

Department for Transport



Clean Air Zone Service Annual Report

15 March 2021 to 15 March 2022

Date: April 2024



We are the Department for Environment, Food and Rural Affairs. We're responsible for improving and protecting the environment, growing the green economy, sustaining thriving rural communities and supporting our world-class food, farming and fishing industries.

We work closely with our 33 agencies and arm's length bodies on our ambition to make our air purer, our water cleaner, our land greener and our food more sustainable. Our mission is to restore and enhance the environment for the next generation, and to leave the environment in a better state than we found it.



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# **Directors' foreword**

The nation has faced unprecedented challenges over the last couple of years with the pandemic, significant changes to how people travel and impacts on business. In this context, we have been pressing ahead with supporting local authorities to overcome air quality challenges.

We know that poor air quality is a major environmental risk to human health. The Committee on the Medical Effects of Air Pollutants' latest advice, published in August 2018, is that the mortality burden of the air pollution mixture (based on both Particulate Matter 2.5 and Nitrogen Dioxide) in the UK is an effect equivalent to 28,000 to 36,000 deaths per annum.

There is clear evidence of a link between exposure to air pollution mortality, and morbidity. It is a particular threat to vulnerable groups, including the elderly, young children, and those suffering from chronic respiratory diseases (for example, bronchitis and asthma) and heart disease. Those living in city centres, and near busy roads, often on the lowest incomes, are most exposed to dangerous levels of air pollution.

During 2021 to 2022, the Joint Air Quality Unit (JAQU) continued to work with local authorities in England to develop local plans to tackle roadside nitrogen dioxide (NO<sub>2</sub>) exceedances in their areas and provided support for the implementation of these plans, including three successful launches of Clean Air Zones (CAZs) in Bath and North East Somerset (B&NES), Birmingham and Portsmouth. To support this, we worked in partnership with our technical provider, Informed Solutions, and colleagues in the Driver and Vehicle Licensing Agency (DVLA) to construct and manage a digital service for vehicle owners to pay to drive in a clean air zone and added new cities to the vehicle emissions compliance checker.

This system is critical to the successful delivery of CAZs, enabling local authorities to charge vehicles that do not meet the emission standard to drive in the zone. This disincentive is intended to encourage people to change their behaviours either by choosing alternative travel modes or avoiding charging journeys – initial evidence suggests that it is working. For example, early indications are that there has been a reduction in the levels of NO<sub>2</sub> within the CAZs in both B&NES and Birmingham when comparing 2019 (pre-Covid) to 2021 results. Later this year, the Government will publish the annual air quality compliance report which will set out whether compliance has been achieved and progress towards the goal across England.

This has been a challenging year for our teams, local authorities and our commercial partners. The pandemic and other issues have meant that we have had to work even more efficiently, adopting an agile approach to deliver our services on time and with the highest possible accuracy. We have succeeded. Not only did we pass the Government Digital Service digital assessment, but we have also been praised by local authorities for our collaborative approach. The local authorities deserve recognition for retaining their focus on delivery in spite of the pressures of the pandemic.

In November 2021, we were delighted to see that success recognised at the Digital Leaders awards, where our team won the COP26 environment award. The panel, made up of digital leaders across the UK, recognised the work and scale of challenge to improve the environment. The award showcases the incredible work that our team and that the teams at DVLA, the local authorities and at our technical provider, Informed Solutions, have delivered to build a resilient service which we can be very proud of.

### Hannah Newell, Claire Wren and Gabrielle Edwards

Directors of Joint Air Quality Unit, Department for Transport & Department for Environment, Food and Rural Affairs

# Introduction

This report focuses on the operational performance of the CAZ service, known as the 'Drive in a Clean Air Zone' service, from 15 March 2021 to 15 March 2022. It provides a detailed overview of the service, its components, current live zones, and key performance statistics.

The government is committed to building a stronger economy and a fairer society. A cleaner, healthier environment benefits people and the economy. Clean air is essential for making sure the UK is a welcoming, healthy, and prosperous country for people to live and work.

Over recent decades, UK air quality has significantly improved thanks to concerted action at all levels but there is more to do. Poor air quality is the largest environmental risk to public health in the UK and investing in cleaner air and doing even more to tackle air pollution are priorities for the UK government.

The Air Quality Standards Regulations 2010 (AQSR)\* require that the Government keep concentrations of major traffic-related pollutants within specified limits values. In the event of exceedances, an Air Quality Plan needs to set out "appropriate measures" that will ensure that the exceedance period is kept "as short as possible."

The UK is compliant with the limit values set out in the AQSR for all pollutants except Nitrogen Dioxide (NO<sub>2</sub>). Defra is currently working with the local authorities of non-compliant zones in England on the basis of the Air Quality Plans of 2017. Action to reduce NO<sub>2</sub> and improve air quality is set out in the Government's UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations, published in 2017 (2017 UK NO<sub>2</sub> Plan). This supports the 25 Year Environment Plan and the Clean Air Strategy. Through Ministerial Directions, local authorities are placed under a duty to identify measures to reduce emissions that will bring them into compliance in the shortest possible time. Where these areas are not predicted to come into compliance within 3 years, the authority needs to consider if there are measures that could achieve compliance more quickly than CAZ (the benchmark national measure that other options are measured against). Since the publication of our 2017 UK NO<sub>2</sub> Plan and its further Supplement in 2018, the Government has collaborated with 61 English local authorities that are within non-compliant zones and is working with National Highways to agree plans for delivering NO<sub>2</sub> compliance in the shortest possible time. As a result of this we are working closely with local authorities across England to develop clean air plans, including measures such as Clean Air Zones, so we can help them to target the pollution affecting their communities - protecting communities and the environment.

CAZs are zones where vehicle owners are required to pay a charge if they are driving a vehicle that does not meet the emission standard for their vehicle type in that zone. The Drive in a Clean Air Zone Service supports local authorities who have identified a CAZ in their local plan as being the most appropriate measure to deliver compliance with legal NO<sub>2</sub> limits in the shortest possible time.

The Drive in a Clean Air Zone Service is operated by the Joint Air Quality Unit (JAQU), a team established jointly between the Department for Environment, Food and Rural Affairs (Defra) and the Department for Transport (DfT). The Driver and Vehicle Licensing Agency (DVLA) have also supported the build and operational phase and have now taken ownership of the service. To support the Drive in a Clean Air Zone Service, there is a national customer service support centre located at DVLA which supports customer enquiries and takes digitally assisted payments.

An 'Evaluation of Local NO<sub>2</sub> Plans' report has been published by Defra for the same periods showing key findings from 2021 including early analysis of air quality and traffic data in Bath and North East Somerset (B&NES) local authority area following the launch of their CAZ on 15 March 2021.

In September 2022, Defra will also publish its annual 'Air Pollution in the UK Report' which is an assessment of compliance with legal air quality limits and summarises measurements from national air pollution monitoring networks. Links to these reports can be found in Annex A.



# Map of live clean air zones

# **Assurance statement**

The Drive in a Clean Air Zone service has been built and maintained in line with Government Digital Service (GDS) technology and digital standards. The service was successful at its Beta assessment on 5 May 2021.

The service operates and abides by GDPR principles. We are committed to the principles of GDPR by adopting the concept of 'data privacy by design' within our operational model. We remain accountable by having detailed policies and systems in place including the management of access rights requests. Our policies are regularly reviewed and updated. The Air Quality(Taxis and Private Hire Vehicles Database) Regulations 2019 further restricts the information sharing on taxis and private hire vehicles, allowing the sharing of these data only between specified licensing authorities for the strict purpose of enforcing measures under the 2017 Air Quality Plan.

We take our data protection responsibilities extremely seriously and have robust safeguards in place around processing data to ensure that we are processing data lawfully.

We hold data on secure systems, and we are IS027001 and Cyber Essentials Plus certified. Information security and integrity is key to us. We do not retain data for longer than is necessary and only keep data if there is a lawful basis which allows fair retention. When we do need to remove data from our possession, we do so by using industry approved standards so the disposal or anonymisation is thoroughly compliant. We use the data we attain for a specific purpose. This means that data is not processed for any alternative reasons other than what the data was originally collected for.



# Service highlights

# March 2021 to March 2022



# **Service reliability**

	Target SLA* Achieved (%)	Actual SLA Achieved (%)	Definitions
Service Availability	99.50	99.90	A measure of the Drive in a Clean Air Zone Service availability. The target is 99.5%, excluding planned downtime for Continuous Improvement work.
Check a Vehicle – Business Rules Accuracy	98.00	99.98	A measure of the accuracy with which a vehicles compliance status is determined. The target is 98% where: (i) a valid Vehicle Registration Number (VRN) is provided; (ii) the VRN exists in the DVLA database; and (iii) an associated business rule exists.
Check a Vehicle – Web Page Response Time	95.00	100.00	A measure of the average end-to-end time that the Drive in a Clean Air Zone Service takes to respond to a user request on a web page. The target is that 95.0% of web page response times are within 3 seconds.

\*SLA means service level agreements

During the period, the Drive in a Clean Air Zone Service has exceeded its service level agreements for all key performance measures specified in the CAZ Agreement. The CAZ Agreement is a contract between JAQU and the CAZ local authority for the provision of CAZ Central Service. The service has been deliberately architected to deliver the required levels of security, availability, and performance even in 'P1' emergency scenarios (scenarios where all of the service or a key part of it, such as the Check a Vehicle journey service, is unavailable). The service remains subject to continual review and improvement to take account of new best practice and evolving local authority on-boarding requirements.

# **Service components explained**

The purpose of the Drive in a Clean Air Zone Service is to enable drivers of vehicles driving in a CAZ to find out if a UK registered vehicle will be charged to drive in a CAZ and, if so, to pay the daily charge. In addition, the service allows local authorities to check the compliance of vehicles travelling through their zones, as captured via their ANPR network and the receipt of paid daily charges via the digital service.

The Drive in a Clean Air Zone Service has three core components:

- Check a Vehicle
- Pay a Charge for a Vehicle
- Check and Pay for Multiple Vehicles

The Drive in a Clean Air Zone Service was delivered by a cross-government team of digital, operational and policy leads. It is hosted on Amazon Web Services infrastructure and published to Gov.uk.

### 1. Check a Vehicle

The first component, 'Check a Vehicle' (also commonly referred to as Vehicle Compliance Checker), was released in February 2020 within the Drive in a Clean Air Zone Service on Gov.uk. The service allows users to check whether their vehicle is compliant or will be charged for driving in a CAZ. It was designed to give users an understanding of how a zone will impact them and what they can do to become compliant. It therefore includes links to national guidance, local authority websites detailing local exemptions and policies, zone boundaries and information, where relevant, on support available to upgrade and replace non-compliant vehicles.

The 'Check a Vehicle' service determines whether a vehicle is required to pay a charge in each zone based on the CAZ Framework and the class of CAZ each Local Authority has implemented in order to achieve compliance with legal NO<sub>2</sub> limits. The CAZ Framework is a document setting out the principles local authorities should follow when setting up a CAZ. The service uses data supplied by DVLA to classify the vehicle based on its vehicle type and Euro emission standard, accounting for national exemptions using data from the Ministry of Defence, Taxi licensing authorities and the Energy Savings Trust.

The Drive in a Clean Air Zone Service allows users to check the compliance status of their vehicle and check the applicable charge in any live or imminent to launch CAZ.

Local Authorities are launched onto the 'Check a Vehicle' service around 6 months prior to the launch of their zones, which allows customers sufficient opportunity to check the compliance of their vehicles.



### Graph 1.1 – Vehicle compliance checks per month

**Graph 1.1** shows the number of checks performed on the 'Check a Vehicle' service per month since March 2021. There was a steady increase in the first four months, with a peak of 830,000 checks in June. From July to August, number of checks stayed relatively consistent between 400,000 to 500,000 per month. There was a secondary peak in January with just under 630,000 checks.



Graph 1.2 – Cumulative vehicle compliance checks

**Graph 1.2** shows the cumulative vehicle checks on the 'Check a Vehicle' service from March 2021 to March 2022. There were almost 6 million checks in total for the reporting period with a steady increase month by month.





**Graph 1.3** shows the locations of users of the 'Check a Vehicle' identified through Google Analytics. To highlight the live CAZs, Birmingham accounted 22%, Portsmouth at 1.2% and B&NES at 0.3% of user locations.

# 2. Pay a Charge for a Vehicle

The 'Pay a Charge for a Vehicle' component allows users with non-compliant vehicles to pay for driving within a CAZ. The daily charge period for a CAZ runs from midnight to midnight. Users need to pay separately for each CAZ they drive within. The charge can be paid up to 6 days ahead of driving within a CAZ, on the day of travel or up to 6 days after. The total payment window is 13 days.

For individual owner drivers who have driven or are planning on driving in a charging CAZ, users can pay by credit/debit card. Gov.pay is the payment service used to support the Pay a Charge for a Vehicle component.

# 3. Check and Pay for Multiple Vehicles

To better meet the needs of fleet operators the service includes the 'Check and Pay for Multiple Vehicles' component. This enables fleet users to upload vehicles from their fleet individually or in bulk, check if their vehicles are compliant and pay a charge for non-compliant vehicles together. Multiple users with approvals can be set up to a single account. Previous payments can be viewed and both compliance results and the payment history can be downloaded for reconciliation and record-keeping. Users are also able to set up direct debits to make payments quicker and easier.

The ability to manage fleets and understanding levels of vehicle compliance for different zones, enables fleet operators to assess the actions needed to be undertaken to improve their contribution to air quality in our cities. The service also aims to reduce the burden on users to administrate their vehicles, improving their likelihood to contribute either by upgrading their fleet or paying the charge so local authorities can invest in further air quality initiatives.

	Total number of individual payments	Total number of individual journeys paid for	Total number of business account payments	Total number of business account journeys paid for
B&NES since 15 March 2021	96,035	137,839	14,824	29,873
<b>Birmingham</b> Since 1 June 2021	965,765	1,293,011	1,378,460	85,449
Portsmouth Since 29 November 2021	2,866	4,405	239	457
Total	1,064,666	1,435,255	1,393,523	115,779

### Table 2.1 – Check and Pay for Multiple Vehicles

From Table 2.1, we can see that just over 1.4 million individual journeys have been paid for, with just over 115,000 being paid for by the business account service. Not displayed in this table is the total number of offline payments in the year, this is 12,040 and makes up 1.1% of all payments. Offline payments are undertaken by the customer contact center on behalf of individual users.



### Graph 2.2 – Payment day relative to day of travel

**Graph 2.2** shows the payment trends within the payment window. The highest % of payments are made on the day of the travel (day 0) which accounts for 40% of individual and 27% of business account payments. 1 day after the day of travel is the next most popular day for payments, accounting for 17% of individual and 19% of business account payments. For all payment days, the pattern is broadly similar for both individual journeys paid for and those paid for through the business accounts.

 Table 3.1 – Business account summary data

Total number of business accounts	10,414
Total number of users registered*	13,207
Total number of vehicles registered	375,298

\*Multiple users with role-based permissions can be set up

# Table 3.2 – Number of non-compliant vehicles registered to a business account

B&NES	66,103
Birmingham	83,073
Portsmouth	15,190
Total	164,366

Graph 3.3 – Number of vehicles registered per account



**Graph 3.3** shows the number of vehicles associated with each account in set ranges. The greatest number of accounts have between 2-10 vehicles in them. Only 2 accounts have more than 25,000 vehicles each, in total these make up 37% of all vehicles registered to a business account.

# Live clean air zones

There are four classes of CAZs covering different vehicle types.

- CAZ A charges apply to non-compliant taxis/private hire vehicles, buses/coaches
- CAZ B charges apply to non-compliant taxis/private hire vehicles, buses/coaches, HGVs
- CAZ C charges apply to non-compliant taxis/private hire vehicles, buses/coaches, HGVs, LGVs
- CAZ D charges apply to non-compliant taxis/private hire vehicles, buses/coaches, HGVs, LGVs, private cars.

Where a local authority's plan identifies a CAZ is needed, they are expected to implement the minimum class of CAZ that will achieve legal NO<sub>2</sub> limits in the shortest time possible in order to minimise the impact of the zone on businesses and individuals in the area.

There are 3 CAZ zones currently live.

CAZ location	CAZ class	Date launched
Bath and North East Somerset (B&NES)	С	15 March 2021
Birmingham	D	1 June 2021
Portsmouth	В	29 November 2021



# Bath and North East Somerset (B&NES)

B&NES launched its CAZ on 15 March 2021. B&NES operates a Class C CAZ, charging non-compliant buses, coaches, taxis, private hire vehicles (PHVs), heavy goods vehicles (HGVs) and light goods vehicles (LGVs). The zone is 1.2sq miles and covers the city centre. The zone operates 24 hours a day, 365 days a year. There are 68 cameras within the zone.

### Map of B&NES CAZ





Graph 4.1a – B&NES total number of vehicles driving within CAZ (per week)

**Graph 4.1a** shows the monthly trend of total vehicles driving within B&NES CAZ. The number of vehicles driving within B&NES CAZ remains fairly consistent between 200,00 and 300,000 vehicles per month.





**Graph 4.1b** shows the monthly trend of chargeable vehicles driving within B&NES CAZ. At the beginning of March, non-compliant vehicles made up 5% of vehicles driving within the CAZ. This reduces to around 2% for the remaining period.



### Graph 4.1c – B&NES vehicle types driving within zone

Graph 4.1d – B&NES non-compliant vehicle types driving within zone



**Graphs 4.1c and 4.1d** show that private cars make up the greatest proportion of overall vehicles driving within CAZ, with vans making up the greatest proportion of non-compliant vehicles.

# Birmingham

Birmingham launched its CAZ on 1 June 2021. Birmingham operates a Class D CAZ, charging non-compliant Buses, coaches, taxis, private hire vehicles (PHVs), heavy goods vehicles (HGVs), vans, minibuses, and private cars. The zone is 3sq miles and covers all the roads within the A4540 Middleway Ring Road, but not the Middleway itself. The zone operates 24 hours a day, 365 days a year. There are 67 cameras within the zone.

### Map of Birmingham CAZ





Graph 4.2a – Birmingham total number of vehicles driving within CAZ (per week)

Graph 4.2a shows the monthly trend of total vehicles driving within Birmingham's CAZ. For most of the reporting period, this stayed around 700,000 per month.

that are non-compliant (per week) 20.0% 18.0% % Non-compliannt vehicles 16.0% 14.0% 12.0% 10.0% 8.0% 6.0% 4.0%

2.0% 0.0%

Jun

Jul

Aug

Sep

Graph 4.2b – Birmingham percentage of vehicles driving within CAZ

Graph 4.2b shows the monthly trend of chargeable vehicles driving within the Birmingham CAZ. At the beginning of June, non-compliant vehicles made up 19% of vehicles driving within the CAZ. This reduces to around 10-12% for the remaining period.

Month

Oct

Nov

1 1 1

Dec

1 1

Jan

1 1 1

Feb

Mar



### Graph 4.2c – Birmingham vehicle types driving within zone

Graph 4.2d – Birmingham non-compliant vehicle types driving within zone



**Graphs 4.2c and 4.2d** show that cars, vans and taxis driving in Birmingham CAZ make up the most significant majority of non-compliant vehicles.

## Portsmouth

Portsmouth launched its CAZ on 29 November 2021. Portsmouth operates a Class B CAZ, charging non-compliant buses, coaches, taxis, private hire vehicles (PHVs), and heavy goods vehicles (HGVs). The zone is approximately 1.1sq miles, located to the southwest of Portsmouth. The zone operates 24 hours a day, 365 days a year. There are 55 cameras (plus one emergency deployable) within the zone.

### Map of Portsmouth CAZ





Graph 4.3a – Portsmouth total number of vehicles driving within CAZ (per week)

**Graph 4.3a** shows the monthly trend of total vehicles driving within Portsmouth CAZ. This started with 220,000 in December with a steady increase month by month to 300,000 in March.





**Graph 4.3b** shows the Monthly trend of chargeable vehicles driving within Portsmouth CAZ. At the beginning in December, non-compliant vehicles made up just over 0.2% of vehicles driving within the CAZ. This gradually decreases to 0.1% in March.





Graph 4.3d – Portsmouth non-compliant vehicle types driving within zone



**Graphs 4.3c and 3.4d** show that the majority of vehicles driving within the Portsmouth CAZ are cars. The highest percentage of non-compliant vehicles are taxis, followed by HGVs and buses.

# **Support Services**

The DVLA operate a customer support centre in Swansea handling all national calls and emails relating to the Drive in a Clean Air Zone Service as well as taking digitally assisted payments. The call centre was successfully transferred from an outsourced provider, Teleperformance, in May 2020 and has successfully maintained performance throughout the pandemic.





**Graph 5.1** shows the call volumes per month received by the Contact centre. This increased steadily in the first 5 months of the reporting period with a peak of 22,000 in July before reducing steadily for the remainder of the period.





**Graph 5.2** shows the email volumes per month received by the Contact centre. This remained consistently between 2,0000 and 2,500 for most of the reporting period although this reduces in February to 1,000 per month.

#### Table 5.3 – Top 5 contact trends

1	Customers had received penalty
2	Customers called to make daily charge payment
3	Customer wanted to dispute the penalty received
4	Missed payment window and checking what would happen if they didn't pay
5	Customers wanted to find out if they had driven in a CAZ

Customer trends have remained steady over the year with the highest call volumes being around penalty charge notices (PCN), either needing advice after receiving a PCN, wanting to dispute it, or understanding the process if they didn't pay. Payment and confusion on zone boundaries also ranked highly. The central call centre has strong links with local authority contact centres to manage enquires and customer journeys as effectively as possible. The data collected on call trends and volumes are analysed and used to make improvements to the Drive in a Clean Air Zone Service along with being shared with local authorities in monthly service reviews.



# **Annex A – Further Reports**

Link to 'Evaluation of Local NO<sub>2</sub> Plans' report: <u>http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Pro-jectID=20688&FromSearch=Y&Publisher=1&SearchText=AQ0851%20&SortString=Pro-jectCode&SortOrder=Asc&Paging=10#Description</u>

Link to previous 'Air Pollution in the UK Report': https://uk-air.defra.gov.uk/library/annualreport/index

# Annex B – Acronyms

- **AQSR** Air Quality Standards Regulations 2010
- AWS Amazon Web Services
- B&NES Bath and North East Somerset
- BCC Birmingham City Council
- CAZ Clean Air Zone
- Defra Department for Environment, Food and Rural Affairs
- DfT Department for Transport
- **DVLA** Driver and Vehicle Licensing Agency

**Google Analytics** – Google Analytics acquires user data from each website visitor using page tags. A JavaScript page tag is inserted into the code of each page. This tag runs in the web browser of each visitor, collecting data and sending it to one of Google's data collection servers

- HGV Heavy Goods Vehicle
- JAQU Joint Air Quality Unit
- NO<sub>2</sub> Nitrogen Dioxide
- PCC Portsmouth City Council
- PCI Payment Card Industry
- VCC Vehicle Compliance Checker
- **VRN** Vehicle Registration Number