

Appendix 6: Characterisation of enhanced air quality monitoring sites

This appendix provides site descriptions and location of all of the enhanced air quality monitoring sites referred to in Section 9.

A6.1 Marylebone Road, Westminster

Site classification

Table A6.1 presents basic site information and pollution concentrations measured at the monitoring site at Marylebone Road.

Table A6.1 Site details and air quality statistics for 2006 at Marylebone Road ('MY1').

| Name: Marylebone Road | | LAQN Code: MY1 | |
|---|---|-----------------------------------|------------------|
| Class: Inner London Kerbside | | Distance to kerb: 1m to 4m | |
| Address: Marylebone Road, Westminster | | Sample inlet height: 2.5m | |
| Grid ref: 528120, 182000 | | | |
| Pollutants monitored: NO_x, PM₁₀, FDMS PM₁₀, PM_{2.5}, P_{NUM}, Black Carbon (BC), O₃, Hydrocarbons | | | |
| Air Quality Strategy statistics for 2006 | | | |
| Pollutant | Objective | Result | Achieved? |
| Nitrogen dioxide | Annual mean not exceeding 40 µg m ⁻³ | 112µg m ⁻³ | No |
| Nitrogen dioxide | No more than 18 occurrences of hourly mean >200 µg m ⁻³ | 676 | No |
| PM ₁₀ particulate | Annual mean less than 40 µg m ⁻³ (gravimetric equivalent) | 47µg m ⁻³ | No |
| PM ₁₀ particulate | No more than 35 days where daily mean >50 µg m ⁻³ (gravimetric equivalent) | 151 | No |

Geographical Characterisation

The Marylebone Road monitoring site is located adjacent to the kerb on the southern side of Marylebone Road, a six lane trunk route with the kerbside lane in both directions designated as a strictly enforced bus lane (since August 2001). It is within a street canyon approximately 32 metres wide with maximum building heights of approximately 25 metres on either side of the road.

There is a major traffic light junction approximately 160 metres to the west (Baker Street) and a pedestrian crossing 60 metres to the west. Road and building layout is shown in Figure A6.1, which marks the position of the monitoring site and Figure A6.2 shows photographs of the site.

This is a kerbside monitoring site, with sample inlets placed approximately 1.5 metres from the kerb. Note that the PM_{2.5} monitoring inlet is placed two metres further back from the kerb than the PM₁₀ inlet and direct comparison of these two size fractions

should be made with care. No major road disruptions or alterations were reported in the period January 2006 to October 2007.

Figure A6.1 GIS plan of the area surrounding the Marylebone Road monitoring site. Roads are shown in red, boundaries in green and buildings in brown.

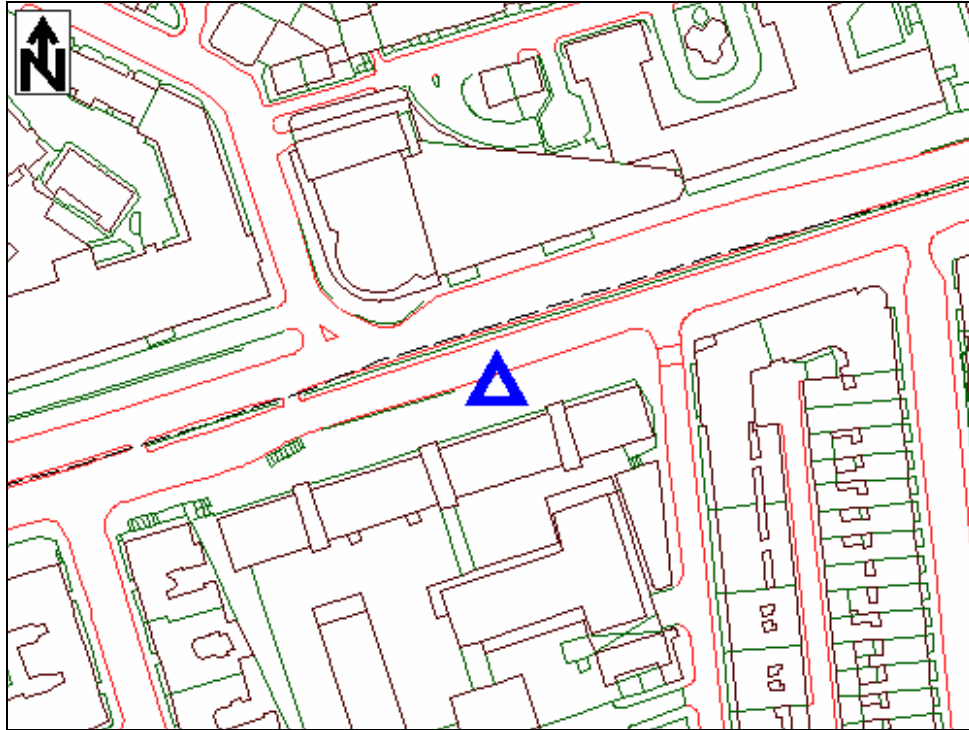
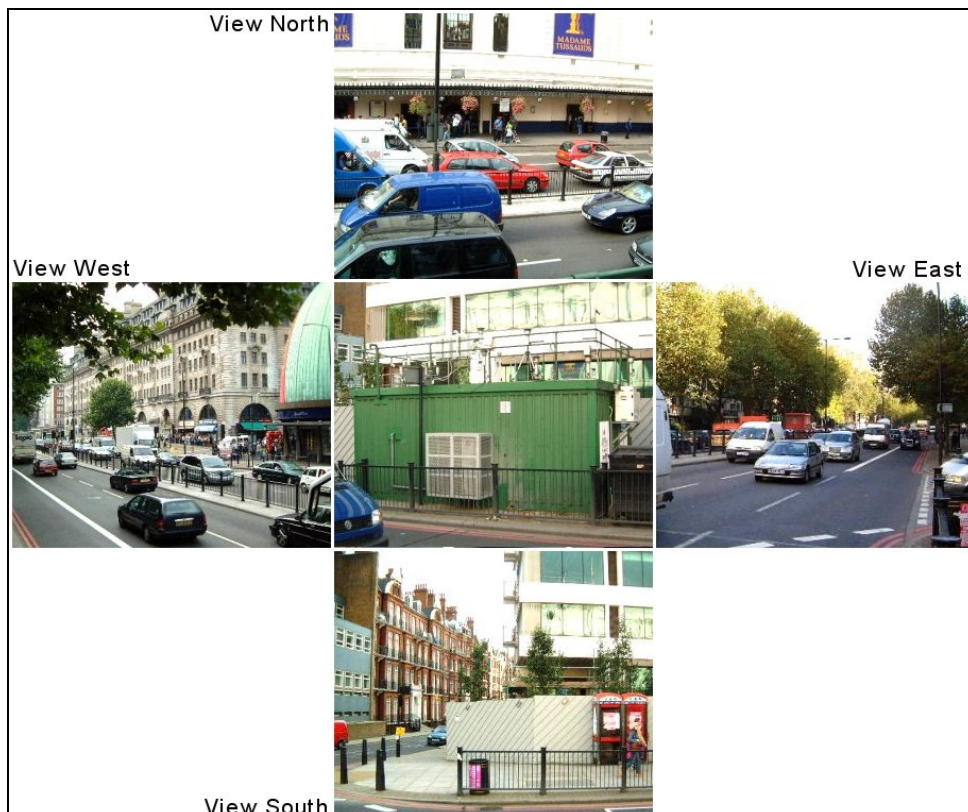


Figure A6.2 Photograph of the Marylebone Road monitoring site and views looking north, east, south and west.



A6.3 Old Street, Hackney

Site classification

Table A6.2 presents basic site information and pollution concentrations measured at the monitoring site at Old Street.

Table A6.2 Site details and air quality statistics for 2006 at Old Street ('HK6').

| Name: Old Street | | LAQN Code: HK6 | |
|---|---|--------------------------------|------------------|
| Class: Inner London Roadside | | Distance to kerb: 6m | |
| Address: Old Street, Hackney | | Sample inlet height: 3m | |
| Grid ref: 532900, 182600 | | | |
| Pollutants monitored: NO_x, PM₁₀, PM_{2.5}, O₃ | | | |
| Air Quality Strategy statistics for 2006 | | | |
| Pollutant | Objective | Result | Achieved? |
| Nitrogen dioxide | Annual mean not exceeding 40 µg m ⁻³ | 62 µg m ⁻³ | No |
| Nitrogen dioxide | No more than 18 occurrences of hourly mean >200 µg m ⁻³ | 13 | Yes |
| PM ₁₀ particulate | Annual mean less than 40 µg m ⁻³ (gravimetric equivalent) | 36 µg m ⁻³ | Yes |
| PM ₁₀ particulate | No more than 35 days where daily mean >50 µg m ⁻³ (gravimetric equivalent) | 40 | No |

Geographical Characterisation

The Old Street monitoring site is located on the north side of Old Street, approximately 100 metres to the west of the Old Street/City Road roundabout. It lies on a complex junction with Great Eastern Street, as shown in Figure A6.3. Photographs of the monitoring cabin and compass point views are shown in Figure A6.4.

This is a roadside monitoring site, with sample inlets placed approximately 6 m from the kerb. The distance to kerb changed from three metres to six metres following reorganisation of the junction layout in late 2002.

No major road disruptions or alterations were reported in the period January 2006 to October 2007, although the junction was remodelled prior to the introduction of the congestion charging scheme in 2003, before which the monitoring site was located closer to the kerb.

Figure A6.3 GIS plan of the area surrounding the Old Street monitoring site. Roads are shown in red, boundaries in green and buildings in brown.

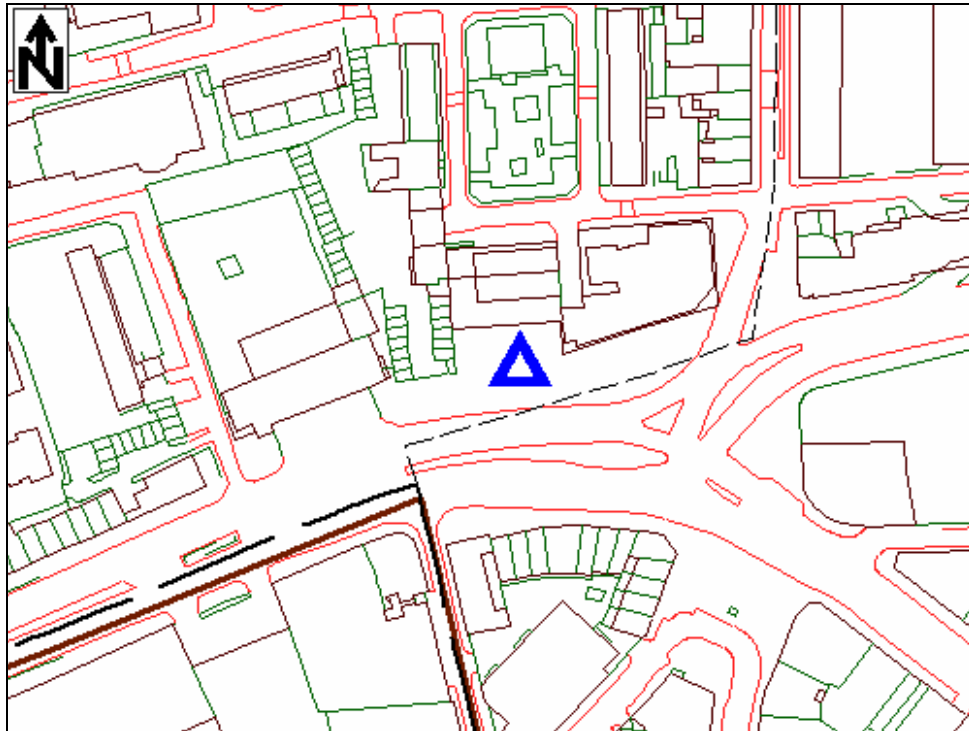
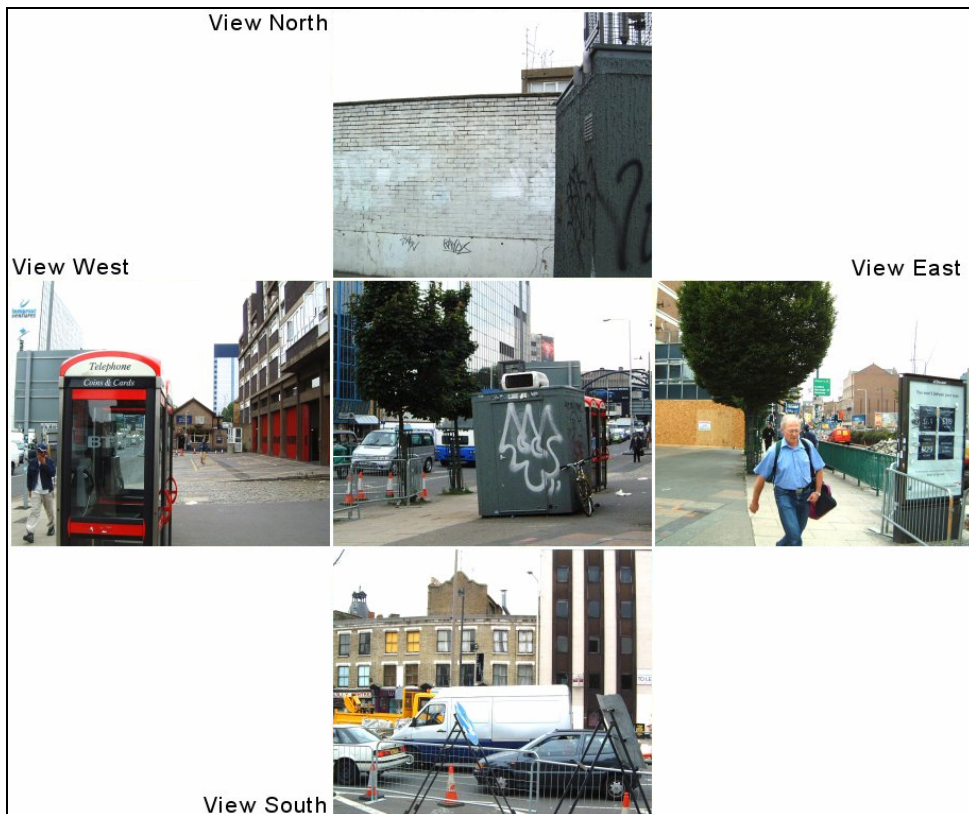


Figure A6.4 Photograph of the Old Street monitoring site and views looking north, east, south and west.



A6.3 North Circular Ikea, Brent

Site classification

Table A6.3 presents basic site information and pollution concentrations measured at the monitoring site on the North Circular Road at the Ikea store.

Table A6.3 Site details and air quality statistics for 2006 at North Circular Ikea ('BT4').

| Name: North Circular Ikea | | LAQN Code: HK6 | |
|---|---|----------------------------------|------------------|
| Class: Outer London Roadside | | Distance to kerb: 4m | |
| Address: A406 North Circular (Ikea), Brent | | Sample inlet height: 2.5m | |
| Grid ref: 520712, 185164 | | | |
| Pollutants monitored: NO_x, PM₁₀, PM_{2.5}, P_{NUM}, Black Carbon (BC), O₃ | | | |
| Air Quality Strategy statistics for 2006 | | | |
| Pollutant | Objective | Result | Achieved? |
| Nitrogen dioxide | Annual mean not exceeding 40 µg m ⁻³ | 78 µg m ⁻³ | No |
| Nitrogen dioxide | No more than 18 occurrences of hourly mean >200 µg m ⁻³ | 10 | Yes |
| PM ₁₀ particulate | Annual mean less than 40 µg m ⁻³ (gravimetric equivalent) | 44 µg m ⁻³ | No |
| PM ₁₀ particulate | No more than 35 days where daily mean >50 µg m ⁻³ (gravimetric equivalent) | 105 | No |

Geographical Characterisation

The BT4 monitoring site lies on the north side of the A406 North Circular within the Ikea compound. At this point, the A406 is a six lane red-route carriage way, with no junctions or traffic controls within 100 metres in either direction. The geography is relatively open. To the north is the Ikea retail park, to the south a residential area.

Figure A6.5 GIS plan of the area surrounding the North Circular Ikea monitoring site. Roads are shown in red, boundaries in green and buildings in brown.

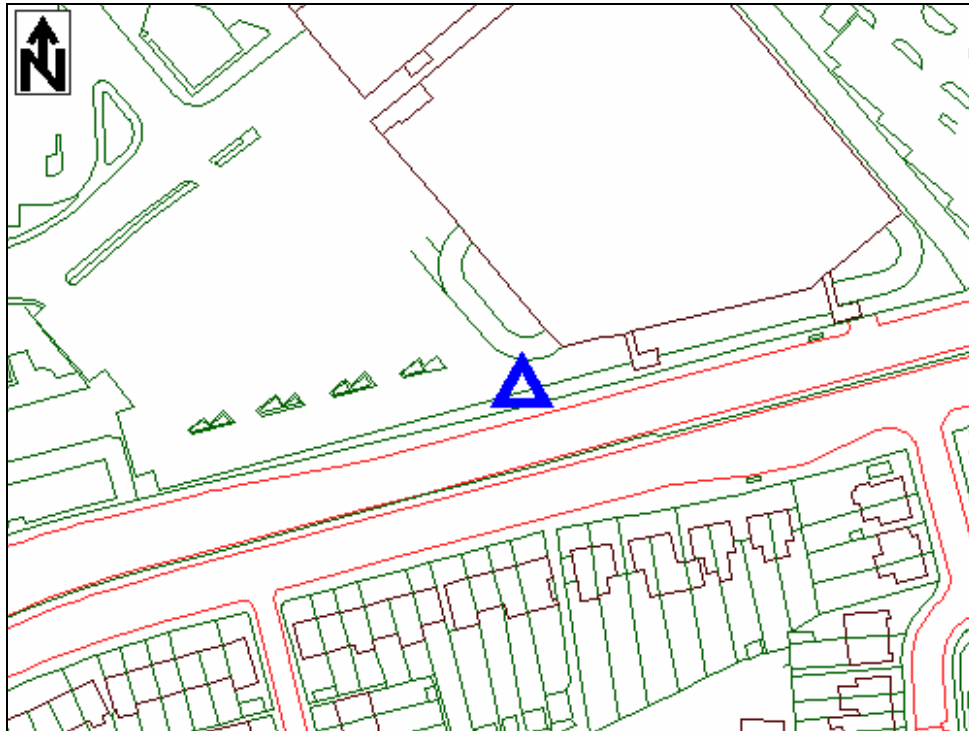
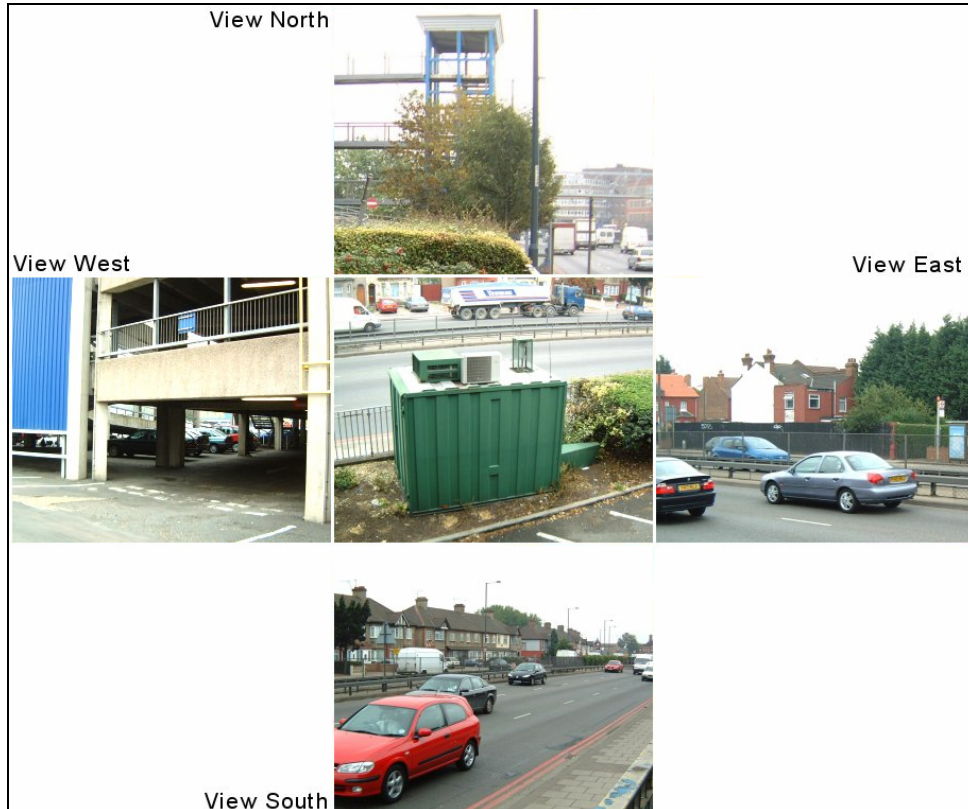


Figure A6.6 Photograph of the North Circular Ikea monitoring site and views looking north, east, south and west.



A6.4 Woolwich Flyover, Greenwich

Site classification

Table A6.4 presents basic site information and pollution concentrations measured at the monitoring site, which is located under the Woolwich Flyover in Greenwich.

Table A6.4 Site details and air quality statistics for 2006 at Woolwich Flyover ('GR8').

| Name: Woolwich Flyover | | LAQN Code: GR8 | |
|---|---|--------------------------------|------------------|
| Class: Outer London Roadside | | Distance to kerb: 3m | |
| Address: Woolwich Flyover (A206 / A102 interchange), Greenwich | | Sample inlet height: 3m | |
| Grid ref: 540210, 178380 | | | |
| Pollutants monitored: NO_x, PM₁₀, PM_{2.5}, O₃ | | | |
| Air Quality Strategy statistics for 2006 | | | |
| Pollutant | Objective | Result | Achieved? |
| Nitrogen dioxide | Annual mean not exceeding 40 µg m ⁻³ | 71 µg m ⁻³ | No |
| Nitrogen dioxide | No more than 18 occurrences of hourly mean >200 µg m ⁻³ | 14 | Yes |
| PM ₁₀ particulate | Annual mean less than 40 µg m ⁻³ (gravimetric equivalent) | 47 µg m ⁻³ | No |
| PM ₁₀ particulate | No more than 35 days where daily mean >50 µg m ⁻³ (gravimetric equivalent) | 110 | No |

Geographical Characterisation

The Woolwich Flyover site ('GR8') is on the A206/A102 junction beneath the Woolwich flyover. Unusually, it is within three metres of the junction roundabout on the east side. Monitoring sites are rarely located so close to roundabouts due to limited public exposure, but there are residential properties just behind the site further to the east (Figure A6.7). This is a geographically complex site, with a number of minor roads also joining the A206 at this point, major slip roads to the north and south and traffic queuing on the roundabout itself. The monitoring inlet is approximately three metres from the kerb, three metres above ground level and three metres below the level of the flyover.

Figure A6.7 GIS plan of the area surrounding the Woolwich Flyover monitoring site. Roads are shown in red, boundaries in green and buildings in brown.

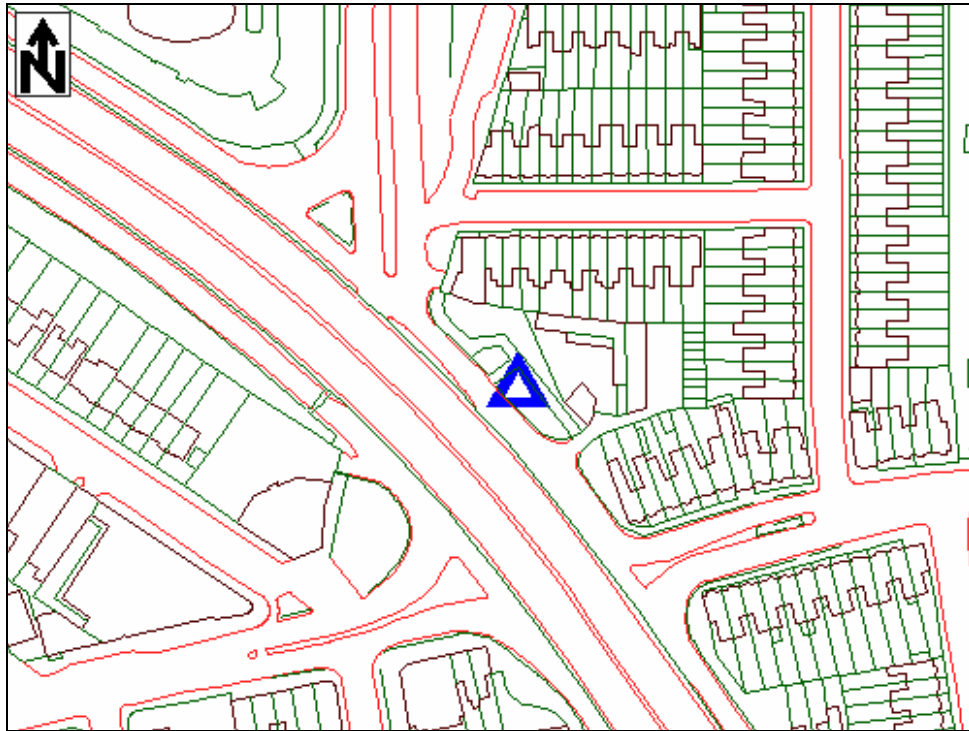
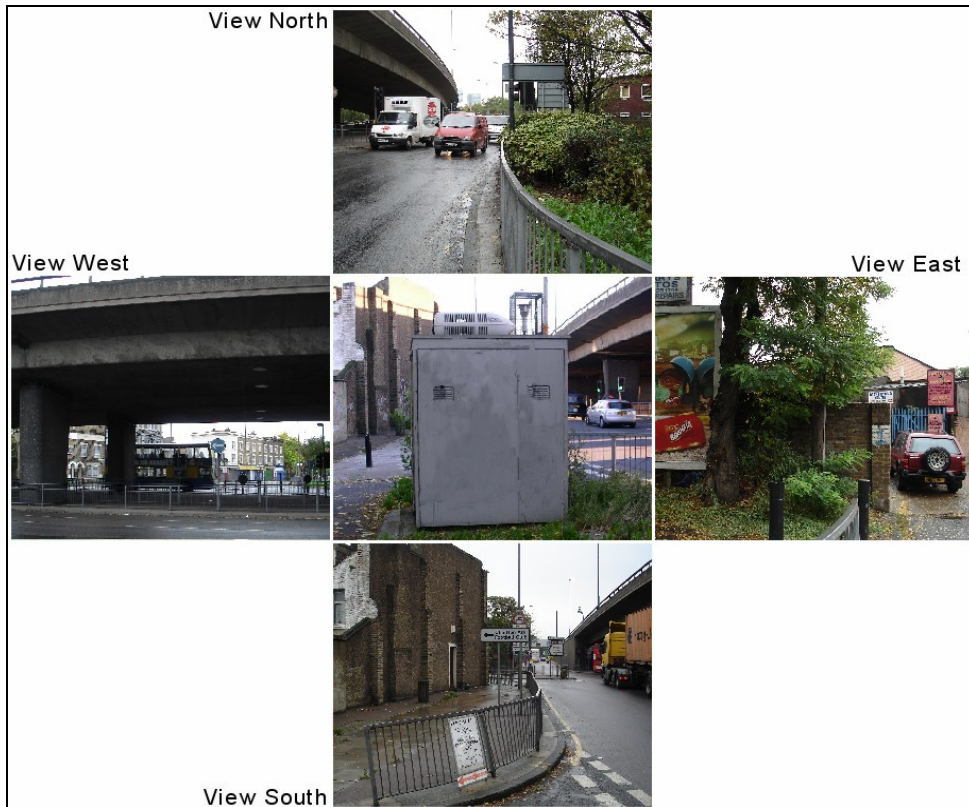


Figure A6.8 Photograph of the Woolwich Flyover monitoring site and views looking north, east, south and west.



A6.5 Westhorne Avenue, Greenwich

Site classification

Table A6.5 presents basic site information and pollution concentrations measured at the monitoring site on Westhorne Avenue.

Table A6.5 Site details and air quality statistics for 2006 at Westhorne Avenue ('GR9').

| Name: Westhorne Avenue (South Circular) | | LAQN Code: GR9 | |
|--|---|--------------------------------|-----------|
| Class: Outer London Roadside | | Distance to kerb: 5m | |
| Address: Westhorne Avenue (A2 / South Circular Interchange), Greenwich | | Sample inlet height: 3m | |
| Grid ref: 541883, 175016 | | | |
| Pollutants monitored: NO _x , PM ₁₀ (FDMS), PM _{2.5} (FDMS), O ₃ | | | |
| Air Quality Strategy statistics for 2006 | | | |
| Pollutant | Objective | Result | Achieved? |
| Nitrogen dioxide | Annual mean not exceeding 40 µg m ⁻³ | 43 µg m ⁻³ | No |
| Nitrogen dioxide | No more than 18 occurrences of hourly mean >200 µg m ⁻³ | 0 | Yes |
| PM ₁₀ particulate | Annual mean less than 40 µg m ⁻³ (gravimetric equivalent) | 34 µg m ⁻³ | Yes |
| PM ₁₀ particulate | No more than 35 days where daily mean >50 µg m ⁻³ (gravimetric equivalent) | 34 | Yes |

Geographical Characterisation

The Westhorne Avenue monitoring site is located five metres to the north west of the A205 Westhorne Avenue, 50 metres to the south west of the A2 Rochester Relief Road intersection. At this point the A205 has two lanes in each direction with domestic residences either side set back from the road. There is a minor road (Pinnell Road) to the south west of the site (Figure A6.9 and Figure A6.10).

Figure A6.9 GIS plan of the area surrounding the Westthorne Avenue monitoring site. Roads are shown in red, boundaries in green and buildings in brown.

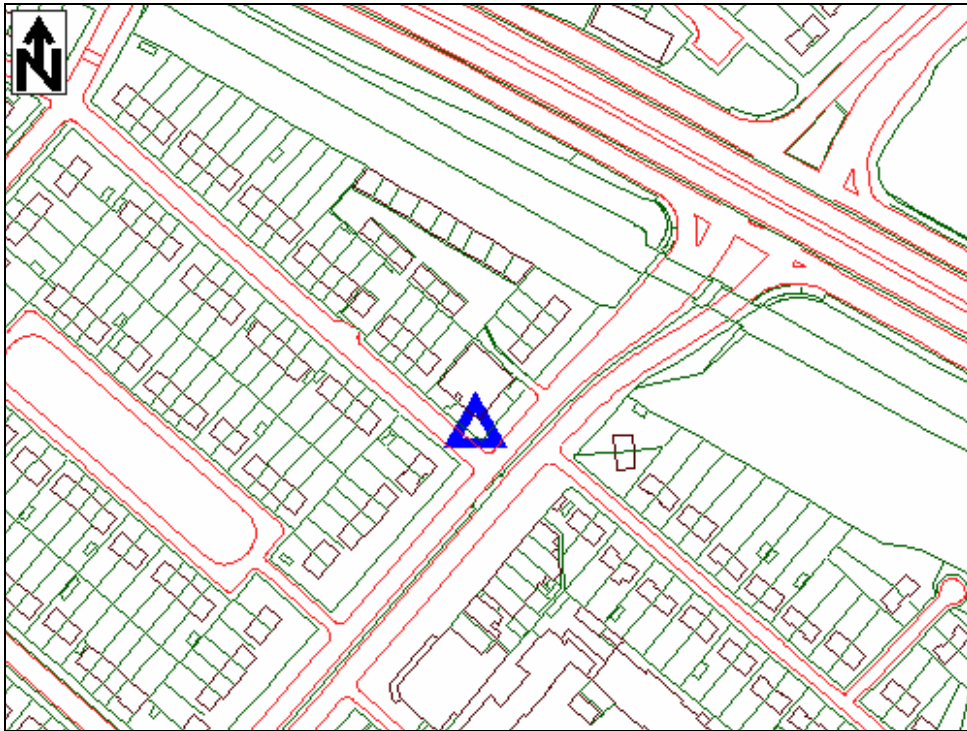


Figure A6.10 Photograph of the Westthorne Avenue monitoring site and views looking north, east and west.



A6.6 Blackwall Tunnel, Tower Hamlets

Site classification

Table A6.6 presents basic site information and pollution concentrations measured at the monitoring site at the Northern Approach Road to the Blackwall Tunnel

Table A6.6 Site details for 2006 at Blackwall Tunnel ('TH4'). Note that 2006 statistics are not available at this site due to its commissioning date of September 2006.

| | |
|--|--------------------------------|
| Name: Blackwall Tunnel (Northern Approach) | LAQN Code: TH4 |
| Class: Outer London Roadside | Distance to kerb: 4m |
| Address: Blackwall Tunnel Northern Approach (A12 Abbott Street junction) | Sample inlet height: 3m |
| Grid ref: 538299, 181449 | |
| Pollutants monitored: NO _x , PM ₁₀ (FDMS), PM _{2.5} (FDMS), P _{NUM} , Black Carbon (BC), O ₃ | |

Geographical Characterisation

The Blackwall Tunnel monitoring site was established specifically to monitor the effects of the London Low Emission Zone on air quality and is funded entirely by TfL. It is located adjacent to the southbound carriageway of the A12 Northern Approach Road on the minor junction with Abbot Street (Figure A6.11). This is an open location with residential properties to the east and a wide grassed area to the west (Figure A6.12).

The monitoring inlets are located approximately four metres from the kerb. No major road disruptions were reported in the period September 2006 to October 2007.

Figure A6.11 GIS plan of the area surrounding the Blackwall Tunnel monitoring site. Roads are shown in red, boundaries in green and buildings in brown.

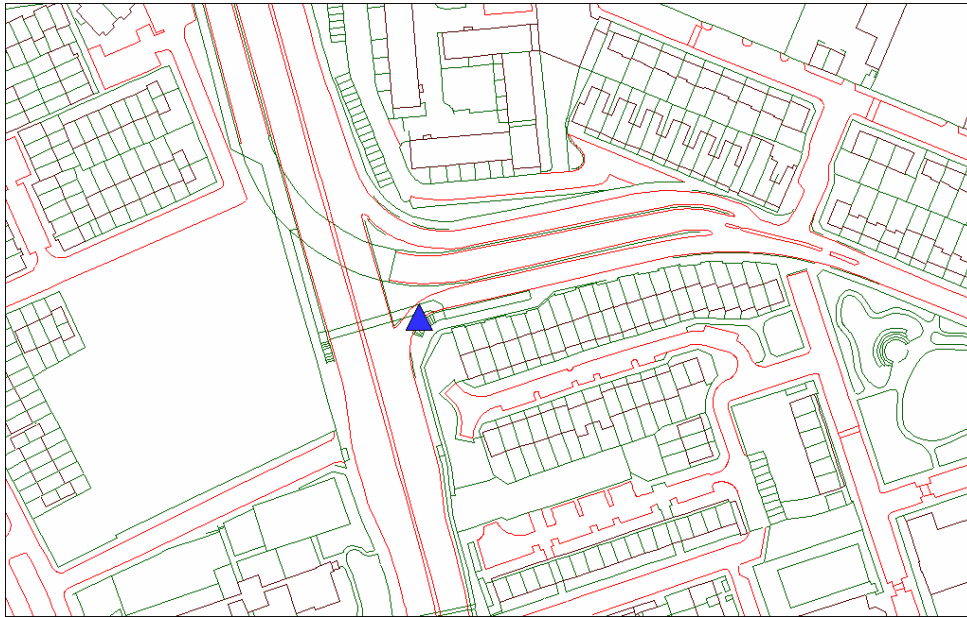
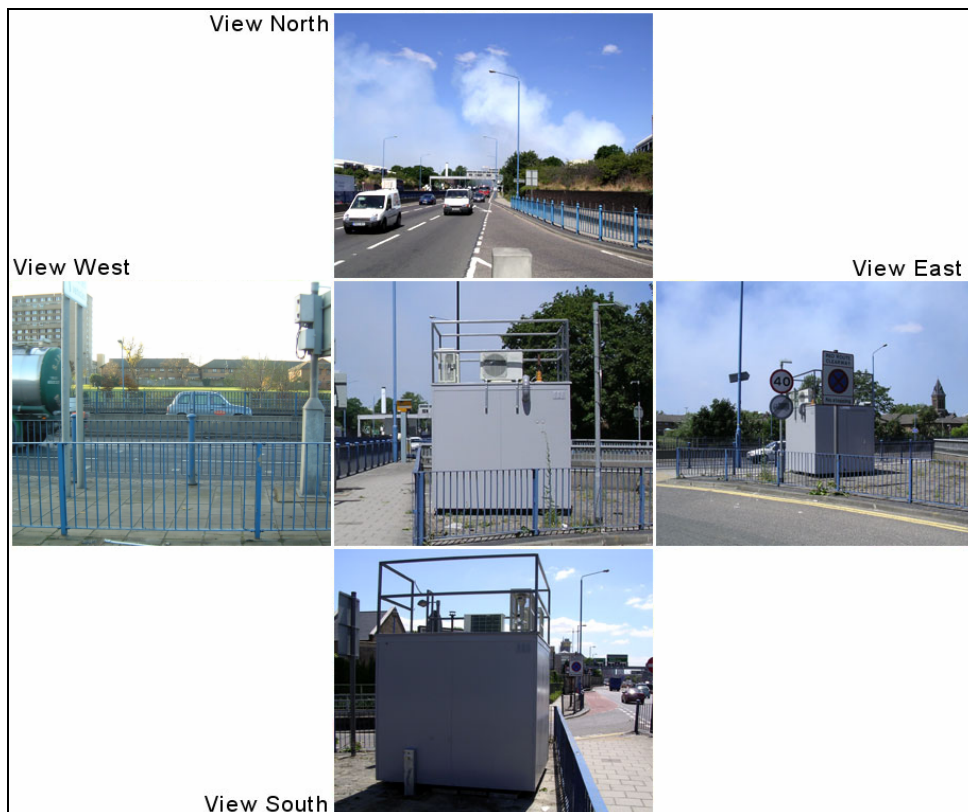


Figure A6.12 Photograph of the Blackwall Tunnel monitoring site and views looking north, east, south and west.



A6.7 Thames Road, Bexley

Site classification

Table A6.7 presents basic site information and pollution concentrations measured at the monitoring site at Thames Road in Bexley.

Table A6.7 Site details and air quality statistics for 2006 at Thames Road North (BX7).

| Name: Thames Road (A206) | | LAQN Code: BX7 | |
|---|---|---|------------------|
| Class: Outer London Roadside | | Distance to kerb: 22m, changing to 12m | |
| Address: Thames Road, north side, Bexley | | Sample inlet height: 3m | |
| Grid ref: 552616, 175415 | | | |
| Pollutants monitored: NO_x, PM₁₀, PM₁₀ (FDMS), PM_{2.5}, O₃ | | | |
| Air Quality Strategy statistics for 2006 | | | |
| Pollutant | Objective | Result | Achieved? |
| Nitrogen dioxide | Annual mean not exceeding 40 µg m ⁻³ | 44 µg m ⁻³ | No |
| Nitrogen dioxide | No more than 18 occurrences of hourly mean >200 µg m ⁻³ | 0 | Yes |
| PM ₁₀ particulate | Annual mean less than 40 µg m ⁻³ (gravimetric equivalent) | 40 µg m ⁻³ | No |
| PM ₁₀ particulate | No more than 35 days where daily mean >50 µg m ⁻³ (gravimetric equivalent) | 77 | No |

Geographical Characterisation

The Thames Road site was included as a supersite due to its location adjacent to the A206, wide range of monitoring parameters already in place and partner site on the opposite side of the road. The sites (Thames Road North 'BX7' and Thames Road South 'BX8') were established by the London Borough of Bexley to assess pollution patterns before, during and after major widening of the A206, from single to dual carriage way.

Road widening commenced in May 2005 and construction of the additional carriageway was completed in July 2007. However, additional works were ongoing in November 2007.

Figure A6.13 GIS plan of the area surrounding the Thames Road monitoring site. Roads are shown in red, boundaries in green and buildings in brown. The BX8 site is shown as a grey marker. Road widths are pre-widening.

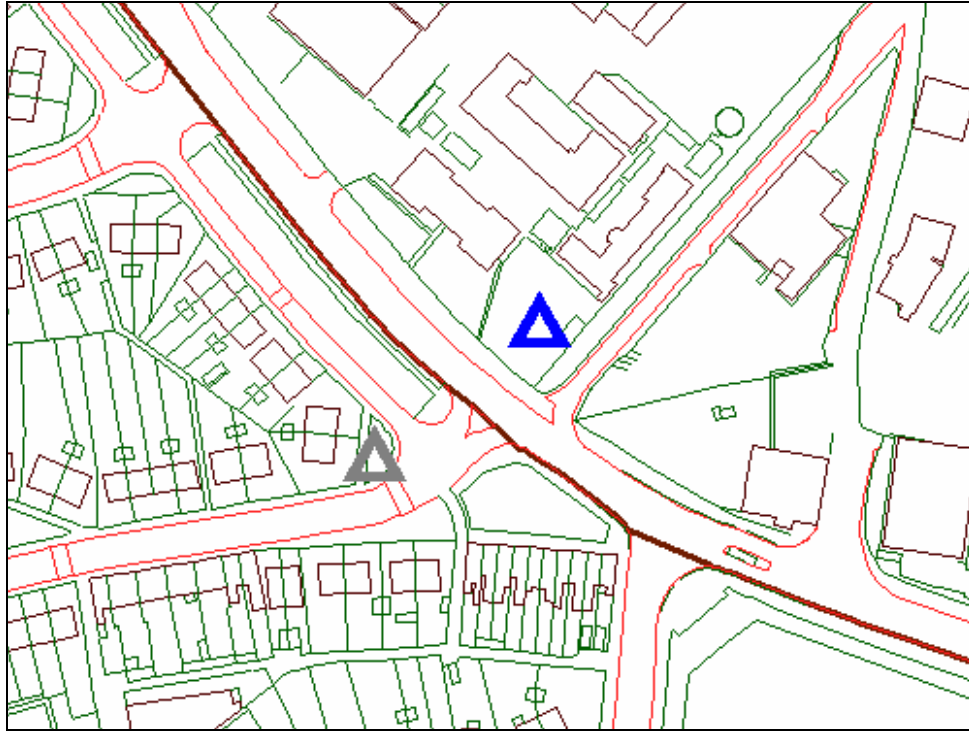


Figure A6.14 Photograph of the Thames Road monitoring site and views looking north, east, south and west. Road widths are pre-widening.

