

Appendix 3: London Low Emission Zone business rules

This appendix explains some of Transport for London's key 'business rules' which have been developed to define a range of information about the vehicles that are observed by the cameras. The business rules are used for both the enforcement and monitoring of the scheme.

Vehicle type classification

The business rules classify vehicles according to their European vehicle type, based on data available in the Driver and Vehicle Licensing Agency (DVLA) database. Table A3.1 summarises how these vehicle types are defined. Note that vehicle types, such as L (two/three-wheelers), M1 (cars) and N1 Class I LGVs are never in scope for the requirements of the scheme. However, works vehicles (such as tractors, mowers, diggers, bulldozers etc) are considered 'goods carrying' and are in scope.

Table A3.1 Summary of European vehicle definitions.

European vehicle type	Chassis	Gross vehicle weight (GVW)	Reference mass (RW)	Seats (ex. driver)
M1 cars	People-carrying	-	-	≤ 8
M2 minibuses	People-carrying	≤ 5t	-	> 8
M3 buses and coaches	People-carrying	> 5t	-	> 8
N1 Class I LGVs (Euro 1, 2)	Goods-carrying	≤ 3.5t	≤ 1,250kg	-
N1 Class I LGVs (Euro 3+)	Goods-carrying	≤ 3.5t	≤ 1,305kg	-
N1 Class II LGVs (Euro 1, 2)	Goods-carrying	≤ 3.5t	1,250kg < RW ≤ 1,700kg	-
N1 Class II LGVs (Euro 3+)	Goods-carrying	≤ 3.5t	1,305kg < RW ≤ 1,760kg	-
N1 Class III LGVs (Euro 1, 2)	Goods-carrying	≤ 3.5t	> 1,700kg	-
N1 Class III LGVs (Euro 3+)	Goods-carrying	≤ 3.5t	> 1,760kg	-
N2 HGVs	Goods-carrying	3.5t < GVW ≤ 12t	-	-
N3 HGVs	Goods-carrying	> 12t	-	-

Note: that the reference mass boundary between N1 Class I and II was changed at the introduction of the Euro 3 standard (vehicles sold on or after 1st of January 2001).

Vehicle scheme compliance

Table A3.2 summarises the four phases of the scheme and the relevant vehicle types for each phase and Table A3.3 details the minimum emission standard that is required for each phase. With each progressive phase, the emission standards get stricter and/or the catchment of vehicle types gets progressively wider. Therefore, a vehicle which is non-compliant for the requirements of the scheme in phase 2, say,

will remain non-compliant in subsequent phases (unless it is modified to improve its emission standards).

Table A3.2 Summary of the four phases of the London Low Emission Zone scheme.

	Start date	Description
Phase 1	4 February 2008	Require Euro III for PM or higher for heavier HGVs (N3)
Phase 2	7 July 2008	Additionally require Euro III for PM or higher for lighter HGVs (N2) and heavier buses and coaches (M3)
Phase 3	4 Oct 2010	Additionally, require Euro 3 for PM or higher for mini-buses (M2) and heavier LGVs (N1 Class II, N1 Class III)
Phase 4	3 January 2012	Tighten standards for N2, N3 and M3 vehicles to require Euro IV for PM. N1 Class II, N1 Class III and M2 vehicles still require Euro 3 for PM only.

Table A3.3 Minimum particulate matter emission standard required for compliance, by phase.

Vehicle type	Phase 1	Phase 2	Phase 3	Phase 4
M1 cars	-	-	-	-
M2 minibuses	-	-	Euro 3	Euro 3
M3 buses and coaches	-	Euro III	Euro III	Euro IV
N1 Class I LGVs	-	-	-	-
N1 Class II LGVs	-	-	Euro 3	Euro 3
N1 Class III LGVs	-	-	Euro 3	Euro 3
N2 HGVs	-	Euro III	Euro III	Euro IV
N3 HGVs	Euro III	Euro III	Euro III	Euro IV

Note: by the convention established in the legislation, light duty standards are specified in Arabic numerals, whereas heavy duty standards are specified in Roman numerals.

Vehicle fuel type

The scheme only applies to diesel vehicles, which means that a vehicle of the above vehicle types is only eligible for the requirements of the scheme if it is fuelled by diesel, gas/diesel or bio-diesel blends.

Vehicle European Emission standard

Two forms of a vehicle's Euro emission standard are recorded for LEZ monitoring purposes; the original or 'base' Euro standard and the PM Euro standard. The base standard is determined by the date of first vehicle registration as provided in the DVLA database and known date of introduction of each Euro standard. This base

Euro standard can be further revised to a higher Euro standard, known as 'PM Euro standard' where Transport for London (TfL) has further evidence on a vehicle's Particulate Matter emission levels. Further information on Euro standards is provided in Appendix 1.

Vehicle registration and certifications

Operators may fit pollution abatement devices to their vehicles, or replace the engine altogether, which may allow them to meet or exceed the designated Euro standard for Particulate Matter even if they are nominally 'too old'. Similarly, vehicles may have been manufactured to a 'cleaner' Euro standard than what would be inferred from their age. In both these cases, operators are expected to register with TfL, providing the necessary documentation to support their claim to meeting the standards. This information will be used in connection with the DVLA data to determine the vehicle's PM Euro standard.

Vehicle exemptions to the scheme

The scheme order offers exemptions for historic vehicles (those manufactured before 1973). There are also exemptions for certain non-road-going vehicles, and the potential to register for 100% discount for certain 'showmen's goods vehicles'. These must register with TfL to comply with the requirements of the scheme.

Vehicle monitoring periods

Data on the vehicle fleet that is observed by the monitoring cameras is collated into four-weekly periods for further analysis. Table A3.4 outlines the monitoring periods that have been discussed in this report, and provides a summary of the observed rates of scheme compliance.

Table A3.4 Summary of camera monitoring periods and scheme compliance rates, unique vehicles observed by monitoring cameras.

Four-weekly period	Dates	Scheme compliance rate		
		N3 HGVs phase 1	M3 buses and coaches phase 2	N2 HGVs phase 2
Period 1	1-28 Jan 07	75.7%	74.7%	58.2%
Period 2	29 Jan-25 Feb 07	75.6%	73.2%	58.3%
Period 3	25 Feb-25 Mar 07	76.0%	72.1%	58.3%
Period 4	26 Mar-22 Apr 07	76.3%	72.3%	58.6%
Period 5	23 Apr-20 May 07	76.6%	71.0%	58.9%
Period 6	21 May-17 June 07	75.7%	66.5%	57.5%
Period 7	18 Jun-15 Jul 07	76.0%	66.9%	57.8%
Period 8	15 Jul-12 Aug 07	76.4%	68.6%	58.8%

Four-weekly period	Dates	Scheme compliance rate		
		N3 HGVs phase 1	M3 buses and coaches phase 2	N2 HGVs phase 2
Period 9	13 Aug-9 Sept 07	79.1%	73.8%	62.5%
Period 10	10 Sep- 7 Oct 07	79.6%	75.8%	64.0%
Period 11	8 Oct -4 Nov 07	80.3%	73.6%	64.4%
Period 12	5 Nov-2 Dec 07	80.4%	73.5%	65.0%
Period 13	3 -30 Dec 07	85.4%	78.1%	67.3%
Period 1	31 Dec 07-27 Jan 08	86.3%	79.4%	68.7%
Period 2	28 Jan-24 Feb 08	89.2%	79.1%	68.8%
Period 3	25 Feb-23 Mar 08	97.6%	82.0%	71.7%
Period 4	24 Mar-20 Apr 08	97.0%	80.9%	71.8%

Vehicles registered by region

The London Low Emission Zone monitoring camera system has the ability to identify the region of the country that each vehicle is registered in, by postcode. TfL only obtains the first few characters of the postcode, and these have been used to obtain 37 regional groupings, as outlined in Table A3.5.

Table A3.5 Regions of vehicle registration.

Post ID	Postal Town	Post Area ID	Detail	Grouping
N	North London	1	North London	London
NW	North west London	2	North west London	London
SE	South east London	3	South east London	London
SW	South west London	4	South west London	London
E	East London	5	East London	London
WC	Central London	6	Central London	London
EC	Central London	6	Central London	London
W	West London	7	West London	London
EN	Enfield	8	Enfield	London
KT	Kingston	9	Kingston	London
HA	Harrow	10	Harrow	London
UB	Uxbridge	11	Uxbridge	London
TW	Twickenham	12	Twickenham	London
SM	Sutton	13	Sutton	London
CR	Croydon	14	Croydon	London
DA	Dartford	15	Dartford	London

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Post ID	Postal Town	Post Area ID	Detail	Grouping
BR	Bromley	16	Bromley	London
RM	Romford	17	Romford	London
IG	Ilford	18	Ilford	London
AL	St Albans	19	Hertfordshire	South East
HP	Hemel Hempstead	19	Hertfordshire	South East
SG	Stevenage	19	Hertfordshire	South East
WD	Watford	19	Hertfordshire	South East
RG	Reading	20	Berkshire	South East
SL	Slough	20	Berkshire	South East
MK	Milton Keynes	21	Buckinghamshire	South East
CT	Canterbury	22	Kent	South East
ME	Medway	22	Kent	South East
TN	Royal Tunbridge Wells	21	Kent	South East
CM	Chelmsford	23	Essex	South East
CO	Colchester	23	Essex	South East
BN	Brighton	24	Sussex	South East
GU	Guildford	25	Surrey	South East
RH	Redhill	25	Surrey	South East
LU	Luton	26	Bedfordshire	South East
PO	Portsmouth	27	Hampshire	South East
SO	Southampton	27	Hampshire	South East
OX	Oxford	28	Oxfordshire	South East
B	Birmingham	29	Midlands	Midlands
CV	Coventry	29	Midlands	Midlands
DE	Derby	29	Midlands	Midlands
DY	Dudley	29	Midlands	Midlands
HR	Hereford	29	Midlands	Midlands
LE	Leicester	29	Midlands	Midlands
NG	Nottingham	29	Midlands	Midlands
NN	Northampton	29	Midlands	Midlands
ST	Stoke on Trent	29	Midlands	Midlands
SY	Shrewsbury	29	Midlands	Midlands
TF	Telford	29	Midlands	Midlands
WR	Worcester	29	Midlands	Midlands
WS	Walsall	29	Midlands	Midlands
WV	Wolverhampton	29	Midlands	Midlands
CB	Cambridge	30	East Anglia	East Anglia
IP	Ipswich	30	East Anglia	East Anglia
LN	Lincoln	30	East Anglia	East Anglia
NR	Norwich	30	East Anglia	East Anglia

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Post ID	Postal Town	Post Area ID	Detail	Grouping
PE	Peterborough	30	East Anglia	East Anglia
SS	Southend-on-Sea	30	East Anglia	East Anglia
BA	Bath	31	South West	South West
BH	Bournemouth	31	South West	South West
BS	Bristol	31	South West	South West
DT	Dorchester	31	South West	South West
EX	Exeter	31	South West	South West
GL	Gloucester	31	South West	South West
PL	Plymouth	31	South West	South West
SN	Swindon	31	South West	South West
SP	Salisbury	31	South West	South West
TA	Taunton	31	South West	South West
TQ	Torquay	31	South West	South West
TR	Truro	31	South West	South West
BB	Blackburn	32	North West	North West
BL	Bolton	32	North West	North West
CH	Chester	32	North West	North West
CA	Cumbria	32	North West	North West
CW	Crewe	32	North West	North West
FY	Blackpool	32	North West	North West
L	Liverpool	32	North West	North West
LA	Lancaster	32	North West	North West
M	Manchester	32	North West	North West
OL	Oldham	32	North West	North West
PR	Preston	32	North West	North West
SK	Stockport	32	North West	North West
WA	Warrington	32	North West	North West
WN	Wigan	32	North West	North West
BD	Bradford	33	North East	North East
DL	Darlington	33	North East	North East
DH	Durham	33	North East	North East
DN	Doncaster	33	North East	North East
HD	Huddersfield	33	North East	North East
HG	Harrogate	33	North East	North East
HU	Kingston upon Hull	33	North East	North East
HX	Halifax	33	North East	North East
LS	Leeds	33	North East	North East
NE	Newcastle upon Tyne	33	North East	North East
S	Sheffield	33	North East	North East
SR	Sunderland	33	North East	North East

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Post ID	Postal Town	Post Area ID	Detail	Grouping
TS	Teesside	33	North East	North East
WF	Wakefield	33	North East	North East
YO	York	33	North East	North East
AB	Aberdeen	34	Scotland	Scotland
DD	Dundee	34	Scotland	Scotland
DG	Dumfries (Dumfries and Galloway)	34	Scotland	Scotland
EH	Edinburgh	34	Scotland	Scotland
FK	Falkirk	34	Scotland	Scotland
G	Glasgow	34	Scotland	Scotland
HS	Outer Hebrides	34	Scotland	Scotland
IV	Inverness	34	Scotland	Scotland
KA	Kilmarnock	34	Scotland	Scotland
KW	Kirkwall	34	Scotland	Scotland
KY	Kirkcaldy	34	Scotland	Scotland
ML	Motherwell	34	Scotland	Scotland
PA	Paisley	34	Scotland	Scotland
PH	Perth	34	Scotland	Scotland
TD	Galashiels (River Tweed)	34	Scotland	Scotland
ZE	Shetland	34	Scotland	Scotland
CF	Cardiff	35	Wales	Wales
LD	Llandrindod Wells	35	Wales	Wales
LL	Llandudno	35	Wales	Wales
NP	Newport	35	Wales	Wales
SA	Swansea	35	Wales	Wales
BT	Belfast	36	Northern Ireland	Northern Ireland
GY	Guernsey	37	Other	Other
JE	Jersey	37	Other	Other
IM	Isle of Man	37	Other	Other