	£2,778,408	£2,524,740
TOTAL		£1,077,208	£7,974,904	£8,081,740	£2,782,150	£731,589	£480,406	£734,074
Defrayments:								
Central Service Reserve Account Deposit		£39,484	£157,938	£157,938	£81,782	£48,882	£48,882	£48,882
- Central Service Reserve Account Balance		£39,484	£197,422	£355,360	£437,143	£486,025	£534,907	£583,789
CAZ Decommissioning Reserve		£549,302	£0	£0	£0	£0	£0	£0
Future Revenue Operating Account Movement		£488,422	£4,816,966	£4,923,803	(£299,632)	(£2,317,293)	(£2,568,477)	(£2,314,808)
- Future Revenue Operating Account Balance		£488,422	£5,305,388	£10,229,190	£9,929,558	£7,612,265	£5,043,789	£2,728,980
Charging Scheme Order Investment Priorities		£0	£3,000,000	£3,000,000	£3,000,000	£3,000,000	£3,000,000	£2,728,980

* Assumes revenue costs calculated on a pro-rata basis for operation of the CAZ for Q4, 2020/21 only based on projected 'go-live' date of 4 Jan 2021

97. The assessment of the higher and lower non-compliant fleet projections demonstrates that in the 'high' scenario financial viability of the CAZ is maintained throughout the assessment period with a significant cash reserve remaining beyond 2027 (assuming a Charging Scheme Order Investment programme of £3m p.a.). By comparison the 'low' scenario assessment demonstrates the financial viability of the CAZ can only be sustained if a minimal investment fund of £800,000 per year is allowed for throughout the assessment period. Therefore, in conclusion:
- The financial model demonstrates that the proposed CAZ charging levels are compliant with the expectations of the Clean Air Zone Framework.
 - In the 'baseline' and 'high' scenarios funding in excess of the required OPEX expenditure is demonstrated allowing investment in supportive local transport measures to improve air quality.
 - The overall independent financial viability of introducing a CAZ is demonstrated via the model in all scenarios showing that no additional funding, following the 'go live' will be required from government.

Section 6: Implementation Risks and Dependencies

Introduction

98. The introduction of the Clean Air Zone (post Full Business Case approval) is separated into two phases:
- Implementation; and
 - Business as Usual.
99. Development activity up to FBC is still in progress and some of this work will be carried forward into the Implementation Phase to conclude. This section of the Finance Case describes key elements and considerations of the implementation phase which could impact on the Financial Case and their associated financial risks.
100. As described in Chapter 3: Management Case implementation of the Clean Air Zone will be achieved through delivery of a number of discrete, intrinsically linked programmes and projects. This section of the Financial Case will only consider those risks and interdependencies associated with the CCAZ Implementation & Operation and Financial Grants Support programmes illustrated below:

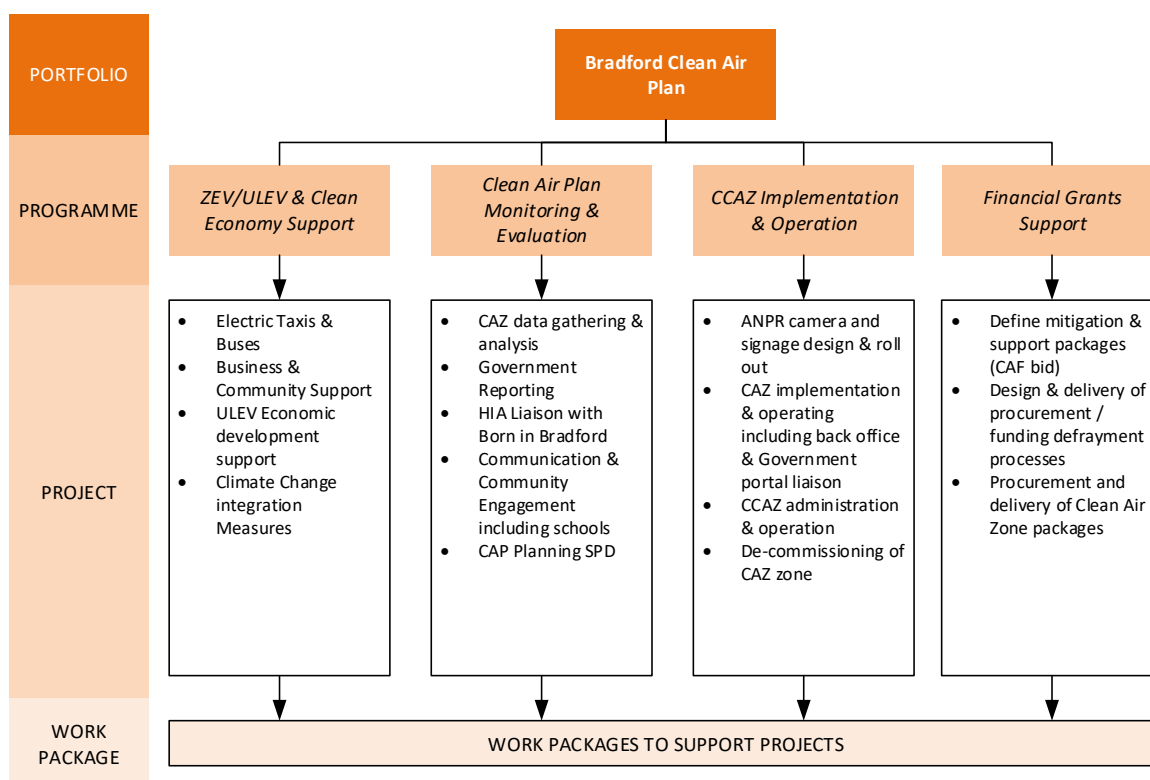


Figure 3: Overview of the Proposed Programme Structure

All risks associated with the Monitoring & Evaluation programme, beyond the baseline data collection, will be managed by the Council. Any associated financial impacts of these

risks being realised will be similarly managed via revenues generated from the operation of the Clean Air Zone.

Pre-requisites for the Commencement of the Implementation Phase

In addition to the work required to ensure effective delivery of the CCAZ Implementation & Operation and Financial Grants Support programmes preparatory work related to the confirmation of the Council's proposed Charging Scheme Order (CSO) will need to progress and be successfully concluded during the last quarter of 2020/21. The statutory consultation for the CSO has yet to take place and cannot commence until formal approval of the Clean Air Plan arrangements is given by the Executive committee in February 2021. Were the CSO to be subject to legal challenge as a result of the statutory consultation implementation of the CCAZ would be delayed and further feasibility costs would accrue to the project whilst any challenge was dealt with. As revenues from the operation of the CCAZ would be yet to be realised additional support would be required from government for the purpose of defending against any challenge and ensuring the ultimately a valid CSO could be brought into force.

Table 11: Pre-Requisite Implementation Risks

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
Challenge to the CSO requiring extended feasibility support	<p>Implementation of the CCAZ would be delayed until the challenge to the proposed CSO could be resolved.</p> <p>Additional revenue costs would be required to support any challenge beyond the level of funding currently available to the Council.</p>	Amber /Green	<p>The Council has worked extensively with JAQU and its independent review panels in developing this Full Business Case.</p> <p>The scope of the proposed CSO has been developed following non-statutory consultation.</p> <p>Additional Implementation Fund resources allowed in Risk Layer of Financial Case.</p>	CBMDC

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
Public Inquiry required to defend CSO legal challenge	Challenges to Transport Act 2000 Charging Schemes must be resolved by Public Inquiry. Costs of defending any challenge and providing PLI facilities cannot be met from existing revenue funding.	Amber /Green	The Council will respond to any challenge to the proposed CSO on an initial informal resolution basis to try to avoid the need to refer the matter to local inquiry.	CBMDC

CCAZ Implementation & Operation

101. The activities associated with the delivery of this programme relate predominantly to capital expenditure. Within this programme the critical projects which impact on this Financial Case are:

- Installing the camera infrastructure and supporting IT operating systems;
- Installing the required signage on site; and
- Accommodation modifications and fit-out.

together with the resources to manage all aspects of implementing the scheme in the year leading to 'go live'.

ANPR Camera Procurement and System Integration

102. The Outline Business Case assessment of the costs of delivering the ANPR infrastructure contained costings based on a combination of desktop assessment, soft market testing and use of existing supply chain costs only.

103. In developing the Full Business Case assessment, the Air Quality Team have worked closely with the Planning, Transportation & Highways Services' CCTV, Street Lighting and Highway Delivery Unit teams to prepare detailed designs for the Clean Air Zone based on physical site surveys leading to the development of detailed design proposals for each proposed camera installation site. Through the effective use of on-site surveys significant savings on communications infrastructure have been identified which in addition to the financial saving to the project help realise a significant reduction in the amount of time expected to complete the deployment of ANPR infrastructure on street. The involvement

of these teams in the development of the detailed designs also forms an element of the Early Contractor Involvement aspect of delivery as the Council remains committed to delivering the CAZ infrastructure using its own internal resources as the principal delivery body.

104. The Council's CCTV Manager, who has extensive experience in the deployment of ANPR cameras, has undertaken a range of soft-market testing of ANPR units which are currently available on the market before developing the Council's specification for the supply of units for this project. The soft-market testing involved approaching a range of suppliers with the proposed camera specification and asking them to supply suitable test units which could be installed for a one-week period at a common location to ensure these units would be capable of reproducing positive image reads of all non-compliant buses, coaches, taxis & private hire, LGV and HGV traffic on one of the busiest roads in the district in a variety of operating conditions.

CAZ Implementation Risks

105. In light of a range of unknowns and risks in relation to the delivery of the Clean Air Zone the Council has included funding for an additional risk layer in addition to a general contingency allowance of 10% for general construction activities. This risk layer has been developed based on the following identified risks and is shown in the RISKS worksheet of the financial model:

Table 12: Financial Risks

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
Changes to scope of work identified in FBC	Changes to the scope of work identified may be required if FBC approval requires this, or assumptions made within the designs undertaken to date are not realised.	Green	The Council has worked extensively with JAQU and its independent review panels in developing this Full Business Case. Designs have been independently verified by the CCTV section once developed.	CBMDC / JAQU

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
Non-performance of 3rd party dependents	Implementation of the CAZ is reliance on some third-party IT system suppliers such as 3Sixty (PCN processing system).	Amber /Green	The Council is working to ensure that third-party dependencies are effectively managed through the implementation phase.	CBMDC
Insufficient power supply / unsuitable street light or traffic signal infrastructure	The majority of cameras will be mounted on existing traffic signal poles and some street lights. Site information provided on these facilities was based on location and typical height of street lighting columns. If a street light, or traffic signal pole, is not strong enough to support the camera(s) a new independent pole may be required.	Amber	<p>The Council has recently commissioned a survey of all street lighting columns in the district to identify structural condition as part of its Smart Street Lighting project. This information will be reviewed by the CAZ team to ensure suitable street lighting columns are available.</p> <p>The ANPR camera specification has limited the maximum weight of units to reflect the potential increased load on traffic signal columns and street lights.</p>	CBMDC
Lack of resources – checking & supervision staff	Council engineers are required to supervise the works and ensure that they are being completed as per the design. A lack of resource could delay this process, and go-live date of CAZ.	Amber /Green	The Council will seek to use its Strategic Delivery Partner resource to supplement its internal resources.	CBMDC

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
Unforeseen Ground Conditions	The Council's DLO may encounter ground contamination, very soft ground, or underground obstructions which go beyond that which a reasonably competent contractor would anticipate.	Green	The design of the CAZ infrastructure is predominantly located on existing street lighting columns and/or traffic signals. This reduces the need for installation additional poles and the risks associated with this.	CBMDC
Unchartered Services	Any underground service found that are not on utilities' records may lead to increased costs / diversion charges not allowed for in the FBC.	Red/ Amber	The design of the CAZ infrastructure is predominantly located on existing street lighting columns and/or traffic signals. Whilst this reduces the need for installation of additional poles there are areas of additional communications infrastructure which are required for the CAZ. Statutory Undertakers records have been obtained for these locations and trial holes will be arranged for areas where potential clashes are identified	CBMDC
Street and Road Works Permit Restrictions	Works to install the CAZ communication infrastructure may be delayed due to coordination issues / permit restrictions.	Amber/ Green	Discussions on the implementation of the CAZ have been held with the Council's Network Resilience & Management team and	CBMDC

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
			indicative programmes of work provided.	
Covid19 Restrictions impacting resources	Further lockdown restrictions as a result of the Covid19 pandemic may adversely affect the availability of internal resources or site working practices delaying delivery of the CCAZ. Council resources may be redirected to pandemic response duties.	Amber		CBMDC

Financial Grant Support

106. The defrayment of the grant support packages defined in the Clean Air Fund bid is a critical activity in ensuring the success of the Clean Air Plan and as such its interdependencies are critical both prior to implementation

Challenges and Risks of the Financial Grant Support Programme

107. There are many areas of challenge and risk associated with the administration of a grant scheme across the range of potential grants being offered.
108. The timing of the CAF is critical to mitigate the impact on all affected sectors including buses, HGVs, LGVs and taxi/PHVs. Funding needs to be made available to operators in the year prior to implementation of the zone (i.e. throughout 2021) to enable time for them to submit their applications, for these to be processed and a funding award made, whilst still allowing time for an order to be placed for upgrade vehicles or retrofit works. Any delays in CAF funding being made available to the Council will result in insufficient time for administration locally as well as time for operators to make the necessary changes by January 2022, taking into account market capacity.

109. The key financial risks associated with the Financial Grant Support Programme are shown in the table below:

Table 13: Financial Grant Support Programme Risks

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
No retrofit solution available for HGVs	Reduces operator options to upgrade therefore switch to a new or used Euro VI is the only option currently available.	Red	<p>Details being provided by the sector to retrofit providers in sufficient detail and quantities to enable design and development of a solution to be economically attractive.</p> <p>Allowing more time to achieve compliance would mitigate against this and enable the retrofit market to develop to meet the need.</p>	JAQU / Trade Organisation & Sector
Adverse market forces for Euro VI switches	Some organisations will be priced out of the market due to rising costs of second hand Euro VI / cost of brand new purchase. Size of second hand market also presents challenges.	Red	<p>Operators with Euro VI HGVs are likely to operate them long as they are compliance this reducing the de-fleeting to the used market on which smaller operators rely.</p> <p>Allowing more time to achieve compliance would mitigate against this and enable the second hand market to develop and meet the need.</p>	JAQU

Risk Description / Causes	Consequences	RAG Rating	Mitigation / Dependencies	Owner
Timing of the CAF is critical to mitigate the heavily impacted sectors travelling extensively within the CAZ	Any delays in the CAF allocation being made available to the Council will result in insufficient time for administration locally as well as time for operators to make necessary changes by January 2022, taking account of existing market capacity.	Red	Funding needs to be made available to operators in the year prior to implementation (i.e. throughout 2021) to enable time for them to submit their applications, for them to be processed and a funding award to be made whilst still allowing them time for an order to placed.	JAQU
High levels of fraudulent claims for grant support scheme	The level of grant applications which are anticipated by the Bradford Clean Air Plan may be subject to high levels of fraud requiring additional resources for investigation and abortive processing costs of circa £193/grant.	Amber /Green	Rigorous application processes will be applied to all applications for grant support to ensure that opportunities for fraud are minimised. Dedicated compliance officers have been included within the proposals for the Clean Air Plan implementation.	CBMDC

Section 7: Summary of the Financial Case

Funding Statement

110. Bradford Council does not have funds available internally to deliver the proposed Measures in the Bradford Clean Air Plan as such it is clear that Government should be funding the implementation of any measures that they mandate are to be delivered. Furthermore, it is appropriate to recognise the impact of Clean Air Plan measures on specific sections of the local community and additionally the impact on the local economy. Therefore, Bradford require full funding support from the Implementation Fund and from the Clean Air Fund for the measures described in this Financial Case.

Budget Statement

111. All assets procured shall be capitalised.
112. Depreciation is on a straight line basis over the life of the assets – vehicles shall be 7 years and the Council will determine an appropriate depreciation rate for other equipment / infrastructure based on engineering advice.
113. As the Council is applying for grant funding to a capital scheme then there is no amortisation issue under the local authority capital accounting framework.
114. Revenue costs following the CAZ go-live in early 2022 include staffing and operation & maintenance of cameras and systems. These costs will be funded through income from non-compliant vehicle's that pay to enter the CAZ. Income and expenditure will be recorded on in the Council's Financial Management System (SAP). The account will sit on the Council's financial ledger. Year-end surpluses (or deficits) will be transferred to an earmarked reserve held on the Authority's balance sheet. This reserve will hold excess revenue from the CAZ account.
115. In line with JAQUs emerging guidance in relation to the payment arrangements for the central service an allowance of 1.5% of all collected CAZ charge revenues (calculated prior to OPEX deductions and excluding PCN income), will be reserved by the Council in an appropriate suspense account. The purpose of this funding is to ensure that the Council holds sufficient reserves from its CAZ operations to make any necessary final reconciliation payment to the government for the use of the Central CAZ Service on 31 March 2027.
116. The revenue model assumes that in the early years of the CAZ the Council will make a surplus, over time this will be required, in part, to fund later years' revenue costs as behaviours change and income reduces. Remaining balances will be used to improve air quality and support the delivery and ambitions of the plan.

Existing Funding Sources

117. Funding sources that have already been utilised to support the Clean Air Plan development and the Clean Air Zone implementation are:
- Feasibility Funding – Funding provided by JAQU for feasibility work through schemes offered by government to support the work undertaken to date.

Summary Statement

118. It is expected that, in line with the relevant legislation, any revenue generated by a charging CAZ, or road user charging scheme using the Transport Act 2000 provisions is ring-fenced and reinvested in measures to further support transport improvements in the area. Decisions regarding how this surplus revenue will be reinvested in additional measures will be determined in accordance with the provisions contained in the Charging Scheme Order and prioritised by the governance structure set out in the Management Case.
119. Further to this, costs associated with the monitoring and evaluation of the Bradford Clean Air Plan which are primarily revenue will also be funded through the Implementation Fund in the initial period prior to the go-live for the purposes of collection of robust background data sets. Following implementation of the Clean Air Zone on-going Monitoring & Evaluation costs will be recovered through the revenues collected through non-compliant vehicle charges.
120. The Financial Case analysis of the preferred Clean Air Plan option (i.e. Class ‘C’ CAZ) demonstrates that the cost of implementation of the Clean Air Plan measures will amount to £39.858 million. City of Bradford Metropolitan District Council are therefore requesting the following funding from JAQU through this Full Business Case –
- £6.563 million from the Implementation Fund to support capital expenditure for the preferred option; and
 - £33,295 million from the Clean Air Fund to support funding of the support measures.
121. From an operational perspective, the financial analysis demonstrates that the CAZ revenue in all scenarios is sufficient to cover the operational costs for the preferred Clean Air Plan option in the initial years of operation.

Acronyms

ACRONYM	DEFINITION
AFC	Advance Fuel Centre
ANPR	Automatic Number Plate Recognition
BAME	Black and Minority Ethnic
BiB	Born in Bradford
CAF	Clean Air Fund
CAP	Clean Air Plan
CAPDT	Clean Air Plan Delivery Team
CAZ	Clean Air Zone
CBA	Cost Benefit Analysis
CBMDC	City of Bradford Metropolitan District Council
CCAZ	Charging Clean Air Zone
CCTV	Closed Circuit Television
CMT	Chief Executive's Management Team
CSF	Critical Success Factor
CSO	Charging Scheme Order
D-IRP	Delivery Independent Review Panel
DfT	Department for Transport
DEFRA	Department of the Environment, Farming and Rural Affairs
EU	European Union
EV	Electric Vehicle
FBC	Full Business Case
GIS	Graphical Information System
HGV	Heavy Goods Vehicle
HIA	Health Impact Area
IF	Implementation Fund
IT	Information Technology
JAQU	Joint Air Quality Unit
LED	Light Emitting Diode
LGV	Light Goods Vehicle
LNER	London North Eastern Railway
LSOA	Lower Super Output Areas
LTS	Local Transmission System
NO ₂ / NOX	Nitrous Oxide

ACRONYM	DEFINITION
OBC	Outline Business Case
OfGem	Office of Gas and Electricity Markets
PCM	Pollution Climate Mapping Model supporting EU Directive 2008/50/EC
PHV	Private Hire Vehicle
PM₁₀ / PM_{2.5}	Particulate Matter
PMO	Project Management Office
PRINCE2	Projects in Controlled Environments
SOC	Strategic Outline Case
SME	Small, Medium Enterprise
SP	Stated Preference Survey
SRO	Senior Responsible Owner
TCO	Total Cost of Ownership
TFS	Targeted Feasibility Study
T-IRP	Technical Independent Review Panel
TRO	Traffic Regulation Order
TUPE	Transfer of Undertakings (Protection of Employment) Regulations 1981
ULEV	Ultra-Low Emission Vehicle
UTC	Urban Traffic Control
VRN	Vehicle Registration Number
WAV	Wheelchair Accessible Vehicle
WYCA	West Yorkshire Combined Authority
WYLES	West Yorkshire Low Emission Strategy