AIR QUALITY FEASIBILITY STUDY
FINANCIAL CASE

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3. FINANCIAL CASE

Please refer to the summary position provided by the Tyneside Authorities within the Strategic Case regarding the current modelled option that achieves compliance in the shortest time.

3.1 Introduction

3.1.1 The purpose of the financial case is to determine the cost of measures within the constraints of the JAQU guidance and time available. It sets out the funding arrangements and technical accounting issues, presenting the financial profile of the Proposed Option.

3.1.2 The financial case provides detail on how much the project will cost, who is paying for it, what types of costs are expected, what the financial risks or dependencies are and what the accounting implications are.

3.1.3 There will be financial impacts for the Tyneside Authorities for designs, installing, operating, monitoring and decommissioning the Proposed Option. This section sets out what those impacts are and how they will be mitigated and managed.

3.1.4 The Proposed Option is split into:

- Delivery of a Charging CAZ; and
- Supporting mitigation measures.

3.2 Cost

3.2.1 The costs for 'goods' and 'works' are mostly calculated with a per item cost applied to an estimated required quantity. Per item costs are taken from similar schemes and optimism bias is applied. 'Services' costs are estimated based on professional judgement and market testing.

3.2.2 These costs are indicative and will be refined through market testing and procurement (outlined in our Commercial Case) as the scheme progresses towards FBC.

3.2.3 Some costs are calculated from traffic model outputs. The actual responses to the implementation of a charged CAZ may differ from the forecast values.

3.2.4 A summary of total capital and operating costs for the charging CAZ is summarised in Table 3-1 and Table 3-2. Appendix A3.1 details the assumptions which underpin the CAZ capital and operating costs.

Table 3-1 Charging CAZ Capital Expenditure Summary

COSTS	COST (£)	OPTIMISM BIAS (%)	OPTIMISM BIAS (£)	TOTAL
Charge CAZ – Implementation Costs				
Design / Support	500,000	44%	220,000	720,000
Integration / Management				
CAZ systems IT and communications				
System Integration to other systems				
Internal / external resource				
Cameras and installation	946,000	44%	416,240	1,362,240
Local databases	80,000	44%	35,200	115,200
Enforcement / PCN processing	20,000	44%	8,800	28,800
Signs	102,000	13%	13,260	115,260
Marketing, communications & behaviour change	1,000,000	13%	130,000	1,130,000
Charge CAZ - decommissioning				
	209,066	44%	91,989	301,055
Total	**2,857,066**			**3,772,555**

Table 3-2 Charging CAZ Operating Expenditure Summary- Fixed

COSTS	COST (£)	OPTIMISM BIAS (%)	OPTIMISM BIAS (£)	TOTAL
Charge CAZ - Operation & Monitoring (annual costs)				
Sign maintenance	10,200	13%	1,326	11,526
Camera maintenance	88,688	13%	11,529	100,217
IT Support & Maintenance	5,000	200%	20,000	25,000
Internal resourcing – Year 1	962,500	13%	125,125	1,087,625
Internal resourcing – Years 2 -5	862,500	13%	112,125	974,625
Office accommodation	72,000	13%	9,360	81,360
Governance & Compliance	80,000	13%	10,400	90,400
Depreciation	209,600	13%	27,248	236,848
Lifecycle replacement costs	£0	N/A	N/A	
Sinking Fund	157,200	44%	69,168	226,368
Annual Total Year 1				1,859,344
Annual Total Years 2-5				1,746,344

Table 3-3 Charging CAZ Operating Expenditure Summary- Variable Costs

	2021	2022	2023	2024	2025	TOTAL
Additional staff at launch	100,000	0	0	0	0	100,000
Digital Portal - Card Payment Transaction Fees	745,701	623,641	501,580	379,520	257,459	2,507,901
Digital Portal - Collection Fees	1,491,402	1,247,281	1,003,160	759,040	514,919	5,015,802

	2021	2022	2023	2024	2025	TOTAL
DVLA Lookup Fees	1,455,079	727,539	727,539	727,538	727,538	4,365,232
Delinquent Payments - DVLA Look Up	49,780	41,721	33,661	25,602	17,543	168,307
Delinquent Payments - Other Enforcement Costs	4,525,462	3,792,798	3,060,134	2,327,470	1,594,806	15,300,669
Totals	**£9,852,611**	**£7,918,167**	**£6,811,261**	**£5,704,358**	**£4,597,452**	**£34,883,849**

This uses the following assumptions:

- Digital Portal - Card Payment Transaction Fees-Assume 1% based on a daily charge
- Digital Portal - Collection Fees-Assumed to be 2% of transaction value
- DVLA Lookup Fees (for class & emissions)-Reduced DVLA Look-up charge due to JAQU solution
- Delinquent Payments - DVLA Look Up (for keeper details)-Assume 8% of non-compliant vehicles will be delinquent payments. DVLA charge 11p per look-up
- Delinquent Payments - Other Enforcement Costs-Assume 8% of non-compliant vehicles will be delinquent payments. Assume £10 as cost of enforcing each delinquent payment (printing letters, legal costs etc.)

3.2.5 A summary of total capital and operating costs for the mitigation measures is summarised in Table 3-3 and Table 3-4 and each measure is discussed in greater detail within the Strategic Case. These all have the appropriate level of optimism bias applied. In all cases barring local abatement, this is 13%. For Local Abatement, a greater level of optimism bias has been applied due to the fact that the technology is relatively untested.

Table 3-3 Mitigation Measures Capital Expenditure Summary

COSTS	COST (£)	OPTIMISM BIAS (%)	OPTIMISM BIAS (£)	TOTAL
Grants for HGVs retrofit	£4,096,000	**13%**	£532,480	£4,628,480
Grants for LGV upgrade	£4,650,000	**13%**	£604,500	£5,254,500
Grants for taxis / PHVs upgrade	£5,600,000	**13%**	£728,000	£6,328,000

COSTS	COST (£)	OPTIMISM BIAS (%)	OPTIMISM BIAS (£)	TOTAL
Grants for car scrappage	£5,893,500	**13%**	£766,155	£6,659,655
Walking and Cycling Improvements	£3,325,000	**13%**	£432,250	£3,757,250
Access Changes	£355,806	**13%**	£46,255	£402,060
Local Abatement	£550,000	**44%**	£242,000	£792,000
Total	**£24,470,306**		**£3,351,640**	**£27,821,945**

Table 3-4 Mitigation Measures Operational Expenditure Summary

COSTS	COST (£)	OPTIMISM BIAS (%)	OPTIMISM BIAS (£)	TOTAL
Mobility Package	**£2,432,000**	**13%**	**£316,160**	**£2,748,160**

3.3 Revenue

3.3.1 Charging CAZ schemes are based on charging an entry fee to vehicles that do not meet the required emission standards. Therefore, the expected revenue forecasts are from charging non-compliant vehicle registered keepers who enter the CAZ.

3.3.2 The charges are set at different levels for different vehicle types to reflect the contribution each type of vehicle makes on a per-vehicle basis to air pollution and to ensure that vehicles with the highest emissions are incentivised to comply with the standard. This is inline with guidance issued by government.

3.3.3 The daily charges for a potential Charged Clean Air Zone are not yet determined given a single option has not been agreed. This section will be completed when an option is arrived at.

3.3.4 For the purposes of modelling, the authorities have assumed the charge levels used by other similar cities at this stage in their modelling, and that the charge levels would remain constant in current prices (i.e. £12.50 in 2021 and £12.50 in 2025). The charge is planned for the purposes of modelling as a daily charge. The charges we tested are £12.50 per day for cars, taxis and LGVs, while buses, coaches and HGVs would face a £50 charge.

3.3.5 It is important to recognise that the traffic model outputs traffic flows, not unique vehicles, however as it is possible that any vehicle may make multiple trips within the zone in a given time, estimates were required regarding the number of unique vehicles operating in the zone.

3.3.6 To generate the unique vehicles the road assignment model has been analysed using a standard modelling technique called sub-area analysis. This analysis uses the same CAZ cordon as used in the CAZ option test to extract demand to / from each charged link and zone within the cordon.

3.3.7 This process outputs demand matrices for each vehicle type, for each time period of the transport models. This is then converted to all vehicles using the following formula:

Daily All Vehicles = 3 * AM Vehicles + 6 * Inter Peak Vehicles + 3 * PM Vehicles + 12 * Off Peak Vehicles

3.3.8 The assumption applied is that each vehicle makes two journeys per day and hence the above 'Daily All Vehicles' is divided by two to yield the unique vehicles.

3.3.9 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 class are subject to the full charge from day one though based on further modelling and the consultation these matters could be subject to change.

3.3.10 The split of compliant versus non-compliant vehicles has been calculated by taking the baseline figure and estimating percentage improvements per class per year of scheme operation.

3.3.11 In the absence of buses and coaches from our traffic model as specific vehicles, it has been agreed to assume that buses would all be compliant by 2021 while data on coach traffic will be gathered during the FBC.

3.3.12 It is also assumed that all locally-registered taxis (by this we are referring to hackney carriages and Private Hire Vehicles) will be compliant by 2021 therefore are exempt from the charge for the purposes of the modelling. Data on non-local PHVs (which may be subject to the charge) will be incorporated as part of the FBC. Due to the underlying modelling assumptions, these figures are not an accurate forecast of traffic and any resultant cost/revenue calculations are purely high-level indicative totals.

3.3.13 Table 3-5 displays the number of non-compliant unique vehicles operating in the charge CAZ.

Table 3-5 Non-compliant unique vehicles by class and year

	2021	2022	2023	2024	2025
Buses & Coaches	0	0	0	0	0
HGVs	343	276	208	141	74
Taxis & PHVs	0	0	0	0	0
Large van / Minibus	4,154	3,453	2,752	2,051	1,350

	2021	2022	2023	2024	2025
Small van / light commercial	1,176	989	802	615	427
Private Vehicles	13,183	11,086	8,989	6,891	4,794
Total by year	**18,856**	**15,803**	**12,751**	**9,698**	**6,645**

3.3.14 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.

3.3.15 As a result, the revenues collected are expected to decrease. The revenue analysis was conducted for opening year (2021) and factors applied to each subsequent year to account for this decrease.

3.3.16 Penalty fees are charges paid by users who do not pay the daily CAZ charge within a pre-determined timeframe. It has been assumed that these users are subject to a penalty charge notice (PCN) and would be required to pay a fine.

3.3.17 The assumed penalty charge rates are in keeping with the PCNs issued, with discount penalty charge rates applicable if the penalty is paid within a pre-determined timeframe.

3.3.18 The predicted revenue associated with the Proposed Option as currently defined (i.e. using the charges specified in is shown in Table 3-6.

Table 3-6 Charge CAZ D Revenue by year £(000s)

	2021	2022	2023	2024	2025
Annual CAZ Charges	67,113	56,128	45,142	34,157	23,171
Penalties	7,457	6,236	5,016	3,795	2,574
TOTAL	**74,570**	**62,364**	**50,158**	**37,952**	**25,746**

3.3.19 Given the scale of potential impact on local people, it was considered appropriate to sensitivity test a number of alternative charging scenarios from a financial perspective, while keeping assumptions regarding behavioural responses static. This work will be developed for the FBC and through the consultation.

3.3.20 Three further CAZ D scenarios were tested, two with charges at half and a third of those modelled in the core scenario and no other assumed changes and a further test with revised assumptions. These were that:

- A greater proportion of non-compliant cars and LGVs would cross the zone boundary more than once. This was set at 2.5 times for Cars and 4 times for LGVs;

- There would be a greater level of fleet upgrade for 'cross-city' movements. By this we considered trips that began and ended outside the CAZ area but passed through it. The assumed fleet upgrade was 22% car, 25% LGV, and 44% HGV; and
- There would be a 10% reduction in goods vehicle trips crossing the zone due to increased consolidation and more efficient loading.

3.3.21 The results from these tests are set out below:

Table 3-7 Charge CAZ D Sensitivity Test 1 (Half) Revenue by year £(000s)

	2021	2022	2023	2024	2025
Annual CAZ Charges	33,557	28,064	22,571	17,079	11,586
Penalties	3,729	3,118	2,508	1,898	1,287
TOTAL	**37,285**	**31,182**	**25,079**	**18,976**	**12,873**

Table 3-8 Charge CAZ D Sensitivity Test 2 (Third) Revenue by year £(000s)

	2021	2022	2023	2024	2025
Annual CAZ Charges	22,371	18,709	15,047	11,386	7,724
Penalties	2,486	2,079	1,672	1,265	858
TOTAL	**24,857**	**20,788**	**16,719**	**12,651**	**8,582**

Table 3-9 Charge CAZ D Sensitivity Test 3 - Trip reduction for goods vehicles and greater fleet replacement Revenue by year £(000s)

	2021	2022	2023	2024	2025
Annual CAZ Charges	42,828	37,282	31,736	26,190	20,644
Penalties	5,353	4,660	3,967	3,273	2,580
TOTAL	**48,182**	**37,282**	**31,736**	**29,464**	**23,225**

3.4 Financial Profile

3.4.1 Based on the above costs and revenue generated for the central case, the financial profile for the Proposed Option is set out in Table 3-7.

Table 3-9 Financial Profile Charging Clean Air Zone Implementation £(000s)

COSTS	2019	2020	2021	2022	2023	2024	2025	TOTAL
OPEX	0	0	11,712	9,665	8,558	7,451	6,344	43,728
CAPEX	1,153	1,729	0	0	0	0	0	3,773
REVENUE	0	0	74,570	62,364	50,158	37,952	25,746	250,790

Table 3-10 Financial Profile - Mitigation £(000s)

COSTS	2019	2020	2021	2022	2023	2024	2025	TOTAL
OPEX	0	0	2,748	0	0	0	0	2,748
CAPEX	9,763	15,831	2,219	0	0	0	0	27,820

Table 3-11 Financial Profile – Implementation and Mitigation (£000s)

COSTS	2019	2020	2021	2022	2023	2024	2025	TOTAL
OPEX	0	0	14,460	9665	8558	7451	6344	46,476
CAPEX	10,916	17,560	2,219	0	0	0	0	31,593
REVENUE	0	0	74,570	62,364	50,158	37,952	25,746	250,790

3.5 Funding

3.5.1 The Tyneside Authorities do not have funds available internally to deliver a Proposed Option and it is also clear that government should be funding the implementation of measures that they are going to be mandating the delivery of. Furthermore, it is appropriate to recognise the impact on specific people and communities therefore we will require full funding support from the Implementation Fund and from the Clean Air Fund. The funding profile is shown in Table 3-8. The funding requested includes provision of capital and operational expenditure.

3.5.2 It is expected that, in line with the relevant legislation, any revenue generated by a charge CAZ or road user charging scheme using the Transport Act 2000 is ring-fenced and reinvested in measures to further support transport improvements in the area. Decisions regarding how surplus revenue will be reinvested into 'additional measures' will be determined according to the governance structure set out in the Management Case and be detailed in the Full Business Case.

3.5.3 Further to this, as noted within the Management Case, there are costs which relate to monitoring and evaluation. These are primarily revenue costs, which are incurred as follows and it is proposed would be funded through the Implementation Fund:

Table 3-12 Resource Requirements for the Tyneside Clean Air Zone Monitoring and Evaluation (£)

ELEMENT	2019	2020	2021	2022	2023	2024	2025	2026
Nitrogen Dioxide monitoring	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Particulate Monitoring	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Pedestrian and Cycle Counts	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Business Surveys	10,000	0	0	10,000	0	0	0	10,000
Traffic counts	10,000	0	0	10,000	0	0	0	10,000
Staff time for monitoring	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Re-running of models	0	0	0	10,000	0	0	0	10,000
Report Writing	0	0	0	40,000	0	0	0	40,000
Total	**30,000**	**10,000**	**10,000**	**80,000**	**10,000**	**10,000**	**10,000**	**80,000**

Table 3-13 Funding Profile (£000s)

FUND	2019	2020	2021	2022-26	TOTAL
Implementation Fund - Taxis/PHV Upgrade	2,109	4,218	0	0	6,328
Implementation Fund – CAZ Implementation	1,886	1,886	0	0	3,773
Implementation Fund – Mobility scheme	0	0	2,748	0	2,748
Implementation Fund – Monitoring & Evaluation	30	10	10	190	240

FUND	2019	2020	2021	2022-26	TOTAL
Implementation Fund – Access Changes	0	402	0	0	402
Implementation Fund Total	**4,025**	**6,516**	**2,758**	**190**	**13,491**
Clean Air Fund- HGV Upgrade	1,542	3,084	0	0	4,628
Clean Air Fund- LGV Upgrade	1,751	3,502	0	0	5,254
Clean Air Fund – Car Upgrade	2,219	2,219	2,219	0	6,659
Clean Air Fund – Walking and Cycling	1,878	1,878	0	0	3,757
Clean Air Fund – Local Abatement	264	528	0	0	792
Clean Air Fund Total	**7,654**	**11,211**	**2,219**	**0**	**21,090**
TOTAL	**11,679**	**17,727**	**4,977**	**190**	**34,581**