Air Quality Monitoring and Noise Control Unit Annual Report 2015

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

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Introduction

This annual report deals with the activities of the Air Quality Monitoring and Noise Control Unit of Dublin City Council during 2015. These activities include:

- Enforcement of air pollution control legislation
- Monitoring of environmental noise and enforcement of noise control legislation
- Environmental air quality monitoring
- Enforcement of legislation relating to control of Volatile Organic Compounds (VOC's)
- Provision of expertise on an ongoing basis to other services and departments in Dublin City Council

The areas of enforcement of air pollution and noise control legislation continued to be a challenge during 2015. The number of complaints for air pollution decreased slightly while complaints for noise pollution increased slightly on 2014's figures.

Air quality during 2015 continued to be generally good. Levels of nitrogen dioxide, sulphur dioxide and carbon monoxide are well below EU limit values.

Investigation of complaints made by the public in relation to air quality and noise is a major element of the Unit's work. In 2015, 119 air pollution complaints and 435 noise complaints were investigated.

In addition to completing noise monitoring at some outdoor events, 139 Fuel Regulation inspections were carried out and 25 Certificates were issued to premises under solvents' legislation.

Air Pollution complaints

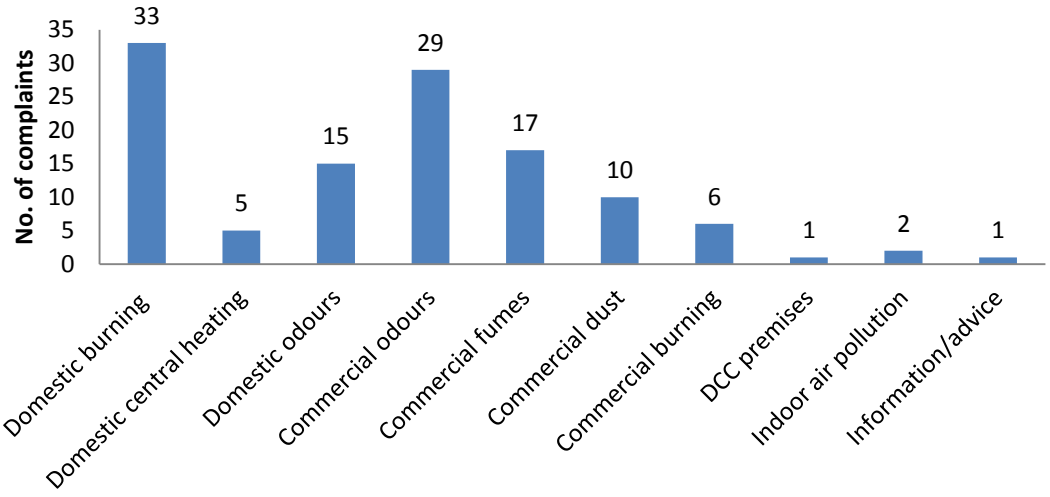
The Unit investigates complaints made by members of the public aggrieved by ongoing air pollution issues or once-off air pollution incidents. Common sources of complaint include odours from commercial kitchen extraction systems, dust emissions from commercial premises and neighbours carrying out backyard burning.

Each complaint is dealt with individually, and in many cases, offering advice and assistance to the commercial premises allows the situation to be quickly remedied to the satisfaction of the complainant.

Where nuisance has been established and persists, despite the involvement of this Unit, a notice may be served under Section 26 of the Air Pollution Act 1987. Non-compliance with the notice can lead to court proceedings but in the majority of cases this proves unnecessary.

There were 119 complaints recorded by the Unit in 2015, a decrease from 145 complaints in 2014. Figure 1, below, shows that the most common types of complaint received by the Unit relate to domestic burning, commercial odour issues and commercial fumes.

Figure 1: Air pollution complaints by type 2015

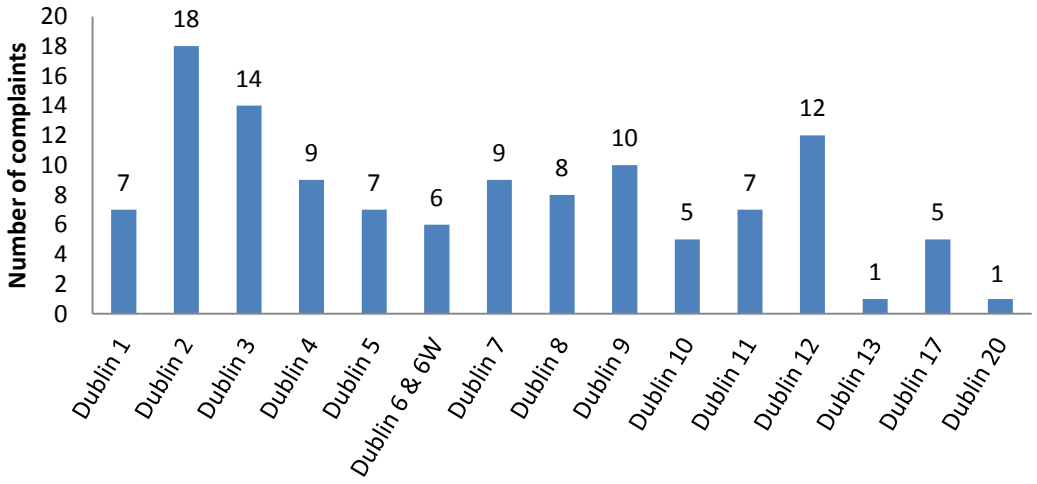


Complaints about newly-installed flues on house extensions continue to be problematic, especially when the flues are emitting from a ground floor extension. These types of complaints are reflected in Figure 1, "Domestic burning" category, which was the largest source of complaint during 2015.

Commercial odours and fumes, predominantly from food premises also feature strongly in the complaint figures.

Figure 2 shows that most air pollution complaints in 2015 were received in Dublin 2 and 3.

Figure 2: Air pollution complaints by postal district 2015



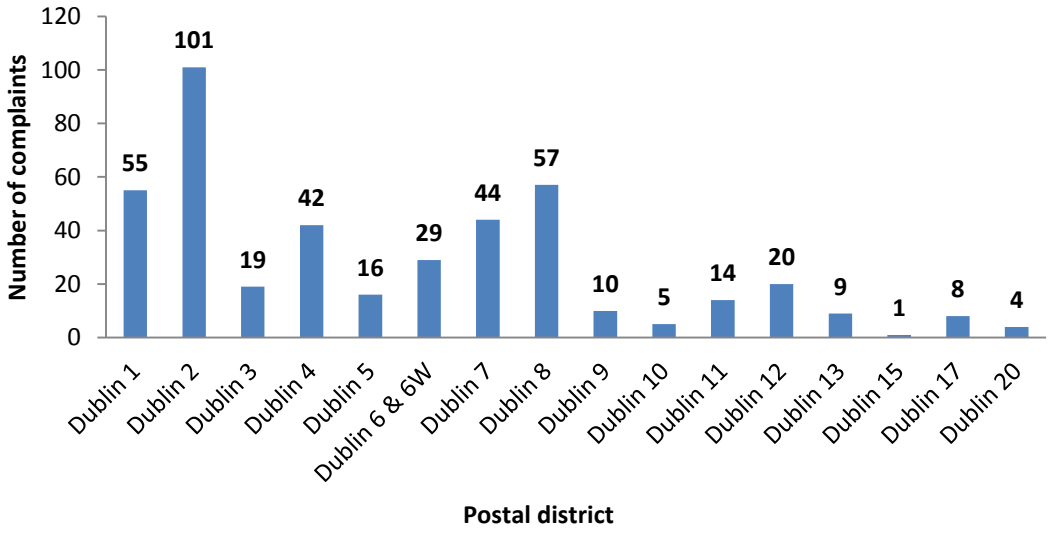
Noise complaints

The Unit deals with complaints in relation to noise pollution from commercial and industrial premises. The Unit does not deal with neighbour noise nuisance complaints as there is provision in the legislation for individuals to deal with this on their own behalf. Environmental Health Officers (E.H.O.s) give advice to the public about how they can resolve these complaints themselves. The information is also found on the Unit's webpage on the Dublin City Council website.

A notice can be served, by this Unit, in relation to any *"premises, processes or works"* causing a noise nuisance. Failure to comply with the terms of the notice within the time period specified can lead to the initiation of legal proceedings.

The number of complaints dealt with by the Unit in 2015 was 435 which is a small increase on 2014's complaint numbers (418). As can be seen from Figure 3, the city centre postal district of Dublin 2 was the busiest area of the city, followed by Dublin 8, 1 and 7. The huge disparity between Dublin 2 and the other city centre postal districts may be attributed to the large number of complaints about licensed premises and nightclubs in this area of the city.

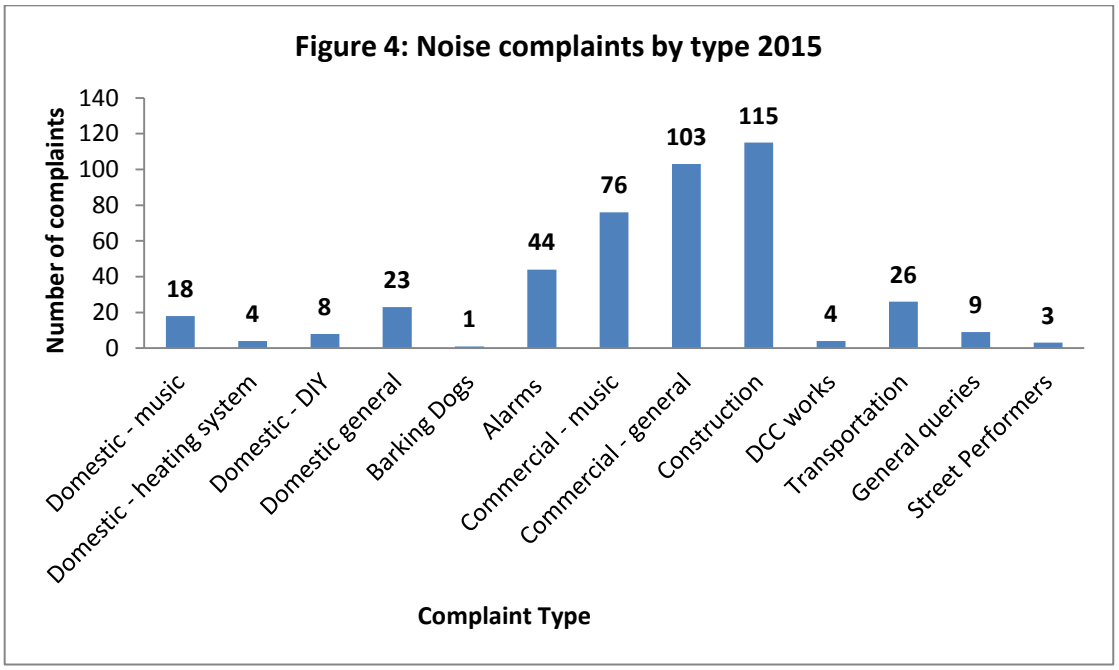
Figure 3: Noise complaints by postal district 2015



Complaints regarding commercial properties typically include noise emanating from music venues, noisy plant and equipment servicing buildings and early morning deliveries to retail units.

Interestingly, for the first time since 2007, the construction industry generated the highest number of noise complaints in the city, with 'commercial – general' being the next highest category.

Figure 4 shows the types of complaints that caused members of the public to complain to the Council in 2015.



Outdoor events in Dublin during 2015

The wide variety of outdoor events held in Dublin annually contributes to the vibrant social scene in the city. The Unit carries out noise monitoring at the larger outdoor music events.

Notice is served by the Air Quality Monitoring & Noise Control Unit on both the promoter and the owner of the venue where the concert is taking place detailing noise limits for the event. An independent noise consultant must be employed by the promoter to monitor levels of noise at the nearest noise sensitive dwelling(s). If there are breaches of the notice conditions, the Unit may take legal proceedings against both the promoter and/or venue.

Table 1 details the outdoor events at which Notices were served and noise monitoring was carried out during 2015.

Table 1: Outdoor Events in Dublin during 2015

Date	Location	Artist / Festival
29/05/2015	Royal Hospital	Forbidden Fruit
30/05/2015	Royal Hospital	Forbidden Fruit
31/05/2015	Royal Hospital	Forbidden Fruit
01/06/2015	Royal Hospital	Patti Smith
17/06/2015	Royal Hospital	Beck
20/06/2015	Croke Park	The Script
24/06/2015	Royal Hospital	Counting Crows
26/06/2015	Royal Hospital	Kodaline
27/06/2015	Royal Hospital	Manu Chao
01/07/2015	Aviva	ACDC
02/07/2015	Iveagh Gardens	Paloma Faith
04/07/2015	Iveagh Gardens	The Frames
05/07/2015	Iveagh Gardens	The Frames
09/07/2015	Iveagh Gardens	Nile Rogers
10/07/2015	Iveagh Gardens	St Vincent
12/07/2015	Iveagh Gardens	Damien Rice
24/07/2015	Croke Park	Ed Sheeran
25/07/2015	Croke Park	Ed Sheeran

Enforcement proceedings in 2015

During 2015 the Unit served notice under the Environmental Protection Agency Act 1992 on 4 premises and all of the promoters/premises hosting outdoor events in the city. Notices under the Air Pollution Act 1987 were served on 5 premises.

There were no court proceedings to report on in 2015.

Fuel Regulations

Enforcing the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuel) Regulations 1998 to 2012 involves targeted unannounced inspections of fuel depots, vehicles and retail outlets around the city. The legislation places the onus firmly on the coal merchants working in the industry to supply compliant fuel.

In August 2012, the Air Pollution Act, 1987 (Marketing, Sale, Distribution and Burning of Specified Fuels) Regulations 2012 introduced a prohibition on the burning of specified fuel in private dwellings in specified areas. Specified fuel is any bituminous fuel, or admixture of bituminous fuel. The legislation also extended the ban in Dublin to include all of the city and county areas for the first time.

The introduction of Fixed Payment Notices in December 2015 did not result in the issuing of any penalties but it is expected to be used more effectively from the 2016 heating season onwards. If the fixed payment is not paid within 21 days, a prosecution under the Air Pollution Act 1987 will be initiated by the Council.

The Unit carried out 139 inspections in the winter heating season between October 2015 and March 2016.

There was general compliance across the city in relation to fuel offered for sale. The 2016 breakdown of inspections is shown in Table 2 below.

Table 2: Fuel Regulations Inspections 2016	
Shops	78
Depots	7
Garages	30
Vehicles	24
Total	**139**

Air Quality Monitoring

There are a number of air monitoring sites around Dublin City that are operated and maintained by the Air Quality Monitoring and Noise Control Unit.

The Air Quality Standards Regulations 2011 (S.I. 180 of 2011) transposed the Clean Air for Europe (CAFÉ) Directive 2008 (2008/50/EC) into Irish law. The Regulations outline the requirements for monitoring pollutants, and the target values for each pollutant.

Several of these monitoring sites are deemed to be 'multi-pollutant', i.e., monitoring two or more pollutants at one location. The multi-pollutant sites at Winetavern Street and Coleraine Street provide a good picture of air quality in the heavily trafficked city centre.

The analysers monitoring Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2) and Carbon Monoxide (CO) at the multi-pollutant sites run continuously while the Particulate Matter (PM) analysers use filters daily that are collected from the analyser and processed every two weeks.

Since November 2012, the Unit has operated 3 multi-pollutant sites on behalf of Fingal County Council, Dun Laoghaire/ Rathdown County Council and South Dublin County Council. The data for these sites is included in this report. The support of our colleagues in the three Councils is acknowledged and very much appreciated.

Sites

Along with the multi-pollutant sites, there are other individual sites operated by the Unit. All of the Dublin City Council sites are incorporated into the Units Quality Management System.

Multi-pollutant sites

Winetavern Street – PM_{10}, NO_2, CO, SO_2
Coleraine Street – $PM_{2.5}$, NO_2, CO, SO_2
Dun Laoghaire – PM_{10}, NO_2
Blanchardstown - PM_{10}, NO_2
Old Bawn - PM_{10}, SO_2

PM_{10} only sites		**$PM_{2.5}$ only**
Phoenix Park	Ballyfermot	Marino
Rathmines	Davitt Road	Finglas
St Anne's Park		

Sulphur Dioxide (SO_2)

Sources

The main source of SO_2 in Dublin is space heating from residential and industrial premises.

Health and environmental effects

There are a number of health effects associated with exposure to high levels of SO_2, including breathing problems and worsening of respiratory and cardiovascular disease. People with asthma, or chronic lung disease or heart disease are the most sensitive to SO_2.

SO_2 along with NO_2, is a precursor of acid rain. It is therefore responsible for acidification of lakes and streams and accelerated corrosion of buildings.

Table 3: Limit values for Sulphur Dioxide

	Averaging period	Limit Value
Hourly limit for the protection of human health	1 hour	350μg/m^3 not to be exceeded more than 24 times a calendar year
Daily limit value for the protection of human health	24 hours	125μg/m^3 not be exceeded more than 3 times a calendar year
Limit value for the protection of ecosystems	Calendar year	20μg/m^3

Results and discussion

Levels of SO_2 in Dublin are outlined below. The results are extremely low and well within the limits set out in the Standards. The result at Old Bawn is a slight increase on 2013, but well below the limit value. The maximum hourly levels still did not exceed the 350ug/m3 allowed in the Standards.

Table 4: SO_2 results for Dublin 2015

Site	Annual daily mean μg/m^3	Hourly max μg/m^3
Winetavern Street	0.6	19.8
Coleraine Street	0.3	17.3
Old Bawn	2.8	30.1

Overall, the SO_2 levels remain very low across the city and county.

Nitrogen Dioxide (NO_2)

Nature and Sources

Nitrogen Dioxide (NO_2) is a gas produced from the burning of fossil fuels in vehicles, industrial plant, power plants and other commercial and residential sources that burn fuel.

Health and Environmental effects

NO_2 irritates the lungs and lowers resistance to respiratory infection, especially for those already suffering with breathing difficulties e.g. asthma, bronchitis. NO_2 along with SO_2 is a precursor of acid rain. It is therefore responsible for acidification of lakes and streams and accelerated corrosion of buildings.

Table 5: Limit values for Nitrogen Dioxide (NO_2)

	Averaging period	Limit Value
Hourly limit value for the protection of human health	1 hour	200μg/m^3 not to be exceeded more than 18 times in a calendar year
Annual limit value for the protection of human health	Calendar year	40μg/m^3

Results and discussion

There are 4 Dublin City Council sites monitoring NO_2 continuously – Winetavern Street and Coleraine Street are situated adjacent to heavily trafficked roads and Ballyfermot is situated in a predominantly residential area. St Anne's Park site provides a background site. Two other sites at Blanchardstown and Dun Laoghaire are operated and maintained by the Unit. The NO_2 levels at all of the sites remain comfortably within the EU limit values.

Table 6: NO_2 results for Dublin 2015

Site	Annual mean (μg/m^3)	No. of times NO_2 hourly level >200μg/m^3
Winetavern St	31	0
Coleraine Street	25	0
Ballyfermot	16	0
St. Anne's Park	13	0
Dun Laoghaire	16	0
Blanchardstown	25	0

Carbon Monoxide (CO)

Nature and sources

Carbon monoxide (CO) is colourless, odourless gas produced during the incomplete combustion of fuels. The main source of environmental CO is traffic.

Health and environmental effects

CO interferes with the distribution of oxygen in the blood to the rest of the body. Depending on the level of exposure, the symptoms include fatigue, headache, disorientation, nausea and dizziness. These symptoms are similar to that of flu or food poisoning so it may prove difficult to diagnose. However, it has the potential to kill or poison in high levels, especially in poorly ventilated premises.

Table 7: Limit value for Carbon Monoxide for the protection of human health	
	Limit Value
Maximum Daily 8-hr mean	10mg/m^3

Results and discussion

There are two sites monitoring CO in the city, at Winetavern Street and Coleraine Street. As can be seen from below, the result from Coleraine Street is low in comparison with the limit set out in the legislation while Winetavern Street did not register above the detection limit of the analyser.

Table 8: CO results for Dublin City 2015	
Site	**8 hour rolling mean (mg/m^3)**
Winetavern Street	Below detection limit
Coleraine Street	0.4

Particulate Matter ($PM_{2.5}$ & PM_{10})

Nature and sources

The main sources of particulate matter (PM) are vehicular traffic, dust from construction sites, construction equipment and any crushing and grinding operations. Indoors, the main sources are tobacco smoke, wood burning stoves, fireplaces and other home heating sources.

Health and environmental effects

When inhaled, the particles can evade the body's natural defence system and lodge in the lungs. Symptoms of exposure include a sore throat, persistent cough, wheezing, shortness of breath and chest pain. PM can increase the number of asthma attacks, or aggravate bronchitis depending on the exposure. However, those already susceptible are a greater cause for concern. This includes children, the elderly and those already suffering with breathing difficulties.

There are different types of PM, but the coarse particles known as PM_{10} are monitored at 9 sites and the finer $PM_{2.5}$ are monitored at 3 sites. The CAFÉ directive provides the legal requirements for monitoring PM.

Table 9: Target value for $PM_{2.5}$

	Averaging period	Target value
Annual target value for the protection of human health	Calendar year	25μg/m^3

Table 10: Limit value for PM_{10}

	Averaging period	Limit value
24 hour limit value for the protection of human health	24 hours	50μg/m^3 not to be exceeded more than 35 times in a calendar year
Annual limit value for the protection of human health	Calendar year	40μg/m^3

Results and discussion

The annual PM_{10} mean value for all sites was below the 40μg/m^3 limit value. The addition of Davitt Road, Finglas and St Anne's Park into the network gives better coverage of the city. The inclusion of the results from the county sites indicates trends across the county and not just localised issues.

The Blanchardstown site is close to the N3 slip road from the M50 so there were quite a number of days in excess of 50μg/m^3 at this site due to the volume of traffic nearby.

Table 11: PM_{10} results for Dublin 2015

Site	2015 Annual Mean μg/m^3	No. of days >50μg/m^3
Phoenix Park	12	2
Rathmines	15	5
Winetavern Street	14	4
Ballyfermot	12	3
Davitt Road	13	6
St Anne's Park, Raheny	15	3
Dun Laoghaire	13	3
Old Bawn	14	4
Blanchardstown	17	9

The number of days in excess of 50μg/m^3 at all sites is well below the legislative requirements.

As can be seen from Table 12, $PM_{2.5}$ levels are within the annual target value as set down in the CAFÉ Directive (detailed in Table 9). As yet, no daily limit value exists for $PM_{2.5}$. The maximum daily value in 2015 for $PM_{2.5}$ was 43μg/m^3 at Coleraine Street, 50μg/m^3 at Marino and 35μg/m^3 at Finglas.

Table 12: $PM_{2.5}$ results for Dublin City 2015

Site	Annual mean (μg/m^3)
Marino	8
Coleraine St	9
Finglas	8

Control of Volatile Organic Compounds (VOC's)

VOC's are air pollutants which can have detrimental effects on human health by contributing to respiratory illnesses. Some VOC's are mutagenic or toxic to reproduction and harmful to the unborn. They also have harmful environmental effects (e.g. crop, vegetation and materials damage, reduced visibility etc.) when they chemically react with oxides of nitrogen and sunlight to form ground-level ozone. Potential sources include vehicle emissions, fuel combustion and domestic solvent usage.

Role of Dublin City Council

Solvents Regulations

The European Union (Installations and Activities using Organic Solvents) Regulations 2012 replaced the 2002 Regulations covering dry cleaning, pharmaceutical industries etc. A panel of Approved Assessors was appointed by the EPA for the purposes of carrying out the inspections. The Regulations allow Dublin City Council to issue Certificates of Compliance for up to 3 years. The fines for uncertified operators have increased from ¤3,000 to ¤5,000 or imprisonment, or both.

In 2015, 11 Certificates of Compliance were issued to Dry Cleaners.

Decorative Paints Regulations

The European Union (Paints, Varnishes, Vehicle Refinishing Products and Activities) Regulations 2012 replaced the 2007 Regulations. A panel of Approved Assessors was appointed by the EPA for the purposes of carrying out the inspections. Any premises spraying or refinishing vehicles must apply for a Certificate of Compliance from the Council. The Regulations allow Dublin City Council to issue Certificates of Compliance for up to 3 years. The fines for uncertified operators have increased from ¤3,000 to ¤5,000 or imprisonment, or both.

In 2015, 14 Certificates of Compliance were issued to vehicle refinishing premises.

Reference Material and Internet Addresses

For information on services provided by the Air Quality Monitoring & Noise Control Unit of Dublin City Council:

http://www.dublincity.ie/main-menu-services-water-waste-and-environment/air-quality-monitoring-and-noise-control

For Information on real-time air quality monitoring:

http://www.epa.ie/air/quality/data/

For updates on developments at European Union level on air quality:

http://ec.europa.eu/environment/air/index.htm

For information on developments at European Level on noise control:

http://ec.europa.eu/environment/noise/home.htm

For information on national environmental issues:

http://www.environ.ie/en/

For information on VOCs and Solvents

http://www.environ.ie/en/Environment/Atmosphere/AirQuality/VolatileOrganicCompounds/