2015 Air Quality Updating and Screening Assessment for Armagh City, Banbridge and Craigavon Borough Council

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In fulfillment of Environment (Northern Ireland) Order 2002 Local Air Quality Management

May 2015

Armagh City Banbridge & Craigavon Borough Council

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Report Reference number	ABCCouncilUSA2015
Date	April 2015

Executive Summary

Local air quality monitoring for a range of air-borne pollutants which are harmful to health has continued throughout 2014 using a network of passive diffusion tube and one monitoring station (Lonsdale Road, Armagh) which forms part of a UK National Network. Whilst air pollution can be caused by a variety of sources, of the pollutants monitored by the Council, it is nitrogen dioxide from traffic emissions that continues to be the most significant cause of concern. This Updating and Screening Assessment indicates that whilst air quality has not significantly worsened, no significant improvement has been made to the local air quality.

There were 27 monitoring locations within Armagh City, Banbridge and Craigavon Borough Council's area. The results demonstrate that there are 4 sites where nitrogen dioxide (NO_2) levels exceed the health-based objective limit of 40ug/m^3 (Greenpark Terrace, Railway Street and Mall West in Armagh and Mill Street in Tandragee). Of these sites, Greenpark Terrace and Railway Street/Mall West are within the 2 current statutorily-declared Air Quality Management Areas (AQMAs). Accordingly, based on the results for 2014, the air quality has not improved and the Council **will not** be revoking any of the current AQMAs. The fourth site is located at Mill Street in Tandragee which will now move to a detailed assessment phase in preparation for the declaration of a third AQMA within the Council's area.

Technical problems were experienced with the PM10 (particulate matter of a size less that 10 micrometres) monitor associated with the Lonsdale Road monitoring station throughout 2014 with the result that the data capture for this site was only 39% for 2014. This has been brought to the attention of the Department of the Environment NI who fund this UK National Network monitor as part of the Local Air Quality Management grant paid to Councils. Of the data gathered there were 134 exceedences of the 24 hour mean objective for PM10. These results are unusual for Lonsdale Road when compared against the results for previous years. However, no conclusions can be drawn from such a low data capture rate and as a result, Armagh City, Banbridge and Craigavon Borough Council consider the results from the PM_{10} monitor for the year 2014 as void. We await confirmation from the

Department of the Environment NI regarding funding repair, upgrade and on-going support for the PM10 monitoring equipment at the site.

This Updating and Screening Assessment of air pollution in the Armagh City, Banbridge and Craigavon Borough concludes that 1 detailed assessment is required for Nitrogen Dioxide at Mill Street in Tandragee. This process has already commenced.

The next step required by the Council is to submit a detailed assessment of Nitrogen Dioxide emissions at Mill Street in Tandragee. The completion of the detailed assessment is dependant upon on-going monitoring work and analysis but shall be completed no later than 30th April 2015.

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1 Introduction

1.1 Description of Local Authority Area

Armagh City, Banbridge and Craigavon Borough Council is a new Council in Northern Ireland which was established on 1st April 2015 under the Local Government Act (Northern Ireland) 2014. The new Council amalgamated Armagh City and District Council; Banbridge District Council; and Craigavon Borough Council. The Borough is a beautiful rural, historic area served by the main motorway network in Northern Ireland, with major road links to the business capitals of Belfast and Dublin. Armagh City. Banbridge and Craigavon Borough has a mixture of heavy industry, services such as local government, the local education authority, health and social services, retail and agriculture. The greatest contribution to air quality pollution in the Borough is from road traffic, particularly in the city/town centres of Armagh, Portadown and Lurgan where the road network is frequently congested. Given the size of the rural hinterland, public transport options are limited and there is a greater tendency to rely on the private car as the primary means of transport. The road network within the Borough is regarded as a route hub to the border with the Republic Of Ireland and is a main through-route between mid-Ulster and the south-east of Northern Ireland and hence has a traffic flow higher than that which could be created by local traffic alone. Particulate Matter (PM_{10}) and NO_2 would be considered as the pollutants most at risk of breaching the objective limits in the Borough as a result of road traffic.

Domestic fuel usage throughout the Borough has historically been based on solid fuel/oil with limited use of gas. As within the province generally, the use of coal is declining although a trend of secondary or primary heating using wood or multi-fuel burning stoves is apparent giving rise to additional air quality concerns.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

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 micrograms 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 LAQM 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

Table 1.2 Previous Reviews and Assessments completed by Armagh City and District Council; Banbridge District Council; and Craigavon Borough Council

Report Type	Date	Exceedences	Detailed Assessment Required	AQMA's Declared
Initial Review and Assessment	Jan 2001	None	No	None
Progress Report	April 2005	None	No	None
Updating & Screening Assessment	April 2006	None	No	None
Progress Report	April 2007	None	No	None
Detailed Assessment for NO_2	Nov 2007	None	No	None
Progress Report	April 2008	NO_2	No	Yes
Updating & Screening Assessment	April 2009	NO_2	No	In the previous year
Progress Report	May 2010	NO_2	Yes	None
Progress Report	May 2011	NO_2	No	Yes
Updating & Screening Assessment	April 2012	NO_2	No	No
Progress Report	April 2013	NO_2	No	No
Progress Report	April 2014	NO_2	No	No

Figure 1.1 Map of AQMA Boundaries (if applicable)

See Appendix D

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Armagh City, Banbridge and Craigavon Borough Council has one automatic monitoring station located in the Borough. This is at Lonsdale Road in Armagh City and monitors PM_{10} and NO_2 emissions. (This site is also a co-location site for NO_2 diffusion tubes). In September 2010 the PM10 analyser was upgraded to FDMS standard. In February 2012, Defra and Bureau Veritas approved an upgrade to the NO2 automatic analyser. The new analyser was installed by Casella engineers in March 2012.

Calibrations are carried out on a fortnightly basis and are completed by the Council's Local Air Quality Management Officer under an annual contract from Bureau Veritas. Site audits are completed twice per year by AEAT on behalf of Defra.

The Council also had a maintenance contracts with Enviro Technology Plc and SupportingU Ltd for twice yearly inspections of the monitoring equipment and also facilitate 24 call outs for emergency maintenance. These contracts have currently ended and we await confirmation from the Department of the Environment as to their future requirements and grant support.

Data from the automatic analysers is downloaded via modem by AEAT and Bureau Veritas. AEAT has responsibility for the management of the emissions data recorded by the monitors and they also complete all validation and ratification procedures.

Figure 2.1 Map(s) of Automatic Monitoring Sites (if applicable)

See Appendix C

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS GridRef	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
Lonsdale Road, Armagh	Roadside	-	-	PM_{10} & NO_2	Y	FDMS (PM_{10})	Y (2m)	3m	Y

2.1.2 Non-Automatic Monitoring Sites

During 2014 Armagh City, Banbridge and Craigavon Borough Council carried out monitoring of NO_2 with diffusion tubes at 26 sites within the Borough. The NO_2 diffusion tubes were prepared and analysed by Harwell Scientifics Limited. The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in Acetone. Analysis is carried out using a colorimetric technique.

One site at Lonsdale Road is co-located with an automatic NO_2 analyser. Details of the monitoring sites are given in Table 2.2.

Figure 2.2 Map (s) of Non-Automatic Monitoring Sites (if applicable)

See Appendix C

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?
Lonsdale Road (x3)	Roadside	-	NO_2	Y	Y (20m)	3m	Y
Mallview Terrace (x3)	Roadside	-	NO_2	Y	Y(<1m)	4m	Y
Barrack St	Roadside	-	NO_2	Y	Y(<1m)	2m	Y
Desart Lane	Urban Background	-	NO_2	N	Y(10m)	2m	Y
Greenfield Way	Urban Background	-	NO_2	N	Y(10m)	1.5m	Y
1 Green Park Terrace	Roadside	-	NO_2	Y	Y(<1m)	2.5m	N
Railway Street	Roadside	-	NO2	Y	Y(<1m)	2m	Y
Tandragee	Roadside	-	NO2	N	Y(<1m)	4.5m	Y
Markethill	Roadside	-	NO2	N	Y(<1m)	2m	Y
Keady	Roadside	-	NO2	N	Y(<1m)	2m	Y
Middletown	Roadside	-	NO2	N	Y(<1m)	3m	Y
Hamiltonsbawn	Roadside	-	NO2	N	Y(<1m)	1m	Y
Ashgrove Community Centre	Urban Background	-	NO2	Y	Y(<1m)	15M	N
Lurgan Road (x3)	Roadside	-	NO2	Y	Y(<1m)	2m	Y
Ardboe Drive	Urban Background	-	NO2	N	Y(<1m)	15m	N
Ballyhannon Road	Urban Background	-	NO2	N	Y(4m)	10m	N
Magheralin (x3)	Roadside	-	NO2	N	Y(<1m)	3m	Y
Flush Place (x3)	Roadside	-	NO2	Y	Y(<1m)	2m	Y
Dollingstown	Roadside	-	NO2	N	Y(<1m)	2m	Y
Mill St. Gilford	Roadside	-	NO2	N	Y(<1m)	2m	Y
Scarva	Roadside	-	NO2	N	Y(<1m)	2m	Y
Loughbrickland	Roadside	-	NO2	N	Y(<1m)	2m	Y
Rathfriland	Roadside	-	NO2	N	Y(<1m)	2m	Y
Church St Dromore	Roadside	-	NO2	N	Y(<1m)	2m	Y
Fortfield Dromore	Urban Background	-	NO2	N	Y(13m)	13m	N
Springfields Banbridge	Background	-	NO2	N	Y(15m)	<1m	N

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

The NO_2 monitoring site is located at Lonsdale Road in Armagh City. The site is on a main road which passes through the centre of Armagh. The inlet of the NO_2 monitor is located approx 3m from the kerbside. The nearest relevant exposure is approx 15-20 metres from the sampling site. Whilst monitoring results for this location have never exceeded the objective levels for NO2, the site is included within an AQMA as it is located between two other locations that have exceeded the objective limits. Lonsdale Road is joined at both ends by Railway Street and Mall West and therefore the action plan required to address these other AQMA areas would inevitably need to incorporate Lonsdale Road. The data capture for this site was 75% for 2014 and the NO_2 annual average is 28 µg m^{-3}.

Automatic Monitoring Data

See Tables 2.3 & 2.4 below.

Table 2.3 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Annual Mean Concentration μg/m³				
					2010	2011	2012	2013	2014
Lonsdale Road	Roadside	Y	100	75	26	26	27	27	28

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.
*Annual mean concentrations for previous years are optional.

Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Number of Exceedences of Hourly Mean (200 μg/m³)				
					2010	2011	2012	2013	2014
Lonsdale Road	Roadside	Y	100	75	0	0	0	0	0

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)
[c] If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets
*Number of exceedences for previous years are optional.

Diffusion Tube Monitoring Data

During 2014 Armagh City, Banbridge and Craigavon Borough Council carried out monitoring of NO_2 with diffusion tubes at 26 sites within the borough.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in Armagh 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.81
								2014 (μg/m^3)
1	Lonsdale Road (x3)	Roadside	Y	Triplicate and Collocated	100%	N/A	Y	32
2	Mall West (x3)	Roadside	Y	Triplicate	100%	N/A	Y	41
3	Barrack St	Roadside	Y	-	100%	N/A	Y	34
4	Desart Lane	Urban Background	N	-	100%	N/A	Y	12
5	Greenfield Way	Urban Background	N	-	100%	N/A	Y	11
6	Greenpark Terrace	Roadside	Y	Triplicate	100%	N/A	Y	44
7	Railway Street	Roadside	Y	Triplicate	100%	N/A	Y	47
8	Tandragee	Roadside	N	-	100%	N/A	Y	42
9	Markethill	Roadside	N	-	100%	N/A	Y	13
10	Keady	Roadside	N	-	83%	N/A	Y	30
11	Middletown	Roadside	N	-	83%	N/A	Y	18
12	Hamiltonsbawn	Roadside	N	-	100%	N/A	Y	13

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes in Armagh (2010 to 2014)

Site ID	Site Type	Within AQMA ?	Annual mean concentration (adjusted for bias) μg/m³				
			2010* (Bias Adjustment Factor = 0.81	2011 (Bias Adjustment Factor = 0.84	2012 (Bias Adjustment Factor = 0.79	2013 (Bias Adjustment Factor = 0.80	2014 (Bias Adjustment Factor = 0.81
Lonsdale Road (x3)	Roadside	Y	32	30	31	32	32
Mallview Terrace (x3)	Roadside	Y	**42**	**43**	**40**	**40**	**41**
1 Barrack St	Roadside	Y	36	36	35	35	34
11 Desert Lane	Background	N	14	13	13	13	12
19 Folly Lane	Background	N	15	13	8**	-	-
1 Green Park Terrace	Roadside	Y	**54**	**49**	**48**	**46**	**44**
80 Railway Street	Roadside	Y	**46**	**50**	**44**	**48**	**47**
20 Victoria St	Roadside	N	32	28	28	27	-
3 Barrack Hill	Roadside	N	32	32	30	27	-
Abbey Street	Roadside	N	-	33	35	34	-
Cathedral Terrace	Roadside	N	23	21	23	23	-
Dawson Street	Roadside	N	34	23	20	21	-
Tandragee	Roadside	N	-	-	-	-	42
Markethill	Roadside	N	-	-	-	-	13
Keady	Roadside	N	-	-	-	-	30
Middletown	Roadside	N	-	-	-	-	18
Hamiltonsbawn	Roadside	N	-	-	-	-	13
Greenfield Way	Background	N	-	-	-	-	11

Table 2.7 Results of Nitrogen Dioxide Diffusion Tubes in Banbridge 2014

Location	Within AQMA?	Data Capture for full calendar year 2014 %	Data Capture for monitoring period %	Annual mean concentrations
				2014 (μg/m³) Adjusted for bias
Church Street, Dromore	N	100	100	25
Mill St, Gilford	N	100	100	34
9 Fortfield, Dromore	N	100	100	11
17 Springfields	N	100	100	12
Scarva	N	100	100	18
Loughbrickland	N	100	100	18
Rathfriland	N	100	100	26

Table 2.8 Results of Nitrogen Dioxide Diffusion Tubes in Banbridge (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (μg/m³) - Adjusted for Bias [a]				
			2010 (Bias Factor 0.95)	2011 (Bias Factor 0.84)	2012 (Bias Factor 0.79)	2013 (Bias Factor 0.80)	2014 (Bias Factor 0.81)
Church Street	Roadside	N	39	30	29	25	25
Kenlis Street	Roadside	N	38	32	33	30	-
Mill St, Gilford	Roadside	N	38	30	34	32	34
9 Fortfield	Background	N	17	11	11	11	11
17 Springfields	Background	N	15	12	11	13	12
Dromore Street	Roadside	N	32	30	29	28	-
Newry Road	Roadside	N	-	26	29	25	-
Scarva	Roadside	N	-	-	-	-	18
Loughbrickland	Roadside	N	-	-	-	-	18
Rathfriland	Roadside	N	-	-	-	-	26

Table 2.9 Results of Nitrogen Dioxide Diffusion Tubes in Craigavon 2014

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2014%	Data Capture for monitoring period %	Annual mean concentrations 2014 (μg/m³) Adjusted for bias (0.81)
1	Ardboe Drive, Lurgan	N	100	100	9
2	Ballyhannon Road, Portadown	N	100	100	9
3	Ashgrove Community Centre, Portadown	N	92	100	12
4	Bridge Street, Portadown	N	100	100	35
5	Queen Street, Lurgan	N	100	100	-
6	Flush Place, Lurgan	N	100	100	38
7	Lough Road, Lurgan	N	100	100	-
8	Magheralin	N	100	100	22
9	Dollingstown	N	100	100	21

Table 2.10 Results of Nitrogen Dioxide Diffusion Tubes in Craigavon (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (μg/m³) - Adjusted for Bias [a]				
			2010 (Bias Factor 1.02)	2011 (Bias Factor 0.84)	2012 (Bias Factor 0.79)	2013 (Bias Factor 0.80)	2014 (Bias Factor 0.81)
Ardboe Drive, Lurgan	Roadside	N	14	9	10	10	9
Ballyhannon Rd, Portadown	Roadside	N	13	7	9	9	9
Ashgrove Community Centre, Portadown	Roadside	N	15	11	12	12	12
Bridge Street, Portadown	Background	Y	**43**	34	39	38	35
Queen St, Lurgan	Background	Y	39	21	30	30	-
Flush Place (King St), Lurgan	Roadside	Y	**41**	36	39	36	38
Lough Rd, Lurgan	Roadside	N	35	34	36	35	-
Magheralin	Roadside	N	-	-	-	-	22
Dollingstown	Roadside	N	-	-	-	-	21

Figure 2.1 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites in Armagh

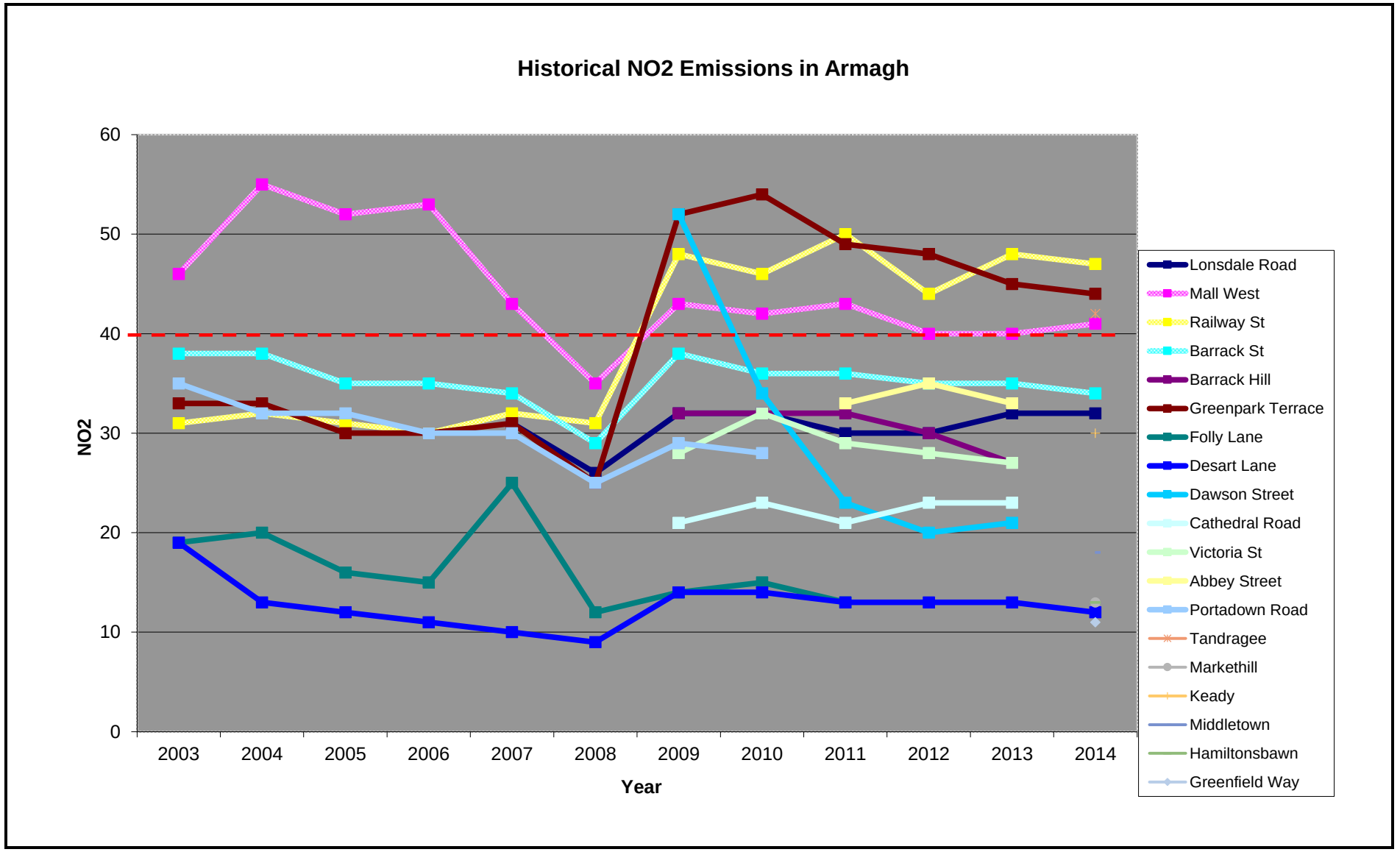


Figure 2.2 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites in Banbridge

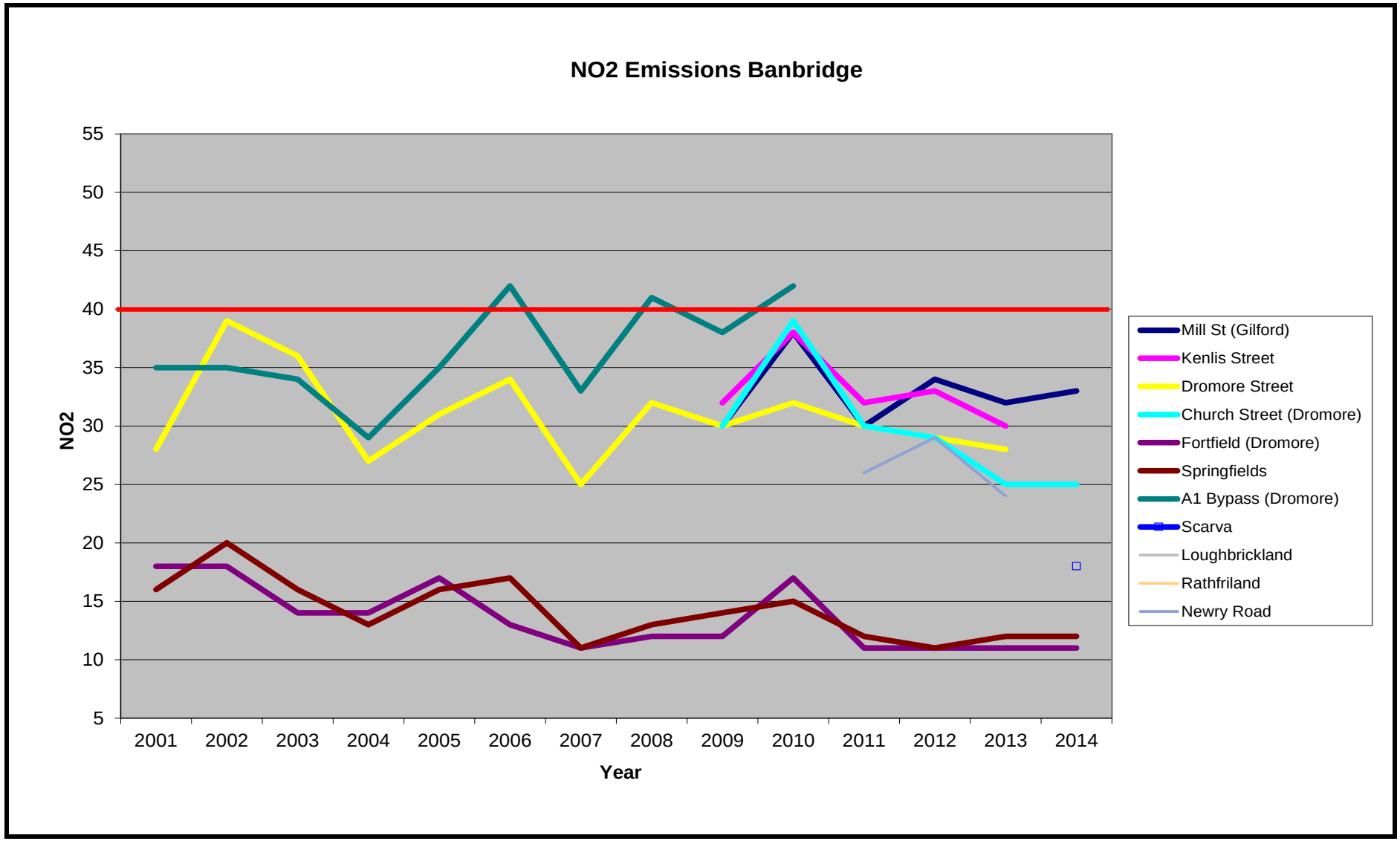
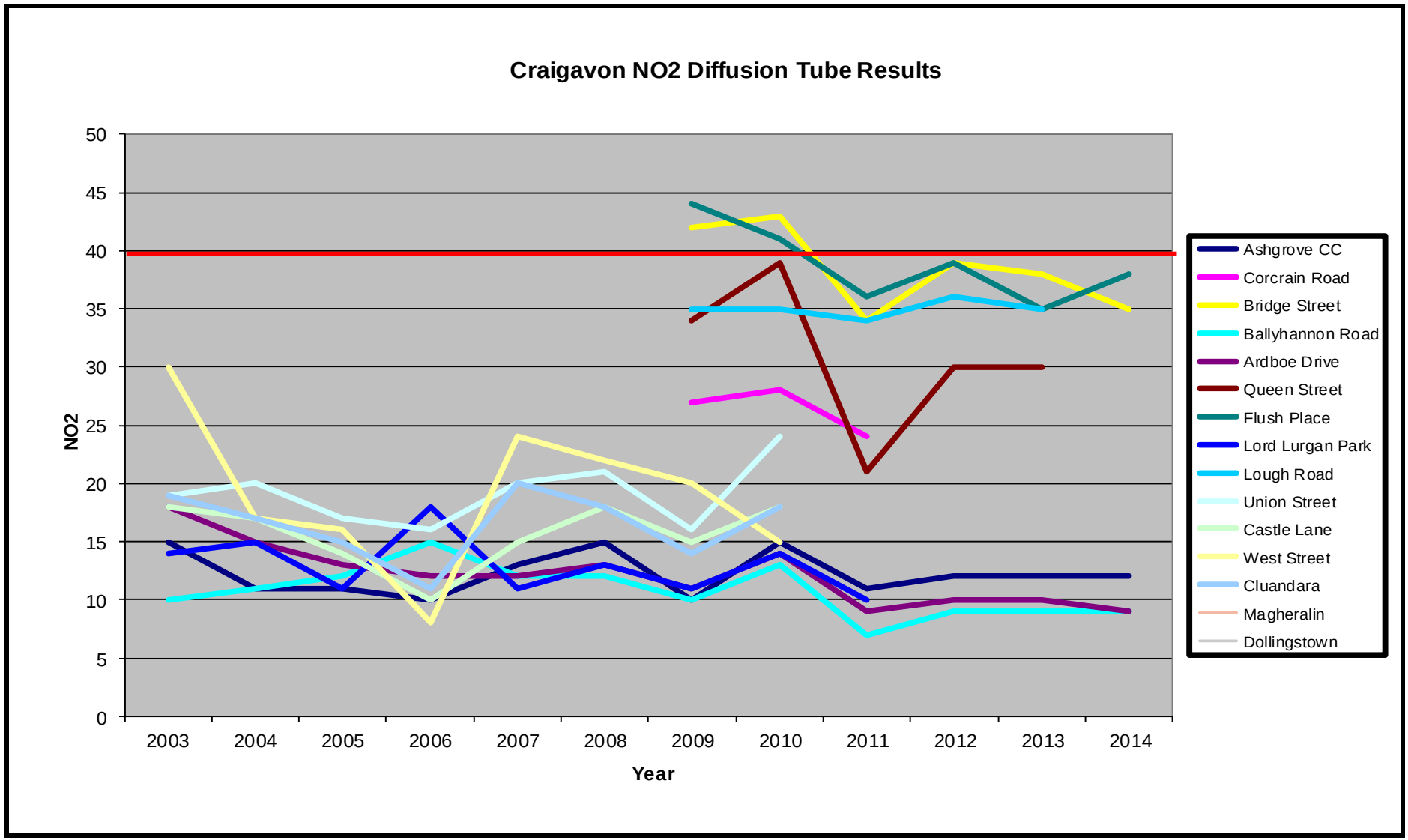


Figure 2.3 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites in Craigavon



2.2.2 PM_{10}

The PM_{10} monitoring site is located at Lonsdale Road in Armagh City. The site is on a main road which passes through the centre of Armagh. The inlet of the PM_{10} monitor is located approx 3m from the kerbside. The nearest relevant exposure is approx 15-20 metres from the sampling site. The PM_{10} unit was upgraded to an FDMS inlet in September 2010. Whilst monitoring results for this location have never exceeded the objective levels for PM_{10}, the site is included within an AQMA as it is located between two other locations that have exceeded the objective limits. Lonsdale Road is joined at both ends by Railway Street and Mall West and therefore the action plan required to address these other AQMA areas needed to incorporate Lonsdale Road in to the AQMA. It must also be noted that the declaration of the AQMA was made as a result of NO_2 exceedences at Railway Street and Mall West. No AQMA has been declared for PM_{10} in Armagh at this date.

The PM_{10} annual average is **19 $\mu g\ m^{-3}$** However, the Council experienced technical problems with the PM10 monitor throughout 2014 to the extent that the data capture for this site was only 39% for 2014. In addition there were 134 exceedences of the 24 hour mean objective. These results are unusual for Lonsdale Road when compared against the results for previous years. During site visits to the automatic monitoring station the LSO reported a number of 'status warning light' indications and the council was advised of a continuing problem with 'dew point' readings which were affected the accuracy of the monitor readings. As a result, Armagh City, Banbridge and Craigavon Borough Council consider the results from the PM_{10} monitor for the year 2014 as void and is currently considering the possibility of upgrades to the PM10 monitoring equipment at the site.

Table 2.11 Results of Automatic Monitoring of PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration μg/m³				
						2010*[c]	2011*[c]	2012*[c]	2013*[c]	2014[c]
Lonsdale Road	Roadside	Y	100	39	Y	32	19	16	19	21

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

Table 2.8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2011 %[b]	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 μg/m³)				
						2010*	2011*	2012*	2013*	2014
Lonsdale Road	Roadside	Y	100	39	Y	15	1	8(27)	8(27)	134*

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)
[c] if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets
* Considered as 'Void' results by the Council

2.2.3 Sulphur Dioxide

Armagh City, Banbridge and Craigavon Borough Council is not required to monitor Sulphur Dioxide.

2.2.4 Benzene

Armagh City, Banbridge and Craigavon Borough Council is not required to monitor Benzene.

2.2.5 Other pollutants monitored

Armagh City, Banbridge and Craigavon Borough Council is not required to monitor any other pollutants.

2.2.6 Summary of Compliance with AQS Objectives

Armagh City, Banbridge and Craigavon Borough Council has examined the results from monitoring in the Borough. Concentrations outside of the AQMA are all below the objectives at relevant locations, except for the NO2 diffusion tube at Mill Street in Tandragee. Therefore the Council must proceed to a Detailed Assessment for NO2 at Mill Street, Tandragee.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

There have been no significant road building projects within the Borough since the previous rounds of review and assessment. The Department of Regional Development Roads Service / Transport NI has stated that due to the reduction in financial budgets it is unlikely to be funding the by-pass roads previously proposed to circumnavigate Armagh City in order to relieve traffic congestion and the burden of road traffic pollution. Furthermore Roads Service / Transport NI have committed to review proposals for a one-way gyratory system in Armagh.

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon 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.

Armagh City, Banbridge and Craigavon Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Armagh City, Banbridge and Craigavon Borough Council has assessed new/newly identified roads with significantly changed traffic flows, and concluded that it will not be necessary to proceed to a Detailed Assessment.

3.7 Bus and Coach Stations

Armagh City, Banbridge and Craigavon Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

There are no airports in the borough or in any of the neighbouring council areas. The closest Airport to the Borough is Belfast International Airport near the town of Antrim which is 27 miles directly north west of Armagh City. The airport is approximately 15 miles from the closest boundary point of the Borough.

Armagh City, Banbridge and Craigavon Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

There are 2 railway stations within the Armagh City, Banbridge and Craigavon Borough. These are located at Northway in Portadown and Lough Road in Lurgan and are serviced by diesel locomotives. These stations are stand-alone stations facilitating two tracks with platforms on each side (South Bound & East Bound). There are no signal stops, goods loops or depots within the Borough where trains may be stationary for approximately 3 to 5 minutes. No individuals are at risk of exposure to diesel emissions within 15m of the track (or outside the stations) for 15 minutes or longer. There are no railway stations in Banbridge or Armagh City.

4.2.1 Stationary Trains

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon 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)

There are no shipping ports within the Armagh City, Banbridge and Craigavon Borough Council area. The nearest port is at Warrenpoint in the Newry and Mourne District Council area which is 23 miles to the south east of Armagh and is approximately 14 miles from the nearest boundary with the Armagh City, Banbridge and Craigavon Borough Council.

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon 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

Armagh City, Banbridge and Craigavon Borough Council confirms that there are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Armagh City, Banbridge and Craigavon Borough Council confirms that confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Armagh City, Banbridge and Craigavon Borough Council confirms that confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Armagh City, Banbridge and Craigavon Borough Council confirms that confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Armagh City, Banbridge and Craigavon Borough Council confirms that confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

Armagh City, Banbridge and Craigavon Borough Council confirms that confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Armagh City, Banbridge and Craigavon Borough Council confirms that confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Monitoring at 26 locations within Armagh City, Banbridge and Craigavon Borough Council's area has demonstrated that there are 4 sites where NO_2 levels exceed the objective limit of 40ug/m^3. 3 of these sites are within current AQMA's and therefore, based on the results for 2014, the Council **will not** be revoking any of the current AQMA's.
1 site outside of the AQMA's exceeded the air quality objectives for Nitrogen Dioxide (NO2) at Mill Street in Tandragee.

The Council experienced technical problems with the PM10 monitor throughout 2014 to the extent that the data capture for this site was only 39% for 2014. In addition there were 134 exceedences of the 24 hour mean objective. These results are unusual for Lonsdale Road when compared against the results for previous years. During site visits to the automatic monitoring station the LSO reported a number of 'status warning light' indications and the council was advised of a continuing problem with 'dew point' readings which were affected the accuracy of the monitor readings. As a result, Armagh City, Banbridge and Craigavon Borough Council consider the results from the PM_{10} monitor for the year 2014 as void and is currently considering the possibility of upgrades to the PM10 monitoring equipment at the site.

8.2 Conclusions from Assessment of Sources

The greatest impact on air pollution at all sites monitored is from road traffic. Source apportionment derived from research completed during the current AQMA's demonstrated that road traffic accounts for over 85% of the pollution within the Armagh City, Banbridge and Craigavon Borough Council area. There are no other sources that contribute to such high levels of pollution in the borough, such as industry, agriculture or construction.

8.3 Proposed Actions

This Updating and Screening Assessment of air pollution in Armagh City, Banbridge and Craigavon Borough Council concludes that 1 detailed assessment is required for Nitrogen Dioxide (NO2) at Mill Street in Tandragee.

9 References

Local Air Quality Management Technical Guidance – LAQM.TG(09)

Appendices

Appendix A: QA/QC Data

Appendix B: Diffusion Tube Monitoring Maps 2014

Appendix C: Diffusion Tube Results in Armagh City and District, Banbridge District and Craigavon Borough 2014

Appendix D – Active AQMA Maps

Appendix A: QA:QC & Wasp Data

Factor from Local Co-location Studies (if available)

Due to various ground works being completed at the Lonsdale Road site during 2014, the Council opted not to use a bias factor derived from the co-located tubes at Lonsdale Road.

Diffusion Tube Bias Adjustment Factors

The NO_2 diffusion tubes were prepared and analysed by Harwell Scientifics from the beginning of January 2014. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. Harwell Scientifics diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Armagh City, Banbridge and Craigavon Borough Council obtained the appropriate bias factor from Defra's LAQM Website. A factor of 0.81 was taken from the drop down menus available on the excel spreadsheet matrix.

Discussion of Choice of Factor to Use

The Councilused a bias factor for 2014 (0.81) commensurate with practice in previous years.

PM Monitoring Adjustment

All data sets for PM10 monitoring during 2014 were provided by Bureau Veritas. All monitoring data contained within this report has been adjusted and ratified by Bureau Veritas.

Short-term to Long-term Data adjustment

N/A

QA/QC of automatic monitoring

The automatic monitoring site at Lonsdale Road is part of the AURN network of roadside sites. The AURN network is administered on behalf of DEFRA by Bureau Veritas. The QA/QC of data management is carried out by Bureau Veritas who visit the site to complete audits twice per year. Maintenance of the automatic monitoring equipment was carried out by SupportingU Ltd and Enviro Technology Ltd (ET) under contract from Southern Group Environmental Health Committee (SGEHC). SupportingU Ltd performed site audits twice per

year and are available for any urgent call outs with 24 hours' notice. Enviro Technology Ltd took over the maintenance requirement in the final quarter of 2014 when SupportingU Ltd went in to administration. SGEHC facilitated the management of the monitoring site on behalf of the 3 legacy Councils which now make up Armagh City, Banbridge and Craigavon Borough Council. Calibrations and minor maintenance werecompleted on a fortnightly basis by the local air quality management officer at SGEHC acting as a Local Site Operator (LSO) under contract from Bureau Veritas. We await the Department of the Environment NI's requirements on this arrangement.

QA/QC of diffusion tube monitoring

The Summary of Precision Results Nitrogen Dioxide Collocation Studies as displayed at Defra's website http://laqm.defra.gov.uk/documents/Tube_Precision_2014 (version 03/12) shows that Harwell Scientifics demonstrated good precision in 16 out of 16 collocation studies completed in 2014.

WASP Data

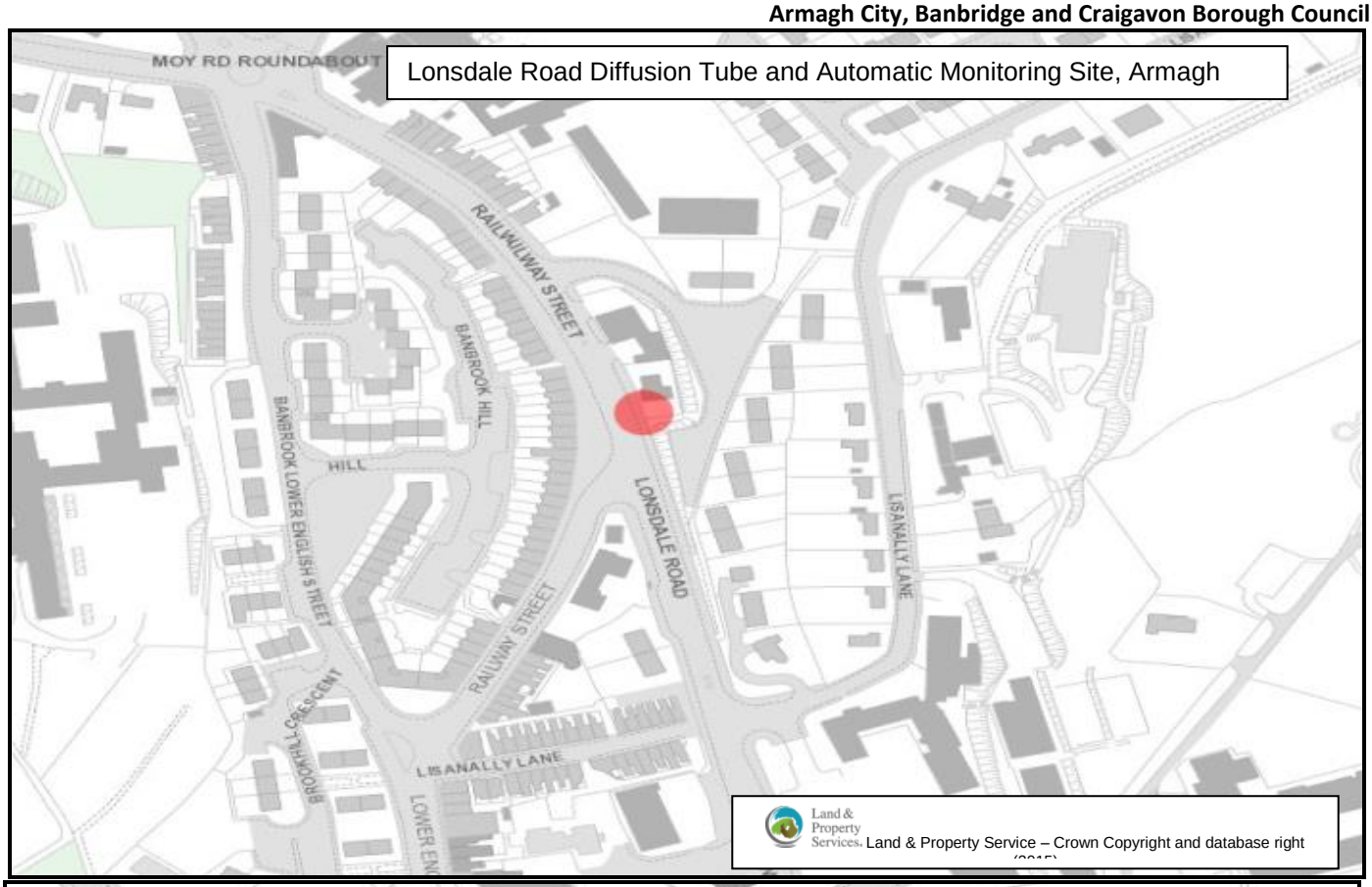
The 2014 WASP data for Harwell Scientifics (ESG) is contained in the table below.

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent WASP/AIR NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of ≤ ± 2 as defined above.

WASP Round	**WASP R121**	**WASP R122**	**WASP R123**	**WASP R124**	**AIR PT AR001**	**AIR PT AR003**	**AIR PT AR004**	**AIR PT AR006**
Round conducted in the period	April – June 2013	July – September 2013	October – December 2013	January – March 2014	April – May 2014	July – August 2014	October – November 2014	January – February 2015
Aberdeen Scientific Services	100 %	100 %	NR [2]	75 %	100 %	100 %	100 %	
Cardiff Scientific Services	100 %	100 %	100 %	100 %	NR [2]	NR [2]	NR [2]	
Edinburgh Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	
Environmental Services Group, Didcot [1]	100 %	100 %	100 %	??	100 %	100 %	100 %	
Exova (formerly Clyde Analytical)	NR [2]	NR [2]	NR [2]	50 %	NR [2]	NR [2]	NR [2]	
Glasgow Scientific Services	25 %	100 %	100 %	100 %	100 %	100 %	100 %	
Gradko International [1]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Kent Scientific Services	75 %	100 %	100 %	100 %	NR [2]	NR [2]	NR [2]	
Kirklees MBC	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Lambeth Scientific Services	0 %	50 %	75 %	25 %	50 %	100 %	100 %	
Milton Keynes Council	100 %	75 %	75 %	75 %	100 %	100 %	75 %	
Northampton Borough Council	100 %	100 %	100 %	100 %	100 %	0 %	0 %	
Somerset Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	
South Yorkshire Air Quality Samplers	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Staffordshire County Council	100 %	100 %	100 %	100 %	100 %	25 %	100%	
Tayside Scientific Services (formerly Dundee CC)	100 %	100 %	100 %	100 %	NR [2]	100 %	100 %	
West Yorkshire Analytical Services	100 %	50 %	100 %	75 %	75 %	100 %	75 %	

[1] Participant subscribed to two sets of test samples (2 x 4 test samples) in each WASP PT round.
[2] NR Not reported.

Appendix B: Diffusion Tube Monitoring Maps 2014


Lonsdale Road Diffusion Tube and Automatic Monitoring Site, Armagh
MOY RD ROUNDABOUT
RAILWAY STREET
BANBROOK HILL
BANBROOK LOWER ENGLISH STREET
HILL
LONSDALE ROAD
LISANALLY LANE
RAILWAY STREET
BROOMHILL CRESCENT
LISANALLY LANE
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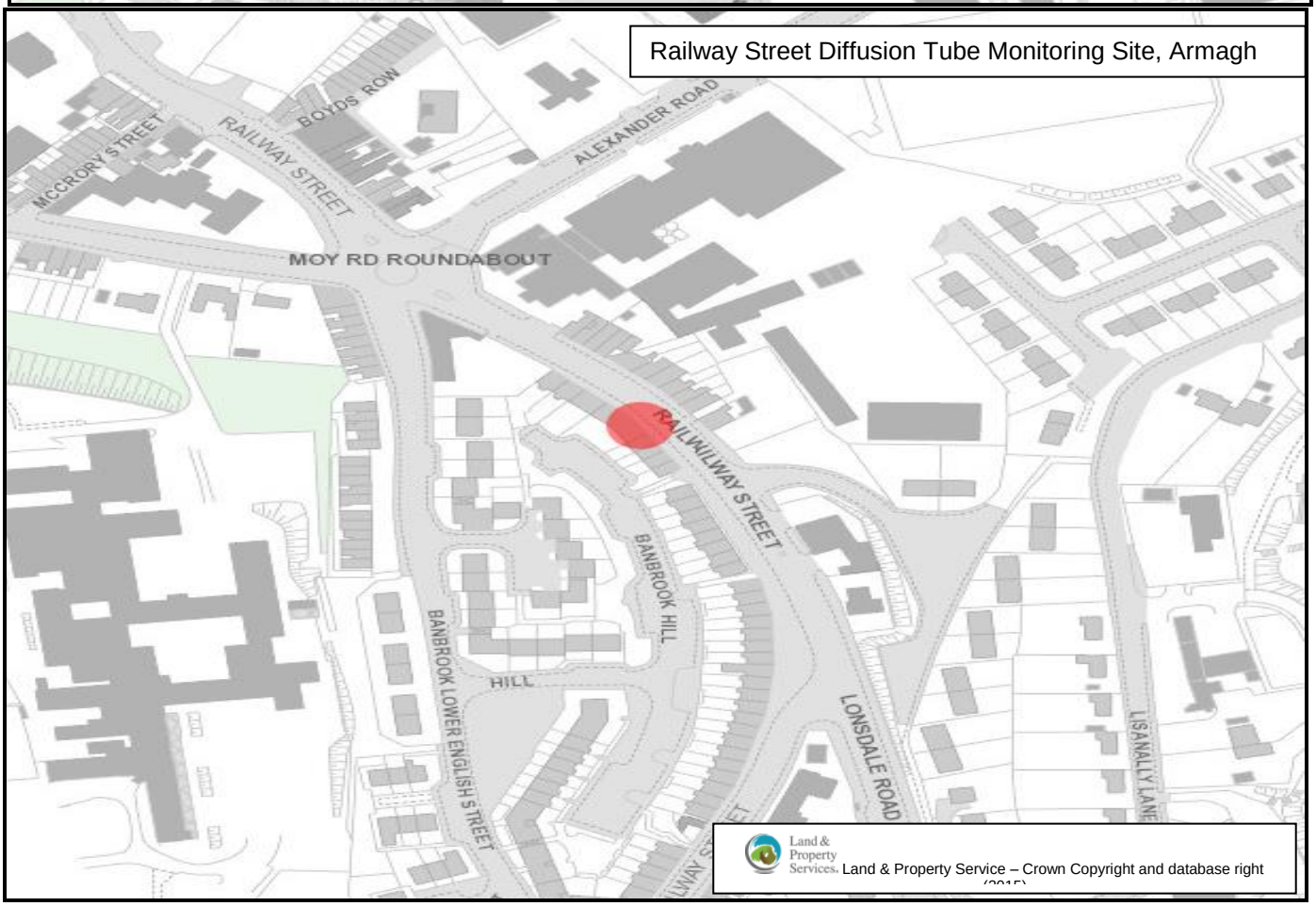
Railway Street Diffusion Tube Monitoring Site, Armagh
BOYDS ROW
ALEXANDER ROAD
MCCRORY STREET
RAILWAY STREET
MOY RD ROUNDABOUT
RAILWAY STREET
BANBROOK HILL
BANBROOK LOWER ENGLISH STREET
HILL
LONSDALE ROAD
LISANALLY LANE
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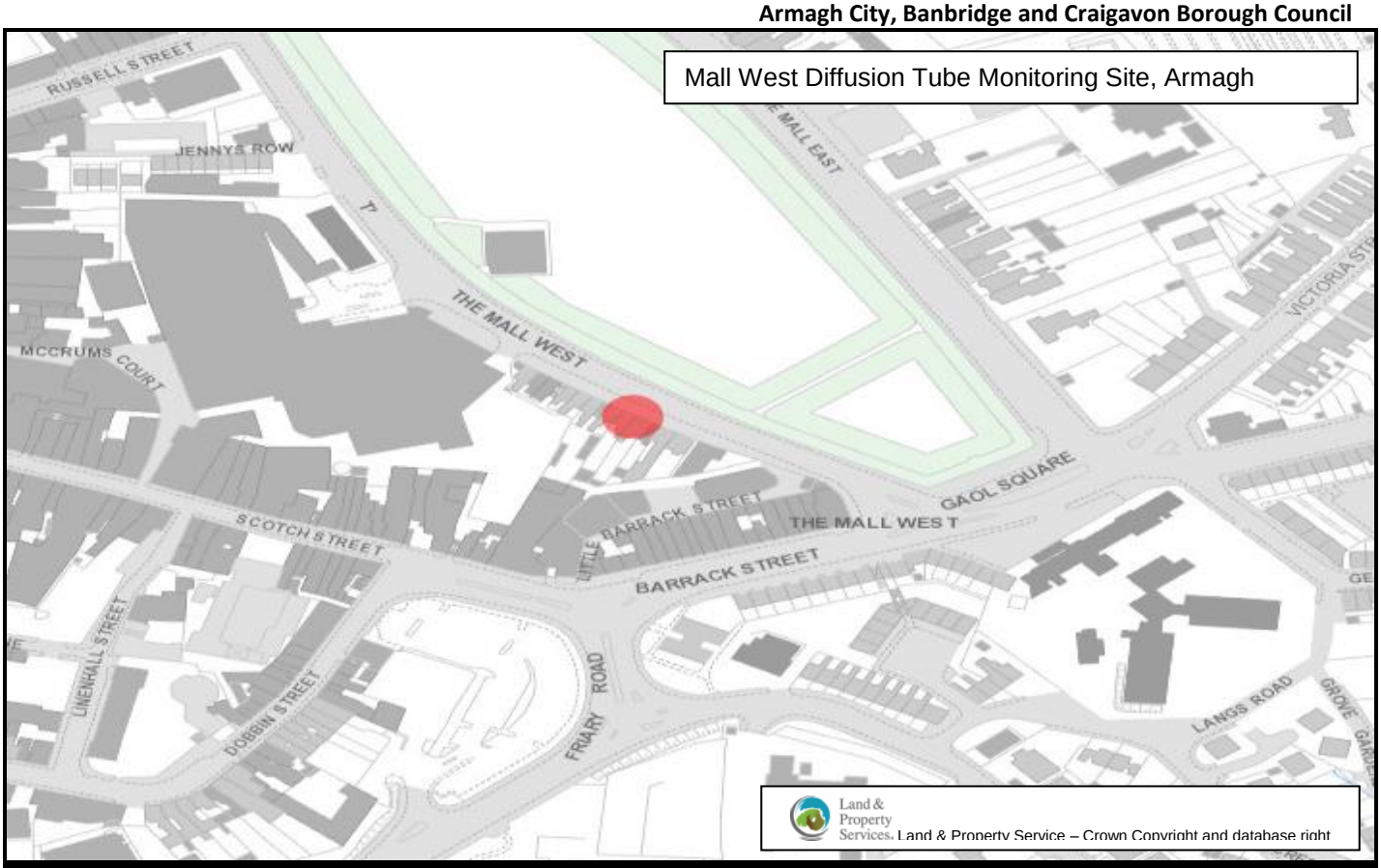
Mall West Diffusion Tube Monitoring Site, Armagh
RUSSELL STREET
JENNYS ROW
THE MALL WEST
MCCRUMS COURT
SCOTCH STREET
LITTLE BARRACK STREET
THE MALL WEST
GAOL SQUARE
BARRACK STREET
LINENHALL STREET
DOBBIN STREET
FRIARY ROAD
LANGS ROAD
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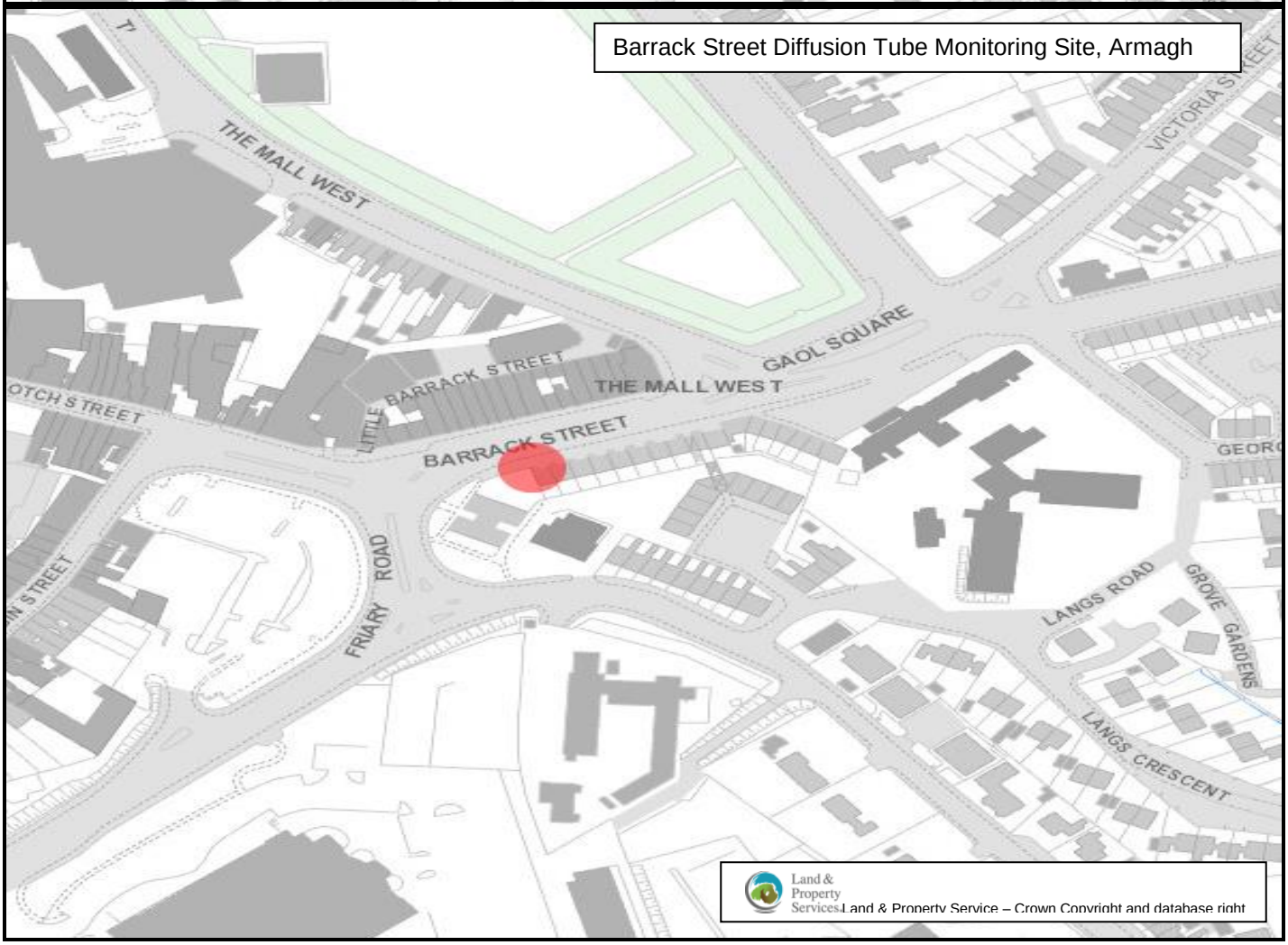
Barrack Street Diffusion Tube Monitoring Site, Armagh
THE MALL WEST
VICTORIA STREET
GAOL SQUARE
LITTLE BARRACK STREET
THE MALL WEST
BARRACK STREET
FRIARY ROAD
LANGS ROAD
GROVE GARDENS
LANGS CRESCENT
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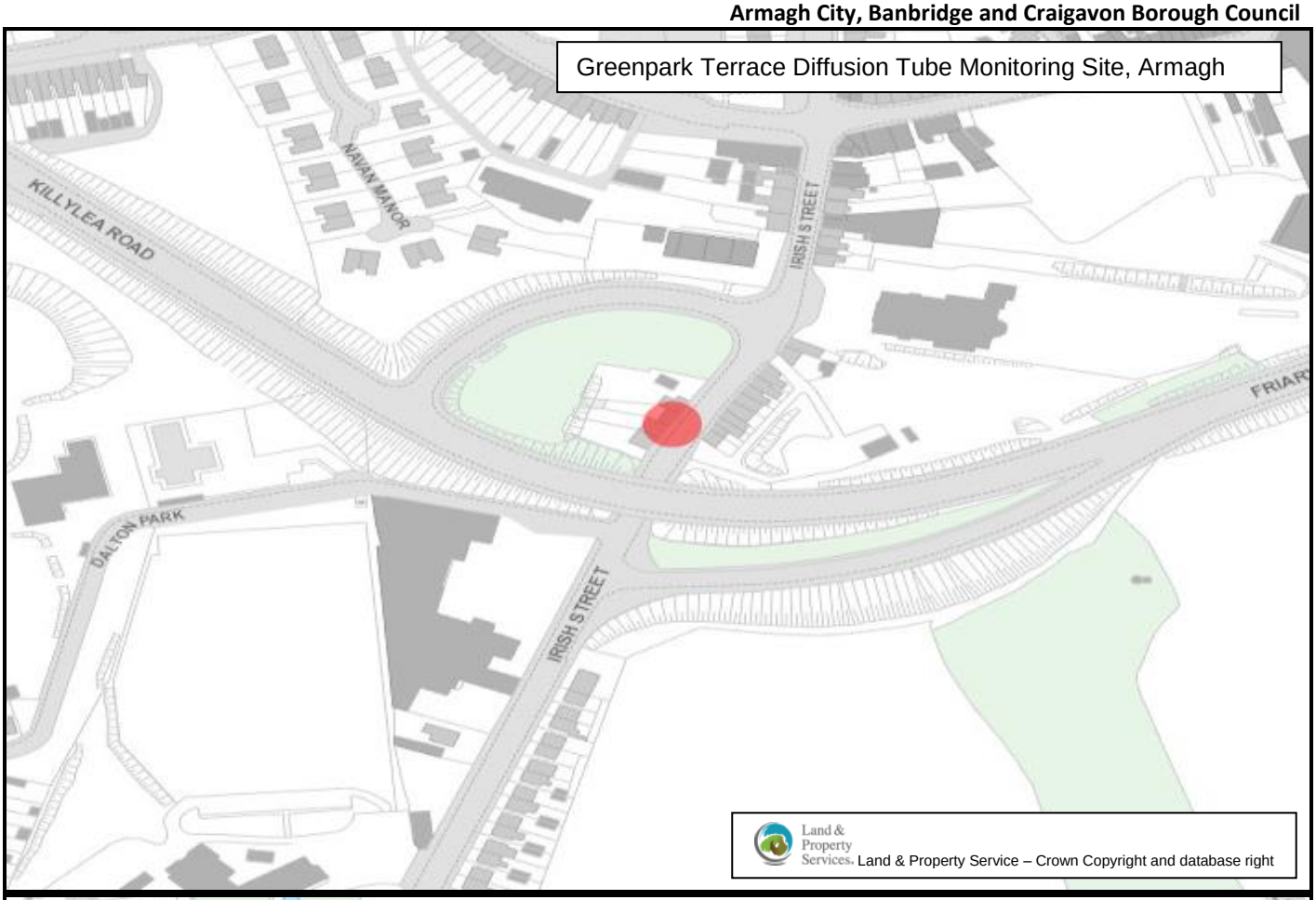
Greenpark Terrace Diffusion Tube Monitoring Site, Armagh
KILLYLEA ROAD
NAVAN MANOR
IRISH STREET
DALTON PARK
IRISH STREET
Land & Property Services. Land & Property Service – Crown Copyright and database right


Greenfield Way Diffusion Tube Monitoring Site, Armagh
GREENFIELD DRIVE
GREENFIELD WAY
GREENFIELD PARK
GREENFIELD COURT
ASHLEY PARK
THORNLEIGH
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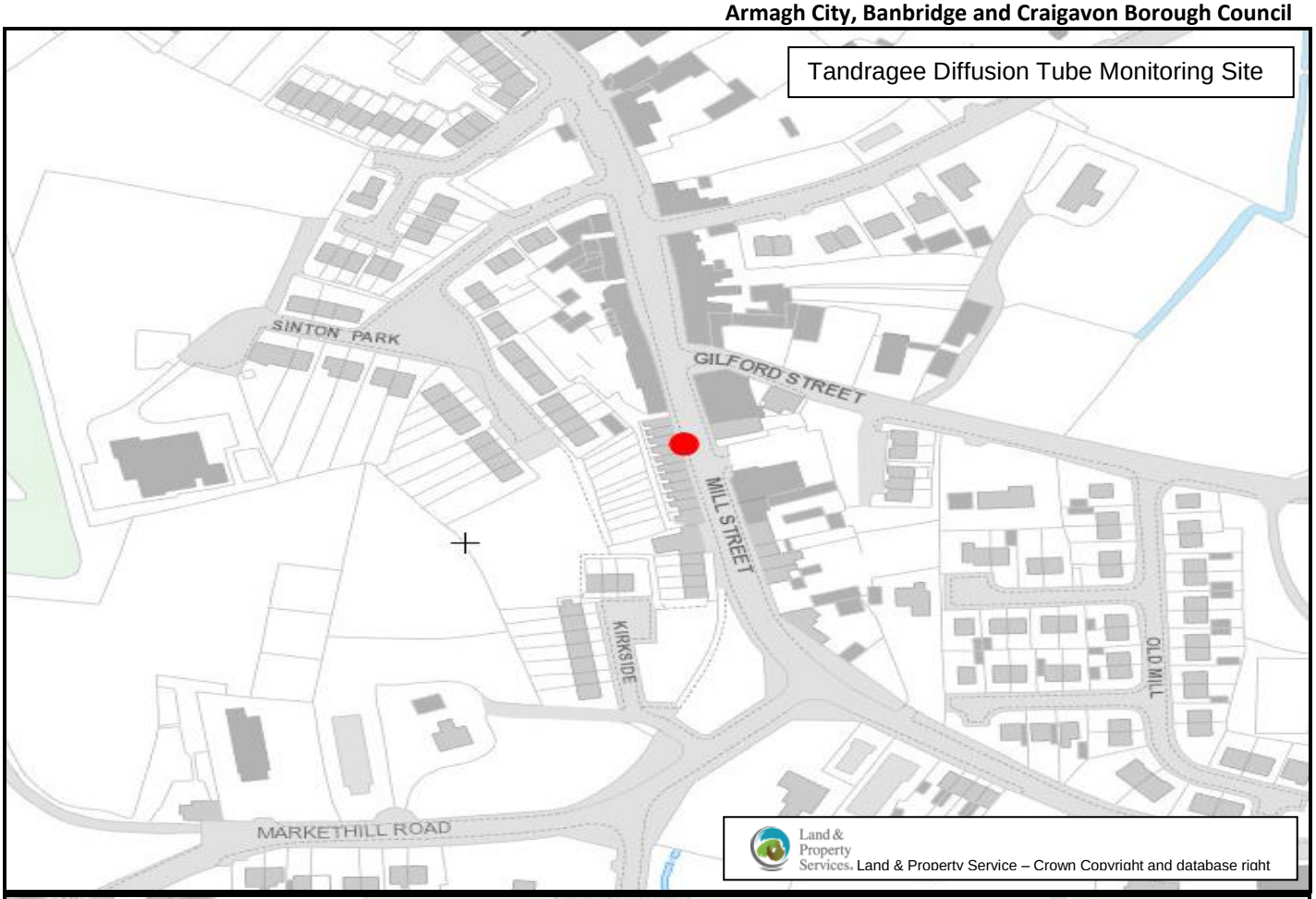
Tandragee Diffusion Tube Monitoring Site
SINTON PARK
GILFORD STREET
MILL STREET
KIRKSIDE
OLD MILL
MARKETHILL ROAD
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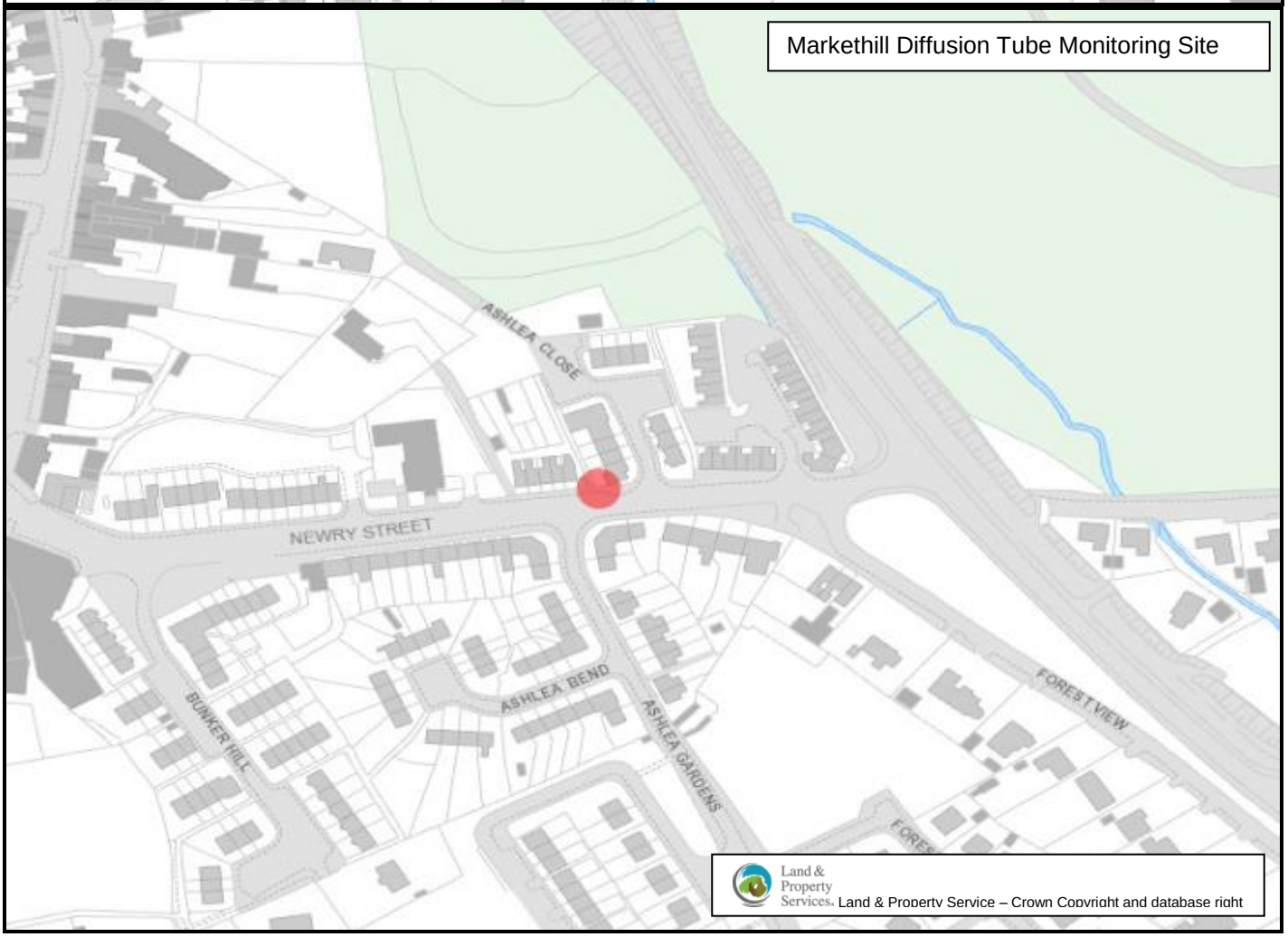
Markethill Diffusion Tube Monitoring Site
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NEWRY STREET
ASHLEA BEND
ASHLEA GARDENS
BUNKER HILL
FOREST VIEW
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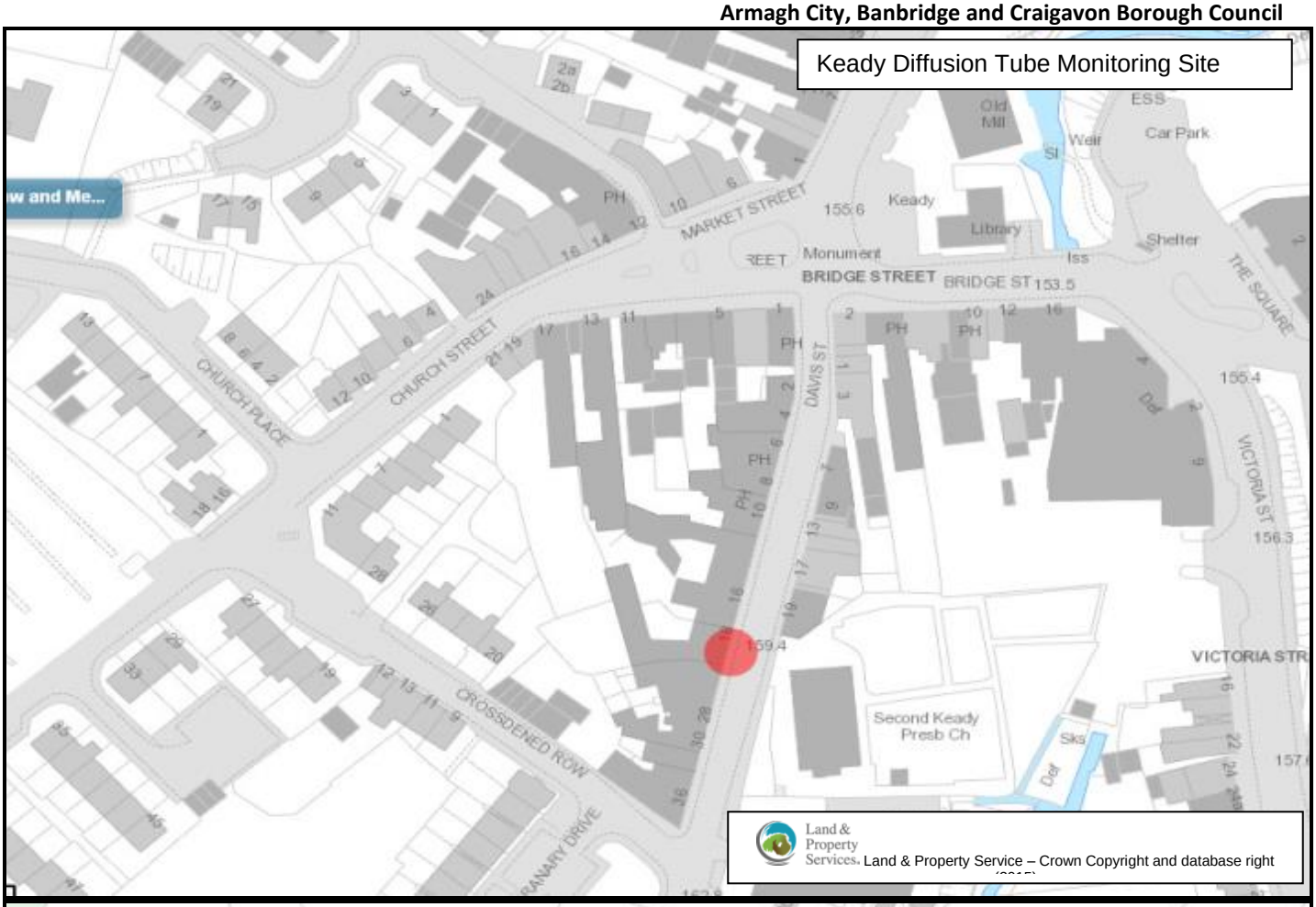
Keady Diffusion Tube Monitoring Site
MARKET STREET
BRIDGE STREET
CHURCH STREET
CHURCH PLACE
DAVIS ST
VICTORIA ST
VICTORIA STR
CROSSDENED ROW
Second Keady Presb Ch
Keady
Library
Monument
Car Park
Weir
Shelter
THE SQUARE
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156.3
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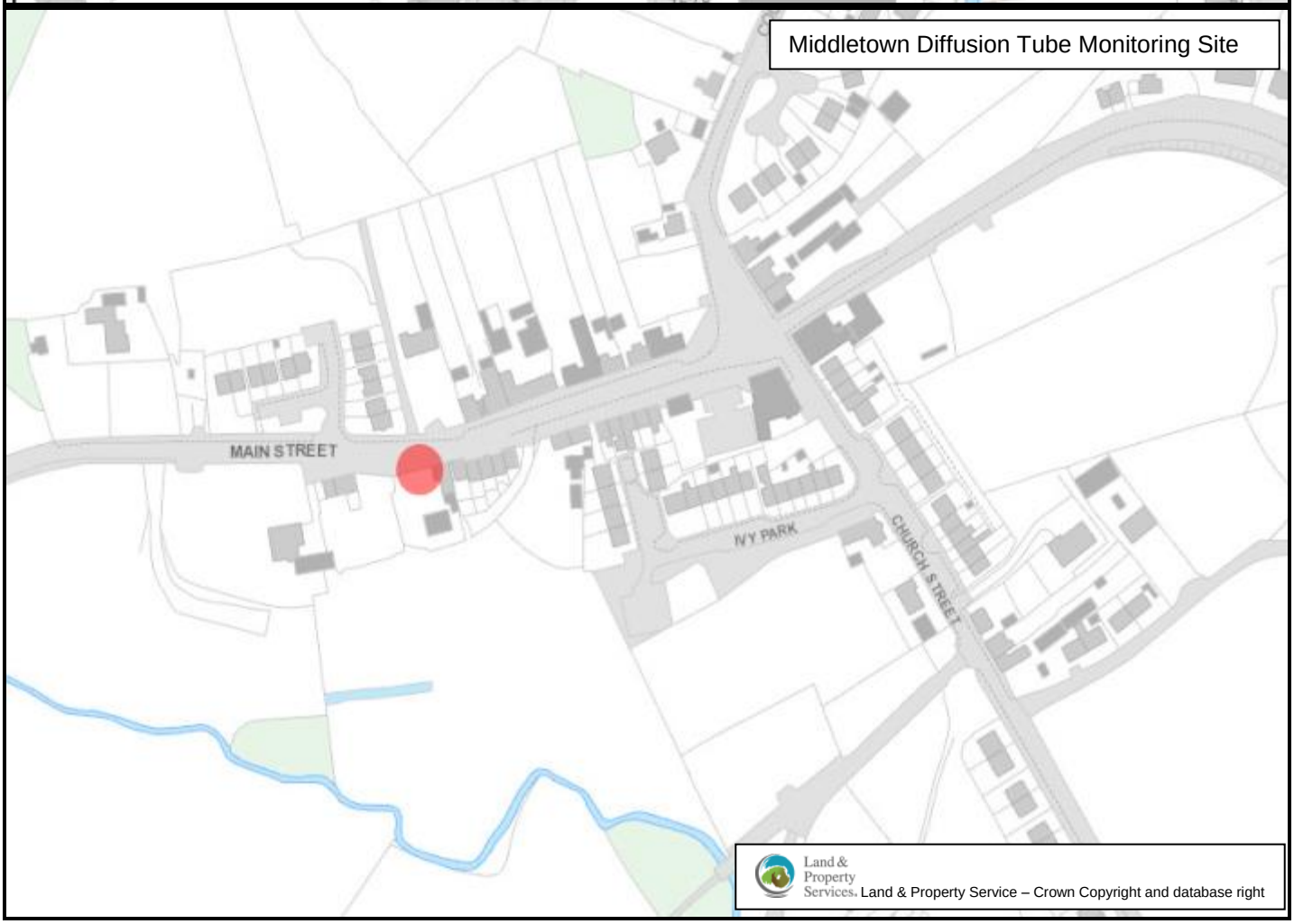
Middletown Diffusion Tube Monitoring Site
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IVY PARK
CHURCH STREET
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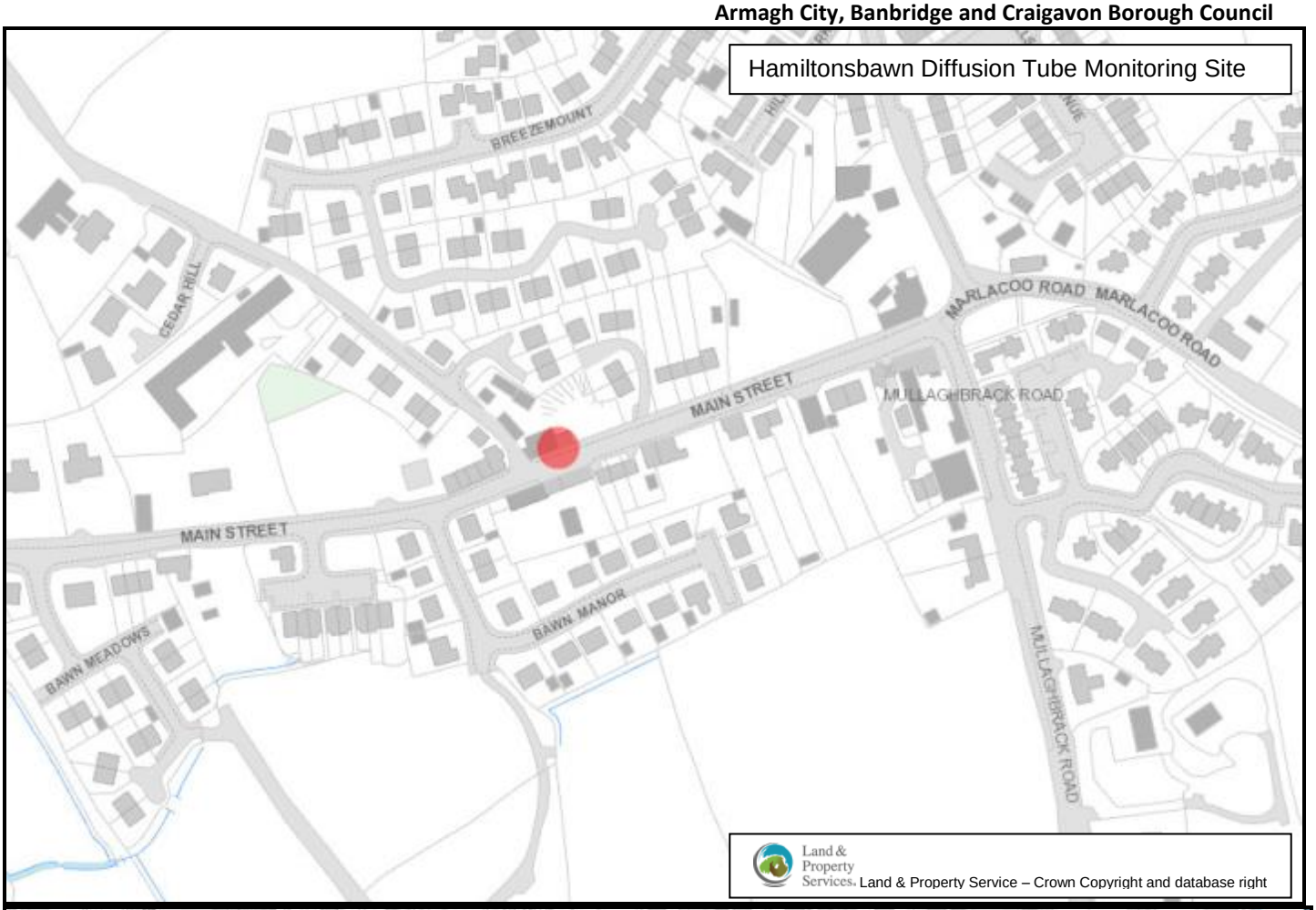
Hamiltonsbawn Diffusion Tube Monitoring Site
BREEZEMOUNT
CEDAR HILL
MARLACOO ROAD
MARLACOO ROAD
MAIN STREET
MULLAGHBRACK ROAD
MAIN STREET
BAWN MANOR
BAWN MEADOWS
MULLAGHBRACK ROAD
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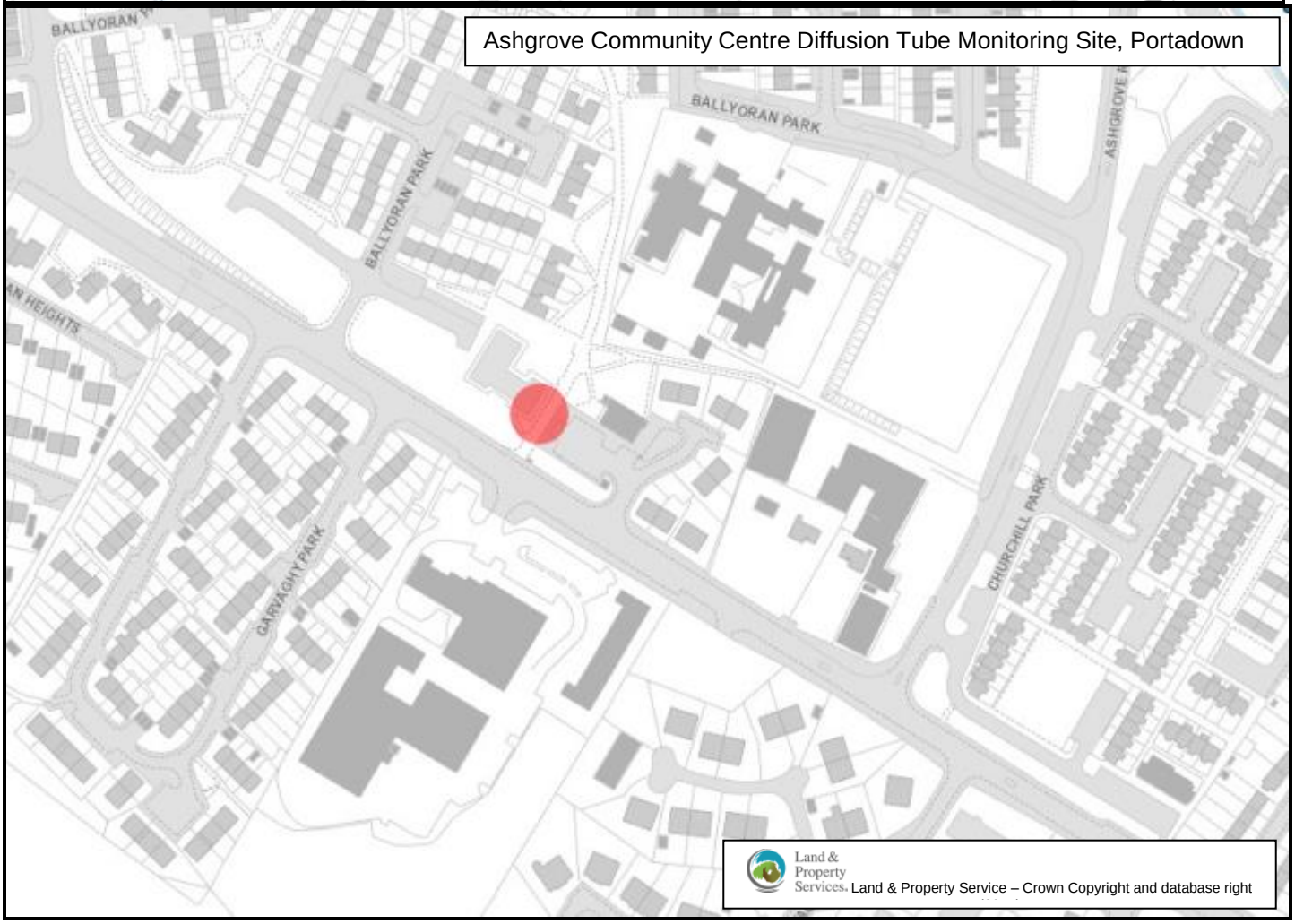
Ashgrove Community Centre Diffusion Tube Monitoring Site, Portadown
BALLYORAN
BALLYORAN PARK
BALLYORAN PARK
ASHGROVE
GARVAGHY PARK
CHURCHILL PARK
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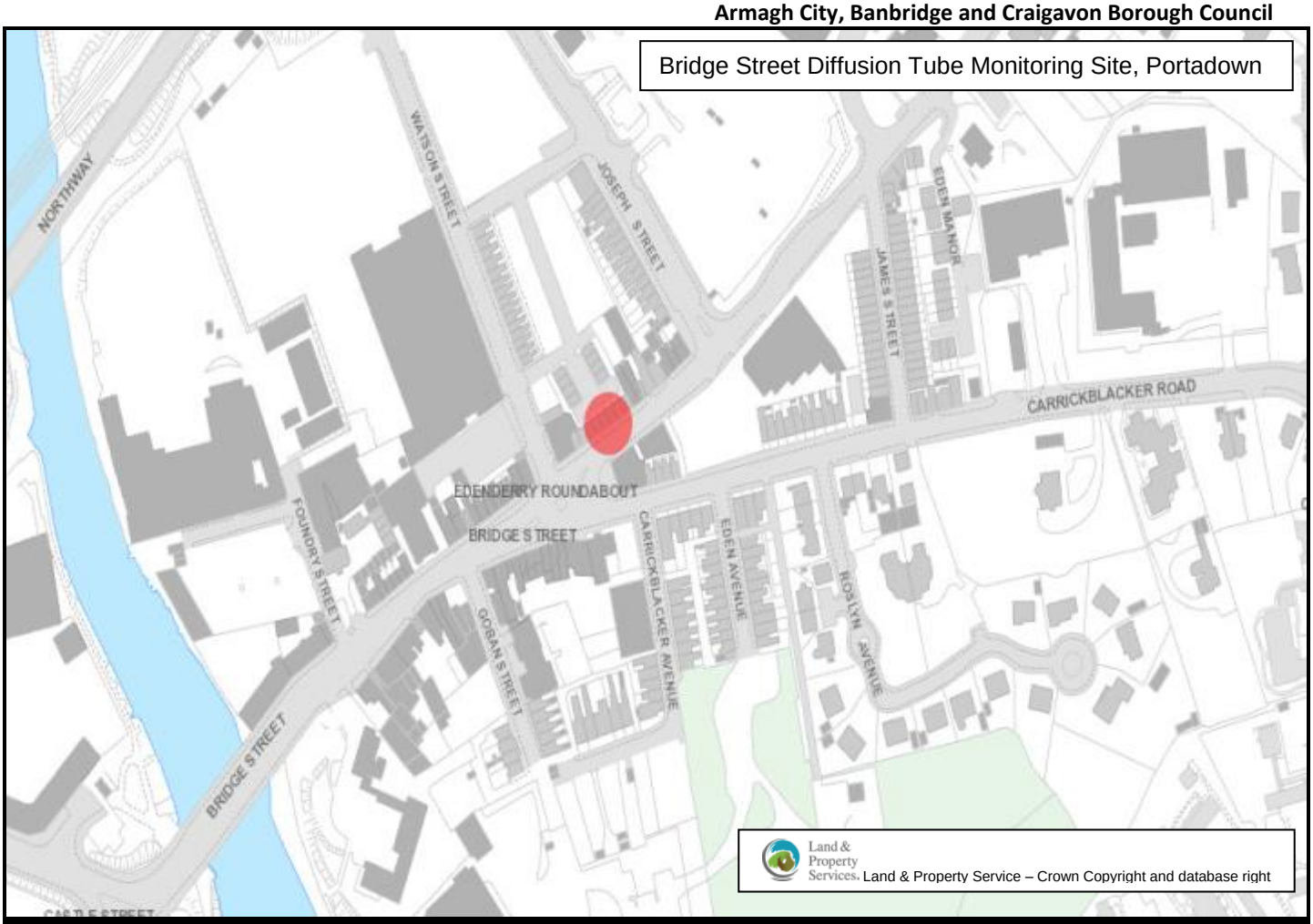
Bridge Street Diffusion Tube Monitoring Site, Portadown
NORTHWAY
WATSON STREET
JOSEPH STREET
JAMES STREET
EDEN MANOR
CARRICKBLACKER ROAD
EDENDERRY ROUNDABOUT
BRIDGE STREET
FOUNDRY STREET
GORAN STREET
CARRICKBLACKER AVENUE
EDEN AVENUE
ROSLYN AVENUE
BRIDGE STREET
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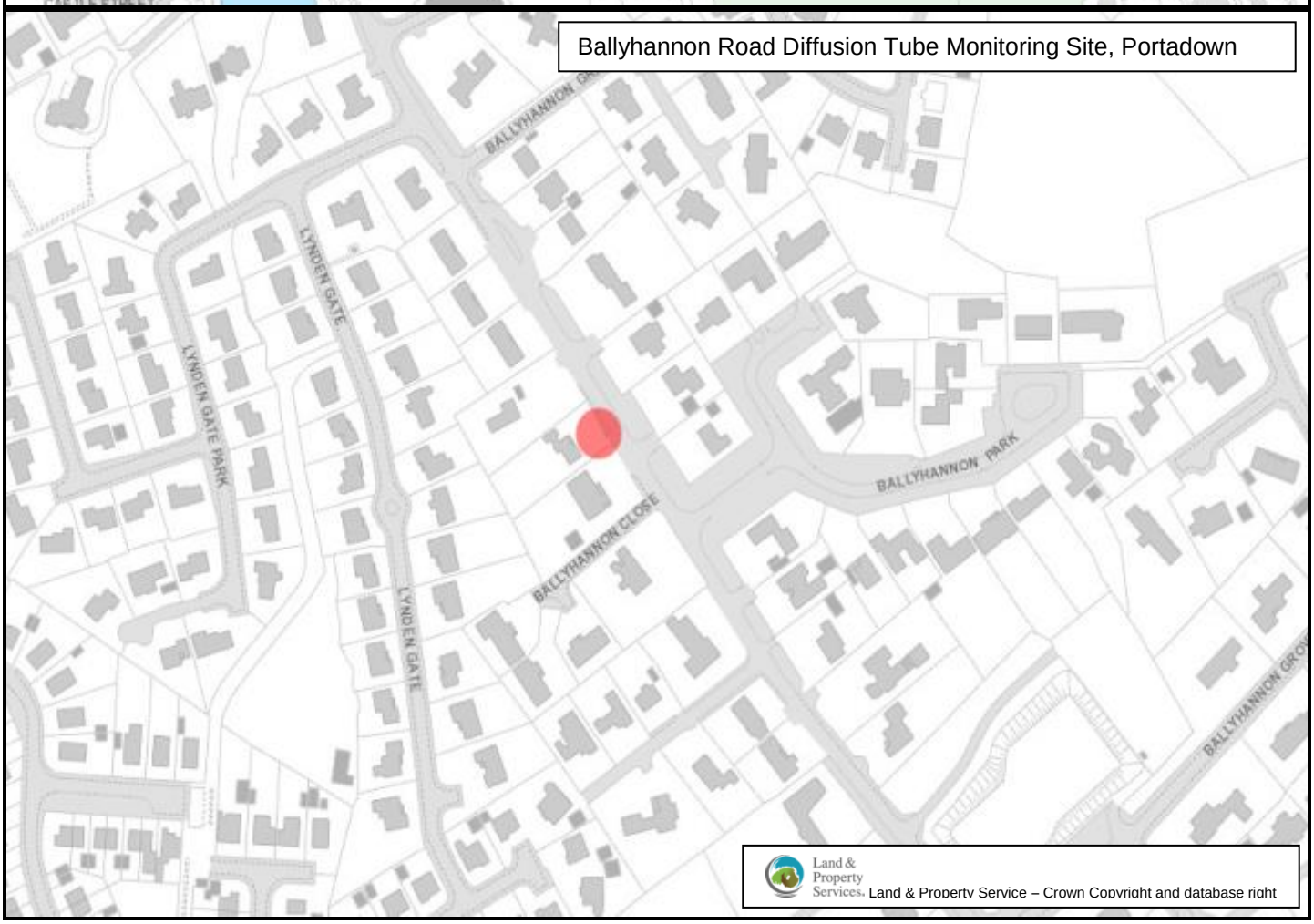
Ballyhannon Road Diffusion Tube Monitoring Site, Portadown
LYNDEN GATE
LYNDEN GATE PARK
LYNDEN GATE
BALLYHANNON CLOSE
BALLYHANNON PARK
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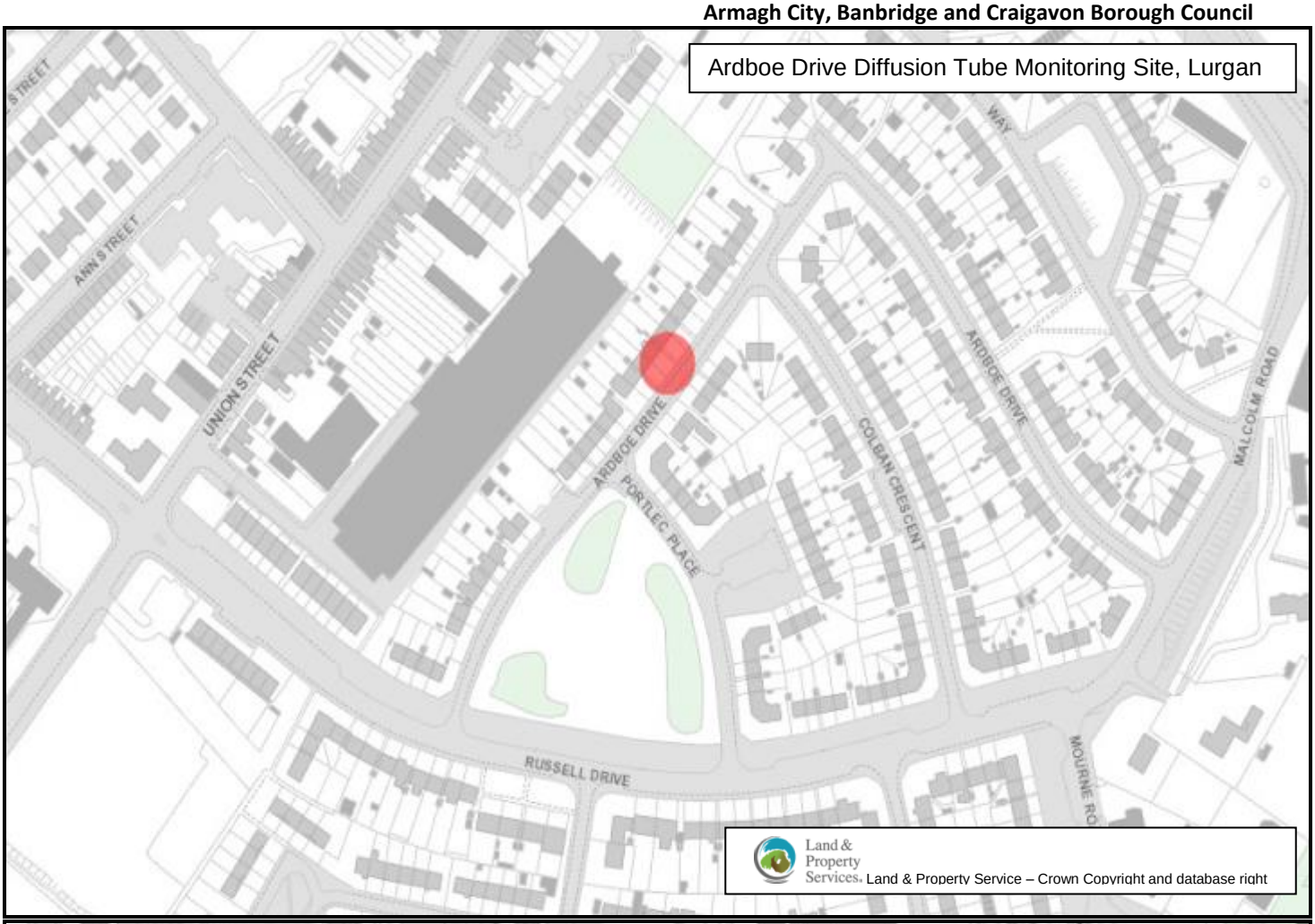
Ardboe Drive Diffusion Tube Monitoring Site, Lurgan
ANN STREET
UNION STREET
ARDBOE DRIVE
PORTLEC PLACE
COLEBAN CRESCENT
ARDBOE DRIVE
MALCOLM ROAD
RUSSELL DRIVE
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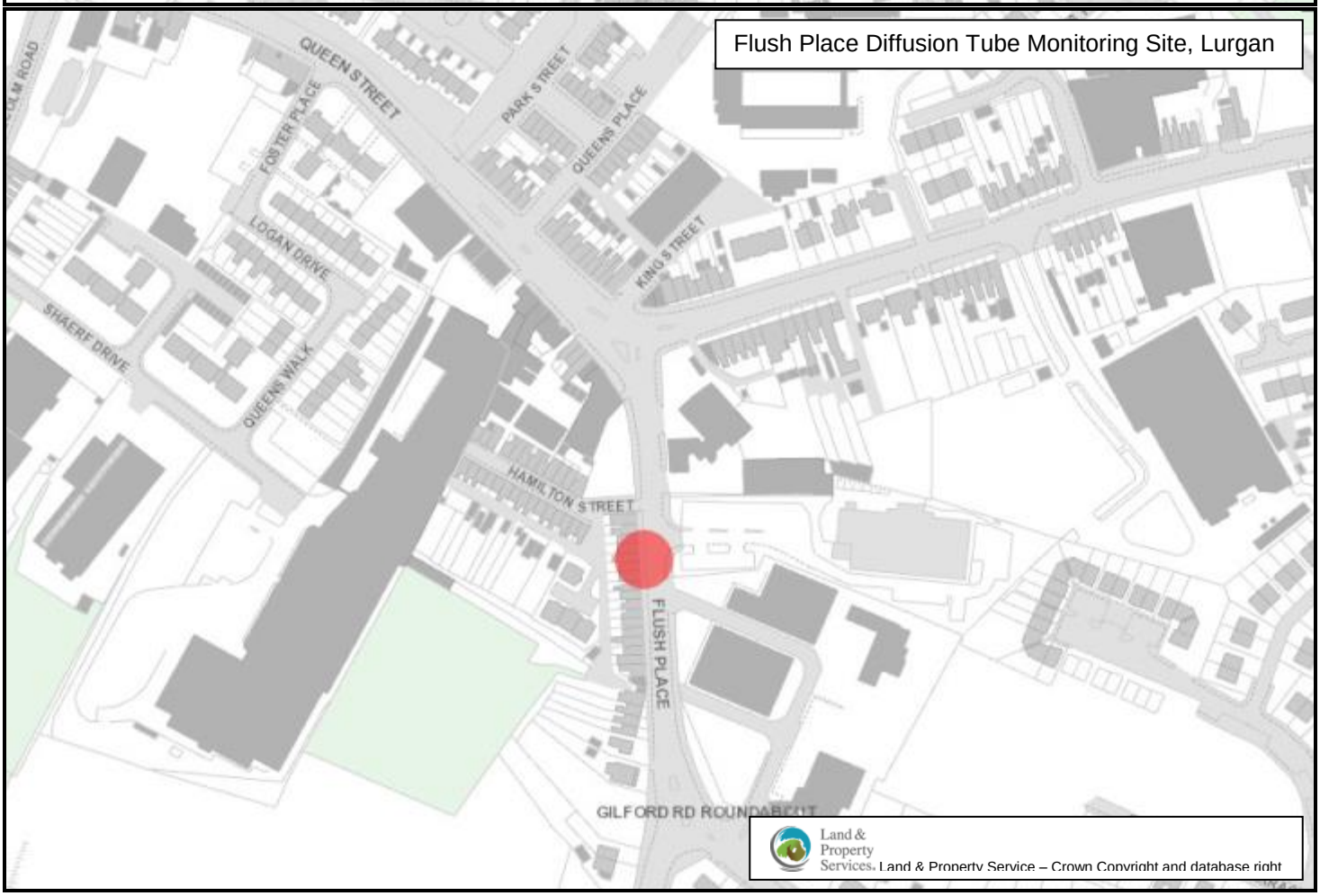
Flush Place Diffusion Tube Monitoring Site, Lurgan
QUEEN STREET
FOSTER PLACE
PARK STREET
QUEENS PLACE
KING STREET
LOGAN DRIVE
SHAERF DRIVE
QUEENS WALK
HAMILTON STREET
FLUSH PLACE
GILFORD RD ROUNDABOUT
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Dollingstown Diffusion Tube Monitoring Site
BELFAST ROAD
LILBURN HALL
BEECHCROFT
REGENCY
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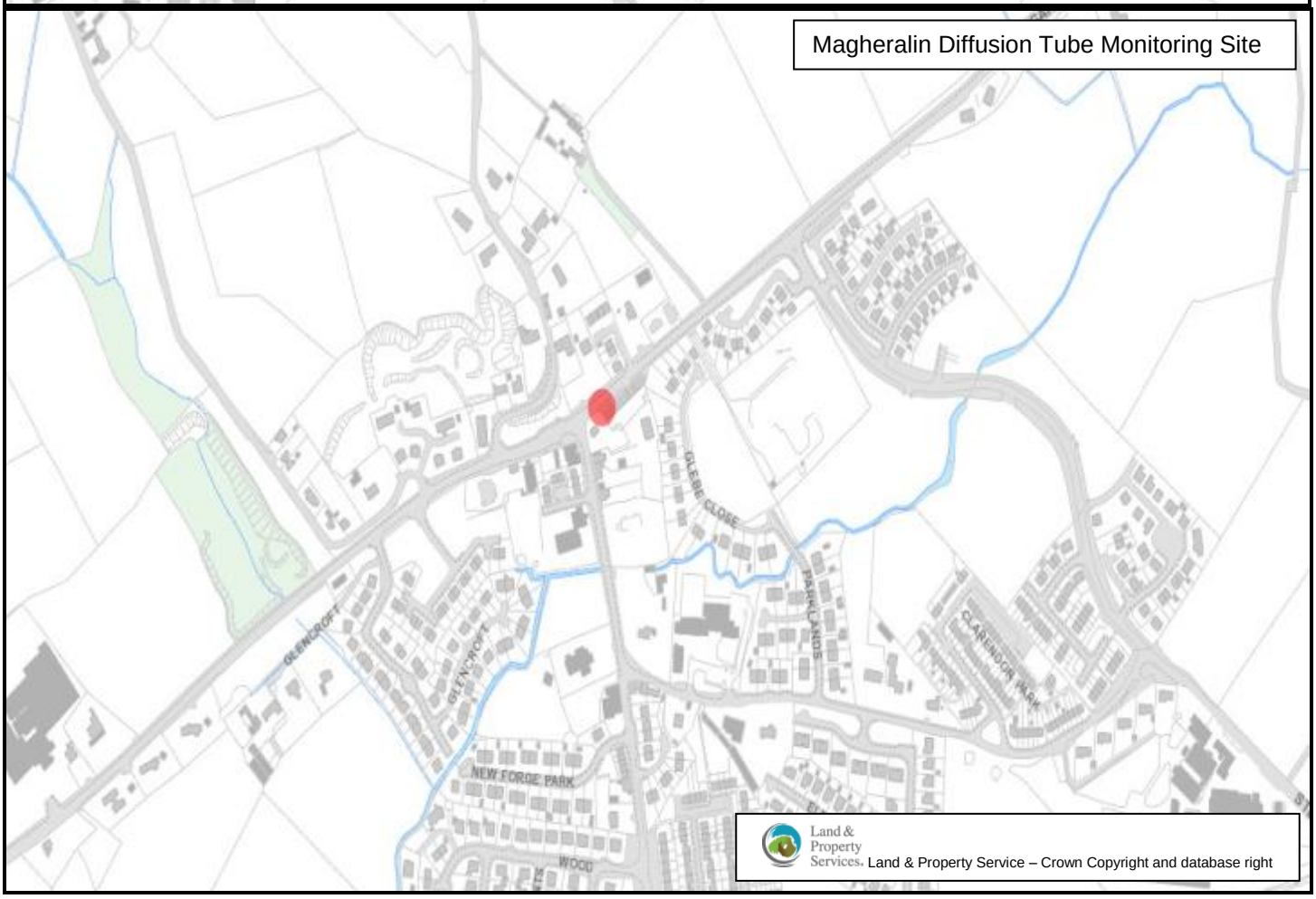
Magheralin Diffusion Tube Monitoring Site
GLENCROFT
GLEBE CLOSE
PARKLANDS
CLARENDON PARK
NEW FORGE PARK
WOOD
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Mill Street Diffusion Tube Monitoring Site, Gilford
CASTLE CLOSE
CASTLE HILL
CASTLEVIEW
MILL STREET
CASTLE MEADOWS
STRANGFORD PARK
RIVERSIDE
CASTLE STREET
BRIDGE STREET
BANNVIEW
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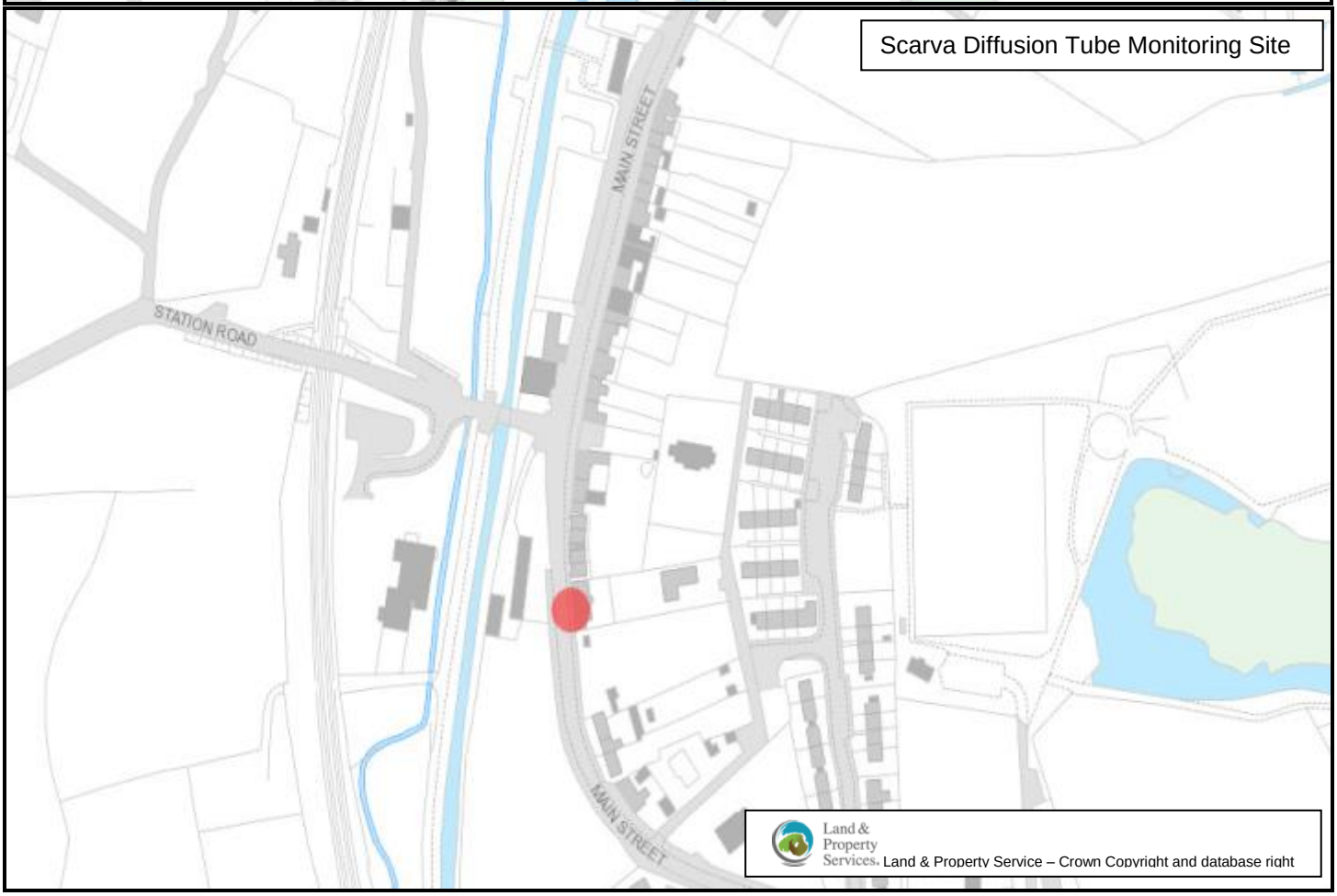
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STATION ROAD
MAIN STREET
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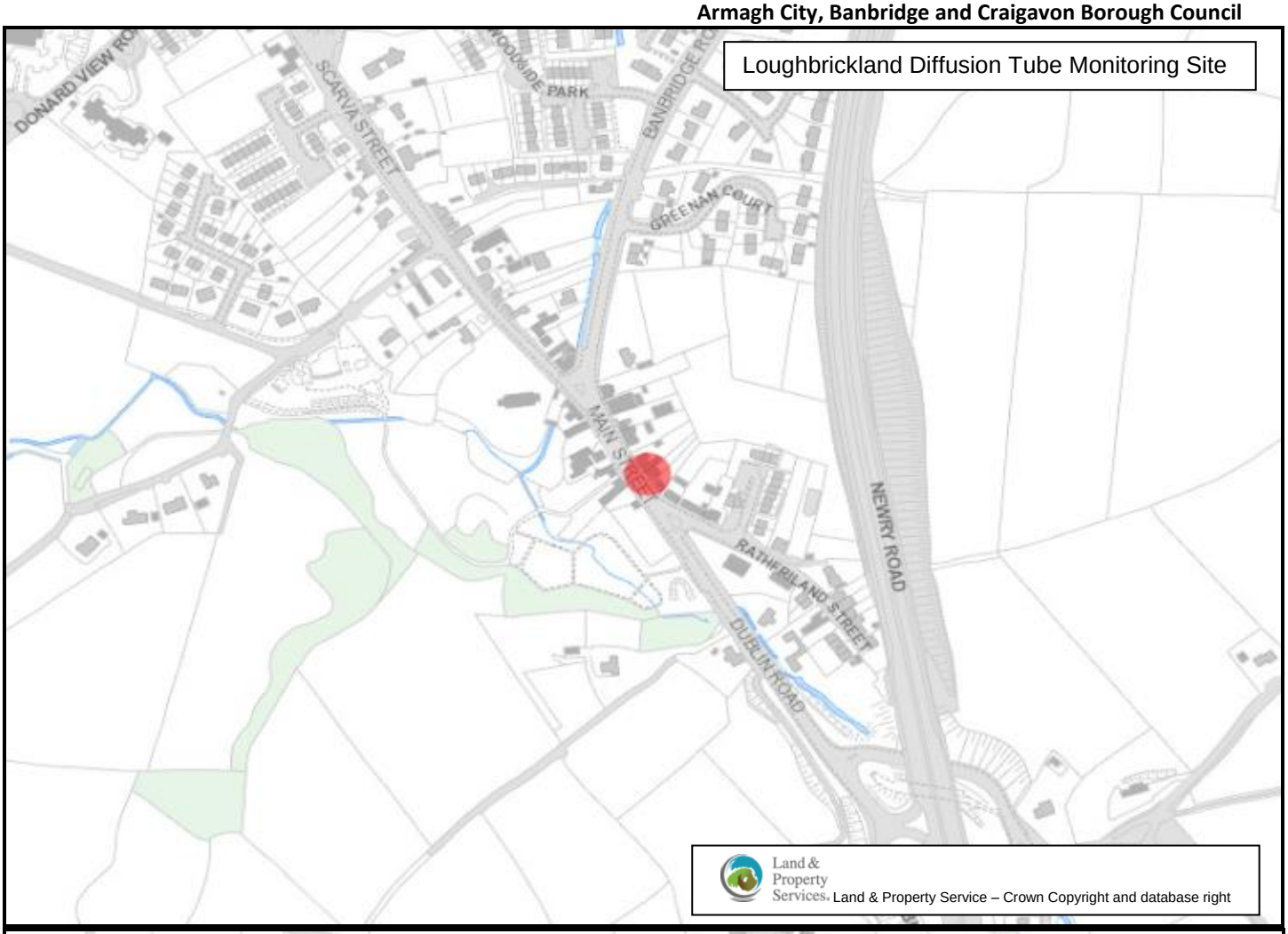
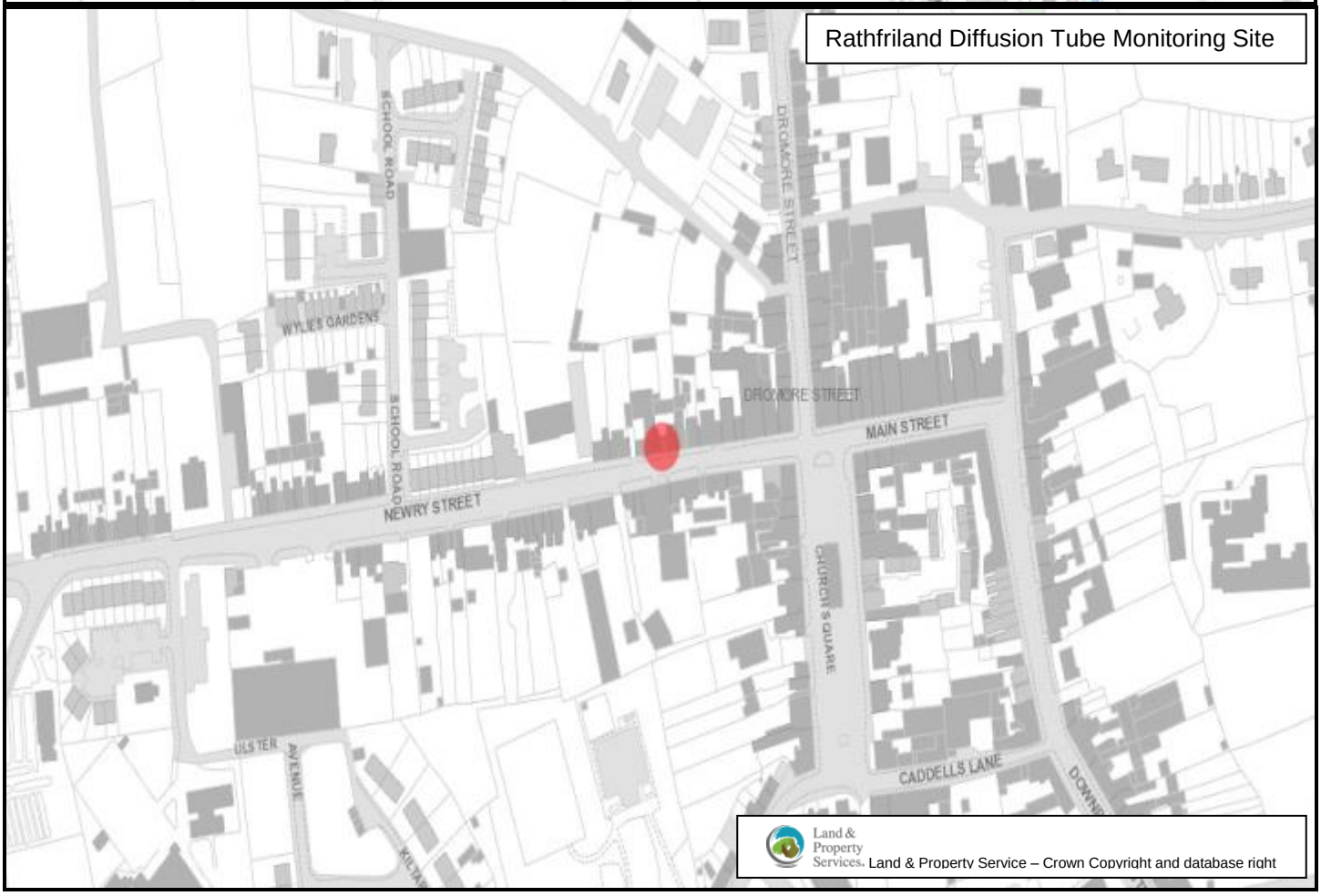
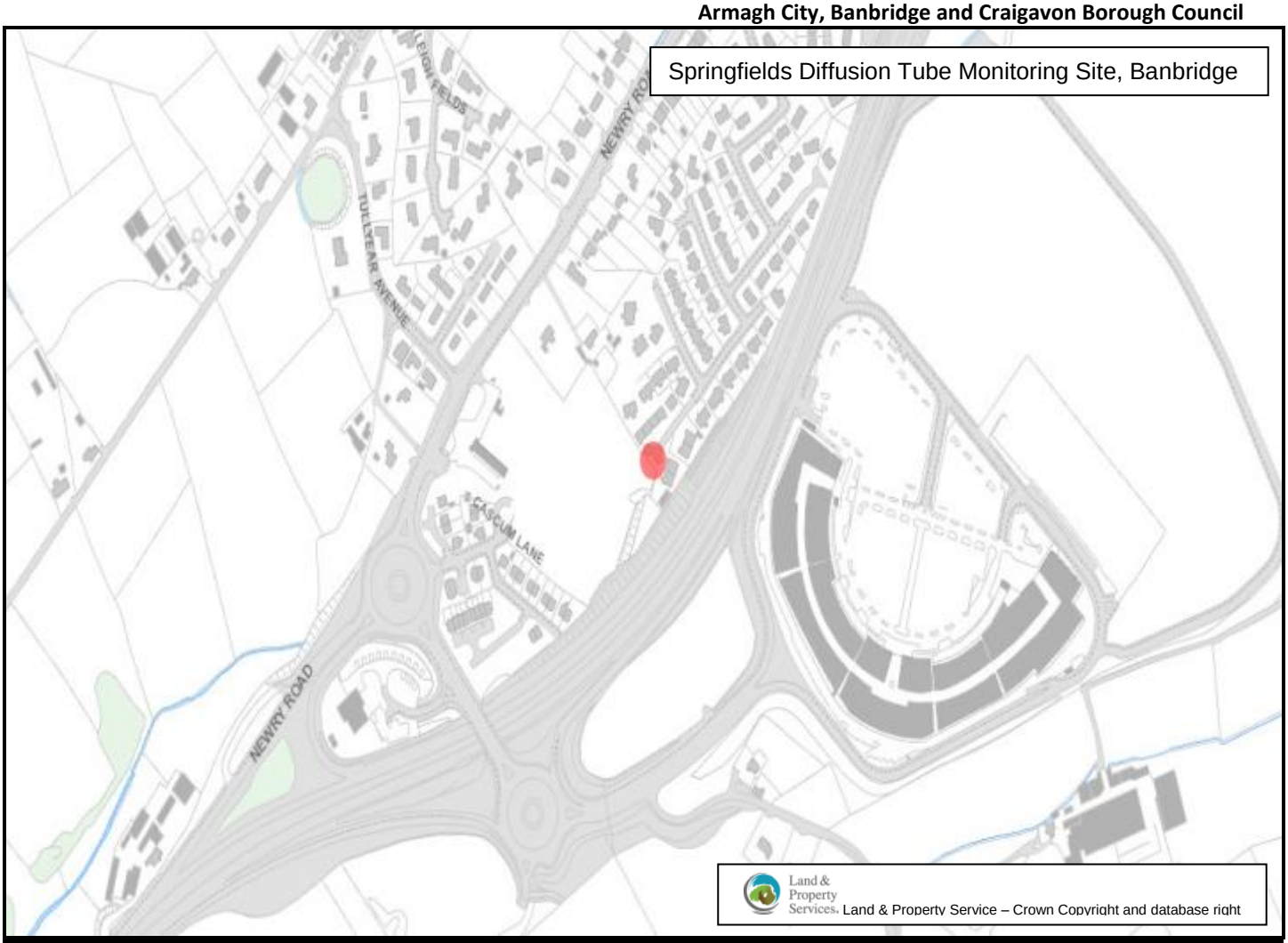
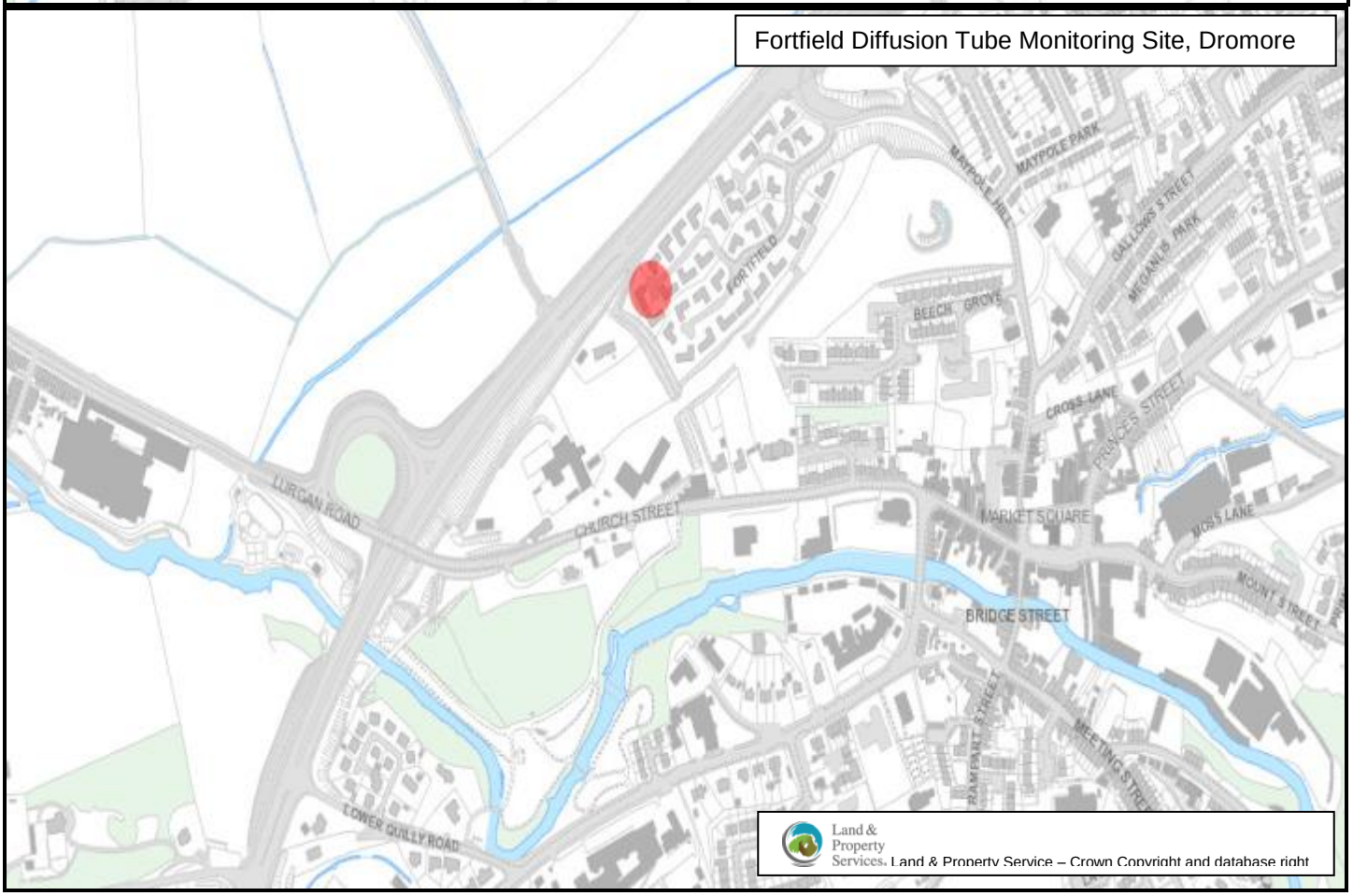

Loughbrickland Diffusion Tube Monitoring Site
DONARD VIEW
SCARVA STREET
BANBRIDGE
GREENAN COURT
MAIN STREET
NEWRY ROAD
RATHFRILAND STREET
DUBLIN ROAD
Land & Property Services
Land & Property Service – Crown Copyright and database right

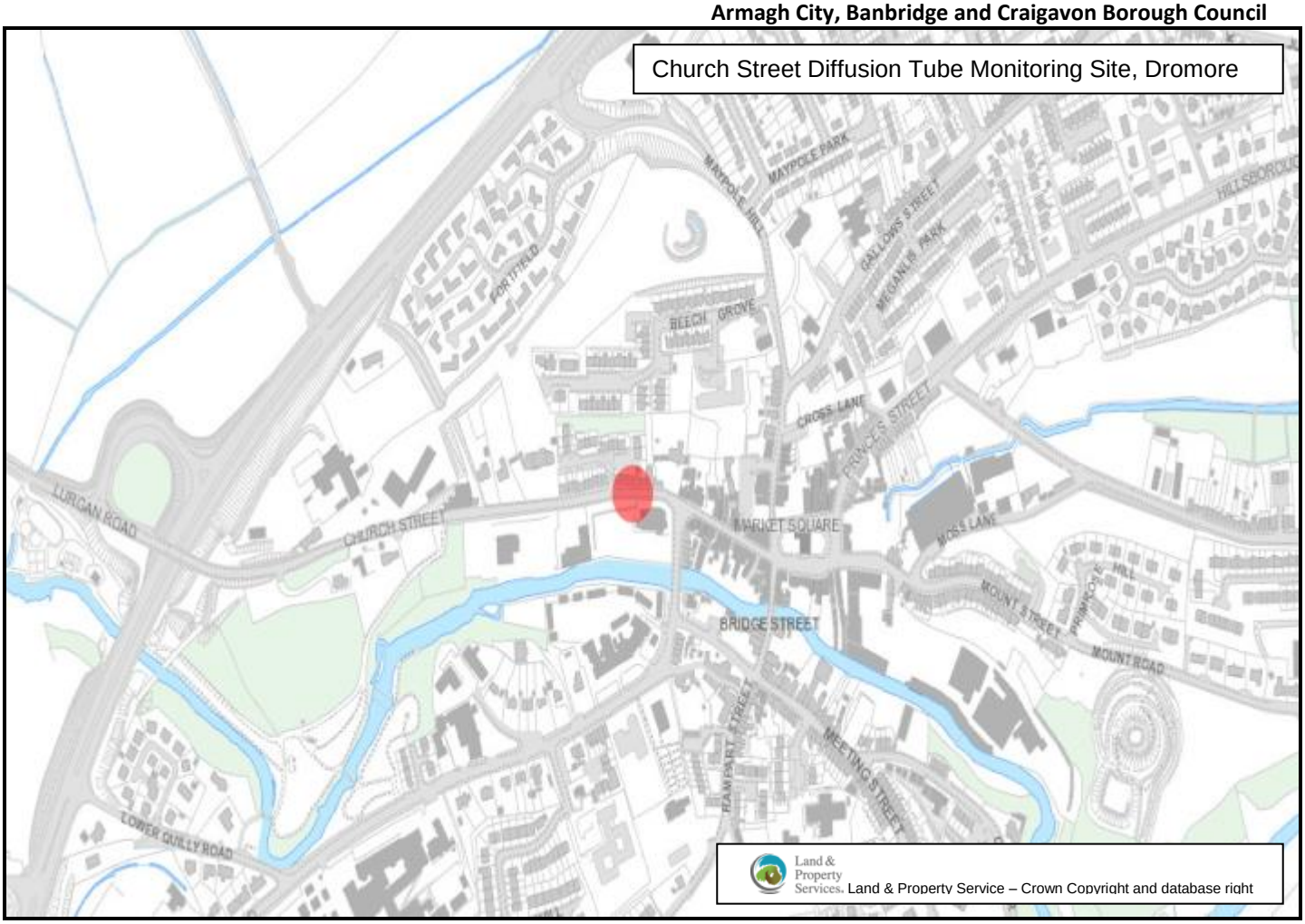

Rathfriland Diffusion Tube Monitoring Site
SCHOOL ROAD
DROMORE STREET
WYLIES GARDENS
MAIN STREET
NEWRY STREET
CHURCH'S QUARE
CADDELLS LANE
Land & Property Services
Land & Property Service – Crown Copyright and database right

Springfields Diffusion Tube Monitoring Site, Banbridge



Fortfield Diffusion Tube Monitoring Site, Dromore




Church Street Diffusion Tube Monitoring Site, Dromore
MAYPOLE PARK
MAYPOLE HILL
FORTFIELD
BEECH GROVE
GALLOWS STREET
MEGANLIS PARK
CROSS LANE
PRINCES STREET
LURGAN ROAD
CHURCH STREET
MARKET SQUARE
MOSS LANE
MOUNT STREET
PRIMROSE HILL
MOUNT ROAD
BRIDGE STREET
FEAMPARTY STREET
MEETING STREET
LOWER QUILLY ROAD
Land & Property Services. Land & Property Service – Crown Copyright and database right

Appendix C – Diffusion Tube Results in Armagh City and District, Banbridge District and Craigavon Borough 2014

NO2 DIFFUSION TUBE RESULTS IN ARMAGH 2014 (µg/m³)												
	Barrack St	Desart Lane	Railway St	Mall West	Greenpark Terrace	Lonsdale Road	Tandragee	Markethill	Keady	Middletown	Hamiltonsbawn	Greenfield Way
JANUARY	52	13	48	60	56	49	22	1	32	16	17	63
FEBRUARY	40	15	70	57	54	41	54	18	37	13	13	9
MARCH	44	19	60	54	54	38	51	19	34	24	17	13
APRIL	46	12	56	50	39	34	55	16	-	-	13	8
MAY	42	10	55	46	41	35	54	11	38	21	14	6
JUNE	22	10	44	40	51	30	44	11	35	37	16	4
JULY	33	9	46	40	47	26	44	10	28	16	11	6
AUGUST	38	13	53	46	58	38	57	15	44	-	16	9
SEPTEMBER	52	12	65	48	64	43	67	20	-	23	21	12
OCTOBER	39	17	62	49	57	40	60	19	40	18	15	10
NOVEMBER	52	25	67	54	75	48	58	29	47	32	24	15
DECEMBER	37	18	73	57	63	50	56	20	36	17	17	12
AVERAGE	41	14	58	50	55	39	52	16	37	22	16	14
Adjusted Ave	34	12	**47**	**41**	**44**	32	**42**	13	30	18	13	11

Bias Factor 2014 = 0.81

NO2 DIFFUSION TUBE RESULTS 2014 IN BANBRIDGE (µg/m^3)							
	Mill St, Gilford	Scarva	Loughbrickland	Rathfriland	Church St, Dromore	Fortfield, Dromore	Springfields
JANUARY	49	23	30	32	36	17	19
FEBRUARY	36	16	18	26	26	14	15
MARCH	39	20	29	44	31	15	20
APRIL	44	20	22	32	26	11	15
MAY	47	23	21	35	30	11	13
JUNE	33	23	21	34	32	8	10
JULY	36	18	17	26	21	9	8
AUGUST	40	19	21	31	29	12	13
SEPTEMBER	51	32	33	46	42	18	20
OCTOBER	21	-	1	27	30	14	17
NOVEMBER	61	27	39	44	41	19	21
DECEMBER	34	17	16	1	27	14	13
AVERAGE	41	22	22	32	31	14	15
Adjusted Ave	33	18	18	26	25	11	12

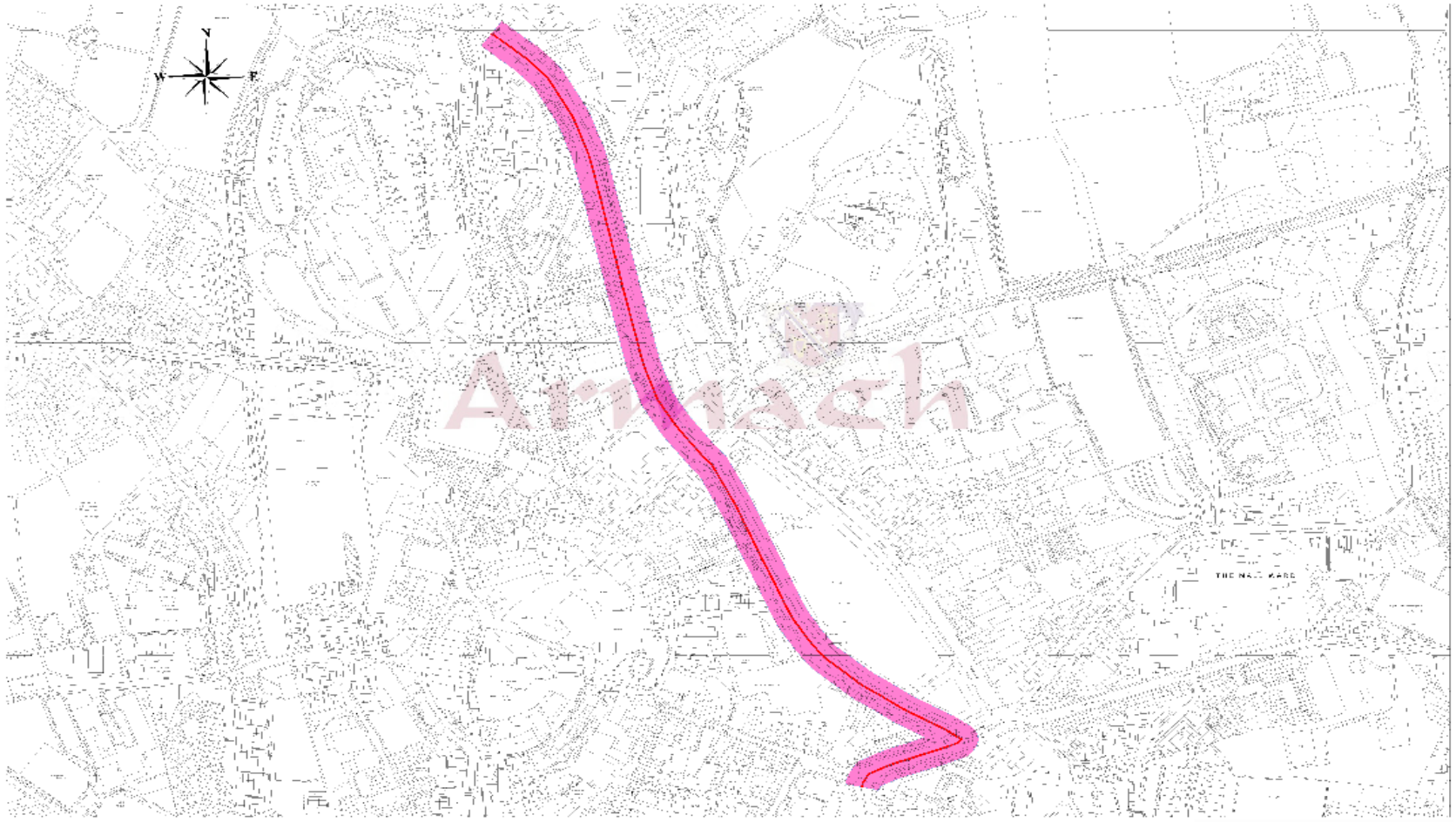
BIAS FACTOR 2014 = 0.81

NO2 DIFFUSION TUBE RESULTS 2014 IN CRAIGAVON (µg/m^3)

	Ashgrove CC	Bridge Street (P'down)	Ardboe Drive	Ballyhannon Road	Magheralin	Flush Place	Dollingstown
JANUARY	20	46	13	13	-	46	27
FEBRUARY	32	45	12	9	26	49	25
MARCH	17	43	14	11	33	46	29
APRIL	10	35	9	9	23	42	-
MAY	9	40	7	7	25	42	23
JUNE	9	39	7	8	20	-	19
JULY	8	33	5	6	18	34	16
AUGUST	11	44	8	9	23	41	22
SEPTEMBER	15	55	13	13	37	50	34
OCTOBER	15	44	12	11	26	49	24
NOVEMBER	20	44	21	18	40	54	38
DECEMBER	19	53	16	13	23	58	29
AVERAGE	15	43	11	11	27	46	26
Adjusted Ave	12	35	9	9	22	38	21

Bias Factor 2014 = 0.81

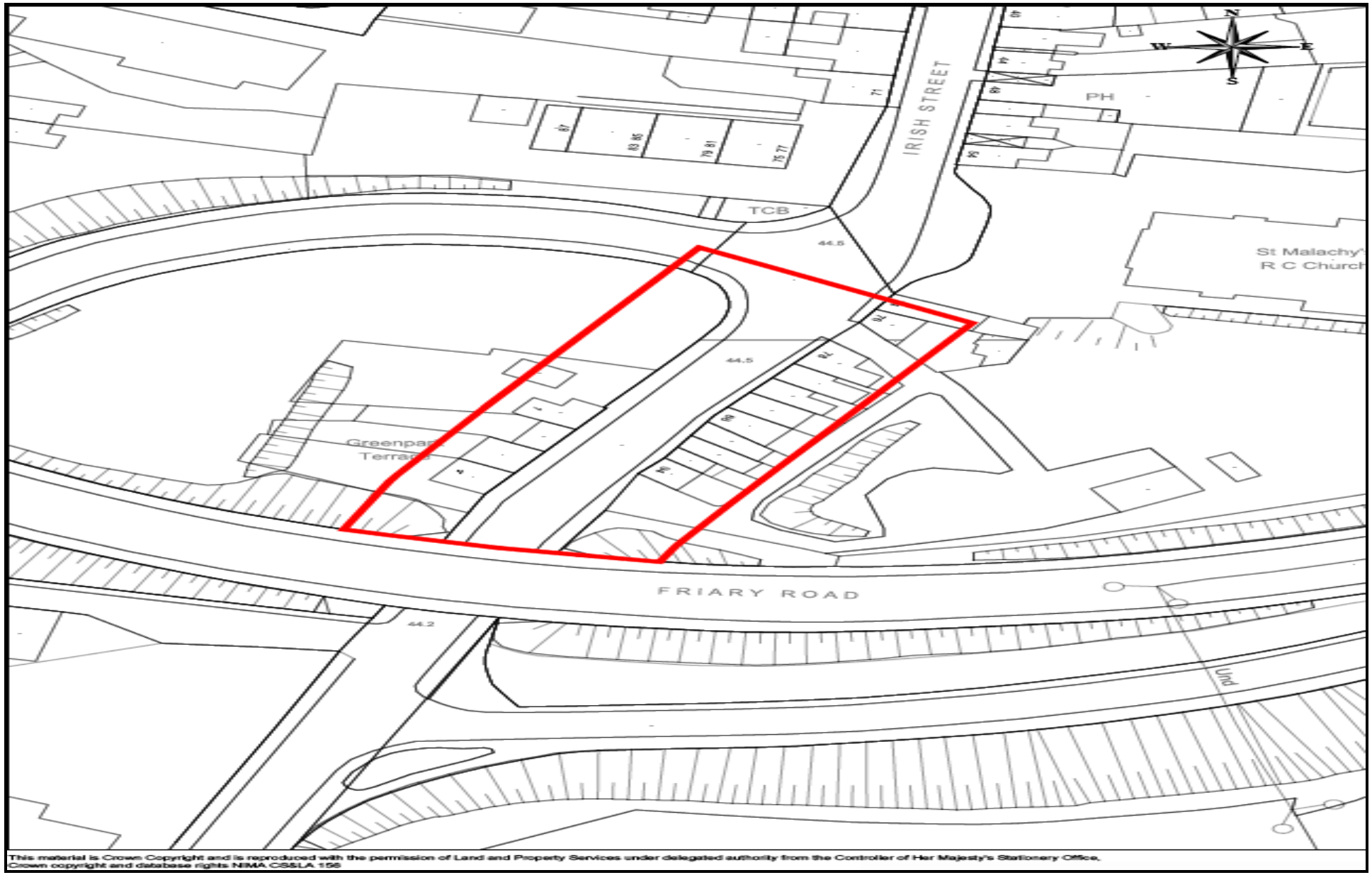
Appendix D – Active AQMA Maps



Title : Armagh City and District Council AQMA 2008

Scale : Not to Scale

10/11/2008


IRISH STREET
PH
TCB
St Malachy's
R C Church
FRIARY ROAD
44.5
44.2
N
W
E
S
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