WestConnex New M5 Ambient Air Quality Monitoring Results

June 2016

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1 Introduction: Understanding local air quality

WestConnex is undertaking air quality monitoring within local areas in close proximity to the proposed New M5 motorway. Monitoring stations have been established to measure the existing air quality conditions. The data collected through our monitoring program provides a baseline for the current air quality conditions along the project corridor. The data is being collected as part of the Environmental Assessment process for the New M5.

2 Monitoring air quality

To support the development and assessment of the New M5, seven ambient air quality monitoring stations were established along the project corridor. Data from these stations supplements the multiple long-term monitoring stations operated by NSW Office of Environment and Heritage and Roads and Maritime Services. Air quality specialists have been commissioned to operate and maintain the monitoring network during the planning phase of the project. A map of the monitoring station locations across the New M5 project area is provided below in Figure 1.

Figure 1 **New M5 air quality monitoring station locations**

It is noted that three of the New M5 stations were decommissioned in April 2016 due to being close to, or within the construction zone for the project. These include Princes Highway, Bexley Road and Canal Road stations.

3 Monitoring methodology

Air quality monitoring is undertaken in accordance with Australian standards and guidelines. Specific pollutants are monitored and reported against the relevant air quality goals in the National Environment Protection Measure (Ambient Air Quality). Meteorological conditions are also monitored locally to give a greater understanding of the conditions that may influence air quality outcomes. For more information on the pollutants measured and monitoring methodology visit www.westconnex.com.au

A data verification process is carried out to ensure high quality data capture. The data verification process includes:

- Removal of clearly incorrect data
- Corrections for instrument drift
- Corrections for offsets
- Removal of data acquired during calibration periods
- Removal of data during servicing, maintenance and equipment breakdown periods.

This can cause data gaps, and may be one reason why there is some data missing in the graphs provided.

The instruments measuring pollutants are subject to some variability and the results should be read within this context.

4 Results

A summary of air quality results from the New M5 monitoring network is provided below. Results of CO, NO_2, PM_{10} and $PM_{2.5}$ concentrations are provided and results are also represented graphically. The solid red line in each of the figures corresponds to the respective criteria or advisory reporting standard for that pollutant as stated in the NSW *Approved Methods* (NSW DEC, 2005).

4.1 St Peters Public School

A summary of the air quality results from the St Peters Public School monitoring station is provided in Table 1 and Figure 2, Figure 3, Figure 4 and Figure 5.

Table 1 St Peters Public School summary statistics for air pollutants

Statistics	CO (ppm) 8 hour rolling average values	NO_2 (ppb) 1 hour average values	PM_{10} ($\mu g/m^3$) 24 hour average values	$PM_{2.5}$ ($\mu g/m^3$) 24 hour average values
Average value	0.5	13.9	14.1	8.0
Maximum value	1.9	31.8	25.7	15.8
Minimum value	0.2	2.2	7.5	3.7

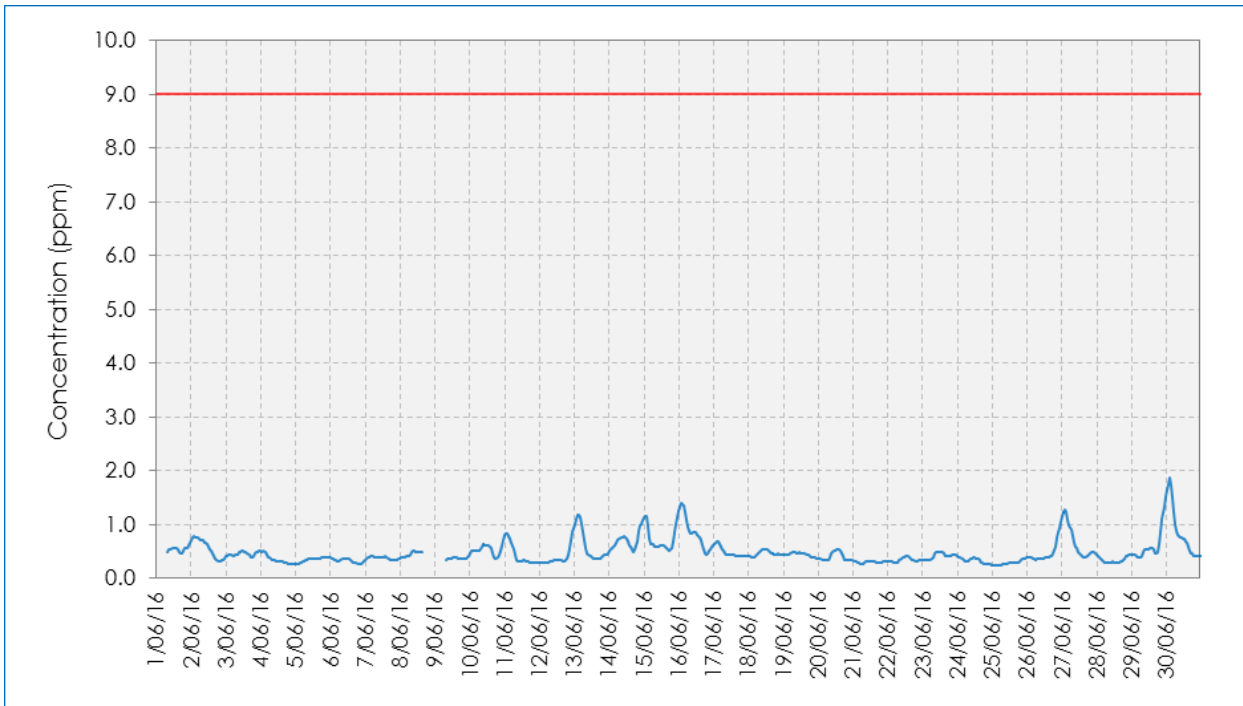**Figure 2 St Peters Public School CO concentrations (eight hour rolling average)**

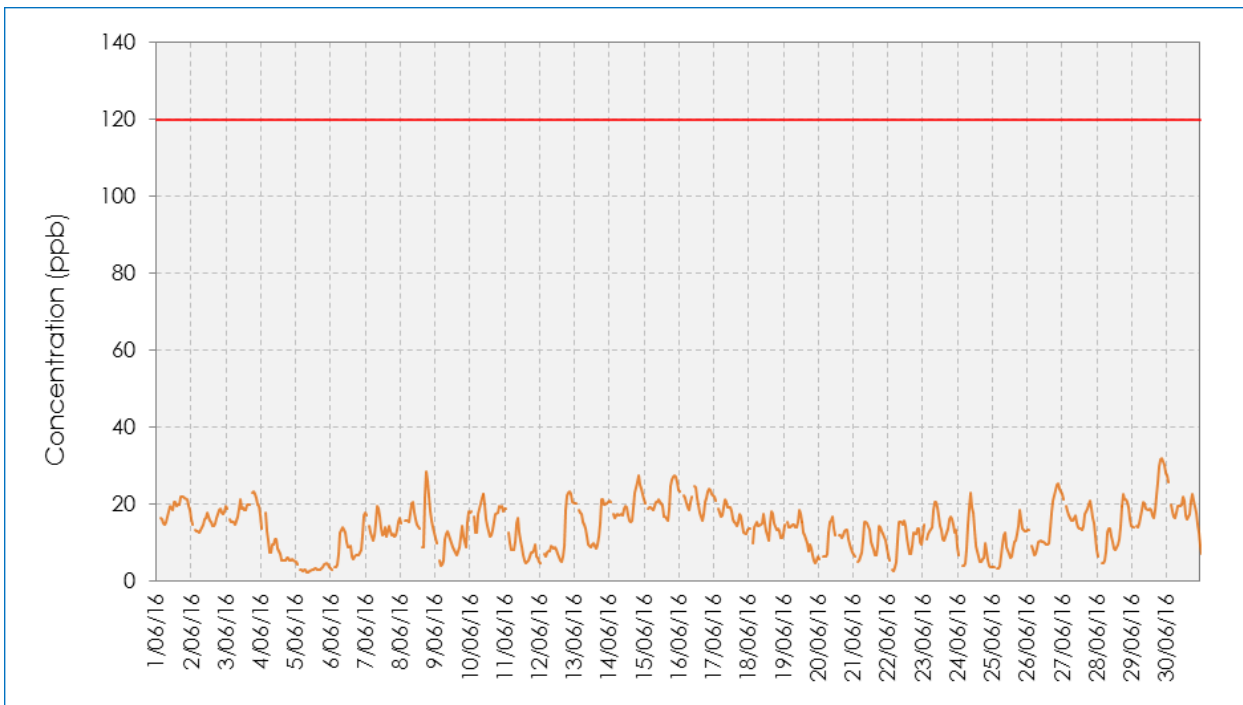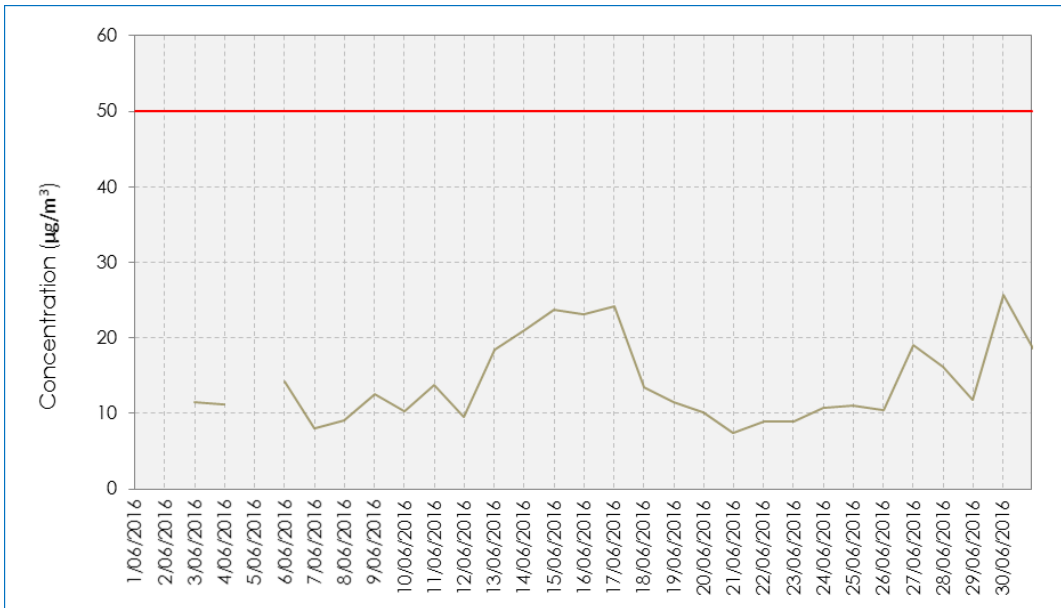**Figure 3 St Peters Public School NO$_2$ concentrations (one hour average)**
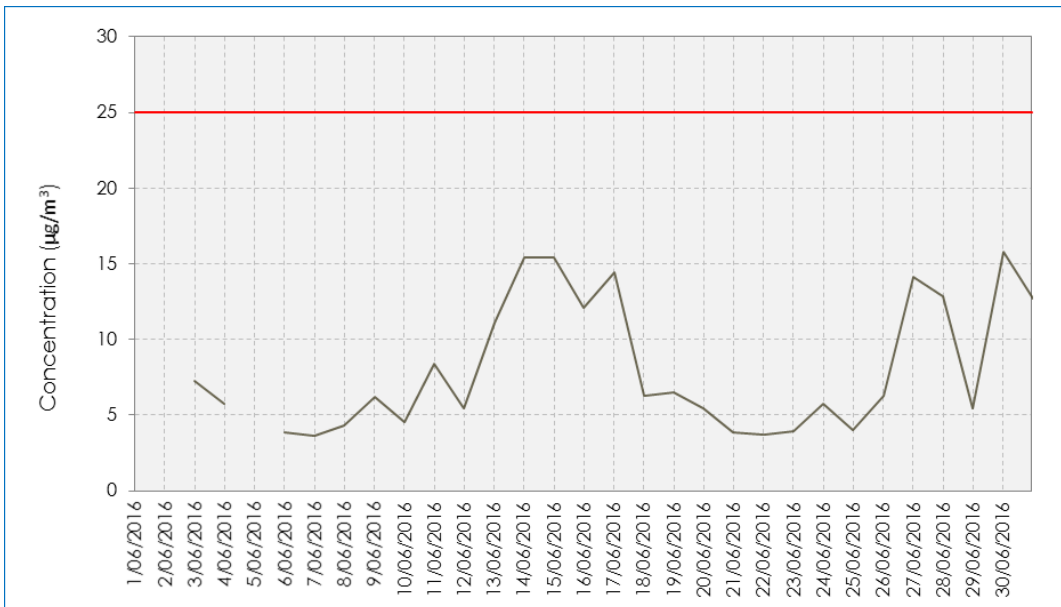
Figure 4 St Peters Public School PM$_{10}$ concentrations (24 hour average)*

*Note: A data verification process is carried out to ensure high quality data capture. In line with this process, 24-hour data cannot be reported where less than 75% of the hourly data is available.

Figure 5 St Peters Public School PM$_{2.5}$ concentrations (24 hour average)*

*Note: A data verification process is carried out to ensure high quality data capture. In line with this process, 24-hour data cannot be reported where less than 75% of the hourly data is available.

Reporting

No exceedances of the air quality criteria in the NSW *Approved Methods* (NSW DEC, 2005) were recorded during the reporting period for the key pollutants outlined above at the St Peters Public School monitoring station.

4.2 Princes Highway, St Peters

The Princes Highway monitoring station was decommissioned in April 2016.

4.3 West Botany Street, Arncliffe

A summary of the air quality results from the West Botany Street monitoring station in Arncliffe is provided in Table 2 and Figure 6, Figure 7, Figure 8 and Figure 9.

Table 2 **West Botany Street summary statistics for air pollutants**

Statistics	CO (ppm) 8 hour rolling average values	NO$_2$ (ppb) 1 hour average values	PM$_{10}$ (µg/m^3) 24 hour average values	PM$_{2.5}$ (µg/m^3) 24 hour average values
Average value	0.4	17.0	15.6	9.9
Maximum value	1.7	46.4	26.0	17.9
Minimum value	0.1	2.0	6.0	4.0

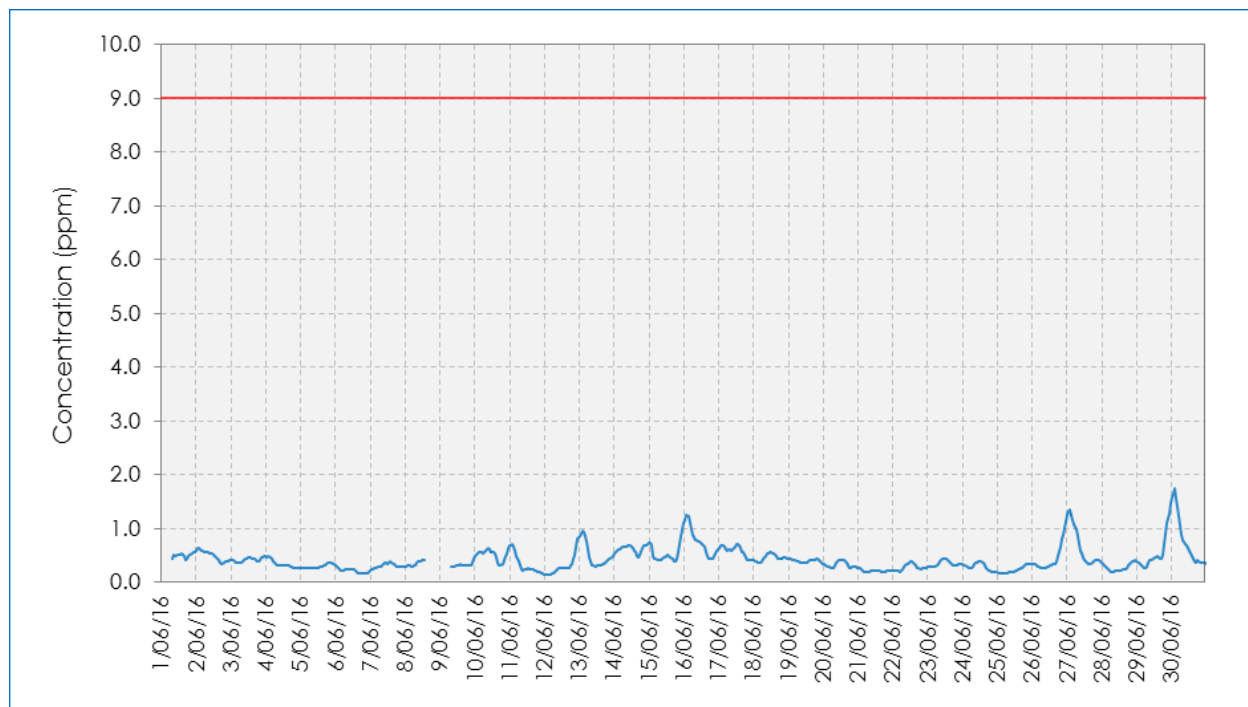**Figure 6** **West Botany Street CO concentrations (eight hour rolling average)**

Figure 7 West Botany Street NO₂ concentrations (one hour average)
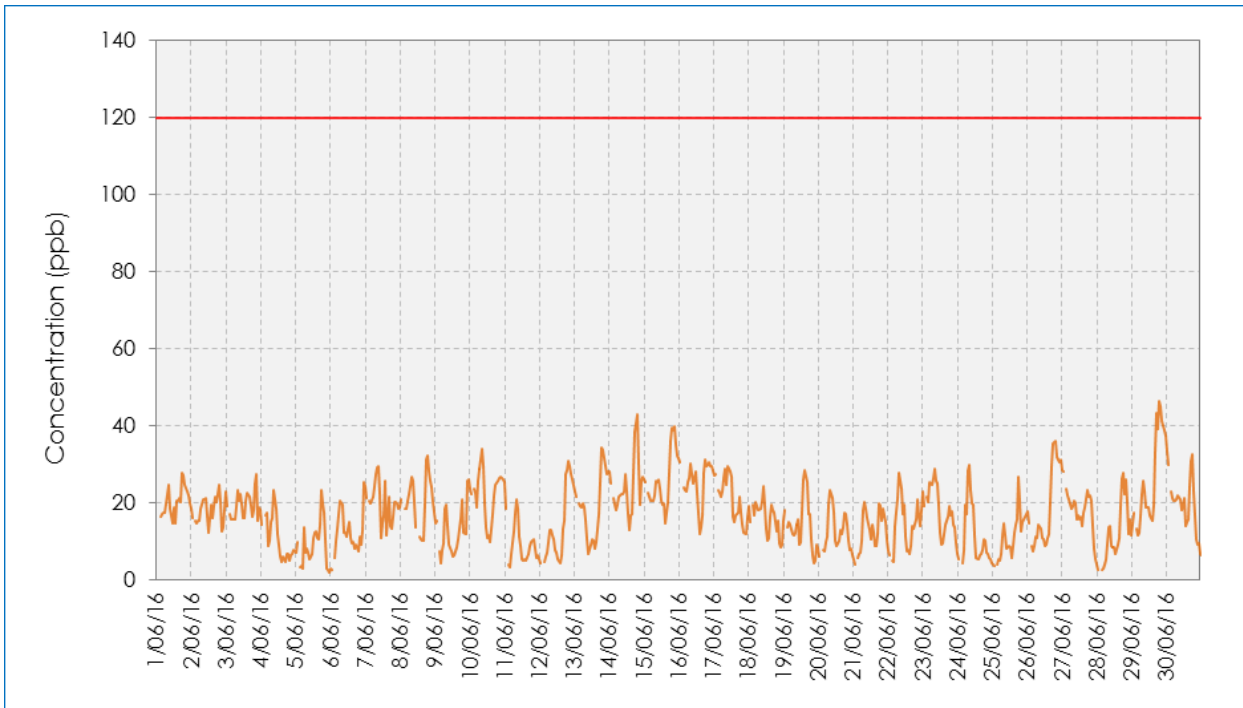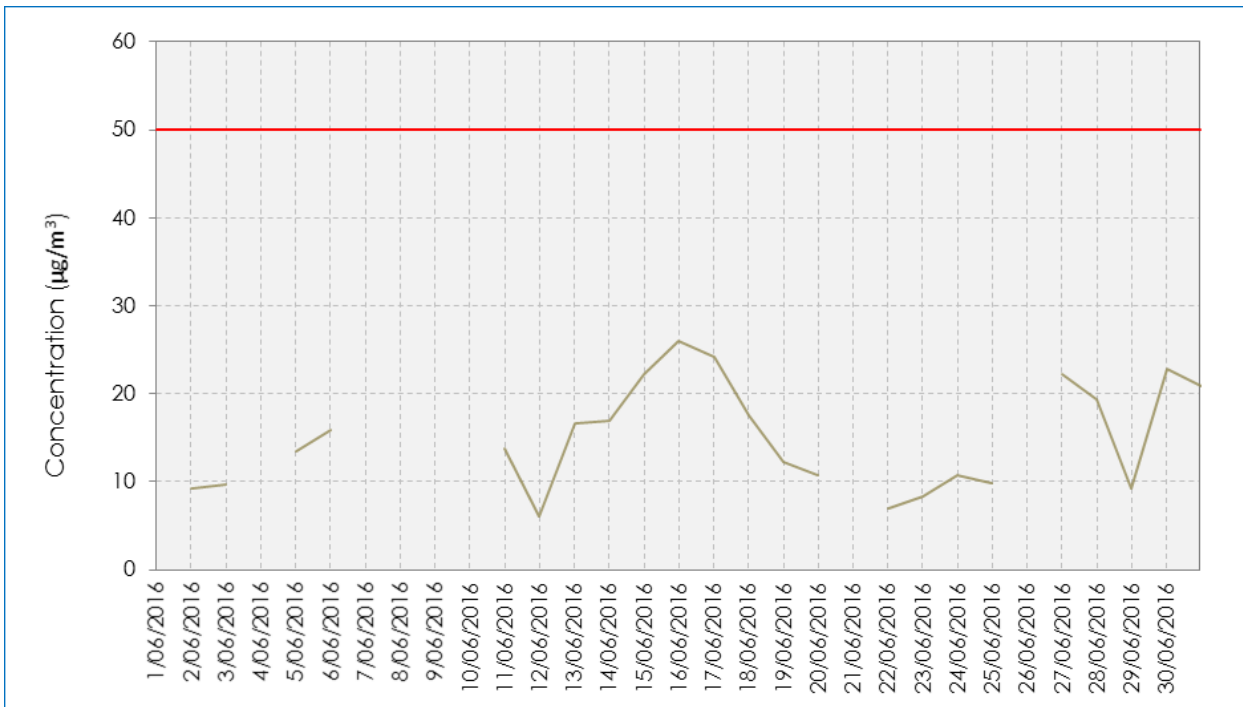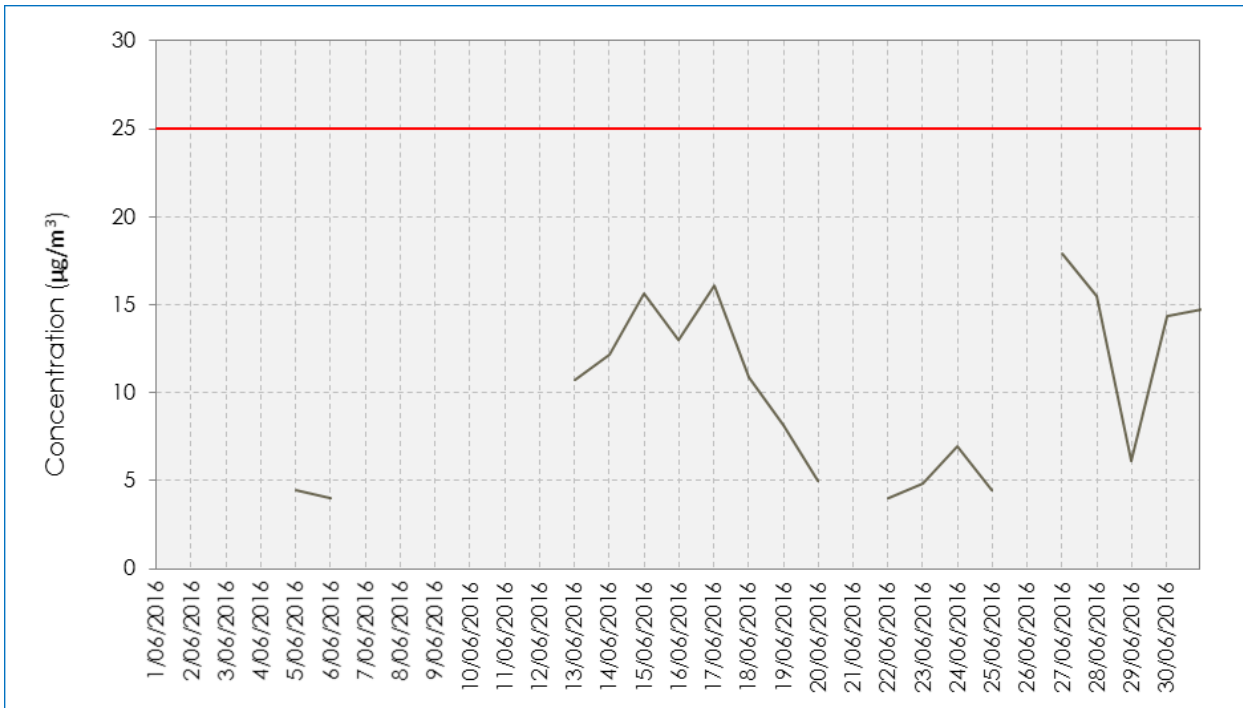

Figure 8 West Botany Street PM₁₀ concentrations (24 hour average)*

***Note:** A data verification process is carried out to ensure high quality data capture. In line with this process, 24-hour data cannot be reported where less than 75% of the hourly data is available.

Figure 9 West Botany Street PM$_{2.5}$ concentrations (24 hour average)*

*Note: A data verification process is carried out to ensure high quality data capture. In line with this process, 24-hour data cannot be reported where less than 75% of the hourly data is available.

Reporting

No exceedances of the air quality criteria in the NSW *Approved Methods* (NSW DEC, 2005) were recorded during the reporting period for the key pollutants outlined above at the St Peters Public School monitoring station.

4.4 Bestic Street, Rockdale

A summary of the air quality results from the Bestic Street monitoring station in Rockdale is provided in Table 3 and Figure 10, Figure 11, Figure 12 and Figure 12.

Table 3 Bestic Street summary statistics for air pollutants

Statistics	CO (ppm) 8 hour rolling average values	NO$_2$ (ppb) 1 hour average values	PM$_{10}$ (μg/m^3) 24 hour average values	PM$_{2.5}$ (μg/m^3) 24 hour average values
Average value	0.3	14.3	11.8	6.4
Maximum value	1.6	37.5	22.1	12.8
Minimum value	0.0	0.9	5.1	1.8

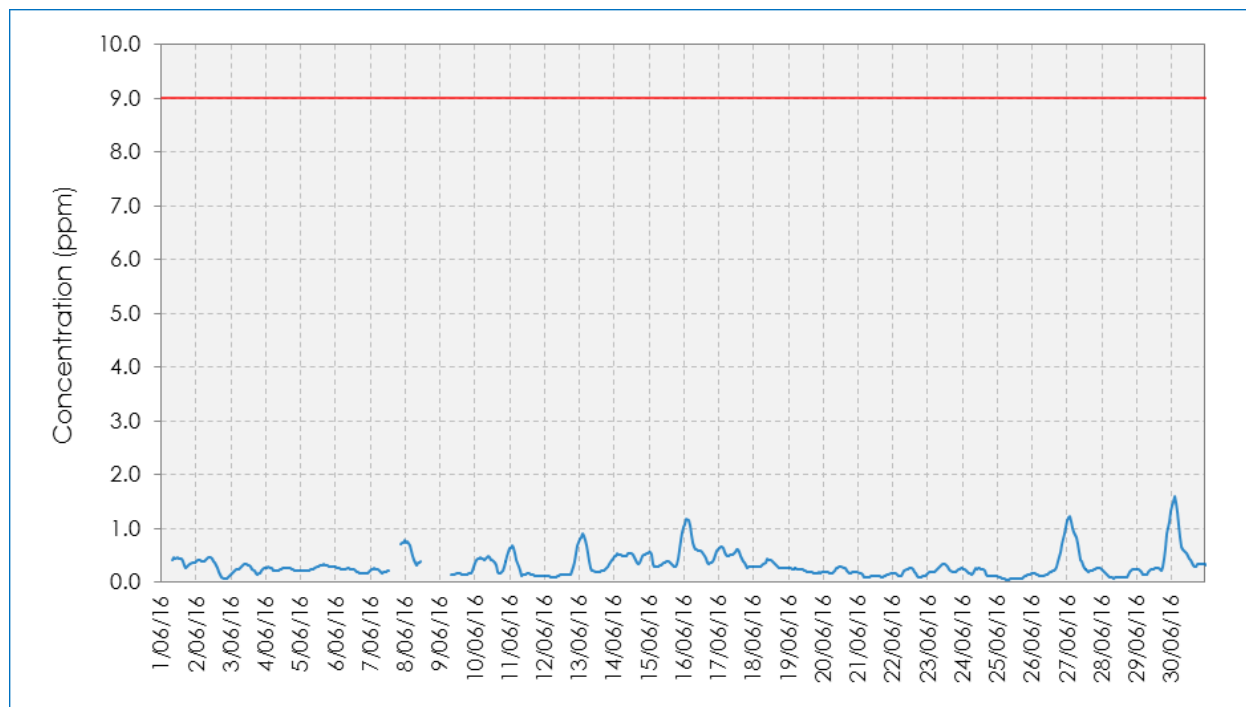**Figure 10** Bestic Street CO concentrations (eight hour rolling average)

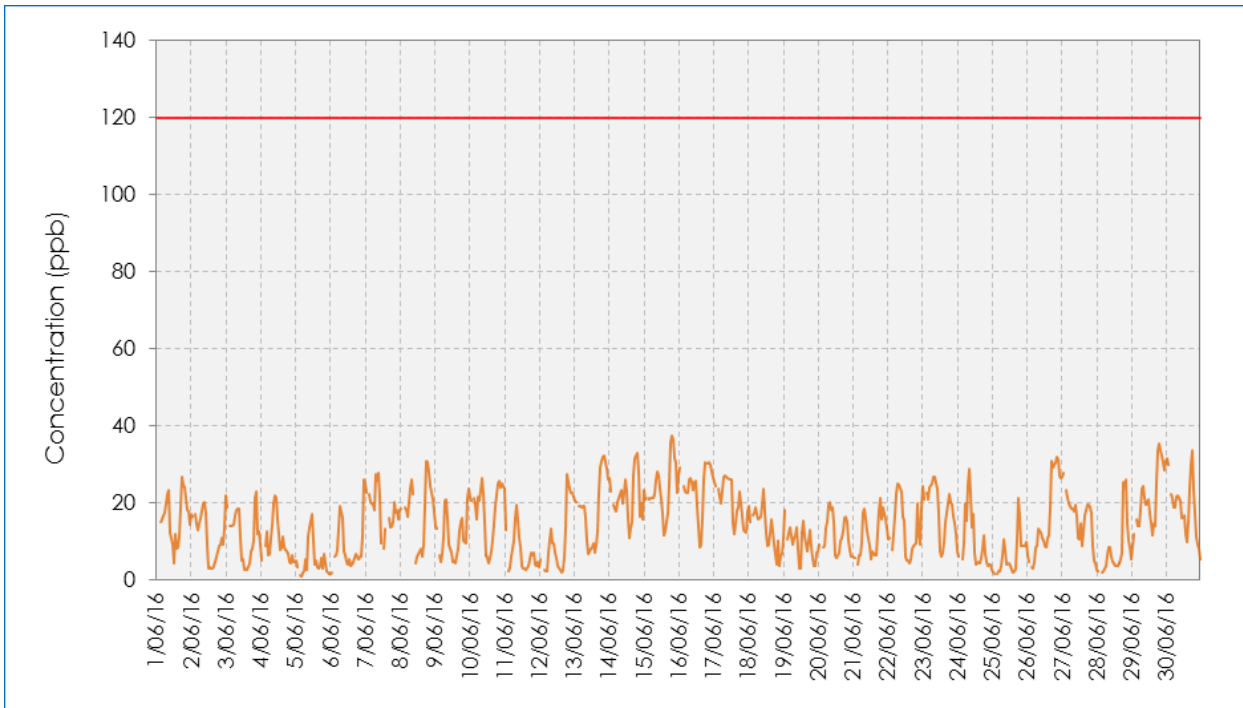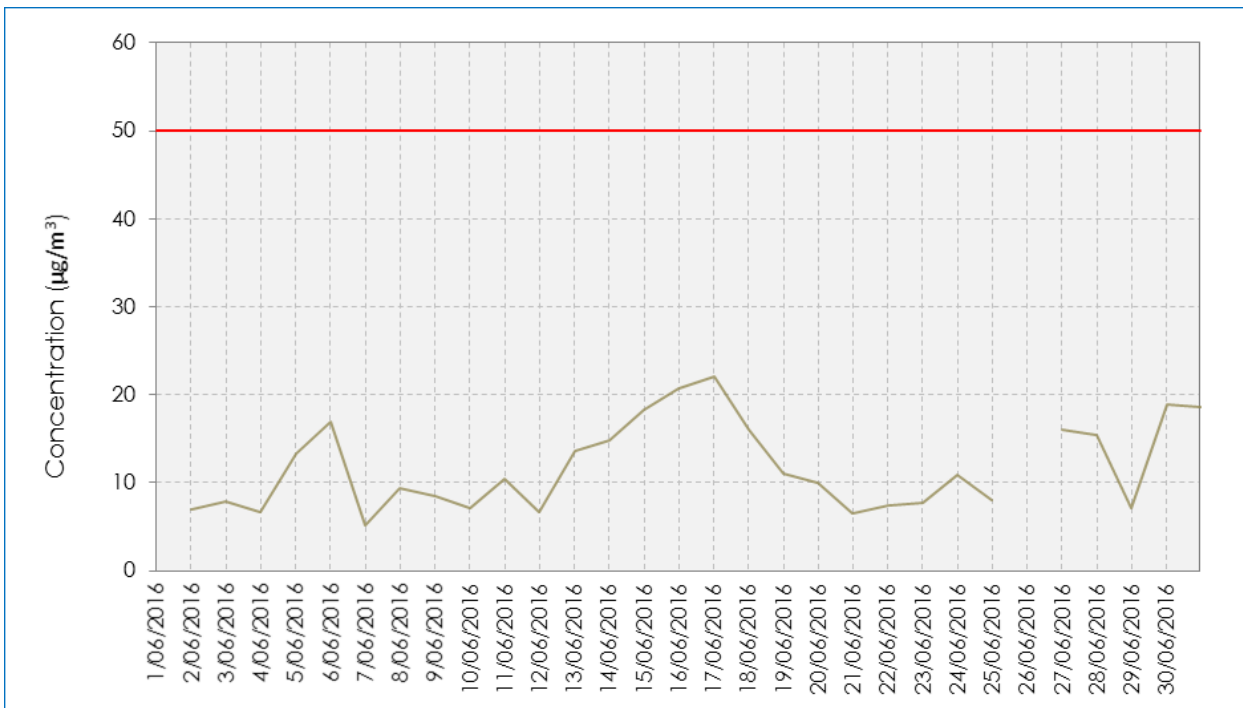**Figure 11 Bestic Street NO$_2$ concentrations (one hour average)**

Figure 12 Bestic Street PM$_{10}$ concentrations (24 hour average)*

***Note:** A data verification process is carried out to ensure high quality data capture. In line with this process, 24-hour data cannot be reported where less than 75% of the hourly data is available.

Figure 13 Bestic Street PM$_{2.5}$ concentrations (24 hour average)*
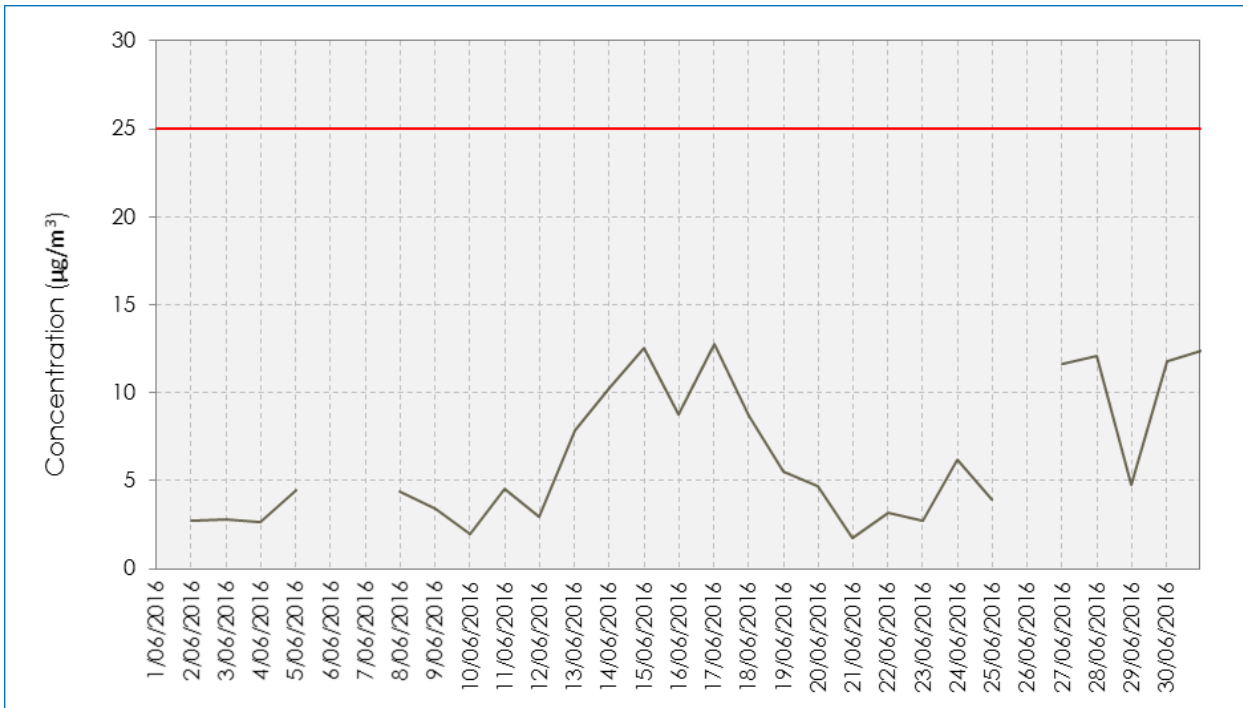
*Note:** A data verification process is carried out to ensure high quality data capture. In line with this process, 24-hour data cannot be reported where less than 75% of the hourly data is available.

Reporting

No exceedances of the air quality criteria in the NSW *Approved Methods* (NSW DEC, 2005) were recorded during the reporting period for the key pollutants outlined above at the St Peters Public School monitoring station.

4.5 Bexley Road, Kingsgrove

The Bexley Road monitoring station was decommissioned in April 2016.

4.6 Beverly Hills Park, Beverly Hills

A summary of the air quality results from the Beverly Hills Park monitoring station in Beverly Hills is provided in Table 4 and Figure 14, Figure 15, Figure 16 and Figure 17.

Table 4 Beverly Hills Park summary statistics for air pollutants

Statistics	CO (ppm) 8 hour rolling average values	NO$_2$ (ppb) 1 hour average values	PM$_{10}$ (µg/m^3) 24 hour average values	PM$_{2.5}$ (µg/m^3) 24 hour average values
Average value	0.4	15.0	14.2	7.7
Maximum value	1.7	33.3	26.7	16.2
Minimum value	-0.1	1.3	6.8	2.5

Figure 14 Beverly Hills Park CO concentrations (eight hour rolling average)
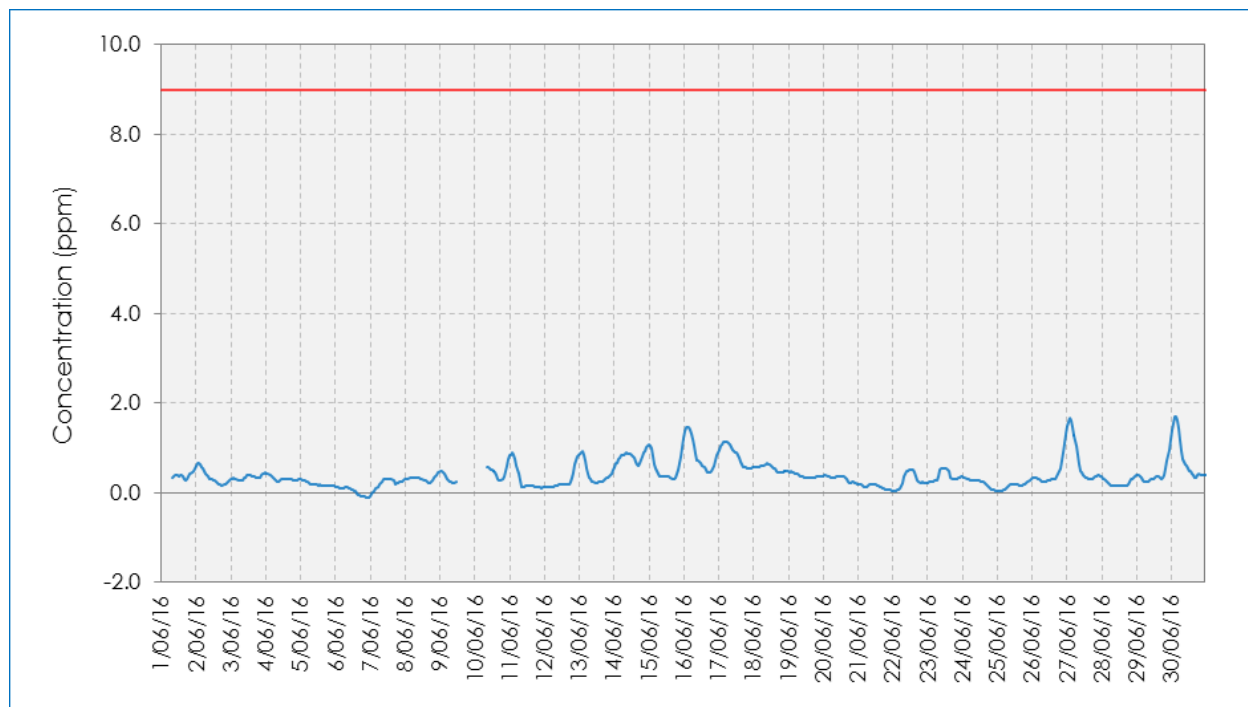
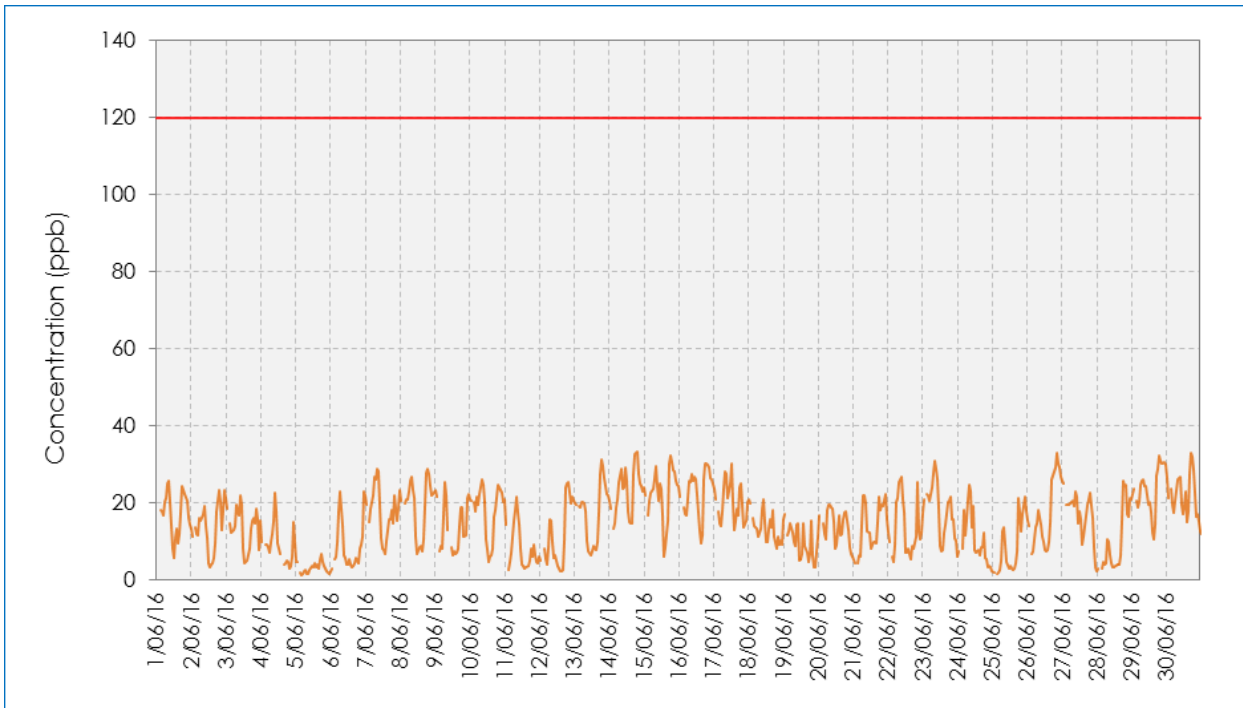**Figure 15 Beverly Hills Park NO$_2$ concentrations (one hour average)**

Figure 16 Beverly Hills Park PM$_{10}$ concentrations (24 hour average)
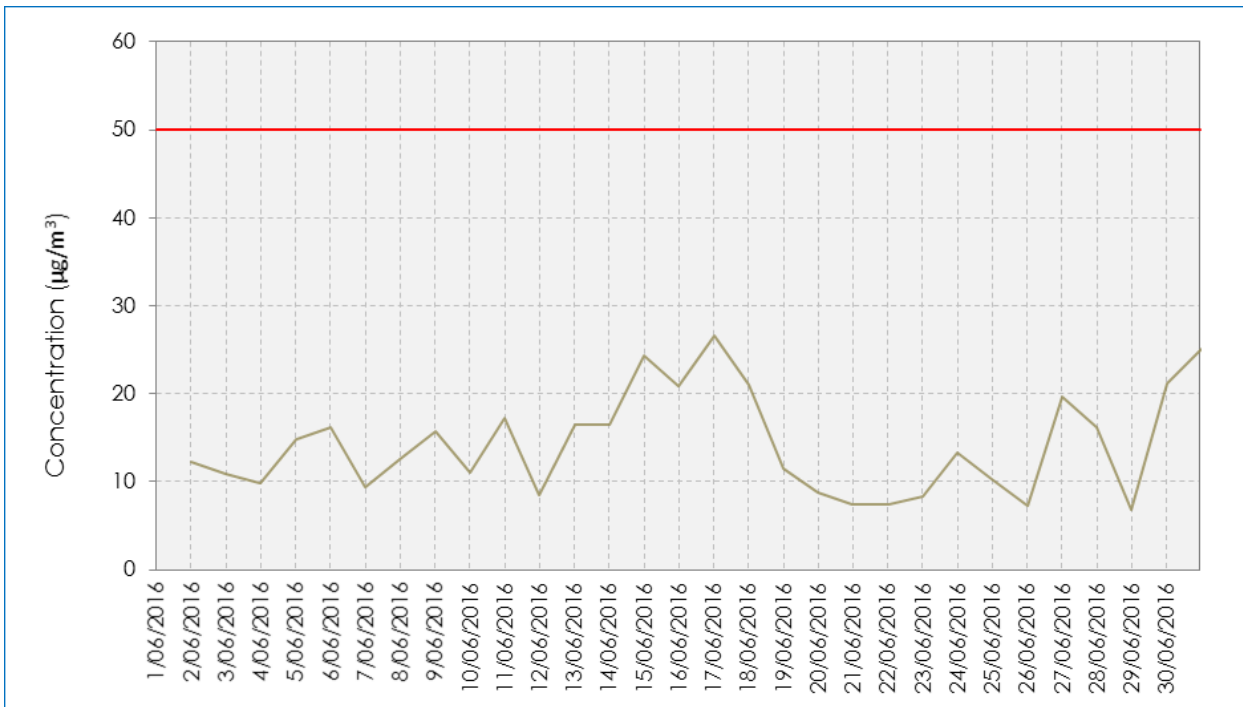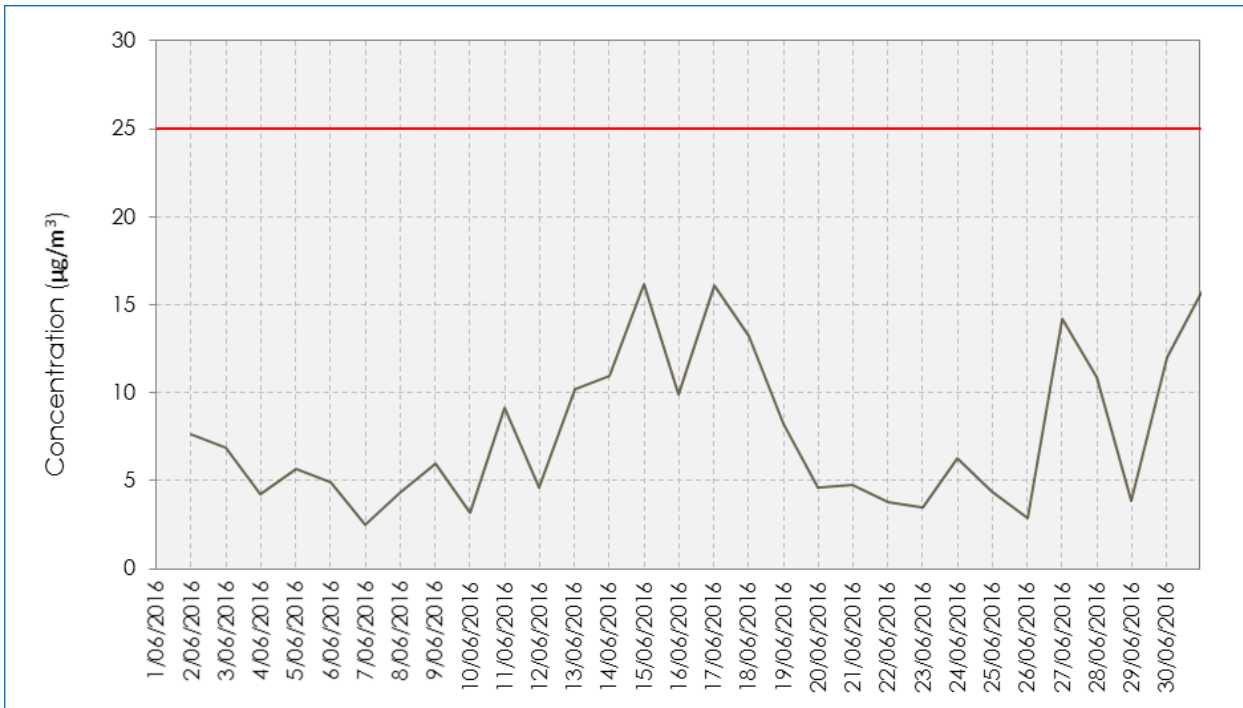
Figure 17 Beverly Hills Park PM$_{2.5}$ concentrations (24 hour average)

Reporting

No exceedances of the air quality criteria in the NSW *Approved Methods* (NSW DEC, 2005) were recorded during the reporting period for the key pollutants outlined above at the St Peters Public School monitoring station.

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4.7 Canal Road, St Peters

The Canal Road monitoring station was decommissioned in April 2016.