Belfast City Council

Subject:	'School Streets' Air Quality Monitoring Update Report.
Date:	3rd December 2024
Reporting Officer:	Siobhan Toland, Director of City Services.
Contact Officer:	Vivienne Donnelly, City Protection Manager

Restricted Reports

Is this report restricted?	**Yes**	☐	**No**	✓

Please indicate the description, as listed in Schedule 6, of the exempt information by virtue of which the council has deemed this report restricted.

Insert number ☐

1. Information relating to any individual.
2. Information likely to reveal the identity of an individual.
3. Information relating to the financial or business affairs of any particular person (including the council holding that information).
4. Information in connection with any labour relations matter.
5. Information in relation to which a claim to legal professional privilege could be maintained.
6. Information showing that the council proposes to (a) to give a notice imposing restrictions on a person; or (b) to make an order or direction.
7. Information on any action in relation to the prevention, investigation or prosecution of crime.

If Yes, when will the report become unrestricted?

After Committee Decision	☐
After Council Decision	☐
Sometime in the future	☐
Never	☐

Call-in

Is the decision eligible for Call-in?	**Yes**	✓	**No**	☐

1.0	**Purpose of Report/Summary of Main Issues**
1.1	The Committee will recall that at its meeting of 9th January 2024, it considered a paper at agenda item 6b concerning monitoring of ambient air quality in the vicinity of a number of primary schools across the city to help to inform Action 22 of the 2021-2026 Belfast City Air Quality Action Plan concerning a pilot scheme for the designation of 'school streets'. https://www.belfastcity.gov.uk/documents/belfast-city-air-quality-action-plan-2021-2026#Table5.1
1.2	A 'School Street' is a road or street outside of a school where a temporary restriction on motorised traffic is applied at am '*drop-off'* and pm *'pick-up'* times during the school day, resulting in a safer and environmentally improved local environment. The restriction is typically applied to both school and through traffic. This Action Plan measure has been proposed jointly by Sustrans and the Department for Infrastructure.
1.3	The Committee was advised in the 9th January 2024 report that council Air Quality Officers had liaised with Sustrans in order to identify a selection of primary schools situated throughout the city where transport related ambient air quality monitoring in their localities might be undertaken to help inform the designation of School Streets. Selection criteria applied in the identification of suitable schools included: ● Is there much traffic congestion at the school gates? ● Does the infrastructure / road layout around the school seem suitable for a future intervention such as School Streets? ● Is the school keen to increase active travel among pupils? ● Is the school in the Active School Travel programme?
1.4	Accordingly, eight primary schools were initially suggested by Sustrans, which were then subsequently surveyed by the council officers to identify suitable monitoring and mounting locations, resulting in the council agreeing to install Earthsense Zephyr ambient air quality monitors initially in the vicinity of the following four primary schools; Rosetta Primary School, Knockbreda Rd; Belvoir Park Primary School, Belvoir Drive; Holy Rosary Primary School, Sunnyside Crescent and; Holy Evangelists' Primary School and Nursery Unit, Glasvey Drive, Dunmurry.
1.5	The air quality monitors were variously installed from mid-March 2024 onwards and for the purposes of this project, monitoring data has been considered until the end of July 2024, to obtain nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) air pollution measurements and trends whilst the schools were in operation and by way of comparator, during the July holiday period.
1.6	This paper provides for the Committee's consideration of summary monitoring data for nitrogen dioxide and particulate matter for the four primary schools, expressed as hourly and monthly means, and weekday and weekend diurnal (24-hour profile) nitrogen dioxide (NO_2) means. The paper also considers exceedances of relevant air quality objectives for nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$).
2.0	**Recommendation**
2.1	The Committee is invited to: • Note the contents of this School's Streets' Air Quality Monitoring Report and in line with discussions with Sustrans and DAERA, to agree that the Zephyr small sensor air quality monitors be maintained at two primary schools; namely Rosetta Primary School and Holy

	Rosary Primary School, and to further agree that the remaining two 'school streets' Zephyr air quality monitors be redeployed to two new sites at Nettlefield Primary School, Randor Drive, and Strandtown Primary School, North Road, subject to suitable lampposts / street furniture mounting locations in those monitoring locations being identified, to help inform potential school streets designations in those areas.
	• Agree that the Zephyr monitor currently located at Henry Place and Carlisle Road, adjacent the A12 Westlink, be relocated more southerly along the A12 Westlink corridor to undertake air quality monitoring in the vicinity of St. Mary's Primary School, Barrack Street; situated adjacent to the A12 Westlink and Divis Street, subject to a suitable lamppost / street furniture mounting location being identified.
3.0	**Main Report**
3.1	The Committee is advised that council air quality officers installed solar powered Earthsense Zephyr small sensor air quality monitors in the vicinity of the above-mentioned four primary schools from mid-March 2024 onwards. The monitors were installed at locations to target adjacent public roads and transport routes to and from the schools so that there was no impact on school operations or pupils as a consequence of the ambient air quality monitoring.
3.2	Monitoring data has been resolved into hourly mean concentrations to enable comparison with the 200 μgm^{-3} 1-hour mean objective for nitrogen dioxide and longer term 24-hour mean objective for particulate matter (PM_{10}). The Committee will appreciate that the 1-hour mean objective is applied at locations where members of the public might reasonably be expected to spend one hour or more and therefore typically includes kerbside locations such as pavements of busy roads or streets, such as in the vicinity of schools during morning *'drop off'* and afternoon *'pick up'* periods. The 24-hour mean particulate matter objective would not normally apply at a roadside or kerbside location, where public exposure is considered to be short-term. A summary of relevant air quality objectives has been provided at Appendix Section 4.1 of this report. Hourly and monthly means, and diurnal weekday and weekend NO_2 mean profile graphs for the four primary schools have been provided at Appendix Sections 4.2 – 4.5 to this report.
3.3	The Committee is advised that no exceedances of the 200 μgm^{-3} 1-hour mean objective for nitrogen dioxide or the longer term 50 μgm^{-3} 24-hour mean objective (not to be exceeded more than 35 times per annum) for particulate matter (PM_{10}) were recorded throughout the monitoring periods. Accordingly, it is considered that there are no requirements to amend the council's existing Air Quality Management areas or to declare any new Air Quality Management Areas as a consequence of the school streets monitoring. Moreover, the outworkings of the school streets monitoring are in broad accordance with the conclusions of the council's 2023 Detailed Assessment for Ambient Air Quality.
3.4	Particulate matter ($PM_{2.5}$) is not presently in regulation for the purposes of local air quality management by councils, although a 25 μgm^{-3} annual mean target has been established, together with a 15% cut in urban background exposure, also assessed as an annual mean. As previously, the Committee is advised that annual mean targets for $PM_{2.5}$ would not apply at roadside or kerbside monitoring locations, where public exposure is short-term. Monthly mean monitoring data for particulate matter (PM_{10} and $PM_{2.5}$) have nevertheless been presented for each of the four schools within Appendix Sections 4.2 – 4.5 of this report for

	additional information. Monitored monthly mean $PM_{2.5}$ concentrations were all substantially below the 25 μgm^{-3} target level throughout the March – July 2024 monitoring period.
3.5	Council air quality officers have shared the summary monitoring data with Sustrans and the Department of Agriculture, Environment and Rural Affairs (DAERA) Air and Environmental Quality Unit. The Committee will be aware that DAERA funded the purchase of two Zephyr air quality monitors through the 2023-2024 Local Air Quality Management grant process in specific support of this schools' streets project. It will now be for Sustrans and DfI to consider how they may wish to utilise the monitoring data generated through this project to help inform the designation of 'school streets' in accordance with Action 22 of the 2021-2026 Belfast City Air Quality Action Plan. It is however noted that the diurnal (24-hour profile) nitrogen dioxide (NO_2) mean graphs (Appendix Sections 4.2 - 4.5) demonstrate modest increases in nitrogen dioxide concentrations during the weekday peak morning travel period when compared to the equivalent weekend period during the March – June 2024 monitoring period, and to a lesser extent during the July 2024 monitoring period.
3.6	In consideration of the monitoring data to date, it has been agreed with Sustrans to maintain two of the air quality monitors in their current locations to determine if there are any increases in traffic related ambient air pollution in the vicinity of Rosetta Primary School or Holy Rosary Primary School throughout the winter period when school users and the local community may more frequently choose to commute by motor vehicle.
3.7	Sustrans have additionally agreed that the air quality monitors at Belvoir Park Primary School, and Holy Evangelists' Primary School and Nursery Unit may be redeployed to Nettlefield Primary School, Randor Drive, and Strandtown Primary School, North Road, subject to suitable lampposts / street furniture mounting locations in those monitoring locations being identified, to help inform the potential designation of 'school streets' in those areas.
3.8	Council air quality officers have also proposed to Sustrans that the Zephyr air quality monitor currently located adjacent to the A12 Westlink corridor at Henry Place and Carlisle Road be relocated to a more southerly location along the A12 Westlink to undertake monitoring in the vicinity of St. Mary's Primary School, Barrack Street, located adjacent to the A12 Westlink and Divis Street; again subject to a suitable mounting and monitoring location being identified. St. Mary's Primary School, Barrack Street was considered as a sensitive receptor within the council's 2023 Detailed Assessment of Ambient Air Quality for the city.
3.9	**Financial and Resource Implications** There are no immediate financial or resource implications associated with this report. Operation of the Zephyr small sensor air quality monitors is supported via the DAERA 2024-2025 Local Air Quality Management grant process. The 'school streets' monitoring project is being undertaken from within existing Scientific Unit air quality staff resources.
3.10	**Equality or Good Relations Implications/Rural Needs Assessment.** None.
4.0	**Appendices.**

4.1	**UK Air Quality Objectives.**

Pollutant	Averaging Period	Objective
Nitrogen dioxide (NO$_2$)	1-hour mean	200 µg/m^3 (not to be exceeded more than 18 times per annum).
	Annual mean	40 µg/m^3
Particulate Matter PM$_{10}$	24-hour mean	50 µg/m^3 (not to be exceeded more than 35 times per annum).
	Annual mean	40 µg/m^3
Particulate Matter PM$_{2.5}$	Annual mean	25 µg/m^3 target concentration.

Source - https://www.airqualityni.co.uk/air-quality/standards

4.2	**Rosetta Primary School, Knockbreda Road.**

Monthly means (µg/m^3)

Pollutant	April	May	June	July
Nitrogen Dioxide (NO$_2$)	12.7	11.5	10.3	9.6
Particulate Matter (PM$_{10}$)	7.8	13.1	7.3	6.4
Particulate Matter (PM$_{2.5}$)	5.4	8.9	5.1	4.2

NO$_2$ Hourly Concentrations (µg/m³) April - July 2024

Diurnal NO$_2$ means April-June 2024

- Diurnal Weekday (Monday-Friday) Average of NO2 Concentration μg/m³
- Diurnal Weekend Average of NO2 Concentration μg/m³

Diurnal NO$_2$ means July 2024

- Diurnal Weekday (Monday-Friday) Average of NO2 Concentration μg/m³
- Diurnal Weekend (Sat - Sun) Average of NO2 Concentration μg/m³
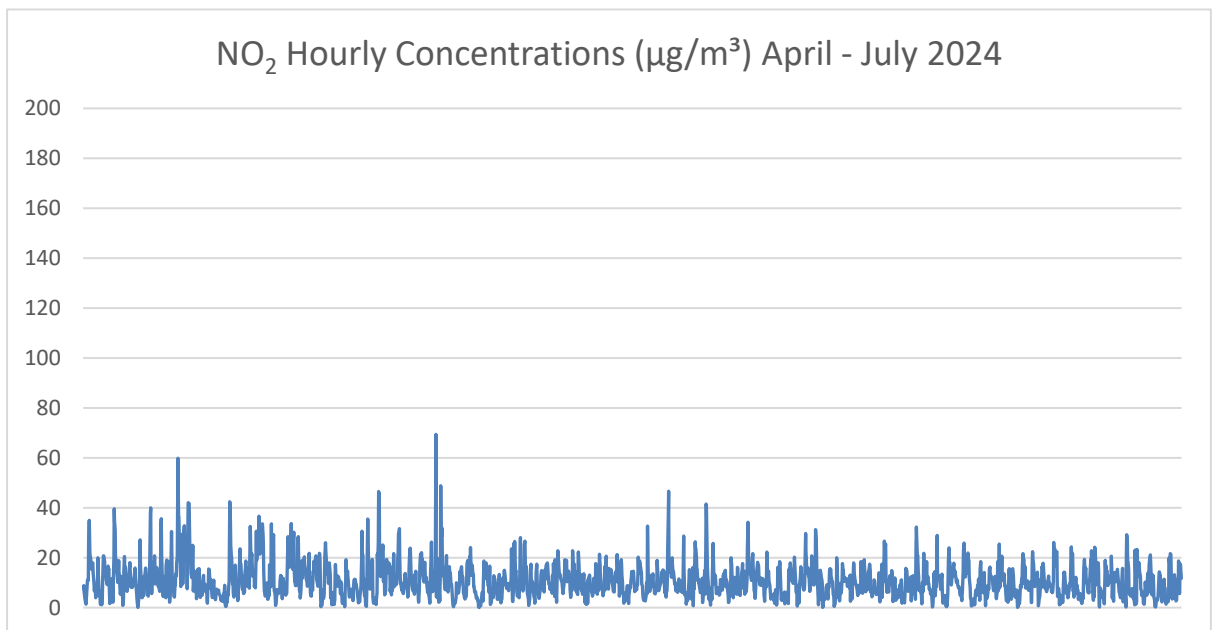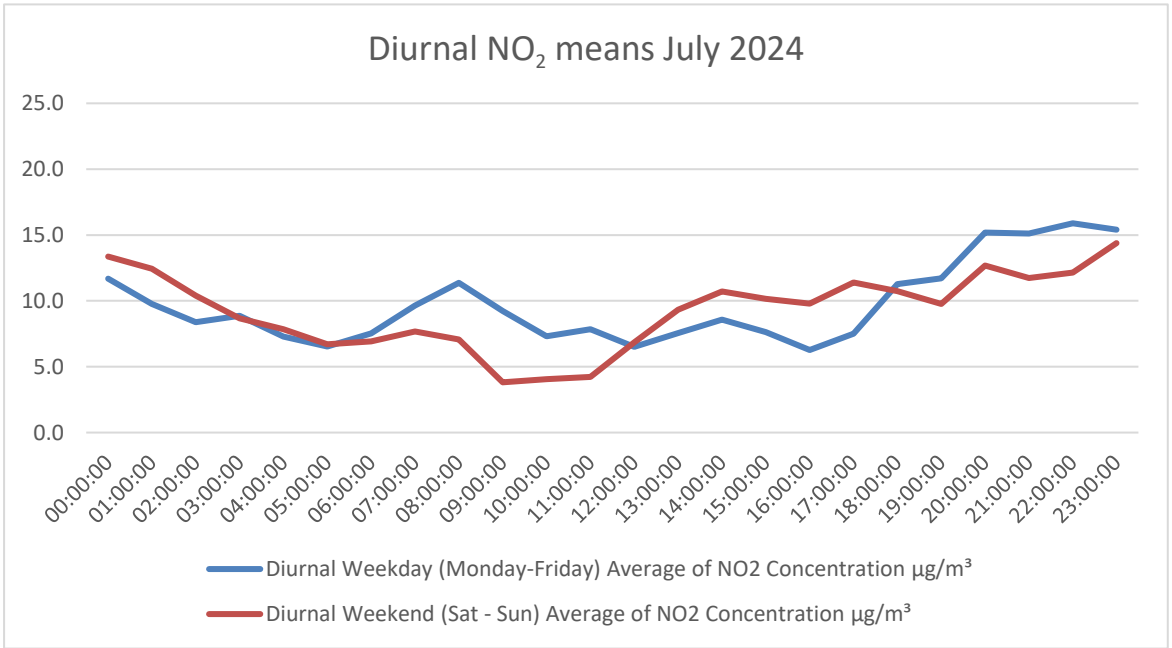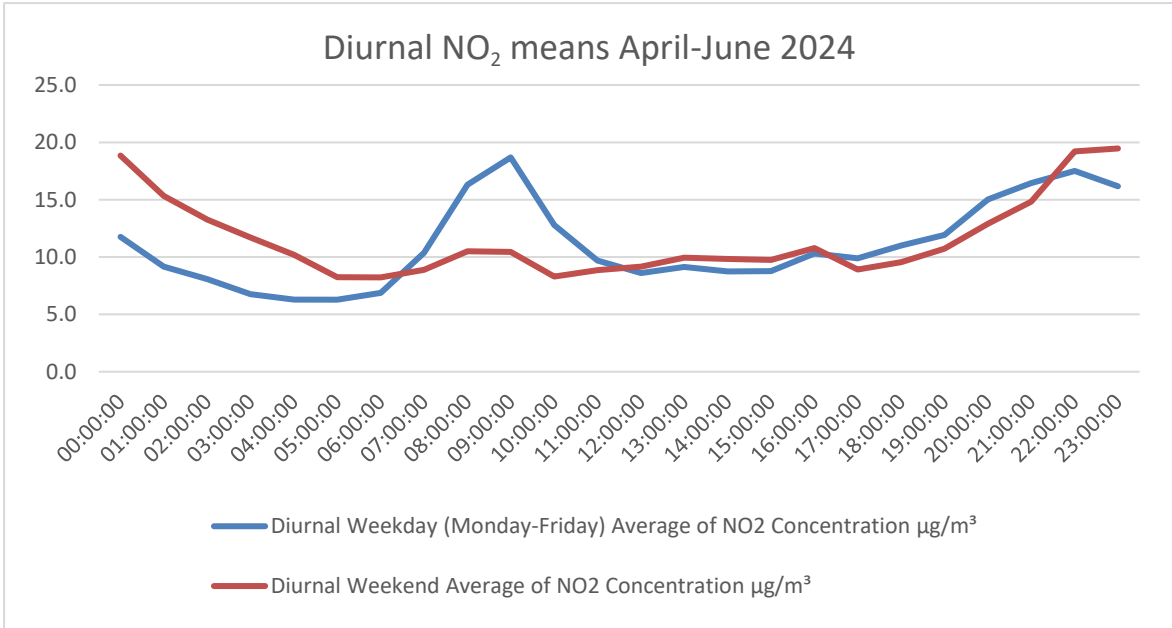
4.3 | **Belvoir Primary School, Belvoir Drive.**

Monthly means ($\mu g/m^3$)

Pollutant	March	April	May	June	July
Nitrogen Dioxide	17.0	13.0	10.1	9.6	9.0
Particulate Matter (PM$_{10}$)	5.3	4.8	10.3	6.0	5.2
Particulate Matter (PM$_{2.5}$)	3.3	2.7	7.3	4.0	3.2

NO$_2$ Hourly Concentrations ($\mu g/m^3$) March - July 2024

Diurnal NO$_2$ means March - June 2024

Diurnal Weekday (Mon-Fri) Average NO2 Concentrations ($\mu g/m3$)

Diurnal Weekend (Sat-Sun) Average NO2 Concentrations ($\mu g/m3$)

Diurnal NO$_2$ means - July 2024

Legend:
- Diurnal Weekday (Mon-Fri) Average NO2 Concentrations (µg/m3)
- Diurnal Weekend (Sat-Sun) Average NO2 Concentrations (µg/m3)
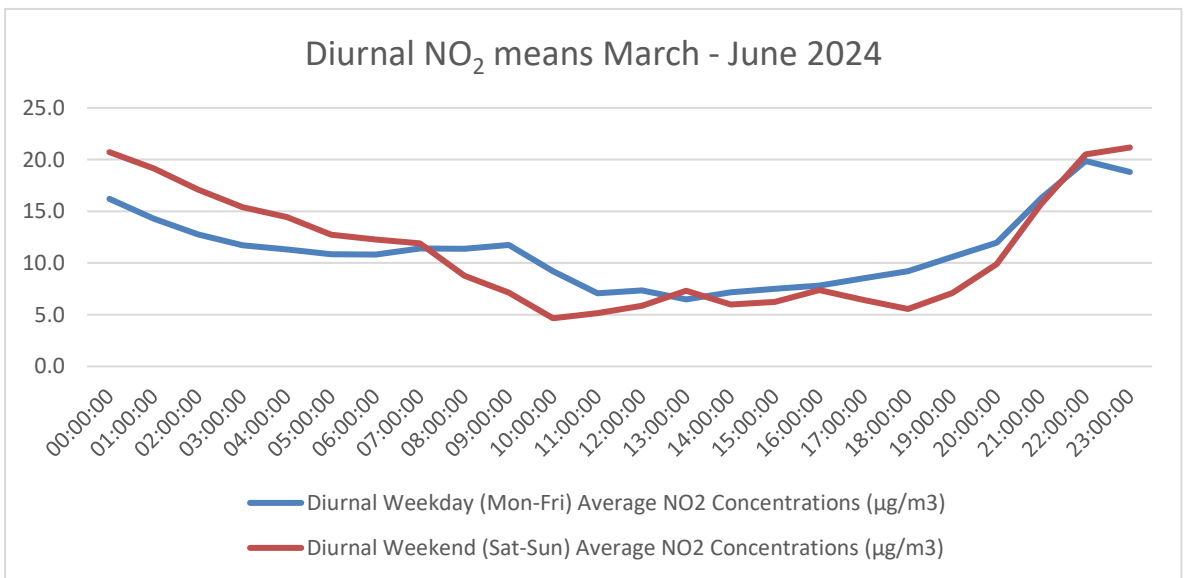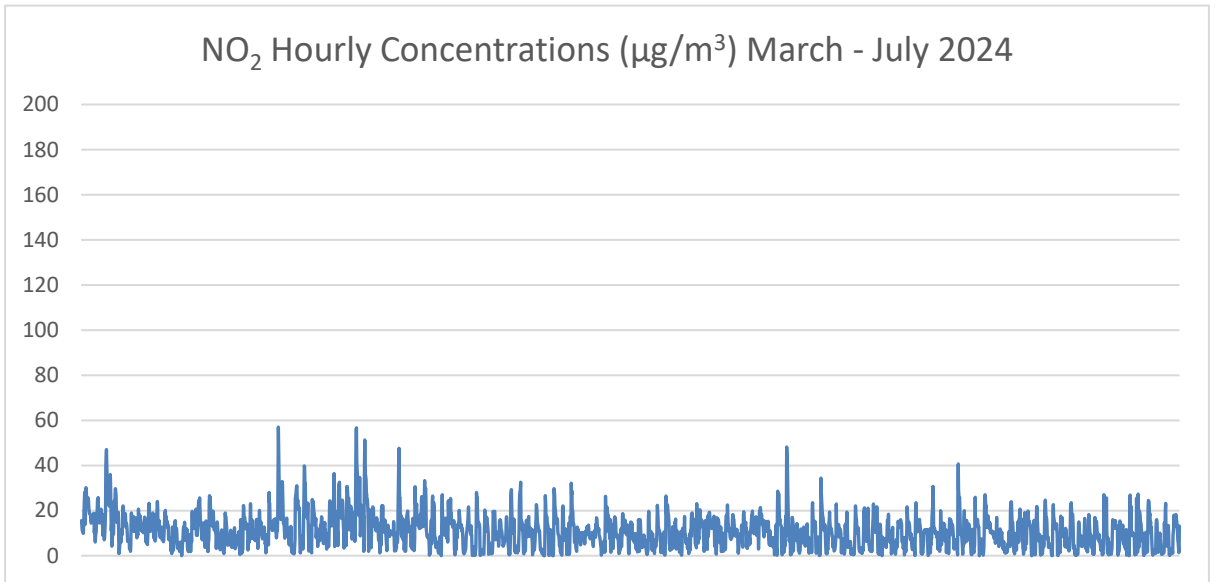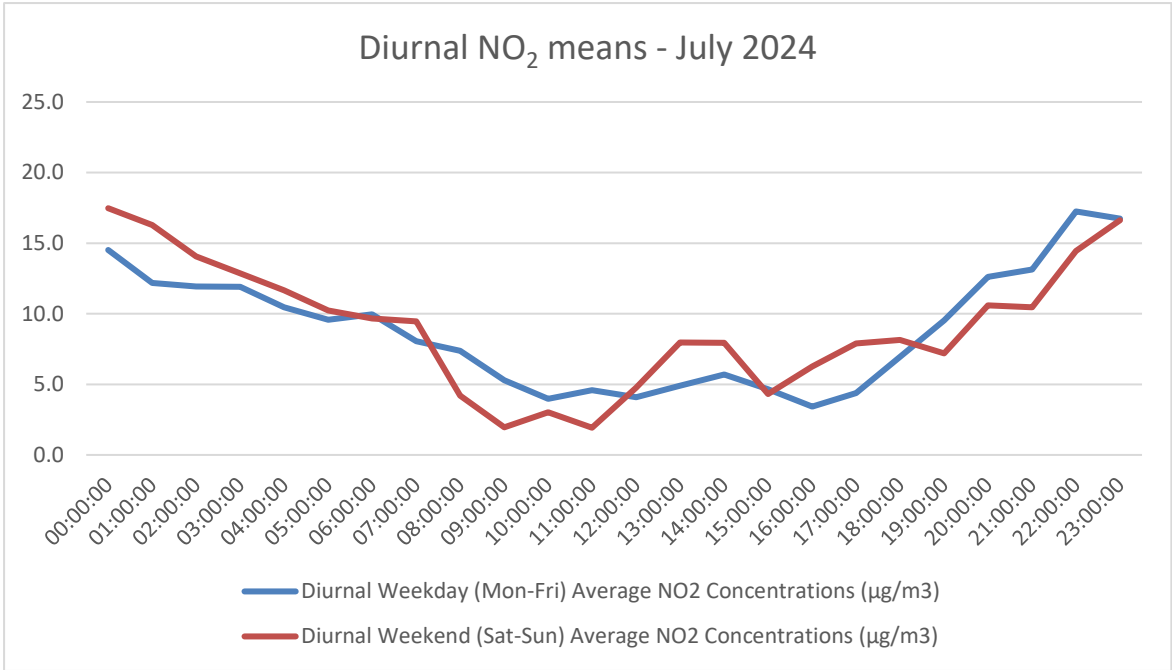
4.4   **Holy Rosary Primary School, Sunnyside Crescent.**

Monthly means ($\mu g/m^3$)

Pollutant	March	April	May	June	July
Nitrogen Dioxide (NO$_2$)	14.8	12.7	10.9	9.3	8.9
Particulate Matter (PM$_{10}$)	8.0	5.8	12.3	6.6	5.7
Particulate Matter (PM$_{2.5}$)	5.4	3.4	8.1	4.3	3.6

NO$_2$ Hourly Concentrations (ug/m^3) March - July 2024

Diurnal NO$_2$ means March - June 2024

Diurnal Weekday (Mon -Fri) Average of NO2 Concentrations µg/m3

Diurnal Weekend (Sat - Sun) Average of NO2 Concentrations µg/m3

Diurnal NO$_2$ means July 2024

Diurnal Weekday (Mon -Fri) Average of NO2 Concentrations µg/m3

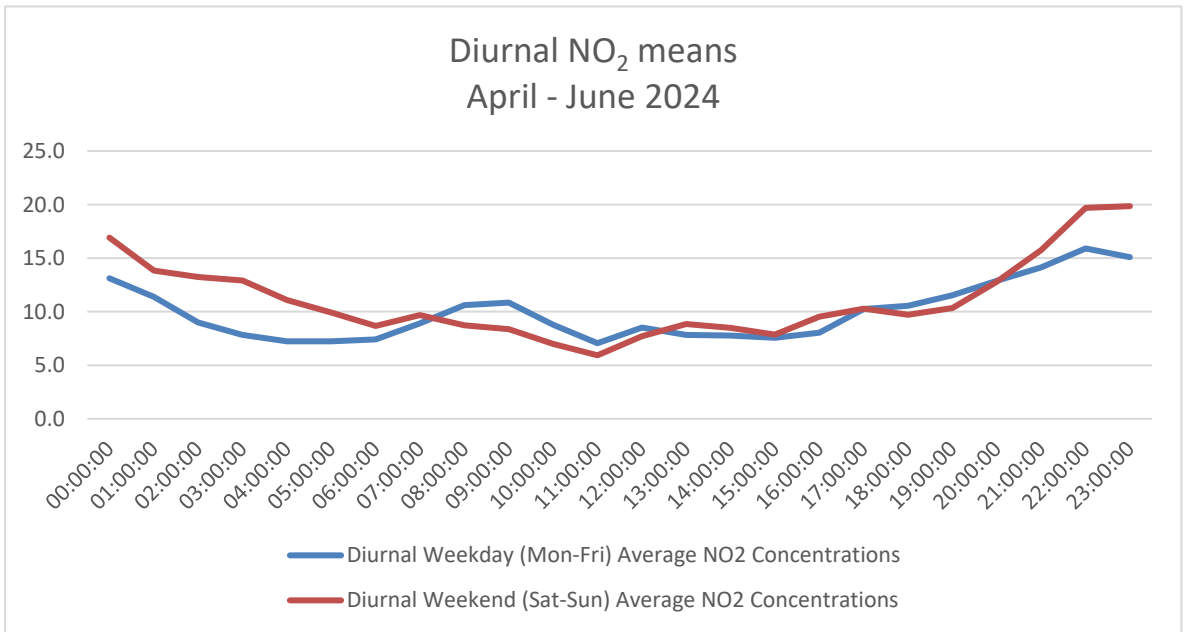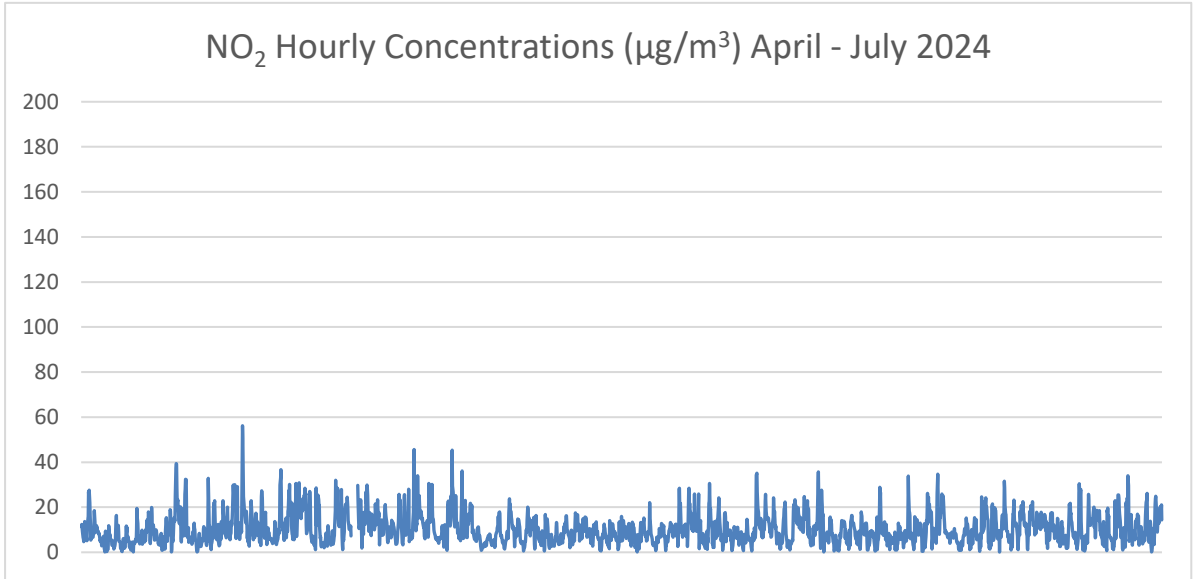Diurnal Weekend (Sat - Sun) Average of NO2 Concentrations µg/m3
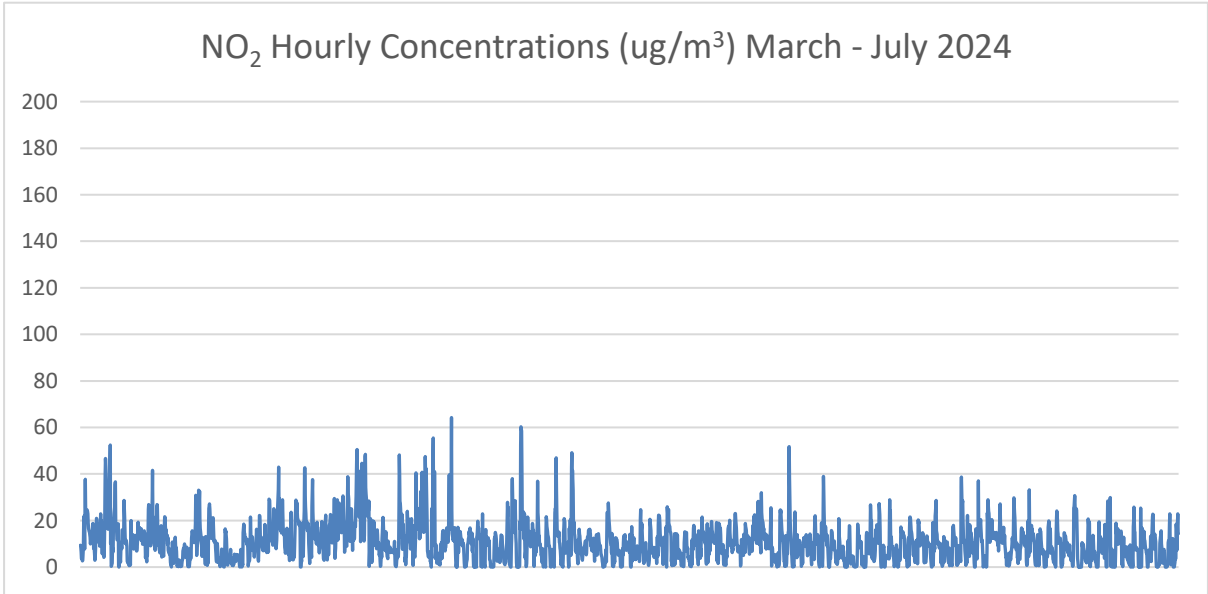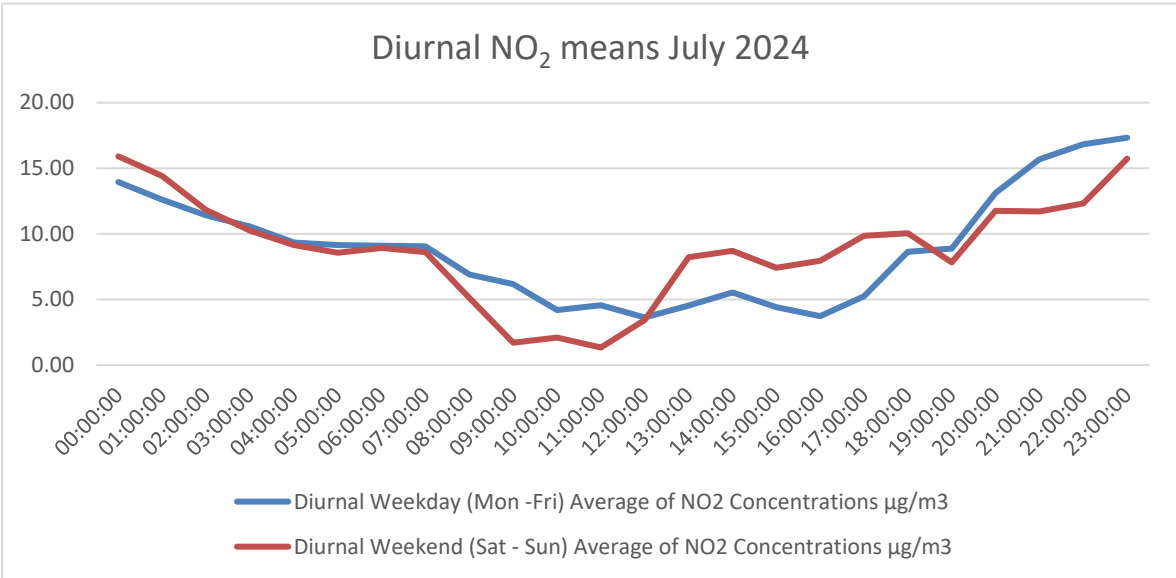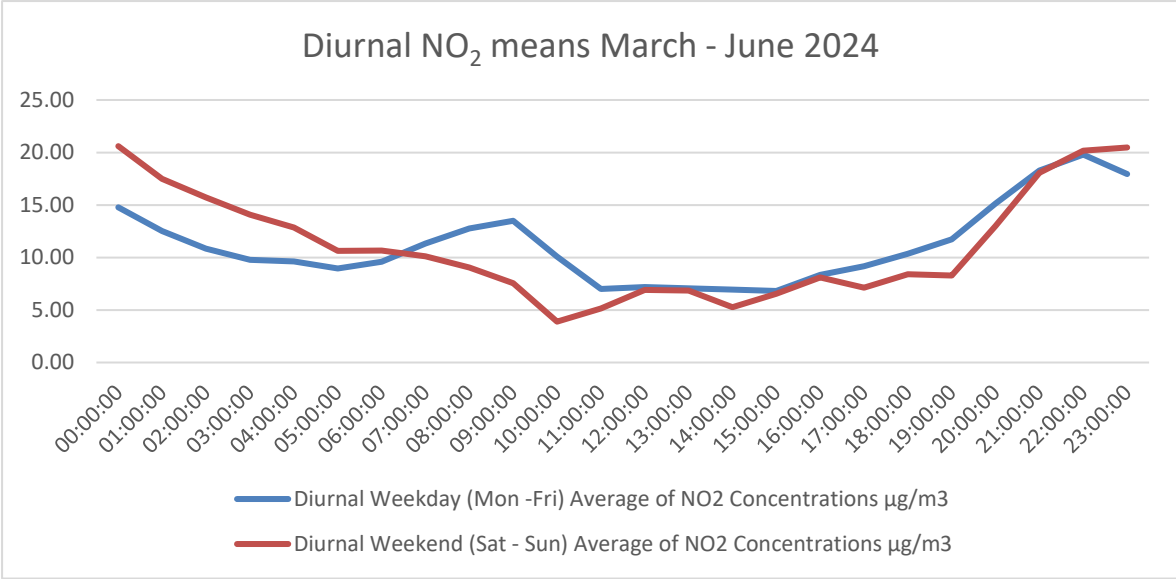
4.5 **Holy Evangelists' Primary School and Nursery Unit, Glasvey Drive.**

Monthly means (μg/m^3)

Pollutant	April	May	June	July
Nitrogen Dioxide (NO$_2$)	9.8	11.6	9.4	10.3
Particulate Matter (PM$_{10}$)	6.5	13.4	7.6	6.7
Particulate Matter (PM$_{2.5}$)	4.0	8.7	4.8	4.1

NO$_2$ Hourly Concentrations (μg/m^3) April - July 2024

Diurnal NO$_2$ means
April - June 2024

— Diurnal Weekday (Mon-Fri) Average NO2 Concentrations
— Diurnal Weekend (Sat-Sun) Average NO2 Concentrations

Diurnal NO$_2$ means - July 2024

Diurnal Weekday (Mon-Fri) Average NO2 Concentrations
Diurnal Weekend (Sat-Sun) Average NO2 Concentrations