



# *Ultra Low Emissions Zone*

## Guidance for bus operators



This document provides operational guidance for bus operators who are affected by the Traffic Regulation Condition to limit CO2 Bus emissions in Central Brighton.

## Why an Ultra Low Emission Zone is needed

We have been monitoring air quality in the city for over two decades. The aim of the Ultra Low Emission Zone is to improve air quality by reducing levels of nitrogen dioxide (NO<sub>2</sub>) in areas of the city where it has remained above European and English legal limits.

Improving air quality in the city also has the benefit of making the city centre a more attractive place to shop and visit.

The main source of NO<sub>2</sub> emissions is transport which includes private vehicles, taxis, buses and freight and shipping. Long-term exposure to air pollution has a lasting effect on health and life expectancy, though the effects vary depending on where people live and the type of pollutant mixture. Good progress has been made in reducing levels of some airborne pollutants such as lead, benzene, sulphur dioxide and carbon monoxide.

The Ultra Low Emission Zone provides the framework for bus operators, taxi companies, as well as traffic engineers and other professionals to work together to address this problem.

Within Brighton and Hove it is estimated that there are between 2,000 to 2,500 dwellings exposed to outdoor levels of NO<sub>x</sub> above EU limits.

Since the original Low Emission Zone was introduced overall air quality has improved.

## The streets that are affected

- **Castle Square**
- **North Street**
- **Western Road** (as far as the junction with Holland Road, Hove)

All buses entering the zone, or with routes crossing the zone (such as at the Clock Tower), must comply with the Traffic Regulation Condition.

### Map of the zone

For a map of the zone please see page 13.

The zone has been agreed by Councillors and there no plans to change the boundaries of the zone at present. The operation of the new Ultra Low Emissions Zone would be reviewed and reported back to the Environment, Transport and Sustainability Committee in 2020 to review progress in meeting air quality targets.

## Bus Emissions Standards: *Euro VI standard by 2024*

The Traffic Regulation Condition currently requires that local services operating in the zone are:

### **At present the Euro 5 Standard for emissions of oxides of nitrogen (NO<sub>2</sub>)**

The standard is 2.0 g of NO<sub>2</sub> per kilowatt hour of engine power (2.0g/kwh).

The Euro V standard became mandatory for new HGVs and buses /coaches in October 2009.

### **By 1 October 2024 the Euro 5 Standard for emissions of oxides of nitrogen (NO<sub>2</sub>)**

The standard is 0.4 g of NO<sub>2</sub> per kilowatt hour of engine power (2.0g/kwh).

The Euro VI standard became mandatory for new buses on 31 December 2013.

Buses must still switch off engines when stationary (see Engine Switch Off section on page 10).

## Why the Euro VI standard by 2024?

By 1 October 2024 all buses entering the low emission zone will have to conform to the new Euro VI Standard.

Euro VI is the highest bus emission standard currently available for diesel buses and represents a significant improvement on the Euro VI standard for NO<sub>x</sub> emissions.

It is estimated that Euro VI buses will provide a further 95% improvement in reducing NO<sub>x</sub> emissions in real world driving conditions.

## Promoting Buses that are Euro VI

The council would encourage bus operators to advertise, by way of livery and/or stickers that the bus complies with the Euro VI standard.

It is felt that passengers, and other road users, would benefit from being aware of this and may encourage bus usage.

This would publicise partnership working between the council and bus operators and show a joint commitment to improve air quality for all.

## There are **no exemptions** from the emissions standard

The Traffic Regulation Order no longer exempts certain local services and certain vehicles from the emissions standard only.

The low frequency service exemption has been removed and all bus operators must comply with the required standard.

## Meeting the Standard

Bus operators may meet the standard in two ways:

1. Use a bus with an engine that is type approved as meeting Euro V standard for emissions at present and Euro VI before 1 October 2024.
2. Use an older bus that has been retrofitted with an exhaust treatment device that reduces emissions of NOx to a level comparable to Euro V standard for emissions at present and Euro VI before 1 October 2024.

### **Euro V Standard**

Buses with a '10' registration plate or later must have been first registered after 1 October 2009, the date from which all newly registered buses had to meet the Euro 5 standard. Any bus with a 10 plate or later will therefore be deemed compliant.

For these buses it will be obvious from the registration plate that the bus meets the standard, so no evidence of compliance will be required. Buses with a '59' plate or earlier (or with a personalised plate) cannot be deemed compliant simply by reference to the registration plate.

### **Euro VI Standard**

Buses with a '14' registration plate or later must have been first registered after 31 December 2013 the date from which all newly registered buses had to meet the Euro VI standard. Any bus with a 10 plate or later will therefore be deemed compliant.

For these buses it will be obvious from the registration plate that the bus meets the standard, so no evidence of compliance will be required

Buses with a '13' plate or earlier (or with a personalised plate) cannot be deemed compliant simply by reference to the registration plate. For these vehicles, Brighton and Hove City Council will keep a database of compliant vehicles, which will be published on its website.

### Providing evidence buses comply

There are several ways operators can provide evidence to Brighton and Hove City Council that a vehicle meets the standard and have it included in the database of compliant vehicles.

The amount of evidence needed depends on the vehicle's date of first registration, its engine standard, and whether or not an exhaust treatment device is being used. The meeting the standard tables on pages 5 and 6 sets out the evidence required.

For buses at present which do not have a 10 plate or later, and are already operating in the streets affected, evidence of compliance will need to be supplied before using the ultra low emission zone. After 1 October 2014 evidence will also be required for buses which do not have a 14 plate or later.

### Meeting the **Euro V** standard table

<b>Current vehicle engine standard and age at 1 January 2018</b>	<b>Compliance evidence required by Brighton and Hove City Council</b>
Euro 5 or above displaying 10 plate or later	None  Registration plate is sufficient – no need to notify Brighton and Hove City Council of this vehicle.
Vehicle not meeting the Euro 5 standard but retrofitted to meet the standard.	Certificate from the supplier or registration certification to confirm the standard the original type-approved engine.  Confirmation from a reputable supplier that an exhaust treatment device has been properly fitted.  Test results demonstrating that, in this vehicle or an equivalent vehicle with an equivalent engine, the exhaust treatment device fitted has reduced NOx emissions sufficiently to achieve an emissions standard comparable to Euro 5.

Meeting the **Euro VI** standard table

<b>Current vehicle engine standard and age at 1 January 2018</b>	<b>Compliance evidence required by Brighton and Hove City Council</b>
Euro VI or above displaying 14 plate or later	None  Registration plate is sufficient – no need to notify Brighton and Hove City Council of this vehicle.
Vehicle not meeting the Euro VI standard but retrofitted to meet the standard.	Certificate from the supplier or registration certification to confirm the standard the original type-approved engine.  Confirmation from a reputable supplier that an exhaust treatment device has been properly fitted.  Test results demonstrating that, in this vehicle or an equivalent vehicle with an equivalent engine, the exhaust treatment device fitted has reduced NOx emissions sufficiently to achieve an emissions standard comparable to Euro VI.

# Retrofitting

Operators with older buses in their fleet may wish to keep those vehicles in use with retrofitted exhaust treatment devices (“retrofits”) rather than replace them.

The meeting the standard tables, on pages 5 and 6, lists the evidence required by Brighton and Hove City Council for are retrofitted bus to be considered compliant.

Operators wishing to use retrofits are encouraged to contact their retrofit equipment manufacturers and Brighton and Hove City Council at an early stage to discuss their plans. Contact details are on page 12.

The performance of retrofits varies according to the retrofit used and the engine to which it is fitted. The Council therefore may require evidence that a retrofit is sufficiently effective with the particular engine with which it proposed to be used.

## **Retrofits may not physically fit in particular bus bodies**

Operators should note that retrofits may not physically fit in particular bus bodies. In some cases, it is not possible to fit a retrofit at all; in other cases the retrofit may need to be amended to fit, which could affect its performance.

The first step for operators wishing to use retrofits will therefore be to ask a retrofit manufacturer to survey the buses for which retrofits are proposed.

The Council’s database of compliant vehicles will include details of any engine retrofit combinations that have been submitted, meeting the required performance standard, and are considered to be compliant.

## **Retrofit performance**

The performance of retrofits is normally measured as a percentage reduction of NO<sub>x</sub> achieved by the device. The absolute level of NO<sub>x</sub> produced at the exhaust pipe is very difficult to test in real world conditions. When certifying engine-retrofit combinations the Council will therefore be looking to see whether the device reduces NO<sub>x</sub> emissions from an engine of the type fitted to the bus by a sufficient percentage to achieve a standard comparable to Euro V in urban operating conditions.

### The changes required to retrofit to **Euro V** standard

<b>Current Engine</b>	<b>Original NOx Emissions (g/kwh)</b>	<b>% reduction required</b>
Euro IV	3.5	43%
Euro III	5.0	60%

### The changes required to retrofit to **Euro VI** standard

<b>Current Engine</b>	<b>Original NOx Emissions (g/kwh)</b>	<b>% reduction required</b>
Euro V	2.0	80 %
Euro IV	3.5	88.6 %
Euro III	5.0	92 %

### **Retrofit certification**

There is currently no national scheme for the certification of retrofits, so certification will be by Brighton and Hove City Council. Operators wishing to use retrofits should contact the Council at an early stage to discuss certification.

The certification process will depend on whether the engine-retrofit combination proposed is identical to one that has already been tested and proven to comply, or is a new combination that has not previously been tested. Note that if a retrofit has to be modified significantly to fit a body, it could perform significantly differently from a previously tested retrofit with the same engine but a different body, and cannot be deemed proven.

Note that, whichever of the two processes below is applicable in respect of the testing of the engine-retrofit combination, it will always be necessary for operators to furnish (for each vehicle) a certificate from the supplier demonstrating what standard the original type-approved engine meets (or proof that it was first registered when that Euro standard was in

force), plus confirmation from a reputable supplier that an exhaust treatment device has been properly fitted to that vehicle.

### **Proven engine-retrofit combinations**

Engine-retrofit combinations already tested and proven by a Local or Transport Authority, (such as Brighton and Hove City Council, Oxford City Council, Transport for London) to perform sufficiently well to meet the Euro V standard in urban operating conditions may be used without further testing.

Operators will need to confirm with Brighton and Hove City Council that all the compliance evidence specified in the meeting the standard tables, on pages 5 and 6, are in place and ask for the engine retrofit combination proposed to be included in the database of compliant vehicles, if it is not included already. Where an engine-retrofit combination has already been approved, evidence of the Euro standard of the original engine, plus evidence of satisfactory retrofit installation, will be required for each bus. The Council will confirm in writing that the proposed engine-retrofit combination has been certified as compliant.

### **New, untested vehicle-retrofit combinations**

If an operator wishes to use a new engine-retrofit combination that has not previously been tested, the operator may need to arrange for suitable tests to be carried out, in urban operating conditions, to demonstrate compliance. Operators should discuss this at an early stage with Council officers. Operators should be able to demonstrate that the proposed retrofit device is capable of achieving the NOx emissions reductions, to the required levels.

To ensure untested retrofit combinations achieve the Low Emission Zone standard it is recommended that buses only be fitted and tested after the Council has confirmed in writing that there is a reasonable prospect of the retrofit achieving the required standard. It is also strongly recommended that only one vehicle of a particular specification is fitted and tested initially.

If the test vehicle does not meet the required standard, that **one vehicle** will be accepted as compliant, because it was fitted with a reasonable expectation that it would achieve the standard and because fitting costs have already been incurred. However **no further vehicles** of the same specification will be deemed compliant, so no further fitment of that device should be undertaken. If the test vehicle meets the required standard, that engine-retrofit combination will be added to the Council's database of compliant combinations and certified in writing as compliant. Further vehicles of the same specification may then be fitted with the same device and can be certified using the process above for proven combinations.

### **National certification**

If a national scheme for retrofit certification is established, the certification process adopted under the Brighton and Hove Low Emission Zone Traffic Regulation Condition will be reviewed in light of this.

All engine-retrofit combinations previously certified by the Council will continue to be deemed compliant for the purposes of the Brighton and Hove Low Emission Zone following the introduction of a national retrofit scheme.

## **Engine switch-off**

Buses in the Low Emission Zone must switch off their engine if they anticipate that they will be stationary for more than one minute.

The engine switch-off condition applies to all local services operating in the streets affected, irrespective of frequency and engine type.

### **There are no exemptions.**

This applies at bus stops and bus stands (both timing points and other stops) and at any other place where a bus may wait. Any bus which stands out of the traffic stream, for more than 60 seconds with its engine running could be in breach of this condition.

It is recognised that passengers getting on or off may sometimes take longer than first expected, for reasons which are not within the driver's control. The time taken for a bus to pull out and re-enter the traffic flow after having indicated that it is about to do so, is not counted for this reason.

Examples of circumstances in which it would be presumed that the driver would have no reasonable excuse for believing that the vehicle will be stopped for less than a minute are:

- If the stop is a timing point and the bus is not scheduled to leave until more than one minute after the time when it arrives;
- If there are more than 20 people already waiting at the stop when the bus comes to rest;

or

- If there are no passengers boarding, alighting or interacting with the driver for 60 seconds or more, and the wait is therefore clearly not due to the unpredictability of passenger behaviour

## Bus breakdown and exceptional circumstances

It is appreciated that a replacement bus may, in exceptional circumstances be required at short notice to cover a broken down bus. In such circumstances if at all possible a replacement bus should be used which also meets the Low Emission criteria. If this is not possible then the bus operator should within 5 days, notify the Council and provide details of the vehicle registration and Euro emission level of the replacement bus that has entered the zone.

It is also accepted that exceptionally, a bus may not be able to proceed from a bus stop in the Low Emission Zone due to circumstances beyond its control such as a large event, march or protest. In such circumstances the one minute switch off condition would still apply whilst the bus is stationary in the bus stop. The one minute switch off condition would not apply if a bus is prevented from continuing on its route during exceptionally hot or cold weather where customer safety could be at risk. The bus operator should notify the Council within 5 days if they have not been able to comply with the conditions due to any exceptional circumstances.

## Enforcement

Brighton and Hove City Council will be responsible for monitoring the scheme through the use of Automatic Number Plate Recognition CCTV cameras as well as compliance surveys. Any concerns will in the first instance be raised by the Council with the bus operator concerned. The operator will be given the opportunity to provide an explanation and if necessary take corrective action if appropriate.

Should these warnings be ignored by the bus operator the Council may report the matter to the Traffic Commissioner who may impose fines on the bus operator for failing to comply with the Traffic Regulation Condition.

# Contacts and Further Information

## **To report details of a replacement bus**

Please email: [TrafficControlCentre@brighton-hove.gov.uk](mailto:TrafficControlCentre@brighton-hove.gov.uk)

Or

Telephone: 01273 294505

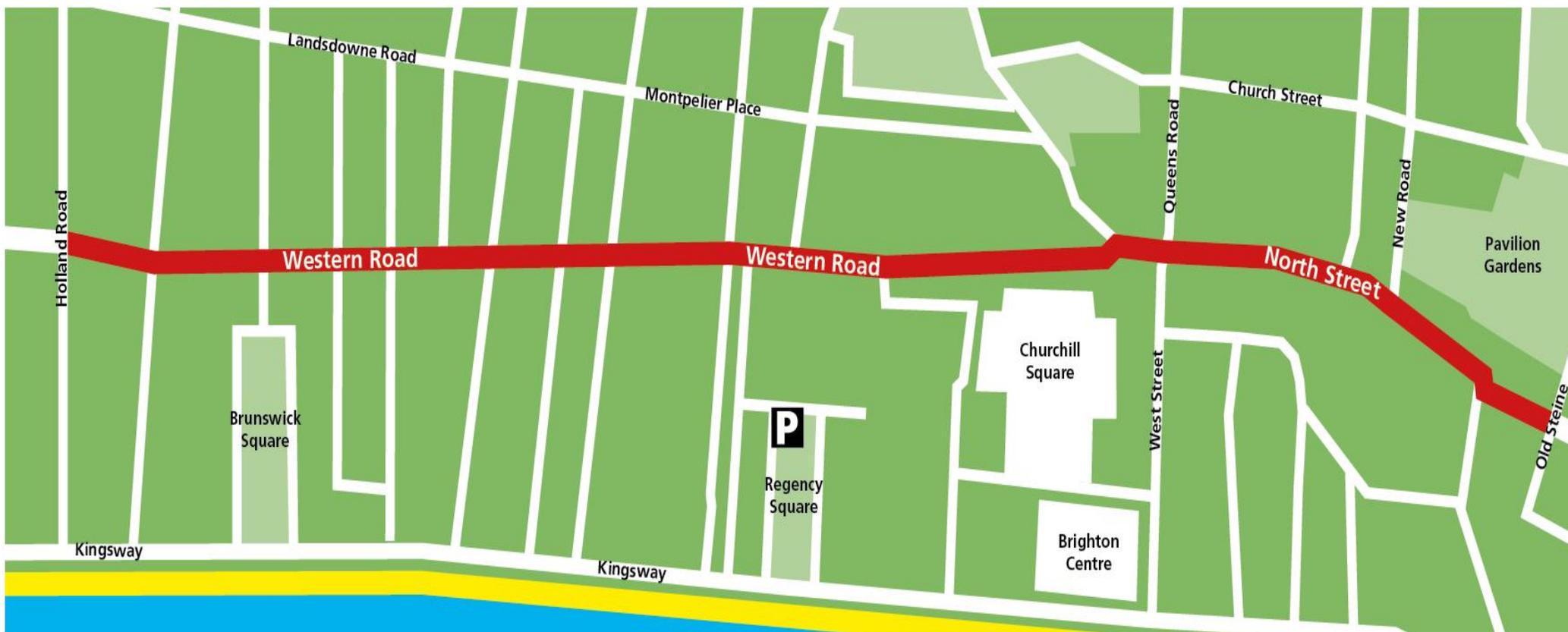
## **To register a retrofitted bus**

Please email: [Parkinganalysis@brighton-hove.gov.uk](mailto:Parkinganalysis@brighton-hove.gov.uk)

## **For Further Information**

For information about the Low Emission Zone or contents of the operational guidance please see: [www.brighton-hove.gov.uk/low-emission-zone](http://www.brighton-hove.gov.uk/low-emission-zone)

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The Ultra low emissions zone is shown in red.

The streets affected are: Castle Square, North Street and Western Road (as far as the junction with Holland Road, Hove)