# OUTLINE BUSINESS CASE

# TYNESIDE AIR QUALITY FEASIBILITY STUDY

OUTLINE BUSINESS CASE

| IDENTIFICATION TABLE | |
|---|---|
| **Client/Project owner** | Tyneside Authorities |
| **Project** | Tyneside Air Quality Feasibility Study |
| **Study** | Outline Business Case |
| **Type of document** | Financial Case (Draft) |
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| **Framework** | NEPO |
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# TABLE OF CONTENTS



# LIST OF FIGURES

**No figures.**

# LIST OF TABLES

# 3. FINANCIAL CASE

**Please note, without having identified a Proposed Option it is not possible to give comprehensive details of the finance strategy for the Proposed Option.**

**At this stage, the Tyneside Authorities have provided a high-level overview of the finances where possible and assumed that the Tyneside Authorities will be required to implement some form of charging CAZ (class unknown).**

**This financial case does not include details of the financing of Clean Air Fund mitigation measures as these are dependent on the Proposed Option.**

**After the Proposed Option is identified, the financial model will be drafted and the OBC Financial Case will be updated.**

## 3.1 Introduction

3.1.1 The purpose of the financial case is to determine the affordability of the Proposed Option. 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 are the financial risks or dependencies and what are the accounting implications.

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:

- Charge CAZ delivery; and
- Supporting mitigation measures.

## 3.2 Cost

3.2.1 The Proposed Option 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 as the scheme progresses towards FBC.

3.2.3 Some costs are calculated from traffic model outputs. Local user 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

| 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 | To be confirmed | | | To be confirmed |
| Office accommodation | To be confirmed | 13% | | To be confirmed |
| 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** | | | | To be confirmed |

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.

Table 3-3 Mitigation Measures Capital Expenditure Summary

To complete when Proposed Option is identified.

Table 3-4 Mitigation Measures Capital Expenditure Summary

To complete when Proposed Option is identified.

## 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 project revenue forecasts 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.

3.3.3 The daily charges are as follows:

To complete when Proposed Option is identified.

3.3.4 It is assumed that the charge levels remain constant in current prices (i.e. £12.50 in 2021 and £12.50 in 2025). The charge is planned as a daily charge.

3.3.5 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 The 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 * IP Vehicles + 3 * PM Vehicles + 12 * OP 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.

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

3.3.11 In the absence of data on buses and coaches, it has been agreed to assume that buses and coaches are excluded from charging. All buses will be complaint by 2021 whilst data on coach traffic will be gathered during the next phase of the project.

3.3.12 It is also assumed that all locally-registered taxis and PHVs will be compliant by 2021 therefore are exempt from the charge. Data on non-local PHVs (which may be subject to the charge) will be sourced at a later phase.

> 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 |
| 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. These users are subject to a penalty charge notice (PCN) and 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 is shown in Table 3-6.

**Table 3-6 Charge CAZ Revenue by year**

| | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|
| Annual CAZ charges | To complete when Proposed Option is identified. | | | | |
| Penalties | | | | | |
| **Total** | | | | | |

## 3.4 Financial Profile

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

**Table 3-7 Financial Profile**

| COST | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | TOTAL |
|---|---|---|---|---|---|---|---|
| Capex | To complete when Proposed Option is identified. | | | | | | |
| Opex | | | | | | | |
| Revenue | | | | | | | |

## 3.5 Funding

3.5.1 The Tyneside Authorities do not have funds available to deliver the Proposed Option and therefore 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 to support the Proposed Option.

3.5.2 It is expected that any revenue generated by the charge CAZ is ring-fenced and reinvested in measures to further support transport improvements in the Tyneside 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.

**Table 3-8 Funding Profile**

| FUND | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | TOTAL |
|---|---|---|---|---|---|---|---|
| To complete when Proposed Option is identified. | | | | | | | |

## Approval

| Version | Name | | Position | Date | Modifications |
|---|---|---|---|---|---|
| 1 | Author | Hannah Graham | Senior Consultant | 17/12/2018 | |
| | Checked by | Nicholas Bryan | NTC | 19/12/2018 | |
| 2 | Author | Hannah Graham | Senior Consultant | 21/12/2018 | |
| | Checked by | Caroline Shield<br>Alistair Baldwin | GMBC<br>NCC | 21/12/2018 | |
| | Approved by | Graham Grant | NCC, Chair of Working Group | 21/12/2018 | |

# APPENDICES

## APPENDIX A3.0 – Glossary

| | |
|---|---|
| Additional Measures | Additional measures are measures which will be funded by any surplus revenue generated by the Preferred Option. |
| Background Maps | Maps of modelled background concentrations at 1 km x 1 km resolution for a range of pollutants including oxides of nitrogen ($NO_x$) and nitrogen dioxide ($NO_2$), provided by JAQU. These will be used principally to define the contribution to ambient concentrations from non-local sources, such that only local sources need be modelled in detail. It is likely that road transport will be the most significant local source, although other local sources can be modelled if relevant. |
| Baseline | The projected outcomes under a no-action scenario, with no additional measures to improve air quality. This should draw on baseline projections for both air quality and transport models, with an appraisal period of 10 years from the scheme's implementation. Interpolation and/or extrapolation can be used if not all these years have been modelled. |
| Base year | The year used for validation of the transport and air quality dispersion models against recently collected real-world data. It is preferable for the same base year to be used in both transport and air quality models. The base year for the transport model should be no more than 5 years old and for the Air Quality model it should be 2015 or later (Local authorities should discuss with their account manager if you intend to use different base years for the models). |
| Benchmark option | A benchmark option is a policy that is likely to be effective at delivering compliance in the shortest possible time. A benchmark option is therefore an important tool in helping to define what 'shortest possible time' means for each local authority area and provides a tangible illustration of the minimum expected of other potential policy options. |
| Clean Air Fund | Funding to allow local authorities to bid for additional money to support the implementation of measures to improve air quality. This could include interventions such as improvements to local bus fleets, support for concessionary travel and more sustainable modes of transport such as cycling, or infrastructure changes. |
| Clean Air Zone | An area where targeted action is taken to improve air quality and resources are prioritised and coordinated in a way that delivers improved health benefits and supports economic growth.<br>Clean Air Zones fall into two categories:<br>a. Non-charging Clean Air Zones – These are defined geographic areas used as a focus for action to improve air quality. This action can take a range of forms including, but not limited to, those set out in Section 2 of the Framework but does not include the use of charge-based access restrictions. |

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| | b. Charging Clean Air Zones – These are zones where, in addition to the above, vehicle owners are required to pay a charge to enter, or move within, a zone if they are driving a vehicle that does not meet the standard for their vehicle type in that zone. Clean Air Zone proposals are not required to include a charging zone, and local authorities may consider alternatives to charging such as access restrictions for certain types of vehicle. |
| Critical Success Factor (CSFs) | Critical Success Factors are important project objectives/considerations, which are used to conduct a high-level assessment of the longlist of options at the strategic outline case stage. The Critical Success Factors should include a pass/fail criterion on whether the proposed option achieves $NO_2$ compliance in the shortest possible time. |
| Discounting | A method used to convert future costs or benefits to present values using a discount rate. |
| Discount rate | The annual percentage rate at which the present value of a £, or other unit of account, is assumed to fall away through time. |
| Distributional analysis | Distributional analysis looks at the degree to which policies impact upon different groups of people or businesses. Distributional analysis is necessary to understand whether a policy unduly favours or disadvantages groups in society. |
| Early Measure Funding (EMF) | This funding is to support small, ambitious, good value for money measures that deliver air quality improvements. These are complementary to the feasibility study and larger local plan that delivers compliance. |
| Economic assessment (cost benefit analysis) | The economic assessment is essentially the detailed appraisal of a policy's value for money, looking at the monetised costs and benefits to society. This looks more widely than simply the direct financial impacts of a measure, considering the wider societal impacts. |
| Elasticity | Elasticities measure how one variable responds to changes in another. For example, a fuel elasticity of demand shows how the number of vehicle trips taken would change in response to a change in the price of fuel. |
| Emission Factor Toolkit | A tool to allow calculations of pollutant emissions from road transport, including for $NO_x$, and other pollutants for a specified year, road type, vehicle speed and vehicle fleet composition. |
| European emission standards or Euro standards | EU-wide standards for exhaust emissions of air pollutants. Current standards for new vehicles are: 'Euro 6' for light duty vehicles (cars and vans) and 'Euro VI' for heavy duty vehicles. |
| Evidence Methodology Review | The review of submitted evidence documents from local authorities. This is expected to be before the Strategic Outline Case. |
| Tyneside Air Quality Feasibility study | The process from the local air quality assessment to the development of a final business case for the Tyneside Air Quality Local Plan. |

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| Full Business Case | Final iteration of the business case and the case that goes for Defra Secretary of State approval. This sets out the final proposed option in detail and include inputs from any consultation. |
| Implementation Fund | The Government has set up a £255m Implementation Fund to support local authorities to prepare their plans and deliver targeted action to improve air quality. This funding will support the immediate work to conduct feasibility studies, implement early measures and deliver local plans. |
| Receptors | The hypothetical points in the air quality dispersion modelling at which the concentrations of $NO_2$ are calculated. These will include a grid of points across the model domain, and additional points as specified in the evidence package that enable comparisons with the national model and are consistent with the siting criteria defined in the Air Quality Directive. |
| Review Panel | The Review Panel is the panel that reviews and approves local authority proposals and modelling outputs. It is the process to ensure the evidence for the local plans are robust and consider appropriate measures for the local area. |
| Initial Evidence Review | The review of air quality and transport modelling deliverables and target determination that ensures there is a robust evidence base to conduct detailed analyses of the options. |
| Joint Air Quality Unit (JAQU) | JAQU is the joint unit between two Government Departments, the Department of Environment, Food and Rural Affairs (Defra) and the Department for Transport (DfT) which has responsibility to deliver and implement the UK plan for tackling roadside nitrogen dioxide concentrations. |
| Local authority key milestones | Key stages of the feasibility study related to funding, assurance and review processes that local authorities need to complete. These include: the proposal for a Feasibility Study; Evidence Methodology Submission; Strategic Outline Case; Initial Evidence Submission; Outline Business Case; Consultation (if required); Full Business Case and Implementation. |
| Tyneside Air Quality Local Plan | The plan local the Tyneside Authorities are developing as part of their feasibility studies. It is the local authorities plan to bring an area of exceedance into compliance required by government and does not refer to any already established local air quality action plans within a local authority area. |
| Longlist | A broad range of options, created to ensure that all realistic alternatives have been adequately considered, thereby justifying the selection of an option. The list should include a 'do nothing' (baseline) option (which will help to show why taking action is necessary) which is taken forward as the baseline. |
| Net present value (NPV) | The discounted value of a stream of either future costs or benefits. The NPV is used to describe the difference between the present value of a stream of costs and a stream of benefits. |
| Optimism bias | The demonstrated systematic tendency for appraisers to be over-optimistic about key project parameters, including capital costs, works duration and benefits realisation. |

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| Options Appraisal | The process of defining objectives, examining options and weighing up the costs, benefits, risks and uncertainties of those options before a decision is made. |
| Outline Business Case (OBC) | Second iteration of the business case. Provides additional detail and identifies the preferred option based on full analyses. It should set out the likely implementation and procurement route and demonstrate the affordability of the scheme. |
| Pollution Climate Mapping (PCM) | The PCM model is the UK's national air quality model and provides outputs of pollutant concentrations in the UK at a 1x1 km resolution and at roadside locations for around 9,000 urban major roads (A and M class roads). |
| Proposed Option | The preferred option is the one that fits the strategic aims of the intervention whilst delivering best value for money. This is from the shortlist of options modelled. The Tyneside Preferred Option is:<br>To be confirmed |
| Scenario modelling | Modelling which accounts for the measures proposed in the feasibility study (also known as 'with measures' modelling). |
| Sensitivity testing | Testing which aims to determine the degree to which a model's outputs vary in response to 'plausible changes in individual assumptions. |
| Shortlist | A smaller range of options which have been assessed against the critical success factors and judged to be the options most likely to achieve the objectives of the project. The shortlist of options is then taken forward for more in-depth air quality, transport and economic modelling. The shortlist should include a 'do nothing' (baseline) option (which will help to show why taking action is necessary) and a benchmark option. |
| Spending Objective | Main objective of the project, which the Green Book terms the 'spending objective.' |
| Strategic Outline Case (SOC) | First iteration of the business case. This presents a strong case for change and will confirm the strategic content of the proposal to do this. Initial analysis should be used to refine a long list to a short list of options to take forward. It should include indicative management, procurement and costs. |
| Target Area | The area which will be directly impacted by the measures under the Tyneside Air Quality Local Plan. This could be limited to a stretch of road, for individual road-based measures, or the area where implementation occurs, for measures impacting a series of locations. |
| Target Determination | A process involving comparison of the outputs of the local and PCM air quality modelling, then agreeing the most appropriate concentration assessment to be compared to the limit value. This is needed to understand how big and improvement needs to be made in a location to determine how soon compliance can be achieved. |

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| TG16 | Local Air Quality Management (LAQM) Technical Guidance developed by Government to support local authorities in carrying out their duties under the Environment Act 1995, the Environment (Northern Ireland) Order 2002, and subsequent regulations. |
| The Plan | Government's UK plan for tackling roadside nitrogen dioxide ($NO_2$) concentrations (the Plan). This set out how Government would bring UK $NO_2$ concentrations within the statutory annual limit of 40 micrograms per cubic metre (µg/m3) in the shortest possible time. The Plan sets out a number of national and local measures that need to be taken. Local authorities should note the UK plan for tackling roadside nitrogen dioxide ($NO_2$) concentrations is Government's UK Plan and not Defra's Plan and so should be referred as such throughout the business cases. |
| Tyneside Authorities | Three local authorities in Tyneside (Gateshead, Newcastle and North Tyneside, collectively the Tyneside Authorities) were named in the UK Plan for Tackling Roadside nitrogen dioxide NO2 Concentrations. This means that some roads in Tyneside were identified by the Department for the Environment, Food and Rural Affairs (Defra) as being currently non-compliant with regards to UK and EU air quality legislation which define a maximum limit for NO2 at locations where there is a risk to public health from exposure.<br>The Tyneside Authorities are therefore subject to a legal direction (Environment Act 1995 (Feasibility Study for Nitrogen Dioxide Compliance) Air Quality Direction 2017) from the Secretary of State for Defra. To adhere to this direction the Tyneside Authorities are undertaking a feasibility study to produce a Local Air Quality Plan. This must identify the preferred intervention (as part of a package of measures also known as a Preferred Option) that will reduce NO2 pollution and deliver local compliance with legal limits in the shortest possible time. |
| Uncertainty | An estimate characterising the range of values within which the true value of a measurement (or modelled output) lies. |
| WebTAG | Transport Analysis Guidance that provides information on the role of transport modelling and appraisal. |
| | |

# APPENDIC A3.1 – Charging CAZ Cost Estimates

## Introduction

This appendix sets out the assumptions which underpin the cost estimates of the Charging CAZ.

## Triggered Payment & Non –Triggered Payment Options

JAQU consulted with Local Authorities regarding the merits of "triggered payments" versus "non-triggered payments" for CAZ access charging schemes.

- Triggered payments are initiated when the ANPR cameras detect vehicles in the CAZ and automatically deduct the appropriate charge is deducted from the account (prepay) or invoice the registered keeper (post-paid).
- Non-triggered payments require the registered vehicle keeper to self-declare the days that they are entering the CAZ and ANPR is used for enforcement only.

JAQU have recommended a "non-triggered payment" approach[1] primarily because it imposes less CAPEX and OPEX overhead on the scheme operation.

It is possible that the scheme could be upgraded to a 'triggered payment' scheme later if the 'non-triggered' payment approach is not achieving desired outcomes. Any cost and programme estimates in this document are based on a 'non-triggered payment' approach.

## Centralised Back-Office Activities

JAQU and all stakeholders are currently engaged in ongoing consultations regarding a central digital registration platform which will handle customer registration and payments on behalf of all Local Authority CAZ schemes.

The full extent of such operations and associated transaction costs is not yet available therefore estimated costs are included in the cost estimates for this scheme.

It is also possible that the functions of the proposed central platform are extended to provide additional centralised services. It is currently assumed that such functions are performed at local level therefore costs are included in the model for this scheme.

## Traffic Calculations

The OPEX estimates are heavily dependent on having accurate traffic data because:

- Staffing levels are determined by the number of ANPR images to be reviewed (overall AADT);
- Staffing levels for customer service functions are determined by the number of non-compliant vehicles (unique vehicles);
- DVLA look-up costs to check class / emissions are based on the number of unique vehicles per day whilst DVLA look-up costs to return registered-owner details are based on the number of unique non-compliant vehicles per day.

[1] JAQU consultation document "300718 ANPR Triggered Payments Local Authorities"

- Transaction fees for card payments and central digital portal processing are determined by the number of unique non-compliant vehicles per day.

> A detailed traffic model is currently under development. As an interim measure, traffic figures used in the current cost/revenue estimates are based on extrapolating data from available data sets. These are not exact therefore the cost/revenue estimates come with a major health warning.

**Cost Estimates**

The daily non-compliant unique vehicles per class is used to calculate the revenue per class per year.

It is assumed that there will be a #to complete – pending confirmation from JAQU Charging Project Team# % compliance rate. Annual CAZ charges are therefore calculated as being #to complete# % of total expected revenue per class.

In each case it is assumed that the #to complete – pending confirmation from JAQU Charging Project Team#% non-compliant users will be charged for the outstanding fee plus an additional administration charge or fine. It is assumed that the additional administration charge / fine equates to the value of the initial fee.

# CAPITAL EXPENDITURE COSTS

## Inception Costs

A provisional figure has been included to cover design, procurement & mobilisation costs. This figure is calculated based on professional judgement and errs on the side of caution. The capital expenditure costs will be informed by procurement and will be finalised in the FBC.

A provisional figure has been included to cover marketing and communications costs. This provisional figure is a pro-rata percentage of the London ULEZ budget (£5.1m) and the final figure for this line item is dependent on the Tyne Authorities' marketing and communications preferences.

## Roadside and Back Office

**Signage**

There will be a need for fixed signage to clearly delineate the CAZ boundary and to comply with data protection requirements (i.e. like CCTV there is a need to flag that cameras are in operation).

The costings provide for two-pole-mounted sign per camera and a number of free-standing signs.

There is no provision made for road markings (similar to those used in London Congestion Charge).

**ANPR Cameras**

An initial exercise was undertaken to review potential ANPR camera locations for both the inner and outer cordons. A more detailed investigation is required to finalise the number of cameras required but this can only be undertaken once the overall CAZ regime design is progressed.

Camera prices are based on consultation with the NECA UTMC manager. This specification of camera should meet evidentiary requirements of the Tyne Authorities, but this is subject to further investigation.

Pricing assumes that 67% of cameras can be fitted to existing posts and 33% will require new posts to be installed.

Pricing for power and roadside cabinets on inner cordon assumes that 80% can piggy-back on existing facilities and 20% will require new units complete with concrete base, power supply (utility connection) and internals (fibre, switch, etc).

Detailed investigations are required to confirm the above assumptions; this will be undertaken before the FBC.

No provision has been made for mobile or flexible enforcement. This can be explored later when more is known about the fixed camera locations.

**Communications Network**

There is currently no cost provision for a communications network (fibre, copper/Wi-Fi, cellular etc.) because more investigation is required to identify what is currently available.

If there are no existing communication networks available, then the potential cost of installing a new communications network will be required.

**Control Room / CSC**

Although it is not yet clear which functions are being managed centrally by JAQU; it is likely that an additional office location will be required to review contraventions, process PCNs and undertake customer service.

The staffing levels are indicative and largely dependent on the scale of the charge CAZ, and how much of the operations will be outsourced.

There will also be a requirement for back-office software, but the costs cannot be estimated until more visibility on roles and responsibilities is obtained.

The costs include a small provision for staff recruitment and IT Setup, assumed to be approximated £1.5k per employee.

**Decommissioning**

A provision is included for decommissioning (i.e. removing scheme infrastructure) once the CAZ has achieved its objectives. This figure is calculated as being 20% of the capital expenditure on equipment and some infrastructure.

# OPERATIONAL EXPENDITURE COSTS

OPEX calculations are based on:

- Fixed Annual O&M Costs: those costs which remain constant irrespective of traffic volumes and compliance levels.
- Variable Annual O&M Costs: those costs which vary depending on traffic volumes and compliance levels.

The “OPEX” sheet in the cost model shows this split by line item.

**Fixed Annual O&M Costs**

**Maintenance**

A provision for Sign Maintenance is calculated as being 10% of sign CAPEX.

A provision for Camera Maintenance is calculated as being 12.5% of camera CAPEX.

There is an assumed provision for IT Support & Maintenance. This figure can only be finalised once more clarity is obtained on back office system requirements.

**Staffing**

Staffing numbers are calculated based on identifying the potential number of ANPR images to be reviewed daily and then calculating the number of image review staff necessary to check images that could not be automatically processed to the correct degree of confidence.

Note that ANPR accuracy rates are typically 95% in ideal weather conditions but can drop to 70% in adverse weather conditions. The costings therefore assume an overall 90% accuracy rate and that an image review resource can process 1,250 images per hour. This is aligned with industry standards.

Staffing numbers include image reviewers, customer service, IT and supervisor roles.

There is an estimated no provision for ongoing office accommodation rental costs.

**Governance and Compliance**

A provision has been made to cover information governance and compliance costs. This covers costs associated with assuring quality, cyber-security and data protection compliance.

**Other Costs**

Depreciation is calculated as 10% per annum over 10 years. If the scheme life-cycle is deemed to be shorter then it will be necessary to adjust the rate accordingly.

A provision is not included to replace all assets during the scheme life span. Equipment will have a lifespan of 7 years, less than the lifetime of the Proposed Option.

The costs include provision for a Sinking Fund (assumed 15% of CAPEX) to cover risk mitigation and decommissioning.

**Variable Annual O&M Costs**

**Additional Staff at Launch**

A provision is included for additional temporary staff for the first 6 to 12 months of scheme operation (i.e. the bow wave). This is deemed necessary because there will be additional customer service calls until users become familiar with the operations.

**Card Payment Transaction Fees**

This cost has been calculated on the extreme assumption that non-compliant vehicles will pay the charge daily (i.e. assumed 1% transaction charge against daily revenue).

It is also possible that limits like the Brussels scheme are implemented i.e. if a vehicle is charged then it has a 3-month grace period before any additional charge is applied (to give user time to upgrade the

vehicle). Other similar strategies may significantly reduce the payment amount and associated card transaction costs.

The centralised JAQU Digital portal may also manage all such payments with Tyne Authorities then paying a reduced transaction fee. This will be clarified in the coming weeks.

**Collection Fees**

There is currently no information for collection fees for using the planned JAQU Digital Portal. As an interim measure, the costings assume fees of 2% of transaction value.

**DVLA Look Up Fees**

The DVLA currently apply a charge of 11p per lookup. All licence plates will need to be 'looked up' at least once to determine the registered vehicle and emissions class. However, it is typical to then maintain a local database of such information so that repeat look-ups are avoided.

The costings currently assume a 75% cost reduction on the basis that a local or JAQU IT solution is applied. This reduction could be increased if assumptions are made about the level of commuter traffic.

**Delinquent Payment Enforcement Costs**

Delinquent payment enforcement costs assume that to complete% of non-compliant transactions will fall into this category and that there will be a £15 cost per transaction.

Costs in this area can be quite significant but it is typical to apply an administration charge to cover the cost of enforcement. This additional revenue typically cancels out the cost and indeed, can sometimes generate additional revenue.

International experience indicates that most violators tend to be a minority of users who are repeat offenders. Some schemes therefore apply a strategy of only targeting repeat offenders and then publicising successful prosecutions. This approach serves to minimise costs whilst also encouraging strong compliance rates (i.e. users perceive fairness and strong enforcement therefore tend to comply with scheme rules).

Costings also include a provision for DVLA lookup costs to obtain registered vehicle owner details.

## Summary

The costings require further iterations once decisions are made on key elements of the scheme.

The workings include revenue projections based on the assumptions highlighted in this note. Once these are developed then it will be possible to finalise the cost/revenue model and further identify where savings can be made.

Assumptions regarding transaction fees (card payments, collection fees, delinquent payment fees) require more detailed discussion and we need further information before being able to stand over these figures i.e. the current cost model therefore comes with a health warning. These will be developed in detail for submission in the FBC.