MAIDSTONE
Borough Council

2018 Air Quality Annual Status Report (ASR)

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

June 2018

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Executive Summary: Air Quality in Our Area

Air Quality in Maidstone

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

Maidstone is the county town of Kent. The Borough of Maidstone is currently home to some 165,700 people. Its population is expected to increase to 188,600 by 2026. Around 11,080 new homes are to be provided within the planning period 2006 to 2026. The Borough is home to 10.8 per cent of the population of the Kent County Council area (2016 estimate from KCC website) and borders Swale, Ashford, Tunbridge Wells and Tonbridge and Malling Boroughs, as well as Medway Unitary Authority.

The Borough of Maidstone includes the large urban area of Maidstone as well as several small rural settlements. Its countryside, set within 'the Garden of England', is of a high landscape quality and includes the Kent Downs Area of Outstanding Natural Beauty.

The main source of air pollution in the Borough is traffic emissions from major roads, notably the M2, M20, A20, A229, A249, A26 and A274. An Air Quality Management Area (AQMA) was declared in August 2008 which incorporates the whole Maidstone urban area and the M20 corridor, where exceedances of the annual mean objective for nitrogen dioxide (NO_2) and 24-hour mean objective for fine particulate matter (PM_{10}) were predicted.

The urban roadside automatic monitor in central Maidstone was decommissioned in June 2016, as it needed to be moved to make way for a new road layout. A new site

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

was proposed outside Miller House which is close to Upper Stone Street. Unfortunately, when the lease negotiations were at an advanced stage, the property was put on the market and the property owner would not complete the lease agreement.

In December 2017, MBC adopted a new Low Emission Strategy incorporating an updated Air Quality Action Plan. One of the actions included in the plan was a review of the air quality monitoring provision in Maidstone. The main emphasis of this action was to consider whether it was necessary to continue with continuous monitoring in Maidstone town centre. The conclusion was that it is necessary, and a continuous monitor is now being installed in Upper Stone Street, which will monitor $PM_{2.5}$ for the first time in Maidstone, as well as NO_2 and PM_{10}. We will be particularly interested to find out if there are exceedances of the PM_{10} objective and the hourly mean NO_2 objective.

As expected, both the annual mean objective and the 1-hour objective for NO_2 were met at the automatic rural background monitoring station in Detling.

During 2017, exceedances of the NO_2 annual mean AQ objective were recorded at seven non-automatic monitoring sites within the AQMA and two sites outside the AQMA:

Inside the AQMA

- Maid 53 at The Wheatsheaf Public Health
- Maid 81 at The Pilot on Upper Stone Street;
- Maid 96 at Lashings Sports Club on Upper Stone Street.
- Maid 97 at 'No Loading' sign outside Romney House, in Romney Place
- Maid 116 at 37 Forstal Road Cottages
- Maid 122 at Papermakers Arms PH, Upper Stone Street
- Maid 123 at Upper Stone Street Opposite Maid 122

Outside the AQMA

- Maid 112 at road bridge over M2 Bredhurst
- Maid 113 at 1 Ashford Road, Bearstead

Three of these sites, Maid 53, Maid 81, and Maid 96, had recorded exceedances in all previous years when monitoring was undertaken. The sites Maid 116, Maid 122, and Maid 123 are new sites which were established in 2017.

Where appropriate, NO_2 concentrations have been distance corrected to estimate concentrations at the nearest location of relevant exposure (some of the tubes are already sited at the façade of residential properties). Following distance correction, the annual mean NO_2 concentration remains above the annual mean NO_2 AQS objective at five tube sites, namely, Maid 53, Maid 81, Maid 96, Maid 116, and Maid 122.

Annual mean concentrations of NO_2 at the sites, Maid 81 and Maid 96 are greater than 60µg/m^3, which indicates that an exceedance of the 1-hour mean objective is also likely at these sites. Maid 58, which has consistently shown levels above 60µg/m^3 has now been discontinued owing to a high rate of theft of tubes.

There were two exceedances of the annual mean NO_2 AQS objective in the non-automatic monitoring sites outside the existing AQMA, but following distance corrrection there was shown to be no exceedance of the objective at the nearest relevant receptors.

Maidstone Borough Council has previously identified a number of biomass installations which are over the 50kW criteria for assessment. The details for these biomass installations are presented in Appendix C. No new installations were identified in 2017.

Actions to Improve Air Quality

The Maidstone Air Quality Action Plan (AQAP) was developed in 2010, in partnership with other relevant bodies, particularly Kent County Council and the Highways Agency, to incorporate the localised measures at the AQMA. As reported in MBC's 2017 ASR, the action plan had been completed as far as was possible, although it was clear that some actions were very unlikely to be done, owing to financial or other constraints. During 2017 a new Air Quality Action Plan was introduced, linked to a new Air Quality Management Area which came into effect on 1st January 2018

Local Priorities and Challenges

Although the 2017 monitoring results show that the annual mean NO_2 AQS objective has been met in majority of the monitoring locations, there were five locations within the AQMA where NO_2 levels were observed to exceed the annual mean objective for NO_2, when .distance corrected to the nearest relevant exposure. Therefore, the main priority and challenge of the Council is to tackle poor air quality within the AQMA and to identify any further areas of poor air quality.

How to Get Involved

As the main source of air pollution within Maidstone Borough Council is transport, the easiest way for the public to get involved with helping improving air quality within the area would be to look at alternatives to the way they usually travel.

The following are suggested alternatives to private travel that would contribute to improving the air quality within the Borough:

- Use public transport where available – This reduces the number of private vehicles on the roads thus helping to reduce congestion and air pollution levels;
- Walk or cycle if your journey allows –Choosing to walk or cycle your journey reduces the number of vehicles on the road and regular exercise helps keep people fit and healthy;
- Car/lift sharing – Where a number of individuals are making similar journeys, such as travelling to work or to school, car sharing reduces the number of vehicles on the road and therefore the amount of emissions being released. This is being promoted via travel plans through the workplace and within schools; and
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner, fully electric, hybrid fuel and more fuel efficient cars are available and all have different levels of benefits in reducing the amount of emissions being released. The installation of Electric Vehicle charging points is being promoted through the use of conditions attached to relevant planning permissions.

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1 Local Air Quality Management

This report provides an overview of air quality in Maidstone Borough Council during 2017. 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 Status Report (ASR) is an annual requirement showing the strategies employed by Maidstone Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

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) within 12-18 months setting out measures it intends to put in place in pursuit of the objectives.

A summary of the AQMA declared by Maidstone Borough Council can be found in

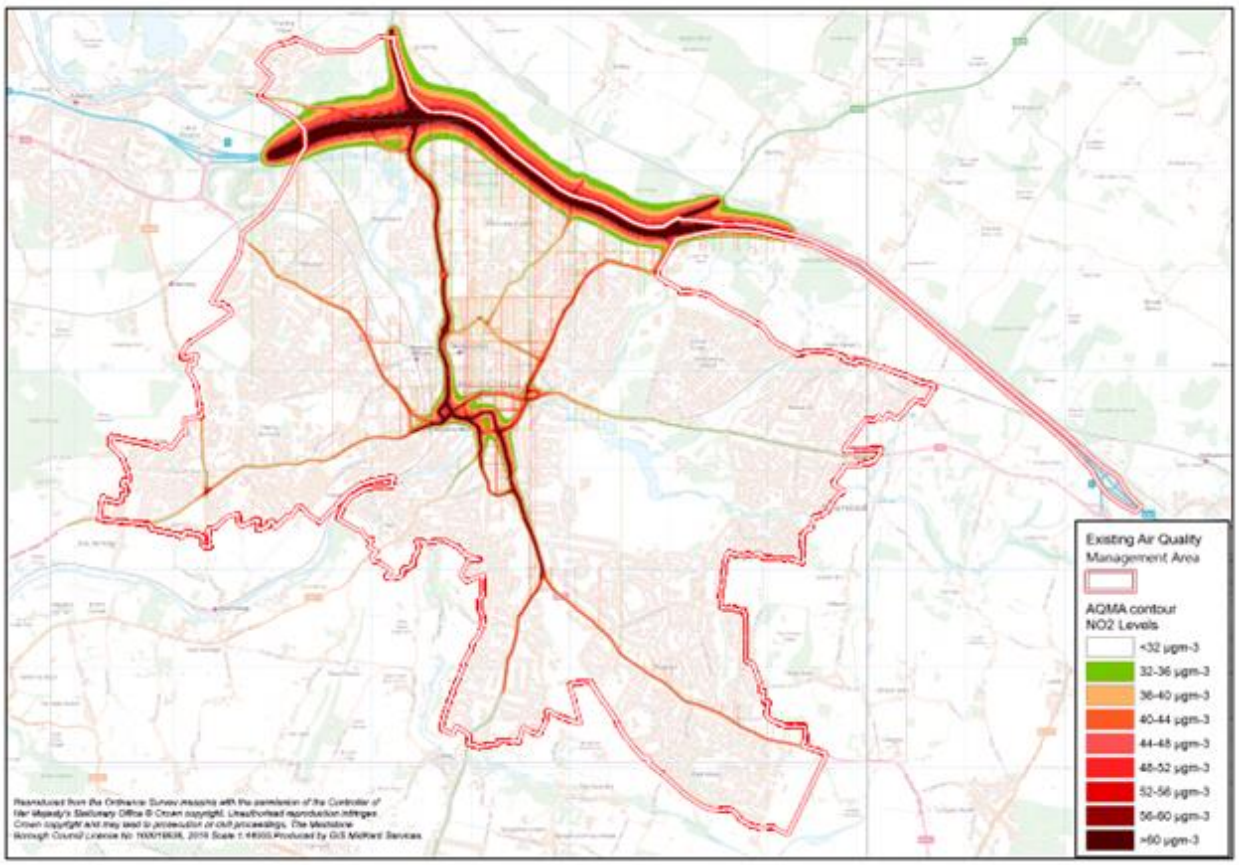
Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=152.

In December 2017, MBC Councillors approved a major change to the AQMA in Maidstone. The new AQMA was based on the results of modelling and a review of the existing AQMA, carried out by Air Quality Consultants Ltd in 2016. The modelling was based on 2014 data, which was the most recent data available at the time. The review by AQC constitutes a Detailed Assessment as part of the Local Air Quality Management (LAQM) process for amending or revoking AQMA orders.

The modelling showed that in the vast majority of cases, exceedances of the annual mean NO_2 objective occurred, as expected, close to the major roads in the District. Away from major roads, NO_2 levels tend to be below the objective, even though many such areas have been included in the AQMA for many years.

Therefore the decision was made to declare a new AQMA based on the modelling undertaken by AQC, and using the boundary of the modelled 36µgm^{-3} contour as the boundary of the new AQMA. The contours are shown in Figure 2.1

Figure 2.1 – Modelled Air Quality Contours in Maidstone Borough



Therefore the new AQMA is very much smaller than the old AQMA which encompassed the entire Maidstone conurbation. Each AQMA has advantages and disadvantages, however, on balance It was felt that the old AQMA included many areas where air quality was perfectly acceptable and therefore it should be changed to allow the council to focus it's resources more effectively. A map of the new AQMA is shown in Figure 2.2.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan (inc. date of publication)
						At Declaration	Now	
Maidstone Town AQMA	Declared <Date>, 2004 Amended <Date "2008	NO_2 40µgm^{-3}	Maidstone	An Area encompassing the entire Maidstone conurbation including the location previously designated as the separate M20 AQMA	Yes	Direct Comparison not possible	Direct Comparison not possible	MBC AQAP http://aqma.defra.gov.uk/action-plans/MBC%20AQAP%202020 10.pdf

2.2 Progress and Impact of Measures to address Air Quality in Maidstone Borough Council

During 2017, MBC produced a new Air Quality Action Plan, mainly based on the principles of a Low Emission Strategy. The draft went to public consultation in the summer of 2017 and the final draft was approved by Councillors in December 2017.

The action table from the new AQAP is included in this report as Appendix F, together with a summary of progress to date, where appropriate.

The actions are divided into 5 themes, namely Transport, Planning, Property and Carbon Management, Procurement, and Public Health.

Examples of the major actions to be included in each theme are given below:-

Transport

Investigation of an emissions standard for buses. Maidstone's bus fleet still includes many Euro III buses. We would like to understand what could be feasible in terms of an emissions standard, in order to ensure that these buses are replaced or retrofitted in the shortest possible timescale.

Planning

Producing an Air Quality Development Plan Document (DPD) This will be a 'mini local plan' relating just to air quality, and may contain a number of new policies.

Procurement

Review of commissioning and procurement strategy. This may, for example, include targets about procuring items from the closest suppliers or having them delivered in the cleanest vehicles.

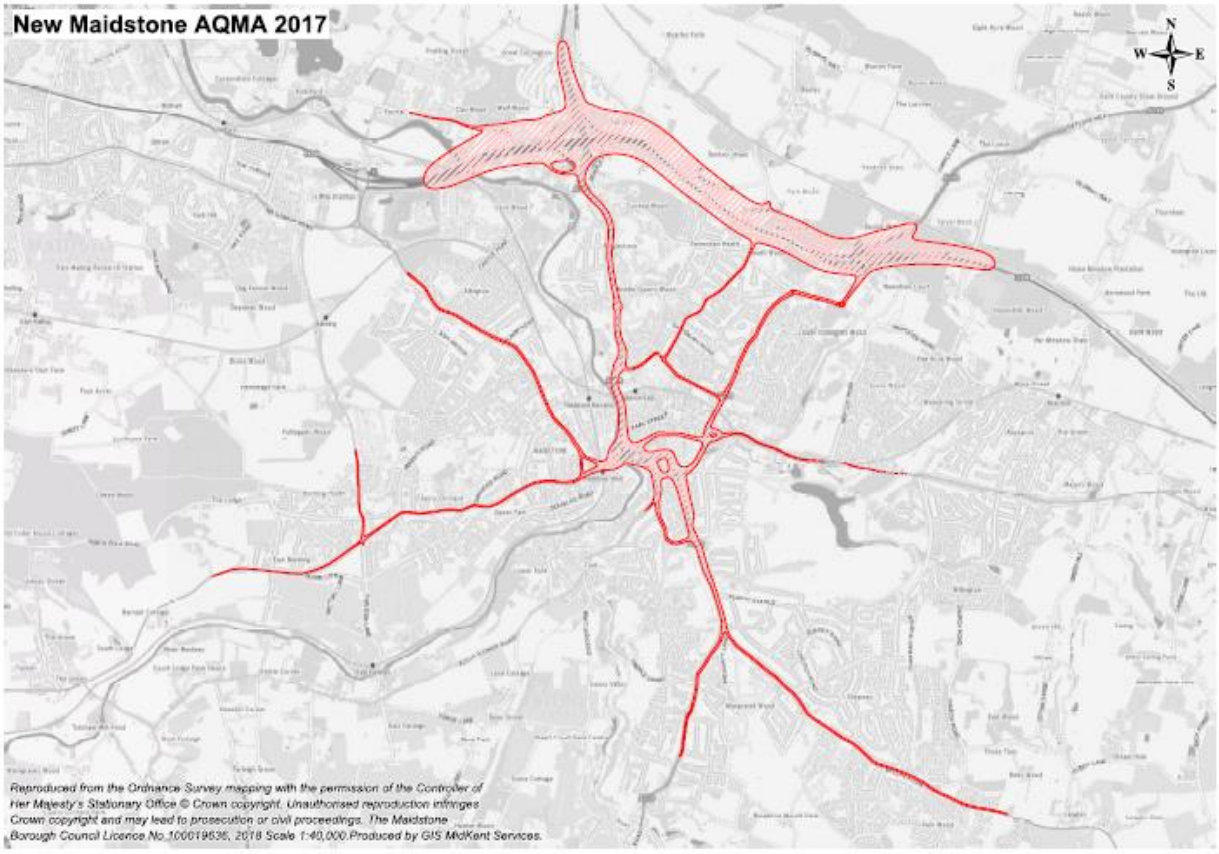
Property and Carbon Management

Review of Park and Ride Provision, for example, when the Park and Ride contract is renewed, an emission standard for the buses will be investigated.

Public Health

Raising awareness of AQ issues and promoting good practice.

Figure 2.2 – Map Maidstone's New Air Quality Management Area



2.3 Local Authority Approach to Reducing Emissions and or Concentrations

As mentioned above, the new Air Quality Action Plan is primarily based upon a Low Emission Strategy approach. This means a change of emphasis from actions aimed at modal shift, to actions aimed at cleaning up the vehicle fleet using Maidstone's roads. This does not mean that modal shift approach is being given a lower priority by the council as a whole, however, there are many other strategies and policies operating in the District, which are aimed at modal shift, for example, Kent County Council's Active Travel Strategy. The intention of the new AQAP is not to reproduce or duplicate actions which are being covered elsewhere.

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$

(particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Public Health Outcomes Framework indicator for the fraction of deaths attributable to $PM_{2.5}$ within the district of Maidstone Borough Council is 5.5% during 2013, which is slightly above the national average of 5.3%.

Maidstone Borough Council does not currently undertake any monitoring of $PM_{2.5}$, and has no specific measures in place to address $PM_{2.5}$ concentrations within the Council area. However, it is recognised that any measures employed to reduce NO_2 and PM_{10} will also have a beneficial effect on $PM_{2.5}$. Furthermore, the new monitoring station which is being installed in Upper Stone Street in 2018 will measure both PM_{10} and $PM_{2.5}$ as well as $NO_{2.}$ (This has been completed at the time of reporting.)

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Maidstone Borough Council undertook automatic (continuous) monitoring at 1 site during 2017. Table A.1 in Appendix A shows the details of the site.

Maps showing the location of all the monitoring sites are provided in Appendix D. Further details on how the automatic monitors are calibrated and how the data has been adjusted are included in Appendix C. The Maidstone Roadside monitoring site at Fairmeadow in Maidstone Town Centre had to be discontinued in 2016 owing to changes of the road layout. This station was located within the AQMA next to a main road (the A229 on a Bridge Gyratory system) close to the bottom of Maidstone's High Street and measured NO_2 and PM_{10}.

The Maidstone Rural background site at Detling is outside the AQMA and measures NO_x, and PM_{10}. The monitoring of SO_2 and ozone (O_3) was discontinued at the Detling site in January 2015.

The background monitor (located in a field off Scragged Oak Lane Detling) uses a Filter Dynamics Measurement System (FDMS). The monitor draws in air through a filter which is then weighed. FDMS monitors are designed in such a way that, unlike a TEOM, the semi-volatile component is not lost. They are therefore accurate enough to be considered reference equivalent.

3.1.2 Non-Automatic Monitoring Sites

Maidstone Borough Council undertook non-automatic (passive) monitoring of NO_2 at 60 sites during 2017. 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.

The following tubes sites were closed in 2017:

- Maid 57 – 33 and 34 Forstal Road Cottages, closed because tubes keep going missing
- Maid 99 – Road bridge over M2, Bredhurst
- Maid 106 – 432 Loose Road
- Maid 107 – 7 Ashford Road Bearstead
- Maid 109 – Cookes Cottage, Grange Lane, Boxley
- Maid 114 – Road Bridge over M2, Bredhurst

The following new tube sites were established in 2017

- Maid 112 – New Cut Road
- Maid 113 – 1 Ashford Road, Bearstead
- Maid 114 – Road Bridge over M2, Bredhurst (opened but subsequently closed again)
- Maid 115 – adjacent to The Swan PH (replacement for Maid 106)
- Maid 116 – 37 Forstal Road Cottages (replacement for Maid 57)
- Maid 117 – Adjacent drive through area of McDonald's, Lockmeadow
- Maid 118 - To left of main hospital entrance, hermitage lane
- Maid 119 – Downpipe to right of 62 Tarragon Road
- Maid 120 – Rear of St Andrew's Park
- Maid 121 – 46 Springwood Lane
- Maid 122 – Papermakers Arms, Upper Stone Street
- Maid 123 – Upper Stone Street, opposite Maid 122
- Maid 124 – Back of site for proposed development at 102 Upper Stone Street

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.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 7 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2017 dataset of monthly mean values are provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 7 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

As would be expected, both the annual mean objective and the 1-hour objective for NO_2 were met at the rural background automatic monitoring station in Detling.

The graph in Figure 3.1 shows annual mean NO_2 concentrations for the automatic monitoring sites for the years from 2011 to 2017 and includes for reference, data from the old Maidstone A229 Kerbside from 2011 to 2016

Concentrations of NO_2 at the rural background site have been fairly consistent at around 12-13µg/m^3 in the recent years (2011-2017).

Figure 3.1–Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites

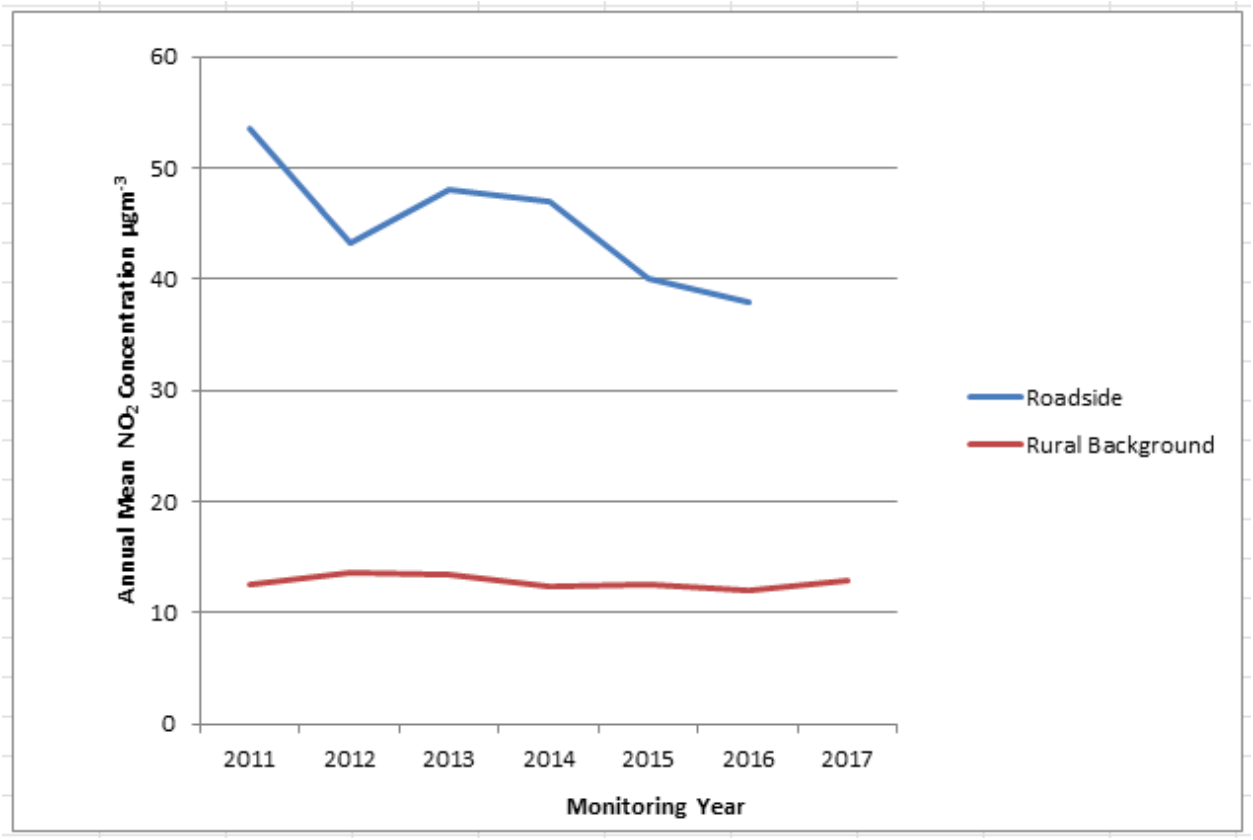


Figure 3.2 shows trends in annual mean NO_2 concentrations measured at Non-automatic monitoring sites where there were exceedances of the AQS objective during 2011-2017.

During 2017, exceedances of the NO_2 annual mean were recorded at seven non-automatic monitoring sites within the AQMA, and two outside of the AQMA. These were:-

Inside the AQMA

- Maid 53 at The Wheatsheaf Public Health
- Maid 81 at The Pilot on Upper Stone Street;
- Maid 96 at Lashings Sports Club on Upper Stone Street.
- Maid 97 at 'No Loading' sign outside Romney House, in Romney Place
- Maid 116 at 37 Forstal Road Cottages
- Maid 122 at Papermakers Arms PH, Upper Stone Street
- Maid 123 at Upper Stone Street Opposite Maid 122

Outside the AQMA

- Maid 112 at road bridge over M2 Bredhurst
- Maid 113 at 1 Ashford Road, Bearstead

Where there are comparable data, NO_2 levels in 2017 do appear to be generally slightly lower than in previous years. Monitoring sites 112 and 113, though outside the AQMA, did show exceedances of the NO_2 objective, at 41.4µgm^{-3} and 44.5µgm^{-3} respectively, however, when distance corrected to the nearest receptors, both values were below the objective at 33.7µgm^{-3} and 33.9µgm^{-3} respectively. Details of all distance correction calculations are given in Table C.3

Annual mean concentrations of NO_2 at the sites Maid 81 and Maid 96, located in Upper Stone Street, are greater than 60µg/m3, which indicates that an exceedance of the 1-hour mean objective is also possible at these sites. Site Maid 58, which had also seen a potential exceedance of the 1-hour mean in previous years, was also located in Upper Stone Street, but was discontinued at the start of 2016 owing to regular theft of the tubes

Figure 3.2 –Trends in Annual Mean NO_2 Concentrations Measured at Non-automatic Monitoring Sites Exceeding the AQS Objective Within the AQMA during 2011-2017

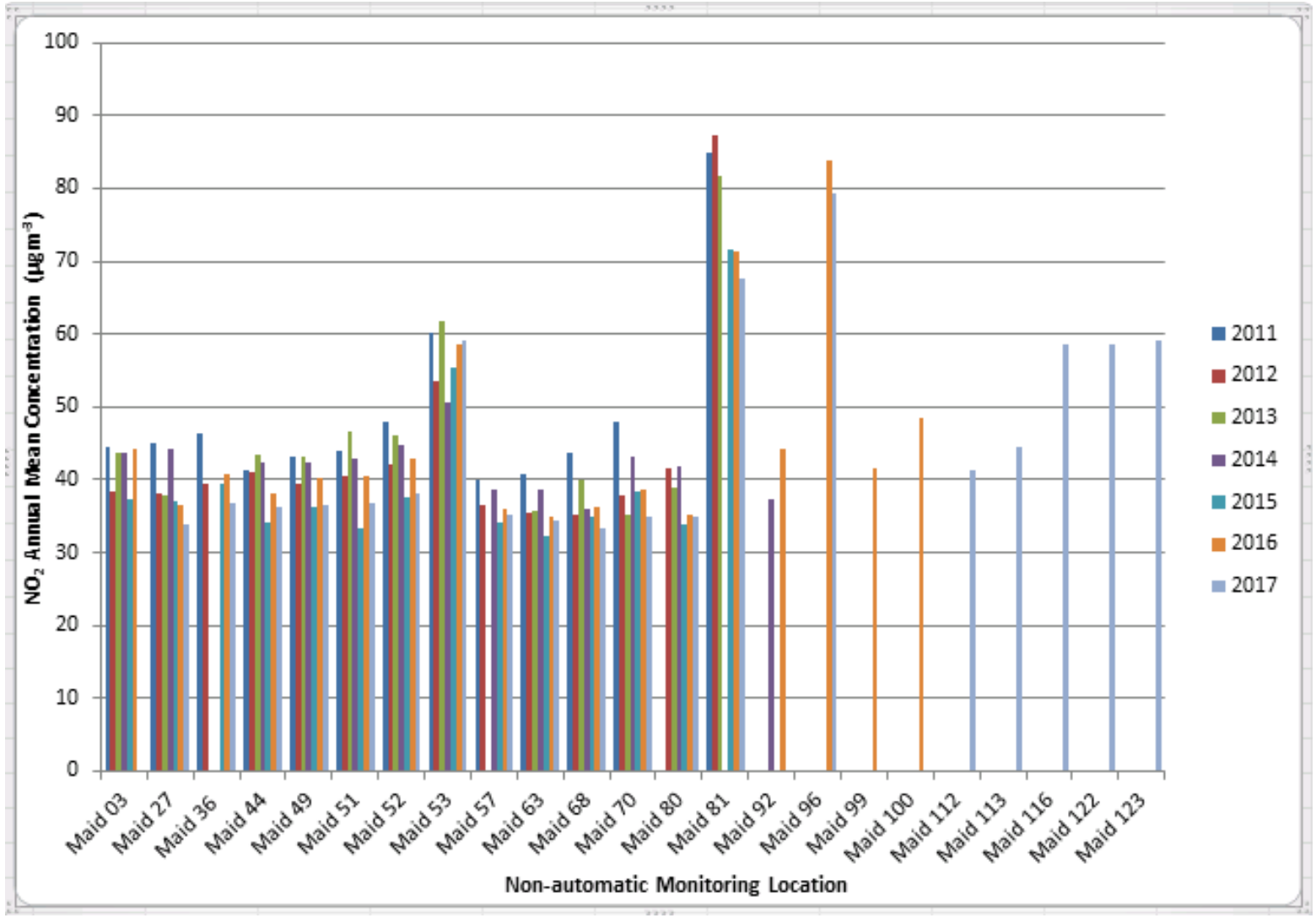
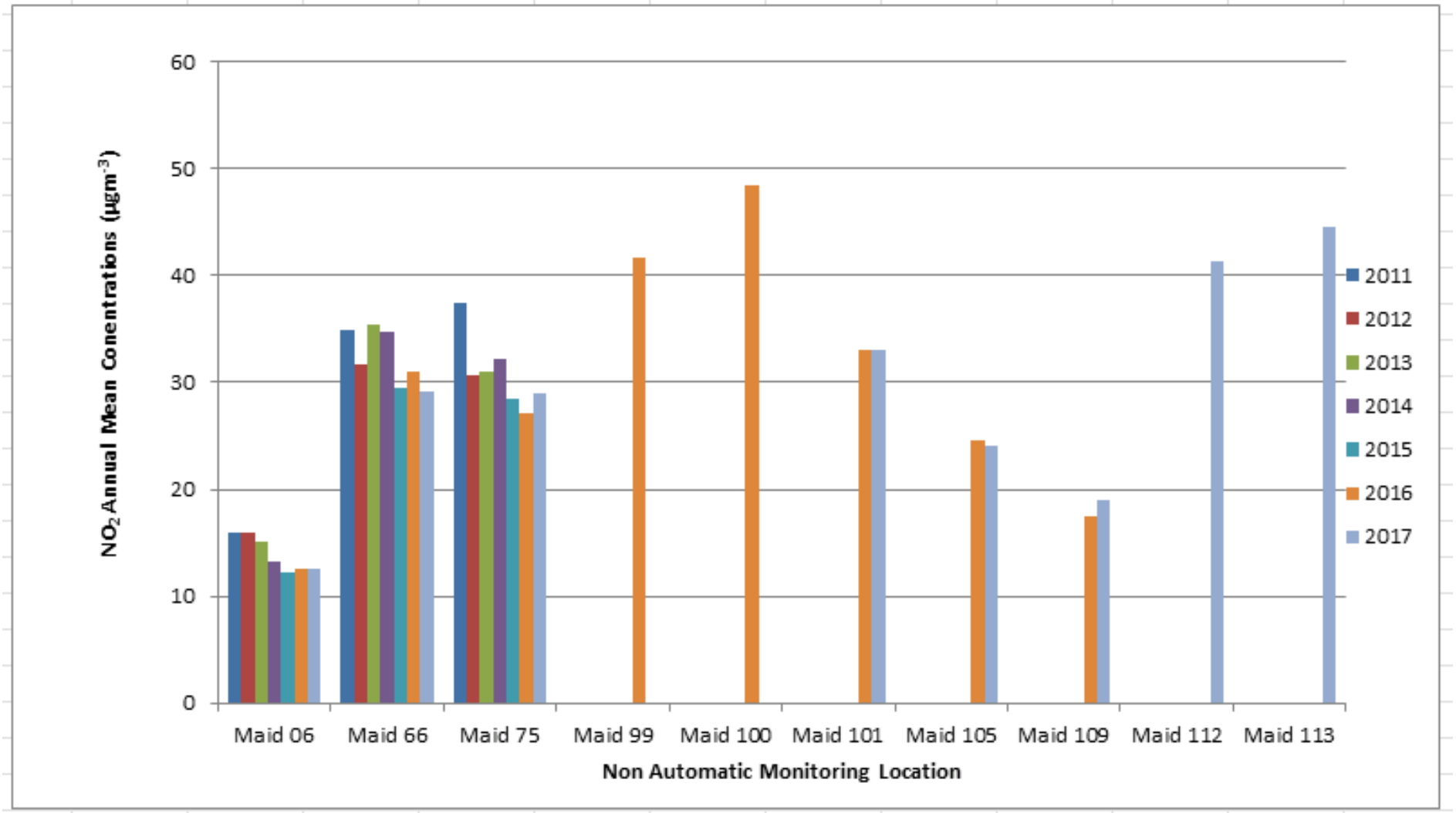


Figure 3.3 – Trends in Annual Mean NO_2 Concentrations Measured at Non-automatic Monitoring Sites Outside the AQMA

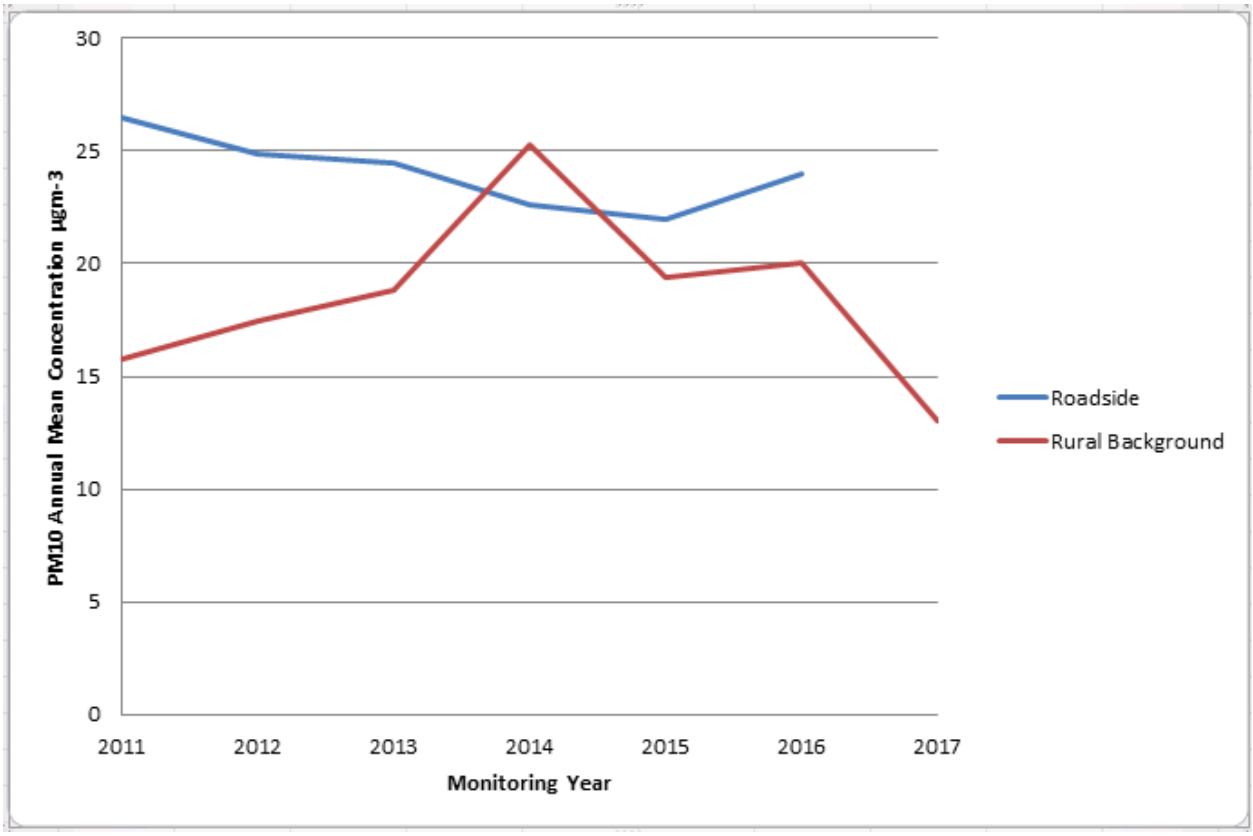


Particulate Matter (PM_{10})Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 7 years with the air quality objective of 40µg/m^3.

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 7 years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

Figure 3.4 shows trends in annual mean PM_{10} concentrations measured at the Detling Rural automatic monitoring site, along with data from the closed town centre site for comparison. The annual mean PM_{10} concentration at Maidstone Rural has been observed to have increased dramatically between 2011 and 2014, followed by a decrease in 2015, a small increase in 2016 and a significant decrease in 2017.

Figure 3.4 – Trends in Annual Mean PM_{10} Concentrations Measured at Automatic Monitoring Sites



4 Conclusion and Recommendation

4.1 Conclusion from the New Monitoring Data

The Urban Roadside monitoring site in Maidstone was decommissioned in June of 2016. Both the annual mean objective and the 1-hour objective for NO_2 were met at the automatic rural background monitoring station in Detling, as were the objectives for .

During 2017, exceedances of the NO_2 annual mean AQS objective were recorded at seven non-automatic monitoring sites, which are located within the existing AQMA, and at two sites outside the existing AQMA. Exceedances occurred at:

Inside the AQMA

- Maid 53 at The Wheatsheaf Public Health
- Maid 81 at The Pilot on Upper Stone Street;
- Maid 96 at Lashings Sports Club on Upper Stone Street.
- Maid 97 at 'No Loading' sign outside Romney House, in Romney Place
- Maid 116 at 37 Forstal Road Cottages
- Maid 122 at Papermakers Arms PH, Upper Stone Street
- Maid 123 at Upper Stone Street Opposite Maid 122

Outside the AQMA

- Maid 112 at road bridge over M2 Bredhurst
- Maid 113 at 1 Ashford Road, Bearstead

Two of AQMA sites, namely Maid 03 and Maid 52, following distance correction, indicated no exceedance at the nearest residential receptor.

There are two NO_2 diffusion tube locations, Maid 81 and Maid 96 - where the annual mean exceeded 60µg/m^3 at the nearest relevant exposure façade; both have been identified previously. An annual mean concentration of greater than 60µg/m^3 indicates the potential for exceedance of the 1-hour objective.

During 2015, the annual mean NO_2 concentration at Maid 96 was 94.8µg/m^3, indicating an exceedance of the 1 hour mean air quality objective. This result, however, was based on only 4 tube results which were annualised. In 2016 there were 11 months (91.7%) of data, and the reading was reduced to 83.8µg/m^3. The 2017 result was based on 12 months of data and had decreased to 79.4µgm^{-3}, however, this is still indicative of an exceedance of the hourly mean. A continuous monitor will be installed on the grass verge opposite Maid 96 during 2018, which will confirm whether or not there is an exceedance of the hourly mean in Upper Stone Street. (At the time of reporting this has been installed).

There were two exceedances of the annual mean NO_2 objective at non-automatic monitoring sites located outside of the existing AQMA (Maid 99 and Maid 100) However, these are at some distance from relevant exposure and when distance corrected, the levels at the nearest properties are well below the relevant objective.

4.2 Recommendations

Recommendations following this annual status report are:

- Continuation of diffusion tube monitoring in the area of Upper Stone Street.
- Investigate the requirement for further monitoring locations in the vicinity of Maid 96;
- Commissioning of new automatic monitoring station in Upper Stone Street in order to ascertain if an exceedances of either the 1-hour NO_2 objective or the PM_{10} annual mean are is occurring in the vicinity.
- Continue to progress actions in the new Air Quality Action Plan.
- Proceed to 2019 annual status report.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Site

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)
CM1	Maidstone A229 **(Closed June 2016)**	Roadside	575740	155615	NO_2; PM_{10}	Y	Chemiluminescence (NO_2), TEOM (PM_{10})	35	1.8	1.5
CM2	Maidstone Rural	Rural Background	580108	159703	NO_2, PM_{10},	N	Chemiluminescence (NO_2), TEOM FDMS (PM_{10}),	58	110	1.5

(1) 0m 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) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
Maid 06	Scragged Oak Lane	Rural	580108	159703	NO_2	N	58	>50	Y	2.5
Maid 10	Grange Lane South	Other	575769	158500	NO_2	Y	6.5	1.9	N	2.4
Maid 11	Boarley Lane	Other	575718	158653	NO_2	Y	6	1.7	N	2.6
Maid 19	196 Loose Rd	Roadside	576692	53992	NO_2	N	0	13.3	N	2.4
Maid 20	Sheals Crescent	Roadside	576175	154854	NO_2	Y	5.4	1.4	N	2.4
Maid 22	A20 London Road	Roadside	574109	156930	NO_2	Y	7.5	2.9	N	2.3
Maid 26	Drakes PH	Roadside	575782	155678	NO_2	Y	2	1.8	N	2.2
Maid 27	High Street (JPs Bar)	Roadside	575970	155688	NO_2	Y	0	4.4	N	2.2
Maid 29	Knightrider Street	Roadside	576082	155371	NO_2	Y	41	2.8	N	2.2
Maid 36	37 High Street	Roadside	575865	155640	NO_2	Y	0	4.9	N	1.7
Maid 44	Well Road (facade between No.3 & 4)	Roadside	576189	156440	NO_2	Y	0	3.4	N	2.4
Maid 45	Mote Park	Urban Background	577390	155159	NO_2	N	N/A	>50	N	2.5
Maid 46	Scrubbs Lane (Oakwood Park)	Urban Background	574770	155774	NO_2	N	73	>50	N	2.93
Maid 49	454 Tonbridge Road (façade)	Roadside	573309	154789	NO_2	Y	0	6.6	N	2.3
Maid 51	121 Boxley Road	Roadside	576146	156488	NO_2	Y	0	3.5	N	2.5
Maid 52	565 & 567 Tonbridge Road	Roadside	573349	154790	NO_2	Y	2.9	2.5	N	2.7
Maid 53	Wheatsheaf PH	Roadside	576724	153948	NO_2	Y	1.9	1.0	N	2.4
Maid 56	243 Loose Road	Roadside	576735	154007	NO_2	Y	0	15.1	N	1.6

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
Maid 57	33 & 34 Forstal road cottages	Roadside	573962	158759	NO_2	N	0	4.5	N	1.5
Maid 63	Façade 8 Harbourland Cottages	Roadside	577037	157739	NO_2	Y	0	14.0 from M20 & 12.8 from Boxley Road	N	1.2
Maid 66	1 Pilgrims Way (Triplicate)	Other (Semi-rural)	579097	158414	NO_2	Y	0	17m from the main road of concern the A249	N	2
Maid 68	Metro Bank (former Burger King (King Street side)	Roadside	576100	155783	NO_2	Y	48	2.3	N	2.3
Maid 69	34 Church Street	Roadside	576267	155840	NO_2	N	1.5	1.3	N	1.9
Maid 70	92 King Street	Roadside	576463	155721	NO_2	Y	6	1.3	N	1.9
Maid 71	Flowerpot PH, Sandling Road	Roadside	575738	156711	NO_2	N	6.5	10 from Royal Engineers Road	N	2
Maid 74	Chiltern Hundreds PH	Roadside	577377	157130	NO_2	N	0	6.0	N	2
Maid 75	1 The Hampshires	Roadside	586308	152577	NO_2	N	28	8.0	N	2
Maid 80	Well Road / Wheeler Street	Roadside	576314	156312	NO_2	Y	4.5	1.0	N	1.5
Maid 81	The Pilot PH	Roadside	576302	155328	NO_2	Y	0	1.0	N	1
Maid 84	384 & 382 Tonbridge Road	Roadside	573686	155050	NO2	N	2.5	1.0	N	2
Maid 86	20 & 18 Mote Road	Roadside	576368	155408	NO_2	Y	6	2.0	N	1.7
Maid 89	Briarwood Cottage, Sutton Road A274, Maidstone	Roadside	579072	152254	NO_2	N	2	2.0	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
Maid 90	Pudding Lane, Medway Street, Maidstone	Kerbside	575918	155753	NO_2	N	2	1.0	N	2
Maid 93	Corner Of St Andrews Road / Fountain Lane, Maidstone	Suburban	573347	154981	NO_2	N	1	10.0	N	1.5
Maid 94	53, High Street, Maidstone, Maidstone, Kent, ME14 1SY	Roadside	575822	155579	NO_2	Y	0	10.0	N	2
Maid 96	Lampost KUBT 512 in bracket for "One Way" sign outside Lashings Sports Club (opposite grassy area) Upper Stone St	Roadside	576346	155183	NO_2	Y	0	1.5	N	2
Maid 97	Post re bracket for "No Loading" sign outside Romney House in Romney Place	Roadside	576253	155534	NO_2	Y	5.0	2.1	N	2
Maid 98	Post re bracket for "No Loading" sign outside Miller House	Roadside	576258	155422	NO_2	Y	5	3	N	2
Maid 99	On metal post on left-hand side of road bridge which crosses M2 approached from south (Bredhurst).Triplicate site.	Roadside	579258	162300	NO_2	N	77	1 (above)	N	1
Maid 101	On green fence post by sign for Kent Medical	Other	578049	157248	NO_2	N	>100	Approx 55m from A249 &	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
	Campus development, accessed by Private Road for Newnham Court (Close to M20)							130m from M20 roundabout etc)		
Maid 102	On fence near public toilets as you enter EDF substation carpark	Other	575753	155615	NO_2	Y	N/A	9	N	1.5
Maid 103	On plastic down-pipe Corner of Ashley Gardens Care Centre, 419 Sutton Rd Maidstone ME15 8RA (opposite Bellmeadow)	Roadside	578391	152617	NO_2	N	0	10	N	2
Maid 104	On low metal bar next to metal junction box at Wrens Cross Maidstone	Roadside	576281	155408	NO_2	N	5.6	5.4	N	0.4
Maid 105	On wooden fence post down the slope towards Harp Farm Rd on right hand side of M2 bridge at Westfield Sole	Other	577289	161502	NO_2	N	17.3	19m from M20 to North (nearest road is actually Harp Farm Rd)	N	1
Maid 106	On down-pipe to the left of front bay window at 432 Loose Road, Maidstone, ME15 9UA	Roadside	576449	153400	NO_2	N	0	9m	N	1.3
Maid 107	On down pipe to the left of front door at 7 Ashford Road, Bearsted, Kent. ME14 4BP	Roadside	578617	155398	NO_2	N	0	15m	N	1.3

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous Analyser?	Height (m)
Maid 108	High up on down-pipe to left of front door at 13 Barming Walk, Hermitage Lane, Barming, ME16 9AH	Roadside	573263	155157	NO_2	N	0	9m	N	2
Maid 109	Cookes Cottages, Grane Lane, Boxley, Kent. ME14 3BX.	Other	576476	158231	NO_2	N	0	102m	N	2
Maid 110	Tonbridge Road (on lamp post near No 3)	Roadside	575540	155435	NO_2	Y	2.8	1.5m	N	2
Maid 111	Mote Road. On lamp post adjacent to pedestrian crossing on Wat Tyler Way (Wren's Cross) near Miller House.	Roadside	576287	155404	NO_2	Y	9.8	1.3m	N	2
Maid 112	New Cut Road. On Turkey Mill roadsign near traffic lights (pole nearest back garden wall of nearest residence)	Roadside	577770	155613	NO_2	N	6.4	2.6m	N	1.5
Maid 113	Tube located on lamp-post outside 1 Ashford Road, Bearsted, Kent, ME14 5BJ.	Roadside	578567	155392	NO_2	N	8.8	2.4m	N	1.5
Maid 114	To replace triplicate site Maid 102 - speed sign on pole on left-hand side of road bridge which	Roadside	579272	162291	NO_2	N	35	15m	N	1.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
	crosses M2 approached from south (Bredhurst)									
Maid 115	On pole immediately adjacent to side wall of The Swan PH (to replace Maid 106 on opposite side of the road)	Roadside	576476	153376	NO_2	N	0	2m	N	1.5
Maid 116	On telegraph pole by front garden wall of 37 Forstal Rd Cottages (to replace Maid 57 since new resident has destroyed original site)	Roadside	573972	158753	NO_2	Y	4.3	1m	N	1.5
Maid 117	On lampost adjacent to drive though area of McDonalds	Roadside	575698	155448	NO_2	Y	31m	1.3m	N	2.5m from pavement but 2m from ground level of drive through
Maid 118	On down-pipe to left of main hospital entrance (forward most façade)	Roadside	573304	155731	NO_2	N	0	3	N	1.5
Maid 119	On down-pipe to right of 62 Tarragon Road	Roadside	573384	155479	NO_2	N	0	4.2m	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
Maid 120	Tube on lampost bracket near garden wall to rear of St Andrew's Park	Roadside	573290	155070	NO_2	Y	84	2m	N	1.5
Maid 121	Tube site intially (Aug to Oct) on down-pipe on corner of front façade of 46 Springwood Lane, but then realised corners are not recommended in guidance so moved to second down-pipe on front façade near gate	Roadside	573273	155107	NO_2	N	0	5m	N	1.5
Maid 122	Loading sign to the right of the front of the Papermakers Arms PH*	Roadside	576386	155035	NO_2	Y	0	1.5m	N	1.5
Maid 123	Loading sign on opposite side of Upper Stone St to Maid 122*	Roadside	576378	155033	NO_2	Y	6.6	1.5m	N	1.5
Maid 124	Fence pole at back of site for proposed development at 102 Upper Stone St* [*NB. Sites Maid 122-4 replacing triplicate Maid 114, in favour of checking accuracy of 2015 AQ contour lines	Roadside	576336	155031	NO_2	N	0	40m	N	1.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
	modelled for Council by AQS]									
Maid 125	Tube located in no-loading sign on lampost to rear of garden wall behind Langley House etc (to replace Maid 120)	Roadside	573285	155266	NO_2	N	3	2.6	N	2
Maid 126	Tube located opposite Maid 125 on lamppost adjacent to 5a Hermitage Lane (in addition to Maid 121)	Roadside	573269	155266	NO_2	N	3.0	2.6	N	2
Maid 127	Tube located in bracket of Give Way sign on opposite side of Wren's Cross to Maid 111	Roadside	576295	155376	NO_2	Y	2	1.5	N	2

(1) 0m 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.

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Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3]						
					2011	2012	2013	2014	2015	2016	2017
CM1	Roadside	Automatic			**53.5**	**43.2**	**48.1**	**46.9**	**40.1**	**38**	**Site closed**
CM2	Rural Background	Automatic	97.8%	97.8%	12.5	13.7	13.5	12.3	12.6	12	13
Maid 03	Roadside	Diffusion Tube			**44.4**	38.4	**43.8**	**43.8**	37.4	**44.3(a)**	
Maid 06	Rural	Diffusion Tube	100.0%	100.0%	15.9	16	15.1	13.3	12.2	12.64	12.6
Maid 10	Other	Diffusion Tube	91.7%	91.7%	32.3	29.3	34.5	29.8	27.4	30.95	30.3
Maid 11	Other	Diffusion Tube	91.7%	91.7%	32.3	26.6	28.8	29.4	27.0	24.73	25.1
Maid 19	Roadside	Diffusion Tube	50%	50%	28.8	25.6	27.1	26.8	22.4	23.78	22.8
Maid 20	Roadside	Diffusion Tube	100%	100%	29.4	29.2	31.6	29.7	24.8	28.13	27.1
Maid 22	Roadside	Diffusion Tube	91.7%	91.7%	32.5	30.6	31.7	29.5	25.6a	28.59	28.5
Maid 26	Roadside	Diffusion Tube	91.7%	91.7%	39	32.4	30.6	34.9	30.7	31.03	33.5
Maid 27	Roadside	Diffusion Tube	100%	100%	**44.9**	38.1	37.8	**44.1**	37.0	36.39	33.8
Maid 29	Roadside	Diffusion Tube	91.7%	91.7%	37.5	28.6	33.5	32	30.3	30.94	34.3
Maid 36	Roadside	Diffusion Tube	91.7%	91.7%	**46.3**	39.4	**42.3a**	**46.5a**	39.4	**40.69**	36.8
Maid 44	Roadside	Diffusion Tube	100%	100%	**41.2**	**41.1**	**43.5**	**42.3**	34.2	38.09	36.2
Maid 45	Urban Background	Diffusion Tube	91.7%	91.7%	22	21.1	22.3	17.7	17.1	17.84	16.6
Maid 46	Urban Background	Diffusion Tube	41.7%	41.7%	16.3	18	17.2a	15.0a	13.2a	14.89(a)	14.5
Maid 49	Roadside	Diffusion Tube	91.7%	91.7%	**43.1**	39.4	**43.2**	**42.4**	36.2	**40.22**	36.5
Maid 51	Roadside	Diffusion Tube	100%	100%	**44**	**40.5**	**46.5**	**42.9**	33.4	**40.42**	36.7
Maid 52	Roadside	Diffusion Tube	91.7%	91.7%	**48**	**42**	**46**	**44.7**	37.7	**42.87**	38.2
Maid 53	Roadside	Diffusion Tube	83.3%	83.3%	**60.2**	**53.5**	**61.7**	**50.5**	**55.4**	**58.60**	**59.1**
Maid 56	Roadside	Diffusion Tube	100.0%	100.0%	30.4	27.7	27.6	36.8	27.5	27.76	27.0
Maid 57	Roadside	Diffusion Tube	100.0%	33.3%	39.9	36.4	**41.0a**	38.7	34.1	35.91	35.2
Maid 63	Roadside	Diffusion Tube	100%	100%	**40.7**	35.5	35.6	38.6	32.4	34.91	34.4

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3]						
					2011	2012	2013	2014	2015	2016	2017
Maid 66	Other	Diffusion Tube	100%	100%	34.9	31.7	35.4a	34.8	29.5	30.97	29.1
Maid 68	Roadside	Diffusion Tube	58.3%	58.3%	**43.8**	35.3	39.9	36.1	34.9	36.36	33.2
Maid 69	Roadside	Diffusion Tube	100%	100%	31.5	24.2	25.8	26.1	22.0	25.99	24.5
Maid 70	Roadside	Diffusion Tube	100%	83.3%	**47.9**	37.8	35.2	**43.2**	38.3	38.52	37.6
Maid 74	Roadside	Diffusion Tube	100%	100%	38.1	32.3	34.3	35.6	32.9a	33.32	34.8
Maid 75	Roadside	Diffusion Tube	100%	100%	37.4	30.6	31	32.2	28.5	27.10	28.9
Maid 80	Roadside	Diffusion Tube	100%	100%	-	**41.6**	39	**41.9**	33.9	35.23	35.0
Maid 81	Roadside	Diffusion Tube	100%	100%	**84.8**	**87.3**	**81.7**	**74.8a**	**71.5**	**71.26**	**67.7**
Maid 84	Roadside	Diffusion Tube	83.3%	83.3%	-	26.6	31.9	29.5	26.3	35.08	30.4
Maid 86	Roadside	Diffusion Tube	100%	100%	-	33.2	37.9	39.4	33.5	30.17	35.8
Maid 89	Roadside	Diffusion Tube	100%	100%	-	-	27.4a	29.3	25.6	25.38	26.5
Maid 90	Kerbside	Diffusion Tube	83.3%	83.3%	-	-	35.8a	37.2	32.9	32.77	34.2
Maid 93	Suburban	Diffusion Tube	91.7%	91.7%	-	-	(35.2a)	30.2	24.4	26.46	26.3
Maid 94	Roadside	Diffusion Tube	100%	75.0%	-	-	-	-	31.3	35.51	35.4
Maid 96	Roadside	Diffusion Tube	100%	100%	-	-	-	-	**94.8a**	**83.84**	**79.3**
Maid 97	Roadside	Diffusion Tube	100%	100%						38.61	**41.9**
Maid 98	Roadside	Diffusion Tube	91.7%	91.7%						35.22	34.8
Maid 101	Other	Diffusion Tube	100%	100%						33.08	33.1
Maid 102	Other	Diffusion Tube								30.11	28.8
Maid 103	Roadside	Diffusion Tube	100%	100%						23.54	22.1
Maid 105	Other	Diffusion Tube	100%	100%						24.66(a)	24.1
Maid 106	Roadside	Diffusion Tube	100%	41.7%						23.23(a)	27.8
Maid 107	Roadside	Diffusion Tube	100%	25%						22.8(a)	21.8
Maid 108	Roadside	Diffusion Tube	100%	100%						23.75(a)	23.4
Maid 109	Other	Diffusion Tube	100%	50%						17.49(a)	19.0
Maid 110	Roadside	Diffusion Tube	100%	100%						28.98(a)	33.8
Maid 111	Roadside	Diffusion Tube	100%	100%							30.4
Maid 112	Roadside	Diffusion Tube	100%	100%							**41.4**
Maid 113	Roadside	Diffusion Tube	100%	81.3%							**44.5**
Maid 114	Roadside	Diffusion Tube									31.1
Maid 115	Roadside	Diffusion Tube	50%	50%							35.8
Maid 116	Roadside	Diffusion Tube	100%	66.6							**58.5**
Maid 117	Roadside	Diffusion Tube	100%	50%							31.8

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)						
					2011	2012	2013	2014	2015	2016	2017
Maid 118	Roadside	Diffusion Tube	100%	41.7%							17
Maid 119	Roadside	Diffusion Tube	100%	41.7%							15.2
Maid 120	Roadside	Diffusion Tube	100%	33.3%							20.2
Maid 121	Roadside	Diffusion Tube	100%	25%							30.7
Maid 122	Roadside	Diffusion Tube	100%	25%							**58.7**
Maid 123	Roadside	Diffusion Tube	100%	25%							**59**
Maid 124	Roadside	Diffusion Tube	100%	25%							16.1

Notes: Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 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 Technical Guidance LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)						
					2011	2012	2013	2014	2015	2016	2017
CM1	Roadside	Automatic	N/A	N/A	0	0	0	2	0	0	Site Closed
CM2	Rural Background	Automatic	90.1%	90.1%	0	0	0	0	0(68.9)	0	0

Notes: Exceedances of the NO_2 1-hour mean objective (200µg/m^3 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 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3)						
				2011	2012	2013	2014	2015	2016	2017
CM1	Roadside	-	-	26.5	24.9	24.5	22.6	22	24	Site Closed
CM2	Rural Background	69.9%	69.9%	15.8	17.5	18.8	25.3	19.4	20	13

Notes: Exceedances of the PM_{10} annual mean objective of 40µg/m^3 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 Technical Guidance LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)						
				2011	2012	2013	2014	2015	2016	2017
CM1	Roadside			11	11	11	10	3	5	Site closed
CM2	Rural Background	69.9%	69.9%	8	10 (33)	1	18	3	4	0

Notes: Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 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 90.4th percentile of 24-hour means is provided in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2017

Site ID	NO_2 Mean Concentrations ($\mu g/m^3$)												Annual Mean	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.78)
Maid 06.1	31.9	25.4	11	11.9	12.7	9.1	11.2	11.9	14.4	15.5	25.7	15.3	16.3	12.7
Maid 06.2	30	20.2	12	12.9	11.6	8.9	11.5	11.7	14.1	16.2	26.4	15.2	15.9	12.4
Maid 06.3	29.5	20.7	16.9	12.9	12	8.8	11.5	11.6	13.7	15.2	26.5	14.3	16.1	12.6
Maid 10	52.2	41.8	40.8	45.6	36.2		29.9	31.8	33.9	33	46.2	36.5	38.9	30.3
Maid 11	39.7	38.6	35.4	28.8	25.7	28.1	29.3	27.9	31		36.1	33.7	32.2	25.1
Maid 19	38	35.4	31	29.9	-	21			26.1				29.3(a)	22.9
Maid 20	51.6	38.5	34.8	30.7	33.8	25.6	25.5	28.6	30.4	33	47.5	36.5	34.7	27.1
Maid 22	48		36.8	37.4	30.4	28.8	28	31.3	35.5	36.3	45.2	44.5	36.6	28.5
Maid 26	55.2	44.8	45	44.2	34.4	34.3	37.7		42.1	40.3	51.6	43	43	33.5
Maid 27	68.4	19.4	49.2	50.4	44.1	40.3	39.2	40.6	45.5	40.7	42.6	39.9	43.4	33.9
Maid 29	53.3	45.9	49.3	46.2		39.8	36.2	35.4	42.1	40	54.7	40.8	44.0	34.3
Maid 36	56.7	47	46.6	51.6		42.3	38.9	39.5	46.5	46.3	57.7	45.4	47.1	36.7
Maid 44	70.3	47.1	44.1	52.7	48.4	33.8	36.7	40.1	45.4	38.3	54.6	44.8	46.4	36.2
Maid 45	30.5	21.9	-	19.8	19.7	17.4	18.1	19.7	18.3	17.9	30	20.1	21.2	16.5
Maid 46					16		10.8	12.4	16.1	15.5			18.6 (a)	14.5
Maid 49	65	46	46.9	49.8	46	34.5	44.4	40.2	50.9	52.8		38.4	46.8	36.5
Maid 51	62.6	49.6	43.4	52.3	50.5	36.4	36.2	40.5	49.6	42.2	56.8	44.1	47.0	36.7
Maid 52	84.8	56.2	49.8	51.9	45.2	45.6	38.1	41	42.8	40.4		43.5	49.0	38.2
Maid 53	58.4	79	83.6	74.4	71.7	68.8	72.7		79.4		90.5	79.3	75.8	**59.1**
Maid 56	41.8	33.9	33.5	31.3	27.1	24.7	24.5	71.2	29.7	31.6	31.7	34.3	34.6	27.0
Maid 57	63.1	48.9	43.8	54									45.2 (a)	35.3
Maid 63	59.5	46.8	40.8	51.4	37.9	38.1	35.7	39.3	42.5	43.2	50	43.3	44.0	34.3

Site ID	NO_2 Mean Concentrations ($\mu g/m^3$)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (0.78)
Maid 66	56.9	44.4	38.9	39	37	30.9	35.1	26.6	32.9	37.1	32.3	36.1	37.3	29.1
Maid 68	56	52.2	50.2			37.9		38.1	42.8			32.8	42.5(a)	33.2
Maid 69	42.8	37.7	32.8	31	24.6	22.2	22.4	22.6	30.1	32.9	39.6	37.5	31.4	24.5
Maid 70	61.2	4	52.1	48.7	42.3	40.6	41.6	43.6	48.9	46.5	55.9	52.8	44.9	35.0
Maid 74	63.7	46.1	45.9	46.5	37.4	34.6	33.9	37.5	42.2	45.7	56.4	45.2	44.6	34.8
Maid 75	56.4	43.1	33.6	35	28.8	25.4	28.4	33.3	35.2	39.3	45.7	40.1	37.0	28.9
Maid 80	69.7	46.1	45.2	45.5	42.8	34.3	36.5	37.5	44	40.8	50.7	45.1	44.9	35.0
Maid 81	88.7	83	103	97.1	86.8	83.8	90.8	75.4	86.1	84.6	75.9	86.7	86.8	**67.7**
Maid 84	59.8	39.1	37.3	36	34.2			24.9	34.6	35.3	50.3	38.2	39.0	30.4
Maid 86	65	47.2	48.9	47.5	40.2	38.2	35.4	39.9	44.7	44.2	53.1	47.2	46.0	35.9
Maid 89	42.4	32.2	32.3	34.3	33.3	34.9	30.8	31.3	33.2	32.4	42	28.5	34	26.5
Maid 90	60.4	49	36.6	45.7			42.3	33.4	37.4	41.2	49.9	42.8	43.9	34.2
Maid 93	53.8	38.5	34.6	38.2	27.6	26.5	26.9	28		32.8	41.9	42.8	33.8	26.4
Maid 94	65.4	44.9	34.8	49.9	43.6	39.3	43.9	40.8	45.4	41.3	52.6	42.2	45.3	35.3
Maid 96	91.8	104.4	77.9	123	115.4	102	112.2	105.8	97.7	98.9	110.1	80.7	101.7	**79.3**
Maid 97	52.8	57.9	50.4	58.7	51.9	54	57.2	47.1	53.9	55.1	60.9	45.3	53.8	**42**
Maid 98	61.3	42.6	49.9	47.9	49.9	40.6	33.2	38.3	42.3	39.9	44.5		44.6	34.8
Maid 101	50	40.5	43.6	51.8	30.8	32.9	33.1	36.6	38.7	42.5	61.5	46.9	42.4	33.1
Maid 102.1	49.3	42.3	38.3	36.4	35.5		28.9	29.6	34.1		44.2	39.2	37.8	29.5
Maid 102.2	47.2	34.5	37.2	36.8	35.3		30.1	32.8	32.8		41.7	N/A	36.5	28.5
Maid 102.3	49.3	37.1		35.9	33.5	26.3	35.4	28.3	40.9			41.9	36.5	28.5
Maid 103	39.7	33.2	25.9	27.6	26	21.5	22	25.8	27.1	29	33.6	28.5	28.3	22.1
Maid 101	41.8		46	40.8	39.2	41.3	41.3	34.1	35.1	39.5	50.4	51.1	41.87	33.1
Maid 102	38.7		42.1	39.3	57	25.5	28.9	28.1	36.2	37.4	41.6	44.4	38.1	29.7
Maid 103				27.9	33.6	24.4	16.0	23.0	27.4	38.3	39.1	38.6	29.8	23.2
Maid 105	43.4	31.6	30.1	35.5	31.4	22.9	23.3	25.4	31.9	27	40.5	27.4	30.9	24.1

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (0.78)
Maid 106	46.8	37.2	30.1	33.7	41.7								35.6(a)	27.8
Maid 107	44.7	28.7	32.9										28.0(a)	21.8
Maid 108	45.8	33.9	35	33.3	28.2	20.8	22.4	24.5	23.5	22.1	38.1	32.2	30.0	23.4
Maid 109	36.3	27.6	24.8	22.1	18.8	16.8							24.4 (a)	19.0
Maid 110	56.2	46.9	42.6	48	38.5	35.9	38.3	35.6	41.1	39.6	51.1	45.7	43.3	33.8
Maid 111.1	59.3	41.3	40.6	45.6	38.3	27.9	34.5	30.8	34.2	35.8	47.5		38.7	30.2
Maid 111.2	52.1	44.5	44	43.7	39.2	30	32.8	29.5	33.4	30.2	40.8		38.2	29.8
Maid 111.3	53.9	44.5	42.1	45.6				34.9	35.6	37.9	52		39.8 (a)	31.0
Maid 112	37.7	46.4	109.5	51	47.2	48.4	49.3	48.3	45.4	48.4	56.7	49	53.1	**41.4**
Maid 113			54.5	54.9	58.7	53.9	49.4	54.6	59.2	62.5	62.4	59.8	57.0	**44.5**
Maid 114.1				31.2	26.3	26.3	27.8	30.4	27.8				37.9 (a)	29.6
Maid 114.2				33.3	36.2	27.9	27.8	29.7	33.2				42.0 (a)	32.8
Maid 114.3				34.3	27.4	25.6	27.6	28.6	34				39.7 (a)	31.0
Maid 115						42.4	43.8		44.3	51.8	46	46.9	45.9 (a)	35.8
Maid 116					88	79.7	76.7	64.8	79.1	74.8	78.1	59.2	81.8 (a)	**63.9**
Maid 117							36.5	39.7	43.9	39	54.8	31	40.8 (a)	31.8
Maid 118								19.5	22.3	21.3	32	20.7	21.8 (a)	17
Maid 119								14.8	18.9	18.4	29.1	22.3	19.5 (a)	15.2
Maid 120									33.4	23.2	35	26.1	25.9 (a)	20.2
Maid 121										45.9	57.1	44.3	39.3 (a)	30.7
Maid 122										89.6	111.3	81.2	75.2 (a)	**58.7**
Maid 123										82.7	109.6	91.2	75.6 (a)	**59**
Maid 124										21.8	33.7	21.9	20.6 (a)	16.1

(1) See Appendix C for details on bias adjustment

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Environmental Scientifics Group (ESG) Didcot utilising the 50% triethanolamine (TEA) in acetone preparation method. A national bias adjustment of 0.77 for the year 2017 (based on 27 studies) has been derived from the national bias adjustment calculator.

For previous data, years 2011 to 2016, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 0.92 (2011), 0.79 (2012), 0.88 (2013), 0.88 (2014) 0.79 (2015) 0.79 (2016) and 0.77 (2017)

Factor from Local Co-location Studies

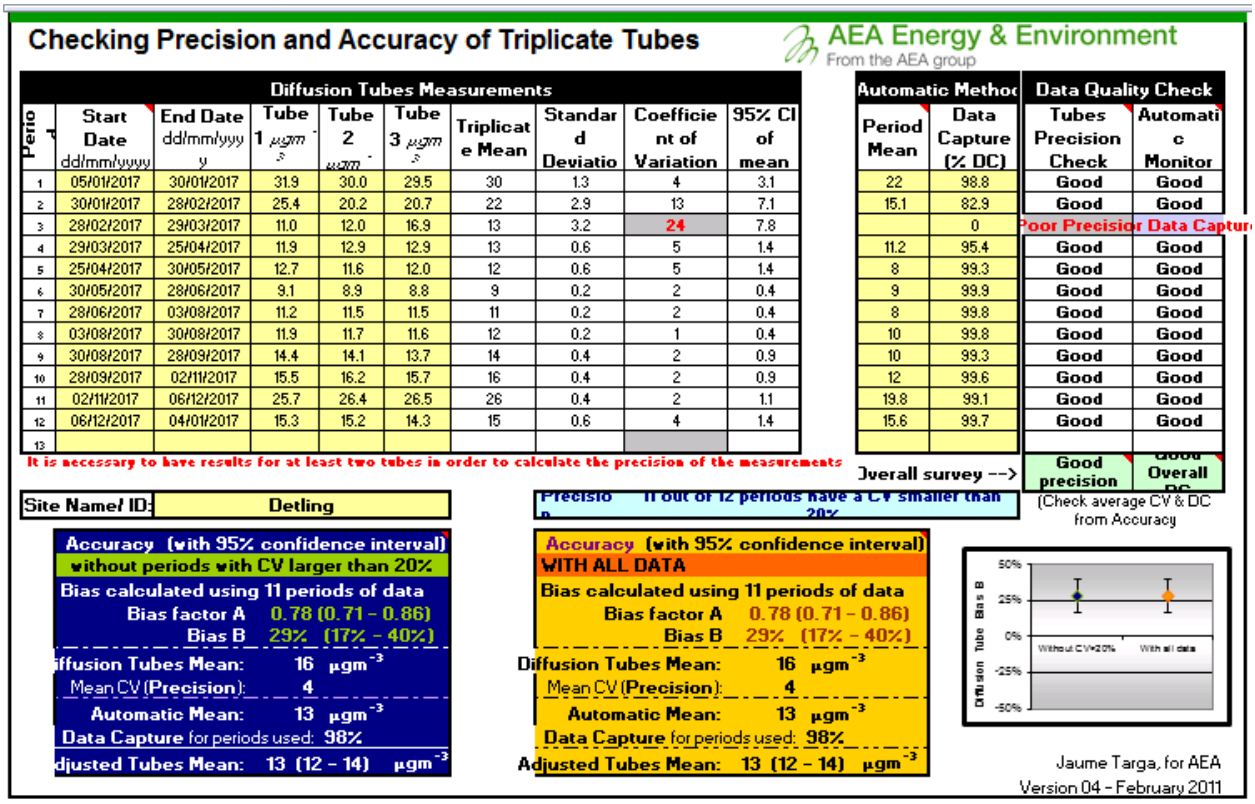
Maidstone Borough Council has triplicate tubes located at Maidstone Rural site (diffusion tube site Maid 06).

A factor of 0.78 was produced from the Maidstone Rural co-location survey using eleven periods of data with good diffusion tube precision and good data capture (see Table C.1).

Table C.1– Local Bias Factors

Site ID	Diffusion Tube Data capture	Continuous Monitor Data Capture for Periods Used	Diffusion Tube Annual Mean (µg/m^3)	Continuous Monitor Annual Mean (µg/m^3)	Bias Factor A	Bias Factor B
CM2	100%	98%	16	13	0.78	29%

Figure C.1 – Maidstone Rural



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm⁻³	Tube 2 µgm⁻³	Tube 3 µgm⁻³	Triplicate Mean	Standard Deviation	Coefficient of Variation	95% CI of mean	Automatic Method Period Mean	Automatic Method Data Capture (% DC)	Data Quality Check: Tubes Precision Check	Data Quality Check: Automatic Monitor
1	05/01/2017	30/01/2017	31.9	30.0	29.5	30	1.3	4	3.1	22	98.8	Good	Good
2	30/01/2017	28/02/2017	25.4	20.2	20.7	22	2.9	13	7.1	15.1	82.9	Good	Good
3	28/02/2017	29/03/2017	11.0	12.0	16.9	13	3.2	24	7.8		0	Poor Precision	Poor Data Capture
4	29/03/2017	25/04/2017	11.9	12.9	12.9	13	0.6	5	1.4	11.2	95.4	Good	Good
5	25/04/2017	30/05/2017	12.7	11.6	12.0	12	0.6	5	1.4	8	99.3	Good	Good
6	30/05/2017	28/06/2017	9.1	8.9	8.8	9	0.2	2	0.4	9	99.9	Good	Good
7	28/06/2017	03/08/2017	11.2	11.5	11.5	11	0.2	2	0.4	8	99.8	Good	Good
8	03/08/2017	30/08/2017	11.9	11.7	11.6	12	0.2	1	0.4	10	99.8	Good	Good
9	30/08/2017	28/09/2017	14.4	14.1	13.7	14	0.4	2	0.9	10	99.3	Good	Good
10	28/09/2017	02/11/2017	15.5	16.2	15.7	16	0.4	2	0.9	12	99.6	Good	Good
11	02/11/2017	06/12/2017	25.7	26.4	26.5	26	0.4	2	1.1	19.8	99.1	Good	Good
12	06/12/2017	04/01/2017	15.3	15.2	14.3	15	0.6	4	1.4	15.6	99.7	Good	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Good precision | Good Overall DC

(Check average CV & DC from Accuracy

Site Name/ ID: Detling

Precisio... 11 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 11 periods of data
Bias factor A 0.78 (0.71 - 0.86)
Bias B 29% (17% - 40%)
Diffusion Tubes Mean: 16 µgm⁻³
Mean CV (Precision): 4
Automatic Mean: 13 µgm⁻³
Data Capture for periods used: 98%
Adjusted Tubes Mean: 13 (12 - 14) µgm⁻³

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A 0.78 (0.71 - 0.86)
Bias B 29% (17% - 40%)
Diffusion Tubes Mean: 16 µgm⁻³
Mean CV (Precision): 4
Automatic Mean: 13 µgm⁻³
Data Capture for periods used: 98%
Adjusted Tubes Mean: 13 (12 - 14) µgm⁻³

Jaume Targa, for AEA
Version 04 - February 2011

Discussion of Choice of Factor to Use

Data has been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The technical guidance LAQM.TG 16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NO_x / NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG 16 and LAQM Helpdesk recommends the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

It was decided to use a local bias adjustment factor (0.78) for the year 2017, based on the data from the Detling Rural Monitoring Station. The bias factor of 0.78 is

consistent with factors used in previous years and provides marginally more conservative results than if the national bias adjustment factor (0.77) were used.

Short-term to Long-term Data Adjustment

Data capture at all sites which recorded 75% data capture or less, during 2017 has been annualised according to the method set out in LAQM TG(16) box 7.9. The details of the annualisation have been provided in Table C.2. TG16 recommends that sites with less that 75% data capture should be annualised, however, we also include sites with 75% data capture in the annualisation process.

Table C.2 – Short-Term to Long-Term Monitoring Data Adjustment

Site	Uncorrected Diffusion Tube Mean (µg/m^3)	Detling AF	Annualised Data Average µg/m^3	Annualised Bias Adjusted Concentration (µg/m^3)
Maid 19	30.2	0.973	29.3	22.8
Maid 46	14.2	1.315	18.6	14.5
Maid 57	52.5	0.859	45.2	35.3
Maid 68	44.3	0.959	42.5	33.2
Maid 106	37.9	0.939	35.6	27.8
Maid 107	35.4	0.795	28.0	21.8
Maid 109	24.4	0.996	24.4	19.0
Maid 114.1	28.3	1.34	37.9	29.6
Maid 114.2	31.3	1.34	42.0	32.8
Maid 114.3	29.6	1.34	39.7	31.0
Maid 115	45.9	1	45.9	35.8
Maid 116	75.1	1.090	81.8	63.9
Maid 117	40.8	1	40.8	31.8
Maid 118	23.2	0.94	21.8	17
Maid 119	20.7	0.94	19.5	15.2
Maid 120	29.4	0.88	25.9	20.2
Maid 121	49.1	0.8	39.3	30.7
Maid 122	94	0.8	75.2	58.7
Maid 123	94.5	0.8	75.6	59
Maid 124	25.8	0.8	20.6	16.1

Further QA/QC AQMS Network Manager

QA/QC of Automatic Air Quality Instruments

Air quality measurements from automatic instruments are validated and ratified to the standards described in the Local Air Quality Management – Technical Guidance LAQM (TG16)

https://laqm.defra.gov.uk/technical-guidance

by Air Quality Data Management (AQDM) http://www.aqdm.co.uk

Validation

This process operates on data during the data collection stage. All data are continually screened algorithmically and manually for anomalies. There are several techniques designed to discover spurious and unusual measurements within a very large dataset. These anomalies may be due to equipment failure, human error, power failures, interference or other disturbances. Automatic screening can only safely identify spurious results that need further manual investigation.

Raw data from the gaseous instruments (e.g. NOx, O_3, SO_2 and CO) are scaled into concentrations using the latest values derived from the manual and automatic calibrations. These instruments are not absolute and suffer drifts. Both the zero baseline (background) and the sensitivity may change over time. Regular calibrations with certified gas standards are used to measure the zero and sensitivity. However, these are only valid for the moment of the calibration since the instrument will continue to drift. Raw measurements from particulate instruments (e.g. PM_{10} and $PM_{2.5}$) generally do not require scaling into concentrations. The original raw data are always preserved intact while the processed data are dynamically scaled and edited.

Ratification

This is the process that finalises the data to produce the measurements suitable for reporting. All available information is critically assessed so that the best data scaling is applied and all anomalies are appropriately edited. Generally this operates at three, six or twelve month intervals. However, unexpected faults can be identified during the instrument routine services or independent audits which are often at 6-monthly intervals. In practice, therefore, the data can only be fully ratified in 12-month or annual periods. The data processing performed during the three and six monthly cycles helps build a reliable dataset that is finalised at the end of the year.

There is a diverse range of additional information that can be essential to the correct understanding and editing of data anomalies. These may include

- the correct scaling of data
- ignoring calibrations that were poor e.g. a spent zero scrubber
- closely tracking rapid drifts or eliminating the data

- comparing the measurements with other pollutants and nearby sites
- corrections due to span cylinder drift
- corrections due to flow drifts for the particulate instruments
- corrections for ozone instrument sensitivity drifts
- eliminating measurements for NO2 conversion inefficiencies
- eliminating periods where calibration gas is in the ambient dataset
- identifying periods were instruments are warming-up after a powercut
- identification of anomalies due to mains power spikes
- correcting problems with the date and time stamp
- observations made during the sites visits and services

The identification of data anomalies, the proper understanding of the effects and the application of appropriate corrections requires expertise gained over many years of operational experience. Instruments and infrastructure can fail in numerous ways that significantly and visually affect the quality of the measurements. There are rarely simple faults that can be discovered by computer algorithms or can be understood without previous experience.

The PM_{10} concentrations require scaling into Gravimetric Equivalent concentration units by use of the Volatile Correction Model (VCM) http://www.volatile-correction-model.info or by corrections published by Defra https://uk-air.defra.gov.uk/networks/monitoring-methods?view=mcerts-scheme depending on the measurement technique.

Further information about air quality data management, expert data ratification and examples of bad practices are given on the Air Quality Data Management (AQDM) website http://www.aqdm.co.uk.

QC Audits

The National Physical Laboratory, (NPL) carry out annual audits to rigorously evaluate analysers to obtain an assessment of performance level. This information, in conjunction with the full analyser data set and calibration and service records, help ensure data quality specifications have been met during the preceding period. Additionally, an assessment of the station calibration cylinder concentrations

provides an indication that the cylinder concentrations remain stable and therefore suitable for data scaling purposes.

The following describes the audit process:-

1 Oxides of Nitrogen

1.1 Analyser Response Factors

A stable "intercalibration standard", validated against NPL primary standards, is transported to each site and is sampled by the analyser.

The analyser also samples from a cylinder containing certified metrology grade zero air, or catalytic scrubbers of known efficiency.

The analyser factor quoted is the response to the intercalibration standard, expressed in $nmol.mol^{-1}.logged\ unit^{-1}$, with the zero point being the response to zero air.

For oxides of nitrogen analysers, the NO_x and NO channel response factors are derived from an NO in nitrogen cylinder.

1.2 Analyser Linearity

To determine analyser linearity, a series of amount fractions are produced (using dynamic dilution techniques) covering the analyser range. The analyser output is noted for each of these amount fractions. A linear regression is then carried out, relating analyser output to the dilution factor at each point. The linearity error is defined as the maximum residual of the regression slope.

1.3 Analyser noise levels.

This is defined here as the standard error of ten successive spot readings of analyser output when fully stabilised on zero (zero noise) or span (span noise) amount fraction.

1.4 NO_x analyser Converter Efficiency

NO_2 to NO Converter efficiency is determined as follows:

A stable amount fraction of NO is produced, (by two stage dynamic dilution) and the analyser outputs, NO_x and NO, are noted after a suitable stabilisation period.

Ozone is added to the sample, converting some NO to NO_2, note however, the total NO_x in the sample remains constant. Again, following appropriate stabilisation times, the NO_x and NO outputs are noted.

Converter (in)efficiency is defined as the change in scaled NO_x signal as a percentage ratio of the change in the scaled NO signal.

1.5 Estimation of Site Cylinder Amount fractions

The site cylinder amount fractions are evaluated by sampling from the site cylinder and using the analyser response factors, section 1.1, to derive their amount fraction.

2 **Particle Analysers.**

2.1 Analyser Flow Rates

Flow rates are measured by calibrated flow audit measurement systems. A leak check is also carried out.

2.2 Analyser Calibration Constants

TEOM Analyser calibration constants are measured by consideration of the change in frequency induced by placing pre-weighed masses on the analyser sensors.

QA/QC of Diffusion Tube Monitoring

ESG Didcot is a UKAS accredited laboratory and participates in the in the new AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. In the latest available AIR-PT results, ESG scored as follows: AIR-PT AR018 (January to February 2017), 100%, AIR-PT AR019 (April to May 2017) 100% and AIR-PT AR021 (July to August 2017) 100% and AIR-PT AR022 (September to October 2017), 100%.

Based on 23 studies, 100% of all local Authority co-location studies in 2017 were rated as ‘good’ (tubes are considered to have "good" precision where the coefficient

of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%).

Fall-off Distance Correction of Sites Exceeding the NO_2 Annual Mean Objective

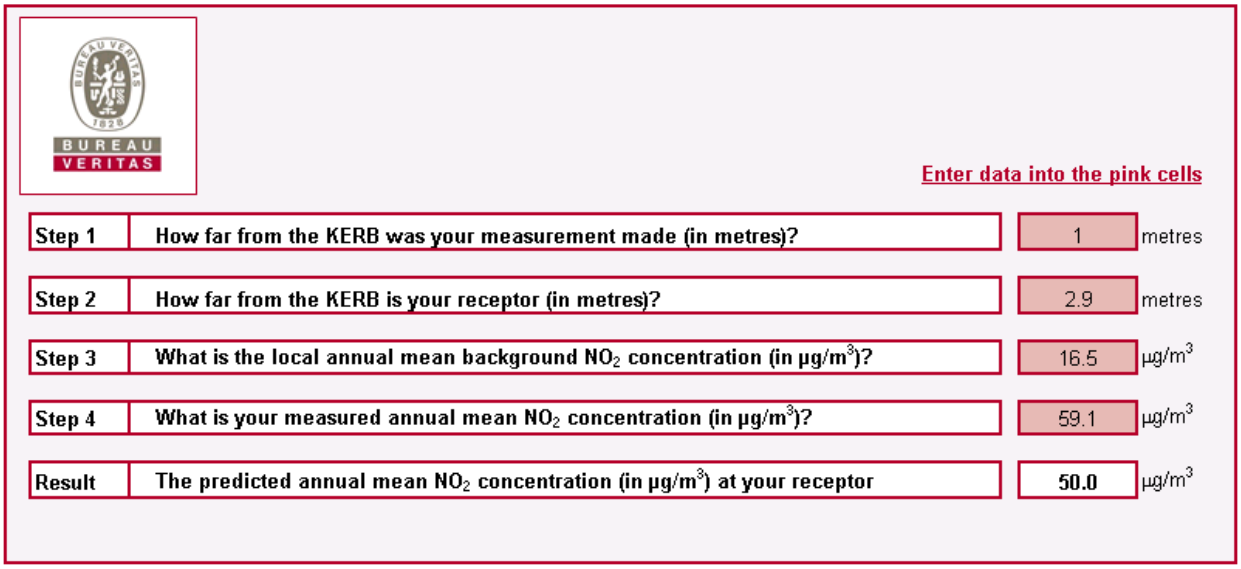
Distance corrections have been carried out, where appropriate, for all tubes which have shown an exceedance in 2017. Some of the tubes showing an exceedance are located on the facades of properties and therefore do not require distance correction. The results of the distance correction are shown in Table C.3 and an example is given in

Figure C.2

Table C.3 – Fall-off Distance Correction of Sites Exceeding the NO_2 Annual Mean Objective (2017)

Site ID	Site Name	Distance to kerb	Distance to relevant exposure	Bias Adjusted Annual Mean (µg/m^3)	Distance Corrected Annual Mean (µg/m^3)
Maid 53	Wheatsheaf PH	1.0m	1.9m	**59.1**	**50**
Maid 81	The Pilot Public House	1.0	0m	**67.7**	**67.7**
Maid 96	Lashings sports club Upper Stone Street	1.5m	0m	**79.3**	**79.3**
Maid 97	Outside Romney House, in Romney Place	2.1m	5.0m	**41.9**	36.7
Maid 112	New Cut Road	2.6m	6.4m	**41.4**	33.7
Maid 113	1 Ashford Road	2.4m	8.8m	**44.5**	33.9
Maid 116	Forstal Road Cottages	1.0m	4.3m	**63.9**	**48.0**
Maid 122	Papermakers arms	1.5	0	**58.7**	**58.7**
Maid 123	Upper Stone Street, opposite side to Maid 122	1.5	N/A	**59**	N/A

Figure C.2 – Fall-off Distance Correction of the Site Maid 53



Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	1	metres
Step 2	How far from the KERB is your receptor (in metres)?	2.9	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	16.5	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	59.1	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	50.0	µg/m^3

Biomass Combustion – Individual Installations

Maidstone Borough Council had previously identified a number of biomass installations which are over the 50kW criteria for assessment. The details for these installations are provided in Table C.4.

Two biomass installations, (Pinkhorn Green Farm and Elmscroft House) were screened out in the 2016 ASR. No further information on other previously identified biomass installations has been received, and no new planning applications for biomass installations, have been submitted.

Table C.4 – The Details for the Installations Identified

Installation:	Comment:
Outline application (15/503359/OUT) with all matters reserved for residential development (approximately 89 dwellings) plus open space, biomass plant and access road (plus emergency access) Land East Of Gleamingwood Drive Lordswood Kent. Permission granted on appeal December 2015.	The condition placed on the consent is given below: • No development shall commence until details of the biomass plant installation have been submitted to and approved in writing by the local planning authority. • The solid biomass boiler shall not exceed the following minimum emissions standards:180 mg/Nm^3 for NOx and 15 mg/Nm^3 for PM. • The installation shall be carried out in accordance with the approved No further details relating to biomass specification available.
Ewell Manor, Ewell Lane, West Farleigh. Coppice Wood burner (571281, 152745) – the nearest residential exposure is 30m from the installation	The application confirmed by email on that whilst the property has built a biomass boiler has not been installed and currently there are no plans to install one.
Smiths Hall, Lower Road, West Farleigh, Maidstone. Wood Chip burner with a thermal output of 100kW (571343, 152610) – the nearest residential exposure is 76m from the installation	Email sent to the applicant on 13/12/16 requesting information – no reply received to date.
Little Addlestead, Yalding (570420,148834) – the nearest residential exposure is 60m from the installation	It is confirmed from the applicant that a gas boiler has been fitted rather than a biomass boiler. The Council is waiting for confirmation from the applicant that the boiler is for domestic use only or a larger installation.
Planning application 13/0819 - The Stumps, Lenham Road, Kingswood, ME17 1LX (584473, 150655)	The Scientific Officer wrote to the applicant in June 2015 and received no reply. The Scientific Officer has written again and the letter has been sent out on 20/12/16.

Appendix D: Map(s) of Monitoring Locations

Figure D.1 – Map of Non-Automatic Monitoring Sites: East Maidstone

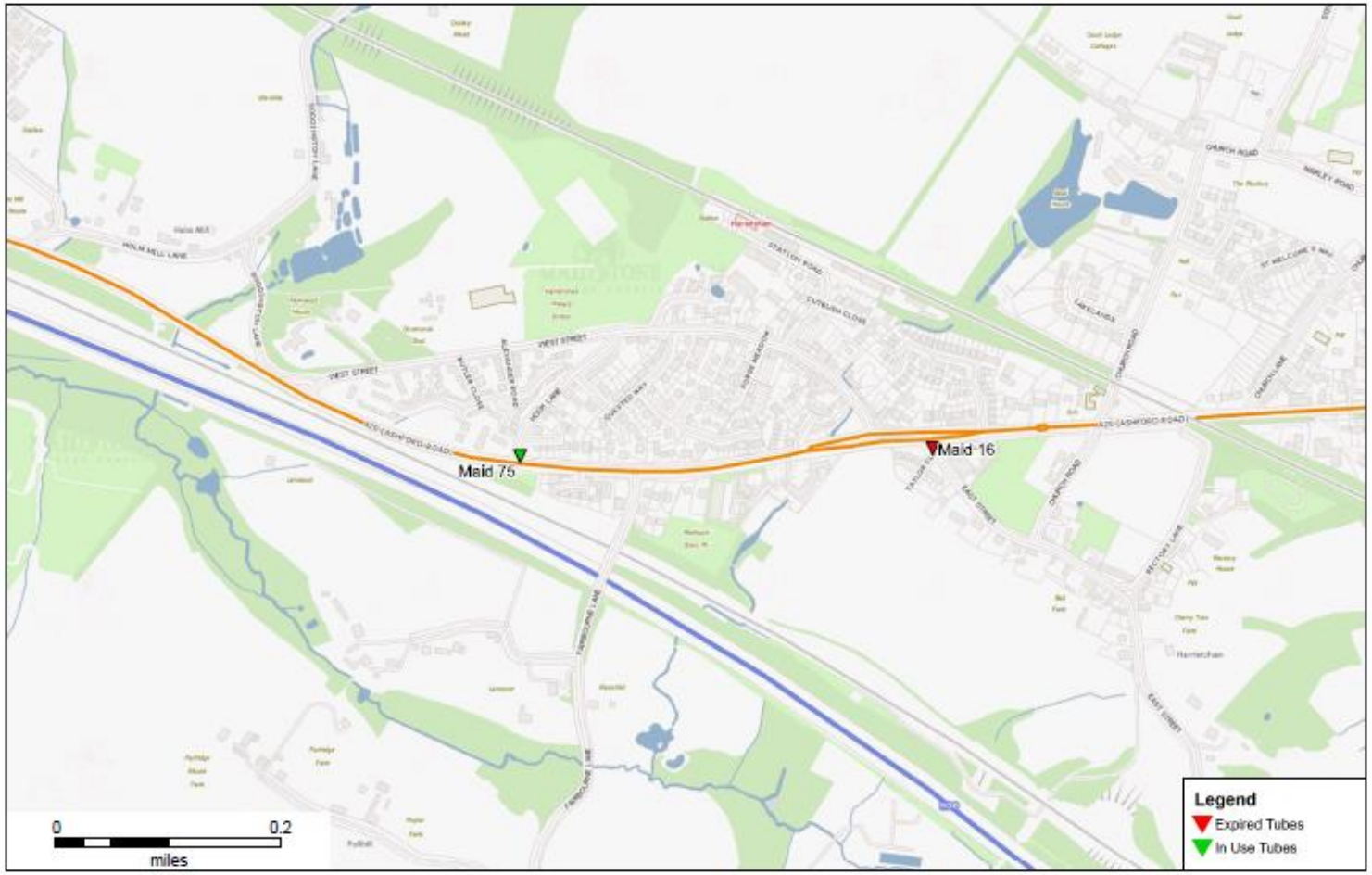


Figure D.2 – Map of Non-Automatic Monitoring Sites: Staplehurst

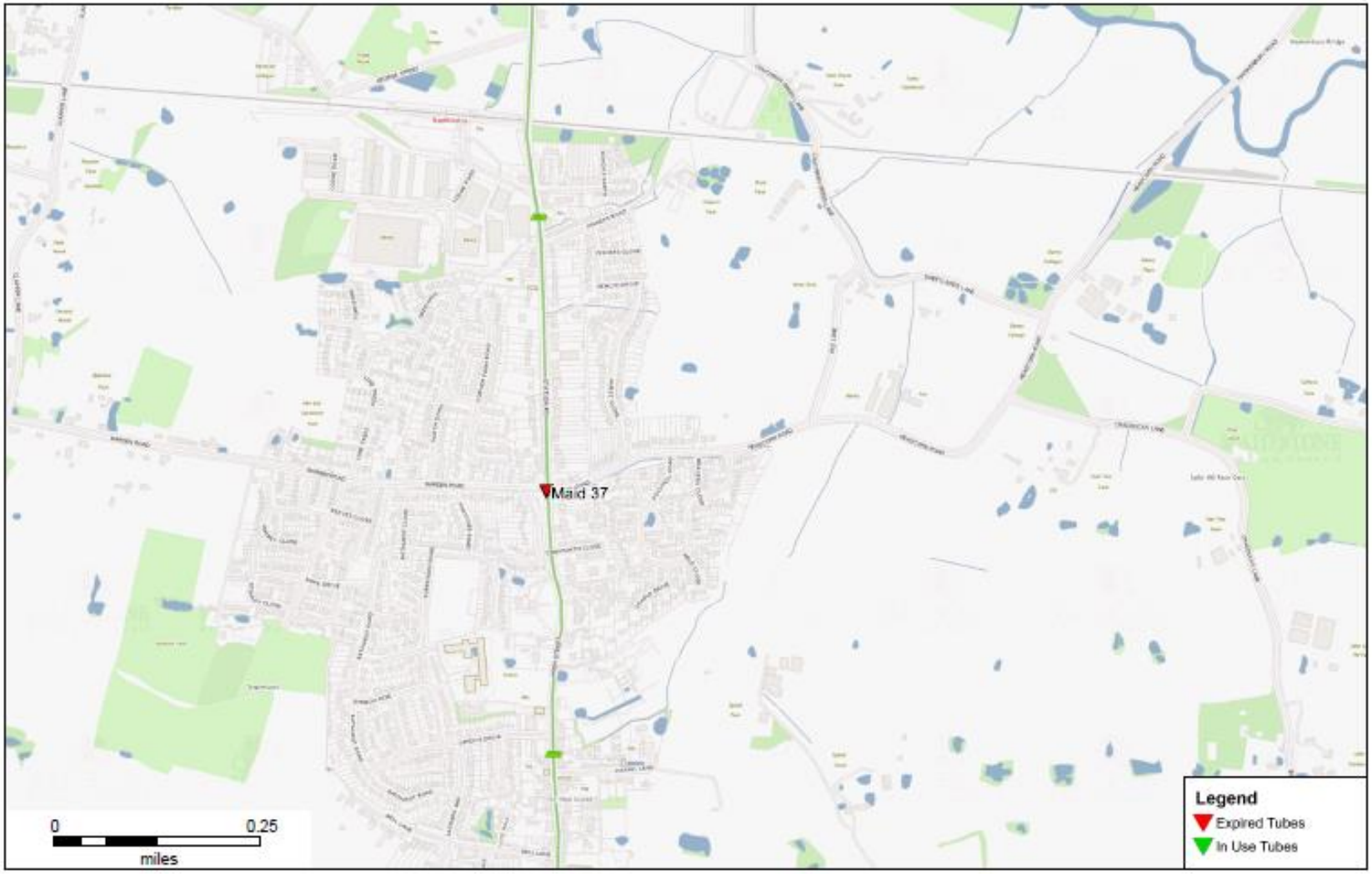


Figure D.3– Map of Non-Automatic Monitoring Sites: Hollingbourne

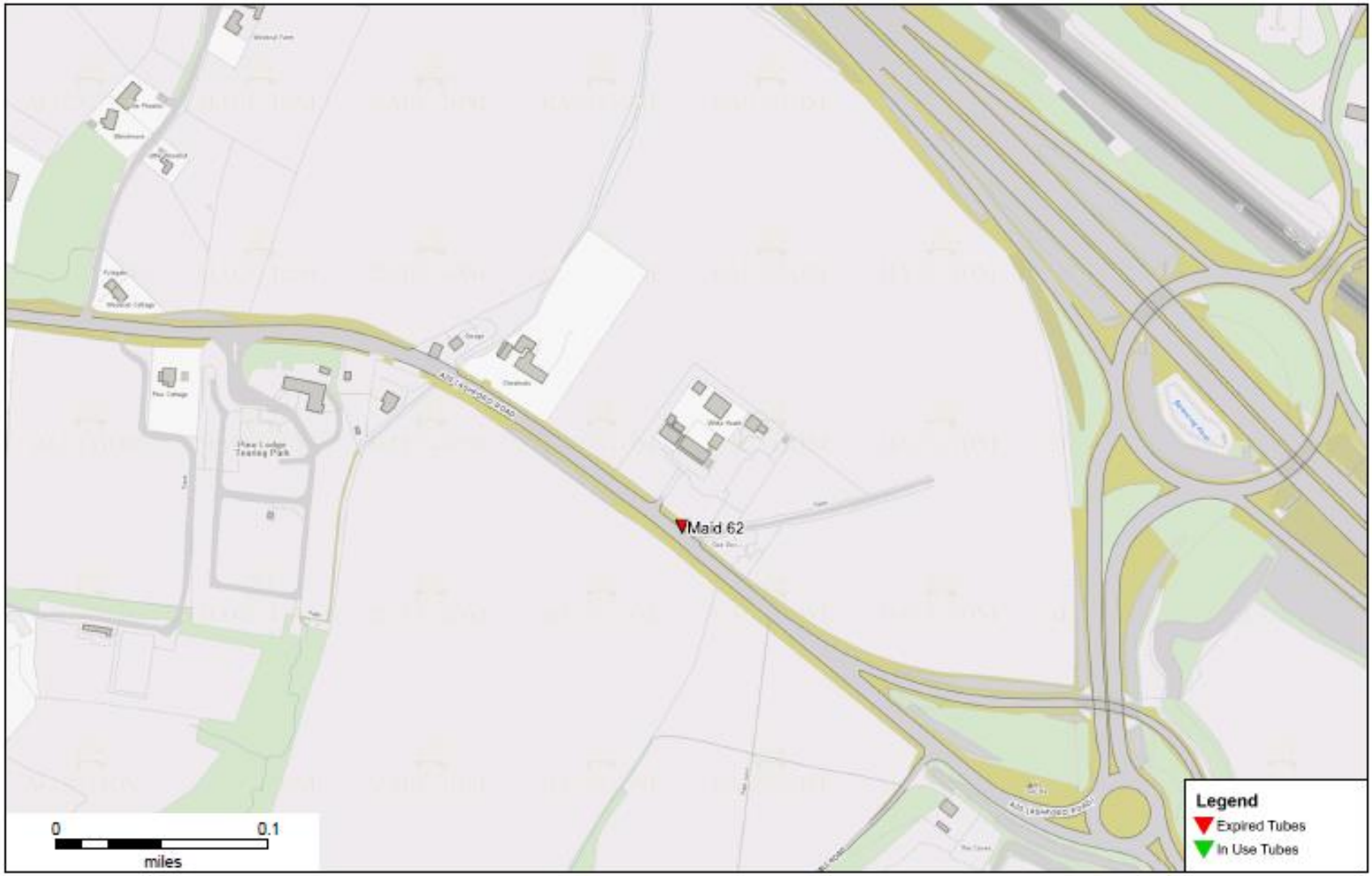


Figure D.4 – Map of Non-Automatic Monitoring Sites: Thurnham

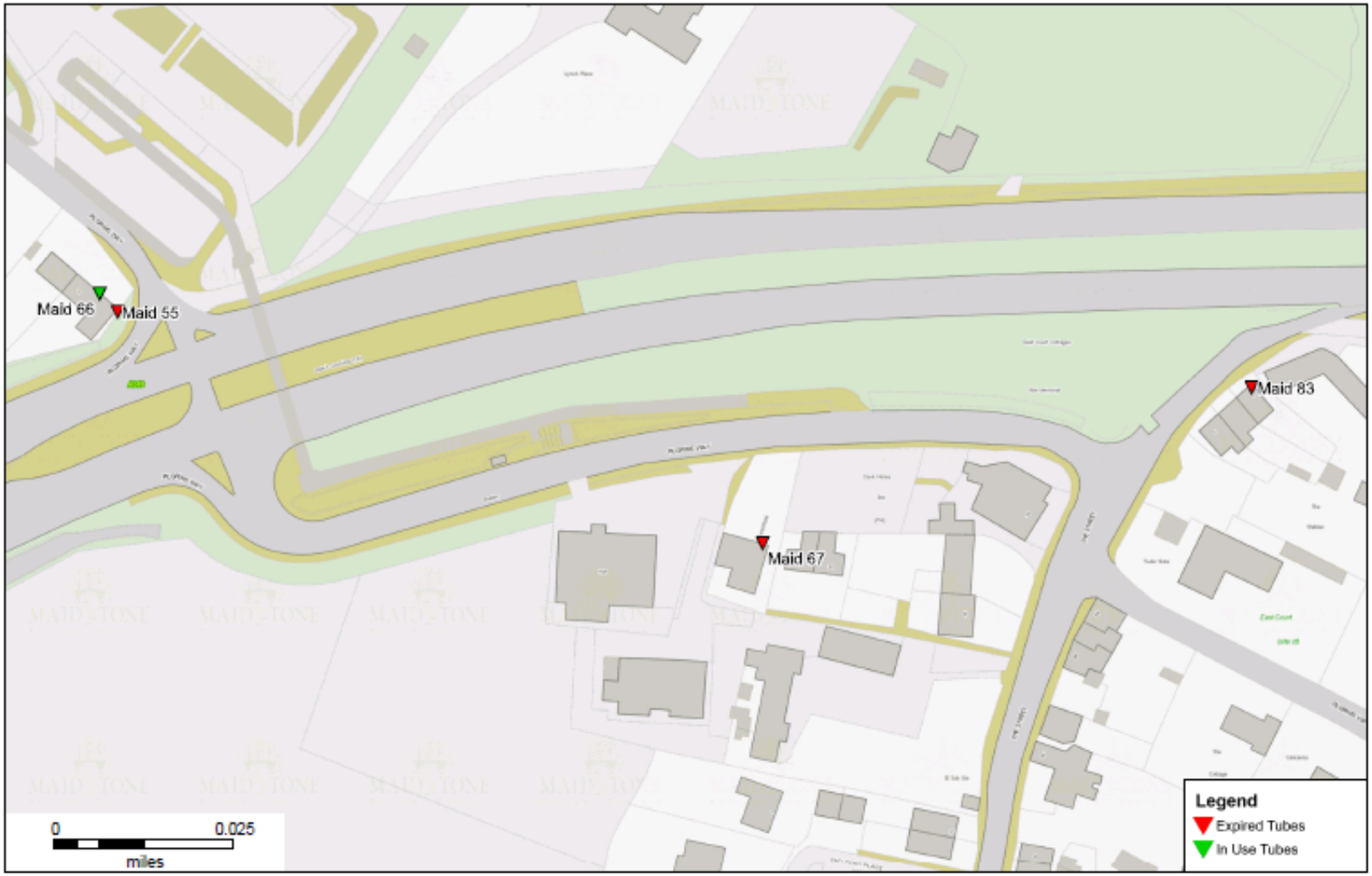


Figure D.5 – Map of Non-Automatic Monitoring Sites: Bredhurst

Figure D.6 – Map of Non-Automatic Monitoring Sites: Maidstone North

Figure D.7 – Map of Non-Automatic Monitoring Sites: Detling

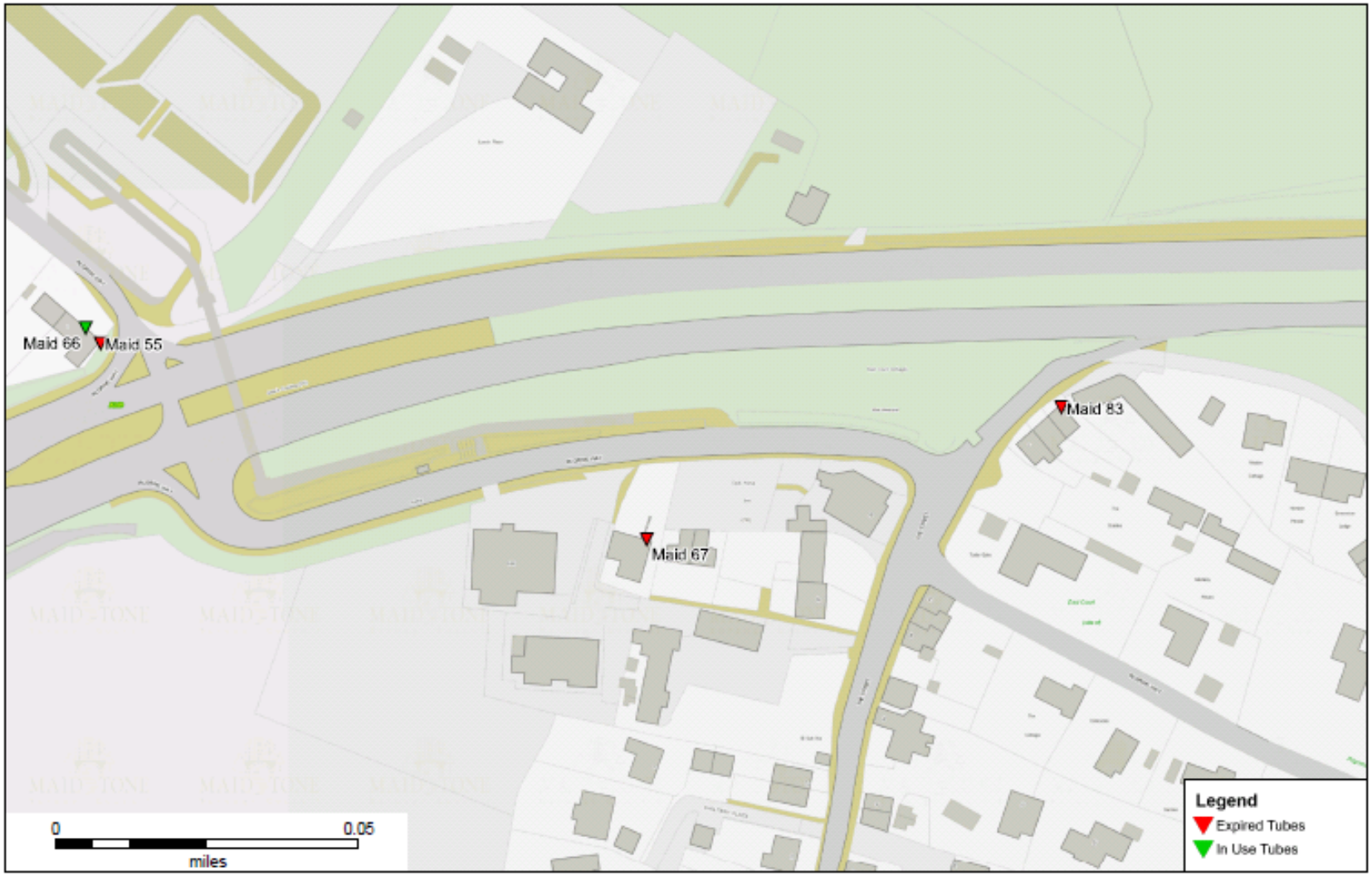


Figure D.8 – Map of Non-Automatic Monitoring Sites: Maidstone North West

Figure D.9 – Map of Non-Automatic Monitoring Sites: Lock Wood

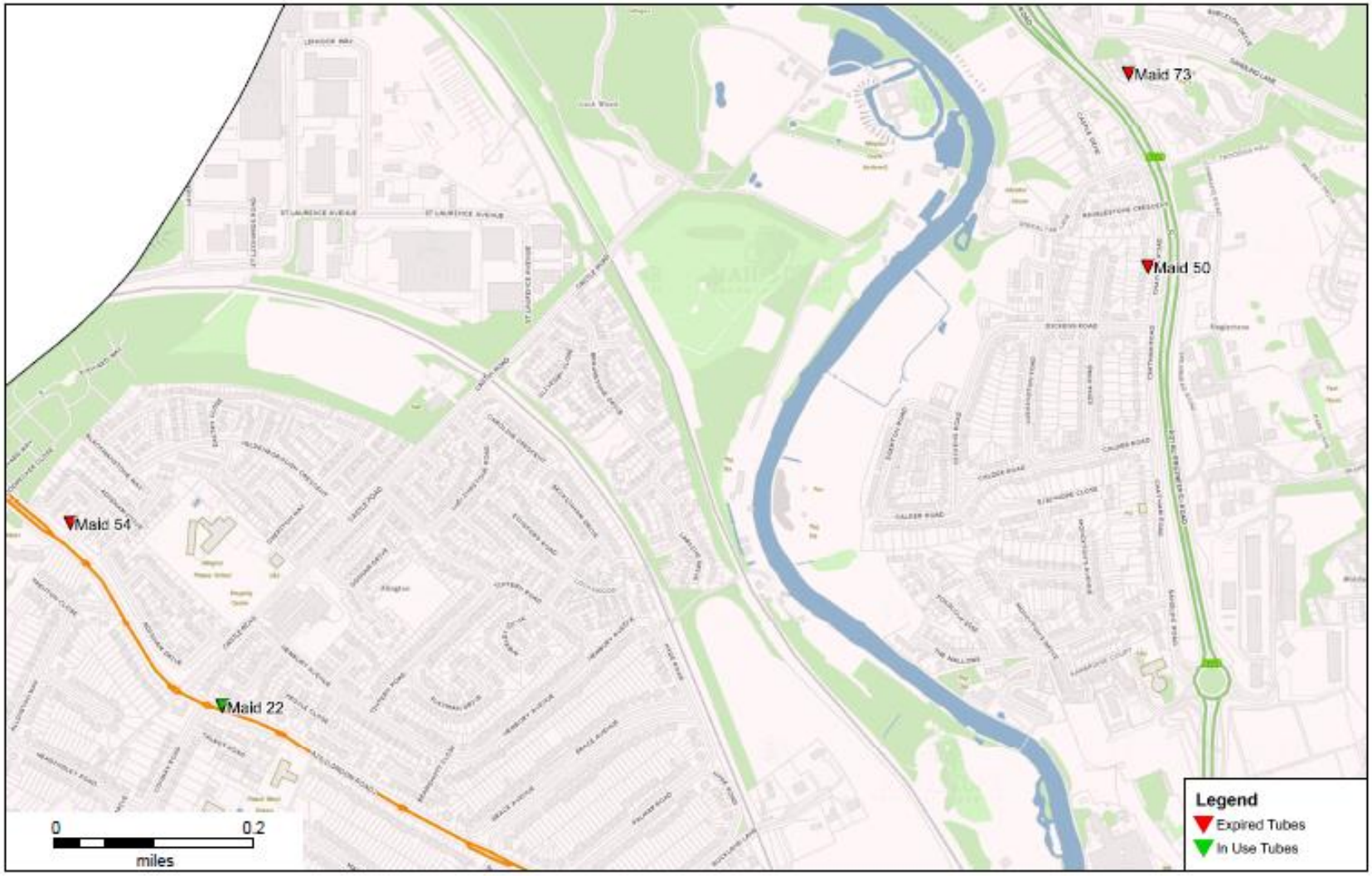


Figure D.10 – Map of Non-Automatic Monitoring Sites: Grange Lane

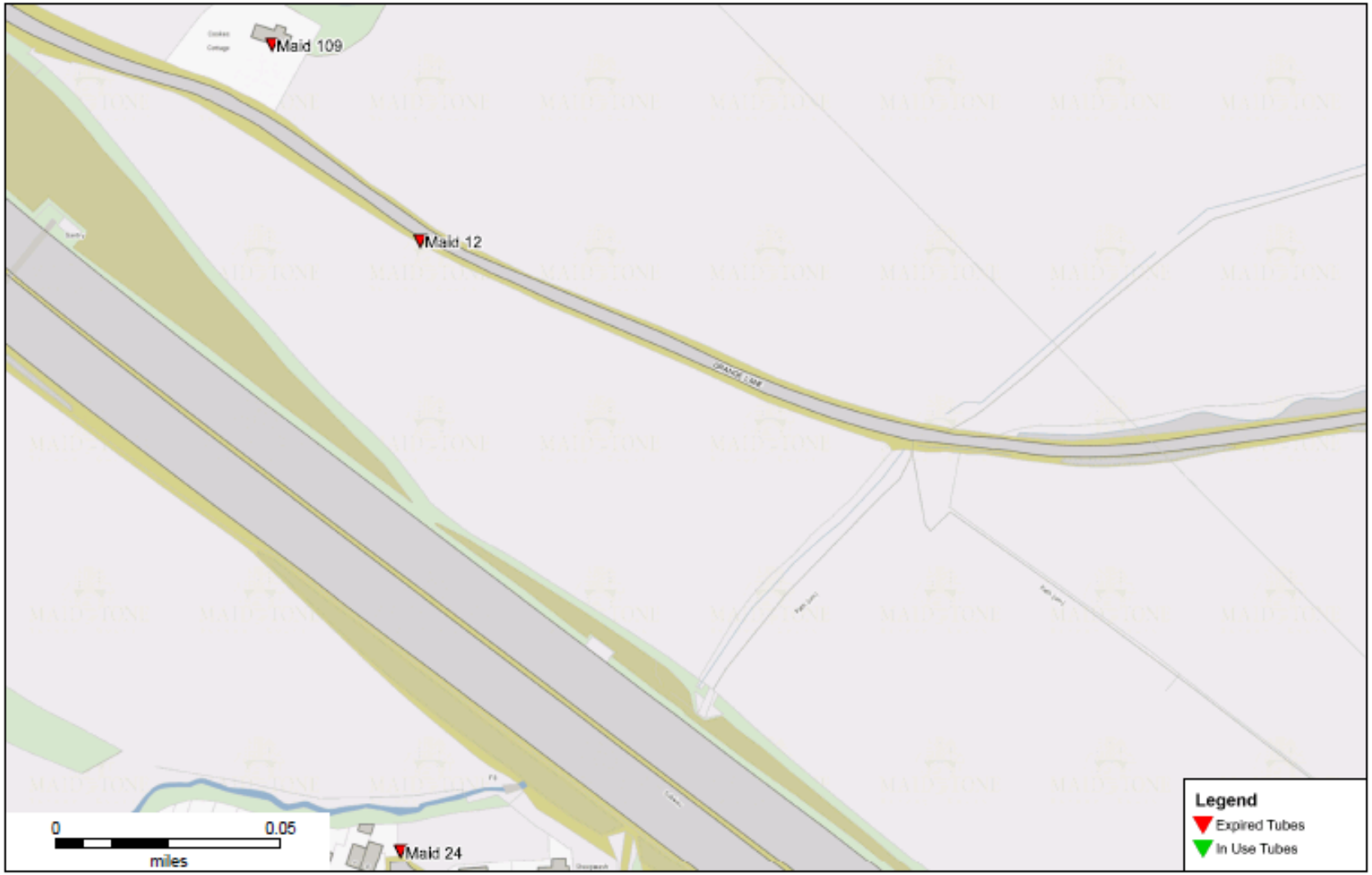


Figure D.11 – Map of Non-Automatic Monitoring Sites: Heathwood

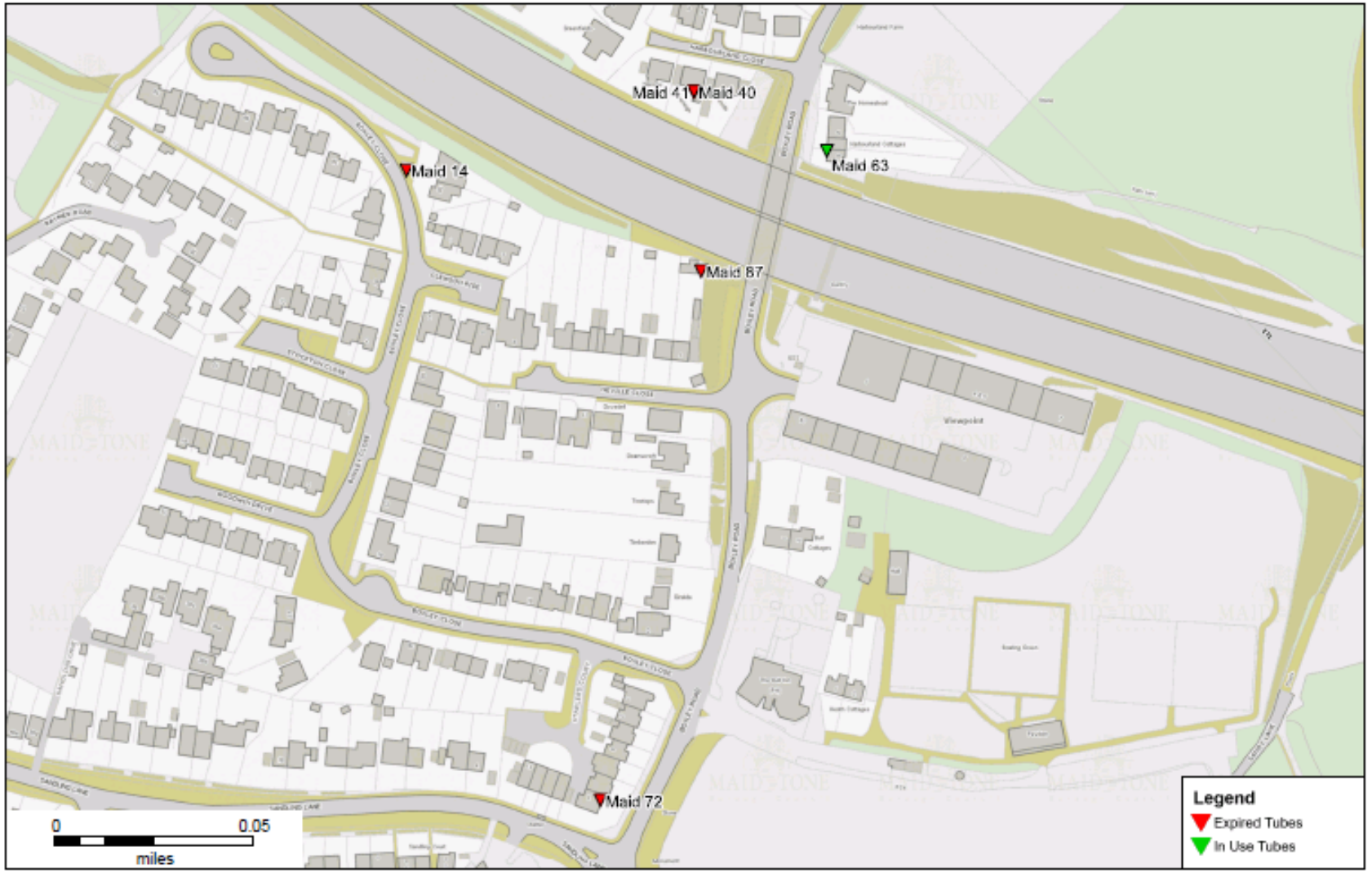


Figure D.12 – Map of Non-Automatic Monitoring Sites: Bearsted Road

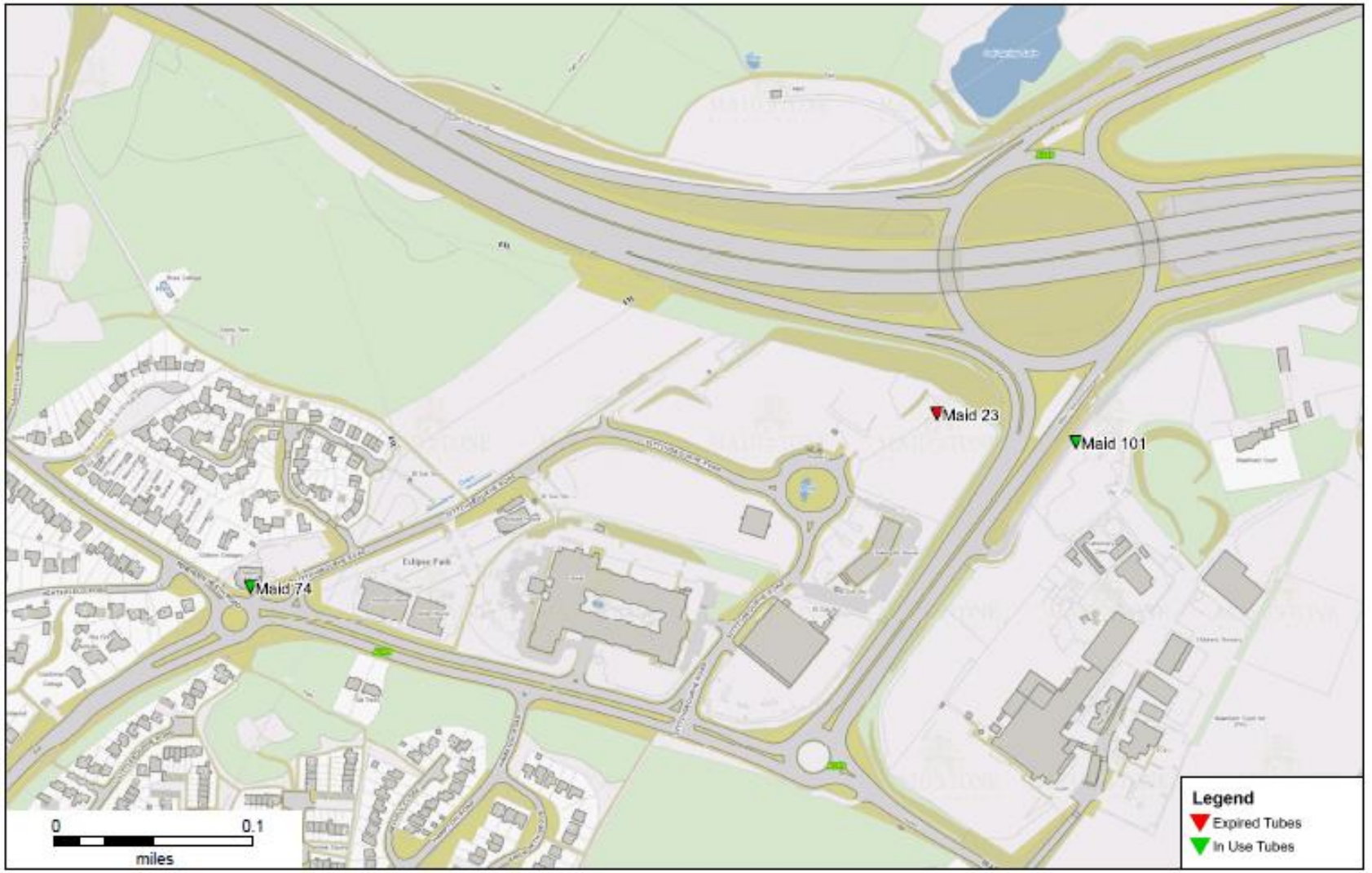


Figure D.13 – Map of Non-Automatic Monitoring Sites: Honeyhills Wood

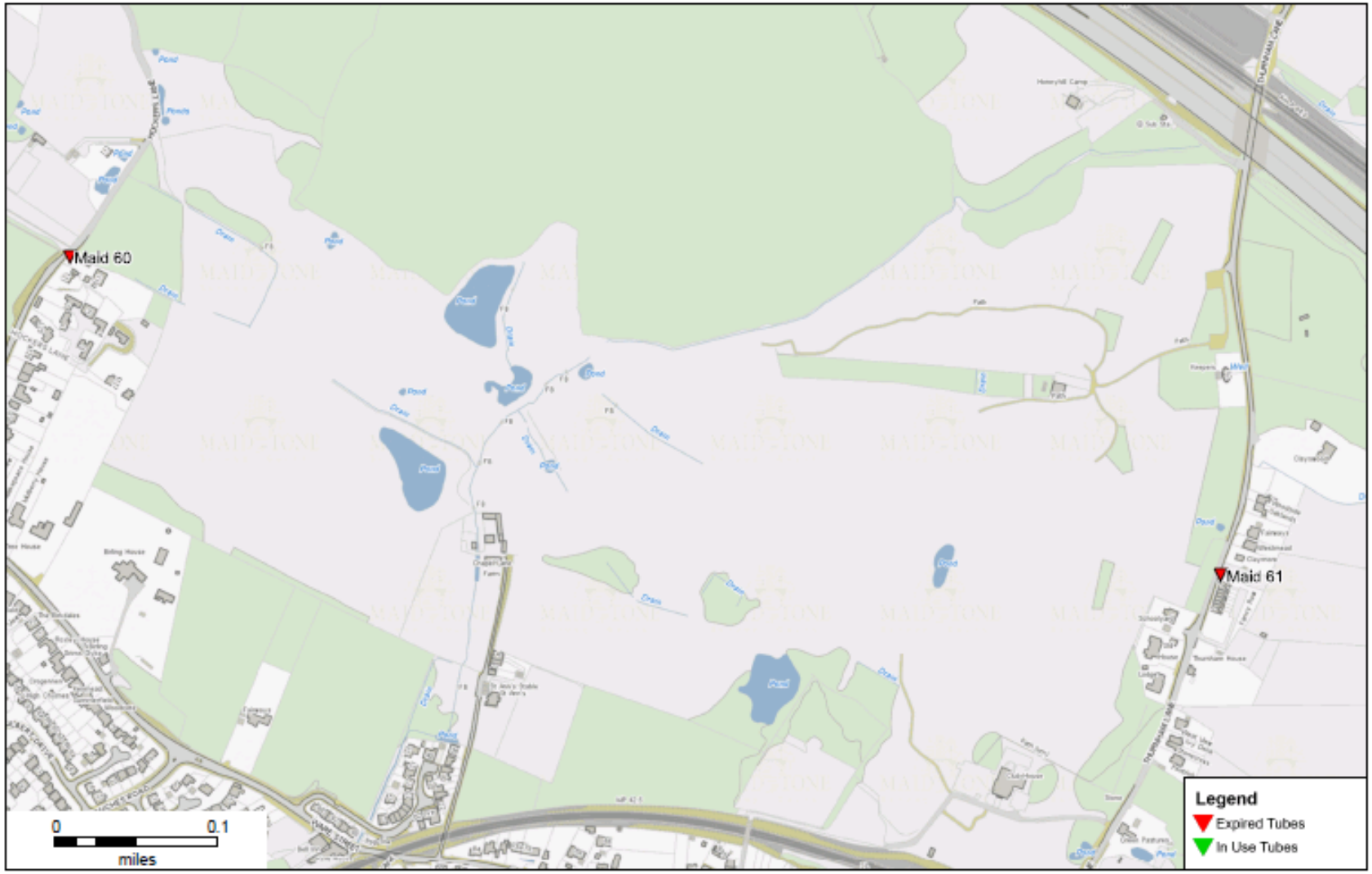


Figure D.14 – Map of Non-Automatic Monitoring Sites: Lord Romney's Hill

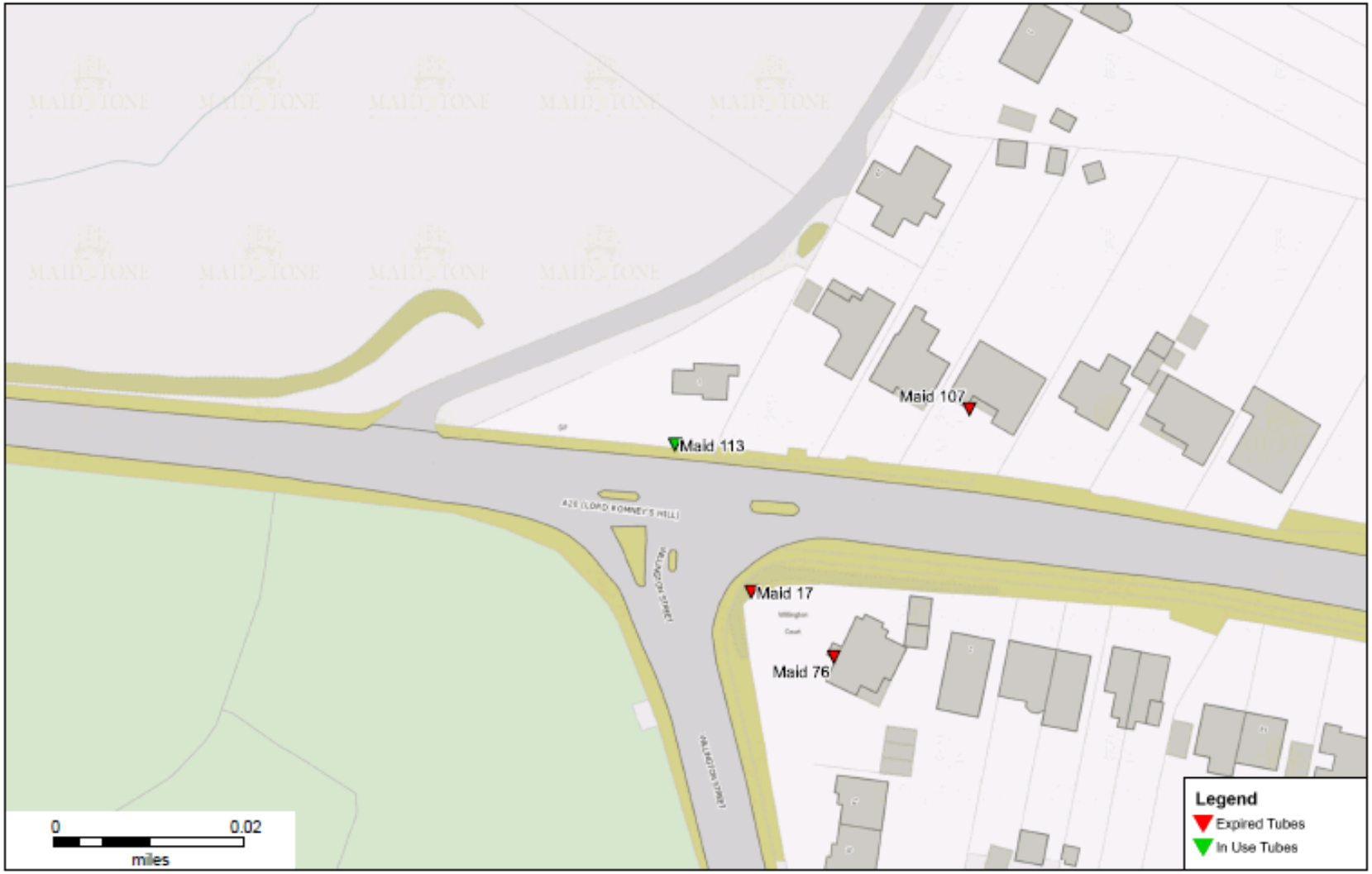


Figure D.15 – Map of Non-Automatic Monitoring Sites: A20 Ashford Road

Figure D.16 – Map of Non-Automatic Monitoring Sites: Bluett Street

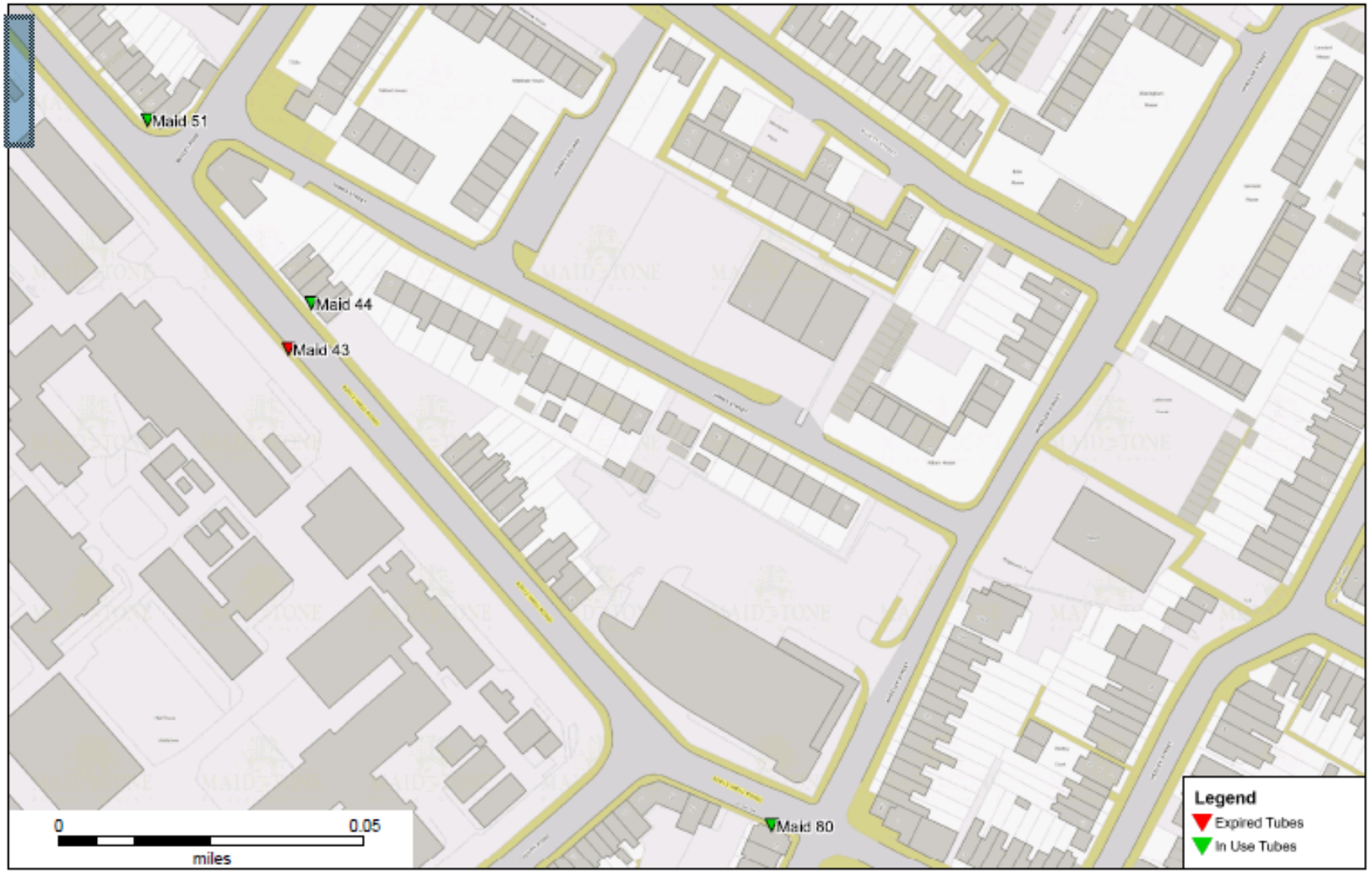


Figure D.17 – Map of Non-Automatic Monitoring Sites: Medway Street

Figure D.18 – Map of Non-Automatic Monitoring Sites: Gabriels Hill

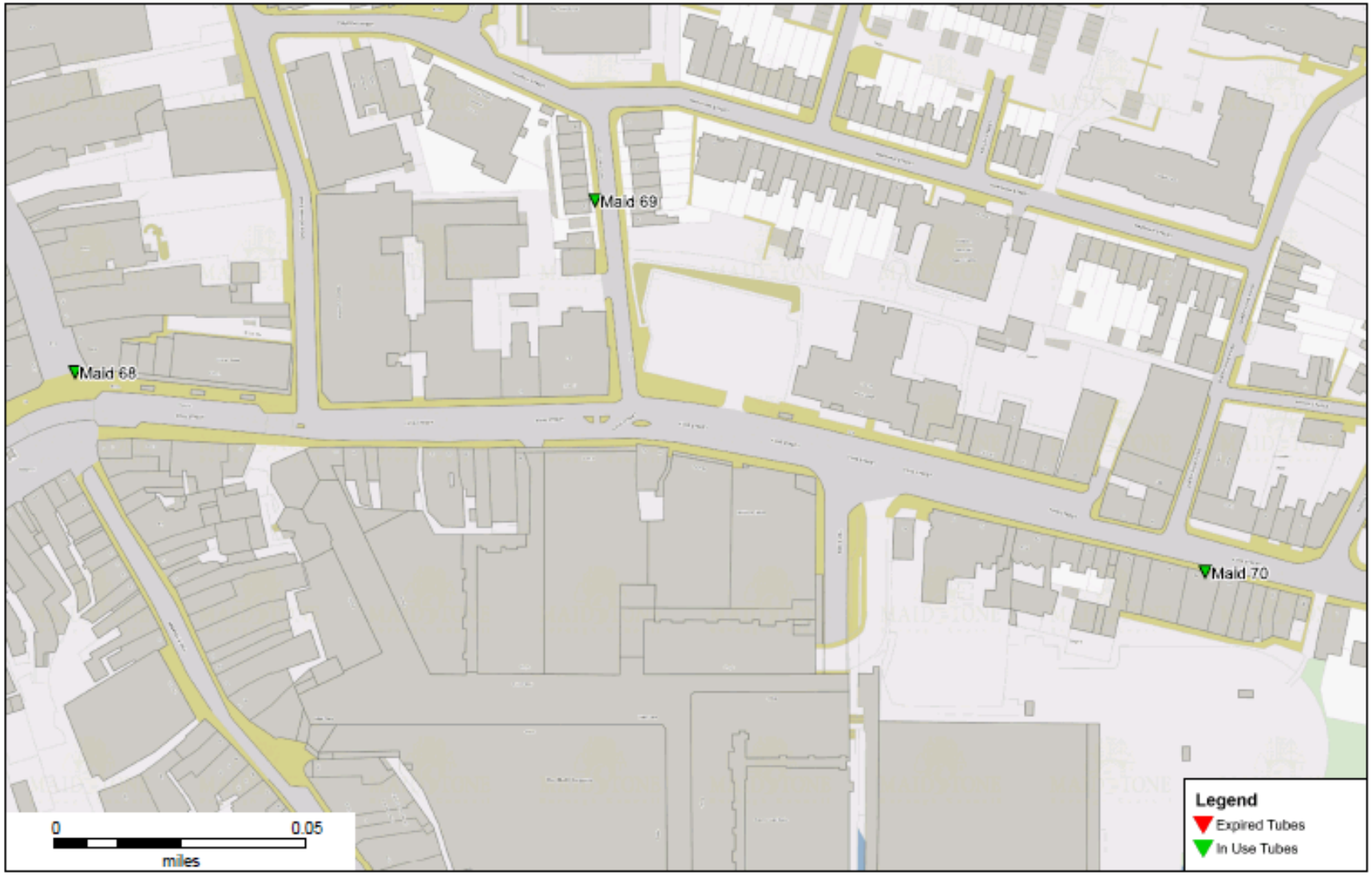


Figure D.19 – Map of Non-Automatic Monitoring Sites: A249-A229

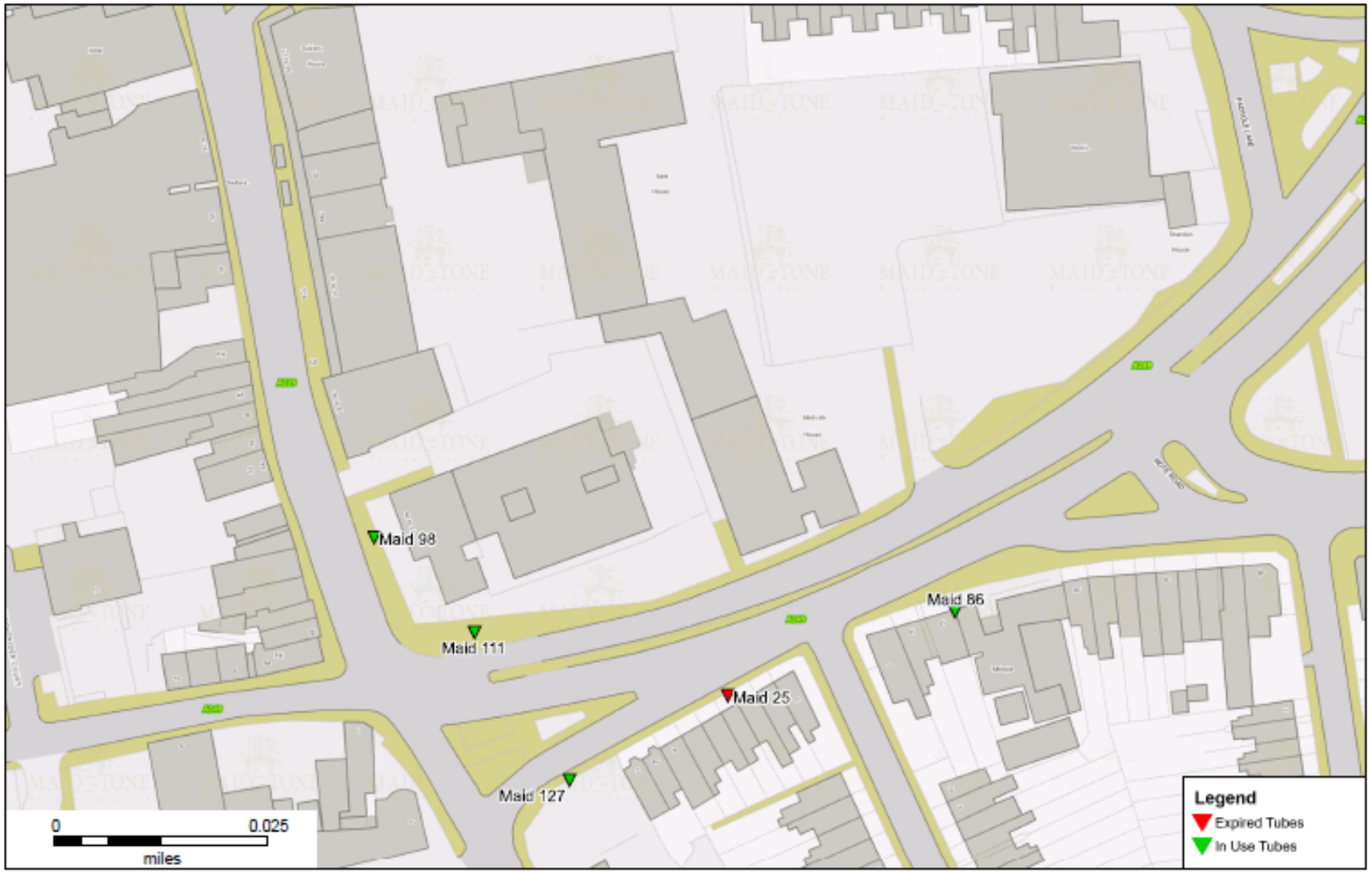


Figure D.20 – Map of Non-Automatic Monitoring Sites: Postley Road

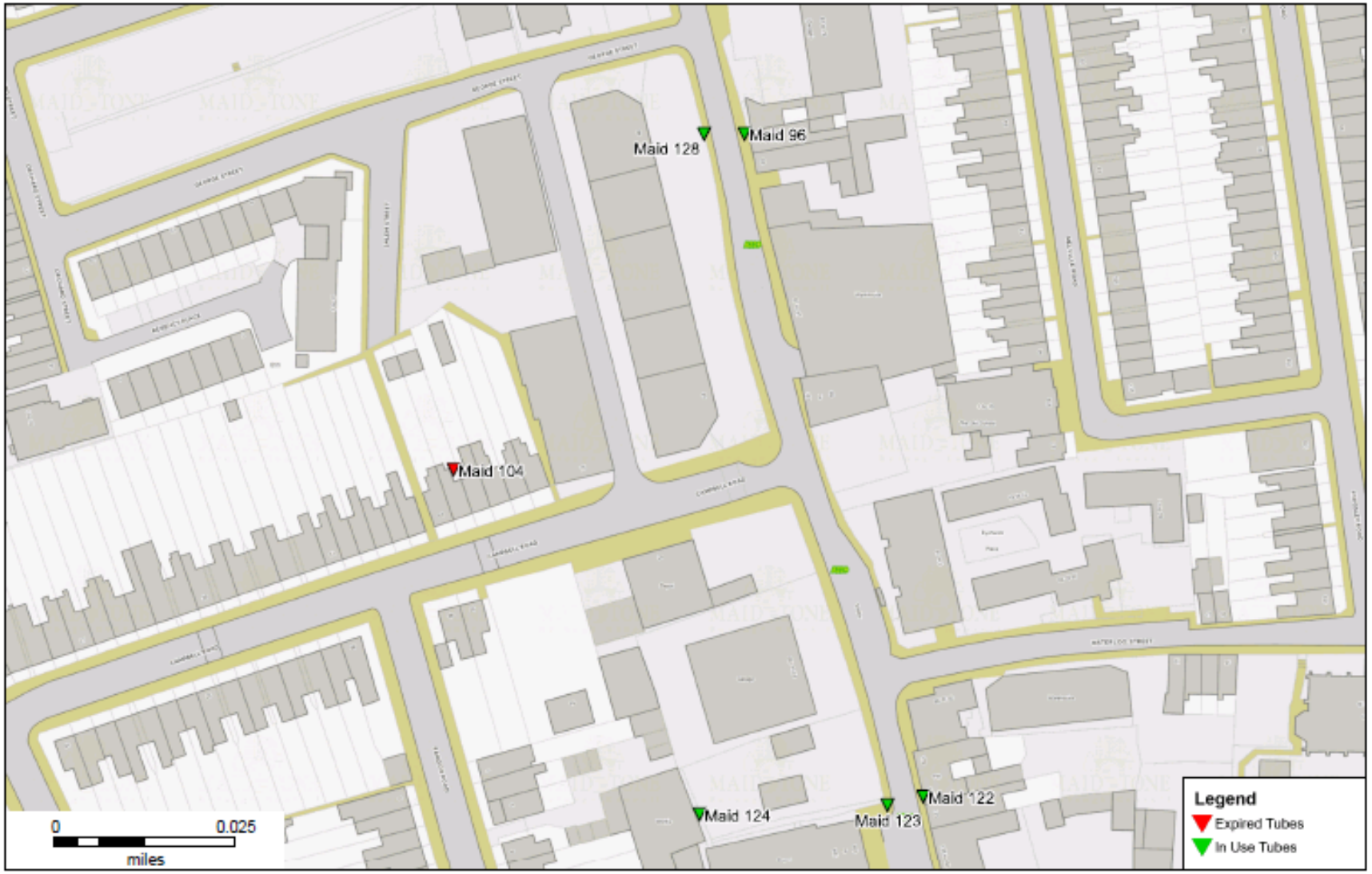


Figure D.21 – Map of Non-Automatic Monitoring Sites: Priory Road

Figure D.22 – Map of Non-Automatic Monitoring Sites: A20

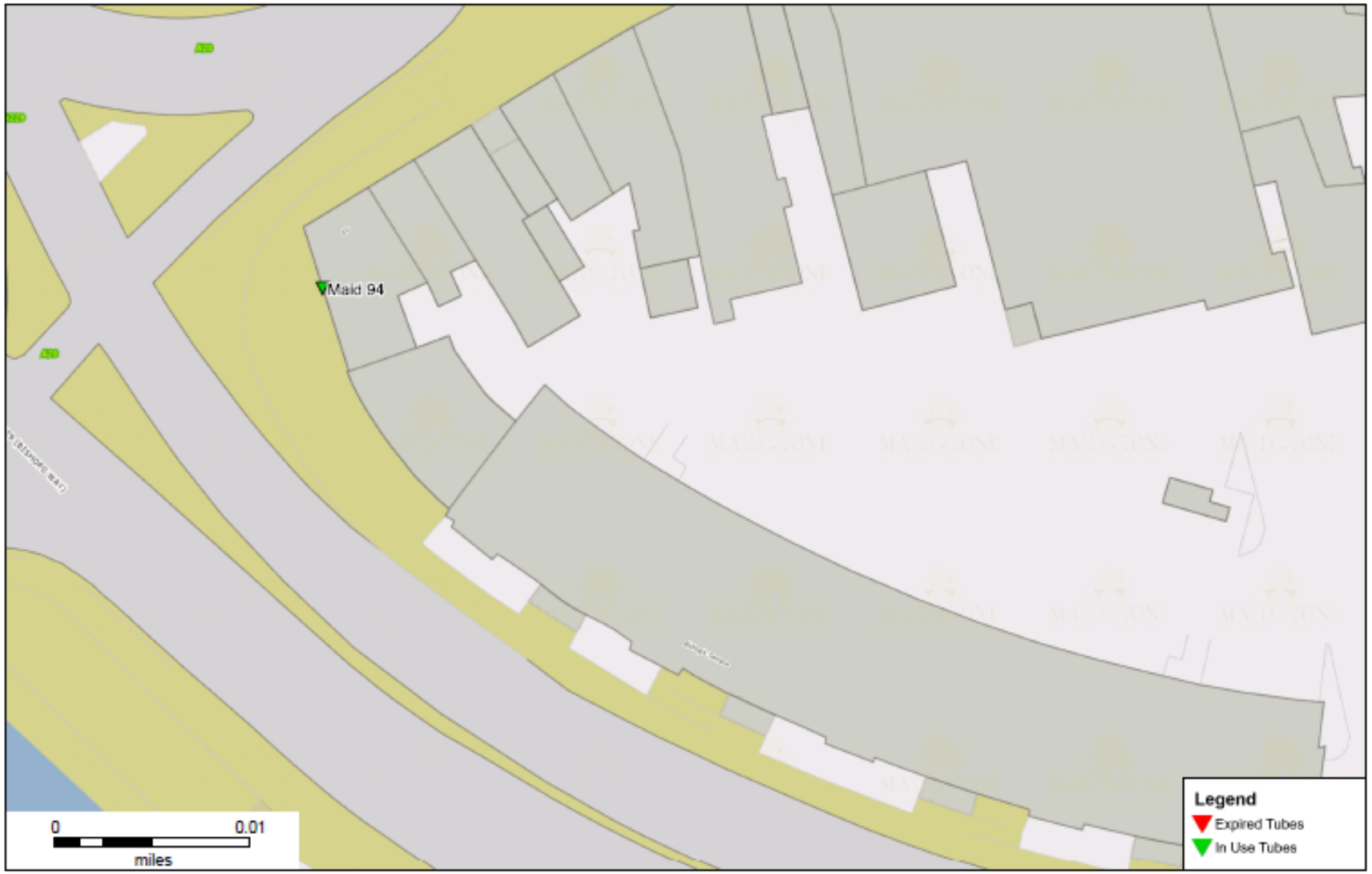


Figure D.23 – Map of Non-Automatic Monitoring Sites: A26

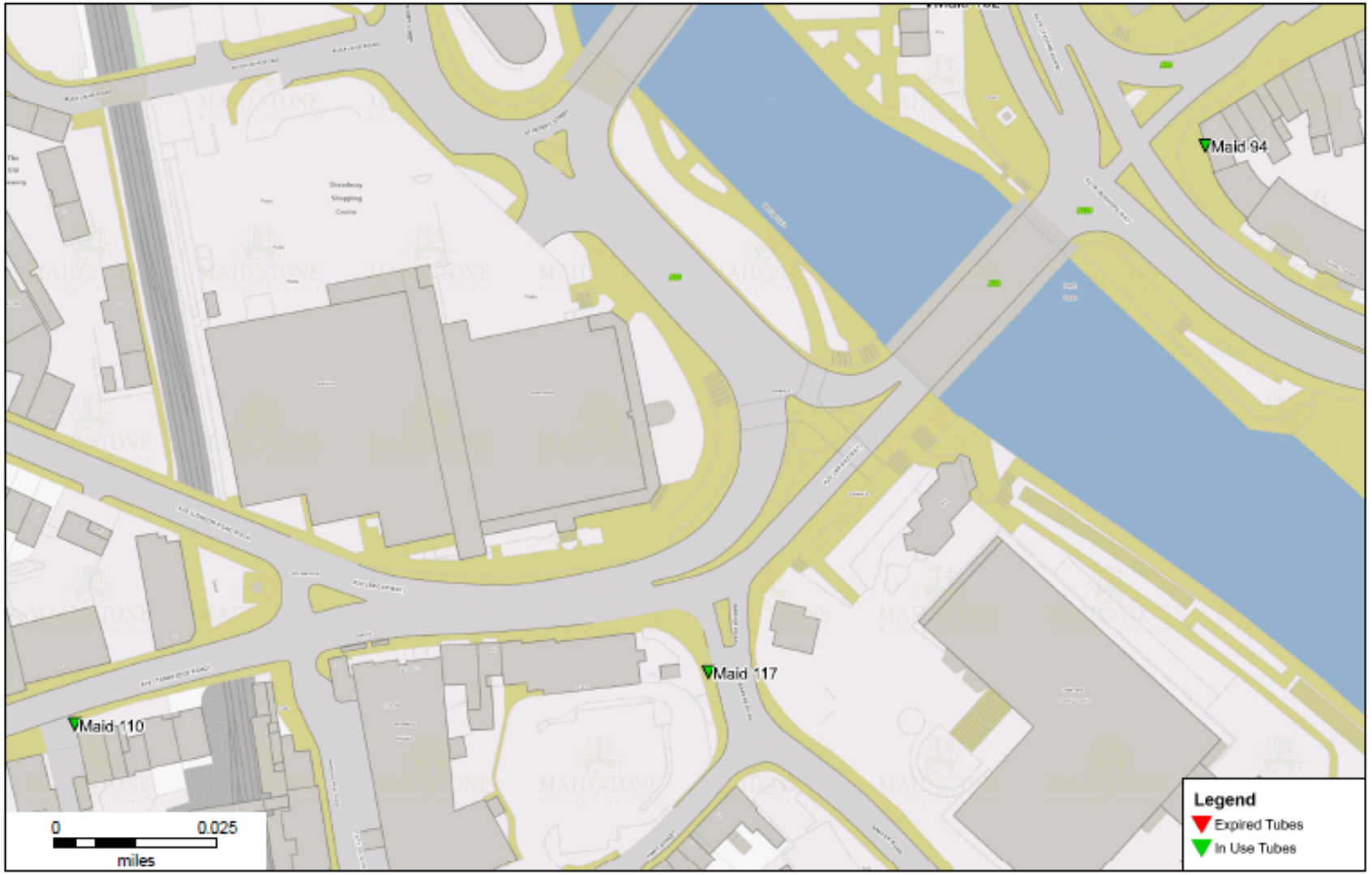


Figure D.24 – Map of Non-Automatic Monitoring Sites: Well Road

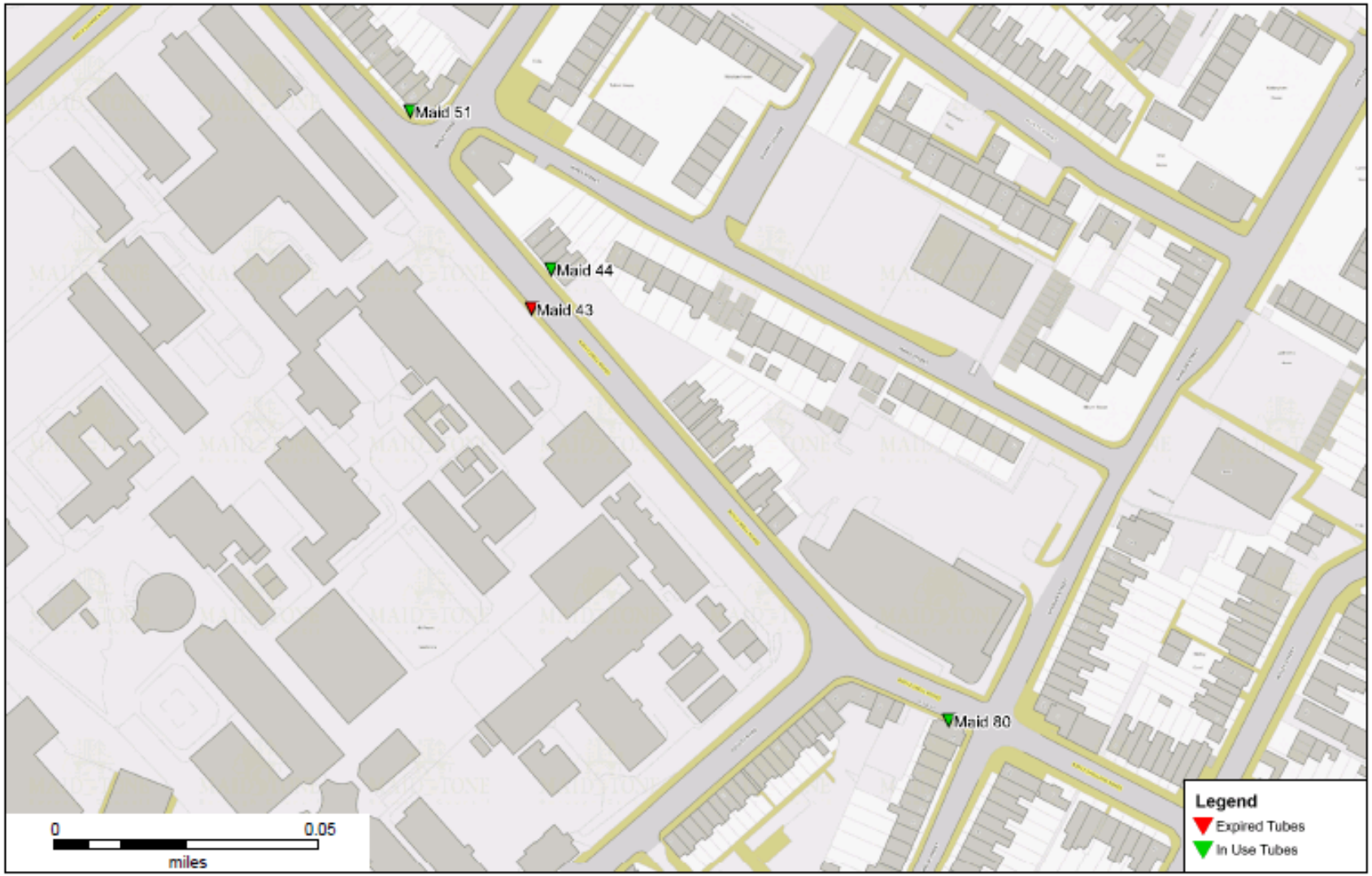


Figure D.25 – Map of Non-Automatic Monitoring Sites: Mill Lane

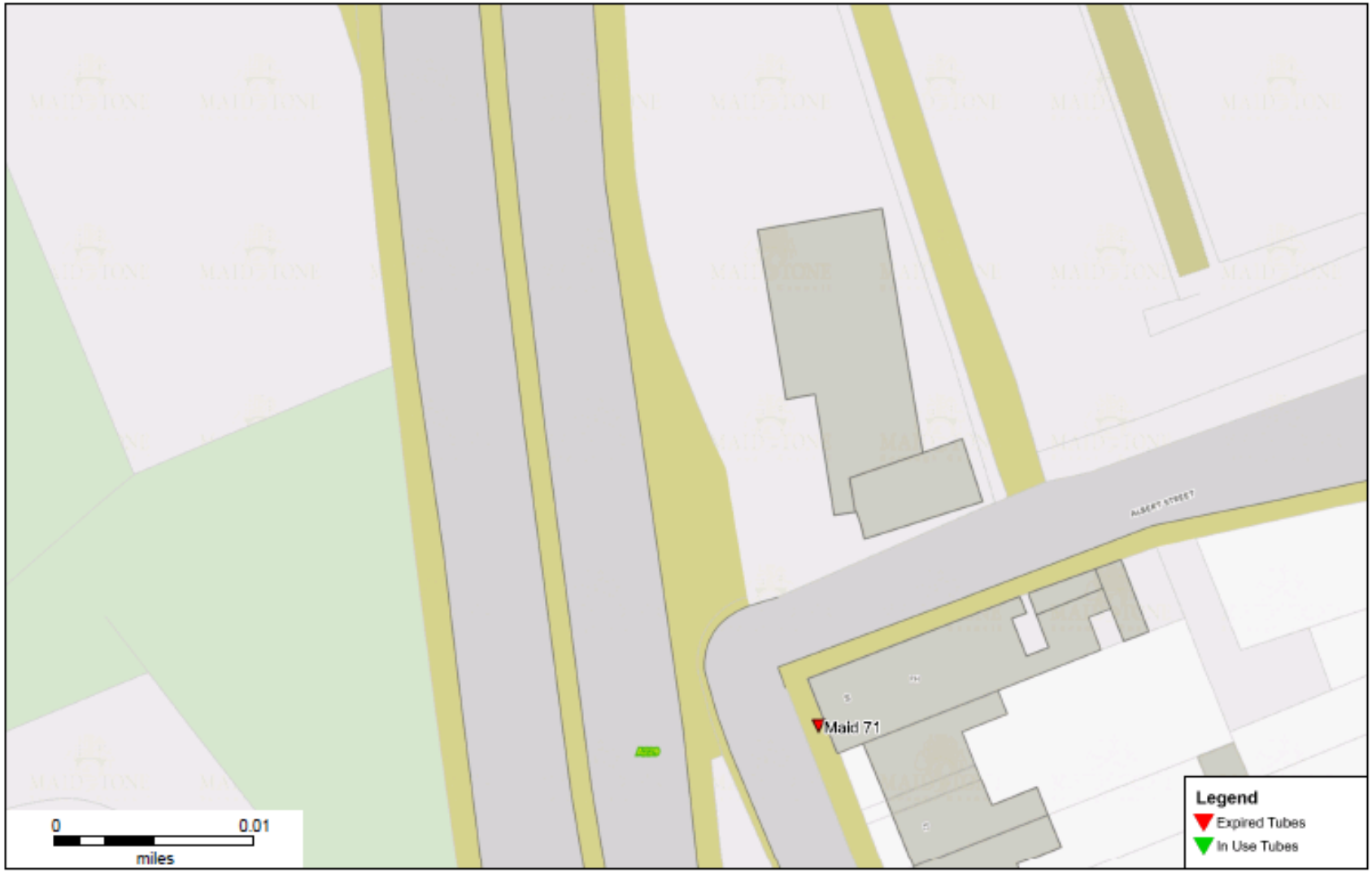


Figure D.26 – Map of Non-Automatic Monitoring Sites: Pennenden Heath

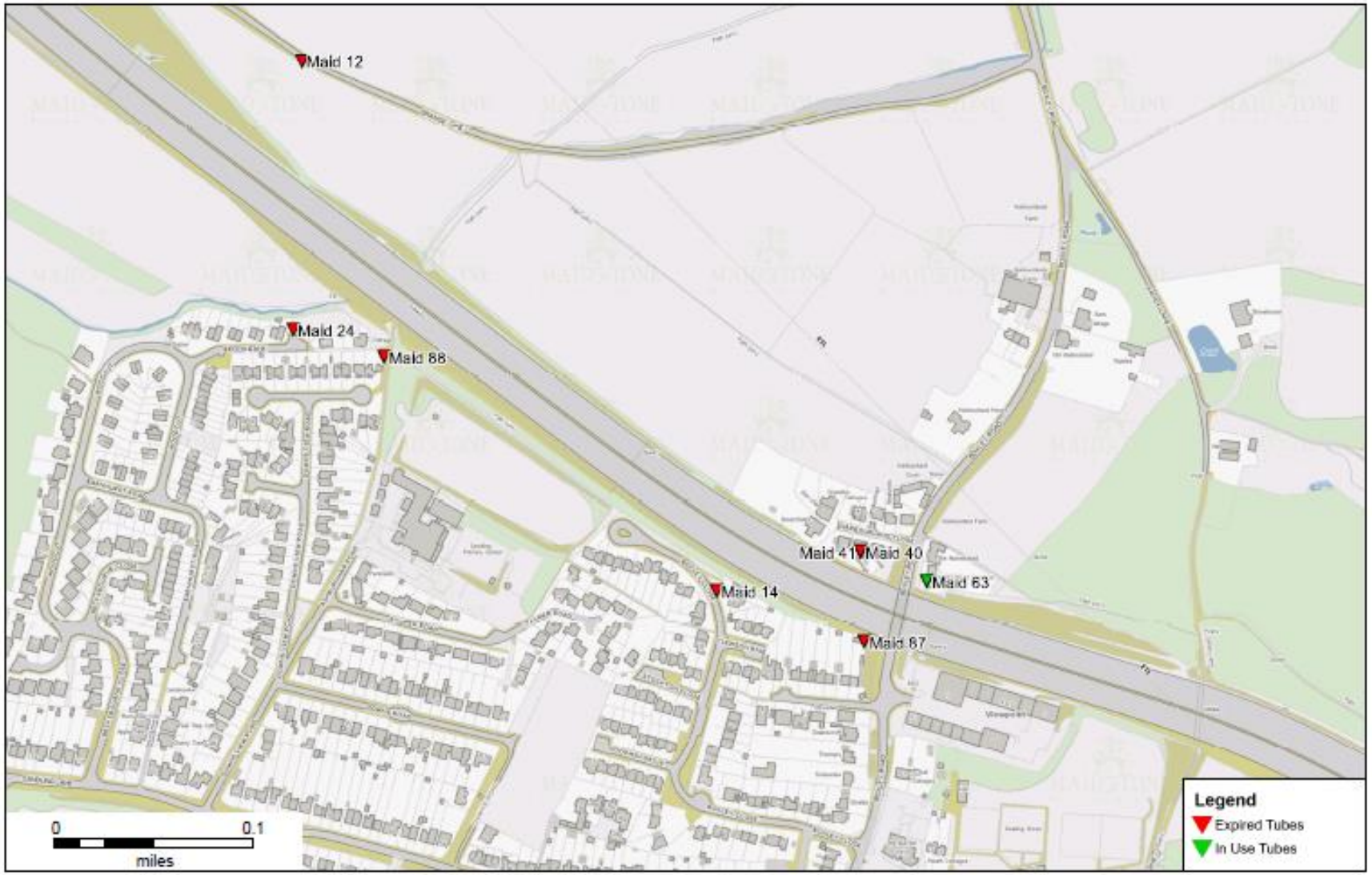


Figure D.27 – Map of Non-Automatic Monitoring Sites: Maidstone Town Centre

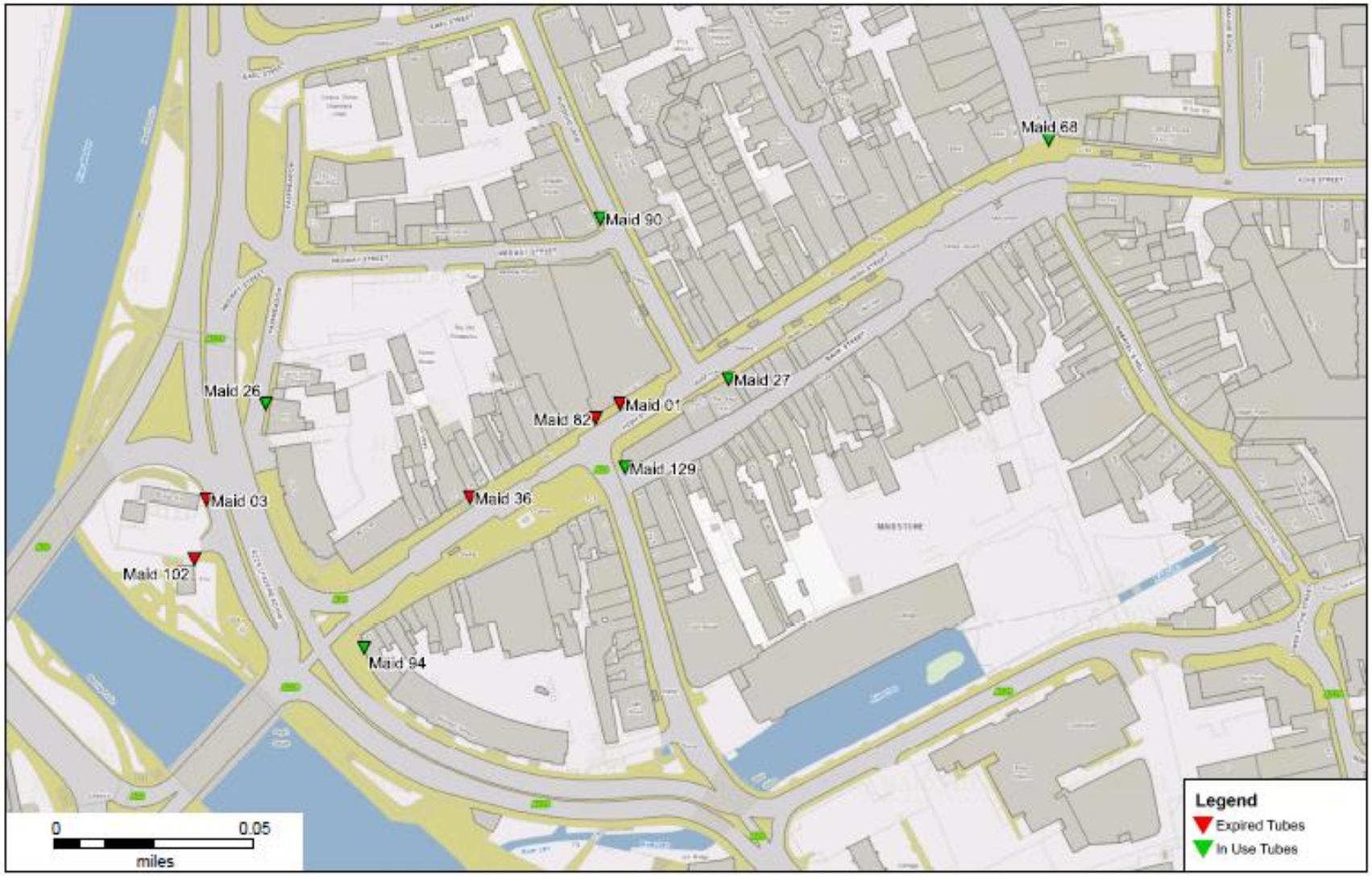


Figure D.28 – Map of Non-Automatic Monitoring Sites: Maidstone Town Centre and West

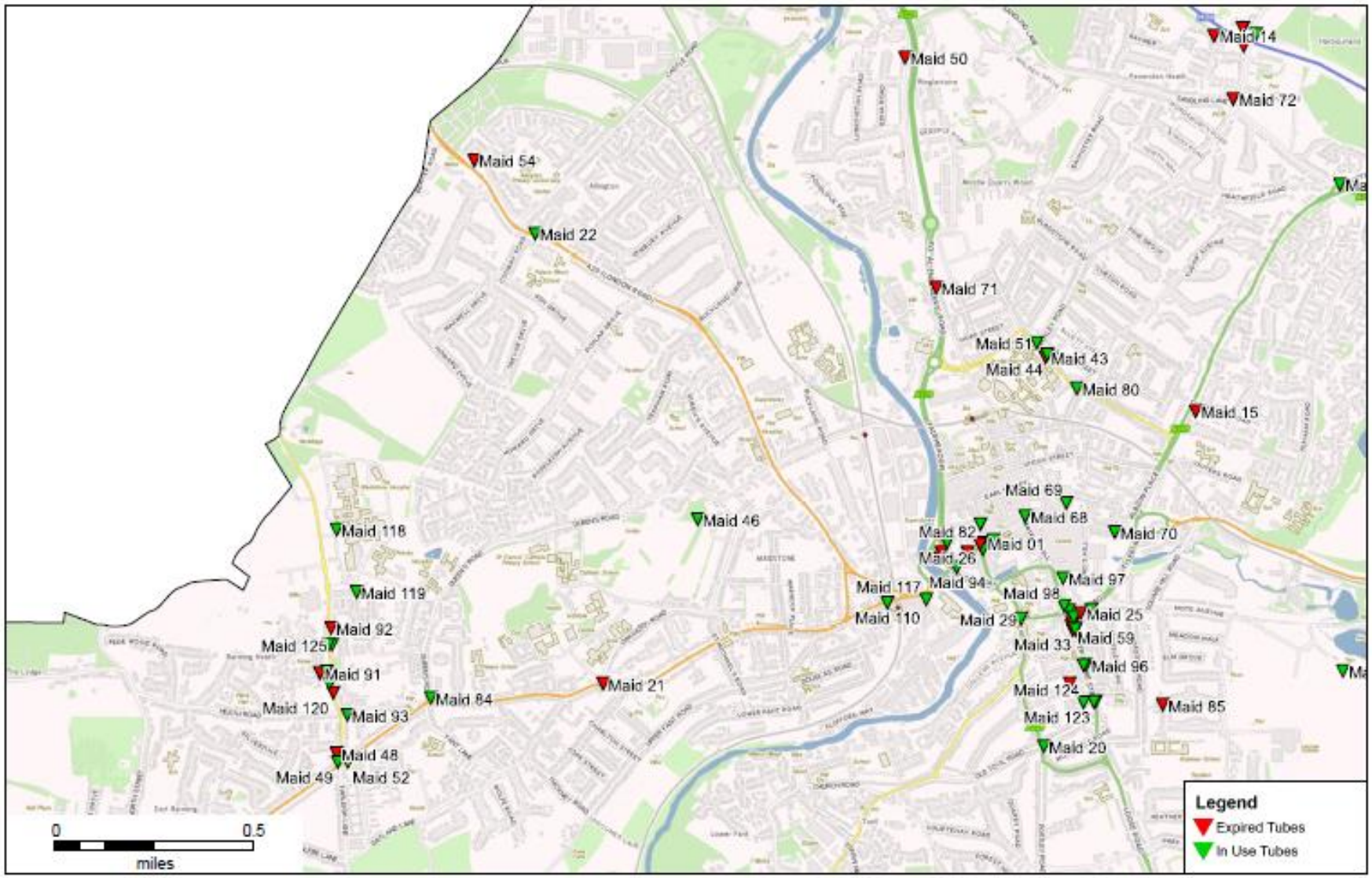


Figure D.29 – Map of Non-Automatic Monitoring Sites: East Farleigh

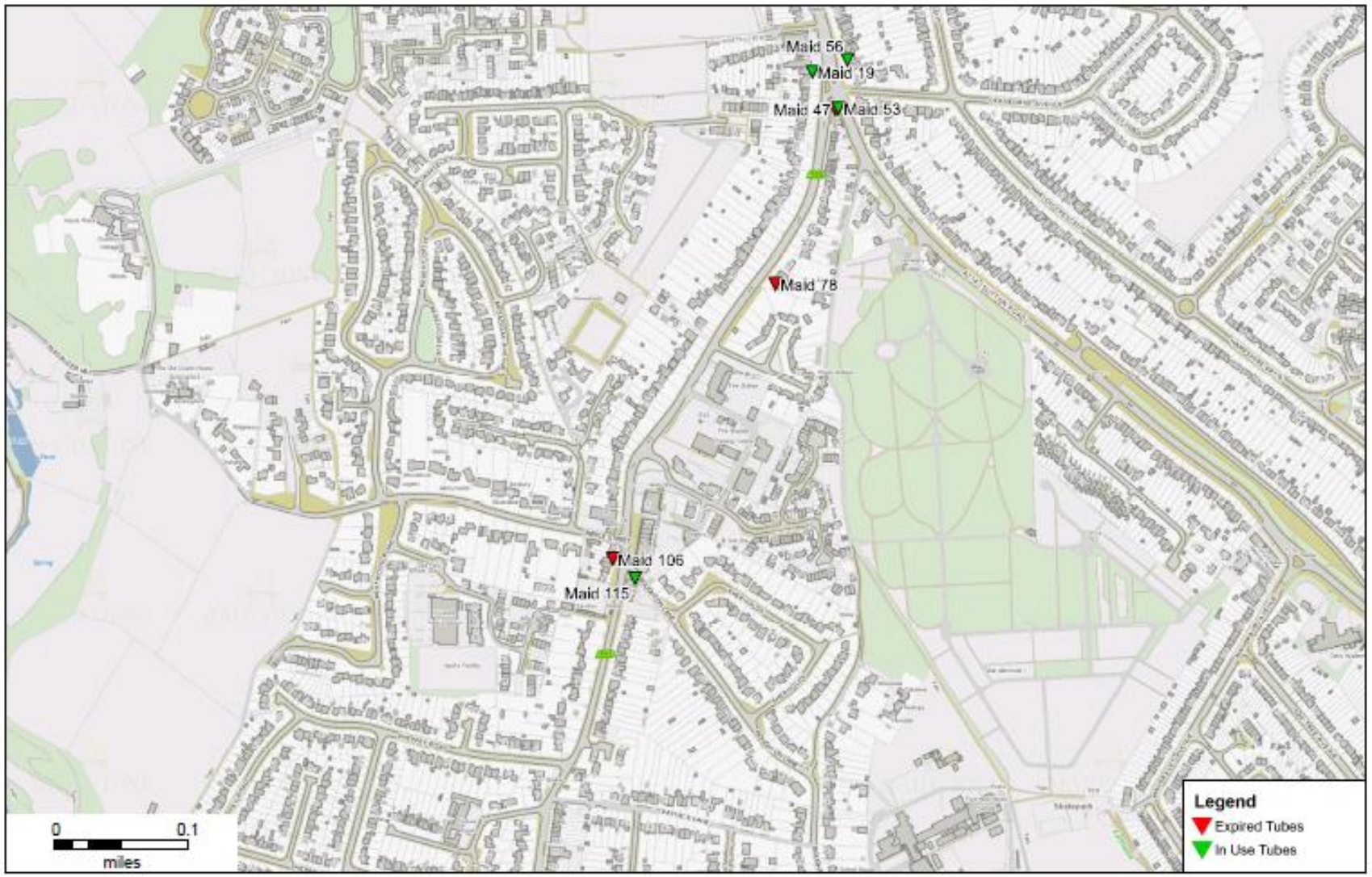
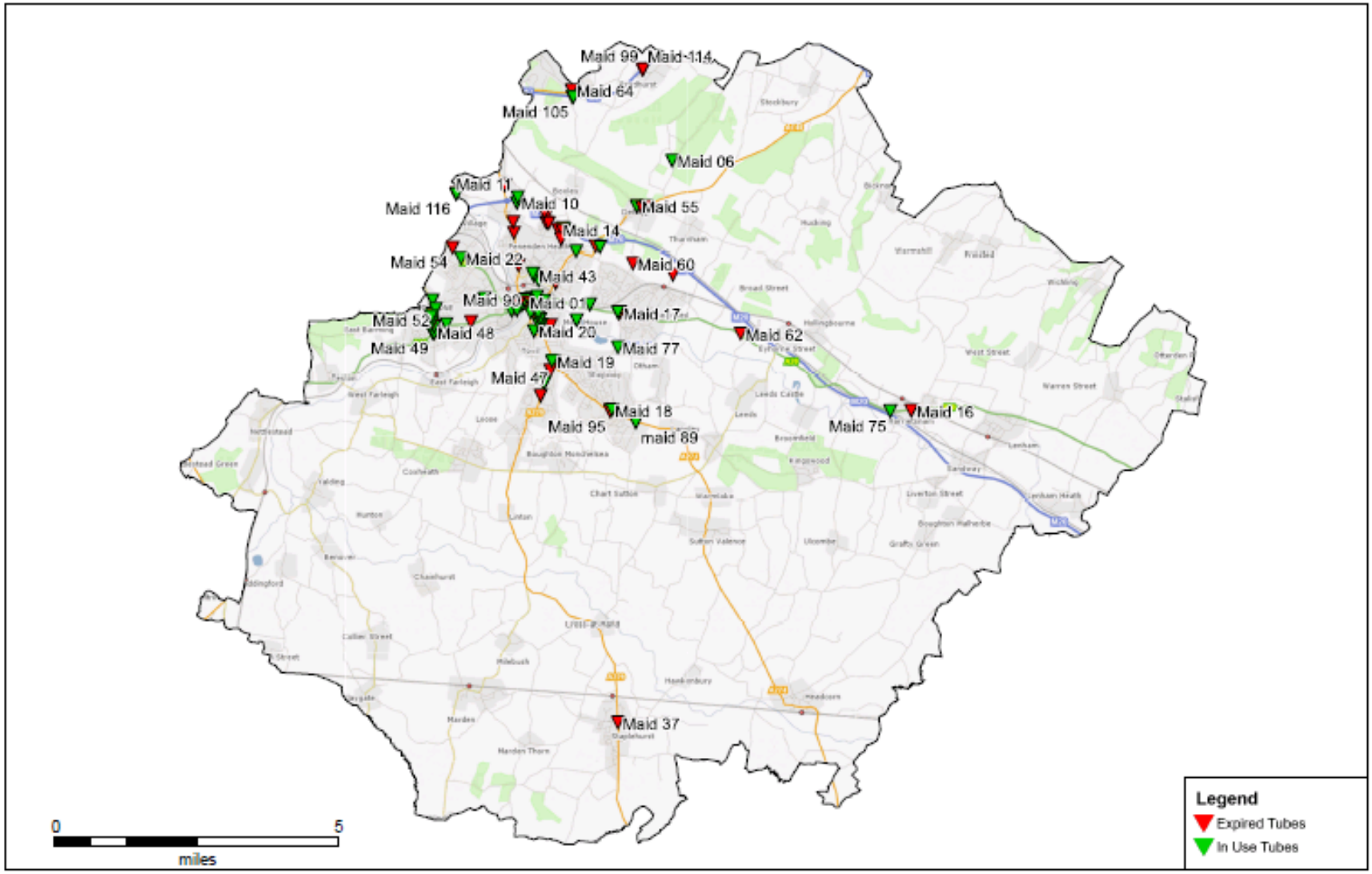


Figure D.30 – Map of Maidstone Borough



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[4]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[4] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Appendix F: Maidstone Air Quality Action Plan Action Table

Theme	Action	Key Stakeholders	Brief outline		Potential impact and potential risks	Progress
Transport 1	Investigate Low Emission Standard for Buses. Either a graduated scheme of improvement "Low Emissions Zone" or a Euro 6 "Clean Air Zone"	Environmental Protection (Lead)	The starting point is to get up to date information about the composition of the bus fleet operating in Maidstone.	1-3 years for feasibility study	A detailed proposal would need to be separately agreed by committee in its own right. The proposal itself is also likely to require a public consultation.	DEFRA bid submitted in November/December for funding to do feasibility study. DEFRA bid was not successful . Alternative ways to find out how this might be achieved to be explored.
		Business Improvement team	It will then be important to work with the operators to decide what a reasonable Euro Standard or equivalent would be, how long we would allow for operators to comply, how the scheme		Costs are not known at this stage a ball estimate that £50,000 would be required to evaluate and establish feasibility and detailed costings if this element is undertaken by an external	

			would be enforced and what the penalties for non compliance would be. In the event that the "Clean Air Zone" approach is adopted this would be an immediate Euro 6 standard.		contractor. This will only be possible if external funding can be secured for the project. If funding cannot be secured the project could be progressed by officers but this would take longer.	
			Estimate 60-70 buses that would need to be retrofitted to comply with Low Emissions Zone.	5+ Years for CAZ	Potential impact is high, would make a meaningful difference in the high street and beyond as most buses also traverse the other hot spot areas to reach the high street. There is also potential to broaden it to the whole AQMA and to	

					include other vehicle types is the future.	
		Economic Development MBC	This will be achieved through inclusion in the proposed "We care about air" scheme with additional recognition for low emission vehicles.		Difficulty and risk level is high due to perceived impact on bus companies. It will be important to work closely with them in developing and implementing the project.	
		Public Transport KCC			Risks are financial, political and reputational for this project and will need to be fully evaluated in the investigation phase before a final decision can be made.	
			Acknowledged that some factors are		There is an impact on their business	

			outside of our control and that this particular action is a multi faceted and very significant undertaking.		models which would need to be taken into account as part of any evaluation.	
		Arriva	This action needs to relate or refer to the infrastructure delivery plan.		This scheme will be technically difficult and potentially expensive in terms of consultation, legal work and infrastructure such as signage and enforcement monitoring.	
		NuVenture			MBC can apply for the necessary traffic regulation orders but it would be reliant on that being granted and the project as a whole being fully	

					supported by KCC with buy in from the bus operators.	
Transport 2	Securing Grant funding for buses	Environmental Protection (Lead)	MBC are currently the lead authority for a project where up to 10 buses to be fitted with emission abatement technology.	1-3 years	This has potential to make a real measurable difference. As the retrofitted buses will immediately have reduced emissions.	Contractor has been selected by bus operator now finalising exactly which buses will be retrofitted. Estimated that 16-17 buses will be retrofitted from euro 3 to euro 5. Three will have telemetry fitted to give live performance data.
		KCC Public Transport	Further bids will be considered and applied for as grant funding becomes available.		The difficulty is in securing bus operator co-operation. 4 buses have already secured however gaining agreement from bus operators for further buses is proving to be more difficult. If a low emission zone were	

					declared this may become easier as it would give operators the opportunity to reduce their costs.	
					The potential impact of securing further grants is high as increased funding will enable to projects to progress more quickly and some may determine whether they progress at all.	
		NuVenture			The difficulty is low, however the majority of funding has recently been awarded to Cities and councils	Bid was prepared for £1,000000 Nov 2017 in joint bid with TWBC. Supported by Arriva with £700,00 match funding. Bid not successful, serious issues with the evaluation feedback stating that elements which were there were missing. This being taken up with DEFRA but will not get funding.

					where a Clean Air Zone has been imposed by DEFRA. The declaration of a Low Emissions Zone may provide an additional hook to provide successful bids.	
		MBC Park and Ride			This does not carry a direct risk to MBC as the only money spent is grant funded. There is a risk in not being able to secure buses to retrofit.	
Transport 3	Provide input into and influence the review of bus station, time tabling and	Planning MBC (Lead)	Report to commence a review of the bus interchange facilities, park	5+ years	Potential impact on high street is high if the result is that buses are relocated from	

	peripheral routes		and ride and parking in and around Maidstone Town Centre is being undertaken by MBC in partnership with multiple stakeholders. Environmental Protection will provide input to ensure that improvement of Air Quality is a core principle of this review.		the area.	
		Arriva			However there is a risk in that relocation may create an air quality problem elsewhere.	
		Nu Venture			As the buses will continue to operate this project in itself will not greatly impact wider area.	
		Economic Development			It is important to ensure that Environmental Protection is included in the project as it progresses and good links have been made with the main project officers.	
		KCC Public Transport				
		Director of Regeneration and Place				

Transport 4	Use of MBC Parking Policy to improve Air Quality.	Planning (Lead)	Report to commence a review of the bus interchange facilities, park and ride and parking in and around Maidstone Town Centre is being undertaken by MBC in partnership with multiple stakeholders. Environmental Protection will provide input to ensure that improvement of Air Quality is a core principle of this review	5+ years	The potential impact medium. The difficulty and risk is low as consideration of AQ issues should be part of any such review.	
		Parking	Investigate measures to reduce on street parking in pinch points where this causes		The potential impact is high if sufficient traffic flow improvement can be delivered. The	

			congestion. This will involve locating the key areas and identifying measures to improve traffic flow. This can link in with the SMART report.		difficultly lies in the reliance on KCC to support and implement this project as it is not in MBC control. This removal of on street parking carries a risk in terms of negative reaction and publicity by those affected by not being able to park in those areas.	
		Property Services	Provision of cheaper or free parking for low emissions vehicles.		The potential impact is high encouraging the uptake of electric vehicles	
			Investigate the potential for applying variable parking fees increasing in the town centre and		This could be the use of dedicated EV parking bays or reduced tariff not linked to a specific bay.	

			decreasing further out.		The scheme could also then apply to residents parking permits etc.	
		KCC Parking MBC (Lead)			The technical difficulty low but this project carries a cost of up to £2000 per space per annum if applied to a free dedicated bay.	
Transport 5	Prevent bus and taxi drivers from leaving their engines idling	Environmental Protection MBC	This will be achieved through inclusion in the proposed "We care about air" scheme with additional recognition for	1-3 years	The impact is difficult to predict but potentially high over time if a genuine behavioural shift can be achieved.	Initial meeting held with MBC comms. team Jan 18. Advice that this scheme would be complex, time consuming and expensive to set up and promote then administer going forwards. Suggestion to look if there is an existing scheme that can be adopted or promoted. Could also be considered as a Kent Scheme in

			low emission vehicles.			the emerging Kent LES. Some research completed looking at BBC and Westminster # type campaigns which could be copied/
		Public Comms MBC	The initial approach will be one of education and promotion to encourage better practice.		The difficulty level is technically low but will involve significant officer time in promotion and administration of the scheme.	
		Licensing MBC	Should improvements fail to be realised enforcement options will be considered further.		It will also require a budget allocation. See action detailed in public health section.	
		Arriva Nu Venture	The council will explore the adoption of enforcement powers to be used should the educational approach need reinforcement.			This involved the adoption of existing traffic regulations which enable a fixed penalty of £25 to be issued. This could be enforced by existing civil enforcement officers.

Transport 6	Emissions Standard for Taxis to euro 6 standard	Licensing Manager	This will be achieved through the taxi licensing policy by reducing the age of vehicles permitted to be used. The timing would coincide with the next programmed review of the taxi policy.	5+ years	The potential impact is not as high as for buses. But would contribute to lowering of emissions.	This scheme has been suggested the group working on the Kent LES as an action that would be of benefit if implemented across the county as it would remove the element of perceived bias towards MBC taxis
			This can only apply to vehicles registered in MBC.		The difficulty comes from the fact that we have no control over taxis from over the rest of the county. Could apply only to our own fleet.	
					There is a risk that this project could make MBC taxi services less competitive	

					than other Kent authorities.	
Transport 7	Work with schools to reduce impact of school traffic	Environmental Protection (Lead)	Continuation of MBC sponsorship of the Walk on Wednesday Scheme.	1-3 years	The impact of the scheme as a whole is measurable in terms of car journeys reduced. Sponsorship of the project also provides good publicity opportunities to raise the profile of the MBC air quality agenda.	The councils sponsorship of the scheme will continue, will also liaise with the KM group to influence the way that MBC sponsorship is focussed.
		KCC			Difficulty is low.	
		Economic development			Financial cost £2300 pa is within existing budget.	
					The impact is difficult to predict and measure.	
			Link in with other regular		Difficulty and risk are low in	Officers have drafted a potential program that could be delivered in

			MBC contacts, with schools such as visits and attendance at large events.		linking in with established outreach programs already being delivered. Time and financial resources needed to prepare successful programs. Costs could be met within existing budgets provided that the ambitions and program materials are limited.	schools over the school year starting in September 2018. Have also identified the most appropriate schools. Next step is to discuss outcomes, contacts, funding and delivery with comms team and KM group as most natural partner. Very positive discussions with KM charity group who will support the initiative and are keen to roll it out across the county as one of their green champion awards. It will also include an anti idling campaign to be launched in October 18
Transport 8	Encourage use of Low and Ultra Low emission vehicles as taxis	Licensing MBC (Lead)	This will be achieved through inclusion in the proposed "We care about air" scheme with additional recognition for low emission	3-5 years	The impact likely to be low at the start but has the potential to grow.	See notes above

			vehicles.			
			It will also include consideration of a reduced license fee for low and ultra low emission vehicles.		Difficulty is in engaging with stakeholder and convincing them of the merits of using low emission vehicles.	
					There is risk that in offering a reduced fee MBC will lose revenue from the license fee. As uptake of applicable vehicles increases the reduction would need to be reviewed.	
Transport 9	Encourage and facilitate reducing the impact of delivery vehicles	Environmental Protection MBC (Lead)	Environmental Protection will work with colleagues in planning to provide guidance to developers to limit	1-3 years	The potential impact is unknown. We do not know how many vehicles it would relate to. This would reduce	This project will be investigated over the current financial year.

			restrictions on post-peak time delivery		congestion and take lorries off the road at peak time.	
		Planning MBC	This will be balanced with protecting residents from unreasonable noise disturbance.		Difficulty is quite low however there is a risk that this measure may cause increased noise complaints to be received as night time deliveries could never be truly silent.	
		Environmental Enforcement MBC				
Transport 10	Ensure that all EV Points are maintained and available for the public	Property Services MBC and KCC (Lead)	There are currently EV points at Maidstone House, Moat Park KCC Allington Depot. It is important that the Local Authorities lead by example in ensuring that	1-3 years	The potential impact high in that MBC is leading by example.	EV Point in car park under Maidstone house is operational.
					The difficulty is low. The risk lies in not being able to demonstrate that MBC is maintaining its own facilities. This would	

			these and any other provided are maintained in good working order and are accessible to the public.		damage the credibility of the council. It is important that KCC also maintain their services as many people will not know which facilities belong to who. In this aspect this project has some reliance on a party beyond the control of MBC.	
Transport 11	Bus driver training	Arriva	Environmental considerations can be included in driver training.	1-3 years	Potential impact low, risk also low.	
		Nu Venture	Bus companies and MBC will agree a driver training checklist. Operators will then provide details of how		This will enable operators to actively demonstrate the pro-active approach they are taking.	

		Environmental Protection to gather information (lead).	many drivers per year have received the training.		MBC can encourage and reward good practice via the awards and recognition scheme detailed later in the action plan.	
Transport 12	Promote Champion and Encourage the Use of new and novel technology	All	All stakeholders will be open to the use of new and novel technologies and ideas to contribute to solving problems, speeding up solutions or delivering them more quickly.	Aspirational	The potential impact unknown as it depends on the project identified. Difficulty and risks are again variable depending on the technology, costs and the intended uses.	
Planning 1	Local Plan Development Plan Document	Planning Policy (Lead)	This will be a "mini" local plan relating just to air quality and could have several	2 years	The costs of this project could be significant. As such this action will be subject to	

			policies within it.		individual approval by committee. Based upon experience provided by the recent local plan review a very ball park cost of this project is £65,000. The council will bid for grant money to offset costs of this project but will complete it even if not successful	
			It will deal with the issue in the round and make it a high priority for MBC corporately.	Committee report within municipal year	Potential impact is high as will provide long term and robust inclusion of AQ in developments within MBC.	Initial scoping meetings have already taken place during December 17 and Jan 18. A DEFRA bid has been made for funding to support the project however it will continue if unsuccessful. Bid was not successful.
					Difficulty is high in that it will involve	

					several consultation periods and scrutiny by planning inspector. Estimated time for delivery 2 years.	
					There is a risk that the DPD will not be adopted but this is mitigated by the short term use of the Kent and Medway Guidance in the interim.	
Planning 2	Adopt Kent and Medway Air Quality Planning Guidance. Having made necessary adaptations to suite MBC circumstances	EP	This will adopted as technical guidance in the short term pending the longer term	1-3 years	The potential impact high and long term. Difficulty level is low.	This action has already been completed with the technical guidance going live in Jan 18.
		Planning Policy (Lead)	The main components of the guidance are	Achieved early Add in name. Live Jan 18,	As technical guidance no formal consultation	

			to require mitigation of air quality impacts to be designed into major developments and to require EV charging infrastructure in new large developments		would be required for adoption and use. There is a risk that developers could appeal against conditions added following the guidance but there will still be some weight attributable to the document. The replacement of the guidance with a more robustly defensible document is part of another action.	
Planning 3	Development Management influence on developments	Development Management (Lead)	Ensure that design of new developments does not	Ongoing	The potential impact is high in prevention of new street	Environmental Protection are in regular contact with planning officers about applications where this may an issue. In most cases

	to mitigate impact on AQ.		create new AQ problems e.g. buffer zones are incorporated to set back developments from heavily used roads.		canyons. Which cause air quality problems to be made worse.	some mitigation can be applied to move develops further from the road or decrease heights. However still some concerns particularly on stone street about making AQ worse for off site receptors.
					Difficulty and risk are low and this work is already ongoing.	
			Establish if possible the impact of nox from boilers	1-3 years	The potential impact is low on the AQMA specifically but this project could be important in reducing overall emissions in the borough. It will play an important part of the holistic emissions mitigation of developments.	This project will be investigated over the current financial year.
		Environmental protection (Lead)			Difficulty and risks with project are low.	

Procurement 1	Review of Commissioning and Procurement Strategy	Procurement (Lead)	This will be reviewed and reported to the relevant committee for decision to be made on what weighting should be attached to local procurement. This would apply to direct and contracted procurement. The assessment and weighting should have consideration of global emissions of the service procured.	3-5 years	It is likely that a new strategy will need to be approved individually by committee. This will enable the costs and benefits to be explored thoroughly and for a decision to be made taking those factors into consideration.	

					The potential impact of the project is high particularly in showing the council is leading by example.	
			Examples of the type of action which could be considered, are an emission standard for vehicles delivering to the Council, or restrictions on distances which supplies can be sent		There may difficulty in ensuring buy in from all managers which should to be championed at a senior management level.	
					There is a risk that by adopting measures to reduce emissions through procurement that the lowest price option may not be the best scoring bid. This will	

					depend on what weighting is attached to this element or if is a mandatory requirement.	
Property/carbon management 1	Review park and ride scheme to create lower emissions.	Parking (Lead)	Current contract has been extended to summer 2018. When renewed will be able to specify emissions standards of buses but this will ultimately be a Cllr decision.	3-5 years	It is likely that this measure will need to be approved individually by committee. This will enable the costs and benefits to be explored thoroughly and for a decision to be made taking those factors into consideration.	
			Inclusion of the potential for Park and Stride will also be considered for people wishing to		The potential impact is high reducing emissions from buses which traverse the High	

			park and walk into town.		Street and other air quality hot spots. This also shows MBC leading by example in actively doing something that it is asking other bus operators to do. The action ties in with the potential low emissions zone and the bus retrofitting project.	
					Difficulty technically low.	
					There is a risk that this may carry an increased cost of contract and therefore higher costs to use the service.	

Property/carbon management 2	Increase electric vehicle infrastructure	Parking (Lead)	A reserved bay for electric vehicle parking point may result in £2000pa in lost income.	3-5 years	The potential impact is high in encouraging the uptake of electric vehicles.	
			In addition to examining the increase in infrastructure it is important to ensure that those already in place are in full working order and accessible to the public.		Difficulty levels are technically low.	
			In addition to increasing the provision within the town centre consideration should be given to increasing the provision in the rural areas to increase the overall provision.		The action carries a cost of £2000 per space per year if provided free of charge. The provision of further infrastructure in rural areas should be considered as these are typically less	

					well served.	
			This will involve planning to ensure that the provision of EV charging infrastructure is programmed to accommodate increased use, the way in which users need access and changes in technology.		There is a risk that having provided the spaces they are underused. The location of the provision will need to carefully considered to achieve the best benefit.	
					The potential impact is high in ensuring that residents of Maidstone are able to make the best use of electric vehicles and charging infrastructure.	
	EV Charging point long term strategy	Parking MBC	This should link in with the work of KCC in this area.	3-5 years	Joined up working particularly with KCC will be essential to achieve this action.	

		KCC Sustainable Transport				
Property/carbon management 3	Sustainable development principles enshrined in MBC development projects.	Director of Regeneration and Place (Lead)	It is more cost effective to build in suitable measures than to retrofit. This could include energy efficiency, and sustainable materials etc. This should include projects in Mote Park, Union Street and Maidstone East, Brunswick Street.	1-3 years	The potential impact is high in showing MBC leading by example.	
			It could include community heating		Difficulty levels are low if led by senior management.	

			schemes.		There is a risk that in adopting these principles development costs may increase slightly. However that is largely countered by the risk of being identified as not following those principles at the same time as the council is encouraging the approach in private developers.	
Property/carbon management 4	Scheduling of refuse vehicles to minimise AQ impact. put cleaner vehicles in poor AQ areas	Waste and Street Scene (Lead)	This involves putting cleaner vehicles in poor AQ areas	1-3 years	The potential impact is high in reducing emissions from diesel vehicles particularly at busy times of the day. This	

					project will demonstrate that MBC is leading by example.	
			This is not as simple as it sounds as vehicles do get swapped around between rounds.		There is difficulty in scheduling vehicles consistently, no added risk.	
Property/carbon management 5	Ensure that any buildings owned by MBC and managed by contractor are performing as efficiently as possible to reduce emissions.	Property Services (Lead)	This would include use of low energy lighting heating etc.	1-3 years	The potential impact depends on when the contract for each building is is renewed. It also depends on how efficient the current operation of each building is by the operators.	
					Difficulty is low. There may be a risk that the cost of contracts	

					could increase to cover the costs of installing low emission measures. This could be mitigated by the wording of any contract.	
Property/carbon management 6	Minimising emissions from MBC Fleet	Waste and Street Scene (Lead)	This will involve further trials of in suitable areas such as for town centre focussed units and supervisor vans. Other vehicles need greater range. These will be replaced with more efficient less polluting vehicles as they are replaced.	5+years	The potential impact is high depending on the numbers of vehicles that can be changed and how suitable to the alternative vehicles are.	
			The golf course has petrol buggies		Difficulty level is technically low.	

			which could be replaced.		The action is likely to carry some added costs and need it will be important to ensure only suitable vehicles are used which do not affect service delivery. Increased initial costs of purchase should be regained in lower fuel costs.	
Property/carbon management 7	Review heat recovery opportunities in MBC property e.g. Crematorium	Waste and Street Scene (Lead) Property Services	This will involve capturing the waste heat and using it on site.	3-5 years	The potential impact is high and shows MBC to be leading by example in reducing waste emissions. The difficulty may be high technically in terms of	

					installing the appropriate infrastructure and securing a customer for the heat. There are also potential difficulties in overcoming and anticipated negative public reaction.	
					Costs of installing the infrastructure are likely to be high however a long term profit should be the aim of the project for it to be considered viable.	
Property/carbon management 8	Review MBC pool car provision	Procurement (Lead)	MBC currently has one petrol and one diesel car. Both less used than have been.	1-3 years	The potential impact is low as MBC operates only two cars. However it	

			It may be possible and beneficial to replace the pool car provision with staff access to a "car club" or "zip car scheme".		does show MBC leading by example.	
Property/carbon management 9	Improved bicycle parking facilities	Parking (Lead)	There is currently good provision in town centre, at West station and top of Gabriel's Hill. These are not covered facilities	1-3 years	The potential impact is low with provision of facilities reported as good. It is unlikely to encourage much greater cycling. However the provision of secure facilities which can be used at a chargeable rate may encourage those with expensive bikes to use them and offset costs of	

					installation.	
			It would be possible to dedicate parking spaces to provide secure covered facilities. This would cost £2000pa per space.		Difficulty is level low. There would be an installation cost for secure facilities and a loss of revenue of £2000 per space per year if located in existing parking spaces.	
			It may however be possible to to charge for the use of covered secure facilities.		There is a risk that having set up the facilities they are not used.	
Public Health 1	Raise public and business awareness of AQ issues and promotion of good practices by important stakeholders	Environmental Protection (Lead)	A recognition scheme will be devised and promoted to promote awareness of AQ issues and best practices among key stakeholders.	1-3 years	There is a risk that this scheme could try to cover too many areas in scope and be too expensive and time consuming to	Preliminary advice from MBC comms team Jan 18. The technicalities of setting up such a scheme, scoping, designing award levels are beyond the time capacity of comms and EP at the current time. The ongoing administration is also beyond the time capacity of officers. Without resolving the time issue exploring the funding is

			These will include taxi and bus operators with "awards" given for those performing to a high level.		launch and administer. The scope and administration of the scheme will need to be carefully determined before it is implemented.	not a good use of time. The scheme has been put forward to the cross council working group as one which could be implemented across the county. Alternatively there may be national schemes that are similar in scope and outcome that could be adopted. Further investigation has identified examples of softer 'type campaigns such as that used by Westminster which will be explored further.
		KCC	It could also include businesses and business groups working to reduce their overall emissions, or who encourage flexible working initiative to reduce staff travel etc.		We will seek private sector funding for the scheme in order to deliver it.	
		Licensing			The potential impact is high across the transport and property emissions areas provided that sufficient participation in the scheme can be achieved.	
		MBC Comms			Difficulty level is high, it will take time and a budget provision that	

					is not currently available to develop and implement the scheme.	
		Health Team			The scheme will also need to be allowed time secure membership and grow. There will be an ongoing time commitment required to administrate the scheme unless it can be handed over once running to be run by members of the scheme themselves.	
		CCG				
Public Health 2	Raising Awareness of Air Quality and health issues	Environmental Protection (Lead)	The council will work with partners to highlight the issues of health and air	1-3 years	The impact of this action is difficult to measure as awareness is intangible. It	Meeting have been held with public health Dec 17 and Jan, March 18 to discuss joint work in this area. Currently exploring with public health observatory overlaying public health data with AQ

			quality and promote this on the wider public health agenda.		is possible to measure the number of people signed up to the alert scheme but only over the Kent Area.	management are heat map to establish if this shows an increase in associated health impacts, this could be provided as open source data to all LA's in Kent. This will then focus on raising awareness with vulnerable groups and GPS to promote the AQ alert scheme. Also spoken to comms team who can promote any alerts via MBC social media. MBC is currently participating in a trial with TWBC and CBC to assess how useful the project is.
		Health Team	This will involve promoting the e-mail alert scheme available to warn people when air pollution is likely to be high. This will particularly target vulnerable groups.		The difficulty is technically low but will require officer time and buy in from partners to be effective.	
		NHS				
		KCC				

Public Health 3	Review of air monitoring provision in Maidstone Area	Environmental Protection	The council will review its network of monitoring locations and methods across the area to ensure that they are proportionate, relevant and cost effective.	1-3 years	This is good practice and will ensure that the council is monitoring in a way that ensures our data is accurate and relevant.	A review of the continuous AQ monitoring element of the network has been completed and reported to SPST committee Feb18. Agreed that a contractor be used to establish a one year baseline in stone street for NOX PM10 and PM2.5. There will be a further review after this to inform a long term decision. In the meantime officers will work towards locating a permanent site for continuous monitoring. The diffusion tube network is regularly reviewed with tubes moved, added or removed according to current areas of interest. New monitoring station as above is now commissioned
Public Health 4	Ensure that the protection and improvement of public health is a core principle of AQ work.	Environmental Protection (Lead)	All of the actions above will have a direct or indirect impact on public health. Where an existing scheme is in operation we will signpost	1-3 years	The impact of this action is difficult to measure as the initiatives being flagged are operated by others.	EP team leader has attended all Public Health Champion events and is regular contact with the health team. This has been useful in making contacts for use in other actions such as the schools project.

			to it.			
			See above re engagement with school groups and larger events.		Difficulty level is technically low as the intention is to intention is to flag public health initiatives already in progress rather than to repeat them.	
			The Environmental Protection Team Leader will represent this issue as a Public Health Champion within MBC.			

Review and update of strategy and action plan 5	Progress report to committee at same time as the DEFRA annual report	Environmental Protection	The council reports progress on its action plan annually. This report will be submitted to the committee when completed. This will be the point at which actions can be revised, noted as completed and new actions added as agreed.	Annually	This will demonstrate the level of progress in individual actions and will enable the action plan to be updated regularly.	Annual report is due June 18 and will be submitted to the relevant committee. Before this relevant partners will be requested to add progress to the table.

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority 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
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
MBC	Maidstone Borough Council
KCC	Kent County Council
ITS	Integrated Transport Strategy
HA	Highway Agency
LDF	Local Development Framework
HDVs	High Duty Vehicles
COPD	Chronic Obstructive Pulmonary Disease
Planning DC	Planning Development Control
LSP	Local Strategic Partnership
K&MAQN	Kent & Medway Air Quality Network
LEP	Local Enterprise Partnership

References

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- Maidstone Borough Council Low Emission Strategy 2018