



Bristol City Council Clean Air Plan
Outline Business Case
Clean Air Zone Boundary Updates

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1. Introduction

Poor air quality is the largest known environmental risk to public health in the UK¹. Investing in cleaner air and doing more to tackle air pollution are priorities for the EU and UK governments, as well as for Bristol City Council (BCC). BCC has monitored and endeavoured to address air quality in Bristol for decade and declared their first Air Quality Management Area in 2001. Despite this, Bristol has ongoing exceedances of the legal limits for Nitrogen Dioxide (NO₂) and these are predicted to continue until around 2029 without intervention.

The UK has in place legislation transposing requirements in European Union law, to ensure that certain standards of air quality are met, by setting Limit Values on the concentrations of specific air pollutants. In common with many EU member states, the EU limit value for annual mean nitrogen dioxide (NO₂) is breached in the UK and there are on-going breaches of the NO₂ limit value in Bristol. The UK government is taking steps to remedy this breach in as short a time as possible, with the aim of reducing the harmful impacts on public health. Within this objective, the government has published a UK Air Quality Plan and a Clean Air Zone Framework, both published in 2017. The latter document provides the expected approach for local authorities when implementing and operating a Clean Air Zone (CAZ).

Due to forecast air quality exceedances, in 2017 Bristol City Council has been directed by the Minister Therese Coffey (Defra) and Minister Jesse Norman (DfT) to produce a Clean Air Plan to achieve air quality improvements in the shortest possible time. In line with Government guidance, as part of the Plan, Bristol City Council has considered a range of options for the implementation of a Clean Air Zone (CAZ), including both charging and non-charging measures, in order to achieve sufficient improvement in air quality and public health and in line with legal requirements as set out below. This process requires the production of a Strategic Outline Case, an Outline Business Case (this report and a Full business Case, that will be prepared following the Outline Business Case).

Jacobs has been commissioned to support BCC to produce an Outline Business Case (OBC) for the delivery of the CAP; a package of measures which will bring about compliance with the Limit Value for annual mean NO₂ in the shortest time possible in central Bristol. The OBC assesses the shortlist of options set out in the Strategic Outline Case², and proposes a preferred option including details of delivery. The OBC forms a bid to central government for funding to implement the CAP.

In line with Government guidance BCC is considering implementation of the 'Hybrid Option' which includes a diesel car ban across a small area (from 7am-3pm) and a charging scheme for non-compliant buses, taxis, HGVs and LGVs, alongside a number of other measures.

1.1 Purpose of this Report

The purpose of this Report is to document the CAZ zone limits initially considered and how this boundary has changed over time. The refinement of the scheme boundary has occurred in parallel to option development work which is reported in the Option Assessment Report appended to the Outline Business Case.

¹ Public Health England (2014) Estimating local mortality burdens associated with particular air pollution.
<https://www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution>

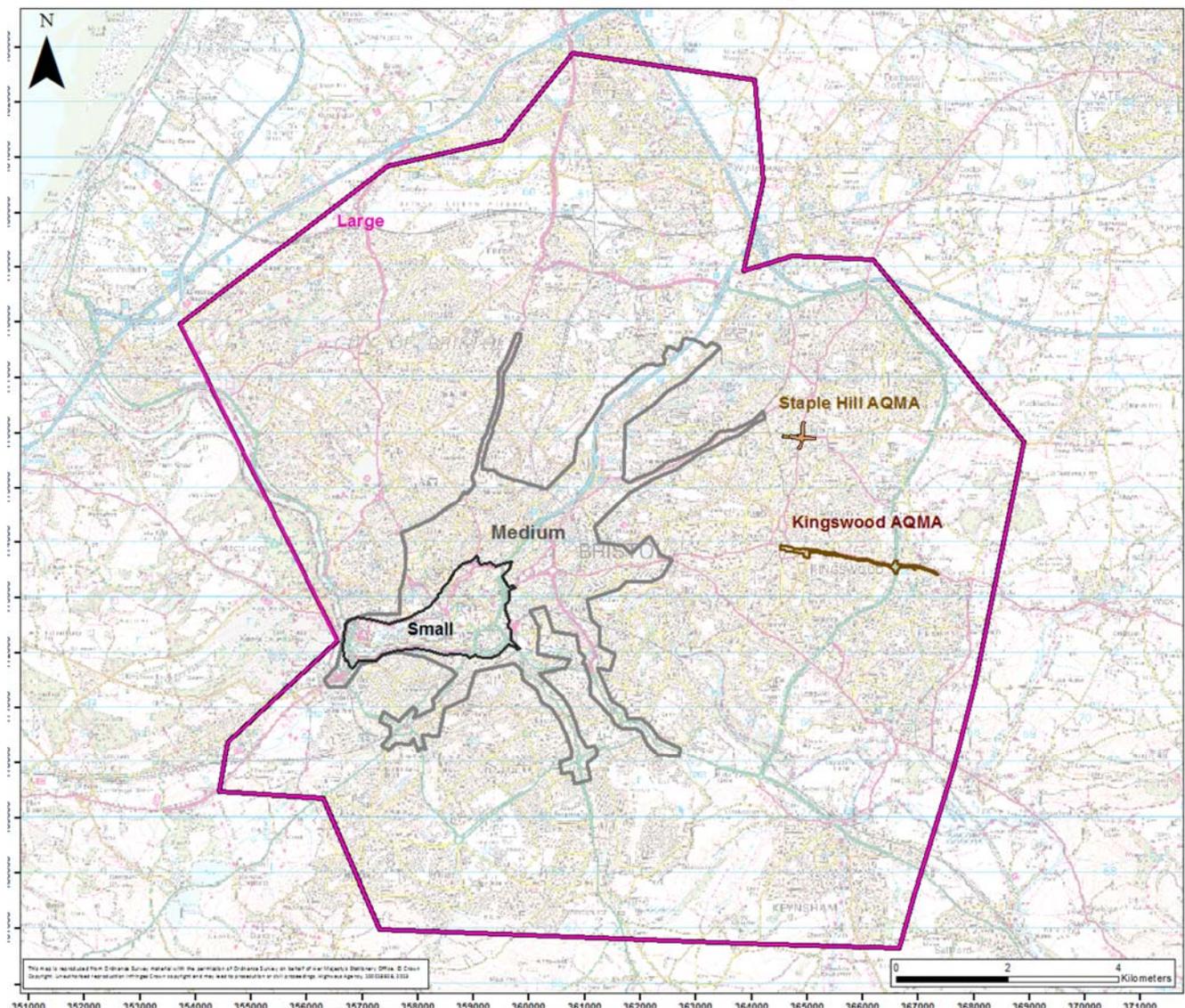
² Bristol City Council Clean Air Plan: Strategic Outline Case, April 2018
https://www.cleanairforbristol.org/wp-content/uploads/2018/05/Strategic-Outline-Case_BCC_Final_05.04.18.pdf

2. Bristol Clean Air Zone Boundary Updates

2.1 Initial Clean Air Zone Boundary Proposals

For the Bristol City Council Clean Air Plan: Strategic Outline Case (SOC), five different CAZ boundaries were proposed. These boundaries were assessed against several different criteria to assess their suitability for the scheme. The boundaries can be seen in Figure 2-1.

Figure 2-1: All Proposed Clean Air Zone Areas



The five geographical scopes of the CAZ boundary include:

- 1) Large - the Bristol urban area within the boundary of the M4 and M5 and excluding areas within Bath and North East Somerset (B&NES) and North Somerset Council (NSC).
- 2) Medium - BCC Air Quality Management Area (AQMA)
- 3) Medium - BCC & South Gloucestershire Council (SGC) AQMA combined
- 4) Medium - BCC & SGC AQMA separate
- 5) Small - within the Inner Ring Road

The three boundaries were analysed with each of the CAZ Charging Classes A,B,C and D against a list of Critical Success Factors (CSFs), at a high level, to formulate a shortlist of options to take forward. The full analysis of this can be found in the SOC; a summary is provided below:

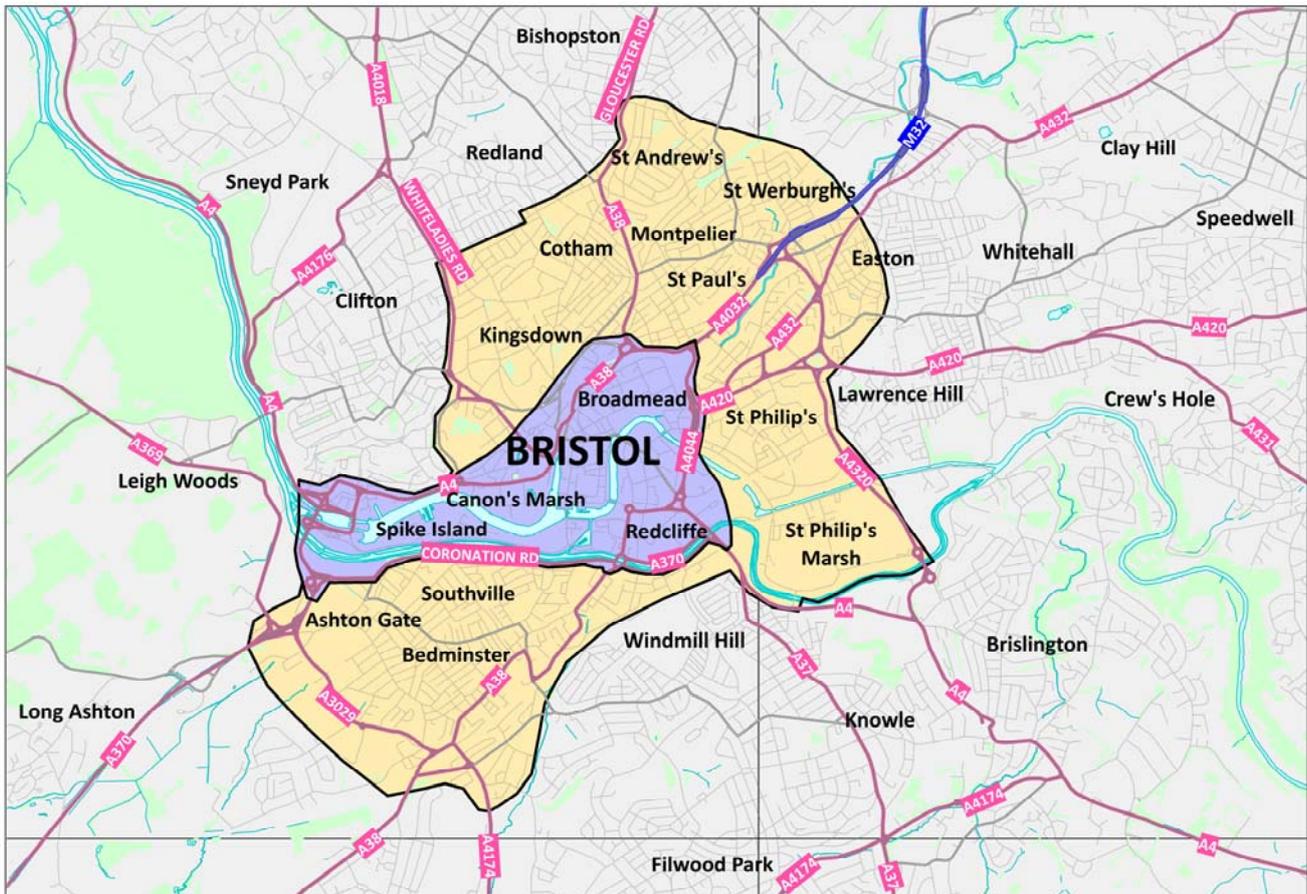
- The primary CSF was to deliver compliance with the Joint Air Quality Unit (JAQU) objectives in the shortest possible timescale. Therefore, a projected timescale for implementation and achieving compliance for each boundary proposal was calculated. Findings were as follows:
 - The Small CAZ was projected to be the quickest to implement. This was mainly due to the reduced timescale needed for detailed design and installation of the infrastructure required as part of the zone. This was due to the reduced area and the number of boundary crossing points needed;
 - It was estimated that the Small CAZ would take 1.83 years to implement, the Medium CAZ scopes all taking 3.33 years and the Large CAZ 5.67 years, due to this the Large CAZ option was immediately discounted.
 - A Charging Class C and D CAZ for both Small and Medium geographical scopes was predicted to achieve compliance at all air quality monitoring sites by 2021, although a Medium scope would not be implemented until 2022, whilst a Class B CAZ would be very close. On this basis there was felt to be no justification for making the zone area larger than necessary.
- As a result of this initial assessment, a CAZ Charging Class C and D option of geographical scopes 2, 3, 4 and 5 were carried forward, where they were 'scored' against a long list of secondary CSFs. The highest scoring options were a Small CAZ boundary with a Charging Class D and a Medium (scope 3) with a Charging Class C CAZ. It was chosen to take forward 4 options to the next phase:
 - Geographical scopes 4 and 5 with CAZ Charging Classes C and D, they were chosen because:
 - It minimised the inclusion of residential areas within the zone, therefore minimising impacts on vulnerable groups. This was also expected to maximise public acceptability of the zone since fewer households were directly affected by inclusion;
 - It minimised the number of businesses included within the zone, and therefore reduced the risk of adverse impacts on the local economy;
 - It only included areas with a known, and evidenced, air quality problem (i.e. within the AQMA); and
 - It required the least amount of infrastructure to be implemented on street, including signage, road markings and ANPR cameras. This thus reduced the risk that suppliers may not be able to deliver within the required timescales.

These four options were considered further in the Option Assessment Report, which is Appendix C to the OBC.

2.2 Draft Outline Business Case - First Clean Air Zone Amendments - January 2019

Following the SOC the Small and Medium CAZ boundaries were refined as a result of assessments into the infrastructure requirements. They reflect a similar area and a proportion of the city to the boundaries presented in the SOC and can be seen in Figure 2-2. The adjustments from the initial CAZ boundary proposals include:

Figure 2-2: First proposed amendments to the CAZ boundaries



Small CAZ

The Small CAZ has only undergone minor adjustments since the SOC stage with boundaries being refined around properties that would fall inside or outside the zone.

Medium CAZ

The Medium CAZ has been more significantly adjusted since the SOC, with removal of the arms covering major roads into Bristol following assessment of the infrastructure requirements, this includes:

- Gloucester Road (A38) – The boundary has been retracted back to start to the north of the junction between Berkeley Road, Sommerville Road and Gloucester Road (A38).
- M32 – The boundary has been reduced to follow the railway line between M32 junctions 2 and 3.
- A420 – The boundary has been moved west to sit to the east of Lawrence Hill Roundabout, at the point the Bristol and Bath Railway Path passes under the A420.

- Bath Road (A4) – The boundary has been reduced and now sits to the east of the junction between Bath Road (A4) and Totterdown Bridge.
- Wells Road (A37) – The boundary has been moved north and sits to the south of the Three Lamps Junction (junction between the Wells Road (A37) and Bath Road (A4)).

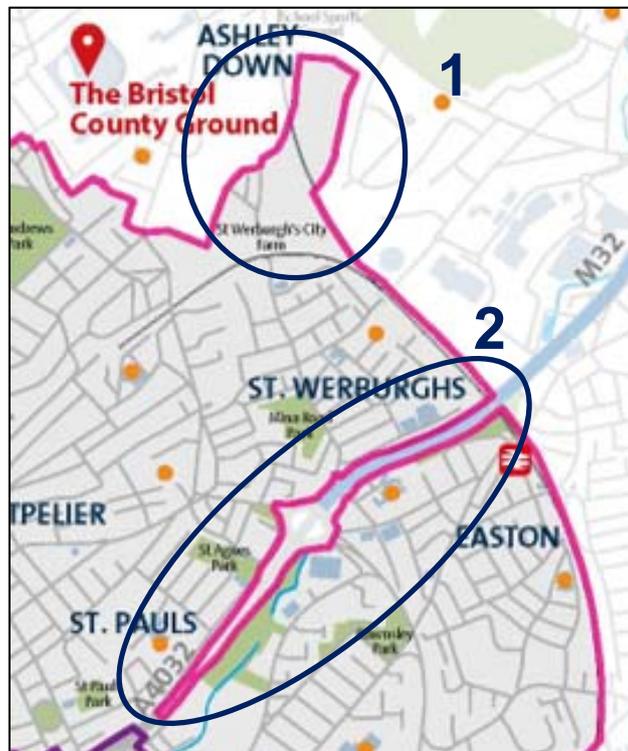
Following this the boundary was then extended in the areas between the arms in order for the boundary to cover a similar area as during the SOC stage, the areas now inside the zone include:

- St Philip's Marsh Industrial Estate – between the A4 and the A4320, as the boundary now follows the river to the south of the estate.
- Southville and Bedminster – between the A38 and the A370, as the boundary has been moved south west to follow the railway line to the east of Ashton Vale, it then encompasses Ashton Gate Trading Estate.

As with the Small CAZ boundary the Medium CAZ boundary underwent refinement around properties that would fall inside or outside the zone.

2.3 Second Clean Air Zone Amendments – January 2019

Figure 2-3: Second proposed amendments to the CAZ boundaries

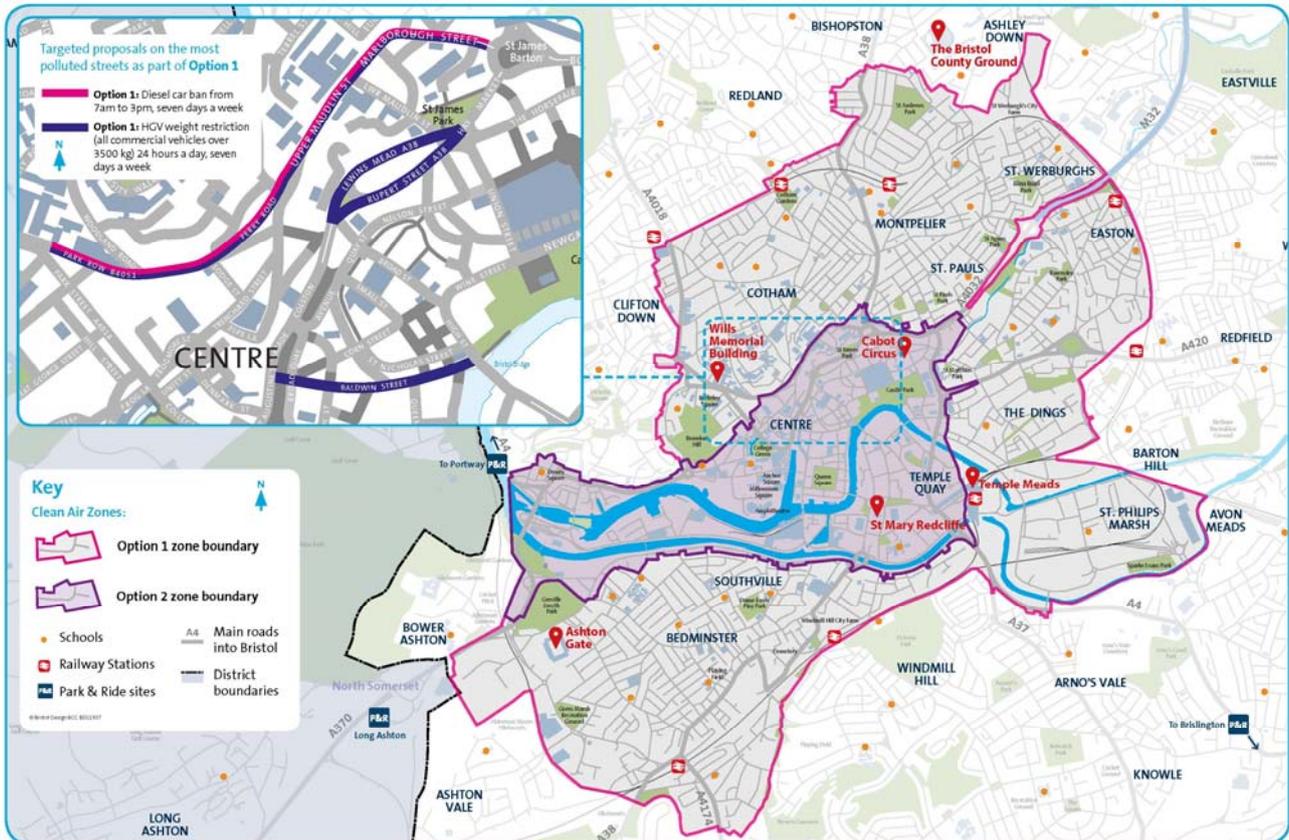


Following further study of the boundary two areas to the north east of the Medium CAZ Boundary were adjusted, these are highlighted in the dark blue circles in Figure 2-3, and are as follows:

- 1) Ashley Vale – The area to the northern end of Mina Road has been brought inside the zone boundary as the only access to this area is from Mina Road.
- 2) M32 – The M32 has been removed from the zone upon consultation with Highways England, the boundary now sits to the north east of the junction between Newfoundland Street (A4032) and Wade Street. This includes the removal of the roundabout at Junction 3, with entry points on the arms to the A4320 and Lower Ashley Road.

2.4 Third Clean Air Zone Amendments – July 2019

Figure 2-4: Third proposed amendments to the CAZ boundaries



This change to the proposals, introduced in the lead up to the consultation in July 2019 involved a development in the CAZ Options being proposed. Now being proposed are:

- Option 1 – A CAZ C using the Medium CAZ Boundary, this would also include a part time diesel car ban on Park Row, Perry Road, Upper Maudlin Street and Marlborough Street and a full time HGV ban on Park Row, Perry Road, Upper Maudlin Street and Marlborough Street, Lewins Mead, Rupert Street and Baldwin Street.
- Option 2 – A diesel car ban using the Small Boundary.

The proposed changes were made to the type of CAZ being delivered in order speed up the date of compliance and help to drive air pollution reductions on more polluted streets in the city centre.

2.5 Fourth Clean Air Zone Amendments – September 2019

Following engagement and workshops with Bristol City Council the boundaries were adjusted further so boundary crossing points were at decision points where possible, or could at least be better defined to aid drivers in avoiding entering the zone. Further to this, it was decided that in order to better sign and enforce both of the zone boundaries, they should be separated. In order to not affect compliance dates, it was decided that where necessary the CAZ C boundary should be moved outwards to include more areas. The changes to the boundaries are split below by area of the boundary to better show the changes that have been made. The major changes the boundaries will be described below the figures. This is the boundary that has been used for the preferred option reported in the Outline Business Case (OBC) which comprises of:

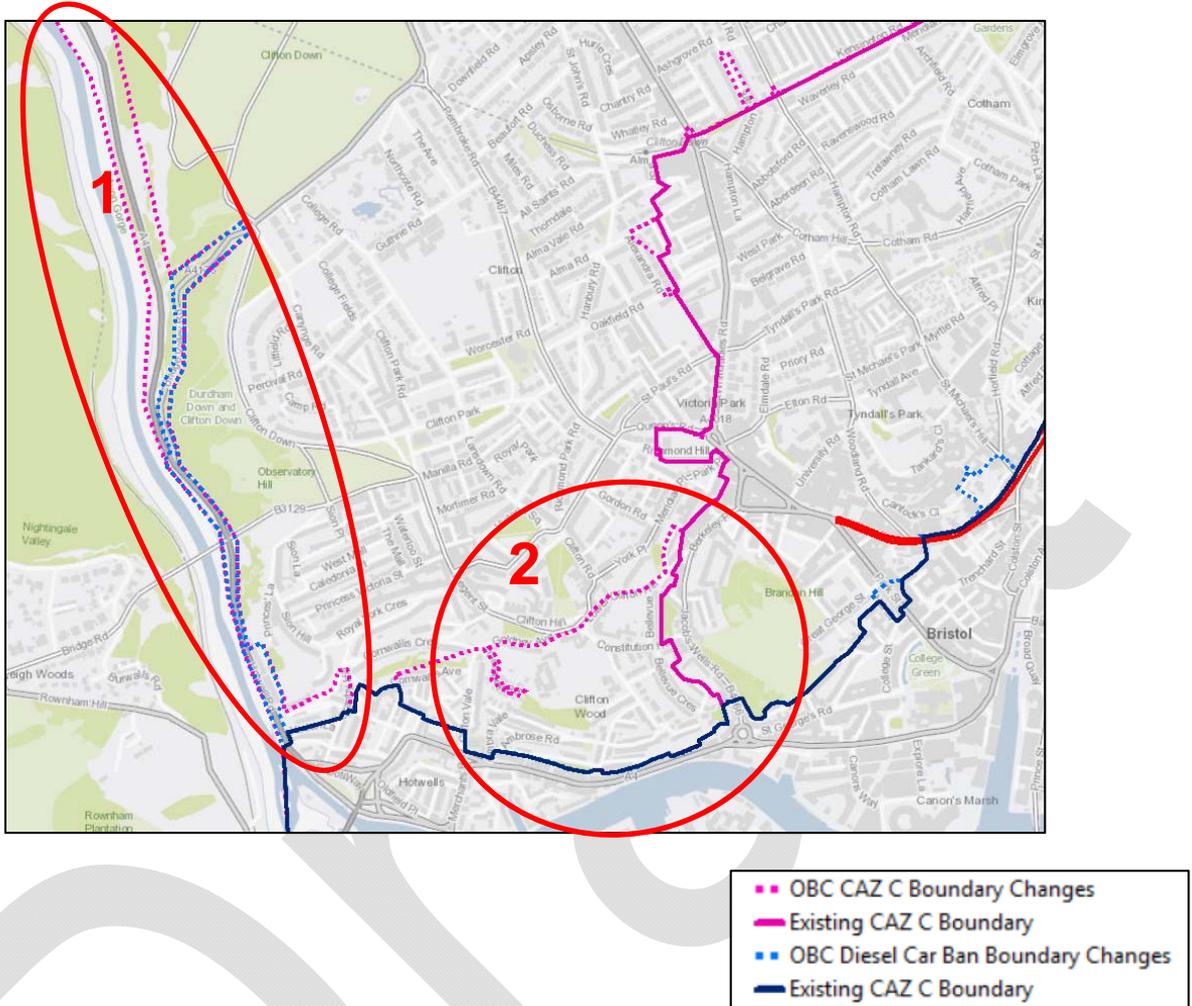
- Medium Area Class C (charging higher emissions buses, coaches, taxis, HGVs and LGVs);
- 8-hour small area car diesel exclusion (7am – 3pm)
- Car diesel scrappage scheme;
- HGV exclusion on links within the city centre with exceedances;
- Close of Cumberland Road inbound to general traffic;
- M32 Park and Ride with bus lane inbound;
- Holding back traffic to the city centre through the use of existing signals; and

The following key should be used in conjunction with Figure 2-5 to Figure 2-8, to denote the amendments to the CAZ and Diesel car ban boundaries:

- | | |
|----|-------------------------------------|
| •• | OBC CAZ C Boundary Changes |
| — | Existing CAZ C Boundary |
| •• | OBC Diesel Car Ban Boundary Changes |
| — | Existing CAZ C Boundary |

Figure 2-5: Fourth proposed amendments to the CAZ boundaries (north-west)

North-West adjustments

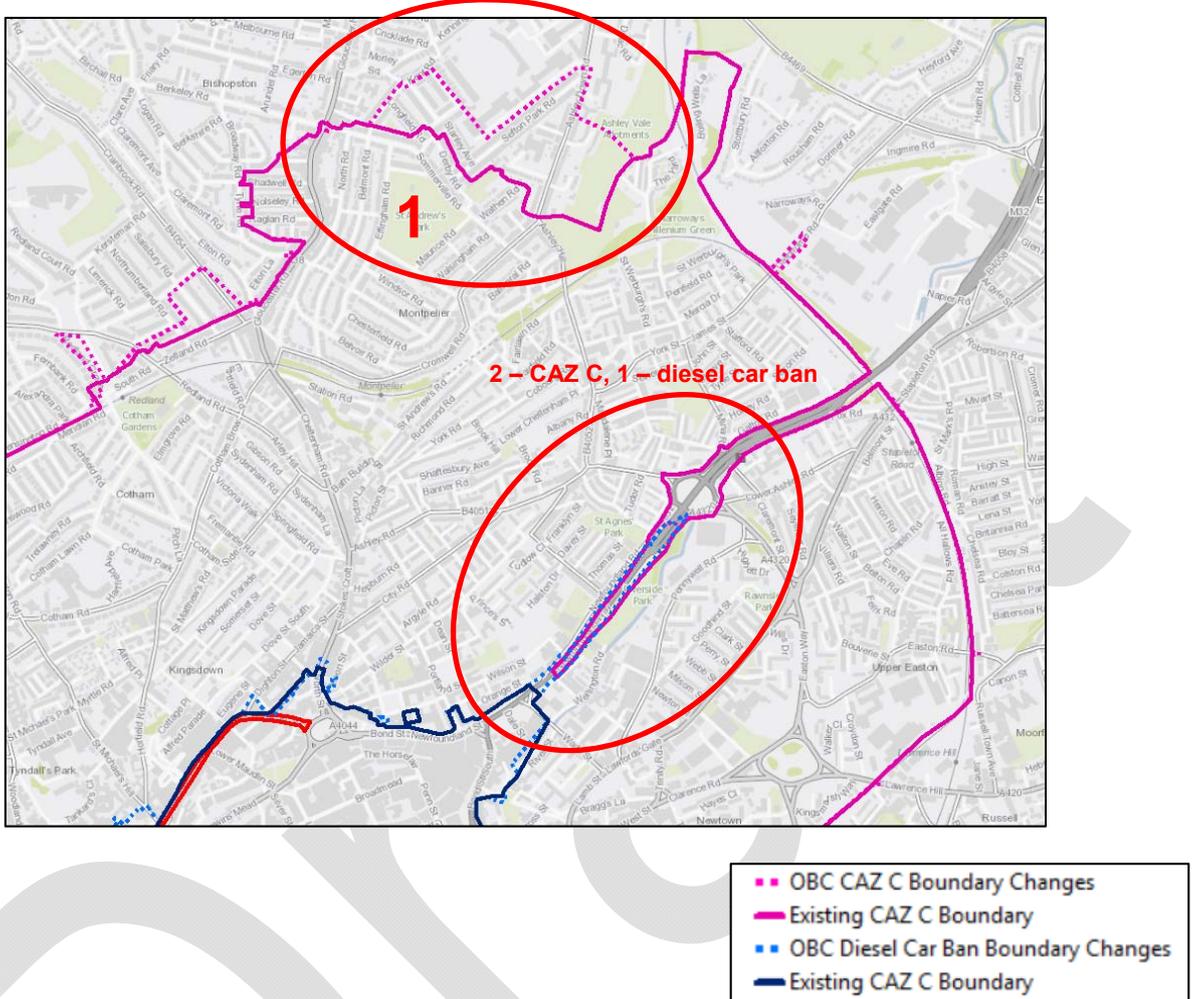


CAZ C

- 1) Portway – The CAZ C boundary has been extended up The Portway to just south of the junction with Sylvan Way as this was thought of as the last appropriate turning point for non-compliant commercial vehicles. As a result, it was necessary to include Bridge Valley Road, as anyone entering this road would automatically end up in the zone.
- 2) Clifton Wood – To separate the CAZ C from the diesel car ban the boundary of the CAZ C has moved north within Clifton Wood and now flows to the south of (therefore not including) Cornwallis Crescent, Goldney Avenue, Clifton Road, York Place, Tottenham Place and then rejoining the past boundary at Berkeley Place.

Figure 2-6: Fourth proposed amendments to the CAZ boundaries (north-east)

North-East adjustments



CAZ C

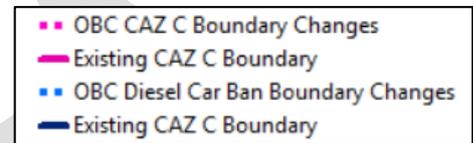
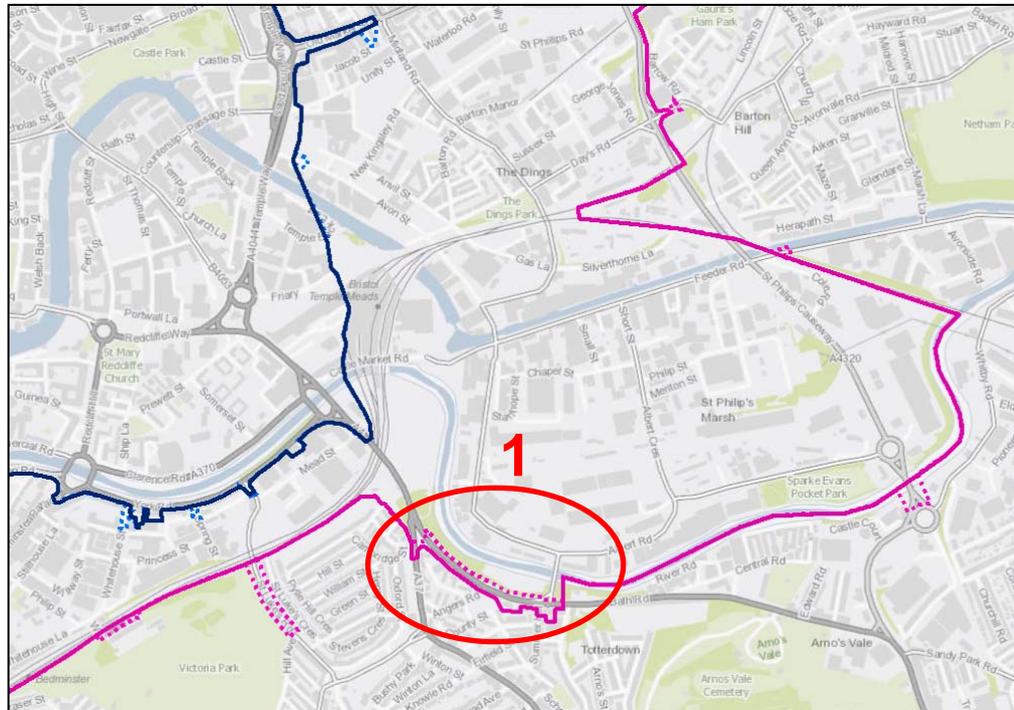
- 1) Ashley Down – The CAZ C boundary was extended northwards to include Upper Belmont Road, Nottingham Road, Lancashire Road, Surrey Road, Derby Road, Sefton Park Road, Stanley Avenue and Ashley Down Road from this junction. This was to allow more clear boundary locations and alternative options for commercial vehicle drivers upon reaching the boundary.
- 2) M32 – The CAZ C Boundary has been moved north east to sit at the immediate end of the M32, just past junction 3. It is intended that the zone will begin at the top of the southbound on-slip from the roundabout above the junction. The zone will also be clearly signposted on approach to Junction 3 to allow drivers on the M32 to use the roundabout at Junction 3 to make a U-turn and avoid entering the zone.

Diesel Car Ban Area

- 1) M32 – The diesel car ban area boundary has been moved north east to sit at the immediate end of the M32, just past junction 3. It is intended that the zone will begin at the top of the southbound on-slip from the roundabout above the junction. The zone will also be clearly signposted on approach to Junction 3 to allow drivers on the M32 to use the roundabout at Junction 3 to make a U-turn and avoid entering the zone.

Figure 2-7: Fourth proposed amendments to the CAZ boundaries (south-east)

South-East adjustments

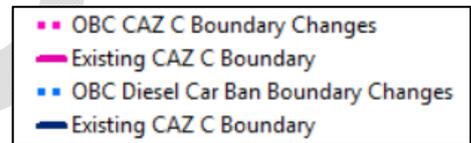
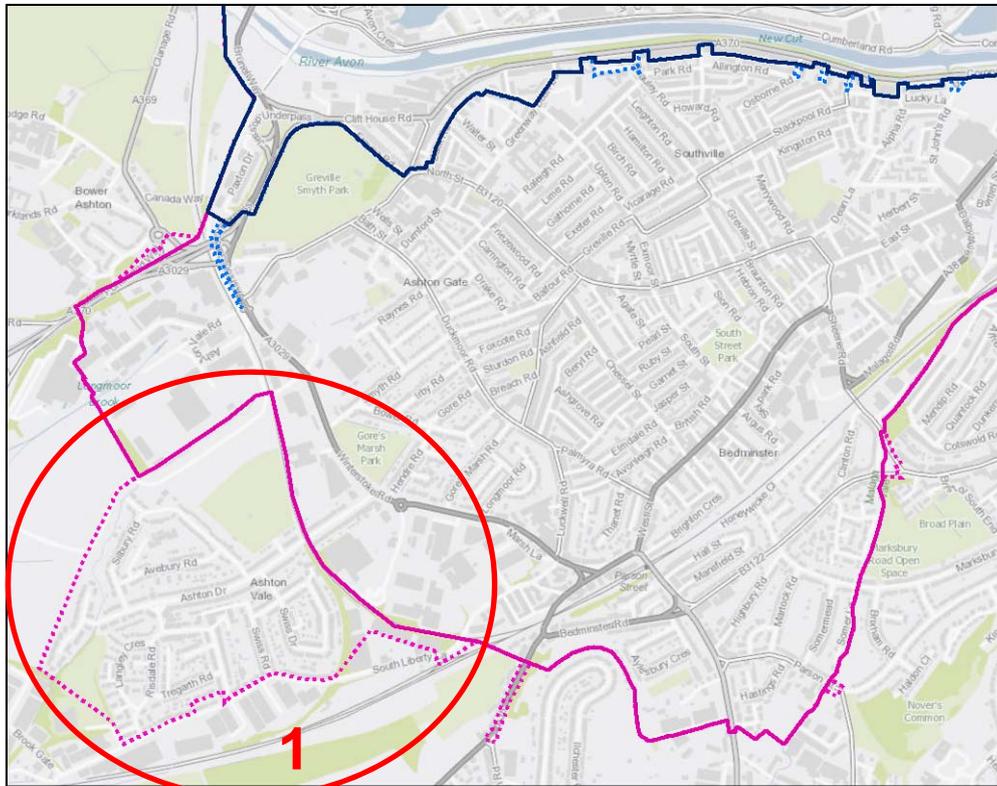


CAZ C

- 1) Bath Road (A4) – The CAZ C boundary has been retracted here to allow a more sensible alternative option to entering the zone and avoiding entrapping drivers travelling westwards the Bath Road. The boundary now excludes the Bath Road until the junction with Wells Road (Three Lamps Junction), this will allow drivers to turn onto the Wells Road instead of entering the zone.

Figure 2-8: Fourth proposed amendments to the CAZ boundaries (south-west)

South-West adjustments



CAZ C

- 1) Ashton Vale – The CAZ C boundary has been extended to include Ashton Vale. This extension was made as it is a residential area, currently restricted by weight limits, which the residents have stated is constantly ignored by vehicles. Therefore, to reinforce these limits and limit commercial vehicles using inappropriate routes, Ashton Vale has been included. It should be noted that South Liberty Lane is excluded until east of Liberty Industrial Park.