

## **Air Quality Fact Sheet: London's Most Polluted Roads by Borough**

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Experts in air quality  
management & assessment

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# 1 Summary

- 1.1 Analysis of the London Atmospheric Emissions Inventory (LAEI) modelled concentrations of nitrogen dioxide (NO<sub>2</sub>) in 2019<sup>1</sup> has been undertaken to determine the top five 'most polluted' major roads within each London Borough, and across London.
- 1.2 The LAEI dataset provides annual mean NO<sub>2</sub> concentrations in a 20 m x 20 m grid across London for 2019, 2025 and 2030, as well as a detailed map of London's road network. Here, the road map has been categorised (grouped) by Borough and road name, as listed within the LAEI dataset, and all modelled NO<sub>2</sub> concentrations for 2019 within 25 m of the road centrelines have been averaged across each road group.
- 1.3 The five roads with the highest calculated average concentrations are shown in Figure 1 for each borough. The solid red line indicates the annual mean NO<sub>2</sub> objective of 40 µg/m<sup>3</sup>, and the dashed red line indicates the WHO guideline of 10 µg/m<sup>3</sup>, which has been included at the request of the GLA. This shows that there are several locations where the concentrations, when averaged along the length of a road and within 25 m of it, exceed the annual mean objective. All of the average concentrations exceed the WHO guideline. The values above each bar indicate the approximate number of schools located within 100 m of each of the identified roads, based on the school locations set out in the LAEI dataset.
- 1.4 The same concentrations analysis has been carried out for London as a whole, where the roads have not been split by Borough. This shows that the top five 'most polluted' roads, as determined in this analysis, are the A4202, A501, A301, A1203 and A3211. All of the concentrations, when averaged along the length of a road and within 25 m of it, exceed the annual mean objective (see Figure 2). Average concentrations also exceed 60 µg/m<sup>3</sup> along the A4202 and A501. This value is used as a proxy to indicate the potential for an exceedance of the 1-hour mean NO<sub>2</sub> objective<sup>2</sup>.
- 1.5 As shown in Figure 1, the highest calculated mean concentration locally is along the A501 in Camden (76 µg/m<sup>3</sup>), while considering London as a whole (i.e., without splitting roads by Borough boundaries; Figure 2), the highest concentration is along the A4202 in Westminster (63 µg/m<sup>3</sup>)<sup>3</sup>.

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<sup>1</sup> GLA and TfL (2021), London Atmospheric Emissions Inventory (LAEI) 2019 [online]. Available: <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019>

<sup>2</sup> Defra (2022), Local Air Quality Management Technical Guidance (TG22), August 2022 Version.

<sup>3</sup> The average concentration along the whole of the A501, when analysing London as a whole, is lower than the average concentration along the shorter section of A501 passing through Camden.



**Figure 1:** Annual mean 2019 NO<sub>2</sub> concentrations from the LAEI averaged along each road (within 25 m of the centre of the road), split by Borough. The approximate numbers of schools within 100 m of the road centreline are shown in the grey boxes.

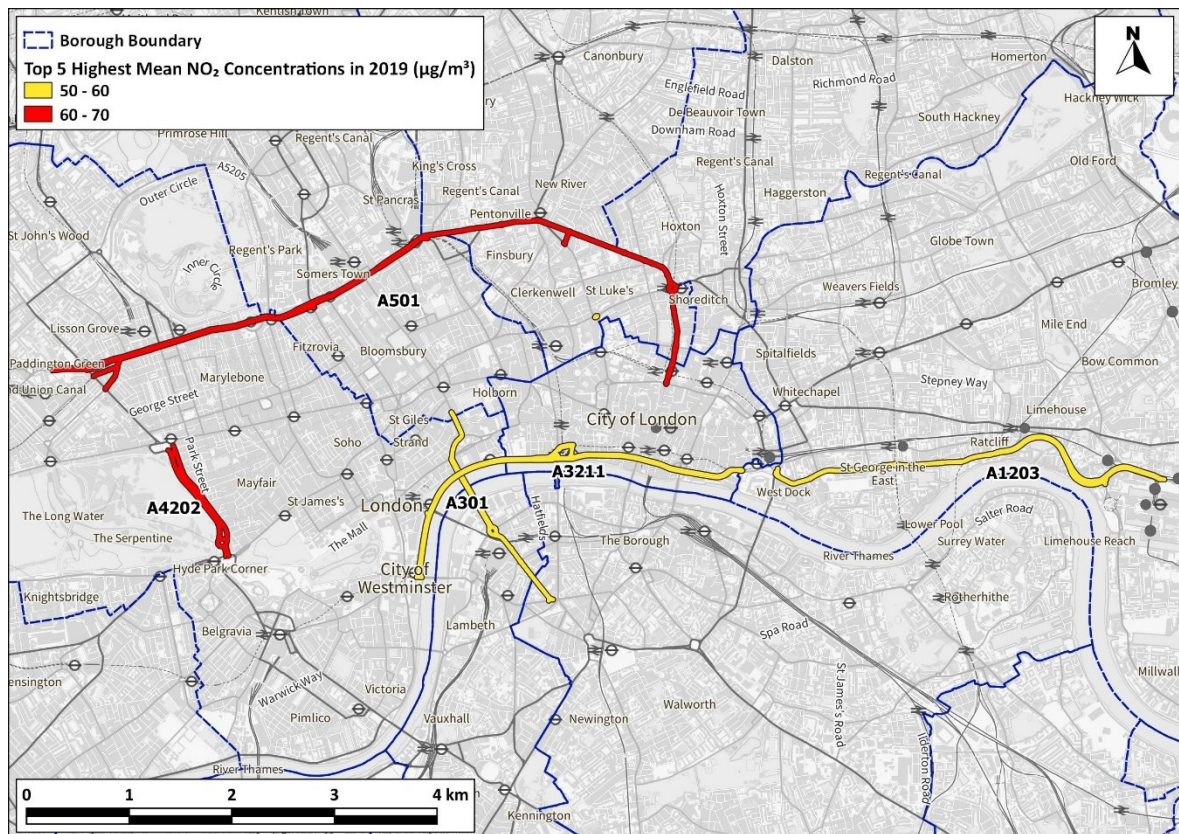
**Table 1: Road names relating to those shown in Figure 1.**

Barking and Dagenham		Barnet		Bexley	
<b>A406</b>	North Circular Road, Highbridge Road	<b>A406</b>	North Circular Road, Pinkham Way North Circular Road, Falloden Way, High Road, Falloden Way (Barnet Bypass), Great North Way (Barnet Bypass)	<b>A2</b>	East Rochester Way
<b>A13</b>	Alfred's Way (East Ham And Barking Bypass), Ripple Road, Choats Manor Way	<b>M1</b>	M1	<b>A221</b>	Arnsberg Way, Mayplace Road West, Penhill Road, Danson Road, Danson Underpass, Broadway, Blendon Road, Kestlake Road
<b>A12</b>	Eastern Avenue West, Eastern Avenue	<b>A1</b>	Charter Way, Great North Way (Barnet Bypass), Watford Way (Barnet Bypass), North Circular Road, Great North Way (Barnet Bypass), Barnet Bypass, Falloden Way, Falloden Way (Barnet Bypass), Barnet Way (Barnet Bypass), Rowley Lane, Chessington Avenue, Lyttelton Road, Aylmer Road	<b>A20</b>	Sidcup Bypass Road, Sidcup Bypass, Sidcup Road
<b>A1153</b>	Lodge Avenue, Porters Avenue	<b>A41</b>	Watford Way, Edgware Way (Watford Bypass), Brent Cross Flyover, Hendon Way, Brentfield Gardens, Finchley Road	<b>A2041</b>	Knee Hill, Harrow Manor Way, Harrow Manorway, Carlyle Road
<b>A123</b>	Ripple Road, Fanshawe Avenue, St Pauls Road, Axe Street, Ilford Lane	<b>A4006</b>	Kingsbury Road	<b>A220</b>	Erith Road, Bourne Road, Gravel Hill, Bexley Road
Brent		Bromley		Camden	
<b>A406</b>	North Circular Road	<b>A20</b>	Sidcup Bypass Road	<b>A501</b>	Euston Road, Marylebone Road, Gray's Inn Road
<b>A219</b>	Scrubs Lane	<b>A234</b>	Beckenham Road, High Street, Crystal Palace Park Road	<b>A41</b>	Finchley Road, Adelaide Road, Avenue Road
<b>A4000</b>	Station Road, High Street Harlesden	<b>A222</b>	Croydon Road, Widmore Road, Summer Hill, High Street, Beckenham Lane, Bickley Park Road, Bromley Road, Bromley Lane, Perry Street, Manor Road, Bickley Road, Market Square, Tweedy Road, East Street	<b>A4200</b>	Eversholt Street, Camden High Street, Grafton Place, Upper Woburn Place, Euston Square, Southampton Row, Russell Square, Woburn Place, Tavistock Square, Kingsway
<b>A5</b>	Edgware Road The Hyde, Edgware Road West Hendon Broadway, Edgware Road, Kilburn High Road, Shoot-Up Hill, Cricklewood Broadway, Edgware Road	<b>A213</b>	Croydon Road, Parish Lane, Green Lane, Penge Road, Newlands Park, Lennard Road	<b>A40</b>	High Holborn, Theobald's Road, New Oxford Street, Charing Cross Road, Bloomsbury Way, St Giles High Street, Vernon Place, Procter Street, Southampton Place, Andrew Borde Street
<b>A4090</b>	Whitton Avenue East	<b>A212</b>	Church Road, Crystal Palace Parade, Westwood Hill	<b>A401</b>	Theobald's Road, Rosebery Avenue, Shaftesbury Avenue, Bloomsbury Street, Procter Street
City of London		Croydon		Ealing	
<b>A100</b>	Tower Hill	<b>A236</b>	Mitcham Road, Old Town, Roman Way, Southbridge Road	<b>A40</b>	Western Avenue, Karoline Gardens
<b>A3211</b>	Blackfriars Underpass, Victoria Embankment, Upper Thames Street, Lower Thames Street, Byward Street, Queen Victoria Street, Puddle Dock	<b>A232</b>	Wickham Road, Duppas Hill Lane, The Croydon Flyover, Stafford Road, Addiscombe Road, Shirley Road, Duppas Hill Road, Chepstow Road, Barclay Road, Davenant Road, Park Hill Road, Fairfield Road, Pump Pail North, Croydon Road, Purley Way, Pump Pail South	<b>A406</b>	Hanger Lane (North Circular Road), Hangar Lane (North Circular Road), Gunnersbury Avenue (North Circular Road), North Circular Road
<b>A201</b>	Farringdon Street, New Bridge Street, Farringdon Road, Victoria Embankment	<b>B271</b>	Stafford Road	<b>A312</b>	Mandeville Road, Church Road, Pett's Hill, Ruislip Road, Northolt Road
<b>A4</b>	Fetter Lane, Fleet Street, New Fetter Lane	<b>A23</b>	Brighton Road, Purley Way, Mitcham Road, London Road, Thornton Road, Foxley Lane, Epsom Road, Duppas Hill Road, Banstead Road, Purley Road, Streatham High Road, Farthing Way	<b>B456</b>	B456, Argyle Road, Alperton Lane, Western Avenue
<b>A40</b>	King Edward Street, Montague Street, Newgate Street, Holborn Viaduct, St Martin's Le Grand, Little Britain, High Holborn	<b>A235</b>	Brighton Road, London Road, South End, High Street	<b>A4005</b>	Hanger Lane
Enfield		Greenwich		Hackney	
<b>M25</b>	M25	<b>A102</b>	A102, Bugsby's Way, Blackwall Tunnel Approach, Peartree Way, Horn Lane	<b>A5201</b>	Old Street, Great Eastern Street
<b>A406</b>	Bowes Road (North Circular Road), Angel Road, Angel Road (North Circular Road), Victoria Road, Sterling Way (North Circular Road), Silver Street, Sterling Way, Telford Road North Circular Road, North Circular Road, Walthamstow Avenue (North Circular Road), Pinkham Way North Circular Road	<b>A2203</b>	A2203, Blackwall Lane	<b>A501</b>	City Road
<b>B1453</b>	Osidge Lane	<b>A2</b>	A2, East Rochester Way, Shooters Hill Road, Deptford Bridge, Blackheath Road, Blackheath Hill, Dean'S Gateway	<b>A1202</b>	Great Eastern Street, Curtain Road, Commercial Street
<b>A10</b>	Great Cambridge Road	<b>A2209</b>	Deptford Church Street	<b>A12</b>	East Cross Route, Cowdry Road, Temple Mills Road
<b>A1110</b>	Bowes Road	<b>A200</b>	Creek Road, College Approach, Greenwich Church Street, King William Walk	<b>B100</b>	Sun Street
Hammersmith and Fulham		Haringey		Harrow	

<b>A4</b>	West Cromwell Road, Great West Road, Hammersmith Flyover, Talgarth Road	<b>A503</b>	Seven Sisters Road, Broad Lane, Ferry Lane, Monument Way, Fountayne Road, The Hale, Hale Road	<b>M1</b>	M1
<b>A40</b>	Westway, Wood Lane	<b>A10</b>	High Road, Great Cambridge Road, The Roundway, Bruce Grove, Lordship Lane	<b>A4006</b>	Kenton Road
<b>A3220</b>	West Cross Route	<b>A1</b>	Aylmer Road, North Hill, Baker's Lane, Archway Road	<b>A4127</b>	Greenford Road, Sudbury Court Drive
<b>A306</b>	Hammersmith Bridge Road, Great West Road	<b>A105</b>	Green Lanes, High Road	<b>A312</b>	Bessborough Road, Northolt Road, Lower Road
<b>A219</b>	Scrubs Lane, Shepherd's Bush Green, Talgarth Road, Wood Lane, Fulham Palace Road, Hammersmith Broadway, Shepherd's Bush Road, Putney Bridge Approach, Fulham High Street, Queen Caroline Street, Hammersmith Road, Butterwick	<b>A1055</b>	Watermead Way, Meridian Way, The Hale	<b>A410</b>	Uxbridge Road (Harrow Weald), London Road, Uxbridge Road, Uxbridge Road (Hatch End), The Broadway, Church Road
<b>Havering</b>		<b>Hillingdon</b>		<b>Hounslow</b>	
<b>M25</b>	M25	<b>M4</b>	M4, Newman Road	<b>M4</b>	M4
<b>A13</b>	Choats Manor Way	<b>M25</b>	M25	<b>A205</b>	Kew Bridge Road, Chiswick High Road (North Circular Road), Kew Road
<b>A1251</b>	Oldchurch Road, Thurloe Gardens, Mercury Gardens	<b>A30</b>	Great South-West Road	<b>A4</b>	Great West Road, Bath Road, Boston Manor Road, Great West Road Chiswick, Cedars Road, Ellesmere Road, Hogarth Lane
<b>A12</b>	Colchester Road, Eastern Avenue West, Eastern Avenue East	<b>A40</b>	Western Avenue	<b>A406</b>	Gunnersbury Avenue, Gunnersbury Avenue (North Circular Road)
<b>A118</b>	London Road, Main Road, St Edwards Way	<b>A4</b>	Bath Road, Colnbrook Bypass	<b>A312</b>	Causeway, The Parkway, Uxbridge Road, Hampton Road West, Harlington Road West, Harlington Road East, Hampton Road East, Fagg's Road, Twickenham Road, North Hyde Road
<b>Islington</b>		<b>Kensington and Chelsea</b>		<b>Kingston</b>	
<b>A501</b>	Pentonville Road, City Road, Wakley Street, Finsbury Pavement	<b>A4</b>	Cromwell Road, Brompton Road, Warwick Road, West Cromwell Road, Knightsbridge, Thurloe Place, Cromwell Gardens	<b>A309</b>	Hook Rise South (Kingston Bypass)
<b>A1203</b>	The Highway	<b>A40</b>	Westway	<b>A3</b>	Tolworth Underpass (Kingston Bypass), Kingston Bypass, Malden Way, Tolworth Rise South, Malden Way (Kingston Bypass), Robin Hood Way, Kingston Vale, Hook Rise North (Kingston Bypass), Hook Underpass (Kingston Bypass), Robin Hood Way (Kingston Bypass), Tolworth Rise North (Kingston Bypass), Hook Rise South (Kingston Bypass), Tolworth Rise North, Beverley Way (Kingston Bypass)
<b>A201</b>	Penton Rise, King's Cross Road, Farringdon Road	<b>B319</b>	Beauchamp Place, Pont Street	<b>A238</b>	Coombe Lane West, Coombe Road, Coombe Lane Flyover
<b>A5201</b>	Old Street, Clerkenwell Road	<b>A315</b>	Kensington High Street, Kensington Road	<b>A2043</b>	Malden Road, Cambridge Road, Kingston Road, Central Road
<b>A401</b>	St John Street, Rosebery Avenue	<b>A3212</b>	Cheyne Walk, Chelsea Embankment	<b>A240</b>	Ewell Road, Kingston Road, Penrhyn Road, Surbiton Road, Warren Drive North, Surbiton Hill Road, Broadway, Tolworth Broadway
<b>Lambeth</b>		<b>Lewisham</b>		<b>Merton</b>	
<b>A301</b>	Waterloo Road	<b>A2</b>	New Cross Road, Amersham Road, Deptford Bridge, Deptford Broadway, Shooters Hill Road, Lewisham Way, Old Kent Road, Parkfield Road, Blackheath Hill	<b>A3</b>	Beverley Way (Kingston Bypass), Beverley Way, Malden Way (Kingston Bypass), Bushey Road
<b>A302</b>	Westminster Bridge Road	<b>A200</b>	Bestwood Street, Evelyn Street, Creek Road, Lower Road	<b>A298</b>	Bushey Road
<b>A3200</b>	York Road, Stamford Street	<b>A2209</b>	Deptford Church Street	<b>B282</b>	Beverley Way, Burlington Road, Malden Way, West Barnes Lane
<b>A3205</b>	Parry Street, Nine Elms Lane	<b>A205</b>	Brownhill Road, St Mildreds Road, London Road, Plassy Road, Catford Road, Sunderland Road, Stanstead Road, Waldram Park Road, Sangley Road, Westhorne Avenue, Dartmouth Road, Waldram Crescent, Catford Hill	<b>A236</b>	Western Road, Commonsides West, Upper Green West, Upper Green East, Christchurch Road, Croydon Road
<b>A3202</b>	Westminster Bridge Road	<b>A20</b>	Lewisham Way, Lee High Road, Eltham Road, Loampit Hill, Loampit Vale, Lewisham High Street, Amersham Road	<b>A217</b>	Lower Green West, London Road, Bishopsford Road, Holborn Way, Mitcham Road, Raleigh Gardens
<b>Newham</b>		<b>Redbridge</b>		<b>Richmond</b>	
<b>A13</b>	Alfred's Way (East Ham And Barking Bypass), Newham Way, Barking Road, East India Dock Road	<b>A406</b>	North Circular Road, Southend Road (North Circular Road), Southend Road	<b>A316</b>	Twickenham Road, Lower Mortlake Road, Chertsey Road, London Road, Kew Road, Lower Richmond Road, Hospital Bridge Road, The Avenue, St Margaret's Road, Clifford Avenue
<b>A12</b>	A12	<b>A1008</b>	Blake Hall Road, Cambridge Park	<b>A3063</b>	Wellington Road South



<b>A406</b>	A406, North Circular Road, Highbridge Road	<b>M11</b>	M11	<b>A205</b>	Upper Richmond Road West, Upper Richmond Road, Clifford Avenue, Kew Road, Mortlake Road
<b>A11</b>	High Street, Great Eastern Road, The Grove	<b>A12</b>	Eastern Avenue	<b>A3003</b>	Church Road, Mortlake High Street, The Terrace, Lower Richmond Road, Barnes High Street, Sheen Lane
<b>A1011</b>	Manor Road, Silvertown Way	<b>A118</b>	High Road, Ilford Hill, Romford Road, Winston Way, Chapel Road	<b>A306</b>	Rocks Lane, Castelnau
<b>Southwark</b>		<b>Sutton</b>		<b>Tower Hamlets</b>	
<b>A3204</b>	Kennington Park Road, Kennington Lane	<b>A297</b>	St Helier Avenue	<b>A102</b>	Brunswick Road, St Leonard's Road, Blackwall Tunnel Northern Approach, Blackwall Tunnel Approach
<b>A101</b>	A101, Rotherhithe Tunnel	<b>A217</b>	Bishopsford Road, Belmont Rise, Oldfields Road, St Dunstan's Hill, Reigate Avenue	<b>A1203</b>	Mansell Street, Limehouse Link, Limehouse Link (Tunnel), The Highway, East Smithfield
<b>A3</b>	Kennington Park Road, Elephant And Castle, Newington Butts, Kennington Lane, Borough High Street, Southwark Street, Newington Causeway	<b>A237</b>	London Road, Woodcote Road, Manor Road, Manor Road North	<b>A1210</b>	Mansell Street
<b>A100</b>	Tower Bridge Road	<b>A24</b>	Stonecot Hill, London Road, Epsom Road	<b>A101</b>	A101, Branch Road
<b>A3201</b>	Marshalsea Road	<b>A232</b>	Croydon Road, High Street, Carshalton Road, Ewell Road, Cheam Road, Chalk Pit Way, Sutton Park Road, Acre Lane, Sutton Court Road, Grove Road, Pound Street	<b>A100</b>	Tower Hill, Mansell Street, Tower Bridge Approach
<b>Waltham Forest</b>		<b>Wandsworth</b>		<b>Westminster</b>	
<b>A12</b>	A12	<b>A3216</b>	Queenstown Road, Queen's Circus, Chelsea Bridge Road	<b>A501</b>	Marylebone Road, Old Marylebone Road, Chapel Street, Euston Road, Marylebone Flyover, Cosway Street, Harrow Road
<b>A406</b>	Walthamstow Avenue (North Circular Road), Southend Road (North Circular Road), North Circular Road	<b>A3205</b>	York Road, Battersea Park Road, Nine Elms Lane	<b>A4202</b>	Park Lane, Brook Gate, Achilles Way
<b>A1199</b>	High Road Leytonstone	<b>A3036</b>	East Hill, Marcilly Road, Wandsworth Road, Lavender Hill, St John's Hill, Reed Place	<b>A301</b>	Lancaster Place, Kingsway Tunnel
<b>A104</b>	Woodford New Road, Lea Bridge Road	<b>A3</b>	Kingston Road, West Hill, Roehampton Vale, Battersea Rise, East Hill, Marcilly Road, North Side Wandsworth Common, Wandsworth High Street, Clapham Common North Side, Upper Richmond Road, Huguenot Place	<b>A401</b>	Shaftesbury Avenue
<b>A114</b>	Bush Road, Whipps Cross Road	<b>A3220</b>	Elspeth Road, Albert Bridge Road, Battersea Bridge Road, Prince Of Wales Drive, Latchmere Road	<b>A4200</b>	Kingsway



**Figure 2: Annual mean 2019 NO<sub>2</sub> concentrations from the LAEI averaged along each road (within 25 m of the centre of the road).**

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## 2 Methodology and Additional Information

- 2.1 The latest available road network from the LAEI has been processed to extract individual roads which have been grouped by road number and split by Borough, as listed within the dataset. It should be noted that roads straddling Borough boundaries may therefore be split up into two or more Borough areas where they fall inside or outside of an area, due to the listing within the dataset, and some sections of road may be short, depending on where the split occurs. A buffer, at a distance of 25 m from each of the grouped road centrelines, has been created. Mapped concentrations of NO<sub>2</sub> for 2019 within each of those buffers have then been used to calculate average concentrations across each section of road.
- 2.2 This can be taken to indicate the overall levels of pollution within 25 m of the centre of each road; it should be noted that this is an average, and there may be locations where concentrations are much higher or lower than those calculated here. Thus, while the concentrations have been compared against the annual mean objective and WHO guideline, average concentrations exceeding those values may not mean that there is an exceedance along the whole road, or that there is relevant exposure within that distance (e.g. a residential property). Likewise, where there are average concentrations below those values, this should not be taken to mean that there are no exceedances along the road as a whole.