COLERAINE
BOROUGH COUNCIL

# 2009 Air Quality Updating and Screening Assessment for Coleraine Borough Council

In fulfillment of Part IV of the Environment Act 1995
Local Air Quality Management

**April 2009**

European Union
Structural Funds

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# Executive Summary

Under The Environment (Northern Ireland) Order 2002, local authorities are obliged to regularly review and assess the air quality in their boroughs. The review and assessment plays an important role in the continuing process of Local Air Quality Management, whereby the authorities aim to achieve the Air Quality Objectives for the following seven air pollutants: carbon monoxide, benzene, 1,3- butadiene, lead, nitrogen dioxide, sulphur dioxide and particles (PM10).

The review and assessment process consists of 2 stages. The first stage, known as the updating and screening assessment (this document) identifies all relevant changes since the earlier work was carried out and then uses simple tools to check if there is a current risk of the relevant pollution objectives being exceeded. If this is the case the 2nd stage, known as the Detailed Assessment, must then be carried out. If the Detailed Assessment concludes that the relevant Air Quality Objective will be exceeded then an Air Quality Management Area must be declared.

This document addresses the current and future situation with regard to all the pollutants currently contained within the Air Quality Strategy, not just those for which there was local concern in 2005. For all of the pollutants the previous work concluded that there was no likelihood of any of the standards being breeched in the relevant years. This document has confirmed that nothing significant has occurred to alter those conclusions. There is no requirement for a detailed assessment for any of the pollutants addressed.

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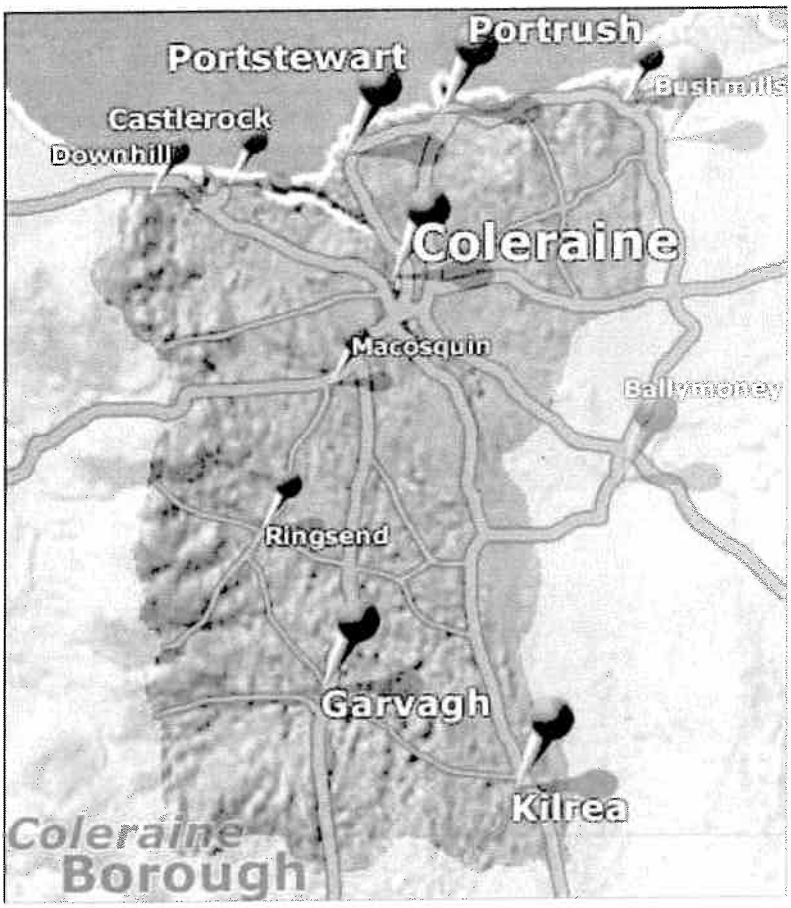
# 1 Introduction

## 1.1 Description of Local Authority Area

The Borough of Coleraine, which covers approximately 190 square miles, has a static population of approximately 56, 000, although large numbers of tourists swell the population during the summer months. The Borough stretches along the coastline from Downhill and Castlerock in the west to Portballintrae
in the east, embracing the main coastal resorts of Portrush and Portstewart and inland to the rural towns of Kilrea and Garvagh. The River Bann borders the eastern edge of the Borough and flows through the town of Coleraine. The northern edge of the Borough is mainly coastal. The Coleraine farmland landscape extends along the north coast from Castlerock to Portrush and southwards along the River Bann valley towards Kilrea and Garvagh. Coleraine is located on the mainline rail link from Belfast to Derry with a spur line to Portrush and is approximately 55 miles from Belfast and 35 miles from Derry. Coleraine boasts an impressive history originating in the first known human settlement on the island some 8,000 years ago. Coleraine is also a university town, being home to the headquarters campus of Ireland's largest university, the University of Ulster.



## 1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

## 1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, $mg/m^3$ for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

**Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Northern Ireland.**

| Pollutant | Air Quality Objective | | Date to be achieved by |
|---|---|---|---|
| | Concentration | Measured as | |
| **Benzene** | 16.25 $\mu g/m^3$ | Running annual mean | 31.12.2003 |
| | 3.25 $\mu g/m^3$ | Running annual mean | 31.12.2010 |
| **1,3-Butadiene** | 2.25 $\mu g/m^3$ | Running annual mean | 31.12.2003 |
| **Carbon monoxide** | 10.0 $mg/m^3$ | Running 8-hour mean | 31.12.2003 |
| **Lead** | 0.5 $\mu g/m^3$ | Annual mean | 31.12.2004 |
| | 0.25 $\mu g/m^3$ | Annual mean | 31.12.2008 |
| **Nitrogen dioxide** | 200 $\mu g/m^3$ not to be exceeded more than 18 times a year | 1-hour mean | 31.12.2005 |
| | 40 $\mu g/m^3$ | Annual mean | 31.12.2005 |
| **Particles ($PM_{10}$) (gravimetric)** | 50 $\mu g/m^3$, not to be exceeded more than 35 times a year | 24-hour mean | 31.12.2004 |
| | 40 $\mu g/m^3$ | Annual mean | 31.12.2004 |
| **Sulphur dioxide** | 350 $\mu g/m^3$, not to be exceeded more than 24 times a year | 1-hour mean | 31.12.2004 |
| | 125 $\mu g/m^3$, not to be exceeded more than 3 times a year | 24-hour mean | 31.12.2004 |
| | 266 $\mu g/m^3$, not to be exceeded more than 35 times a year | 15-minute mean | 31.12.2005 |

## 1.4 Summary of Previous Review and Assessments

SUMMARY OF FINDINGS FROM PREVIOUS REVIEW AND ASSESSMENT WORK.

The cornerstone of the LAQM process is the review and assessment of air quality. This is a statutorily required process whereby local air quality is assessed against national air quality standards and objectives (see Appendix 2). Updating and Screening Assessments cover new monitoring data, new objectives, new sources or significant changes to existing sources and any other local changes that may affect air quality. Where objectives are breached or are predicted to be breached, an Air Quality Management Area (AQMA) is declared. An Action Plan must then be produced stating how the district council will drive air quality towards the objective.

The last round of Updating and Screening Assessment (completed in 2006) concluded that:

1. **The risk of the objectives for the following pollutants being exceeded in the Coleraine Borough Council area was negligible:**
   *Carbon Monoxide, Benzene, 1, 3 Butadiene, Lead, Nitrogen Dioxide, PM10, Sulphur Dioxide*

2. **That existing monitoring using NO2 diffusion tubes be continued to monitor sensitive locations within the Borough**

3. **That a fuel survey be undertaken in the areas of Castlerock and Articlave to determine whether any exceedences of the $PM_{10}$ objective are likely due to domestic solid fuel combustion. This was undertaken in 2006 and concluded that the risk of exceedence was unlikely.**

4. **In 2006 Coleraine Borough Council closed its Sulphur dioxide/ Black Smoke monitor in Harpurs Hill. This was following the repeal of the EC Directive on sulphur dioxide and particulate matter (80/779/EEC) in 2005 which removed the statutory requirement of non-automatic networks. A resulting review of the UK Smoke and Sulphur Dioxide Network recommended the closure of the majority of bubbler sites as ambient sulphur dioxide levels are now well below the level of detection using the net acidity method. Furthermore it can no longer be assumed that sulphur dioxide is the main contributor to net acidity.**

# 2 New Monitoring Data

## 2.1 Summary of Monitoring Undertaken

### 2.1.1 Automatic Monitoring Sites

Coleraine Borough Council does not currently carry out any automatic monitoring.

### 2.1.2 Non-Automatic Monitoring

Nitrogen dioxide ($NO_2$) and nitric oxide (NO) are both oxides of nitrogen, and are collectively referred to as nitrogen oxides. All combustion processes produce nitrogen oxide emissions, largely in the form of nitric oxide, which is then converted to nitrogen dioxide mainly as a result of reactions with ozone in the atmosphere. Exposure to high concentrations of nitrogen dioxide is reported to sensitise asthmatics to allergens such as irritant chemicals, house dust mites and pollen.

In urban areas, particularly close to major roads, motor vehicles account for the largest proportion of nitrogen oxide emissions. The contribution of road transport to nitrogen oxide emissions has declined significantly in recent years as a result of various national policy measures, and further reductions are expected up until 2010 and beyond.

Coleraine Borough Council is currently monitoring nitrogen dioxide at 30 sites around the district using passive diffusion tubes. However for the purposes of this Updating and Screening Assessment, results are only available for 12 of these sites. The remainder are new sites with little current information.

Diffusion tubes are a type of passive sampler; they absorb the pollutant to be monitored directly from the surrounding air. Diffusion tubes represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are particularly useful for assessment against annual mean objectives.

Monitoring sites are chosen to provide data on locations where there is relevant public exposure and where possible, are close to the nearest receptor to the busy road or road junction of interest. The sites are subject to periodic review.

The tubes are exposed for a month at a time before being sent for laboratory analysis. Results obtained from diffusion tubes need to be corrected for possible positive bias (over-read), or negative bias (under-read). Lambeth Scientific Services undertook the supply and analysis of the tubes for 10 months of 2008. The preparation method used was an absorbent of 50% TEA (Triethanolamine) in acetone. The bias adjustment factor for this laboratory and technique in 2008 is .98. **This factor is based on 7 studies undertaken in Reigate and Banstead Borough Council (3), East**

## *Coleraine Borough Council - Northern Ireland*

**Hertfordshire District Council (1), Spelthorne BC (1), LB Islington (1), and AEA Tech Intercomparison (1).** All nitrogen dioxide results for 2008 for tubes supplied and analysed by Lambeth have been corrected using this factor.

The monitoring sites referred to in this report are shown in the maps detailed in Appendix C. All maps are subject to Ordinance Survey copyright.

In 2008, Coleraine Borough Council also located nitrogen dioxide tubes supplied by Gradko at the same locations following contract negotiations. These tubes were run for the full 12 months and details are given in the table below.

**Table 2.2 Details of Non- Automatic Monitoring Sites**

| Site Name | Site Type | OS Grid Ref | Pollutants Monitored | In AQMA? | Relevant Exposure ? *(Y/N with distance (m) to relevant exposure)* | Distance to kerb of nearest road *(N/A if not applicable )* | Worst-case Location? |
|---|---|---|---|---|---|---|---|
| Lower Union St, Coleraine | Kerbside | 2848 4328 | $NO_2$ | N | Y (3m) | 2m | Y |
| Upper Union Street Coleraine | Kerbside | 2851 4328 | $NO_2$ | N | Y(3m) | 2m | Y |
| Railway Road, Coleraine | Urban Centre | 2852 4327 | $NO_2$ | N | Y(2m) | 2m | Y |
| Lodge Road, Coleraine | Kerbside | 2858 4314 | $NO_2$ | N | Y(2m) | 2m | Y |
| Strand Road, Coleraine | Kerbside | 2845 4325 | $NO_2$ | N | Y(1m) | 2m | Y |
| Coleraine Bridge, Coleraine | Urban Centre | 2846 4325 | $NO_2$ | N | Y(2m) | 1m | Y |
| Crocknamac Road, Portrush | Urban Background | 2861 4400 | $NO_2$ | N | Y(2m) | 2m | Y |
| Castleroe Road, Coleraine | Urban Background | 2859 4299 | $NO_2$ | N | Y(2m) | 2m | Y |
| University of Ulster, Coleraine | Urban Background | 2845 4328 | $NO_2$ | N | Y(1m) | 1m | Y |
| Blindgate Street, Coleraine | Urban Centre | 2849 4321 | $NO_2$ | N | Y(1m) | 1m | Y |
| Portstewart Road, Coleraine | Kerbside | 2851 4334 | $NO_2$ | N | Y(1m) | 2m | Y |
| Castlerock Road, Coleraine | Kerbside | 2843 4325 | $NO_2$ | N | Y(1m) | 2m | Y |

Tubes used by Coleraine Borough Council in monitoring Nitrogen Dioxide levels are supplied by Gradko and Lambeth Scientific Services. Supply from Lambeth was terminated in October 2008 following contract negotiations. As a result of this the tables of results will show readings for 10 months for Lambeth and a full year for Gradko.

Lambeth Scientific Services used a preparation method of 50% TEA in Acetone and Gradko used 20% TEA in water. A bias adjustment factor of .92 has been applied to the annual means from the diffusion tube results for Gradko and an adjustment factor of .98 has been applied for Lambeth. These bias adjustment factors have been obtained from the Review and Assessment Website of the University of Western England.

Both Lambeth Scientific Services and Gradko have been assessed under the WASP (Workplace Analysis Scheme for Proficiency) scheme. Results of this assessment can be found in Appendix A.

## 2.2 Comparison of Monitoring Results with AQ Objectives

On the basis of previous rounds of review and assessment and identified requirements, Coleraine Borough Council currently monitor for Nitrogen Dioxide only. The Borough has no air quality management areas and thus has no continuous automatic monitoring equipment. The details of the diffusion tube results relevant for this assessment are shown below.

### 2.2.1 Nitrogen Dioxide

Coleraine Borough Council has assessed air quality for Nitrogen Dioxide since 2004. In 2008, the Borough changed tube supplier from Lambeth Scientific Services to Gradko. This resulted in an overlap of the two suppliers for a period of 10 months of the year. During the period of assessment only one site has exceeded the objective of 40µg/$m^3$ in 2006. This exceedence was .3µg/$m^3$ and was not deemed to be significant enough to go to detailed assessment. Data in subsequent years has shown no exceedence in this or any other area. In order to continue to properly fulfil our statutory duty the department has decided to supplement the data with further tubes to this and other areas.

**Automatic Monitoring Data**

Coleraine Borough Council do not undertake any automatic monitoring

## Diffusion Tube Monitoring Data

**Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes**

| Site ID | Location | Within AQMA? | Data Capture 2008 % | Annual mean concentrations |
|---|---|---|---|---|
| | | | | 2008 (μg/m$^3$) (Lambeth) Adjusted for bias |
| 1 | Lower Union St, Coleraine | N | 85 | 38.612 |
| 2 | Upper Union St , Coleraine | N | 85 | 25.088 |
| 3 | Railway Rd, Coleraine | N | 85 | 20.09 |
| 4 | Lodge Rd Roundabout | N | 85 | 28.028 |
| 5 | Strand Rd, Coleraine | N | 85 | 20.09 |
| 6 | Dunnes Carpark, Coleraine Bridge | N | 85 | 21.854 |
| 7 | Crocknamack Rd, Portrush | N | 85 | 25.8475 |
| 8 | Castleroe Rd, Coleraine | N | 85 | 8.33 |
| 9 | UUC | N | 85 | 9.408 |
| 10 | Tesco, Blindgate Street | N | 85 | 21.854 |
| 11 | Portstewart Rd, Coleraine | N | 85 | 23.814 |
| 12 | Castlerock Rd, Coleraine | N | 85 | 30.135 |

**Table 2.4b Results of Nitrogen Dioxide Diffusion Tubes**

| Site ID | Location | Within AQMA? | Annual mean concentrations ($\mu g/m^3$) Adjusted for bias | | | |
|---|---|---|---|---|---|---|
| | | | 2006 (Lambeth) | 2007 (Lambeth) | 2008 (Gradko) | 2008 (Lambeth) |
| 1 | Lower Union St, Coleraine | N | 40.3 | 34.7 | 38.44 | 38.61 |
| 2 | Upper Union St , Coleraine | N | 26.3 | 22.4 | 21.78 | 25.09 |
| 3 | Railway Rd, Coleraine | N | 22.7 | 19 | 17.23 | 20.09 |
| 4 | Lodge Rd Roundabout | N | 29.3 | 20.3 | 29.14 | 28.03 |
| 5 | Strand Rd, Coleraine | N | 27.7 | 22.7 | 23.88 | 20.09 |
| 6 | Dunnes Carpark, Coleraine Bridge | N | 25.6 | 21.3 | 21.05 | 21.85 |
| 7 | Crocknamack Rd, Portrush | N | 27.9 | 22 | 25.05 | 25.85 |
| 8 | Castleroe Rd, Coleraine | N | 14.1 | 9 | 7.86 | 8.33 |
| 9 | UUC | N | 14.3 | 9.8 | 7.99 | 9.41 |
| 10 | Tesco, Blindgate Street | N | 29.6 | 19.6 | 24.57 | 21.85 |
| 11 | Portstewart Rd, Coleraine | N | 29.1 | 29.4 | 26.55 | 23.81 |
| 12 | Castlerock Rd, Coleraine | N | 32.5 | 25.1 | 28.79 | 30.14 |

### 2.2.2 $PM_{10}$

In 2006 Coleraine Borough Council completed its updating and screening assessment of local air quality. The areas of Articlave, Liffock, Castlerock, 3 areas in Garvagh, Mettican, Kilrea, Larchfield and Macosquin were assessed for domestic fuel combustion. Housing counts were undertaken from maps and location visits. Information detailing the number of Housing Executive houses and heating type was obtained from the Northern Ireland Housing Executive – Heating Co-ordination Unit. The proportion of solid fuel users in private housing was obtained from the Northern Ireland Housing Condition Survey 2001 Main Report.

This assessment identified the need to conduct a fuel survey in the areas of Castlerock and Articlave. The objective of this fuel survey was to provide more accurate data on solid fuel use in homes in these areas. Data from this survey was used to calculate the effective density of coal burning houses and determine whether there was an exceedance of the criterion in the nomograms laid out in Technical Guidance LAQM.TG(03). This in turn determined whether there was a requirement to proceed to a detailed assessment for particulate matter in these areas.

Where detailed assessment is required the modelling requirements would be highly dependent upon the manner in which the coal-burning houses are distributed. Care was taken not to aggregate the emissions over a large area in which coal burning does not predominantly take place, as this would dilute the emission strength.

This survey identified that oil is the primary fuel used for home heating in private homes in both Articlave and Castlerock. Both areas fell under the threshold of 50 solid fuel burning homes in 500 x

500m and therefore further assessment is not required. Coleraine therefore does not currently monitor for particulate matter.

### 2.2.3 Sulphur Dioxide

The first round of review and assessment concluded that there were no Part A or B processes with the potential to emit significant quantities of sulphur dioxide. It identified 2 significant combustion systems with thermal power rating greater than 5MW. It also identified three 1x1 km grid squares in Coleraine, one in Portstewart and one in Portrush, with more than 300 houses burning coal. It recommended a second stage review for sulphur dioxide with respect to domestic combustion and the two industrial combustion systems. Further modeling concluded that the objective for sulphur dioxide would most likely be met.

### 2.2.4 Benzene

The first round of Review and Assessment concluded that there were no significant sources of benzene in the Coleraine area or in neighbouring areas and that there were no proposals for developments likely to emit this pollutant. It stated that national policies were expected to deliver the air quality objective by the end of 2003 and that the objective for benzene was likely to be achieved in the Coleraine area.

### 2.2.5 Other pollutants monitored

Coleraine Borough Council does not routinely monitor for any other pollutants.

# 3 Road Traffic Sources

## 3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Coleraine Borough Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

## 3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Coleraine Borough Council has recently increased its number of non automatic monitoring sites for Nitrogen Dioxide in order to ensure continued robust monitoring for future rounds of review and assessment. This monitoring has just begun and data is not available for the new sites for an appropriate length of time to ascertain if they pose a risk of exceeding air quality objectives.

Coleraine Borough Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

## 3.3 Roads with a High Flow of Buses and/or HGVs.

Coleraine Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

## 3.4 Junctions

Technical guidance LAQM.TG(09) defines a busy junction as one with greater than 10,000 vehicles per day. Relevant exposure should be within 10 m of the kerb. The first stage review and assessment concluded that there were 10 junctions with a potential risk of exceeding the objective. DMRB modelling at stage 2 concluded that emissions arising from road traffic were not predicted to exceed the objective for

nitrogen dioxide. There has been no change in this position. According to LAQM.TG(09) further assessment of junctions is not required where there was a specific assessment during the first round against 2005 objectives.

Coleraine Borough Council confirms that there are no new/newly identified busy junctions/busy roads.

## 3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Coleraine Borough Council confirms that there are no new/proposed roads.

## 3.6 Roads with Significantly Changed Traffic Flows

Coleraine Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

## 3.7 Bus and Coach Stations

The Coleraine town bus station complex includes a fully enclosed public waiting area that minimises exposure. The station is located in the retail centre away from areas of likely 1-hour exposure. Furthermore, a study of bus timetables indicates that although Coleraine Bus Centre is the busiest bus station within the borough it still does not experience more than 200 bus movements on any day. Other bus stations within the borough are open in aspect but have significantly less than 200 bus movements per day.

Coleraine Borough Council confirms that there are no relevant bus stations in the District.

# 4 Other Transport Sources

## 4.1 Airports

Coleraine Borough Council confirms that there are no airports in the District.

## 4.2 Railways (Diesel and Steam Trains)

Diesel and coal-fired locomotives emit sulphur dioxide. The revised technical guidance includes a checklist for assessing the impact of railway locomotives by considering exposure to stationary locomotives for periods of 15 minutes or more.

There are 2 railway lines in the Coleraine Borough area. One line runs between Coleraine town centre and Portrush. The second runs from Belfast to Londonderry stopping in Bellarena, Castlerock and Coleraine. Translink railway timetables indicate that Coleraine town station is the only site where locomotives may be stationary for periods of 15 minutes or more.

The Coleraine town railway station complex is located in the retail centre and includes a fully enclosed public waiting area that minimises exposure. The nearest residential premises to the railway station is over 15 metres. The authority has been monitoring for Nitrogen Dioxide close to the station for several years with no adverse results.

### 4.2.1 Stationary Trains

Coleraine Borough Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

### 4.2.2 Moving Trains

Coleraine Borough Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

## 4.3 Ports (Shipping)

Coleraine Borough Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

# 5 Industrial Sources

## 5.1 Industrial Installations

### 5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Coleraine Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

### 5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Coleraine Borough Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

### 5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Coleraine Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

## 5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

## 5.3 Petrol Stations

Coleraine Borough Council confirms that there are no petrol stations meeting the specified criteria.

## 5.4 Poultry Farms

Although the borough has several large poultry farms, none exceed the numbers laid down in the technical guidance LAQM.TG(09), the largest having a capacity of 185,000 birds. Coleraine Borough Council currently has no turkey farms.

Coleraine Borough Council confirms that there are no poultry farms meeting the specified criteria.

# 6 Commercial and Domestic Sources

## 6.1 Biomass Combustion – Individual Installations

Coleraine Borough Council confirms that there are no biomass combustion plants in the District.

## 6.2 Biomass Combustion – Combined Impacts

Coleraine Borough Council confirms that there are no biomass combustion plants in the District.

## 6.3 Domestic Solid-Fuel Burning

In 2006 Coleraine Borough Council completed its updating and screening assessment of local air quality. The areas of Articlave, Liffock, Castlerock, 3 areas in Garvagh, Mettican, Kilrea, Larchfield and Macosquin were assessed for domestic fuel combustion. Housing counts were undertaken from maps and location visits. Information detailing the number of Housing Executive houses and heating type was obtained from the Northern Ireland Housing Executive – Heating Co-ordination Unit. The proportion of solid fuel users in private housing was obtained from the Northern Ireland Housing Condition Survey 2001 Main Report.

This assessment identified the need to conduct a fuel survey in the areas of Castlerock and Articlave. The objective of this fuel survey is to provide more accurate data on solid fuel use in homes in these areas. Data from this survey was used to calculate the effective density of coal burning houses and determine whether there was an exceedance of the criterion in the nomograms laid out in Technical Guidance LAQM.TG(03). This in turn determined whether there was a requirement to proceed to a detailed assessment for particulate matter in these areas.

This survey identified that oil is the primary fuel used for home heating in private homes in both Articlave and Castlerock. Both areas fell under the threshold of 50 solid fuel burning homes in 500 x 500m and therefore further assessment is not required.

Coleraine Borough Council confirms that there are no areas of significant domestic fuel use in the District.

# 7 Fugitive or Uncontrolled Sources

The first round of review and assessment predicted the highest background concentration of $PM_{10}$ in the borough in 2004 to be 18.9µg/m³. Data from 'Maps of Estimated Ambient Air Pollution in 2004 and Projections for Other Years' provided on the website http://www.airquality.co.uk/archive/laqm/tools showed the estimated annual mean background gravimetric $PM_{10}$ concentration in 2004 to be between 15 and 20 µg/m³. Similar data for the year 2008 shows that estimated annual mean background gravimetric $PM_{10}$ concentration was between 10 and 15.5 µg/m$^3$. According to LAQM.TG(09) relevant exposure should be defined as within 200m of the source if the 2004 background concentration is predicted to be less than 26 µg/m³. Locations not covered by previous rounds of review and assessment have not been identified.

Coleraine Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the District.

# 8 Conclusions and Proposed Actions

## 8.1 Conclusions from New Monitoring Data

Monitoring carried out since the last round of review and assessment has identified one exceedence of the air quality objective at one site on one occasion in 2006. Recent monitoring has shown a decrease of levels at this site and more sites have been established nearby in order to better assess this exceedence.

No other sites have shown exceedences of the objective.

## 8.2 Conclusions from Assessment of Sources

As detailed above, Coleraine Borough Council has identified no new road transport, other transport, industrial installations, commercial/domestic sources, fugitive emissions, residential or commercial developments not previously assessed which may lead to an exceedence of air quality objectives

## 8.3 Proposed Actions

The Updating and Screening Assessment has not identified the need to proceed to a Detailed Assessment for any pollutant or identified any need for additional monitoring, or changes to the existing monitoring programme. However, Coleraine borough Council has decided to increase the number of sites at which Nitrogen Dioxide is monitored in order to ensure that air quality objectives are not exceeded. The Borough has no existing AQMAs.

The next proposed action by this authority therefore will be to submit a Progress report in 2010.

# 9 References


- The Environment (Northern Ireland) Order 2002
- UK National Air Quality Archive, http://www.airquality.co.uk/archive
- Air Quality Regulations (Northern Ireland) 2003
- The Air Quality Limit Values Regulations (Northern Ireland) 2002, S.R. 2002 No.94
- The Air Quality Limit Values (Amendment) Regulations (Northern Ireland) 2002, S.R. 2002 No. 357
- Department of the Environment's Local Air Quality Management Technical Guidance LAQM. TG(09).
- 'Coleraine Borough Council Roads Report December 2008', Roads Service
- Air Quality Review and Assessment website – Spreadsheet of Bias Adjustment Factors, http://www.uwe.ac.uk/aqm/review
- Environment and Heritage Service website – Public Register of Part A and B Processes, http://www.ehsni.gov.uk/environment/industrialPollution

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# Appendix A: QA:QC Data

## Diffusion Tube Bias Adjustment Factors

Nitrogen Dioxide diffusion tube suppliers for the period 07/08 were Lambeth Scientific Services and Gradko. Coleraine Borough Council had used Lambeth Scientific Services up until October 2008 when the contract in place expired. Gradko have been supplying and analysing Nitrogen Dioxide diffusion tubes since October 2007 as a result of concerns over accuracy surrounding the results from Lambeth Scientific Services. There were therefore two sets of tubes and two sets of results as can be seen from the tables included.

Lambeth Scientific Services' preparation method is an absorbent of 50% TEA (Triethanolamine) in acetone. Bias adjustment factor for this laboratory for 2008 is .98

Gradko preparation method is 20% TEA in water. Bias adjustment factor for this laboratory for 2008 is .92

## Factor from Local Co-location Studies (if available)

Coleraine Borough Council does not currently carry out co location studies.

## Discussion of Choice of Factor to Use

Coleraine Borough Council does not currently have a co location study and therefore the national Bias Adjustment Factor was used. The QA/QC data for the national factors was taken into consideration. The Borough was running two sets of tubes for most of the year and results would suggest that the factors were not excessively conservative.

## PM Monitoring Adjustment

Coleraine Borough Council does not currently monitor for particulate matter

## Short-term to Long-term Data adjustment

No short to long term monitoring adjustments are required

## QA/QC of automatic monitoring

Coleraine Borough Council does not currently carry out automatic monitoring

## QA/QC of diffusion tube monitoring

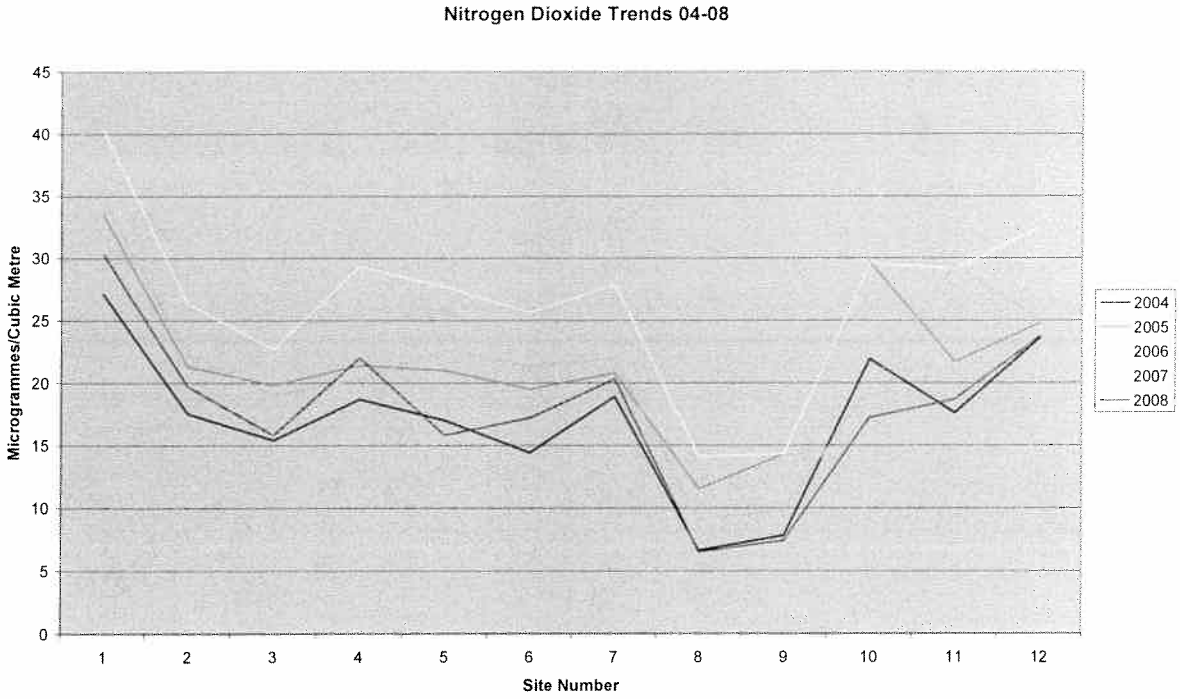
Laboratories that have demonstrated satisfactory performance in the WASP (Workplace Analysis Scheme for Proficiency) scheme for analysis of NO2 diffusion tubes, July 2007 – July 2008.

| Laboratory | Performance on basis of RPI, OLD CRITERIA, best 4 out of the 5 rounds 98 – 102 | Performance on basis of RPI, NEW CRITERIA, best 4 out of the 5 rounds 98 – 102 |
|---|---|---|
| Gradko | Good | Good |
| Lambeth Scientific Services | Good | Acceptable |

**Summary of Precision Results for Nitrogen Dioxide Diffusion Tube Collocation Studies, by Laboratory**

| Gradko 20%TEA inWater | | Lambeth SS 50% TEA (Triethanolamine) in acetone | |
|---|---|---|---|
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Poor | 2007 | Poor |
| 2007 | Poor | 2007 | Good |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2007 | Poor |
| 2007 | Good | 2008 | Poor |
| 2007 | Good | 2008 | Good |
| 2007 | Good | 2008 | Good |
| 2007 | Good | 2008 | Good |
| 2007 | Good | 2008 | Poor |
| 2007 | Good | 2008 | Poor |
| 2007 | Good | 2008 | Poor |
| 2007 | Good | | |
| 2007 | Good | | |
| 2007 | Good | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Poor | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Good | | |
| 2008 | Poor | | |

# Appendix B: Nitrogen Dioxide Trends 03-08

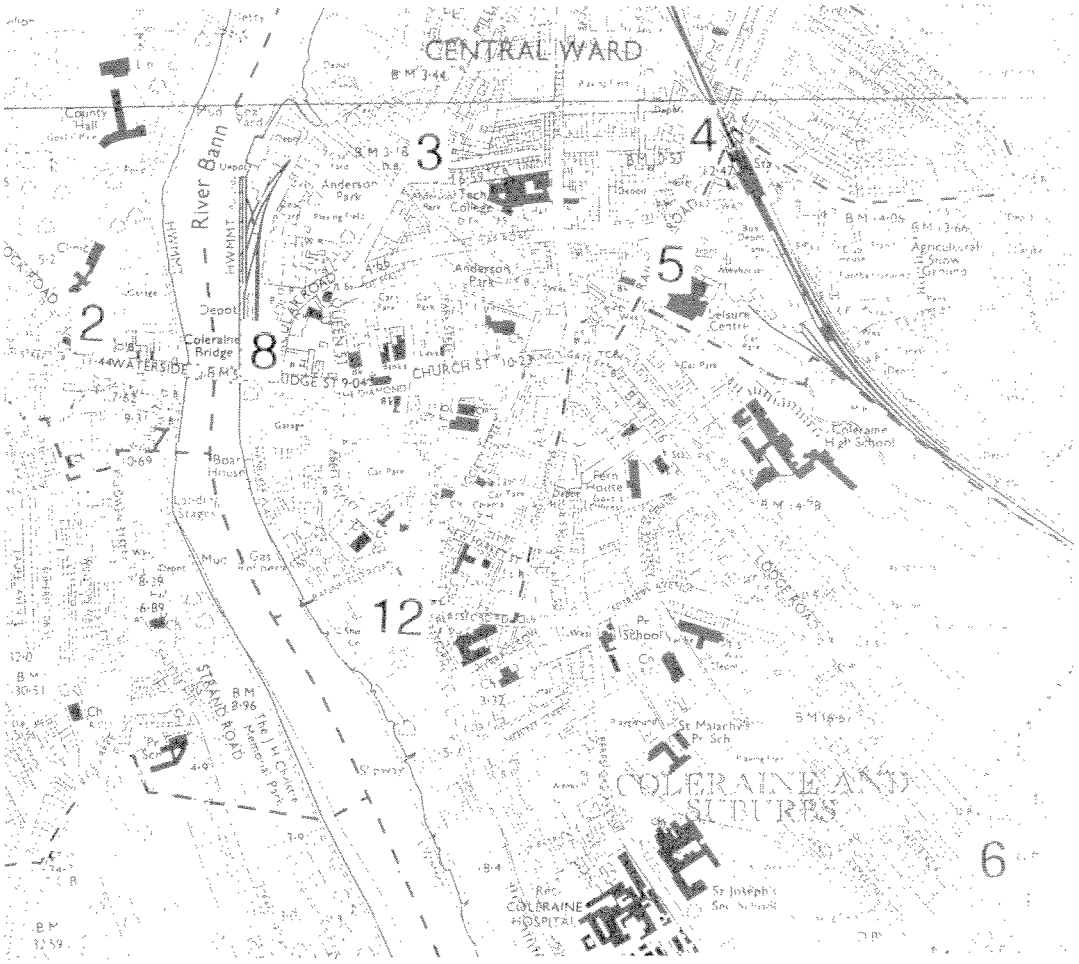



**Adjusted Nitrogen Dioxide Annual Mean Trends**

| Site Number | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| 1 | 27.1 | 33.5 | 40.3 | 34.7 | 30.3 |
| 2 | 17.5 | 21.3 | 26.3 | 22.4 | 19.7 |
| 3 | 15.4 | 19.8 | 22.7 | 19 | 15.8 |
| 4 | 18.7 | 21.4 | 29.3 | 20.3 | 22 |
| 5 | 17 | 21 | 27.7 | 22.7 | 15.8 |
| 6 | 14.4 | 19.5 | 25.6 | 21.3 | 17.2 |
| 7 | 18.9 | 20.8 | 27.9 | 22 | 20.3 |
| 8 | 6.6 | 11.5 | 14.1 | 9 | 6.5 |
| 9 | 7.8 | 14.3 | 14.3 | 9.8 | 7.4 |
| 10 | 21.9 | 29.7 | 29.6 | 19.6 | 17.2 |
| 11 | 17.6 | 21.7 | 29.1 | 29.4 | 18.7 |
| 12 | 23.6 | 24.8 | 32.5 | 25.1 | 23.7 |

# Appendix C: Maps of Locations

**Figure 1:**




**Map showing sites: No 2. Castlerock Road, Coleraine**

**No 3. Lower Union Street, Coleraine**

**No 4. Upper Union Street, Coleraine**

**No 5. Railway Road, Coleraine**

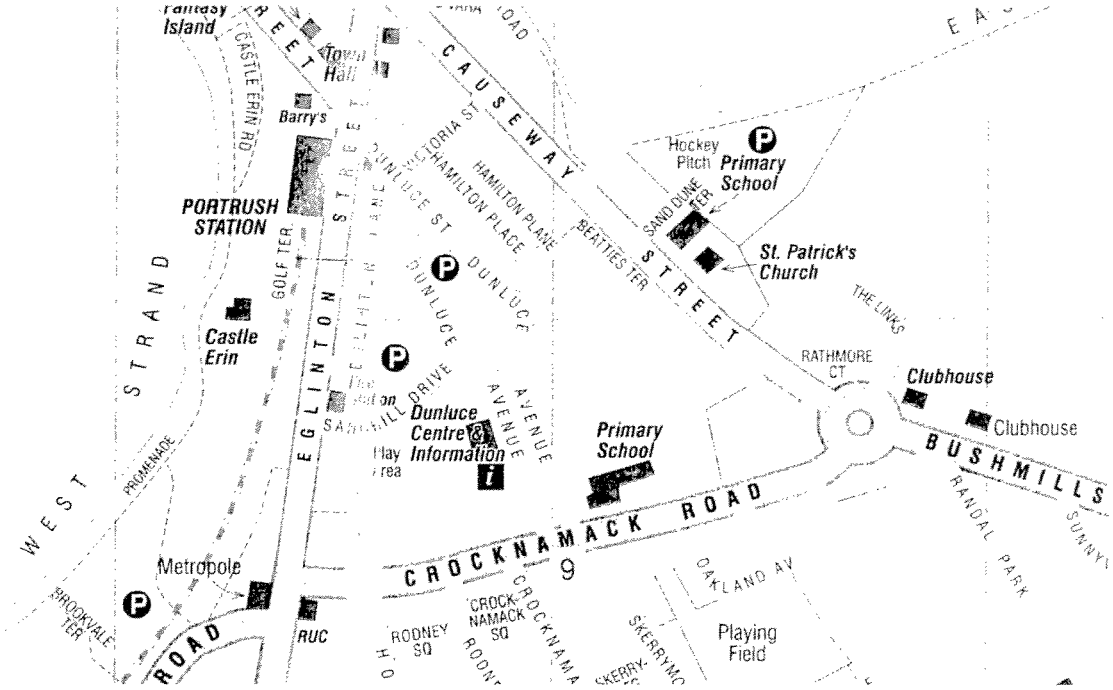
**No 6. Lodge Road, Coleraine**

**No 7. Strand Road, Coleraine**

**No 8. Coleraine Bridge, Coleraine**

**No 12. Blindgate Street, Coleraine**

**Figure 2:**

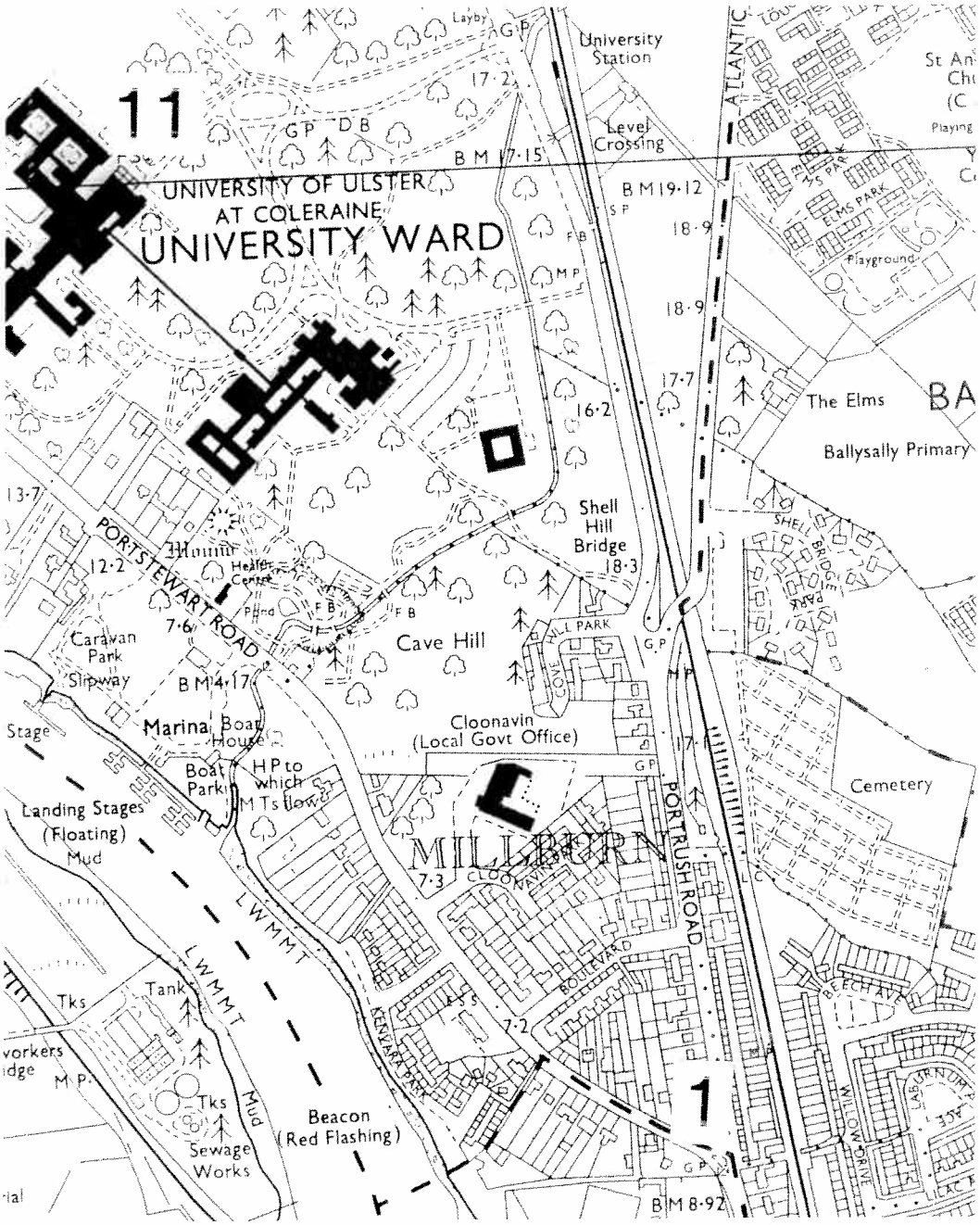



**Map Showing sites: No 9 Crocknamack Road, Portrush**

**Figure 3:**


**Map showing sites: No 10. Castleroe Road, Coleraine**

**Figure 4:**




**Map showing sites: No 1. Portstewart Road, Coleraine**

**No 11. University of Ulster - Coleraine**

# Appendix D: Traffic Information

## 1: TRAFFIC CENSUS 2005

All data has been provided by the Roads Service of the Department of the Environment.

### 1.Site location

| ROAD No. | Census Point No. | Location | Channel 1 | Channel 2 | Grid Ref. easting | Grid Ref. northing |
|---|---|---|---|---|---|---|
| A2 | 311 | Coleraine-Portstewart, North of B185 | To Coleraine | To Portstewart | 284272 | 434252 |
| A2 | 312 | Portrush-Portstewart, at Portrush | To Portrush | To Portstewart | 284124 | 439585 |
| A26 | 310 | Coleraine-Ballymoney, SE of ring road | To Coleraine | To Ballymoney | 287079 | 430909 |
| A29 | 308 | Coleraine-Limavady, at Fernlester | To Coleraine | From Coleraine | 283679 | 430184 |
| A29 | 309 | Coleraine-Garvagh, South of B66 | To Coleraine | To Garvagh | 284700 | 419770 |
| A29 | 313 | Portrush- Ballysally roundabout | To Portrush | From Portrush | 285247 | 435562 |
| A29 | 320 | Coleraine Ring Road | To Limavady | From Limavady | 285153 | 431499 |
| A29 | 322 | Coleraine Ring Road between A26-B67 | To Limavady | From Limavady | 286476 | 432478 |
| A29 | 323 | Coleraine Ring Road between B67-B17 | To Limavady | From Limavady | 286582 | 432856 |
| A29 | 324 | Coleraine Ring Road between B17-A29 | To Limavady | From Limavady | 286082 | 434049 |
| A29 | 325 | Coleraine Ring Road between A29-B185 | To Portstewart | From Portstewart | 285080 | 435171 |
| A37 | 307 | Coleraine-Limavady, at Dunderg | To Coleraine | From Coleraine | 283371 | 429646 |
| A54 | 321 | Coleraine-Kilrea, South of A29 | To Coleraine | From Coleraine | 285114 | 430494 |
| A54 | 329 | Kilrea-Coleraine, at Kilrea | To Kilrea | To Kilrea | 292503 | 413276 |
| B185 | 326 | Coleraine-Portstewart, North of A29 | To Coleraine | To Portstewart | 283688 | 437401 |
| B64 | 330 | Garvagh Road-Kilrea | To Kilrea | From Garvagh | 292172 | 412596 |

## 2: GENERAL TRAFFIC FLOW DATA

| ROAD No. | Census Point No. | Location | 24 Hour AADT | Mean Peak hour (hour beginning) Am | Pm | HGV % |
|---|---|---|---|---|---|---|
| A2 | 311 | Coleraine-Portstewart, North of B185 | 6,860 | 430 (8) | 550 (16) | 2.82 |
| A2 | 312 | Portrush-Portstewart, at Portrush | 3,320 | 200 (11) | 290 (15) | 3.67 |
| A26 | 310 | Coleraine-Ballymoney, SE of ring road | 17,500 | 1550 (8) | 1620 (17) | 4.92 |
| A29 | 308 | Coleraine-Limavady, at Fernlester | 16,680 | 1510 (8) | 1620 (17) | 7.04 |
| A29 | 309 | Coleraine-Garvagh, South of B66 | 5,170 | 470 (8) | 520 (17) | 6.33 |
| A29 | 313 | Portrush- Ballysally roundabout | 9,470 | 650 (8) | 780 (17) | 3.20 |
| A29 | 320 | Coleraine Ring Road | 29,370 | 2720 (8) | 2890 (17) | 3.69 |
| A29 | 322 | Coleraine Ring Road between A26-B67 | 22,250 | 1700 (8) | 2010 (16) | 4.04 |
| A29 | 323 | Coleraine Ring Road between B67-B17 | 16,940 | 1340 (8) | 1540 (15) | 4.37 |
| A29 | 324 | Coleraine Ring Road between B17-A29 | 11,450 | 960 (8) | 1030 (16) | 2.96 |
| A29 | 325 | Coleraine Ring Road between A29-B185 | 6,550 | 530 (8) | 570 (16) | 2.58 |
| A37 | 307 | Coleraine-Limavady, at Dunderg | 12,370 | 1140 (8) | 1210 (17) | 9.54 |
| A54 | 321 | Coleraine-Kilrea, South of A29 | 5,850 | 540 (8) | 510 (16) | 6.22 |
| A54 | 329 | Kilrea-Coleraine, at Kilrea | 3,000 | 260 (8) | 300 (17) | 4.12 |
| B185 | 326 | Coleraine-Portstewart, North of A29 | 6,550 | 530 (8) | 570 (16) | 2.66 |
| B64 | 330 | Garvagh Road-Kilrea | 7,020 | 510 (8) | 660 (17) | 3.27 |

Roads greater than 10,000 vehicles per day

### 3: DIRECTIONAL TRAFFIC FLOW DATA

| Road No. | Census Point no. | Annual Average traffic Flow | | | | | |
|---|---|---|---|---|---|---|---|
| | | 24 Hour 5 Day | | | 24 Hour 7 day | | |
| | | Ch. 1 | Ch. 2 | Total | Ch. 1 | Ch. 2 | Total |
| A2 | 311 | 3430 | 3310 | 6740 | 3460 | 3400 | 6860 |
| A2 | 312 | 1610 | 1570 | 3180 | 1690 | 1640 | 3320 |
| A26 | 310 | 9250 | 9320 | 18570 | 8670 | 8830 | 17500 |
| A29 | 308 | 8600 | 9060 | 17660 | 8110 | 8570 | 16680 |
| A29 | 309 | 2680 | 2690 | 5370 | 2580 | 2590 | 5170 |
| A29 | 313 | 4710 | 4510 | 9220 | 4810 | 4660 | 9470 |
| A29 | 320 | 16790 | 14420 | 31210 | 15780 | 13600 | 29370 |
| A29 | 322 | 11380 | 12180 | 23560 | 10730 | 11520 | 22250 |
| A29 | 323 | 8650 | 9430 | 18080 | 8050 | 8880 | 16940 |
| A29 | 324 | 6230 | 5700 | 11930 | 5960 | 5490 | 11450 |
| A29 | 325 | 3310 | 3440 | 6750 | 3210 | 3340 | 6550 |
| A37 | 307 | 6790 | 6460 | 13250 | 6340 | 6030 | 12370 |
| A54 | 321 | 3090 | 3160 | 6250 | 2880 | 2970 | 5850 |
| A54 | 329 | 1540 | 1600 | 3140 | 1460 | 1540 | 3000 |
| B185 | 326 | 3310 | 3440 | 6750 | 3210 | 3340 | 6550 |
| B64 | 330 | 3750 | 3680 | 7430 | 3540 | 3480 | 7020 |

[redacted]

### 4: COMPARISON OF ANNUAL AVERAGE DAILY TRAFFIC FLOWS FROM 1999/2000 TO 2007

| Road No. | Census point No. | Average vehicle counts per day | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | % Increase '99/00 to '07 |
| A2 | 311 | - | 7290 | 7200 | 6640 | 5290 | 7290 | 6850 | 6860 | 6860 | -6.2 |
| A2 | 312 | - | 5860 | 5670 | 5670 | 6690 | 5180 | 5220 | 3480 | 3320 | -76.5 |
| A26 | 310 | 14630 | 14610 | 15060 | 14920 | 15670 | 15770 | 15600 | 17310 | 17500 | 16.4 |
| A29 | 308 | 15970 | 16110 | 15310 | 15710 | 17140 | 16070 | 16090 | 17400 | 16680 | 4.3 |
| A29 | 309 | 4470 | 4790 | 4520 | 4580 | 5080 | 4890 | 5050 | 5170 | 5170 | 13.5 |
| A29 | 313 | 7930 | - | 8289 | 8430 | 8490 | 8900 | 9670 | 9240 | 9470 | 16.3 |
| A29 | 320 | 25600 | - | 27135 | 26940 | 28040 | 28250 | 28370 | 27830 | 29370 | 12.9 |
| A29 | 322 | 19130 | 18960 | 19920 | 20600 | 20250 | 19830 | 20240 | 21450 | 22250 | 14 |
| A29 | 323 | 16260 | 15650 | 16730 | 17030 | 18730 | 17950 | 17490 | 17970 | 16940 | 4.1 |
| A29 | 324 | 10220 | 9540 | 10220 | 10770 | 10440 | 12370 | 11890 | 12290 | 11450 | 10.7 |
| A29 | 325 | 5880 | 5200 | 5570 | 5570 | 6290 | 5900 | 5920 | 6490 | 6550 | 10.2 |
| A37 | 307 | - | - | 10770 | 11180 | 11840 | 11990 | 11910 | 11880 | 12370 | 13 |
| A54 | 321 | 5630 | 4980 | 5660 | 5910 | 6010 | 6530 | 6730 | 6510 | 5850 | 3.8 |
| A54 | 329 | 2950 | 2950 | 2750 | 2840 | 2930 | 2940 | 3160 | 2960 | 3000 | 1.7 |
| B185 | 326 | 6400 | - | 6131 | 6090 | 6460 | 6440 | 6450 | 6730 | 6550 | 2.3 |
| B64 | 330 | - | 5901 | 6020 | - | 6620 | 6480 | 6840 | 6560 | 7020 | 15.9 |

# Appendix E: PART A & B AUTHORISED PROCESSES IN COLERAINE BOROUGH

| PPC No. | Site Operator Name | Site Address | Council Area | Section No. | Process Type | Determined |
|---|---|---|---|---|---|---|
| P0089/05A | Dairy Produce Packers Ltd | Millburn Road<br>COLERAINE<br>Co. Londonderry<br>BT52 1QZ | Coleraine BC | 6.8 | The Treatment of Animal and Vegetable Matter | Determined |
| P0104/05A | Ballyrashane Co-op | 18 Creamery Road<br>Cloyfin<br>COLERAINE<br>Co. Londonderry<br>BT52 2NE | Coleraine BC | 6.8 | The Treatment of Animal and Vegetable Matter | Determined |
| P0138/06A | Spanboard Products Ltd | 10 Curragh Road<br>Castleroe<br>COLERAINE<br>Co. Londonderry<br>BT51 3RY | Coleraine BC | 6.1 | Paper, Pulp and Board Manufacturing Activities | Determined |
| P0148/06A | Craigahullier Landfill Site | Craigahulliar Landfill<br>Ballymacrae Road<br>PORTRUSH<br>Co. Antrim<br>BT56 8NN | Coleraine BC | | | Determined |
| PPC0033/08B | Northstone (NI) Ltd | Croaghan Depot<br>Shinny Road<br>Macosquin<br>COLERAINE<br>Co. Londonderry<br>BT51 4PS | Coleraine BC | 3.5 | Other Mineral Activities | Determined |
| PPC0050/08B | Kennedy Concrete Products Ltd | 1 Letterloan Road<br>Macosquin<br>COLERAINE<br>Co. Londonderry<br>BT51 4PP | Coleraine BC | 3.1 | Production of Cement and Lime | Determined |
| PPC0054/08B | Craigall Quarry | Cullyrammer Road<br>Kilrea<br>COLERAINE<br>Co. Londonderry<br>BT51 | Coleraine BC | 3.5 | Other Mineral Activities | Determined |
| PPC0055/08B | B Mullan & Sons (Contractors) Ltd | Cam Quarry<br>19 Cam Road<br>Macosquin<br>COLERAINE<br>Co. Londonderry<br>BT51 4PX | Coleraine BC | 3.5 | Other Mineral Activities | Determined |
| PPC0067/08B | Ardverness Quarry | 1 Letterloan Road<br>Macosquin<br>COLERAINE<br>Co. Londonderry<br>BT51 4PP | Coleraine BC | 3.5 | Other Mineral Activities | Determined |
| PPC0098/08B | Letterloan Quarry | Letterloan Road<br>Macosquin<br>COLERAINE<br>Co. Londonderry<br>BT51 4PP | Coleraine BC | 3.1 | Production of Cement and Lime | Determined |
| PPC0133/08B | Conway Bros | Blackhill Quarries<br>129 Killeague Road<br>Blackhill<br>COLERAINE | Coleraine BC | 3.5 | Other Mineral Activities | Determined |
| PPC0191/08B | Crocknamolt Quarry | Ballyholme Road<br>PORTRUSH<br>Co. Antrim | Coleraine BC | 3.5 | Other Mineral Activities | Determined |
| PPC0232/08B | Whitemountain Quarries Ltd | 39 Cam Road<br>Macosquin<br>COLERAINE<br>Co. Londonderry<br>BT51 4PX | Coleraine BC | 3.5 | Other Mineral Activities | Determined |