

## Annual Progress Report (APR)



2017 Air Quality Annual Progress Report (APR) for South Lanarkshire Council

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

30<sup>th</sup> June, 2017



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## **Executive Summary: Air Quality in Our Area**

### **Air Quality in South Lanarkshire**

Air Quality is generally good in most parts of South Lanarkshire, there are however some locations where local sources of pollution contribute to poor air quality and action is required. South Lanarkshire Council is committed to working towards achieving compliance with health based air quality objectives. The main sources of air pollutants in South Lanarkshire is road traffic emissions; and to a lesser extent, emission from industrial processes and commercial/domestic fuel combustion. The main pollutants of concern are nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

This Annual Progress Report provides a summary of the 2016 measurements conducted across South Lanarkshire; it also considers any new potential sources of air pollution and if any further action is required to protect or improve air quality within South Lanarkshire.

Annual mean Nitrogen Dioxide (NO<sub>2</sub>) concentrations in excess of the 40 µg.m<sup>-3</sup> objective were measured at the automatic monitoring sites at Rutherglen and Cambuslang. However, these sites are not located where relevant human exposure is present. Following distance correction to the nearest location of relevant exposure at Camsbuslang, the NO<sub>2</sub> annual mean concentration was below the objective at 39 µg.m<sup>-3</sup>. At Rutherglen, distance drop off calculations were not applicable as the nearest relevant exposure is over 50m from the monitoring site; it is reasonable to assume however that concentrations would be lower than the annual mean objective at the nearest receptor. All other annual mean NO<sub>2</sub> concentrations measured at automatic monitoring sites within South Lanarkshire were below the annual mean objective during 2016. The last five years' measurements indicate a downward trend in measured NO<sub>2</sub> concentrations at most of the automatic sites, with the exception of Rutherglen and Cambuslang where concentrations have increased.

Exceedances of the NO<sub>2</sub> annual mean objective were measured at two diffusion tube sites:

- 24 Low Patrick Street, Hamilton. This measurement should be considered in context with the conclusions of the 2014 Detailed Assessment of NO<sub>2</sub> and PM<sub>10</sub> in Hamilton Town Centre (based on 2013 measurements). The Detailed Assessment

concluded that no concentrations in excess of the  $40 \mu\text{g.m}^{-3}$  objective were occurring at 1<sup>st</sup> floor height where relevant exposure is present. Measured  $\text{NO}_2$  concentrations at this location have only increased slightly since 2013, it's therefore unlikely that the  $40 \mu\text{g.m}^{-3}$  objective is being exceeded at the nearest relevant exposure. No further action is recommended based on the 2016 diffusion tube measurements. South Lanarkshire Council will continue to monitor at this location to establish if a continued upward trend will mean an updated Detailed Assessment is required.

- 233 Glasgow Road, Blantyre - The exceedance measured at Glasgow Road, Blantyre is likely to have been affected by traffic diverting from the M74 whilst there are ongoing road works. The main works have now been completed however more minor works and snagging are due to be completed by September 2017. South Lanarkshire intend to continue and include additional monitoring  $\text{NO}_2$  sites at this location with a view to conducting a Detailed Assessment when normal traffic patterns return i.e. when the works on the M74 have been completed.

The  $18 \mu\text{g.m}^{-3}$  Scottish  $\text{PM}_{10}$  annual mean objective was not exceeded at any automatic site in 2016. Measured concentrations across the seven  $\text{PM}_{10}$  analysers sites in South Lanarkshire ranged from 9 to  $17 \mu\text{g.m}^{-3}$ .

Measured  $\text{PM}_{10}$  concentration were lower in 2016 when compared to 2015 at the Rutherglen site. Measured concentrations remained consistent at the Whirlies, East Kilbride analyser. There are no obvious trends at all sites, showing no overall change in  $\text{PM}_{10}$  concentrations year on year.

There were no measured exceedances of the permitted number of  $\text{NO}_2$  hourly or  $\text{PM}_{10}$  daily short-term air quality objective during 2016.

South Lanarkshire Council measured  $\text{PM}_{2.5}$  concentrations in Lanark and Uddingston during 2016. No exceedances of the Scottish  $\text{PM}_{2.5}$  annual mean objective were measured.

The potential air quality impacts of new local developments have been considered including:

- The Cathkin Relief Road.
- The upgrade to the Raith Interchange
- Mixed-use residential-led development located at Mavor Avenue in East Kilbride.

- Various new biomass boilers

Based on the available information submitted with the planning applications for these developments; South Lanarkshire Council has not identified any locations where there may be a risk of the air quality objectives being exceeded. No additional air quality assessment is recommended at this time.

### **Actions to Improve Air Quality**

South Lanarkshire Council has taken forward a number of measures during the current reporting year of 2016 in pursuit of improving local air quality.

Three Air Quality Management Areas (AQMA) have been declared in South Lanarkshire at Whirlies, East Kilbride; Lanark; and Rutherglen.

South Lanarkshire Council currently has a draft Air Quality Action Plan (AQAP) for the Whirlies AQMA; this plan has not been finalised/published as of yet. South Lanarkshire Council is currently consolidating the Whirlies AQAP into a plan which includes all three AQMAs.

Although the Whirlies draft AQAP has yet to be finalised, progress has been made on the measures in the draft plan. More information is included in section 2 which provides details of the progress we have made so far with actions in the draft plan.

### **Local Priorities and Challenges**

South Lanarkshire Council will finalise the consolidated AQAP for the Whirlies, Rutherglen and Lanark AQMAs. The Council expects to include a full update on progress with the AQAP measures in next year's LAQM annual progress report (APR).

As part of the Action Plan development, dispersion modelling and source apportionment analysis has been conducted; and the results of this used to inform the measures in the AQAP.

### **How to Get Involved**

The public can obtain further information relating to air quality in South Lanarkshire on the Council Website.

More information about air quality in Scotland and actions that members of the public can take to help reduce air pollution is available at <http://www.scottishairquality.co.uk/>

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## 1. Local Air Quality Management

This report provides an overview of air quality in South Lanarkshire during 2016. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 an exceedance is considered likely the local authority must 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. This Annual Progress Report (APR) summarises the work being undertaken by South Lanarkshire Council to improve air quality and any progress that has been made.

**Table 1.1 – Summary of Air Quality Objectives in Scotland**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen dioxide (NO <sub>2</sub> )	200 µg.m <sup>-3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg.m <sup>-3</sup>	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> )	50 µg.m <sup>-3</sup> , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg.m <sup>-3</sup>	Annual mean	31.12.2010
Particulate Matter (PM <sub>2.5</sub> )	10 µg.m <sup>-3</sup>	Annual mean	31.12.2020
Sulphur dioxide (SO <sub>2</sub> )	350 µg.m <sup>-3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg.m <sup>-3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg.m <sup>-3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg.m <sup>-3</sup>	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg.m <sup>-3</sup>	Running annual mean	31.12.2003
Carbon Monoxide	10.0 µg.m <sup>-3</sup>	Running 8-Hour mean	31.12.2003
Lead	0.25 µg.m <sup>-3</sup>	Annual Mean	31.12.2008



## 2. Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP), setting out measures it intends to put in place in pursuit of the objectives.

A summary of AQMAs declared by South Lanarkshire can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online on the Air Quality in Scotland website at

<http://www.scottishairquality.co.uk/laqm/aqma>

**Table 2.1 – Declared Air Quality Management Areas**

<b>AQMA Name</b>	<b>Pollutants and Air Quality Objectives</b>	<b>Description</b>	<b>Action Plan</b>
Whirlies, East Kilbride	PM <sub>10</sub> annual mean	An area encompassing the Whirlies Roundabout, East Kilbride between the A725, A749 and B783, and extending along all the roads leading in to the roundabout.	Whirlies AQMA, details available at: <a href="http://www.scottishairquality.co.uk/laqm/aqma?id=386">http://www.scottishairquality.co.uk/laqm/aqma?id=386</a>
Rutherglen	PM <sub>10</sub> annual mean	An area encompassing all areas of Rutherglen is designated.	Rutherglen AQMA, details available at: <a href="http://www.scottishairquality.co.uk/laqm/aqma?id=386">http://www.scottishairquality.co.uk/laqm/aqma?id=386</a>
Lanark Town Centre	NO <sub>2</sub> annual mean	An area encompassing all areas of Lanark is designated.	Lanark AQMA, details available at: <a href="http://www.scottishairquality.co.uk/laqm/aqma?id=386">http://www.scottishairquality.co.uk/laqm/aqma?id=386</a>

## **2.2 Progress and Impact of Measures to address Air Quality in South Lanarkshire**

South Lanarkshire Council has taken forward a number of measures during the current reporting year of 2016 in pursuit of improving local air quality. Details of all measures in progress are set out below. South Lanarkshire Council are currently preparing a draft Air Quality Action Plan report to address the AQMAs identified within South Lanarkshire through a combined approach. At this time South Lanarkshire Council have not published the AQAP, however they have continued to make ongoing progress with measures outlined in the previous Whirlies AQAP.

South Lanarkshire Council expects the draft measures outlined in the draft AQAP for South Lanarkshire to provide a strategic and joint approach to reducing pollutant concentrations across South Lanarkshire as a whole in addition to the designated AQMAs. The draft AQAP measures have been compiled by members of the steering group committee. Each measure has been assessed to ensure that the measure is appropriate for inclusion within the Action Plan.

The assessment criteria include:

- Potential air quality impact
- Implementation costs
- Cost-effectiveness
- Potential co-environmental benefits, risk factors, social impacts and economic impacts
- Feasibility and Acceptability.

To help inform the action planning process, a source apportionment analysis identified the main sources contributing towards exceedances of the air quality objectives within each AQMA. Results of the source apportionment analysis are presented in Appendix E.

## **2.3 Existing Measures Impacting on Air Quality**

South Lanarkshire Council has in place a number of measures that currently impact on air quality. These measures have been considered within the current draft of the AQAP. These measures aim to reduce pollutant concentrations across South Lanarkshire:

- Source air quality funding to support air quality improvement measures

- Teleconferencing and IT measures reduce the need to travel (eg reduce 60% miles travelled)
- Encourage businesses (to consider measures they can take to improve air quality).
- Shift from private vehicle to pool cars by Council will have an impact on reducing pollution.
- Flexi time / working from home to avoid congestion / reduce commute mileage
- Cycle to Work Scheme
- Bike maintenance / Dr Bike sessions
- Energy efficiency of buildings – double glazing
- Incorporation of green infrastructure integrated into new development
- Encouraging people to walk and cycle for short journeys
- Review traffic signal optimisation
- Waste – make use of software to minimise distance travelled by refuse collection vehicles
- Waste – incorporating clean technology in refuse collection vehicles
- Citizen science and educational initiatives
- Report on State of the Environment – report air quality to raise profile with Council members and partners
- State of the environment report – intranet platform for education which includes air quality
- Local Development Plan includes access to public transport consideration
- LASS group continue to work with schools in AQMA's to look at alternative travel modes
- Emphasise importance of air quality through the SEA process for all PPPS. Includes mitigation and enforcement
- LASS group / Eco schools
- Education – walk to school week
- School travel planning – walking buses
- Cycle promotion in schools, bikeability
- Active travel workshops in schools

## 2.4 Whirlies, East Kilbride Draft Air Quality Plan

A number of measures outlined in the previous Whirlies Action Plan have been carried forward and undertaken by South Lanarkshire Council, these include:

**1. Improving links with Local Transport Strategy** - The Local Transport Strategy 2013 – 2023 recognises the important relationship between transportation and air quality and this is embedded within the most recent Strategy. There is a specific chapter dedicated to air quality which further outlines the relationship between transport and air quality with specific focus on the key hot spot locations within South Lanarkshire. A number of Local Transport Strategy policies and actions specifically support our ongoing air quality monitoring, review and improvement measures.

### 2. Improving Air Quality links with Local Planning and Development

**Framework** South Lanarkshire Council's local development plan has embedded a number of policies which support actions to improve air quality. Development of the plan was guided by Scottish Planning Policy which advises that the planning system should support development which optimises the use of existing infrastructure, reduces the need to travel, provides safe and convenient opportunities for walking and cycling for both active travel and recreation, facilitate travel by public transport, enable the integration of transport modes as well as facilitate the movement of freight by rail or water.

The local plan recognises the importance of safeguarding air quality and specifically states that development should have no significant adverse impacts on air quality. Active travel has a particularly important role to play in the reduction of transport related emissions and as such is a key objective within the local development plan. Appropriate sustainable transport options is a key consideration for development within South Lanarkshire with a longer term objective to promote a change from private to public modes of transport detailed within the plan. Encouraging public transport, providing walking and cycling routes which encourage active travel, linking the places where people live to town centres, community and recreational facilities and sustainably locating major employment hubs with educational establishments are all policies within the local plan which support measures to improve air quality.

**3. Integrate Air Quality with other Council strategies** – South Lanarkshire Council has a Corporate Strategic Environmental Assessment Working Group

which reviews all new or revised plans, policies and strategies as part of the SEA process. This group supports cross departmental working with increased awareness of environmental issues including air quality. This group has facilitated the embedment of air quality measures within other policies and strategies. The following have introduced or further strengthened actions that will support improvements in air quality:

**Sustainable development and climate change supplementary guidance** – section 8 within this guide is dedicated to air quality and biomass and recognises the key issues that need to be considered.

**Local Biodiversity Strategy and Action Plan** – this recognises the importance of protecting our natural bio diverse environment for the well being of our natural world. This Strategy and Action Plan is presently under review and the revised document will encompass stronger links with air quality particularly in relation to the benefits of green infrastructure in hot spot locations with the added co-benefit of encouraging biodiversity.

**South Lanarkshire Partnership Community Plan** - promotes sustainable communities and development and includes an objective to support the development of a sustainable transport infrastructure.

**Supplementary Planning Guidance on Renewable Energy** – details the policy drivers to support renewable energies for the generation of electricity, heat and energy. Renewable energy produces fewer emissions at point of energy generation with the associated air quality benefits.

**Supplementary Planning Guidance on Development Management, Place making and Design** – Policy 4 includes a requirement that energy efficient design of development is a key consideration. More efficient development results in fewer emissions generated from energy sources thereby benefitting air quality. In addition there is a specific commitment within Policy 4 that there are no significant adverse effects on air quality (particularly in and around Air Quality Management Areas).

**Supplementary Planning Guidance on Community Infrastructure**

**Assessment** – this guidance recognises that development of housing and other uses may generate levels of traffic which require improvements to the wider road network with particular consideration to addressing the impacts to the pedestrian,

cycle and public transport network. This provides an opportunity to embed sustainable active travel options within future development.

**Local Housing Strategy Consultation Draft – 2017 – 2022.** This draft includes a housing quality and energy efficiency outcome for homes to require less energy to heat with more of the energy used coming from renewable sources which will have a longer term benefit for air quality. Suitable and sustainable housing is also identified as a strategic priority outcome which will have co-benefits for air quality.

**Residential Design Guide Supplementary Guidance** – includes a commitment to encourage sustainable development with developments that focus on the needs of pedestrians rather than cars. This commitment supports air quality action planning.

**Procurement Strategy 2017 – 2020** – consideration of environmental wellbeing has now been included within pre procurement stage for all regulated procurements. The Council, through this Strategy, is committed to protecting and enhancing the environment by reducing the environmental impact of purchasing goods, works and services with environmental considerations embedded into the procurement evaluation process.

**Carbon Management Plan 2016** – speed limiters, driver training, efficient vehicle procurement and the use of telematics are all examples of actions that have been introduced to improve fleet efficiency which in turn impacts air quality. The latest report also details that 40 electric vehicle posts which provides a total of 98 charging bays are now in operation across South Lanarkshire. These points are available for both council and public use. The growth of the electric charging point infrastructure across the area is an important action to encourage uptake of electric vehicles.

**South Lanarkshire Connect Council Plan** – at the core of this plan is the vision to improve the quality of life of everyone in South Lanarkshire. This includes a priority objective to develop a sustainable Council and communities. There are significant synergies between sustainability and air quality and having this core commitment will benefit air quality.

**Cycling Strategy 2015 -2020** – the Strategy states that it aims to specifically improve air quality by reducing emissions and pollution, not only through the provision of enhanced public transport, supporting the introduction of electric and hybrid vehicles and by encouraging more people to cycle and travel actively.

4. **Develop and adopt an air quality strategy for South Lanarkshire** - The air quality draft strategy is in the process of being reviewed and will be presented to the newly formed Council representatives for final adoption.
5. **Air Quality Guidance Note/ Supplementary Planning Document** - A draft guidance document is still in the process of being finalised. This stage is delayed until after final adoption of the air quality action plan (whole area) and also the air quality strategy.
6. **Lobby Government for additional national policy** - South Lanarkshire continues to fully participate in consultation exercises regarding air quality with Scottish Government.
7. **Study to assess the potential impact of the M74 and the Raith Interchange works on traffic and AQ within the Whirlies AQMA** - Majority of roadworks have come to completion however final completion not due until autumn 2017. A review of local air quality and traffic data will be undertaken following completion.

#### **Direct measures**

8. **Travel Planning** - South Lanarkshire has a travel and subsistence policy, produced in 2015, which encourages the use of public transport or shared car arrangements where appropriate in line with best value principles. Unnecessary travel is discouraged and other methods should be deployed such as telephone discussion where appropriate. Employees are also encouraged to adopt a smart approach to journey planning.
9. **Improved public transport infrastructure and the provision of information relating to transport options** - South Lanarkshire Council's Local Transport Strategy aims to improve local air quality by reducing emissions and pollution through the provision of enhanced public transport infrastructure. There is an acknowledgement that South Lanarkshire does not have responsibility for the provision of public transport however will support and promote its use. The Council's corporate plan, Connect, includes influencing improvements in public transport as a key Council priority. Improvements in recent times have included £5 million redevelopment of Hamilton Bus Station and the introduction of a substantial number of new high quality bus stops and shelters.

Public transport information is available via

[http://www.southlanarkshire.gov.uk/info/200230/public\\_and\\_community\\_transport/1159/public\\_transport\\_information](http://www.southlanarkshire.gov.uk/info/200230/public_and_community_transport/1159/public_transport_information)

**10. Development of infrastructure for electric vehicles** - South Lanarkshire has continued to build a network of electric charging points for electric vehicles across the area. There are now 40 electric vehicle charging posts with provision for 98 charging outlets/bays. These charge points are available to charge council vehicles and for public use and are mainly situated in public car parks. Links to charging points are provided via the South Lanarkshire website:

[http://www.southlanarkshire.gov.uk/info/200193/pollution/263/air\\_quality/4](http://www.southlanarkshire.gov.uk/info/200193/pollution/263/air_quality/4)

**11. Provision of information regarding air quality** - A review of information available to the public via the Council's website has been undertaken and signposting to air quality reports, the network of continuous monitoring stations as well as links to receive air quality alerts have been introduced.

[http://www.southlanarkshire.gov.uk/info/200193/pollution/263/air\\_quality](http://www.southlanarkshire.gov.uk/info/200193/pollution/263/air_quality)

Information regarding air quality has also been disseminated through air quality and sustainable active travel workshops within schools. To date workshops have been delivered to over 3,430 pupils within South Lanarkshire with around 4,200 pupils and families participating in walk to school week initiatives. The 16/17 programme also included a pilot project at a High School within East Kilbride. This project focused on engine idling social marketing campaign and was particularly successful with students planning on cascading the information and developing their own bespoke campaign.

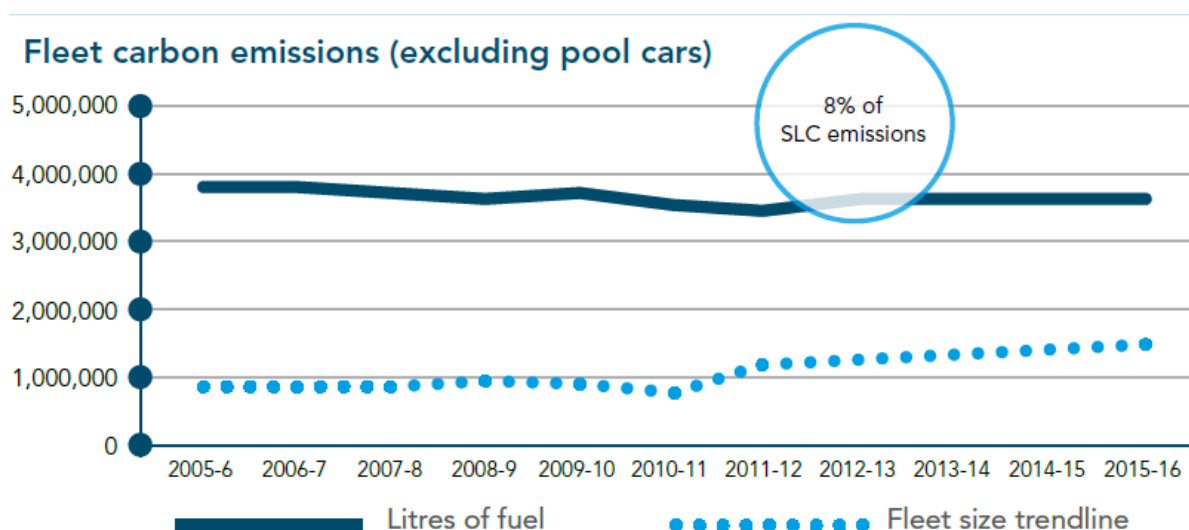
**12. Investigate Traffic signal optimisation** - South Lanarkshire Council has invested in upgrading traffic signal infrastructure throughout the area with the deployment of SCOOT. This is an adaptive traffic control system which co-ordinates the operation of traffic signals in an area to give good progression to vehicles through the network. MOVA is also operated at a number of junctions which is a more advanced form of traffic signal control. This system counts traffic, adapts green times in accordance with queues and has been shown to reduce queues and therefore pollution associated with standing traffic at junctions.



Roads and Transportation Services have worked in partnership with Environmental Services to identify areas of priority with improvements in the Rutherglen and Lanark air quality management areas. In addition, improvements have also been made in Carluke, Cambuslang, Hamilton and Blantyre areas with further investigation planned for the Uddingston area. Review and expansion of the intelligent traffic light infrastructure is ongoing and will continue to consider the co-benefits to both traffic flow and air quality in key locations.

**13. Promotion of cycling and walking** - Funding from both Paths for All and Air Quality Action plan grant streams was secured to help deliver a multimarket material publicity campaign to promote active travel and raise awareness of its benefits. A range of marketing materials and formats were utilised including billboards, posters, leaflets, local newspaper adverts as well as online article promotion of active travel. Examples of the poster material are included in Appendix H.

**14. Continue to target reductions in emissions from the Council fleet** - South Lanarkshire's fleet currently consists of 650 small cars and vans, 290 vans, 190 tippers, 79 passenger buses, 49 heavy refuse and gritting vehicles, 37 sweepers, 22 electric cars and another 100+ specialised vehicles including platform lift trucks, 4x4 all terrain vehicles, refrigeration vans and library vehicles. Many fuel efficiency measures have been introduced over a number of years including: speed limiters; fuel efficient driver training; intelligent efficient vehicle procurement; telematics to assist with maximising effectiveness of fleet.



**15. Investigate the use of innovative technologies to reduce ambient**

**concentrations of PM<sub>10</sub>** - Options to utilise green infrastructure in key air quality target locations have been subject to initial investigation. Working in partnership with flood management representatives, work has been undertaken to identify locations where there is crossover between air quality and flood vulnerable areas. A proposed pilot project within the Rutherglen area is currently under further consideration. This project intends to replace hard concrete ground surface with green planting. The aim is to utilise more pollution reducing plants in the pilot location. Road safety and ongoing maintenance queries will have to be resolved prior to progressing.

**16. Vehicle emissions testing and Idling Vehicle Enforcement** - Vehicle emission testing events resulted in 812 vehicles being tested, 311 diesel, 498 petrol and 3 lpg. Eight fixed penalty notices were issued, all of which were issued for diesel vehicles. All notices were subsequently waived given submission of re-test certificates.

Our engine idling campaign has continued to focus mainly at schools. The campaign has included corresponding with Head Teachers, Parent Councils, Pupil and Eco-Council Committees as well as liaising direct with bus and taxi providers for schools. A re-run of the local produced engine idling video at the local cinemas over the Christmas period was also undertaken with the campaign promoted through South Lanarkshire's website<sup>1</sup>.

Fifty engine idling patrols have been undertaken over the 2016/17 school year and for the first time car fresheners were issued at the patrol events to those drivers found not to be idling. Incorporating a positive behaviour reward scheme has proven to be a very successful approach to raising awareness of engine idling concerns.

**17. Encourage Private and Public Operators to pursue cleaner vehicles and**

**abatement** - Environmental Services have run a fleet recognition scheme since 2014 within South Lanarkshire. There are now 101 scheme members, including

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<sup>1</sup> [https://www.southlanarkshire.gov.uk/press/article/1630/engine\\_idling\\_campaign\\_gets\\_underway](https://www.southlanarkshire.gov.uk/press/article/1630/engine_idling_campaign_gets_underway).

national operators such as Tesco and Malcolm Group, as well as local operators such as Bullet Express and Pringle Haulage. The fleet scheme covers 5481 vehicles which regularly operate in the South Lanarkshire Council area.

## **2.5 Cleaner Air for Scotland**

Cleaner Air for Scotland – The Road to a Healthier Future (CAFS) is a national cross-government strategy that sets out how the Scottish Government and its partner organisations propose to reduce air pollution further to protect human health and fulfil Scotland's legal responsibilities as soon as possible. A series of actions across a range of policy areas are outlined, a summary of which is available at <http://www.gov.scot/Publications/2015/11/5671/17>. Progress by South Lanarkshire Council against relevant actions within this strategy is demonstrated below.

### **2.5.1 Transport – Avoiding travel – T1**

All local authorities should ensure that they have a corporate travel plan (perhaps within a carbon management plan) which is consistent with any local air quality action plan. South Lanarkshire Council's Employee Travel Plan contains information on reducing the requirement to travel. The Plan provides information on alternative ways of working that can help reduce travel requirements including:

1. Utilising an alternative work location closer to home in line with appropriate service delivery requirements. In addition, there is an option to permanently relocate to reduce commuting distance.
2. Flexible working arrangements are available to reduce pressures on the commute by enabling travel at less busy times and in particular encouraging less travel if a compressed working pattern is adopted.
3. Home working is another option available to employees and is suitable for those able to work from home as well as being dependent on the type of service they deliver.
4. For some roles there is an element of travel required and measures to reduce business travel are encouraged including:
  - Consider if meetings are necessary, could business be discussed over the telephone rather than a face to face meeting.
  - Employ technology to accommodate group discussion. Video conferencing, instant messaging or email can be used to facilitate group discussions.

- Plan meetings at the beginning or end of the day to accommodate commuting commitments.
  - Arrange meetings across different locations on the same day taking into account efficient route planning.
  - Explore the opportunity to work at alternative locations to avoid additional travel back to core business location.
  - Arrange meetings at locations that people travel through on their way to work or home from work or where most people are located.
  - Share travelling to meetings with colleagues.
5. Digital technologies can impact the need for future travel. South Lanarkshire Council's Local Development Plan, 2015 recognises the importance of supporting digital industries through ensuring strategic economic investment locations have been identified for this key growth sector as well as promoting and safeguarding the existing digital sector. The plan also recognises the need to adapt to the changing needs of occupiers of strategic business locations and the advances in technology to ensure that communities are provided for.

## **2.5.2 Climate Change – Effective co-ordination of climate change and air quality policies to deliver co-benefits – CC2**

There are a number of plans and policies within South Lanarkshire which impact both climate change and air quality. Both subjects are considered regularly by South Lanarkshire Council's Corporate Strategic Environmental Assessment Working Group which reviews any new or revised strategies, plans or policies. This process has facilitated greater synergy between both subjects. Examples which have a positive impact on both climate change and air quality are detailed as follows:

1. The Local Development Plan seeks to ensure that future development takes place in a sustainable way. The overall strategic vision of the plan is to 'promote the continued growth and regeneration of South Lanarkshire by seeking sustainable economic and social development within a low carbon economy whilst protecting and enhancing the environment'. This includes a commitment to ensure development is sustainably located to make best use of public transport and has no significant impacts on the environment. Reducing South Lanarkshire's reliance on fossil fuels whilst supporting the use of renewable, low and zero

carbon energy generating technologies are also inbuilt within the Plan. This vision and policies benefit both climate change and air quality.

2. South Lanarkshire Council's Local Transport Strategy identifies a number of measures available to the Council and its partners to slow down the rate of traffic growth. The implementation of school travel plans is an example of one such measure. School travel plans aim to increase the number of children walking, cycling and using public transport to travel. In March 2017 66 out of 149 schools had implemented a travel plan with a further 62 plans in development.
3. The Local Development Plan's Supplementary Guidance 1: Sustainable Development and Climate Change recognises that planning has a critical role to play in implementing a positive vision for a sustainable future. A key policy is that proposals for new development must, where possible, seek to minimise and mitigate against the effects of climate change by ensuring new development includes opportunities for active travel routes and provisions for public transport which is recognised as having a positive impact on air quality. Development is also required to ensure that there will be no significant impact on air quality. The supplementary guidance also details the provision of electric vehicle recharging infrastructure in new developments to encourage the adoption of low carbon vehicles as another key measure that will have both climate change and air quality benefits.
4. Policy 16 of South Lanarkshire's Local Development Plan requires new development proposals to consider, and where appropriate, mitigate the resulting impacts of traffic growth, particularly development related traffic. The development of walking, cycling and public transport networks which provide a viable and attractive alternative to car travel are supported through this policy. Existing and proposed walking and cycling routes will also be safeguarded through this policy.
5. South Lanarkshire Council's Sustainable Development Strategy recognises that finding a balance between economic, social and environmental objectives to safeguard the wellbeing of future generations is vital for health and wellbeing. The most recent strategy focuses on the environmental aspects of sustainable development. The policy recognises that a key strategy for a sustainable environment includes the development of South Lanarkshire's Air Quality Strategy which is in the process of being finalised. The review and assessment of air

quality is also recognised as an outcome which contributes to quality of the local environment and wellbeing of local communities.

6. Although not a policy as such, a key communication tool with employees is 'The Works' magazine and this includes a regular column called 'carbon corner'. This regularly features articles aimed at reducing travel and encouraging more sustainable, active means of travel which has climate change and air quality co-benefits.
7. The most recent Carbon Management Plan produced in 2016 recognises the benefits renewable technology can have on reducing carbon emissions. The Plan also recognises air quality management as a wider Council consideration when considering such technologies. In particular, the plan stipulates that the installation of any biomass can only be progressed if air quality has been considered.
8. The Council prepares the 'State of the Environment' report biennially which provides quality data that facilitates evaluation of a range of environmental issues, identifies trends and provides an overall picture of the condition or state of South Lanarkshire's environment. There are chapters which consider climate change and also air quality within the report and it provides information on the current status and direction of trend for indicators such as GHG emissions, energy consumption, transport emissions, renewable capacity and environmental awareness.

## **2.6 Policies Relevant to Air Quality in South Lanarkshire**

South Lanarkshire Council has in place a number of policies which can impact on air quality within the local area. These policies aim to have a positive impact on pollutant concentrations across South Lanarkshire.

### **2.6.1 Local Development Plan 2015-2020**

The Local Development Plan<sup>2</sup> has interactive maps available outlining the land use plans for each of the urban settlements within South Lanarkshire. The developments

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<sup>2</sup> [http://www.southlanarkshire.gov.uk/info/200172/plans\\_and\\_policies/39/development\\_plans/6](http://www.southlanarkshire.gov.uk/info/200172/plans_and_policies/39/development_plans/6)

which could impact on the designated AQMA's declared for Whirlies, Rutherglen and Lanark are:

- East Kilbride: Residential development areas bordering the designated AQMA at Nerston could impact of the traffic within the Whirlies AQMA.
- Lanark: Residential development areas to the east and South of the town centre of Lanark, within the AQMA boundary declared for Lanark.
- Rutherglen: Limited development within the immediate area, however large of development within Cambuslang to the East of Rutherglen could result in increased traffic within the area. The proposed area of development and growth is outwith the designated AQMA.

The Local Development Plan Policy 4, outlines that development management will ensure that no adverse effects on air quality will occur as a result of proposed developments.

### **2.6.2 Climate Change – annual statement on Climate Change**

The Climate Change Annual Statement<sup>3</sup> highlights that sustainable development including climate change compliance is a focus for South Lanarkshire Council. These duties are reflected in the Council Plan and South Lanarkshire's Sustainable Development Strategy (SDS). Climate Change actions are embedded within numerous strategic plans across South Lanarkshire, including:

- Local Development Plan
- Carbon Management Plan
- Employee Travel Plan

South Lanarkshire has key performance targets to reduce energy and fuel consumption in order to further reduce carbon emissions by a further 10% by 2021.

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<sup>3</sup> [http://www.southlanarkshire.gov.uk/downloads/file/11048/climate\\_change\\_duties\\_summary\\_report\\_2016](http://www.southlanarkshire.gov.uk/downloads/file/11048/climate_change_duties_summary_report_2016)

### **2.6.3 Sustainable Development Strategy 2012-17**

South Lanarkshire Council's second Sustainable Development Strategy<sup>4</sup> covers the period from 2012 to 2017. The strategy outlines the actions South Lanarkshire will take to reduce their carbon emissions and adapt to climate change.

### **2.6.4 Supplementary Planning Guidance**

The Supplementary Planning Guidance for Sustainable Development and Climate Change<sup>5</sup> forms part of the Development Plan for South Lanarkshire. Section 8 outlines key planning issues in relation to air quality that South Lanarkshire require to address, these include:

- Proposed new buildings can impact the local air flow of an area, impacting on air quality
- Proposed road construction, amendments can impact traffic flow and pollutant concentrations as a result of increased congestion.
- Proposed Developments in an areas of existing poor air quality can exposure future occupiers and result in increased pressure on the local road networks due to increased traffic.

Overall South Lanarkshire recognises the importance of the planning system in ensure air quality is not hindered through future developments.

### **2.6.5 Local Transport Strategy**

The Local Transport Strategy<sup>6</sup> specified that road traffic has been recognised as a significant source of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations across South Lanarkshire. Previous LAQM reports and assessments have identified busy road junctions as areas for potential poor air quality and as a result the monitoring network within

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<sup>4</sup> [http://www.southlanarkshire.gov.uk/downloads/file/7849/sustainable\\_development\\_strategy\\_2012\\_-\\_2017](http://www.southlanarkshire.gov.uk/downloads/file/7849/sustainable_development_strategy_2012_-_2017)

<sup>5</sup> [http://www.southlanarkshire.gov.uk/downloads/file/9914/sustainable\\_development\\_and\\_climate\\_change](http://www.southlanarkshire.gov.uk/downloads/file/9914/sustainable_development_and_climate_change)

<sup>6</sup> [http://www.southlanarkshire.gov.uk/downloads/file/7420/local\\_transport\\_strategy\\_2013-23](http://www.southlanarkshire.gov.uk/downloads/file/7420/local_transport_strategy_2013-23)



South Lanarkshire was expanded. Over the past couple of years PM<sub>10</sub> and PM<sub>2.5</sub> monitoring has been expanded to Uddingston and Lanark in order to gather further information on pollutant concentrations.

The Local Transport Strategy for South Lanarkshire outlines the aim of working towards economic prosperity and environmental and social sustainability by providing an accessible and integrated transport network. The strategy seeks to link with other council strategies and policies.

The strategy includes numerous objectives which are particularly relevant reducing pollutant concentrations:

- Ensuring that transport supports and facilitates economic recovery, regeneration and sustainable development.
- Improving health and wellbeing by facilitating and encouraging active travel, through the development of attractive, safe and convenient walking and cycling networks.

Alleviating the impacts of traffic, congestion and traffic growth throughout South Lanarkshire

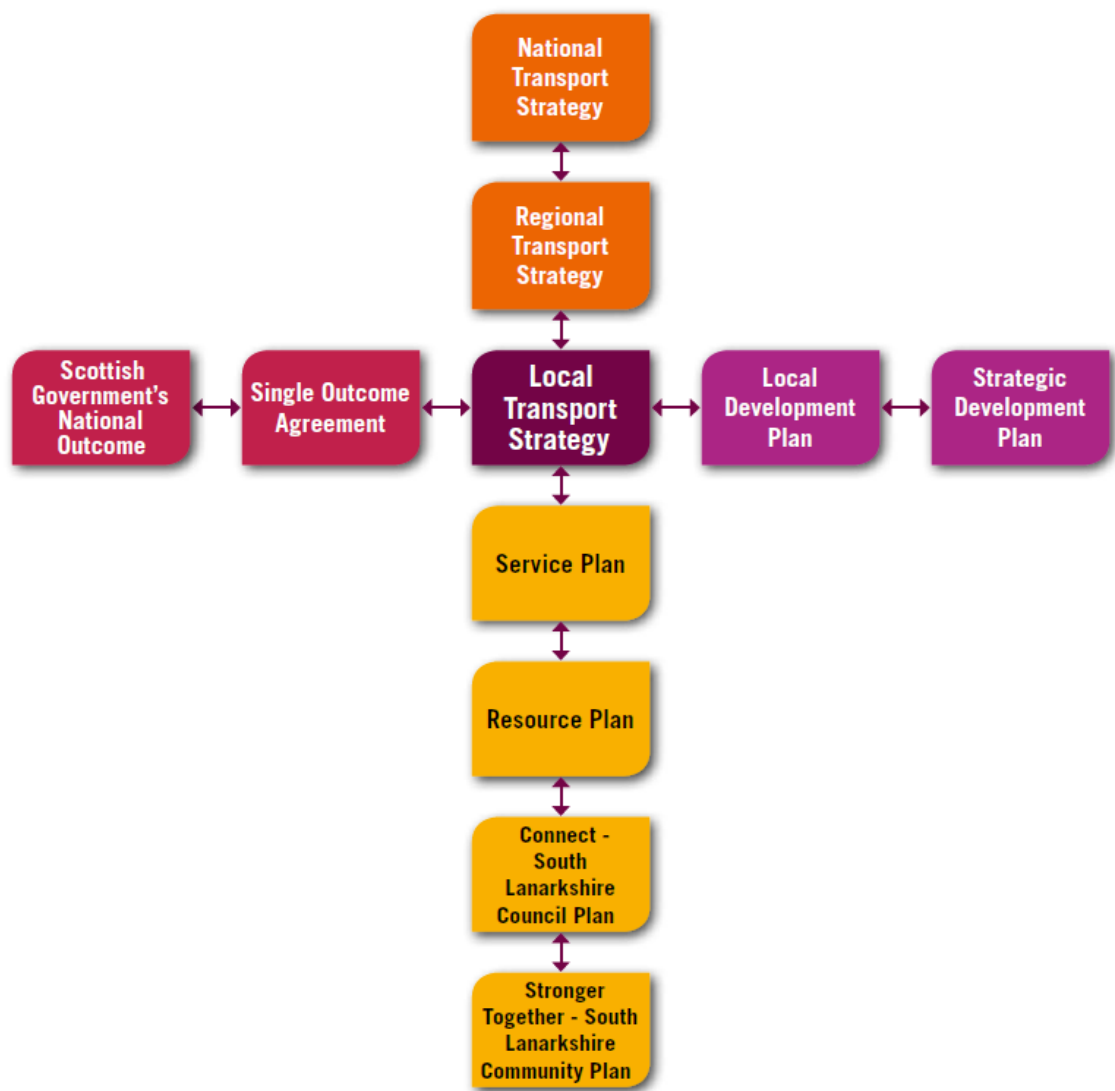


Figure 2.1 Local Transport Strategy Overview

### **3. Air Quality Monitoring Data and Comparison with Air Quality Objectives**

#### **3.1 Summary of Monitoring Undertaken**

##### **3.1.1 Automatic Monitoring Sites**

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

South Lanarkshire undertook automatic (continuous) monitoring at 7 sites during 2016. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at <http://www.scottishairquality.co.uk/data/>. The location of the automatic monitoring sites in South Lanarkshire can found at <http://www.scottishairquality.co.uk/latest/>. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

In March 2016, monitoring commenced at the Raith Interchange 2 site, this site was relocated from the former Raith Interchange site which ceased monitoring in April 2014.

##### **3.1.2 Non-Automatic Monitoring Sites**

South Lanarkshire Council undertook non- automatic (passive) monitoring of NO<sub>2</sub> at 40 sites during 2016. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D.

Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

#### **3.2 Individual pollutants**

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C and Appendix D for annualisation.

##### **3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)**

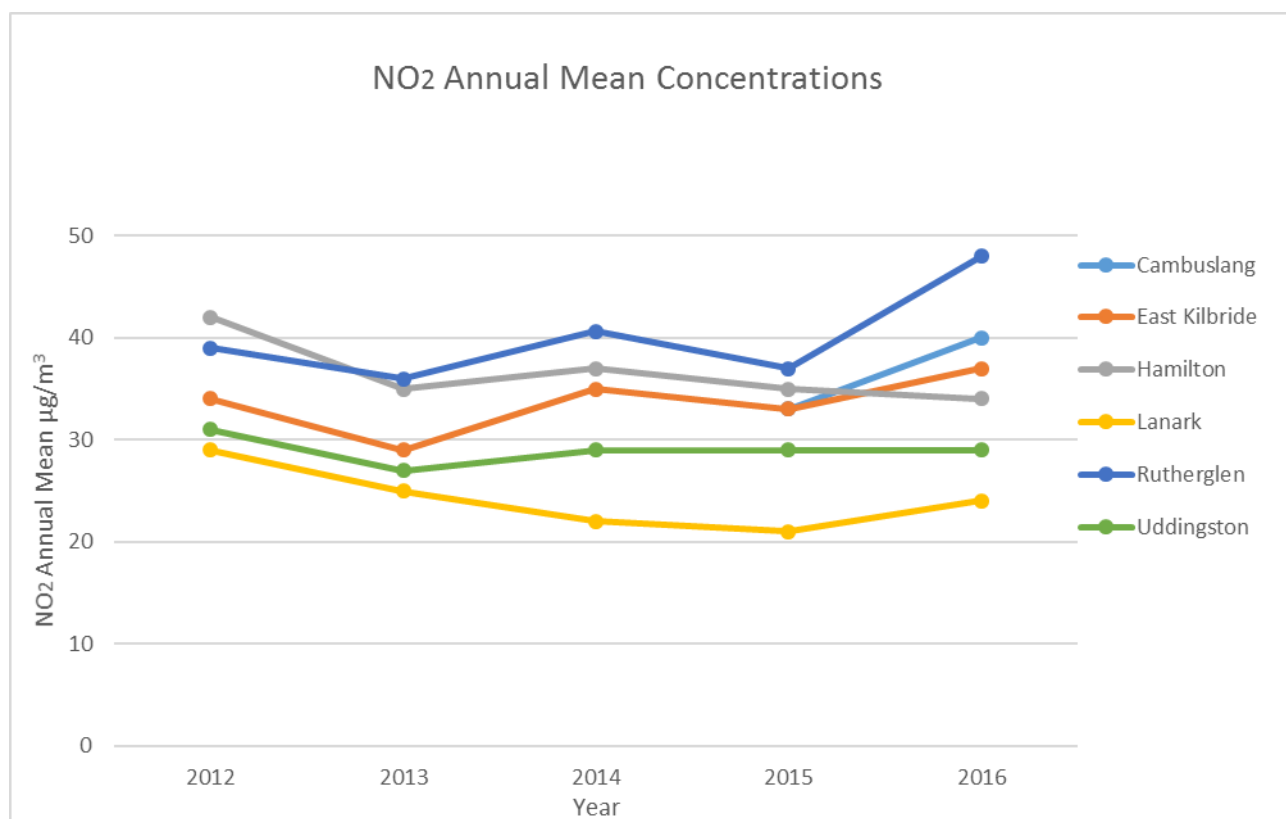
During 2016 NO<sub>2</sub> annual mean concentrations in excess of the 40 µg.m<sup>-3</sup> objective were measured at 2 automatic monitoring locations within South Lanarkshire. An

exceedance of  $48 \mu\text{g.m}^{-3}$  was measured at Rutherglen, this location is within the currently designated AQMA which is declared for  $\text{PM}_{10}$ . A borderline exceedance of  $40 \mu\text{g.m}^{-3}$  was measured at Cambuslang. These monitoring sites are not however at locations representative of relevant exposure for the annual mean objective. To estimate the concentration at the nearest receptor to each site, the  $\text{NO}_2$  distance drop off calculator<sup>7</sup> was used. Following distance correction to the nearest location of relevant exposure at Camsbuslang, the  $\text{NO}_2$  annual mean concentration was below the objective at  $39 \mu\text{g.m}^{-3}$ . At Rutherglen, distance drop off calculations were not applicable as the nearest relevant exposure is over 50m from the monitoring site; it is reasonable to assume however that concentrations would be lower than the annual mean objective at the nearest receptor. Therefore no exceedences of the  $\text{NO}_2$  annual mean objective were estimated at locations where relevant exposure is present close to the automatic monitoring sites in South Lanarkshire.

Table A.3 in Appendix A compares the ratified and adjusted monitored  $\text{NO}_2$  annual mean concentrations for the past 5 years with the  $40 \mu\text{g.m}^{-3}$   $\text{NO}_2$  annual mean objective. The annual mean concentrations measured at the automatic monitoring stations over the past five years are presented below in Figure 3.1.

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<sup>7</sup> <https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>

**Figure 3.1 NO<sub>2</sub> Annual Mean Concentrations 2012-2016**

During 2016 NO<sub>2</sub> annual mean concentrations greater than the 40 µg.m<sup>-3</sup> annual mean objective were measured at 5 diffusion tube monitoring locations. An exceedance was measured at Tube location 12 at Farmeloa, Rutherglen measuring 41 µg.m<sup>-3</sup> this location is within the existing AQMA declared for PM<sub>10</sub> within Rutherglen. However, this location is not representative of relevant exposure, and distance drop off calculations were undertaken. The estimated NO<sub>2</sub> annual mean at the closest relevant exposure to Tube 12 is 39 µg.m<sup>-3</sup>.

The other locations where concentrations in excess of the annual mean objective were measured during 2016 are all out with areas currently declared as an AQMA, these were:

- Tube 3- 4 Kirkton Street, Carluke (46 µg.m<sup>-3</sup>)
- Tube 26- 24 Low Patrick Street, Hamilton (53 µg.m<sup>-3</sup>)
- Tube 30- 93 Main Street Bothwell (40 µg.m<sup>-3</sup>)
- Tube 32- 233 Glasgow Road, Blantyre (56 µg.m<sup>-3</sup>)

These results were adjusted for distance drop off to estimate the annual mean concentrations at the nearest location of relevant exposure. The following NO<sub>2</sub> annual mean concentrations were calculated:

- Tube 3- 4 Kirkton Street, Carluke (37  $\mu\text{g.m}^{-3}$ )
- Tube 26- 24 Low Patrick Street, Hamilton (47  $\mu\text{g.m}^{-3}$ )
- Tube 30- 93 Main Street Bothwell (29  $\mu\text{g.m}^{-3}$ )
- Tube 32- 233 Glasgow Road, Blantyre (55  $\mu\text{g.m}^{-3}$ )

Following distance correction, two diffusion tubes measured exceedences of the NO<sub>2</sub> annual mean objective. These were Tube 26 at Low Patrick Street, Hamilton and Tube 32 at Glasgow Road, Blantyre.

Hamilton was subject to a Detailed Assessment within the Town Centre in 2013, which concluded that no exceedences of the NO<sub>2</sub> annual mean objective were occurring at locations where relevant exposure is present. Although the distance corrected concentration at Low Patrick Street is in excess of the 40  $\mu\text{g.m}^{-3}$  objective; the previous dispersion modelling indicated that concentrations were well within the the 40  $\mu\text{g.m}^{-3}$  objective at first floor height where relevant exposure is present. The annual mean measured in 2013 was 51  $\mu\text{g.m}^{-3}$ . South Lanarkshire Council intend to continue to monitor at this location to establish if a continued upward trend will mean an updated Detailed Assessment is required.

The exceedence measured at Blantyre is likely to have been affected by traffic diverting from the M74 whilst there are ongoing road works. The main works have now been completed however more minor works and snagging are due to be completed by September 2017. South Lanarkshire intend to continue and include additional monitoring NO<sub>2</sub> sites at this location with a view to conducting a Detailed Assessment when normal traffic patterns return i.e. when the works on the M74 have been completed.

For diffusion tubes, the full 2016 dataset of monthly mean values is provided in Appendix B. Table A.4 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past 5 years with the air quality objective of 200  $\mu\text{g.m}^{-3}$ , not to be exceeded more than 18 times per year.

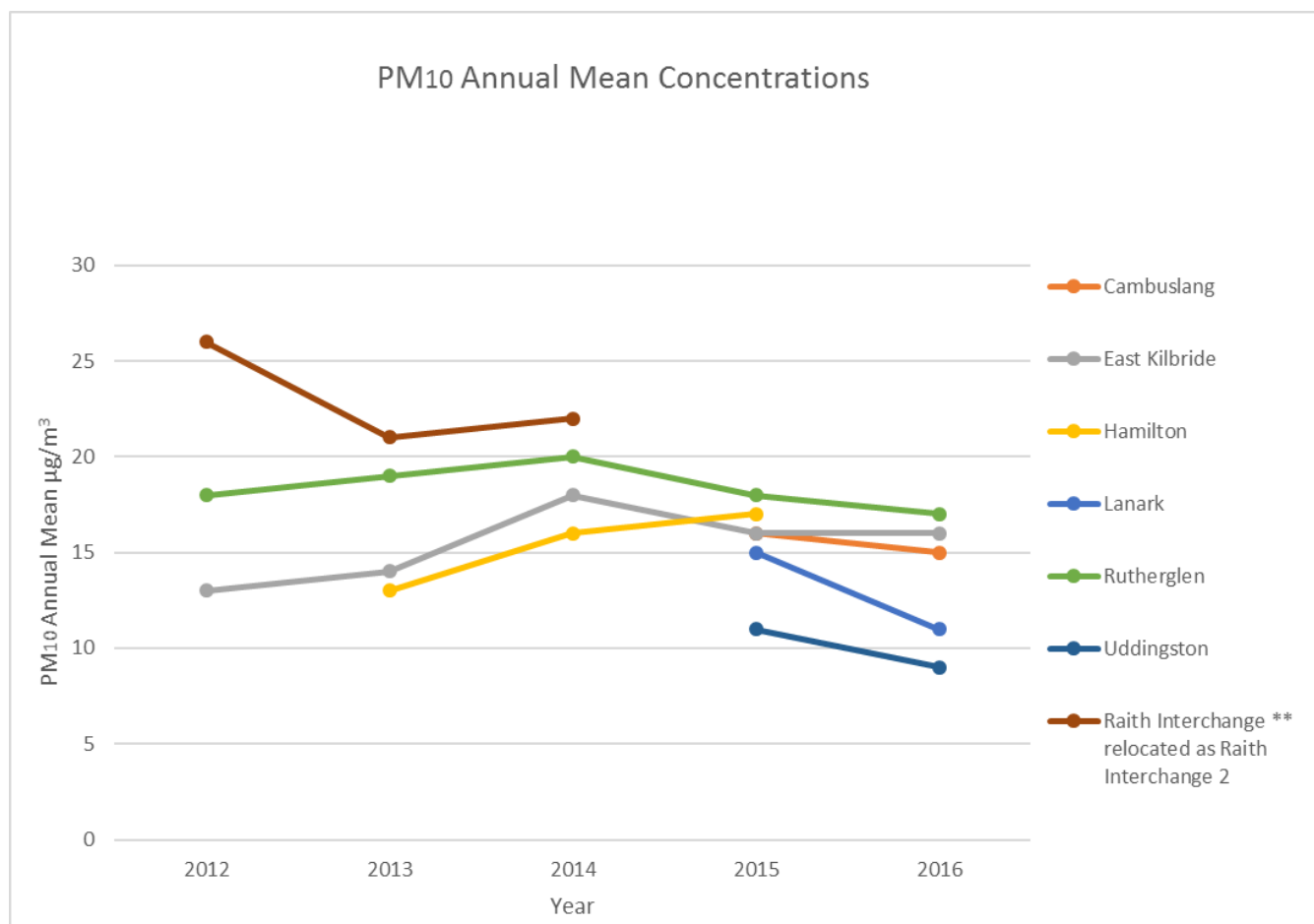
No annual mean greater than  $60 \mu\text{g.m}^{-3}$  was measured; which indicates that there are no exceedance of the 1-hour mean objective likely at any diffusion tube locations.

$\text{NO}_2$  hourly concentrations measured at the automatic monitoring locations during 2016 were compliant with the  $\text{NO}_2$  1-hour objective as no sites measured exceedances of the  $200 \mu\text{g.m}^{-3}$  objective more than 18 times in one year. One hourly mean concentration in excess of  $200 \mu\text{g.m}^{-3}$  was measured at the Whirlies, East Kilbride site; and 12 hourly means in excess of  $200 \mu\text{g.m}^{-3}$  at the Cambuslang site.

### **3.2.2 Particulate Matter ( $\text{PM}_{10}$ )**

Table A.5 in Appendix A compares the ratified and adjusted monitored  $\text{PM}_{10}$  annual mean concentrations for the past 5 years with the air quality objective of  $18 \mu\text{g.m}^{-3}$ . Table A.6 in Appendix A compares the ratified continuous monitored  $\text{PM}_{10}$  daily mean concentrations for the past 5 years with the air quality objective of  $50 \mu\text{g.m}^{-3}$ , not to be exceeded more than 7 times per year. A daily mean of greater than  $50 \mu\text{g.m}^{-3}$  was measured at Rutherglen on 1 occasion only, so was compliant with the objective.

During 2016 there were no exceedances of the annual mean objective of  $18 \mu\text{g.m}^{-3}$  at any monitoring locations within South Lanarkshire.  $\text{PM}_{10}$  concentrations at Hamilton have not been reported due to low data capture as a result of technical site issues resulting in the  $\text{PM}_{10}$  analyser not being operational for the majority of 2016. A comparison of  $\text{PM}_{10}$  annual mean concentrations measured in South Lanarkshire over the past five years are presented in Figure 3.2.

**Figure 3.2: PM<sub>10</sub> Annual Mean Concentrations 2012-2016**

### 3.2.3 Particulate Matter (PM<sub>2.5</sub>)

South Lanarkshire Council measured PM<sub>2.5</sub> concentrations at 2 locations during 2016, Uddingston and Lanark.

Table A.7 in Appendix A compares the ratified and adjusted monitored PM<sub>2.5</sub> annual mean concentrations measured during the past 2 years. During 2016 the PM<sub>2.5</sub> concentrations measured within South Lanarkshire were within the annual mean objective of 10 µg.m<sup>-3</sup>.

### 3.2.4 Sulphur Dioxide (SO<sub>2</sub>)

South Lanarkshire Council do not currently measure SO<sub>2</sub> concentrations.

### 3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

South Lanarkshire Council do not currently measure any other pollutants.



## 4. New Local Developments

### 4.1 Road Traffic Sources

Two new road schemes that may affect local air quality are:

- **Opening of Raith Interchange in February 2017** The non-technical summary of the environmental statement<sup>8</sup> for the Raith Interchange upgrade states the following: Close to the proposed scheme, residents will experience a slight deterioration in air quality, but pollution levels will remain below the relevant air quality objectives. Also, by influencing strategic traffic patterns, the scheme will alter air quality across a wider area. The proposed scheme is predicted to improve local air quality in some locations but will cause air quality to deteriorate in others. In most places, any change will be negligible and overall, the effect of the proposed scheme on local air quality is judged to be neutral.

South Lanarkshire Council will continue to measure air quality at locations where traffic is likely to be affected by the changes to the Raith Interchange.

- **Opening of Cathkin Relief Road in February 2017** This is a single-carriageway road that runs for a mile between Mill Street and Burnside Road. The junctions at Cathkin Road/Burnside Road/Fernhill Road and Blairbeth Road/Mill Street/Croftfoot Road/Fernhill Road were also upgraded during this project. The air quality assessment submitted for this road scheme<sup>9</sup> concluded that for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, the magnitude of change predicted in both 2022 and 2037 corresponded to a negligible effect across the majority of the study area, with some localised slight to moderate beneficial effects at limited locations.

South Lanarkshire Council deployed an indicative AQ Mesh pod NO<sub>2</sub> analyser at Burnside both before and after the relief road was opened. During the three month period before road opening the 3 month NO<sub>2</sub> mean was 25.4 µg.m<sup>-3</sup>; and during the three months after opening this reduced to 20.7 µg.m<sup>-3</sup> which represent an 18.5% reduction in average NO<sub>2</sub> concentrations. These results should however be

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<sup>8</sup> Transport Scotland (2007) M74 Junction5, Raith Environmental Statement Non-Technical Summary 2007

<sup>9</sup> AECOM - City Deal – Greenhills Road / A726 Strathaven Road Corridor Improvements - Environmental Report - Volume 2: Main Report; Air Quality Chapter

considered as indicative only and are not comparable with the air quality objectives. This is because the 3 month averages have not been annualised to account for annual variation; and the AQ Mesh pod has not been collocated with a reference standard automatic analyser for calibration purposes.

#### **4.2 Other Transport Sources**

No other transport sources have been identified that require screening or consideration at this time.

#### **4.3 Industrial Sources**

No new or significantly changed industrial sources have been identified during 2016.

#### **4.4 Commercial and Domestic Sources**

The following biomass installations were initiated during 2016. The table below outlines the planning application and indicates how potential air quality impacts have been assessed and their outcome.

Application No.	Details	Comments
CL/16/0242	Erection of extension and associated alterations to agricultural grain store building to house 3 No. Biomass burners	No AQ issues reported. Application Granted
HM/16/0213	New Douglas Park – Erection of biomass plant room, fuel store, flue and retaining wall	Biomass questionnaire referred to in reply to planning.- awaiting update re outcome of that assessment
EK/16/0383	Installation of container to house a biomass heating system, buffer vessels, flue and pellet store at Whitehills Care Home, Scholars Gate, East Kilbride.	<p>Please find comments below in response to the additional information which has now been provided by the applicant in support of EK/16/0300</p> <p>This Service finds the proposals for the Harmont 500 Boiler acceptable, provided that the flue height is a minimum of 5.6m above ground level, and that the fuel used is wood pellets, as stated by the applicant. With this boiler, the overall effect in Annual mean for pollutants remains within acceptable standards. This, however, is on the understanding that this appliance does get onto the list of 'Approved Appliances' in terms of the Clean Air Act, as the applicant has advised is planned to occur. Should this appliance not come onto this list, then an alternative appliance should be sought. Should this be the case that an alternative appliance is required for this reason, then details of such an alternative shall be submitted to the Planning Authority for approval.</p> <p>Application Granted</p>
CL/16/0157	Dalquhandy - Wood Drying Facility	The minimum stack height for the biomass in connection with the Wood Fuel Drying Facility shall be 16m in keeping with the air quality impact assessment. This shall ensure that the emissions from the plant have no significant effect on local air quality.

#### 4.5 New Developments with Fugitive or Uncontrolled Sources

No new or significantly changed fugitive sources have been identified during 2016.

### 5. Planning Applications

The following applications have been considered during 2016. The table below outlines planning applications where air quality impacts have been assessed. The outcome of the Air Quality Impact Assessment is detailed below.

<b>Application No.</b>	<b>Details</b>	<b>Comments</b>
EK/16/0325 and EK/17/0059	Residential Development at Mavor Avenue, East Kilbride with associated Retail	316 Residential properties – 172 Retail parking provision – Air Quality Impact Assessment from WSP Parsons Brinckhoff – negligible increase in concentrations of NO <sub>2</sub> , PM <sub>10</sub> and PM <sub>2.5</sub> as result of development

## 6. Conclusions and Proposed Actions

### 6.1 Conclusions from New Monitoring Data

Annual mean Nitrogen Dioxide (NO<sub>2</sub>) concentrations in excess of the 40 µg.m<sup>-3</sup> objective were measured at the automatic monitoring site at Rutherglen and Cambuslang. However, these sites do not represent locations of relevant exposure. Following distance correction at Cambuslang the annual mean concentration was below the objective at 39 µg.m<sup>-3</sup>. Due to the distance of the nearest receptor at Rutherglen (60m), drop off calculations were not able to be undertaken, however it can be assumed that concentrations would be lower than the annual mean objective at the nearest receptor. All other automatic monitoring sites within South Lanarkshire were below the annual mean objective during 2016.

The last five years' measurements indicate a downward trend in measured NO<sub>2</sub> concentrations at most of the automatic sites, with the exception of Rutherglen and Cambuslang where concentrations have increased.

Exceedances of the NO<sub>2</sub> annual mean objective were measured at two diffusion tube sites at 24 Low Patrick Street, Hamilton and 233 Glasgow Road, Blantyre. A Detailed Assessment of NO<sub>2</sub> and PM<sub>10</sub> conducted previously for Hamilton Town Centre based on 2013 measurements concluded that there were no exceedances of the 40 µg.m<sup>-3</sup> objective occurring at 1<sup>st</sup> floor height. Measured NO<sub>2</sub> concentrations at this location have not increased significantly since 2013, it's therefore considered unlikely that the 40 µg.m<sup>-3</sup> objective is being exceeded where relevant exposure is present. South Lanarkshire Council intend to continue to monitor at this location to establish if a continued upward trend will mean an updated Detailed Assessment is required. No further action is required based on the 2016 diffusion tube measurements.

The exceedence measured at Blantyre is likely to be affected by traffic diverting from the M74 whilst there are ongoing road works. The main works have now been completed however more minor works and snagging are due to be completed by September 2017. South Lanarkshire intend to continue and include additional monitoring NO<sub>2</sub> sites at this location with a view to conducting a Detailed Assessment when normal traffic patterns return i.e. when the works on the M74 have been completed.

No exceedances of the PM<sub>10</sub> annual mean objective were measured during 2016. Measured concentrations across the seven PM<sub>10</sub> analysers sites in South Lanarkshire ranged from 9 to 17 µg.m<sup>-3</sup>. Measured PM<sub>10</sub> concentration were lower in 2016 when compared to 2015 at the Rutherglen site. Measured concentrations remained consistent at the Whirlies, East Kilbride analyser. There are no obvious trends at all sites, showing no overall change in PM<sub>10</sub> concentrations year on year. There were no exceedances of the NO<sub>2</sub> hourly or PM<sub>10</sub> daily short-term air quality objective during 2016.

South Lanarkshire Council measured PM<sub>2.5</sub> concentrations in Lanark and Uddingston during 2016. No exceedances of the Scottish PM<sub>2.5</sub> annual mean objective were measured.

## **6.2 Conclusions relating to New Local Developments**

The potential air quality impacts of new local developments have been considered including:

- The Cathkin Relief Road.
- The upgrade to the Raith Interchange
- Mixed-use residential-led development located at Mavor Avenue in East Kilbride.
- Various new biomass boilers

Based on the available information submitted with the planning applications for these developments; South Lanarkshire Council has not identified any locations where there may be a risk of the air quality objectives being exceeded. No additional air quality assessment is recommended at this time.

## **6.3 Proposed Actions**

South Lanarkshire Council will now finalise the consolidated Action Plan for the Whirlies, Rutherglen and Lanark AQMAs. The Council expects to include a full update of the progress of the full council AQAP in next year's LAQM annual progress report (APR).

## Appendix A: Monitoring Results

**Table A.1 – Details of Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
SL04	Rutherglen	Roadside	261128	661703	NO <sub>2</sub> , PM <sub>10</sub>	Yes	Chemiluminescence FDMS	60 m	1 m	2 m
EK0	Whirlies	Roadside	264370	655670	NO <sub>2</sub> , PM <sub>10</sub>	Yes	Chemiluminescence FDMS	10 m	0.5 m	2 m
SL03	Lanark	Kerbside	288426	643704	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	Yes	Chemiluminescence FIDAS	2 m	0.5 m	1 m
SL05	Hamilton	Roadside	272310	655276	NO <sub>2</sub> , PM <sub>10</sub>	No	Chemiluminescence FDMS	2 m	8 m	1.8 m
SL06	Uddingston	Roadside	269663	660304	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	No	Chemiluminescence FIDAS	2 m	2 m	1.5 m
SL07	Cambuslang	Roadside	264321	660516	NO <sub>2</sub> , PM <sub>10</sub>	No	Chemiluminescence FDMS	10 m	0.5 m	2 m
SLC08	Raith Interchange 2	Roadside	271063	658087	NO <sub>2</sub> , PM <sub>10</sub>	No	Chemiluminescence FDMS	25m	38m	2m

(1) 0 if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

**Table A.2 – Details of Non-Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?
1	3 London Street, Larkhall	Kerbside	276085	651570	NO <sub>2</sub>	No	2.3 m	1 m	No
2	4 Machan Road, Larkhall	Roadside	276382	650781	NO <sub>2</sub>	No	3.2 m	3.8 m	No
3	4 Kirkton Street, Carluke	Kerbside	284538	650572	NO <sub>2</sub>	No	2 m	0.8 m	No
4	4 St Leonard Street, Lanark	Kerbside	288178	643663	NO <sub>2</sub>	Yes	0.7 m	4.4 m	No
5	32 Friars Lane, Lanark	Urban background	287858	643456	NO <sub>2</sub>	Yes	4.8 m	3.6 m	No
6	4 Bloomgate, Lanark	Kerbside	288122	643685	NO <sub>2</sub>	Yes	2 m	0.2 m	No
7	14 Scott Hill, East Kilbride	Roadside	264416	655372	NO <sub>2</sub>	No	7.2 m	3 m	No
8	Whirlies (1), East Kilbride	Roadside	264370	655670	NO <sub>2</sub>	Yes	6.8 m	1.9 m	No
9	Whirlies (2), East Kilbride	Roadside	264370	655670	NO <sub>2</sub>	Yes	6.8 m	1.9 m	No
10	Whirlies (3), East Kilbride	Roadside	264370	655670	NO <sub>2</sub>	Yes	6.8 m	1.9 m	No
11	West Mains/East Mains, East Kilbride	Roadside	263170	654849	NO <sub>2</sub>	No	3.6 m	2.3 m	No
12	20 Farmeloa Road, Rutherglen	Roadside	261662	661789	NO <sub>2</sub>	Yes	0.6 m	2.1 m	No
13	254 Main Street, Rutherglen	Kerbside	261653	661663	NO <sub>2</sub>	Yes	3.8 m	0.1 m	No
14	12 Mill Street, Rutherglen	Roadside	261302	660734	NO <sub>2</sub>	Yes	5.1 m	2.6 m	No
15	25 Burnside Road, Rutherglen	Kerbside	262484	659416	NO <sub>2</sub>	No	9 m	0.3 m	No
16	1 Rodger Drive (opp), Rutherglen	Kerbside	261789	660949	NO <sub>2</sub>	Yes	18.5 m	0.7 m	No
17	262 Cambuslang Road, Cambuslang	Roadside	263086	661296	NO <sub>2</sub>	No	0.3 m	2.3 m	No
18	281 Stonelaw Road, Cambuslang	Roadside	262160	660435	NO <sub>2</sub>	Yes	1.6 m	1.4 m	No
19	Blackswell Lane, Hamilton	Roadside	272714	655436	NO <sub>2</sub>	No	6.9 m	2.7 m	No
20	4 Annsfield Road, Hamilton	Roadside	271578	653346	NO <sub>2</sub>	No	13.6 m	3.8 m	No
21	109 Caird Street, Hamilton	Roadside	271670	656346	NO <sub>2</sub>	No	5.7 m	3.1 m	No
22	79 Union Street, Hamilton	Roadside	271852	655320	NO <sub>2</sub>	No	1.2 m	3.3 m	No
23	134 Almada Street, Hamilton	Roadside	271424	655786	NO <sub>2</sub>	No	3.7 m	1.4 m	No
24	Almada Street-Muir Street, Hamilton	Kerbside	271861	655952	NO <sub>2</sub>	No	3.6 m	0.1 m	No



Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?
25	Technology Avenue, Hamilton	Roadside	268444	656101	NO <sub>2</sub>	No	30 m	2.4 m	No
26	24 Low Patrick Street, Hamilton	Roadside	272617	655215	NO <sub>2</sub>	No	3.3 m	5.6 m	No
27	10 Gateside Street, Hamilton	Kerbside	272265	655067	NO <sub>2</sub>	No	2.2 m	0.8 m	No
28	28 Low Quarry gardens, Hamilton	Kerbside	271949	654957	NO <sub>2</sub>	No	11.9 m	0.6 m	No
29	5 Wordsworth Way, Bothwell	Roadside	270924	659109	NO <sub>2</sub>	No	15.9 m	1.6 m	No
30	93 Main Street, Bothwell	Roadside	270335	658722	NO <sub>2</sub>	No	8.9 m	2.3 m	No
31	25 Main Street, Bothwell	Roadside	270536	658508	NO <sub>2</sub>	No	3.1 m	3.3 m	No
32	233 Glasgow Road, Blantyre	Roadside	268902	657591	NO <sub>2</sub>	No	0.4 m	3.6 m	No
33	283 Glasgow Road, Blantyre	Roadside	268754	657689	NO <sub>2</sub>	No	5.2 m	3 m	No
34	1 Hunthill Road, Blantyre	Roadside	268000	656643	NO <sub>2</sub>	No	4.4 m	2.3 m	No
35	65 Old Mill Road, Uddingston	Roadside	269699	660517	NO <sub>2</sub>	No	3.2 m	1.1 m	No
36	Crofthead Road Park, Uddingston	Urban background	269811	660552	NO <sub>2</sub>	No	12.9 m	0.4 m	No
37	Burnpark Avenue, Uddingston	Roadside	268944	661474	NO <sub>2</sub>	No	22 m	29.2 m	No
38	81 Main Street, Uddingston	Roadside	269620	660425	NO <sub>2</sub>	No	0.5 m	2.7 m	No
39	North British Road, Uddingston	Roadside	270180	660753	NO <sub>2</sub>	No	29 m	1.1 m	No
40	Bannatyne Street/St Leonards Street, Lanark	Kerbside	288450	643698	NO <sub>2</sub>	Yes	1.5m	0.2m	No

(1) 0 if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

**Table A.3 – Annual Mean NO<sub>2</sub> Monitoring Results**

Site ID	Site name	Site Type	Monitoring Type	Data Capture 2016 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg.m <sup>-3</sup> ) <sup>(3)</sup>				
					2012	2013	2014	2015	2016
	Cambuslang	Roadside	Automatic	98	-	-	-	33*	40 (25)
	East Kilbride	Roadside	Automatic	68	34 <sup>#</sup>	29*	35	33	37**
	Hamilton	Kerbside	Automatic	42	42 <sup>\$</sup>	35	37	35	34**
	Lanark	Roadside	Automatic	95	29	25	22	21	24
	Rutherglen	Roadside	Automatic	92	39	36	40.6 <sup>#</sup>	37	48
	Uddingston	Roadside	Automatic	100	31 <sup>\$</sup>	27	29	29	29
	Raith Interchange ** now Raith Interchange 2	-	-	-	56	51	46.3 <sup>#</sup>	-	-
	Raith Interchange 2	Roadside	Automatic	66	-	-	-	-	31**
1	3 London Street, Larkhall	Roadside	Diffusion tube	75	28.0	29.7	23.7	32.3	26
2	4 Machan Road, Larkhall	Roadside	Diffusion tube	92				-	18
3	4 Kirkton Street, Carluke	Roadside	Diffusion tube	83	33.0	33.2	30.6	36.2	<b>46</b> (37)
4	4 St Leonard Street, Lanark	Roadside	Diffusion tube	83	-	-	-	34.0	34
5	32 Friars Lane, Lanark	Roadside	Diffusion tube	92	-	-	-	6.6	12
6	4 Bloomgate, Lanark	Roadside	Diffusion tube	92	34.0	40.3 (38.0)	34.1 (32.1)	38.2	36
7	14 Scott Hill, East Kilbride	Roadside	Diffusion tube	83	18.0	19.4	14.8	18.5	19
11	West Mains/East Mains, East Kilbride	Roadside	Diffusion tube	100	-	-	-	21.7	25
12	20 Farmeloa Road, Rutherglen	Roadside	Diffusion tube	100	38.0	39.2	32.6	37.2	41 (39)
13	254 Main Street, Rutherglen	Roadside	Diffusion tube	100	-	-	-	28.8	31
14	12 Mill Street, Rutherglen	Roadside	Diffusion tube	92	27.0	29.2	27.3	27.9	31
15	25 Burnside Road, Rutherglen	Roadside	Diffusion tube	100	-	-	-	19.6	18
16	1 Rodger Drive (opp), Rutherglen	Roadside	Diffusion tube	100	-	-	-	-	32
17	262 Cambuslang Road, Cambuslang	Roadside	Diffusion tube	100	-	-	-	-	30
18	281 Stonelaw Road, Cambuslang	Roadside	Diffusion tube	92	-	-	-	27.4	33
19	Blackswell Lane, Hamilton	Roadside	Diffusion tube	100	-	-	-	32.4	37
20	4 Annsfield Road, Hamilton	Roadside	Diffusion tube	100	-	-	-	19.8	28
21	109 Caird Street, Hamilton	Roadside	Diffusion tube	92	-	-	-	26.2	33

Site ID	Site name	Site Type	Monitoring Type	Data Capture 2016 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg.m <sup>-3</sup> ) <sup>(3)</sup>				
					2012	2013	2014	2015	2016
22	79 Union Street, Hamilton	Roadside	Diffusion tube	100	-	-	-	14.6	31
23	134 Almada Street, Hamilton	Roadside	Diffusion tube	100	-	-	-	31.6	35
24	Almada Street-Muir Street, Hamilton	Roadside	Diffusion tube	100	-	-	-	31.2	30
25	Technology Avenue, Hamilton	Roadside	Diffusion tube	92	-	-	-	14.4	23
26	24 Low Patrick Street, Hamilton	Roadside	Diffusion tube	100	-	-	-	44.6 (40.8)	53 (47)
27	10 Gateside Street, Hamilton	Roadside	Diffusion tube	92	32.0	34.1	39.5	35.3	36
28	28 Low Quarry gardens, Hamilton	Roadside	Diffusion tube	100	13.0	12.2	12.5	17.8	14
29	5 Wordsworth Way, Bothwell	Roadside	Diffusion tube	83	18.0	21.5	19.4	20.0	21
30	93 Main Street, Bothwell	Roadside	Diffusion tube	100	-	-	-	30.9	<b>40</b> (29.2)
31	25 Main Street, Bothwell	Roadside	Diffusion tube	83	-	-	-	-	31
32	233 Glasgow Road, Blantyre	Roadside	Diffusion tube	67	-	-	-	-	56** (55)
33	283 Glasgow Road, Blantyre	Roadside	Diffusion tube	100	-	-	-	28.8	33
34	1 Hunthill Road, Blantyre	Roadside	Diffusion tube	100	-	-	-	24.8	27
35	65 Old Mill Road, Uddingston	Roadside	Diffusion tube	100	-	-	-	18.4	22
36	Crofthead Road Park, Uddingston	Roadside	Diffusion tube	92	-	-	-	-	23
37	Burnpark Avenue, Uddingston	Roadside	Diffusion tube	92	31.0	29.8	26.5	24.0	28
38	81 Main Street, Uddingston	Roadside	Diffusion tube	92	29.0	33.3	32.8	31.5	33
39	North British Road, Uddingston	Roadside	Diffusion tube	92	30.0	27.5	24.6	22.1	27

Notes: Exceedences of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60 µg.m<sup>-3</sup>, indicating a potential exceedence of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG(16) if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

# Where annual data capture is less than 25% an annual mean has not been calculated.

() Distance corrected NO<sub>2</sub> annual mean concentrations are presented in brackets. Where an exceedence is measured at a monitoring site which is not representative of public exposure, the procedure specified in paragraphs 7.77 to 7.79 of LAQM.TG16 has been used to estimate the concentration at the nearest receptor

\*\*Data annualised in accordance with TG.16, results reported in Appendix D.

**Table A.4 – 1-Hour Mean NO<sub>2</sub> Monitoring Results**

Site ID	Site Type	Monitoring Type	Valid Data Capture 2016 (%) <sup>(2)</sup>	NO <sub>2</sub> 1-Hour Means > 200 µg.m <sup>-3</sup> <sup>(3)</sup>				
				2012	2013	2014	2015	2016
Rutherglen	Roadside	Chemiluminscense	92	1	1	0	0	0
Whirlies	Roadside	Chemiluminscense	68	21	5	7	5	1
Raith	Roadside	Chemiluminscense	-	4	1	1	-	-
Lanark	Kerbside	Chemiluminscense	95	0	0	0	0	0
Hamilton	Roadside	Chemiluminscense	42	0	0	0	0	0
Uddingston	Roadside	Chemiluminscense	100	1	0	0	0	0
Cambuslang	Roadside	Chemiluminscense	98	-	-	-	-	12
Raith Int 2	Roadside	Chemiluminscense	66	-	-	-	-	0

Notes: Exceedences of the NO<sub>2</sub> 1-hour mean objective (200 µg.m<sup>-3</sup>) not to be exceeded more than 18 times/year) are shown in **bold**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 99.8<sup>th</sup> percentile of 1-hour means is provided in brackets.

Raith Interchange site switched off during 2014, Site relocated as Raith Int 2 which commenced monitoring during 2016.

**Table A.5 – Annual Mean PM<sub>10</sub> Monitoring Results**

Site ID	Site Type	Valid Data Capture Monitoring Period (%)	Valid Data Capture 2016 (%) <sup>(2)</sup>	PM <sub>10</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
				2012	2013	2014	2015	2016
Cambuslang	Roadside	98	98	-	-	-	16	15
East Kilbride	Roadside	96	96	13	14	18	16	16
Hamilton	Roadside	6	6	-	13*	16	17	-*
Lanark	Kerbside	100	100	-	-	-	15 <sup>#</sup>	11
Rutherglen	Roadside	94	94	18	19	20 <sup>#</sup>	18	17
Uddingston	Roadside	94	94	-	-	-	11	9
Raith** now Raith Interchange 2	Roadside	-	-	26	21 <sup>#</sup>	22 <sup>#</sup>	-	-
Raith Interchange 2	Roadside	52	52	-	-	-	-	<b>#16</b>

Notes: Exceedences of the PM<sub>10</sub> annual mean objective of 18 µg.m<sup>-3</sup> are shown in **bold**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per LAQM.TG(16), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

\* Very low PM<sub>10</sub> data capture of 6% due to site technical issues, PM<sub>10</sub> monitor unable to operate for significant part of 2016.

<sup>#</sup> Data annualised in accordance with TG.16, Details provided in Appendix D.

**Table A.6 – 24-Hour Mean PM<sub>10</sub> Monitoring Results**

Site ID	Site Type	Valid Data Capture 2016 (%) <sup>(2)</sup>	PM <sub>10</sub> 24-Hour Means > 50 µg.m <sup>-3</sup> <sup>(3)</sup>				
			2012	2013	2014	2015	2016
Cambuslang	Roadside	98	-	-	-	5 (26)	0
East Kilbride	Roadside	96	4	0	2	4	0
Hamilton	Roadside	6	-	0	0	3	0
Lanark	Kerbside	100	-	-	-	1 (16)	0
Rutherglen	Roadside	94	5	9	1 (38.8)	5	1
Uddingston	Roadside	94	-	-	-	2 (18)	0
Raith**now Raith Interchange 2	Roadside	-	16	3 (48)	1(47)	-	-
Raith Interchange 2	Roadside	53	-	-	-	-	0

Notes: Exceedences of the PM<sub>10</sub> 24-hour mean objective (50µg/m<sup>3</sup> not to be exceeded more than 7 times/year) are shown in **bold**.

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 90.4<sup>th</sup> percentile of 24-hour means is provided in brackets.

**Table A.7 – Annual Mean PM<sub>2.5</sub> Monitoring Results**

Site ID	Site Type	Valid Data Capture 2016 (%) <sup>(2)</sup>	PM <sub>2.5</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
			2012	2013	2014	2015	2016
Lanark	Roadside	100	-	-	-	5 <sup>#</sup>	7
Uddingston	Roadside	94	-	-	-	6	5

Notes: Exceedences of the PM<sub>10</sub> annual mean objective of 10µg/m<sup>3</sup> are shown in **bold**.

**# Data annualised in accordance with TG.16, Details provided in Appendix D**

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per LAQM.TG(16), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

## Appendix B: Full Monthly Diffusion Tube Results for 2016

Table B.1 – NO<sub>2</sub> Monthly Diffusion Tube Results for 2016

Site ID	Site name	NO <sub>2</sub> Mean Concentrations (µg.m <sup>-3</sup> )													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
														Raw Data	Bias Adjusted <sup>(1)</sup>
1	3 London Street, Larkhall	31	-	52	35	24	-	24	-	30	27	18	-	30	26
2	4 Machan Road, Larkhall	22	-	31	23	17	-	12	16	23	18	29	11	20	18
3	4 Kirkton Street, Carluke	44	-	77	51	29	-	48	44	43	84	57	-	53	46
4	4 St Leonard Street, Lanark	36	-	59	35	29	-	35	-	39	38	55	33	40	34
5	32 Friars Lane, Lanark	13	-	11	11	8	-	4.5	6	8	57	13	6	13	12
6	4 Bloomgate, Lanark	39	-	68	46	49	-	35	46	49	37	17	26	42	36
7	14 Scott Hill, East Kilbride	23	-	27	21	15	8.3	-	39	22	*	30	19	22	19
8	Whirlies (1), East Kilbride	36	-	54	42	37	46	30	35	77	44	46	32	43	n/a
9	Whirlies (2), East Kilbride	44	-	59	36	30	42	30	37	53	44	53	31	42	
10	Whirlies (3), East Kilbride	49	-	59	33	37	43	33	18	48	40	62	20	40	
11	West Mains/East Mains, East Kilbride	31	-	38	32	20	23	20	42	34	26	37	21	29	25
12	20 Farmelohan Road, Rutherglen	32	-	62	59	47	54	38	27	51	54	51	41	47	41
13	254 Main Street, Rutherglen	39	-	48	37	30	32	24	28	36	35	50	31	36	31
14	12 Mill Street, Rutherglen	43	-	50	32	33	43	19	15	42	32	47	-	35	31
15	25 Burnside Road, Rutherglen	25	-	31	16	14	17	13	27	24	20	30	16	21	18
16	1 Rodger Drive (opp), Rutherglen	37	-	52	32	27	36	19	26	36	35	62	39	37	32
17	262 Cambuslang Road, Cambuslang	36	-	52	37	23	31	29	30	32	21	44	35	34	30
18	281 Stonelaw Road, Cambuslang	37	-	-	35	35	55	20	39	44	32	60	26	38	33
19	Blackswell Lane, Hamilton	43	-	68	45	43	45	30	24	40	51	38	45	42	37
20	4 Annsfield Road, Hamilton	33	-	44	34	25	36	20	46	30	28	42	24	33	28



Site ID	Site name	NO <sub>2</sub> Mean Concentrations (µg.m <sup>-3</sup> )													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
														Raw Data	Bias Adjusted <sup>(1)</sup>
21	109 Caird Street, Hamilton	37	-	45	37	28	39	-	26	40	37	39	46	38	33
22	79 Union Street, Hamilton	40	-	44	34	27	33	22	30	38	35	48	38	35	31
23	134 Almada Street, Hamilton	37	-	67	38	26	43	36	24	36	45	52	41	40	35
24	Almada Street-Muir Street, Hamilton	36	-	54	35	27	31	30	16	36	31	46	43	35	30
25	Technology Avenue, Hamilton	26	-	39	25	20	27	13	52	24	23	23	-	26	23
26	24 Low Patrick Street, Hamilton	58	-	77	71	55	76	52	37	58	50	66	70	61	53
27	10 Gateside Street, Hamilton	46	-	56	48	31	46	38	9	37	42	-	58	41	36
28	28 Low Quarry gardens, Hamilton	21	-	19	13	9	14	7	19	14	12	27	17	16	14
29	5 Wordsworth Way, Bothwell	31	-		16	18	19	12	38	26	18	38	24	24	21
30	93 Main Street, Bothwell	47	-	72	36	38	49	39	29	50	38	61	41	46	40
31	25 Main Street, Bothwell	51	-	48	25	18	31	23	70	31	27	-	-	35	31
32	233 Glasgow Road, Blantyre	n/a	-	88	33	-	53	38	21	*	121	-	39	61	56
33	283 Glasgow Road, Blantyre	96	-	43	29	25	29	19	24	35	25	35	32	38	33
34	1 Hunthill Road, Blantyre	38	-	49	28	21	26	21	20	36	26	46	25	31	27
35	65 Old Mill Road, Uddingston	29	-	45	20	14	22	16	21	29	19	39	24	25	22
36	Crofthead Road Park, Uddingston	29	-	36	-	18	20	13	28	30	20	35	24	26	23
37	Burnpark Avenue, Uddingston	41	-	61	30	31	34	18	-	44	26	8	27	33	28
38	81 Main Street, Uddingston	42	-	60	36	25	38	30	21	36	45	52	38	38	33
39	North British Road, Uddingston	35	-	68	-	23	30	15	21	32	21	42	20	31	27
40	West Mains/East Mains, East Kilbride	-	-	-	-	-	-	-	-	*	*	-	-	-	#

See Appendix C for details on bias adjustment

# No data collected from site due to missing tubes throughout the year

## **Appendix C: Supporting Technical Information / Air Quality**

### **Monitoring Data QA/QC**

#### **QA/QC of Automatic Monitoring**

All of South Lanarkshire Council's automatic monitoring sites are calibrated and audited by Ricardo Energy & Environment whereby monitoring data are managed to the same procedures and standards as AURN sites.

#### **PM Monitoring Adjustment**

PM<sub>10</sub> and PM<sub>2.5</sub> measurements were made using either TEOM analysers fitted with FDMS units, or FIDAS analysers. All PM measurement data were fully ratified by Ricardo Energy & Environment to AURN standards.

#### **QA/QC of Diffusion Tube Monitoring Data**

All passive diffusion tubes (PDT) for NO<sub>2</sub> measurements were prepared and analysed by Edinburgh Scientific Services. The PDTs were prepared using the 50% triethanolamine (TEA) in water method. Edinburgh Scientific Services is a UKAS accredited laboratory with documented Quality Assurance/Quality Control (QA/QC) procedures for diffusion tube analysis.

Edinburgh Scientific Services participates in the HSL AIR PT rounds. The percentage (%) of results submitted which were subsequently determined to be satisfactory during the last five rounds in 2016/2017 based upon a z-score of  $< \pm 2$  were as follows:

- January – February 2016 100%
- April - May 2016 100%
- July - August 2016 100%
- September - October 2016 100%
- January - February 2017 100%

#### **Diffusion Tube BIAS Adjustment Factors**

The bias adjustment factor of 0.87 from the latest version of the combined national database of adjustment factors was used to adjust the 2016 diffusion tube results. This adjustment factor was considered most appropriate because:

- Overall tube precision at the co-location monitoring site at Whirlies, East Kilbride was poor, although automatic monitoring data was good overall. Therefore, the local BIAS adjustment was not considered reliable to use.
- The national database adjustment factor of 0.87 is more consistent with the bias adjustment factors applied to the South Lanarkshire Council diffusion tube results in recent years.



**Figure C. 1 National BIAS Adjustment**

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/17 V2				
<p>Follow the steps below <b>in the correct order</b> to show the results of <b>relevant</b> co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.</p> <p>The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.</p>						<p>This spreadsheet will be updated at the end of June 2017</p> <p><a href="#">LAQM Helpdesk Website</a></p> <p>Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.</p>				
<b>Step 1:</b>		<b>Step 2:</b>	<b>Step 3:</b>	<b>Step 4:</b>						
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>2</sup> shown in blue at the foot of the final column.						
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data <sup>2</sup>	If you have your own co-location study then see footnote <sup>4</sup> . If uncertain what to do then contact the Local Air Quality Management Helpdesk at <a href="mailto:LAQMHelpdesk@uk.bureauveritas.com">LAQMHelpdesk@uk.bureauveritas.com</a> or 0800 0327953						
Analysed By <sup>1</sup>	Method To add your selection, choose (All) from the pop-up list	Year To add your selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ( $\mu\text{g}/\text{m}^3$ )	Automatic Monitor Mean Conc. (Cm) ( $\mu\text{g}/\text{m}^3$ )	Bias (B)	Tube Precision <sup>5</sup>	Bias Adjustment Factor (A) (Cm/Dm)
Edinburgh Scientific Services	50% TEA in acetone	2016	KS	Marylebone Road Intercomparison	12	92	79	15.5%	G	0.87
Edinburgh Scientific Services	50% TEA in acetone	2016		Overall Factor <sup>2</sup> (1 study)				Use		0.87

### Distance Drop off corrections

Distance correction was applied to NO<sub>2</sub> monitoring data where an annual mean of 40  $\mu\text{g}/\text{m}^3$  or above was measured, and where the monitoring location is not representative of relevant human exposure. Where required, the LAQM NO<sub>2</sub> distance drop off calculator was used. The results are presented below. Distance correction was not carried for Rutherglen automatic site as the nearest residential receptor is 60m away which is greater than the 50 m upper limit recommended in the drop off calculator guidance.



## Cambuslang Automatic Site:

Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	0.5	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	10.5	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	12.76	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	40	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	25.3	µg/m <sup>3</sup>



## Tube 3: 4 Kirkton Street, Carluke

Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	0.8	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	2.8	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	7.393412	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	46	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	36.7	µg/m <sup>3</sup>



## Tube 12: 20 Farmeloan, Rutherglen

Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	2.1	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	2.7	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	14.424034	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	41	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	39.4	µg/m <sup>3</sup>



## Tube 26: 24 Low Patrick Street, Hamilton

Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	5.6	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	8.9	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	13.708844	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	53	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	47.4	µg/m <sup>3</sup>



## Tube 30: 93 Main Street Bothwell

Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	2.3	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	11.2	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	11.917273	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	40	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	29.2	µg/m <sup>3</sup>

## Tube 32: 233 Glasgow Road, Blantyre

Enter data into the red cells

<b>Step 1</b>	How far from the KERB was your measurement made (in metres)?	3.6	metres
<b>Step 2</b>	How far from the KERB is your receptor (in metres)?	4	metres
<b>Step 3</b>	What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	10.943258	µg/m <sup>3</sup>
<b>Step 4</b>	What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?	56	µg/m <sup>3</sup>
<b>Result</b>	The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor	54.7	µg/m <sup>3</sup>

### Short term to long term adjustment of measurements with annual data capture less than 75%

For measurement sites where the annual data capture was less than 75%, the short term period means were adjusted to annual means using the method recommended in TG(16) Box 7.9. Details of the adjustment ratios calculated for various period means relevant to the 2016 South Lanarkshire Council measurements are presented in Table C.1 below.

**Table C.1 Annualisation of NO<sub>2</sub> Automatic Data**

Background Site	Annual mean 2016 (Am)	Period Mean 2016 - East Kilbride, Whirlies (Pm)	Period Mean 2016 - Hamilton (Pm)	Period Mean 2016 - Raith Int 2 (Pm)	Ratio (Am/Pm) East Kilbride, Whirlies	Ratio (Am/Pm) Hamilton	Ratio (Am/Pm) Raith Int 2
Glasgow Townhead	26	23.2	30.0	25.6	1.12	0.87	1.02
Eskdalemuir	2	1.9	2.7	2.0	1.07	0.75	1.02
Average (Ra)- East Kilbride					1.10		
Average (Ra)- Hamilton					0.81		
Average (Ra)- Raith Int 2					1.02		
East Kilbride Period Mean ( $\mu\text{g m}^{-3}$ )					33.4		
East Kilbride Annual Mean ( $\mu\text{g m}^{-3}$ ) (BIAS ADJ)					37		
Hamilton Period Mean ( $\mu\text{g m}^{-3}$ )					42.2		
Hamilton Annual Mean ( $\mu\text{g m}^{-3}$ ) (BIAS ADJ)					34		
Raith Int 2 Period Mean ( $\mu\text{g m}^{-3}$ )					30.0		
Raith Int 2 Annual Mean ( $\mu\text{g m}^{-3}$ ) (BIAS ADJ)					31		

**Table C.2 Annualisation NO<sub>2</sub> Diffusion Tube Data**

Background Site	Annual mean 2016 (Am)	Period Mean 2016 - Tube 32	Ratio (Am/Pm)
Glasgow Townhead	26	24.6	1.06
Eskdalemuir	2	1.9	1.04
Average (Ra)			1.05
Period Mean ( $\mu\text{g m}^{-3}$ )			61
Annual Mean ( $\mu\text{g m}^{-3}$ ) (BIAS ADJ)			56

**Table C.3 Annualisation PM<sub>10</sub> Monitoring Data**

<b>Background Site</b>	<b>Annual mean 2016 (Am)</b>	<b>Period Mean 2016 - Tube</b>	<b>Ratio (Am/Pm)</b>
Glasgow Townhead	12	13.3	0.90
Average (Ra)			0.90
Period Mean ( $\mu\text{g m}^{-3}$ )			17.3
Annual Mean ( $\mu\text{g m}^{-3}$ )			16



Appendix D: Monitoring site locations

Figure D.1: Blantyre and North Hamilton Diffusion tube sites

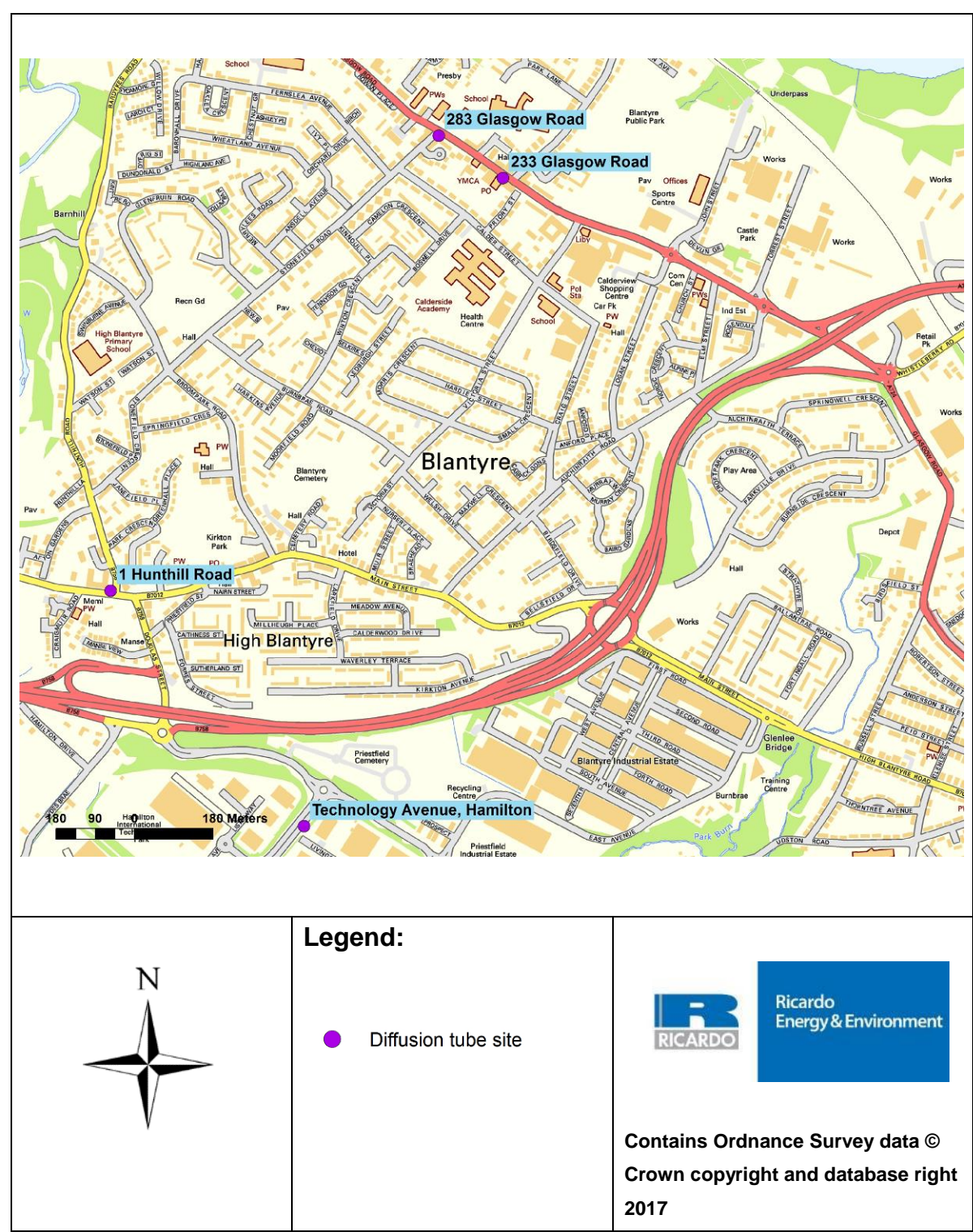




Figure D.2: Bothwell Diffusion tube sites

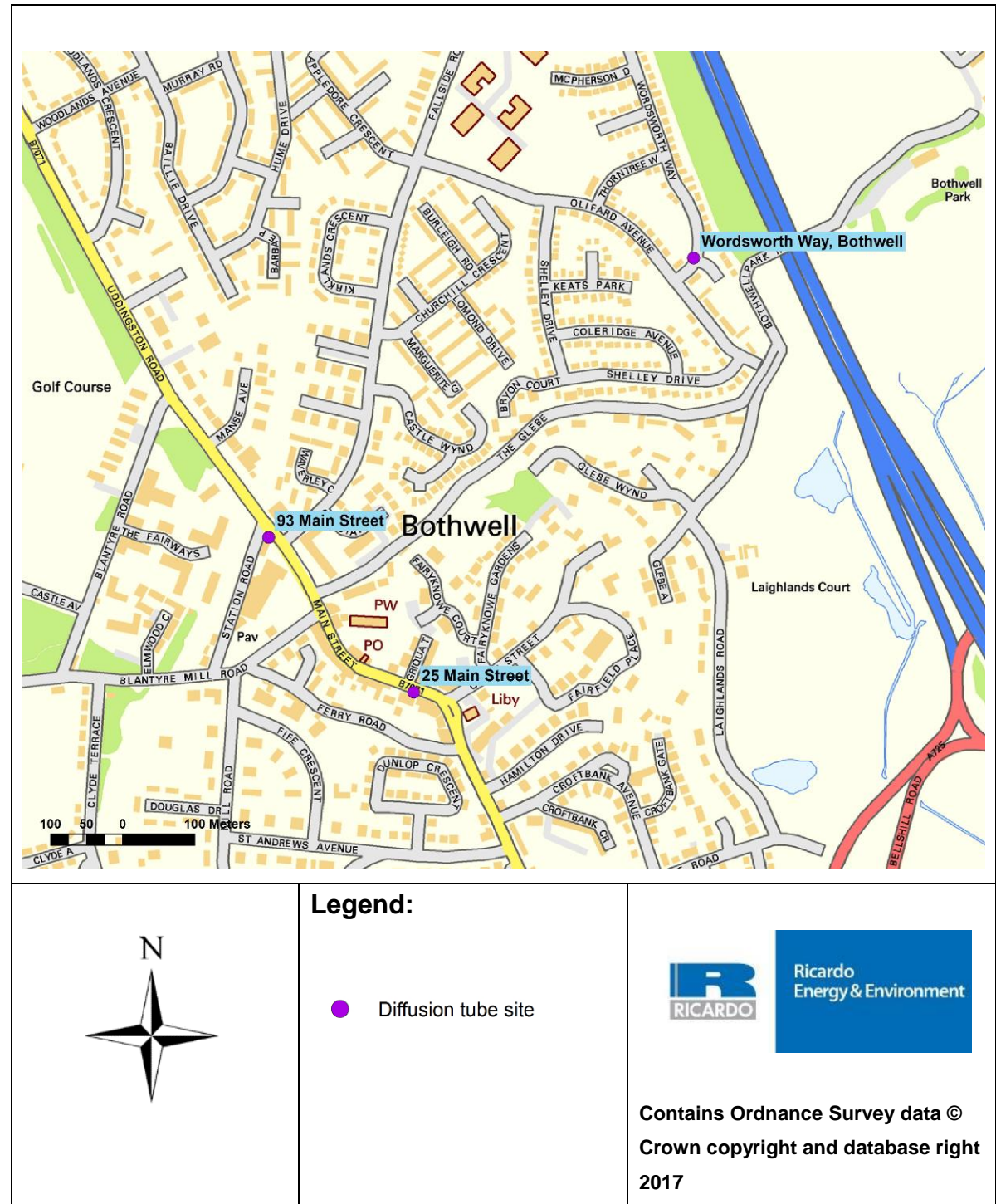


Figure D.3: Carluke Diffusion tube sites

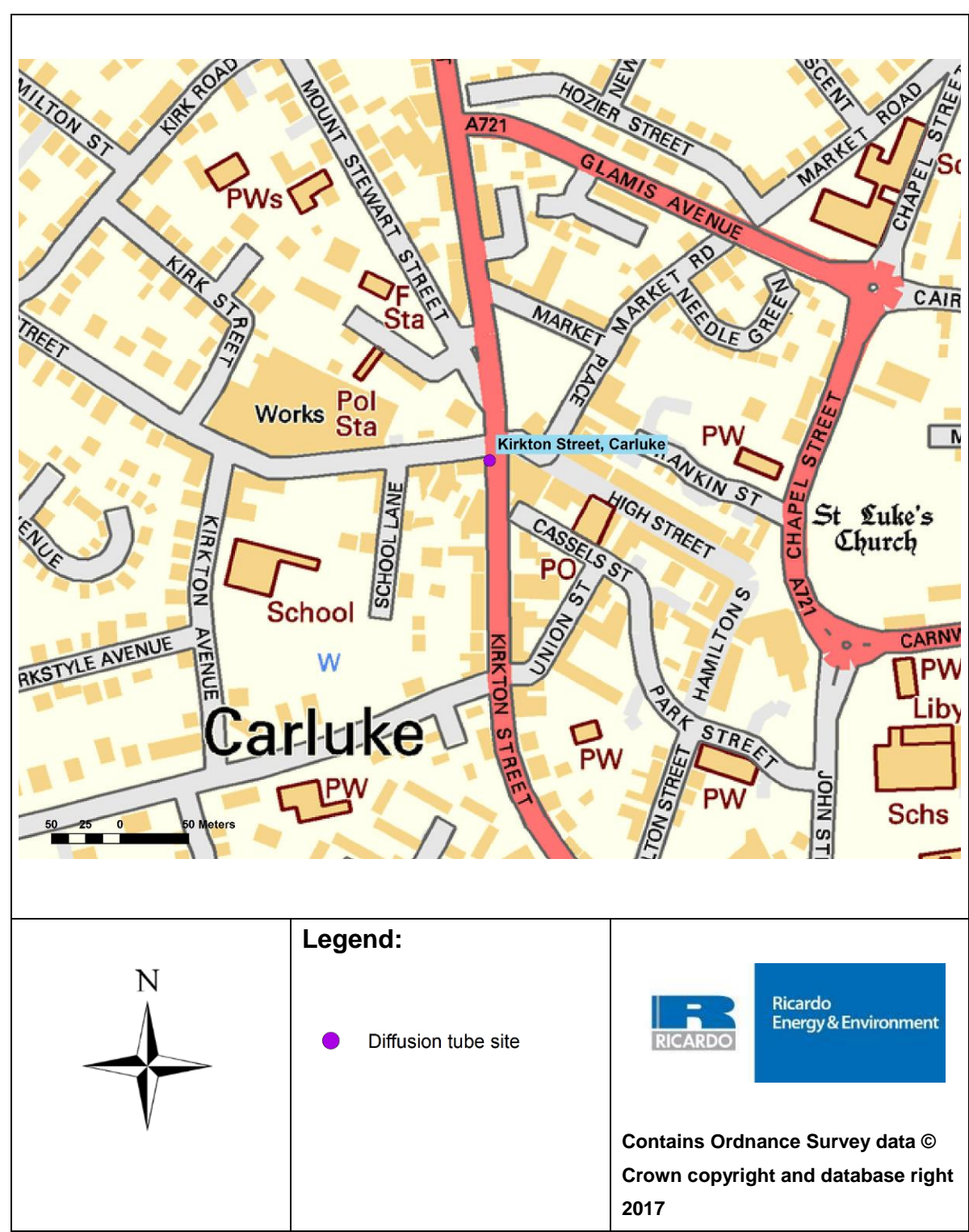




Figure D.4: East Kilbride monitoring sites

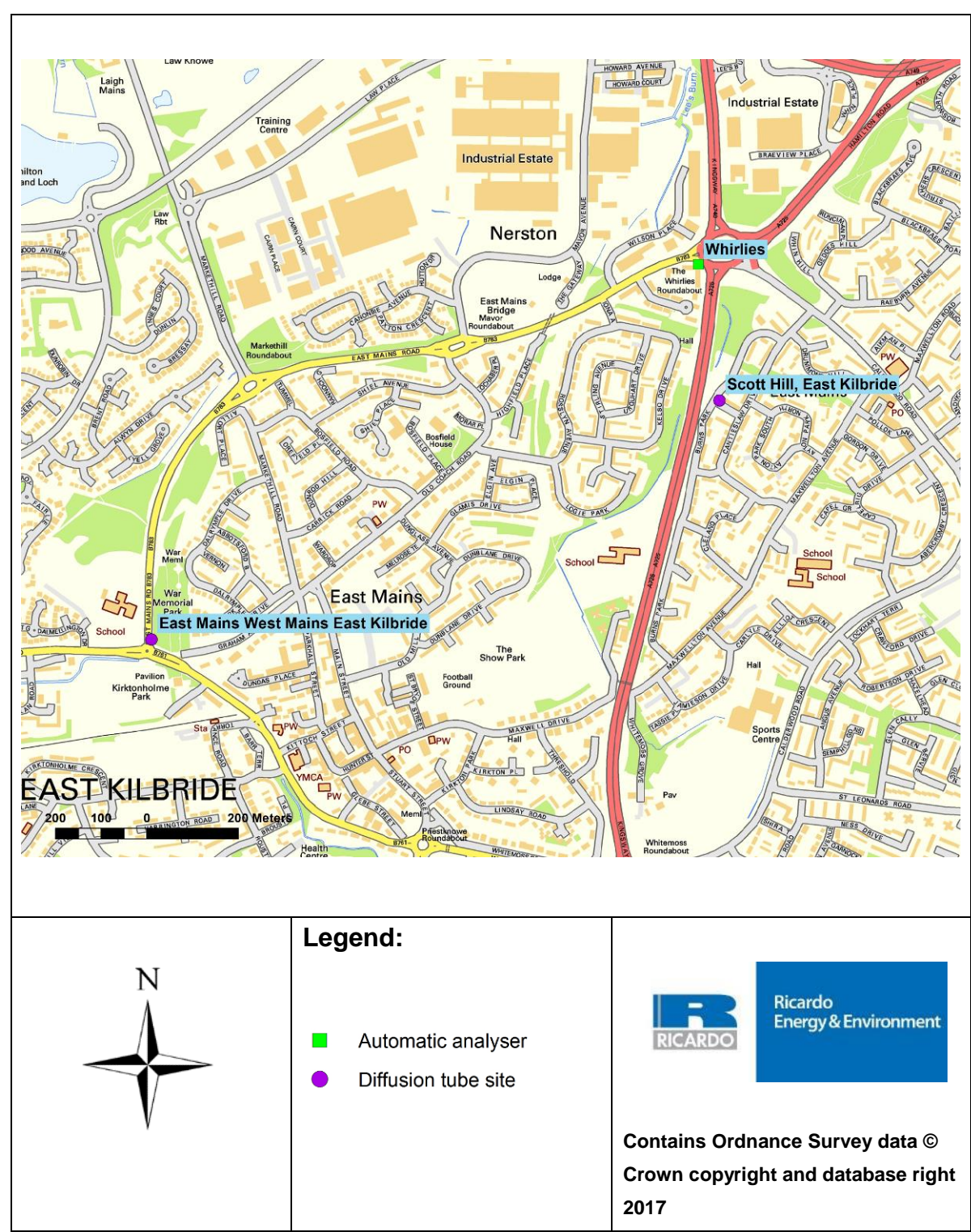


Figure D.5: Hamilton, Annisfield Road diffusion tube site

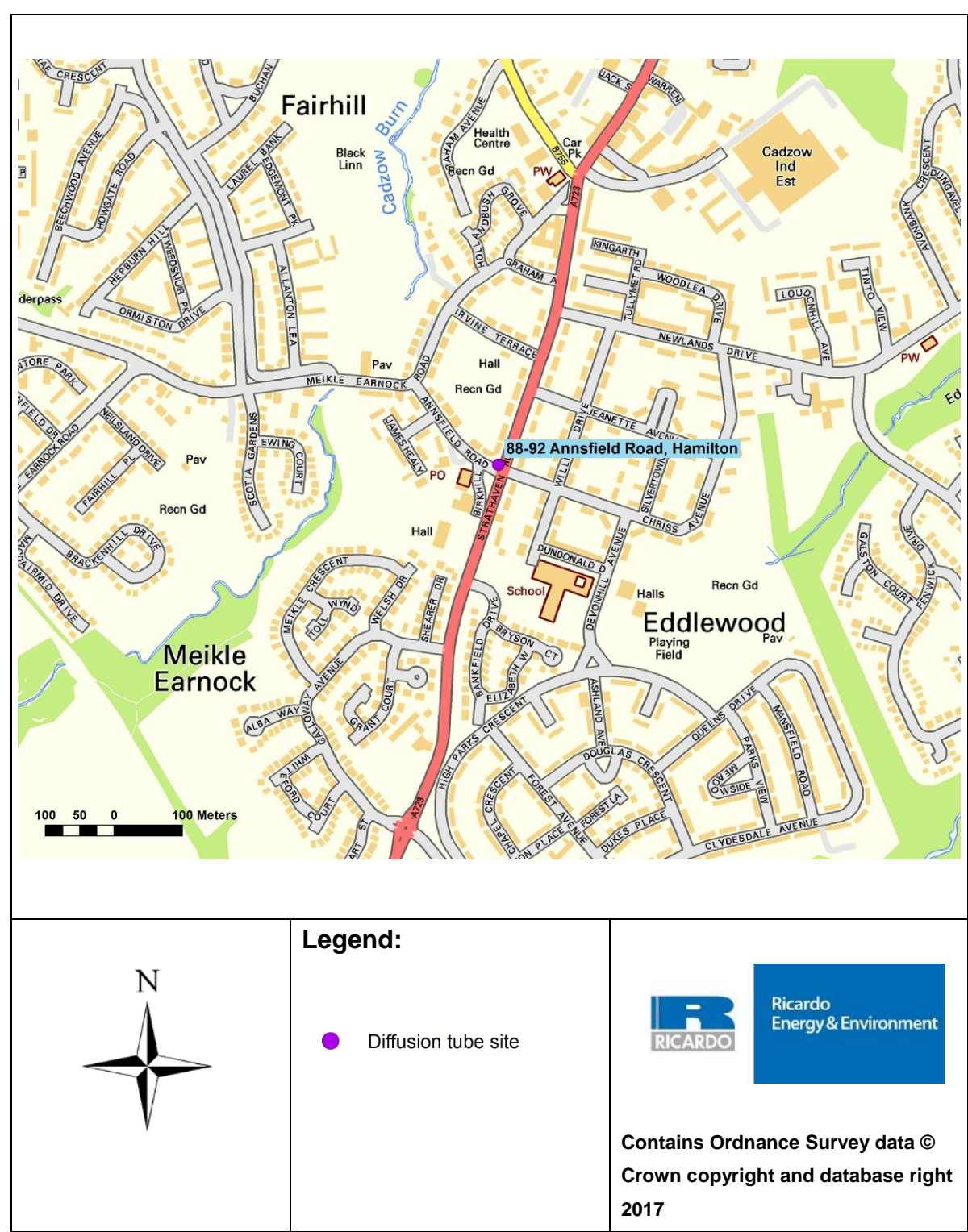




Figure D.6: Hamilton monitoring sites

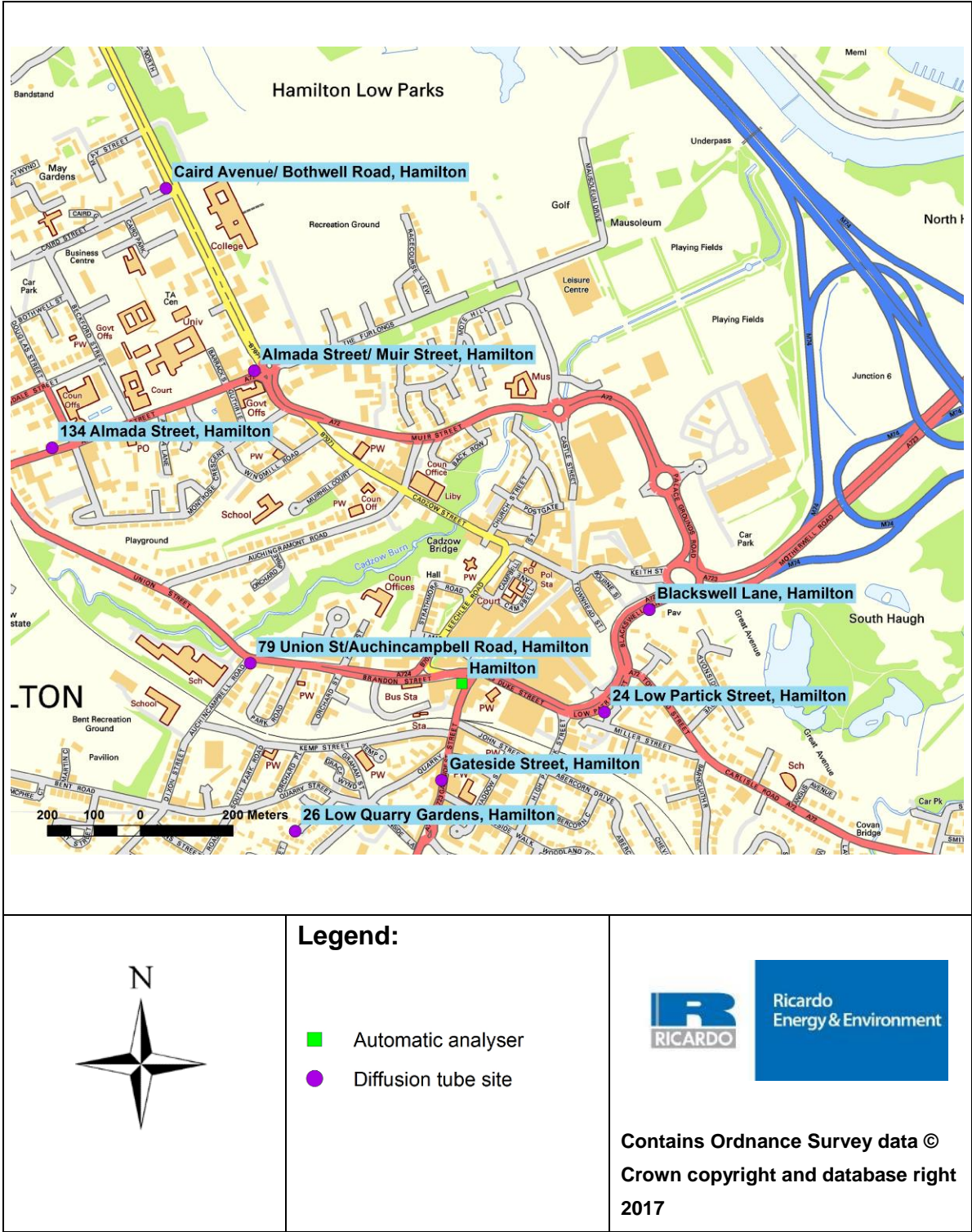


Figure D.7: Lanark monitoring sites

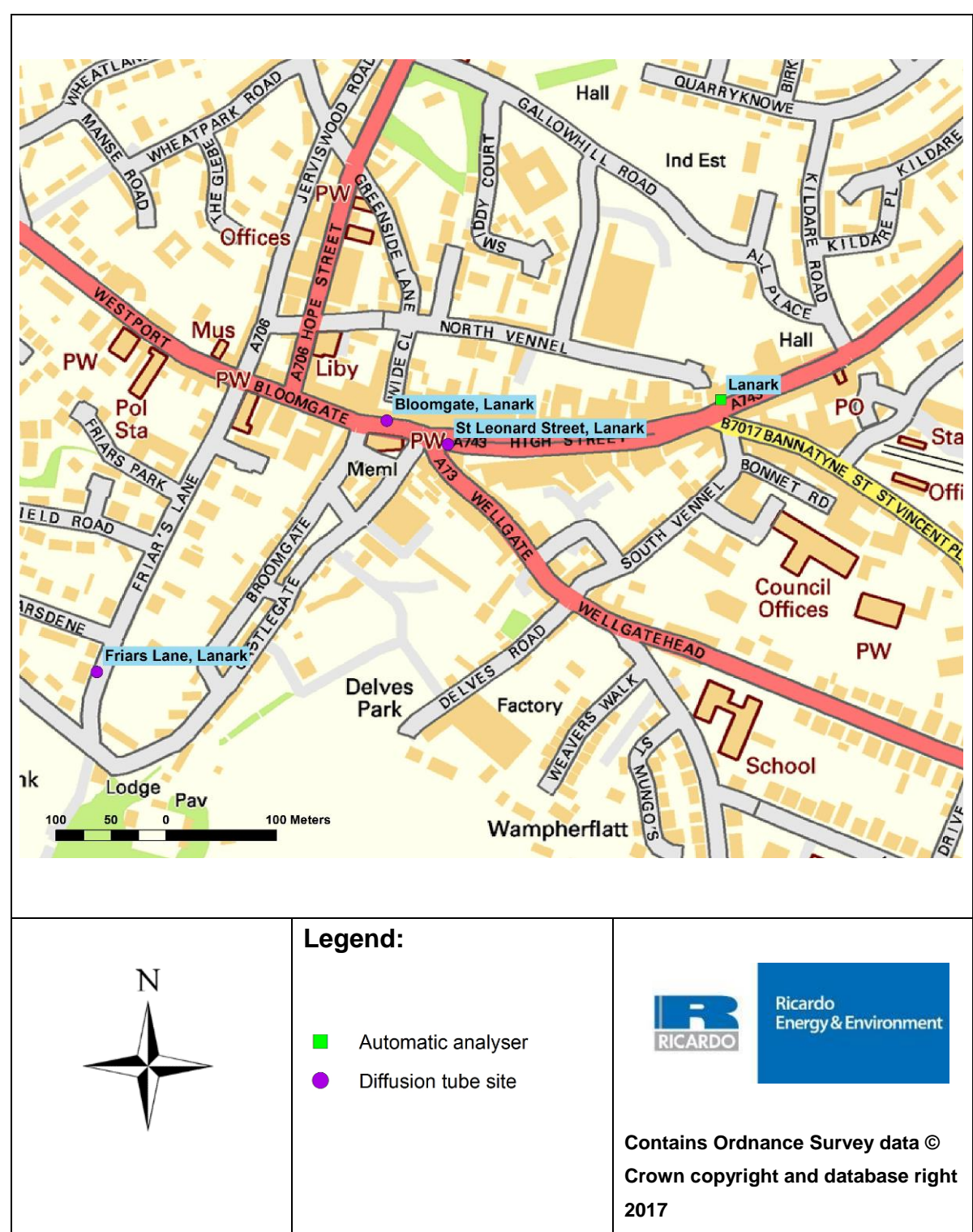




Figure D.8: Larkhall diffusion tube sites

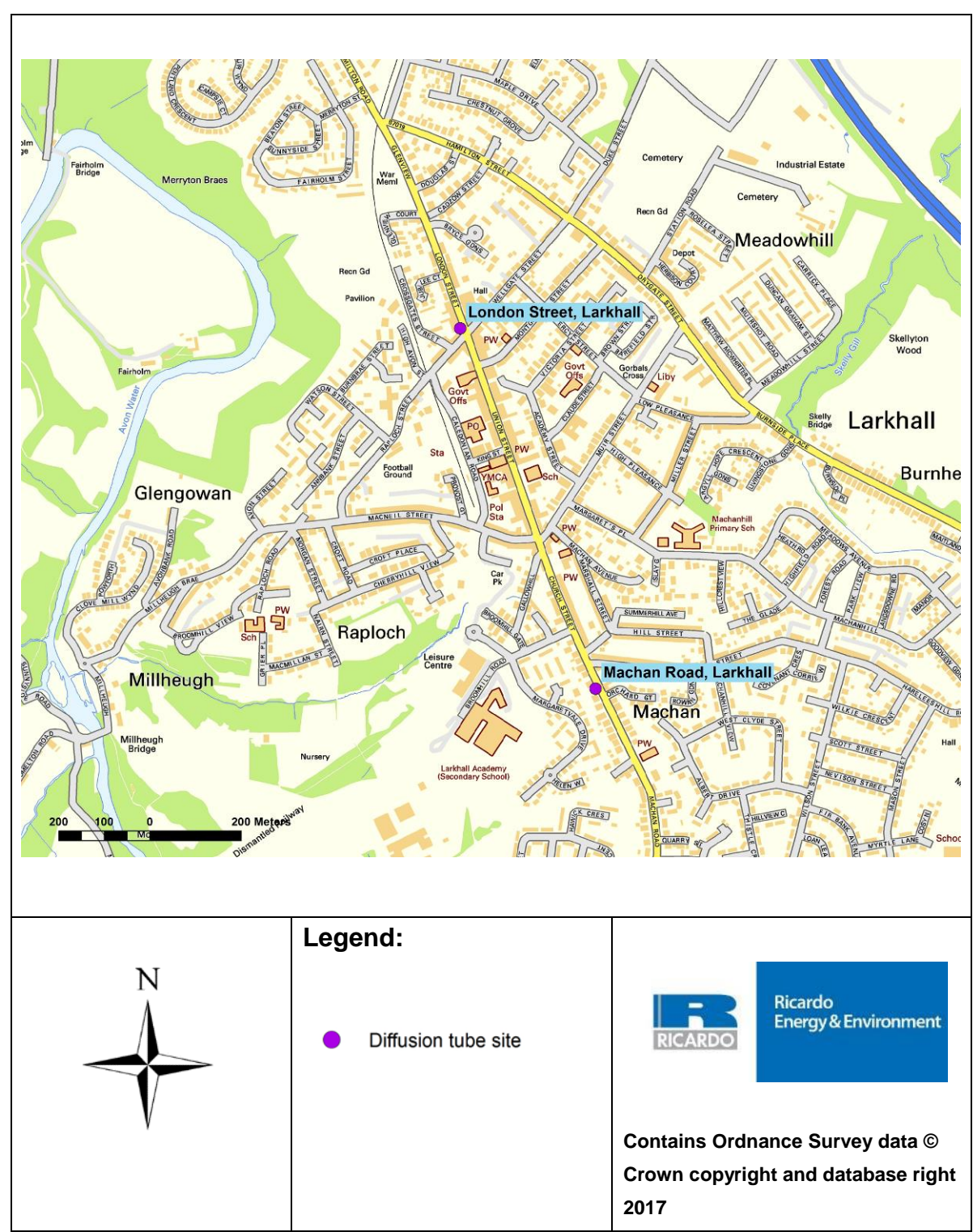




Figure D.9: Rutherglen and Cambuslang monitoring sites

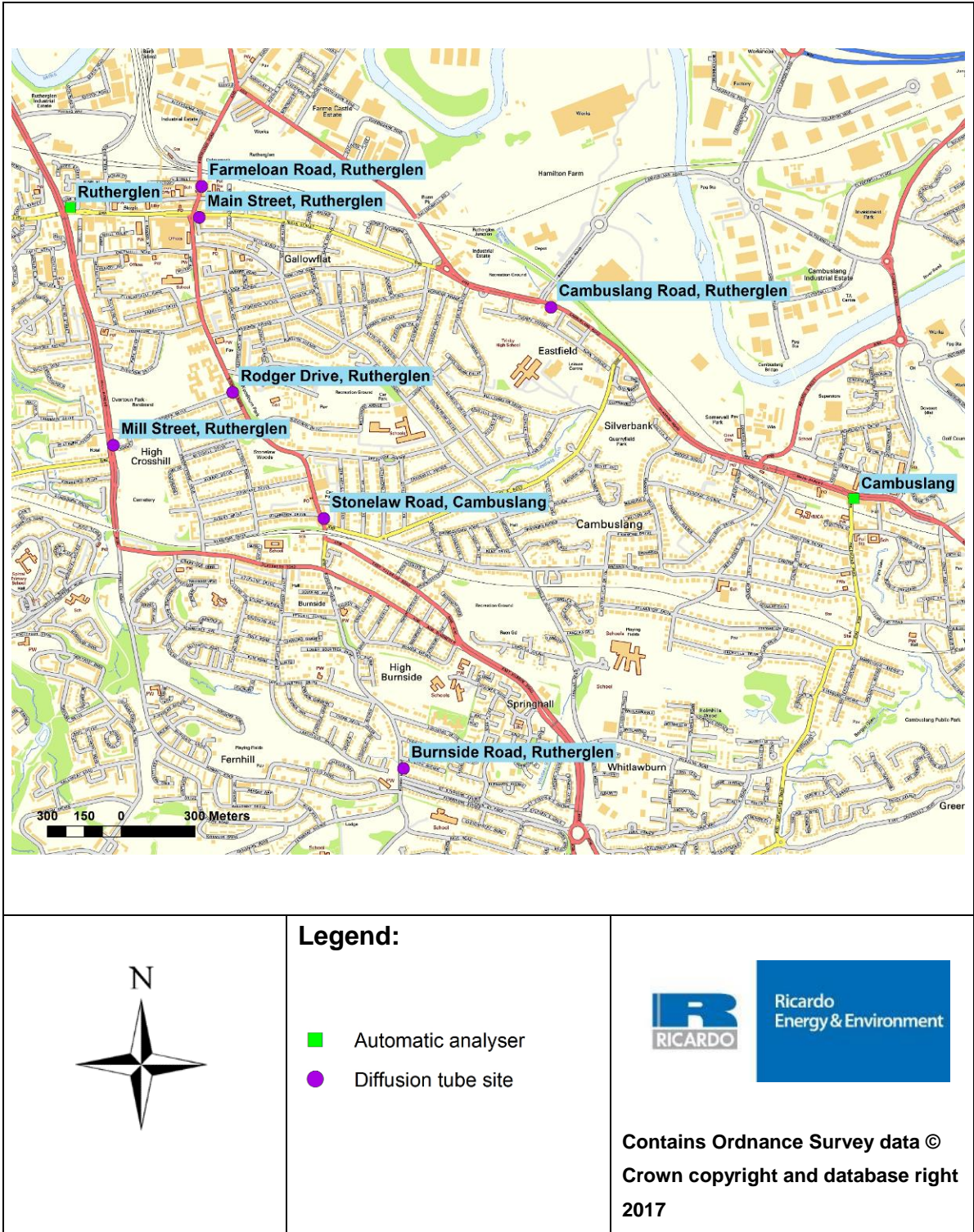
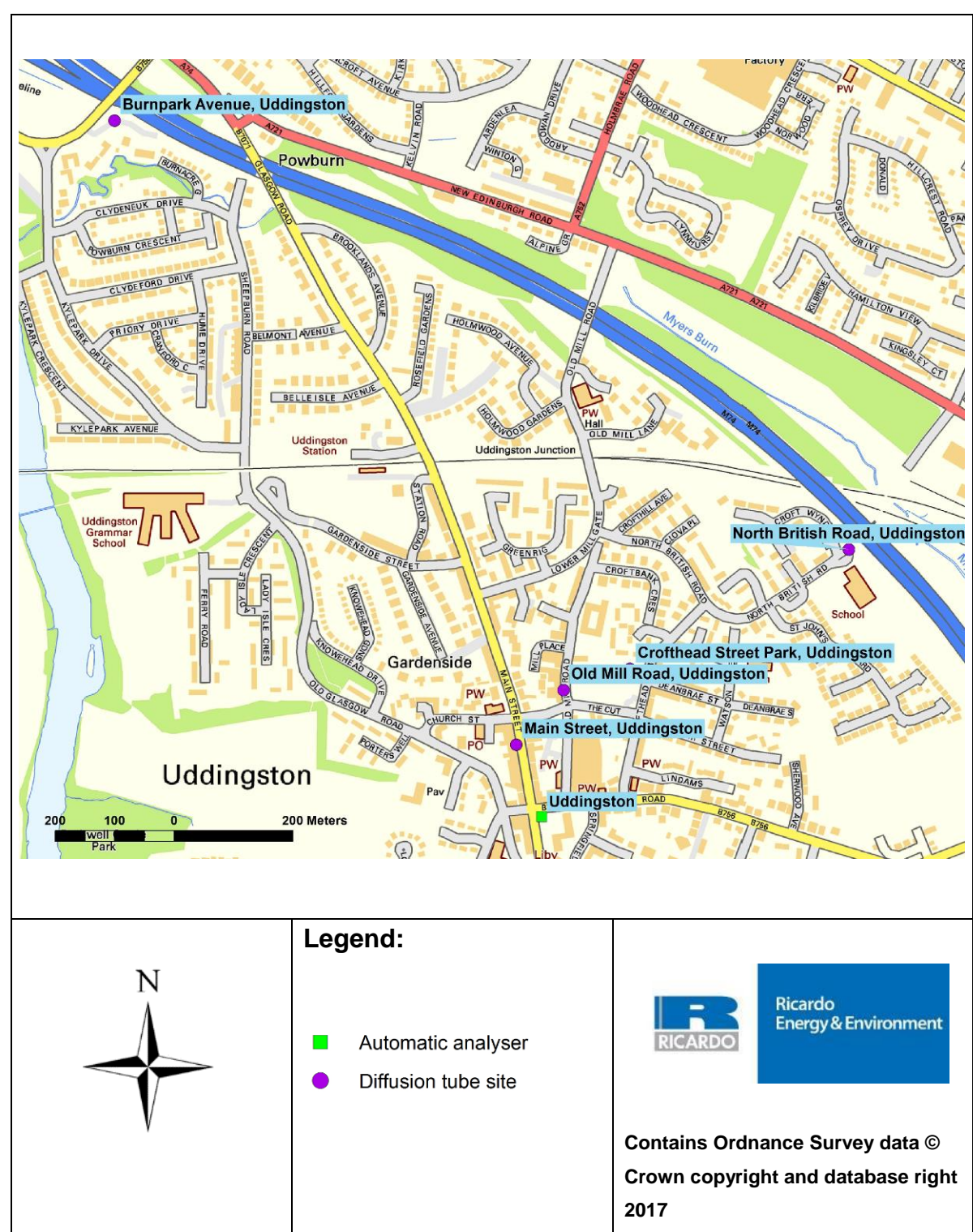




Figure D.10: Uddingston monitoring sites



## **Appendix E: Source Apportionment Results for AQMAs**

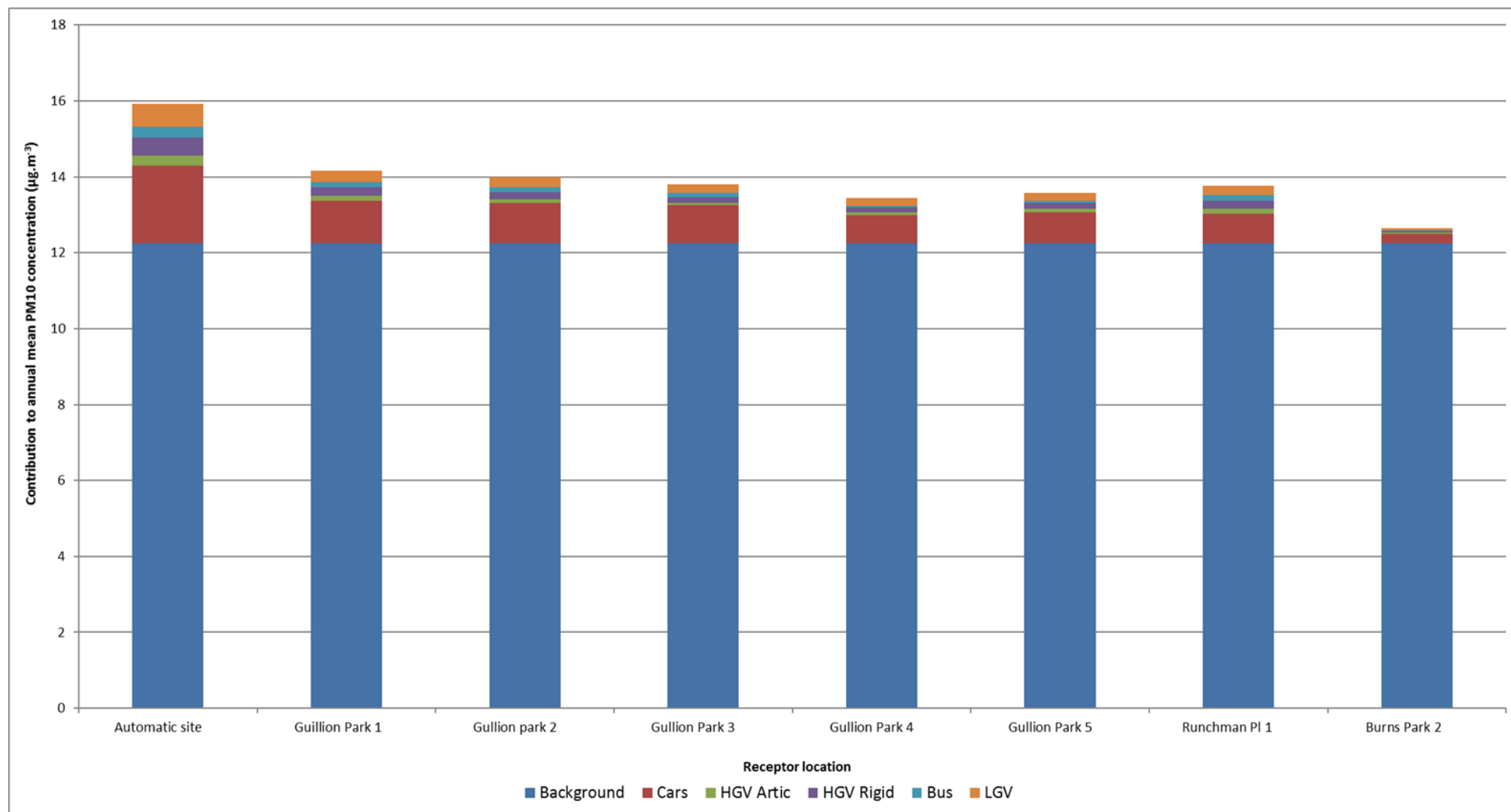
To provide up to date evidence for the action planning process; a source apportionment analysis was undertaken for the Whirlies, Lanark and Rutherglen AQMAs. This exercise used dispersion modelling of road traffic emissions to provides a breakdown of source contributions to NO<sub>2</sub> and PM<sub>10</sub> concentrations.

The results of the source apportionment analysis are presented below for each of the AQMAs.

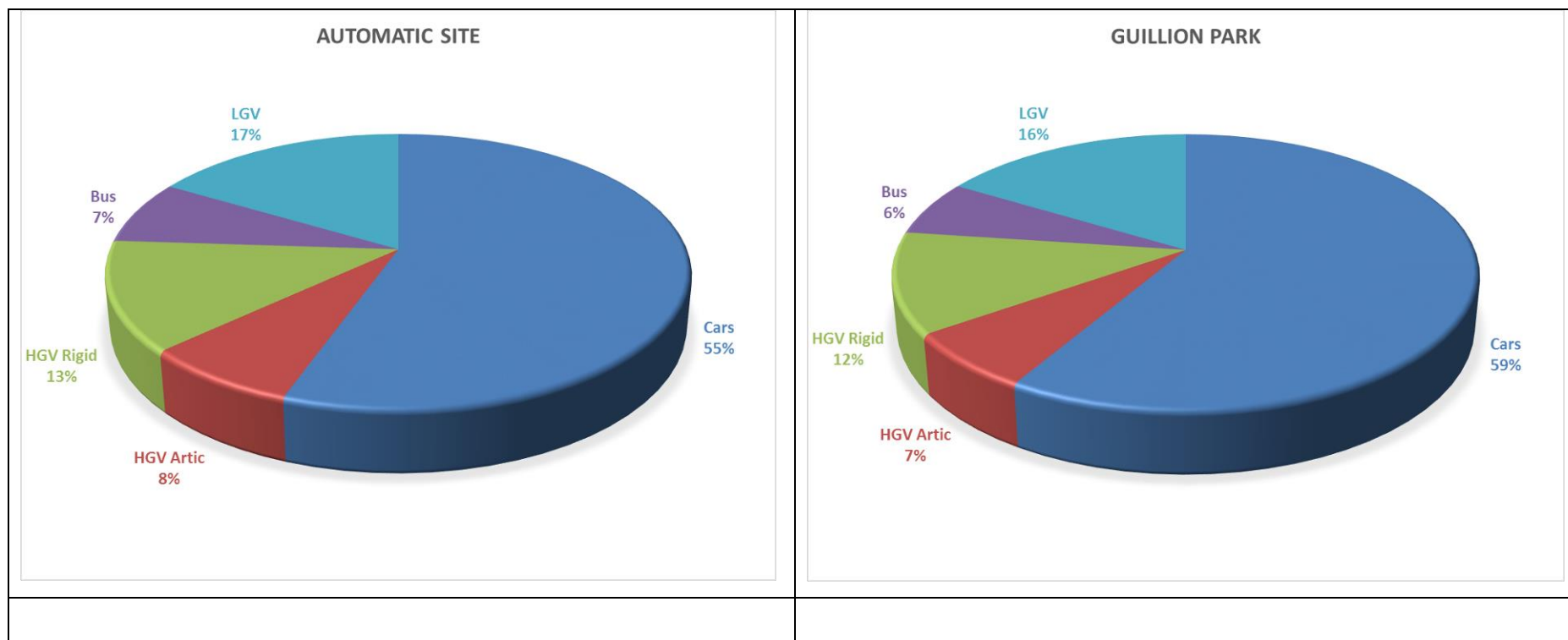
### **Whirlies AQMA, East Kilbride**

The source apportionment results identified that cars have the greatest contribution to road PM<sub>10</sub> emissions at the automatic monitoring site at the Whirlies Roundabout. HGV and LGV vehicles also contribute significantly to PM<sub>10</sub> emissions at the site. Overall background PM<sub>10</sub> is the greatest contributor to PM<sub>10</sub> at the whirlies AQMA with the background concentrations contributing to 77% of the PM<sub>10</sub> emissions within the AQMA (2015 results).

Figure E. 1 Whirlies AQMA - Annual Mean PM<sub>10</sub> Breakdown by Source



**Figure E. 2 PM<sub>10</sub> Road Source Emissions 2015**



## Lanark

Proposed AQAP Measures to date

Actions so far / ongoing

- Traffic signal optimisation - at junctions between Bannatyne Street and High Street in consultation with Traffic and Transportation colleagues (Scoot system has been installed).
- Improvements to cycling infrastructure
- Electric charging points installed
- Focused air quality workshops delivered to schools promoting active travel
- Engine idling patrols focused in the Lanark area
- VET events held in the Lanark area

Across Lanark road traffic emissions were the predominate source of emissions, with a lesser proportion being attributable to background concentrations. Cars were the main road source particularly along High Street, Bannatyne Street and Wellgate.

These areas often experience slow moving traffic. Examination of the Source Apportionment results indicate that:

- LGV vehicles contribute significantly to the local NO<sub>x</sub> concentrations
- Cars were the most predominant source of NO<sub>x</sub> emissions
- Background NO<sub>x</sub> had a minor impact on NO<sub>x</sub> concentrations
- Buses contributed significantly, particularly along High Street and Bannatyne Street

The source apportionment results for NO<sub>x</sub> are presented visually using a segmented bar chart in Figure E. 3 and as a percentage contribution in Figure E. 4.

**Figure E. 3 Contributions to Annual Mean NOx Concentrations**

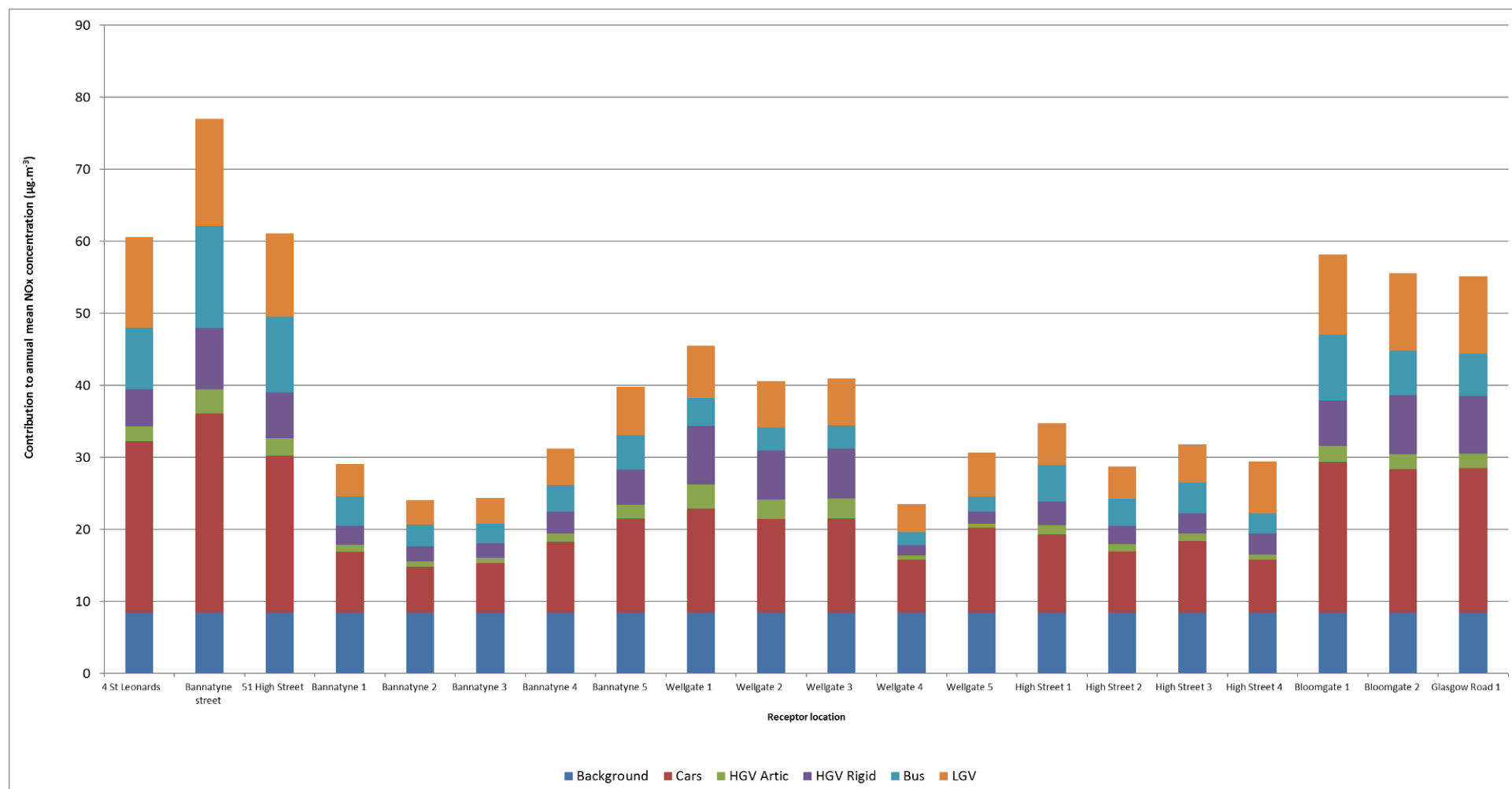
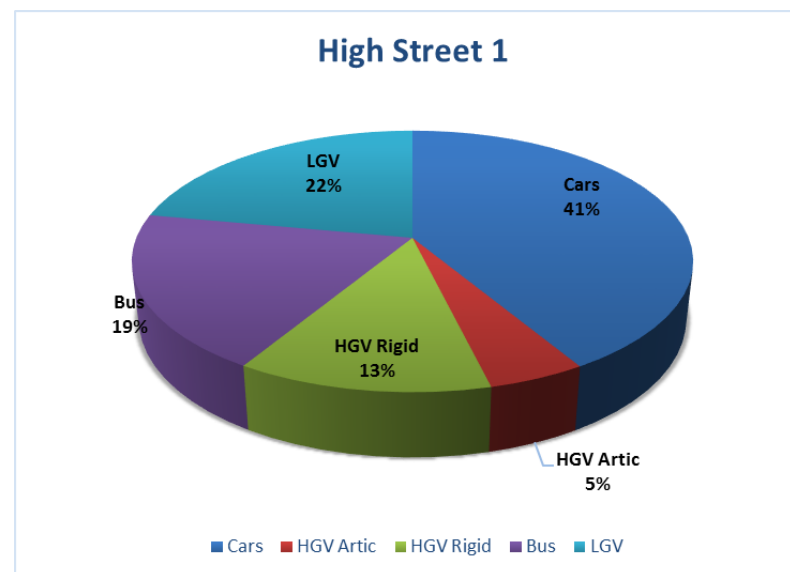
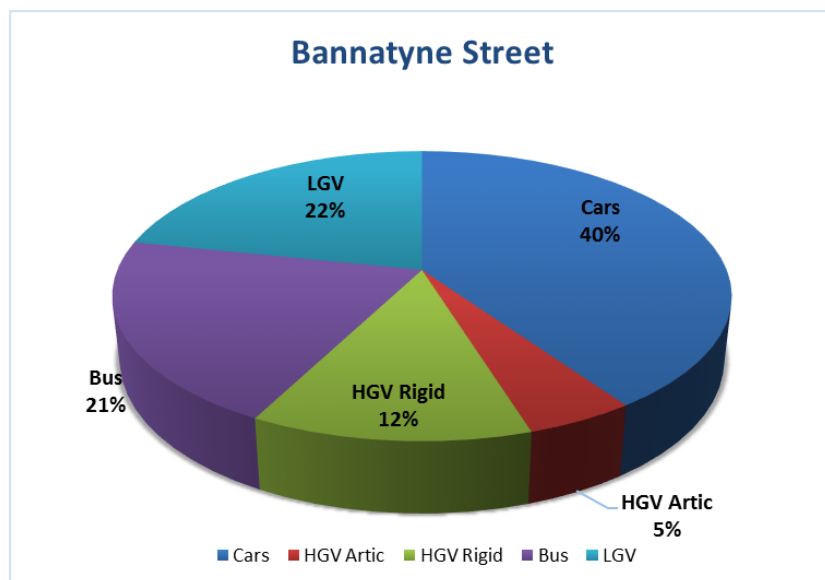
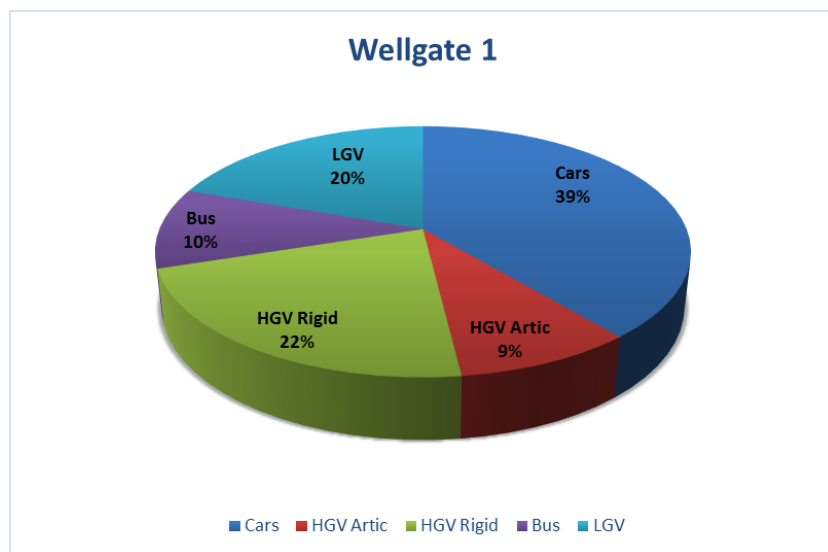


Figure E. 4 Road Traffic Contributions to NOx Emissions 2015







## **Rutherglen**

AQAP Measures to date:

Actions so far / ongoing

- Traffic signal optimisation - at key junctions in Rutherglen in consultation with Traffic and Transportation colleagues.
- Improvements to bus stops through Rutherglen
- Improvements to cycling infrastructure
- Electric charging points installed
- Focused air quality workshops delivered to schools promoting active travel
- Engine idling patrols focused in the Rutherglen area
- VET events held in the Rutherglen area

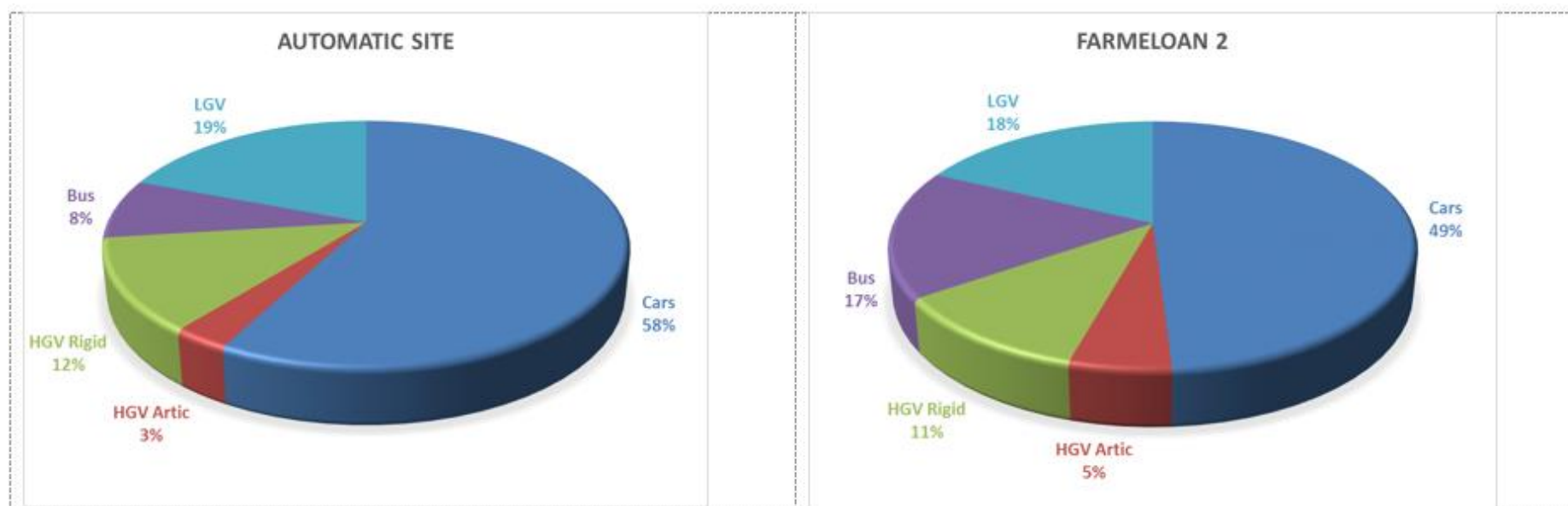
The results of the source apportionment have identified that background concentrations account for between 73% and 94% of PM<sub>10</sub> in Rutherglen. Due to the high contribution from background PM<sub>10</sub> South Lanarkshire Council will seek to influence strategic national measures towards PM<sub>10</sub> reduction. South Lanarkshire Council will also continue implementing localised measures to reduce the impact from road traffic emissions within the Rutherglen AQMA.

From the source apportionment analysis of road traffic sources, HGV and buses had a significant contribution on Farmeloan and Main Street. Buses had the greatest impact along Farmeloan. Examination of the Source Apportionment results indicate that:

- Background PM<sub>10</sub> contributed to a high proportion of the PM<sub>10</sub> measured, 71% at the automatic monitoring station.
- Cars contributed the greatest emissions from road traffic sources.
- HGV traffic contributed to road traffic emissions of PM<sub>10</sub> within the AQMA.
- At certain specified locations buses had a noticeable contribution to emissions such as Farmeloan and Main Street.

Figure E. 5 presents the PM road traffic contributions as a percentage, excluding the background PM<sub>10</sub>.

Figure E. 5 Road Traffic Emissions contribution to PM<sub>10</sub> 2015



## **Appendix F: South Lanarkshire Council Car Club Feasibility Study**

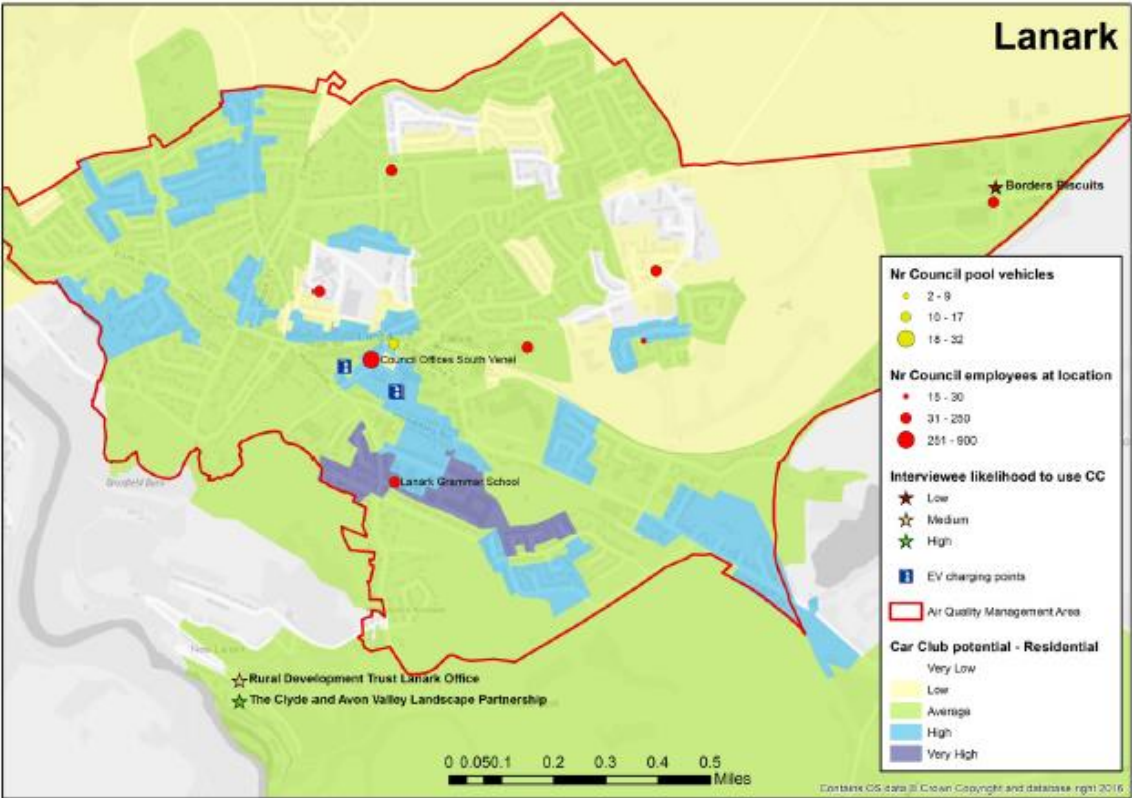
A car club study was commissioned to identify whether there is scope for one or more car clubs to operate within communities in South Lanarkshire.

Alongside potential demand from residents, 4 South Lanarkshire-based organisations expressed interest in the introduction of a car club in their local area. These organisations may benefit from corporate membership of a car club and it is suggested that further investigation and engagement is carried out to determine if this is the case.

The study suggests that South Lanarkshire Council's corporate membership of a car club could help drive down mileage claims, which should bring down the associated costs, emissions and duty of care risks within South Lanarkshire.

The introduction of pool cars by South Lanarkshire Council has already generated significant reductions to the volume of mileage claims made by staff who use their own cars for work-related travel (i.e. the 'grey fleet'). However, substituting some or all the Council's residual grey fleet mileage with travel in pool and/ or car club vehicles is likely to generate additional reductions.

Findings of the study suggest a new car club operation could be viable in South Lanarkshire. East Kilbride, Lanark and Rutherglen have all been names within the feasibility study as potential locations.



## **Appendix G: South Lanarkshire Council Bike Share Feasibility Study**

In January 2017, South Lanarkshire Council commissioned a study to determine whether there is scope for one or more bike share schemes to operate in Rutherglen area and/or East Kilbride.

Bike sharing is the public sharing of bikes, this can take many forms including: self-service, on-street docking stations (known as Public Bike Share); workplace pool bikes; railway station cycle hubs; bike loan schemes; cycle lockers; as well as peer to peer sharing. Each model comes with its own strengths, weaknesses and risks, which are outlined in the feasibility study.

Bike share schemes can generate a wide range of benefits, including positive health and transport. Therefore, they have the capacity to support the achievement of a wide range of the Council's key policy objectives.

The focus of the feasibility study is primarily on Public Bike Share (PBS), defined as bikes shared via on-street, self-service docking stations, although it also compares and considers other models of pooling bikes as required.

The study recommends that any scheme of this nature should not be stand-alone. The Glasgow bikes are placed adjacent to the Rutherglen border, therefore an extension of the current Glasgow scheme would provide an integrated, seamless service for local residents and businesses travelling between Glasgow City and South Lanarkshire.

Overall, South Lanarkshire Council has been encouraged to conduct further research and detailed planning before committing significant financial or other resources to developing one or more bike share schemes in either Rutherglen or East Kilbride.

Appendix H: South Lanarkshire Council Cycling and Walking campaign posters

A cycling and walking campaign poster. The background is a photograph of a person's legs in blue jeans and orange shoes pedaling a bicycle with a purple frame and yellow tires. A large purple umbrella is open above the person. The text is overlaid on the image.

# I cycle because...

## it makes me feel good

Cycling is **economical**, **healthy** and **green**

Get out and **give it a go**

For more information visit  
[www.southlanarkshire.gov.uk](http://www.southlanarkshire.gov.uk)

If you need this information in another language or format, please contact us to discuss how we can best meet your needs.  
Phone: 0303 123 1015  
Email: [equalities@southlanarkshire.gov.uk](mailto:equalities@southlanarkshire.gov.uk)

**SOUTH LANARKSHIRE COUNCIL**  
**TRANSPORT SCOTLAND**  
**paths for all**  
FOR A HAPPIER, HEALTHIER SCOTLAND

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**Sustainable South Lanarkshire**





# I cycle because...

it  
**saves  
me  
money**

Cycling is **economical,**  
**healthy** and **green**

Get out and  
**give it a go**

For more information visit  
[www.southlanarkshire.gov.uk](http://www.southlanarkshire.gov.uk)



SOUTH  
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paths  
for all  
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paper – please recycle



Sustainable  
South Lanarkshire



# I cycle because...

## I have a spare tyre

Cycling is **economical**,  
**healthy** and **green**

Get out and  
**give it a go**

For more information visit  
[www.southlanarkshire.gov.uk](http://www.southlanarkshire.gov.uk)



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**Sustainable  
South Lanarkshire**





# I walk because...

it burns  
**calories,**  
not cash

Walking is **economical,**  
**healthy** and **green**  
Step out and **give it a go**

For more information visit  
[www.southlanarkshire.gov.uk/walking](http://www.southlanarkshire.gov.uk/walking)

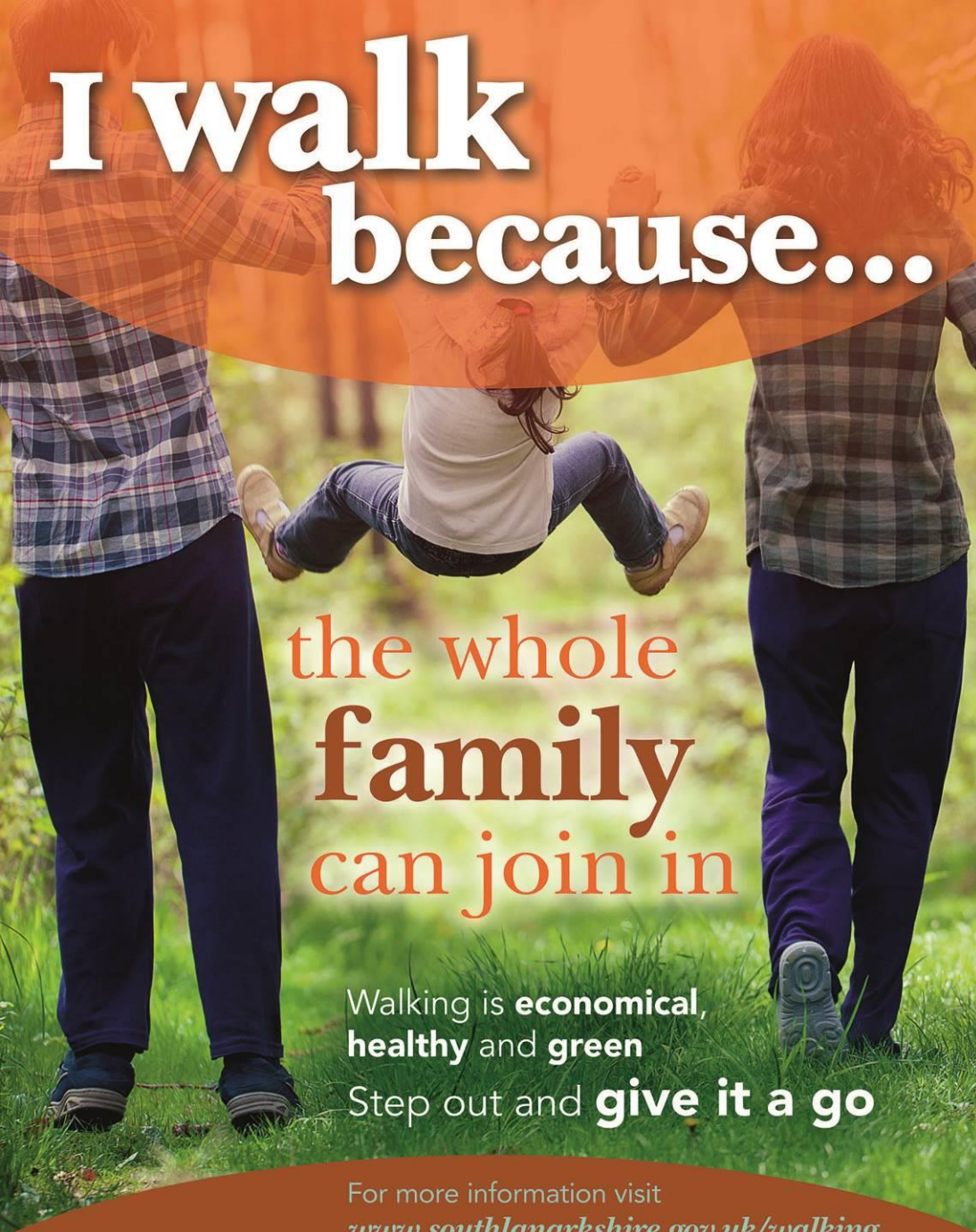
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 Sustainable  
South Lanarkshire






# I walk because...

the whole  
family  
can join in

Walking is **economical**,  
**healthy** and **green**  
Step out and **give it a go**


For more information visit  
[www.southlanarkshire.gov.uk/walking](http://www.southlanarkshire.gov.uk/walking)



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# I walk because...

## my school is nearby

Walking is **economical**,  
**healthy** and **green**  
Step out and **give it a go**

For more information visit  
[www.southlanarkshire.gov.uk/walking](http://www.southlanarkshire.gov.uk/walking)



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## Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of

	2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	Sulphur Dioxide

## References

Please see footnotes throughout the document