Tonbridge and Malling Borough Council

Air Quality Action Plan

In fulfilment of Part IV of the

Environment Act 1995

Local Air Quality Management

February, 2022

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Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Tonbridge and Malling Borough Council up to 2027. This action plan replaces the previous draft action plan[1] which ran from June 2011.

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 equality issues as areas of poor air quality are also often less affluent areas[2,3].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[4]. Tonbridge and Malling Borough Council are committed to reducing the exposure of people within the borough to poor air quality in order to improve health.

We have developed actions that can be considered under four broad priority topics:

- Priority 1: Transport;
- Priority 2: Planning and Infrastructure;
- Priority 3: Policy Guidance; and
- Priority 4: Public Health and Wellbeing

The primary focus of the AQAP is to implement measures which will ensure levels of NO_2 across the borough, and specifically within the existing AQMAs, are consistently below 10% of the annual mean NO_2 Air Quality Strategy (AQS) objective of 40µg/m^3. For two out of the six existing Air Quality Management Areas (AQMAs), a relatively small reduction in annual mean NO_2 concentration is required (3µg/m^3 within AQMA 3 and 3.6µg/m^3 within AQMA 7) to reduce existing concentrations to 36µg/m^3 thus ensuring compliance with the annual mean objective of 40µg/m^3. Where required concentration reductions are relatively low, borough-wide actions / 'soft' measures such as educational events, are more applicable within these AQMAs, compared to additional AQMA / area specific 'hard' measures such as changes in existing road layouts, that are required within the AQMAs that are current showing concentrations of NO_2 significantly in excess of the annual mean objective.

[1] Tonbridge and Malling Borough Council (June 2011), Draft Air Quality Action Plan

[2] Environmental equity, air quality, socioeconomic status and respiratory health, 2010

[3] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[4] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

The priorities from the adoption of this action plan are to aid a behavioural shift within the population to promote more sustainable and less polluting methods of transport, reducing dangerous pollutant concentrations and reducing the risks of detrimental effects against health and wellbeing within the borough. In addition where transport remains a majority source of air pollution, traffic measures are to be implemented to reduce congestion and aim to reduce source emissions in areas of relevant exposure.

This AQAP outlines a plan to effectively tackle air quality issues within the Council's control. It should be noted that there are a large number of air quality policy areas that are outside of the Council's influence (such as vehicle emissions standards agreed in Europe), but for which the Council is able to provide useful evidence. The Council will therefore continue to work with regional and central government on policies and issues beyond Tonbridge and Malling's direct influence in relation to air quality.

Responsibilities and Commitment

This AQAP was prepared by the Environmental Protection department within Tonbridge and Malling Borough Council with support provided by Bureau Veritas. The following departments have, and continue to provide, support and agreement to the AQAP:

- TMBC Environmental Protection;
- TMBC Planning.
- TMBC Technical Services.
- TMBC Licensing.
- KCC Sustainable Business and Communities.
- KCC Growth Environment & Transport.

This AQAP has been approved by:

- June 2021 – Air Quality Steering Group.
- July 2021 – Defra (prior to cabinet approval).
- August 2021 – Street Scene and Environment Board.
- September 2021 – Cabinet Members.

This AQAP will be subject to an annual review, appraisal of progress and reporting to the relevant Council Committee and Defra. Progress of measures, and the development of additional measures will be reported to Defra each year within the Annual Status Report (ASR). The ASR is due for completion in June each year and is produced by Tonbridge and

Malling Borough Council, as part of our statutory LAQM duties. Current Defra guidance states that an AQAP should be updated every five years therefore a review and of the existing AQAP, and subsequent update if required shall be completed in 2027.

If you have any comments on this AQAP please send them to the Environmental Protection department at Tonbridge and Malling Borough Council at:

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Introduction

This Air Quality Action Plan (AQAP) outlines the actions that Tonbridge and Malling Borough Council will deliver up to 2027 in order to reduce concentrations of air pollutants (primarily nitrogen dioxide (NO_2)) within the existing Air Quality Management Areas across the borough, and also across the wider borough area; thereby positively impacting on the health and quality of life of residents within, and visitors to Tonbridge and Malling.

The AQAP has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and relevant regulations made under that part and to meet the requirements of the Local Air Quality Management (LAQM) statutory process. Development of the AQAP has taken place through discussions within a Tonbridge and Malling Borough Council Steering Group led by the Environmental Protection team and supplemented by guidance from Bureau Veritas.

The document has been subjected to both internal and external consultation as an initial draft to the following parties, in line with PG(16) guidance[5]:

- Department of Environment, Farming and Rural Affairs (Defra);
- Tonbridge and Malling Borough Council;
- Kent County Council (KCC);
- Neighbouring local authorities;
- Residents within Tonbridge and Malling; and
- Bodies representing local business interests and other organisations as appropriate.

This AQAP will be reviewed every five years at the latest. Details of the progress on measures set out within this AQAP will be reported on annually within the Tonbridge and Malling air quality ASR.

[5] Local Air Quality Management Policy Guidance LAQM.PG(16). April 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.

Summary of Current Air Quality in Tonbridge and Malling

Currently there are six Air Quality Management Areas (AQMAs) designated within Tonbridge and Malling Borough Council area. All six have been declared in response to exceedances of the NO_2 annual mean objective. Each of the six declared AQMAs incorporate areas that have strategic road links passing through them, with road traffic emissions having previously been identified as the major source of the elevated NO_2 concentrations.

The previous AQAP completed by Tonbridge and Malling[6], dated June 2011, had been developed to include the initial six AQMAs declared (the designation relating to 24-hour PM_{10} concentrations for the M20 AQMA 1 and the Ditton AQMA 2 have since been revoked). The previous AQAP had not been updated to include the declaration, and subsequent amendment of Borough Green AQMA. Therefore the measures outlined within this AQAP have been developed based upon the current designation of AQMAs.

Details of the current AQMAs are provided within Table 0.1 and boundary maps for each of the AQMAs are presented in Appendix A.

Table 0.1 – Tonbridge and Malling Air Quality Management Areas

AQMA Name	Date of Declaration	Location	Description of Area
M20 AQMA 1	May 2001	Larkfield / Ditton	An area along the M20 motorway between the points where it passes below New Hythe Lane, Larkfield to the west and where it crosses Hall Road, Aylesford to the east.
Tonbridge High Street AQMA 3	June 2005	Tonbridge	An area incorporating the High Street between Botany and the High Street/Vale Road roundabout, Tonbridge.
Wateringbury AQMA 4	June 2005	Wateringbury	An area incorporating the Red Hill/Tonbridge Road A26 crossroads in the Parish of Wateringbury.
Aylesford AQMA 5	October 2008 (Amended January 2020)	Aylesford	An area encompassing the junction of the A20 (London Road) with Hall Road and Mills Road.
Larkfield AQMA 6	October 2008 (Amended January 2020)	Larkfield	An area encompassing a section of the A20 (London Road) within Larkfield, including the junction with New Hythe Lane.
Borough Green AQMA 7	April 2013 (Amended January 2020)	Borough Green	An area encompassing the junction of the A25 (Sevenoaks Road) and the A227 (Western Road) within Borough Green.

Tonbridge and Malling operate a large network of passive diffusion tubes, which provide annual mean concentrations of NO_2 at monitoring locations across the borough. During 2018 monitoring was completed at 54 locations, with monitoring completed both within and outside

[6] Tonbridge and Malling Borough Council, Environment Act 1995 LAQM Draft Air Quality Action Plan, June 2011

the current AQMA boundaries. The diffusion tubes are exposed in 4/5 weekly periods, in line with the Defra LAQM Diffusion Tube Monitoring Calendar, and are processed to derive annual mean concentrations as per Defra TG(16) guidance[7]. In addition to the passive diffusion tube monitoring completed within the borough, the automatic monitoring of NO_2 has historically been completed at one location within the Tonbridge High Street AQMA (ZT5). In 2018 the monitor was relocated close to the Wateringbury AQMA due to the elevated concentrations reported within the AQMA.

Of the 54 NO_2 monitoring locations within the Council area, 21 are located within the current designated AQMAs. A summary of the recent NO_2 monitoring completed within each AQMA is presented in Table 0.2. Further details of all monitoring locations, and subsequent annual mean NO_2 concentrations are available in the latest Annual Status Report (ASR) completed and submitted to Defra each year. Access to all LAQM reports completed by Tonbridge and Malling are available through the Tonbridge and Malling Borough Council website[8].

It can be seen by the monitoring results presented within Table 0.2 that the number of monitored exceedances of the NO_2 annual mean objective across all current AQMAs has reduced between 2014 (eight) and 2018 (five). In addition, detailed within the latest ASR at the time of writing, during 2018, as has been apparent since 2014, there have not been any monitored exceedances outside of the declared AQMAs. Although there has been a visible decline in concentrations, aside from within the M20 AQMA there remains one monitoring location reporting an NO_2 annual mean greater than, or within 10% of the annual mean objective (36.0µg/m^3).

Annual mean concentrations have remained at their highest within the Wateringbury AQMA, with the triplicate diffusion tube monitoring location TN42, 76, 77 reporting the highest concentration within the borough every year since 2014 (58.1µg/m^3 in 2018). As can be seen within Figure A.3, the Wateringbury AQMA consists of a single cross junction between the A26 (Tonbridge Road), Red Hill and Bow Road. The junction is traffic light controlled and congestion is experienced throughout the day due to the A26 linking Maidstone with Tonbridge and also Royal Tunbridge Wells.

There have not been any monitored exceedances of the NO_2 annual mean objective within the M20 AQMA during the previous five years. The maximum monitored concentration recorded during this period was 38.8µg/m^3 recorded at both TN5 in 2017 and TN80a in 2014. Although there have not been any monitored exceedances, the detailed modelling completed

[7] Local Air Quality Management Technical Guidance LAQM.TG(16). April 2021. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

[8] Tonbridge and Malling Borough Council Air Quality – https://www.tmbc.gov.uk/services/environment-and-planning/pollution/air-quality

as part of the AQMA review[9], predicted that a number of properties located to the north and south of the M20 motorway experience NO_2 annual mean concentrations greater than 36.0µg/m^3. Due to the layout of the M20 motorway, and the adjoining local roads, it has not always been possible to locate diffusion tubes in locations of relevant exposure, e.g. gardens of residential properties at their closest point to the M20 motorway.

Table 0.2 – Tonbridge and Malling AQMA Annual Mean NO_2 Monitoring (µg/m^3)

Site ID	Site Type	Monitoring Type	2014	2015	2016	2017	2018
M20 AQMA 1							
TN5	Roadside	Diffusion Tube	-	-	38.1	38.8	34.9
TN7b	Roadside	Diffusion Tube	-	-	38.0	36.7	31.5
TN80a	Roadside	Diffusion Tube	38.8	35.1	34.4	35.4	30.2
TN5a	Roadside	Diffusion Tube	37.1	35.5	34.5	34.1	30.1
TN30	Roadside	Diffusion Tube	28.3	29.3	29.7	26.7	25.5
TN29a	Roadside	Diffusion Tube	24.9	25.4	28.0	25.2	24.1
Tonbridge High Street AQMA 3							
TN35	Urban Centre	Diffusion Tube	**43.2**	36.7	34.6	37.5	36.4
TN44	Urban Centre	Diffusion Tube	**42.0**	**40.1**	**40.5**	38.4	35.2
ZT5	Urban Centre	Automatic Analyser	**46.6**	**45.8**	**46.8**	**49.6**	34.9
TN45, 74, 75	Urban Centre	Diffusion Tube	**42.7**	**41.6**	**40.5**	**42.3**	39.0
TN110	Roadside	Diffusion Tube	-	-	30.1	32.8	28.4
Wateringbury AQMA 4							
TN33	Roadside	Diffusion Tube	**52.7**	**51.9**	**56.4**	**53.6**	**51.9**
TN43	Roadside	Diffusion Tube	38.2	38.2	39.1	38.7	35.7
TN42, 76, 77	Roadside	Diffusion Tube	**64.8**	**63.5**	**64.8**	**61.3**	**58.1**
Aylesford AQMA 5							
TN68	Roadside	Diffusion Tube	31.9	30.8	30.8	31.4	28.3
TN60, 62, 63	Roadside	Diffusion Tube	**45.3**	**44.1**	**44.8**	**44.8**	**41.7**
DF1, 2, 3	Roadside	Diffusion Tube	**-**	**42.6**	**44.3**	**44.1**	**40.1**
Larkfield AQMA 6							
TN57, 58, 59	Roadside	Diffusion Tube	36.5	34.0	33.7	31.4	32.2
DF7, 8, 9	Roadside	Diffusion Tube	-	35.2	**41.8**	35.0	32.8
TN106	Roadside	Diffusion Tube	-	-	**43.9**	**43.2**	**42.0**
Borough Green AQMA 7							
TN70, 72, 73	Roadside	Diffusion Tube	**42.2**	**42.1**	**45.6**	**43.0**	39.6

Notes:
- Exceedances of the NO_2 annual mean objective are presented in **Bold**
- The automatic monitor ZT5 was relocated part way through 2018
- The modelling competed to inform the AQAP was completed for a baseline year of 2018, monitoring data post 2018 is available through the most recent ASR

In addition to future years monitoring results, any changes made to the existing monitoring network within the borough will be detailed and justified within subsequent ASRs. The

[9] Bureau Veritas (November 2019), Tonbridge and Malling Borough Council Air Quality Management Area Review

monitoring network serves as an ongoing indicator for changing NO_2 trends within the borough and will be essential for the assessment of implementation for the measures detailed within this AQAP. The monitoring network also provides an initial evidence base for consideration of the requirement to revoke, amend or declare any AQMAs.

Tonbridge and Malling's Air Quality Priorities

This chapter presents the main drivers, and the approach taken by Tonbridge and Malling for the development and subsequent selection of measures that have been included within this AQAP. Included within this section of the AQAP are descriptions of the existing strategies and policies that relate to air quality within the borough.

A source apportionment study has been completed across the borough, focusing on each of the existing six AQMAs and surrounding area. The source apportionment study has allowed the most significant vehicular NO_x contributors to be identified, and in conjunction with the strategies and policies that are currently in place, the conclusions have been used to identify and prioritise the action measures presented within Section 0.

1.1 Public Health Context

Scientific evidence has continued to show the scale of the negative impact of poor ambient air quality on health. Although the links between air pollution as a direct cause of death are still the subject of much debate, poor air quality is considered to be a significant contributory factor to the loss of life, with an average estimation of lives being shortened by five months. The Committee on the Medical Effects of Air Pollution (COMEAP)[10] provides advice to Government on the setting of air quality standards, and increasingly has sought to consolidate evidence on the health burden and impacts of various pollutants, both in single occurrence and pollutants in combination. In terms of NO_2, COMEAP provide a current range of estimate for annual mortality burden for human-made air pollution in the UK is estimated to be between 28,000 and 36,000 deaths and an associated loss of population life of 328,000 and 416,000 life years lost[11].

Local authorities across England have a central role in achieving improvements in air quality, and have a range of powers which can effectively help to improve air quality. The involvement of public health officials is crucial in playing a role to assess the public health impacts and providing advice and guidance on taking appropriate action to reduce exposure and improve the health of everyone in Tonbridge and Malling.

The online Public Health Outcomes Framework (England) tool[12] provides further impetus to join up action between the various local authority departments that all contribute towards the

[10] The Committee on the Medical Effects of Air Pollution – https://www.gov.uk/government/groups/committee-on-the-medical-effects-of-air-pollutants-comeap

[11] The Committee on the Medical Effects of Air Pollution (2018), Associates of long-term average concentrations of nitrogen dioxide with mortality

[12] Public Health England, Public Health Outcomes Framework – https://fingertips.phe.org.uk/profile/public-health-outcomes-framework

delivery of air quality improvements. There is extensive evidence about the health impacts of air pollution, growing media and public interest and an indicator on mortality attributed to airborne particulate matter in the Public Health Outcomes Framework. The Public Health briefing document published by Defra and Public Health England (PHE)[13] provides guidance as to the latest information to consider in terms of the health response to air pollution, guiding local authorities to use existing tools to appraise the scale of the air pollution issue in its area. The briefing document, as part of a resource park for public health teams, advises local authorities how to appropriately prioritise air quality alongside other public health priorities to ensure that it is provided relevant exposure within local agenda.

The briefing document comprises the following key guides:

- Getting to grips with air pollution – the latest evidence and techniques;
- Understanding air pollution in your area;
- Engaging local decision-makers about air pollution;
- Communicating with the public during air pollution episodes;
- Communicating with the public on the long-term impacts of air pollution; and
- Air Pollution: an emerging public health issue: Briefing for elected members.

As stated above, the Public Health Outcomes Framework tool includes an indicator on mortality attributed to airborne particulate matter. It should be noted that the indicator only accounts for one pollutant (particulate matter with an aerodynamic diameter of 2.5µm or less – $PM_{2.5}$) for which stronger scientific evidence on links with detrimental health effects and mortality exist, and not for NO_2, for which the six current AQMAs within Tonbridge and Malling are declared. For $PM_{2.5}$ evidence continues to show that there is no real safe threshold for this pollutant and UK government should achieve reductions in levels of $PM_{2.5}$ as low as reasonably practicable below the current air quality standard.

For Tonbridge and Malling in 2017, the fraction of mortality attributable to particulate $PM_{2.5}$ air pollution is 5.7%, which is higher than the national average of 5.1%. The borough is currently under no obligation to monitor $PM_{2.5}$, which is a focus at national level, but anticipates that some of the measures implemented within this action plan for the achievement of reductions in NO_2, will have co-benefits in additionally reducing concentrations of particulate matter. Furthermore, following on from a review of research into the death burden associated with the air pollution mixture rather than single pollutants acting independently, COMEAP are currently reviewing the ability to link deaths to one specific pollutant.

[13] Department for Environment, Food and Rural Affairs and Public Health England (March 2017), Air Quality: A Briefing for Directors of Public Health

At a County level the Kent Joint Health and Wellbeing Strategy[14], which has been extended to 2021 provides strategic direction to address the numerous health and wellbeing issues facing the population within Kent. It is identified within the strategy that a number of factors affecting short and long term physical and mental health such as air quality need to be considered. Through an integrated approach, with continual links with local authorities feeding into the strategy, the overall vision of improving health and wellbeing outcomes.

The Kent Public Health Observatory last provided an update in terms of mortality rates attributable to air pollution in April 2018[15]. Within which air pollution (particulate matter) is a contributory factor in fewer deaths per year in the population (under 75) in Kent than cancer and cardiovascular disease, however it is linked with a similar number of deaths as is attributed to respiratory disease and liver disease.

1.2 Planning and Policy Context

This Action Plan outlines the Council's plan to effectively tackle air quality issues within its control; however, it is recognised there are numerous existing, and also impending policies and strategies adopted at local, regional and national level that can exert significant effects, both positive and negative, on air quality across Tonbridge and Malling. It is important that these plans and strategies are identified, and taken into consideration at an early stage of the development of the plan. These will aid the establishment of the context in which specific options for improving air quality can be implemented.

Whilst certain policies and / or strategies may be outside of the influence of Tonbridge Malling, there are a number of related policies and strategies at local and regional levels that can be tied directly with the aims of this AQAP. Some of these are directly focused on air quality improvements within Tonbridge and Malling, whilst others relate to transportation issues and therefore are likely to help contribute to overall improvements in air quality across Tonbridge and Malling.

The review of these strategies and policies also assist in not duplicating the work within the AQAP, but instead focus on direct measures outside those considered within the already developed strategies and policies, but that still contribute toward their overall aims. This section outlines the strategies and policies that have the most significant potential to impact on pollutant concentrations within Tonbridge and Malling. Given their importance, the majority of measures listed below have been included as action measures within this Action Plan.

[14] Kent County Council (2013), Kent Joint Health and Wellbeing Strategy: Outcomes for Kent

[15] Kent Public Health Observatory (April 2018), Air Quality

The most relevant policies and strategic documents are detailed below.

1.2.1 Clean Air Strategy 2019

The Clean Air Strategy[16] has been published to set out the case for action at a national level, identifying a number of sources of air pollution within the UK including road transportation, that is relevant in terms of the AQMAs currently present within Tonbridge and Malling, and sets out the actions required to reduce the impact upon air quality from these sources. It has been developed in conjunction with three other UK Government Strategies; the Industrial Strategy, the Clean Growth Strategy, and the 25 Year Environment Plan

Key actions that are detailed within the strategy aimed at reducing emissions from transportation sources include the following:

- The publication of the Road to Zero strategy which sets out plans to send the sale of new conventional petrol and diesel cars and vans by 2040;
- New legislation to compel vehicle manufacturers to recall vehicles and non-road mobile machinery for any failures in emission control systems, and to take effective action against tampering with vehicle emissions control systems;
- Develop new standards for tyres and brakes to reduce toxic non-exhaust particulate emissions from vehicles;
- The encouragement of the cleanest modes of transport for freight and passengers; and
- Permitting approaches for the reduction of emissions from non-road mobile machinery, especially in urban areas.

1.2.2 UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations

Published in July 2017, the UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations (Detailed Plan)[17] is the UK governments plan for bringing concentrations of NO_2 within statutory limits within the shortest possible time. It is identified that the most immediate air quality challenge within the UK is tackling the issue of NO_2 concentrations close to roads, especially within towns and cities. The plan identifies a number of local authorities that were required to complete feasibility studies to define NO_2 concentrations on road links identified by the national Pollutant Climate Mapping (PCM) model as being in exceedance of the NO_2 annual mean AQS objective.

[16] Department for Environment, Food and Rural Affairs (2019), Clean Air Strategy

[17] Department for Environment, Food and Rural Affairs, Department for Transport (2017), UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations (Detailed Plan)

Tonbridge and Malling were not one of these authorities identified, but regardless the UK Plan provides a high level of detail on possible solutions, and their implementation, to reduce NO_x emissions from vehicles, and therefore lower NO_2 concentrations. The actions detailed within the UK Plan include the following:

- Implementation of Clean Air Zones (CAZs);
- New real-world driving emissions requirements for light passenger and commercial vehicles;
- Additional funding to accelerate the uptake of low emissions buses and also for the retrofitting of older buses;
- Additional funding to accelerate the uptake of hydrogen vehicles and associated infrastructure;
- New mandatory emissions standards for non-road mobile machinery; and
- Local cycling and walking investment plans.

1.2.3 Kent Environment Strategy / Energy and Low Emission Strategy

The Kent Environment Strategy (KES)[18] that was adopted in 2016, and the newly adopted Energy and Low Emission Strategy (ELES)[19], which is a sub strategy of the KES, have been developed to address the challenges posed across Kent through the growth and change that is predicted to occur across the County over the coming years / decades. Economic growth is welcomed within the County, but this should be realised without impacting the health and wellbeing of its residents, and also without impacting the diverse landscape across the County that is valued by residents, businesses and visitors alike.

Air quality is identified within the KES as a key issue within the County, the unique position of Kent between London and the continent leads to challenges with emissions from cross-channel freight and traffic leading to the declaration of over 40 AQMAs. Transport is identified as a majority emission source leading to associated risks for air quality, with sustainability and a shift to active travel detailed as a requirement for transport growth. In a wider sense the KES has three core themes that are applicable to the strategy and also are drawn down into the ELES:

- Theme One: Building the Foundations for Delivery;

[18] Kent County Council (March 2016), Kent Environment Strategy: A Strategy for Environment, Health and Economy

[19] Kent County Council (June 2020), Kent and Medway Energy and Low Emissions Strategy: Meeting the Climate Change Challenge

- Theme Two: Making best use of existing resources, avoiding or minimising negative impacts; and
- Theme Three: Toward a sustainable future.

The purpose of the ELES is to identify an approach to deliver clean growth, by reducing emissions from housing, industry and transport to lead to improvements in air quality across the County to a point where no deaths are associated with poor air quality. The challenge of tackling the AQMA hot-spots of poor air quality is outlined as a major challenge to be overcome at a County level, and also at a local authority level due to the majority of declared AQMAs being designated on County highway controlled road links located within local authority jurisdiction. In terms of vehicle emissions, growth without gridlock is promoted to deliver safe and effective transport, ensuring that communities and businesses benefit, enhancing the environment and economic growth is supported.

A drive towards a low carbon economy is included within the ELES, with a number of potential technological project model interventions contained within five identified themes:

- Low Carbon Heating;
- Energy Saving and Efficiency;
- Renewable Generation;
- Smart Energy System; and
- Transport Revolution.

All of the above have the potential to help lower pollutant concentrations across Tonbridge and Malling, and the wider County. Of significant importance, relating to the designation of the AQMAs across Tonbridge and Malling, is the Transport Revolution which promotes EV charging and a hydrogen fuelling infrastructure, compressed natural gas (CNG) fuelling and the modernisation of the energy infrastructure within ports.

1.2.4 Local Plan

The new Tonbridge and Malling Local Plan[20] has recently been consulted upon and underwent public examination in October 2020. The examining Inspectors unfortunately concluded that in their opinion, the Council had failed the legal compliance and in particular the Duty to Co-operate regarding unmet housing need in the neighbouring district of Sevenoaks and recommended that the plan was not adopted. The Council has since taken the decision to withdraw the draft Local Plan, although at the time of writing, this has not occurred. Moving forward, the Council intends to recommence plan making by refreshing its

[20] Tonbridge and Malling Borough Council (January 2019), Local Plan – Regulation 22 Submission

evidence, rebasing the plan timeline and resubmit the plan for examination. It is hoped to have this submitted for examination by Inspectors by the end of 2023.

Due to the advanced stage of the draft Local Plan and the fact the Inspectors have only cited the failure of the Duty to Cooperate as the reason why the plan should not proceed, the policies held within the plan have been detailed within this AQAP, if the relevant policies change significantly prior to the adoption of the refreshed plan the AQAP will be updated to reflect these.

A large number of documents have been used to shape the Local Plan, one of which was an Air Quality Assessment[21] that was completed to provide an evidence base for the potential air quality impacts of the Local Plan upon human health receptors (residential properties, hospitals and schools). Given the rejection of the current draft this evidence base will also be updated. The update, when updated, will be able to provide analysis and comparison in regard to the baseline modelling completed as part of this AQAP and the potential impact of AQAP measures that have been taken forward following the adoption of the AQAP.

It is most likely that the new plan will have a similar structure to the present draft and will continue to have similar policies on air quality and sustainable travel. For reference the current draft Local Plan includes a suite of policies with the purpose to manage and facilitate sustainable development across the borough. In addition, there are areas within the borough that are identified in terms of future housing allocations (LP25: Housing Allocations). The areas that are identified within the housing allocations are important as these may be close to areas of poor air quality, or will have the potential to impact upon existing air quality conditions.

In terms of air quality and future development, compliance with LP20: Air Quality within the application is required, with the identification of detailed mitigation measures to be included with the Environmental Health department having regard to the relevant air quality standards at a national level. Policy LP20: Air Quality states the following:

1. Development, either individually or cumulatively with other proposals or existing uses in the vicinity, that could directly or indirectly result in material additional air pollutants and a significant worsening of levels of air quality within the area surrounding the development site will not be permitted unless evidenced, specifically identified and detailed measures to offset or mitigate those impacts are introduced as part of the proposal.

[21] Mott MacDonald (June 2018), Tonbridge and Malling Borough Council Local Plan Air Quality Evidence Base

2. Development that would introduce new receptors into an area of poor air quality will not be permitted unless the proposals incorporate acceptable measures to ensure receptors would not be subject to unacceptable risk as a result of poor air quality.

In addition to policy LP20, there are several policies within the Local Plan that are aimed at mitigating the impacts of developments upon air quality. These include LP23: Sustainable Transport, and the policies for strategic sites which seek to maximise opportunities for additional cycling and walking routes. A number of identified Strategic Sites (LP28: South Aylesford, LP29: Borough Green, LP31: South-West Tonbridge) bring opportunities to improve the air quality of the nearby AQMAs through the development of relief roads alleviating the traffic flow through the areas of concern. But this earmarked development also brings a risk of detrimental effects upon air quality with the increase of traffic flow in the immediate and surrounding area. Throughout the development of any of the Strategic Sites, or any other development within the borough the Environmental Protection team will review applications received to ensure that all applications are completed in accordance with LP20.

1.2.5 Local Transport Plan

The Kent County Council Local Transport Plan[22] was approved in 2016 setting out a vision for transport over a 15 year timeframe and has the ambition to deliver safe and effective transport, ensuring that all of Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported. This ambition is to be achieved through five overarching policies, of which three have immediate relevance to improving air quality conditions:

- Outcome 3: Safer travel;
- Outcome 4: Enhanced environment; and
- Outcome 5: Better health and wellbeing.

When assessing any transport schemes air quality impacts are to be taken into account in addition to the consideration of the relocation of traffic, ranging from a strong negative impact to a strong positive impact. It is identified that the reduction of vehicle numbers will lead to a positive effect upon local air quality, with Active Travel methods such as walking or cycling promoted as a means of transport rather than just for leisure purposes. Through this links are made to the Active Travel Strategy and Cycling Strategies.

The transport priorities detailed within the Transport Plan that are relevant to Tonbridge and Malling are as follows:

[22] Kent County Council, Local Transport Plan 4: Delivering Growth without Gridlock 2016-2031

- M20 Junctions 3 – 5 ‘smart’ (managed) motorway system;
- A20 corridor improvements between A228 and M20 Junction 5;
- A228 corridor improvements;
- Borough Green Relief Road;
- Wateringbury A26 / B2015 junction improvements;
- Implementation of the Tonbridge and Malling Cycling Strategy; and
- Improvements within Tonbridge:
    - Tackling congestion in Tonbridge town;
    - Tonbridge town centre regeneration; and
    - Potential for Urban Traffic Control (traffic signal coordination) in Tonbridge to help alleviate congestion and improve air quality.

All of the above have the potential to impact air quality conditions within the existing AQMAs, and across the wider borough. The Environmental Protection team at Tonbridge and Malling will continue to the work in unison with our colleagues in the Highway teams at both Tonbridge and Malling and Kent County Council to ensure that the impacts upon air quality due to the implementation of any highways scheme is quantified in terms of pollutant emissions, and that our expertise within the field is sought when future schemes are develop within Tonbridge and Malling.

1.2.6 Freight Action Plan

The Kent County Council Freight Action Plan for Kent[23] identifies that when road freight vehicles travel on the local road network they can have an adverse impact on local communities in a number of ways, one of which being the impact upon local air quality conditions. It is a supporting policy to the Local Transport Plan detailed above and has three core actions detailed within. In terms of air quality issues have been identified in a number of areas:

- Direct tailpipe emissions from the freight passing through the County and also from increased congestion due to Operation Stack whereby vehicles are diverted from the M20 to the A20 when congestion for the Euro Tunnel and Port of Dover reach certain levels;

[23] Kent County Council, Freight Action Plan for Kent

- Refrigeration and in-cab heaters running when freight are parked through the night, contributing to air pollution within the local area; and
- Implementation of vehicle restrictions within Towns and Villages to restrict the type and / or the number of vehicles that are allowed to pass through certain settlements.

Initiatives such as an ECO Stars scheme can be set up to improve efficiency within a fleet of freight vehicles, this is realised through improvements in fuel consumption and reducing any possible impacts upon local air quality conditions.

1.2.7 Climate Change Strategy

As a local authority, Tonbridge and Malling Borough Council has an important leadership role to play in responding to the challenges posed by climate change, particularly relating to the delivery of our key services and our partnership work with other agencies. In July 2019 the Council set out the "aspiration for Tonbridge and Malling to be carbon neutral by 2030".The Tonbridge and Malling Climate Change Strategy (2020 – 2030)[24] sets out the commitment to local action of climate change and the commitment to biodiversity protection.

The Council has a key role in supporting and promoting local actions, and recognise that they don't solely have all the required powers and resources to do this. Only by working in partnership can we help to influence the effects of climate change now and for generations to come. The core themes of the strategy, as detailed below, are to be implemented through the development of a Climate Change Action Plan:

- Adapting to Climate Change;
- Sustainable Development;
- Transport;
- Air Quality;
- Habitats and Biodiversity;
- Housing and Energy Conservation;
- Waste Minimisation and Recycling; and
- Community and Business Engagement

In terms of air quality, it was identified that there are synergies between the statutory duties for the betterment of public health and the aims of the Climate Change Strategy. A key focus is identified between air quality and climate change pollutants emitted from transportation

[24] Tonbridge and Malling Borough Council (2020), Tonbridge and Malling Climate Change Strategy

sources. Working to reduce the reliance upon personal travel and vehicle trips has two-fold benefits in reducing both local air pollutants and climate pollutants.

Further to the above a climate emergency has been declared by Tonbridge and Malling Borough Council with an aspiration for the borough to become carbon neutral by 2030, 20 years sooner than what Kent County Council have initially agreed to. As part of the declaration a drive for electric vehicle charging points is identified, this is to ensure that Tonbridge and Malling is one of the most welcoming places in the country for driving electric and hybrid vehicles.

1.2.8 Cycling Strategy

The Tonbridge and Malling Cycling Strategy (2014 – 2019)[25] provided a core collection of principals and actions to promote cycling and the development of cycling facilities across the borough. It was identified that an increase in cycling has a number of positive benefits, with one of which being an improvement in air quality within urban areas through a reduction in traffic congestion.

The aim of the Cycling Strategy was to increase the number people in within Tonbridge and Malling using cycling as a frequently used travel option. The strategy considered improvements to the network in terms of new cycle routes, improved infrastructure and also influencing attitudes to cycling to shift behavioural responses. The key features to deliver step change are associated with improving and expanding the existing cycling infrastructure, providing cycle safety training within schools and the workplace, promoting and marketing cycle usage and running events to raise cycling profile.

The development of a revised strategy, an Active Travel Strategy has begun and is currently in its early inception stage. Officers from the Environmental Health team will engage with the transportation team throughout the development of the new strategy. This is to ensure air quality is included as a material consideration and to identify the synergies between the strategy and this AQAP.

An increase in cycling and active travel will ultimately help achieve Tonbridge and Malling's vision for improved air quality conditions by reducing congestion on the roads, therefore reducing NO_x vehicle emissions and subsequent NO_2 concentrations.

[25] Kent County Council, Sustrans and Tonbridge and Malling Borough Council (2014), Tonbridge and Malling Cycling Strategy 2014 – 2019

1.3 Source Apportionment

Source apportionment is the process by which different pollutant sources to relation to existing ambient concentrations are quantified. The AQAP measures presented within this Plan are intended to be targeted towards the predominant sources of emissions within Tonbridge and Malling.

The source apportionment process has been completed in order to:

- Quantify the proportions of NO_x that are attributable to both background emissions and to local road emissions;
- Determination of the relative contributions from different vehicle types (cars, Heavy Good Vehicles (HGVs), Light Goods Vehicles (LGVs), buses and coaches, and motorcycles); and
- Identification of whether action plan measures would need to be on a local / regional / national scale to have a significant impact upon reducing NO_x emissions within the existing AQMA areas.

A source apportionment exercise has been carried out using the ADMS-roads (Version 4.1.1) dispersion model to identify and assess the emission profile of vehicles within Tonbridge and Malling based upon the traffic data and receptors detailed within the AQMA review[9]. To complete this exercise, NO_x and NO_2 concentrations have been predicted at a number of receptor locations within, and close to each AQMA. The source apportionment studies have been undertaken to identify which vehicle type(s) represent the most significant source of NO_x pollution within all existing AQMA's, in addition to a borough wide exercise that encompasses all of the existing AQMAs.

Emission sources of NO_2 are dominated by a combination of direct NO_2 (f-NO_2) and oxides of nitrogen (NO_x), the latter of which is chemically unstable and rapidly oxidised upon release to form NO_2. NO_x, once emitted from vehicles undergoes a number of chemical reactions and disperses to form the NO_2 concentrations that are measured at roadside monitoring locations. Reducing levels of NO_x emissions therefore reduces levels of NO_2. As a consequence, the source apportionment study has considered the emissions of NO_x which are assumed to be representative of the main sources of NO_2.

1.3.1 M20 Air Quality Management Area (1)

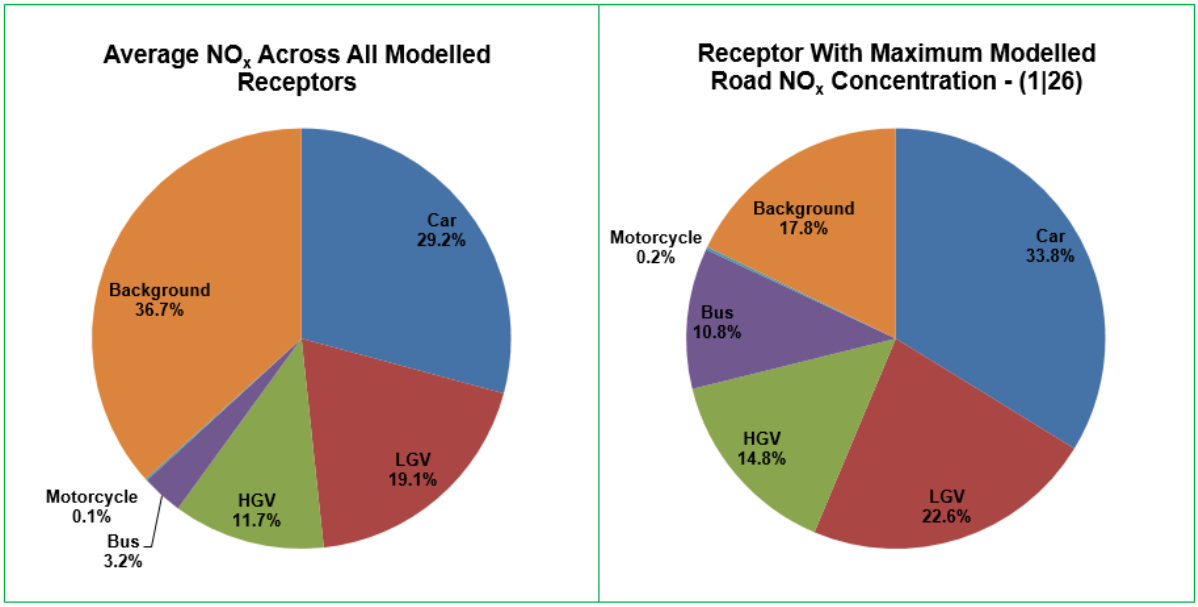
For the M20 AQMA, of the 39 modelled receptor locations, exceedances of the annual mean NO_2 objective have been predicted at nine receptors, and one further receptor had an annual mean predicted to be within 10% of the objective. As detailed below in Table 0.1 and Figure 0.1, the results of the source apportionment exercise present that across all modelled

receptors the vehicular proportion of NO_x concentration is 63.3%, and this increases to 82.2% at the receptor with the maximum modelled concentration. Across both source apportionment scenarios, the proportion of vehicular sources ranks high to low through cars, LGVs, HGVs, bus and coaches, and motorcycles.

Table 0.1 – Source Apportionment: M20 Air Quality Management Area

Metric	All Vehicles	Car	LGV	HGV	Bus & Coach	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration ($\mu g/m^3$)	37.2	17.2	11.2	6.9	1.9	0.1	21.5
Percentage of Total NO_x	63.3%	29.2%	19.1%	11.7%	3.2%	0.1%	36.7%
Percentage Contribution to Road NO_x	100.0%	46.1%	30.1%	18.5%	5.0%	0.2%	-
Receptor With Maximum Modelled Road NO_x Concentration (1|26)							
NO_x Concentration ($\mu g/m^3$)	102.2	42.0	28.1	18.4	13.5	0.3	22.2
Percentage of Total NO_x	82.2%	33.8%	22.6%	14.8%	10.8%	0.2%	17.8%
Percentage Contribution to Road NO_x	100.0%	41.1%	27.5%	18.0%	13.2%	0.3%	-

Figure 0.1 – Source Apportionment: M20 Air Quality Management Area



1.3.2 Tonbridge High Street Air Quality Management Area (3)

For the Tonbridge High Street AQMA, of the 28 modelled receptors there were no exceedances of the annual mean NO_2 objective predicted within the AQMA, however the most recent monitoring concentrations published within the 2018 ASR presented locations

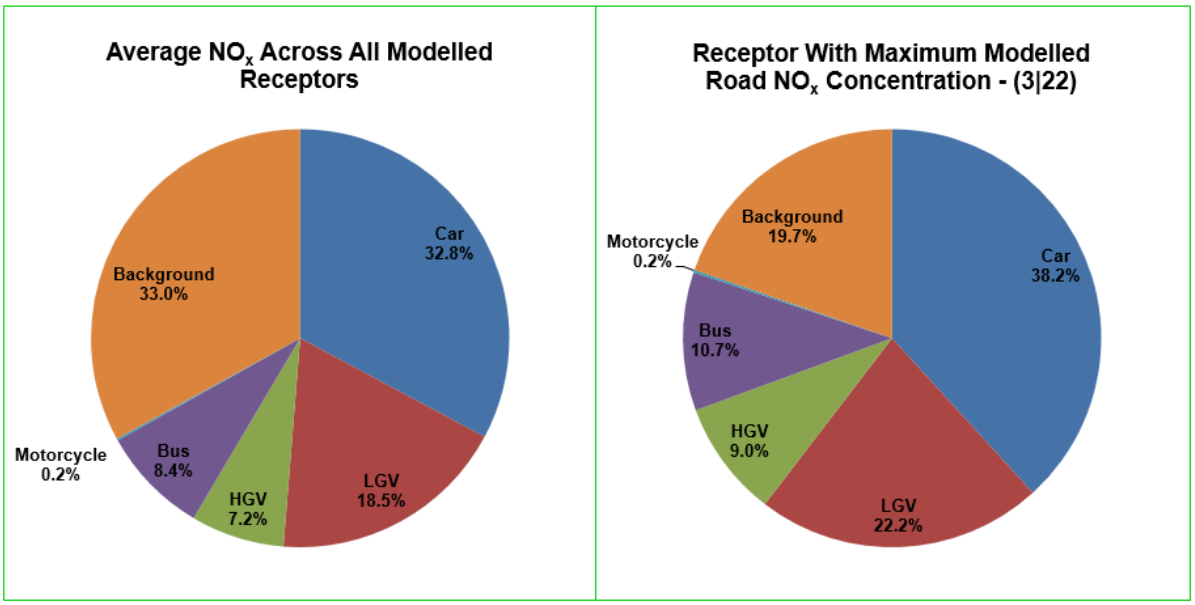
with annual means within 10% of the objective. As detailed below in Table 0.2 and Figure 0.2, the results of the source apportionment exercise present that across all modelled receptors the vehicular proportion of NO_x concentration is 67.0%, and this increases to 80.3% at the receptor with the maximum modelled concentration. Across both source apportionment scenarios, the proportion of vehicular sources ranks high to low through cars, LGVs, bus and coaches, HGVs, and motorcycles.

There is less of a proportion of HGVs compared to buses and coaches across both assessment scenarios. Tonbridge High Street would not be a through-fare route taken by HGVs, only service vehicles requiring to enter this area would travel along the High Street. In contrast there are a number of bus stops located along the length of the High Street with a number of different services travelling along this stretch.

Table 0.2 – Source Apportionment: Tonbridge High Street Air Quality Management Area

Metric	All Vehicles	Car	LGV	HGV	Bus & Coach	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration ($\mu g/m^3$)	32.2	15.8	8.9	3.5	4.0	0.1	15.9
Percentage of Total NO_x	67.0%	32.8%	18.5%	7.2%	8.4%	0.2%	33.0%
Percentage Contribution to Road NO_x	100.0%	49.0%	27.5%	10.8%	12.5%	0.2%	-
Receptor With Maximum Modelled Road NO_x Concentration (3|22)							
NO_x Concentration ($\mu g/m^3$)	62.4	29.7	17.2	7.0	8.3	0.2	15.3
Percentage of Total NO_x	80.3%	38.2%	22.2%	9.0%	10.7%	0.2%	19.7%
Percentage Contribution to Road NO_x	100.0%	47.6%	27.6%	11.2%	13.3%	0.3%	-

Figure 0.2 – Source Apportionment: Tonbridge High Street Air Quality Management Area



1.3.3 Wateringbury Air Quality Management Area (4)

For the Wateringbury AQMA, of the 23 modelled receptor locations, an exceedance of the annual mean NO_2 objective has been predicted at one receptor within the existing AQMA, and a further receptor located close to the boundary of the AQMA had annual mean concentration predicted to be within 10% of the objective. As detailed below in

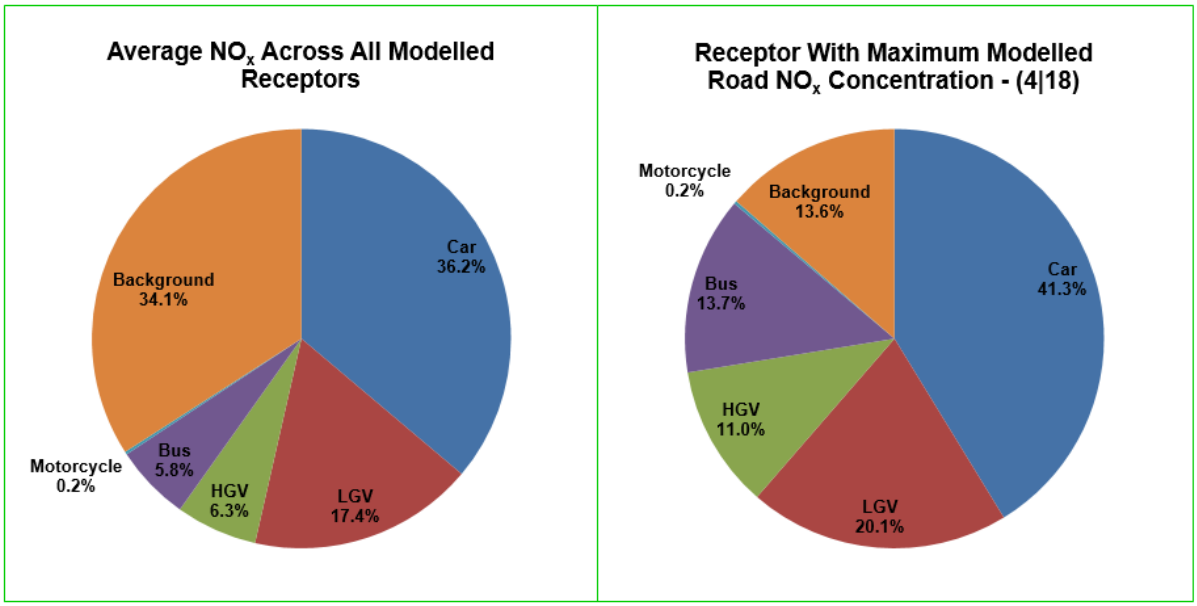
Table 0.3 and Figure 0.3, the results of the source apportionment exercise present that across all modelled receptors the vehicular proportion of NO_x concentration is 65.9%, and this increases to 86.4% at the receptor with the maximum modelled concentration. For the average of all modelled receptors, the proportion of vehicular sources ranks high to low through cars, LGVs, HGVs, bus and coaches, and motorcycles. But for the maximum NO_x concentration receptor the proportion from buses and coaches is greater than for HGVs.

Both the highest monitored and highest modelled concentrations are within the Wateringbury AQAMA. The AQMA is very small in size and is due to traffic congestion at a single cross-junction at the centre of Wateringbury. This can be seen with the high proportion of NO_x concentration from cars (41.3% at the receptor with the maximum NO_x concentration), this is the highest singular vehicle proportion across all existing AQMAs.

Table 0.3 – Source Apportionment: Wateringbury Air Quality Management Area

Metric	All Vehicles	Car	LGV	HGV	Bus & Coach	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration ($\mu g/m^3$)	27.3	15.0	7.2	2.6	2.4	0.1	14.1
Percentage of Total NO_x	65.9%	36.2%	17.4%	6.3%	5.8%	0.2%	34.1%
Percentage Contribution to Road NO_x	100.0%	54.9%	26.4%	9.5%	8.9%	0.3%	-
Receptor With Maximum Modelled Road NO_x Concentration (4|18)							
NO_x Concentration ($\mu g/m^3$)	89.9	43.0	21.0	11.5	14.3	0.2	14.2
Percentage of Total NO_x	86.4%	41.3%	20.1%	11.0%	13.7%	0.2%	13.6%
Percentage Contribution to Road NO_x	100.0%	47.8%	23.3%	12.8%	15.9%	0.3%	-

Figure 0.3 – Source Apportionment: Wateringbury Air Quality Management Area



1.3.4 Aylesford Air Quality Management Area (5)

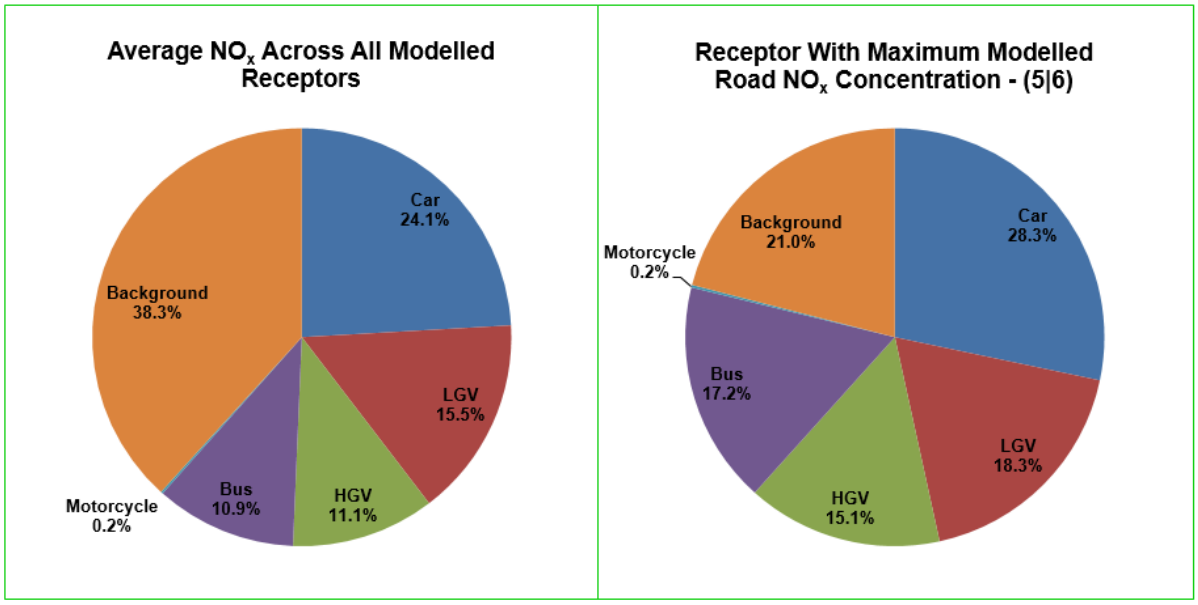
For the Aylesford AQMA, of the 16 modelled receptor locations, there was one predicted exceedance of the annual mean NO_2 objective, and one additional receptor predicted to be within 10% of the objective. As detailed below in Table 0.4 and Figure 0.4, the results of the source apportionment exercise present that across all modelled receptors the vehicular proportion of NO_x concentration is 61.7%, and this increases to 79.0% at the receptor with the maximum modelled concentration. For the average of all modelled receptors, the proportion of vehicular sources ranks high to low through cars, LGVs, HGVs, bus and

coaches, and motorcycles. But for the maximum NO_x concentration receptor the proportion from buses and coaches is greater than for HGVs.

Table 0.4 – Source Apportionment: Aylesford Air Quality Management Area

Metric	All Vehicles	Car	LGV	HGV	Bus & Coach	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration ($\mu g/m^3$)	31.3	12.2	7.9	5.6	5.5	0.1	19.4
Percentage of Total NO_x	61.7%	24.1%	15.5%	11.1%	10.9%	0.2%	38.3%
Percentage Contribution to Road NO_x	100.0%	39.0%	25.1%	17.9%	17.6%	0.3%	-
Receptor With Maximum Modelled Road NO_x Concentration (5|6)							
NO_x Concentration ($\mu g/m^3$)	72.6	26.0	16.8	13.9	15.8	0.2	19.3
Percentage of Total NO_x	79.0%	28.3%	18.3%	15.1%	17.2%	0.2%	21.0%
Percentage Contribution to Road NO_x	100.0%	35.8%	23.1%	19.1%	21.7%	0.3%	-

Figure 0.4 – Source Apportionment: Aylesford Air Quality Management Area



1.3.5 Larkfield Air Quality Management Area (6)

For the Larkfield AQMA, there continues to be a monitoring location (TN106) that exceeds the NO_2 annual mean objective but there were no receptor locations predicted to exceed the objective. As detailed below in Table 0.5 and Figure 0.5, the results of the source apportionment exercise present that across all modelled receptors the vehicular proportion of NO_x concentration is 51.0%, and this increases to 67.8% at the receptor with the maximum

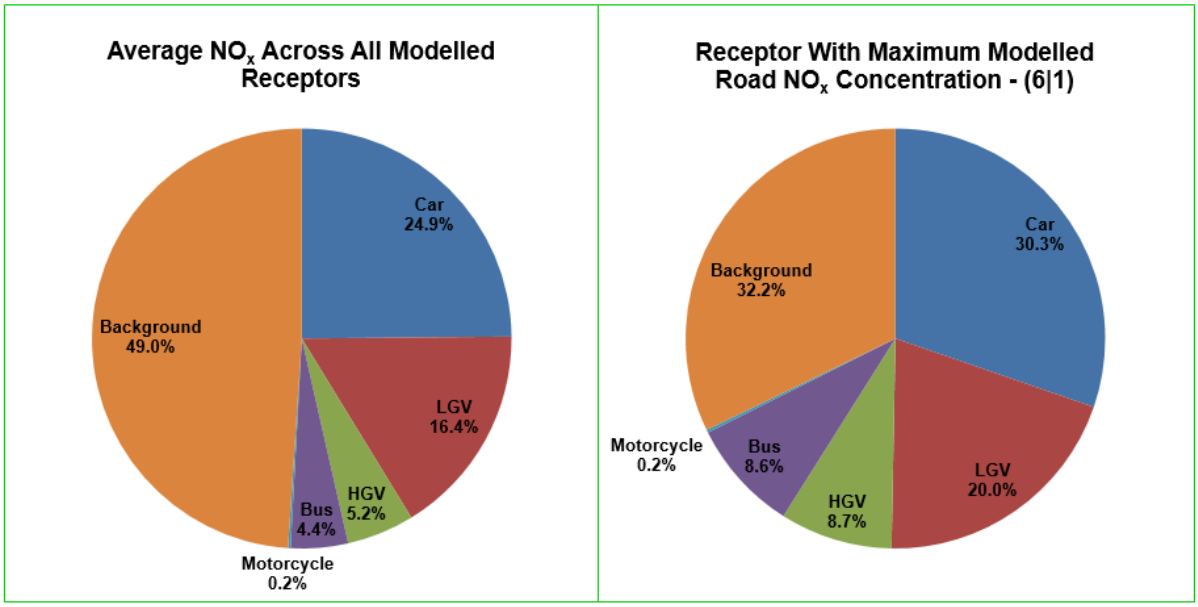
modelled concentration. Across both source apportionment scenarios, the proportion of vehicular sources ranks high to low through cars, LGVs, HGVs, bus and coaches, and motorcycles.

The proportion of NO_x concentration from background sources is higher within the Larkfield AQMA than for any other AQMA across both source apportionment scenarios. For all modelled receptors the proportions of vehicular sources and background sources are almost even (51.0% and 49.0%), background sources reduce to 32.2% at the maximum NO_x concentration receptor but this remains the highest proportion of background across all of the AQMAs.

Table 0.5 – Source Apportionment: Larkfield Air Quality Management Area

Metric	All Vehicles	Car	LGV	HGV	Bus & Coach	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration ($\mu g/m^3$)	20.8	10.1	6.7	2.1	1.8	0.1	19.9
Percentage of Total NO_x	51.0%	24.9%	16.4%	5.2%	4.4%	0.2%	49.0%
Percentage Contribution to Road NO_x	100.0%	48.7%	32.1%	10.2%	8.6%	0.4%	-
Receptor With Maximum Modelled Road NO_x Concentration (6|1)							
NO_x Concentration ($\mu g/m^3$)	41.6	18.6	12.3	5.3	5.3	0.1	19.7
Percentage of Total NO_x	67.8%	30.3%	20.0%	8.7%	8.6%	0.2%	32.2%
Percentage Contribution to Road NO_x	100.0%	44.7%	29.5%	12.8%	12.7%	0.3%	-

Figure 0.5 – Source Apportionment: Larkfield Air Quality Management Area



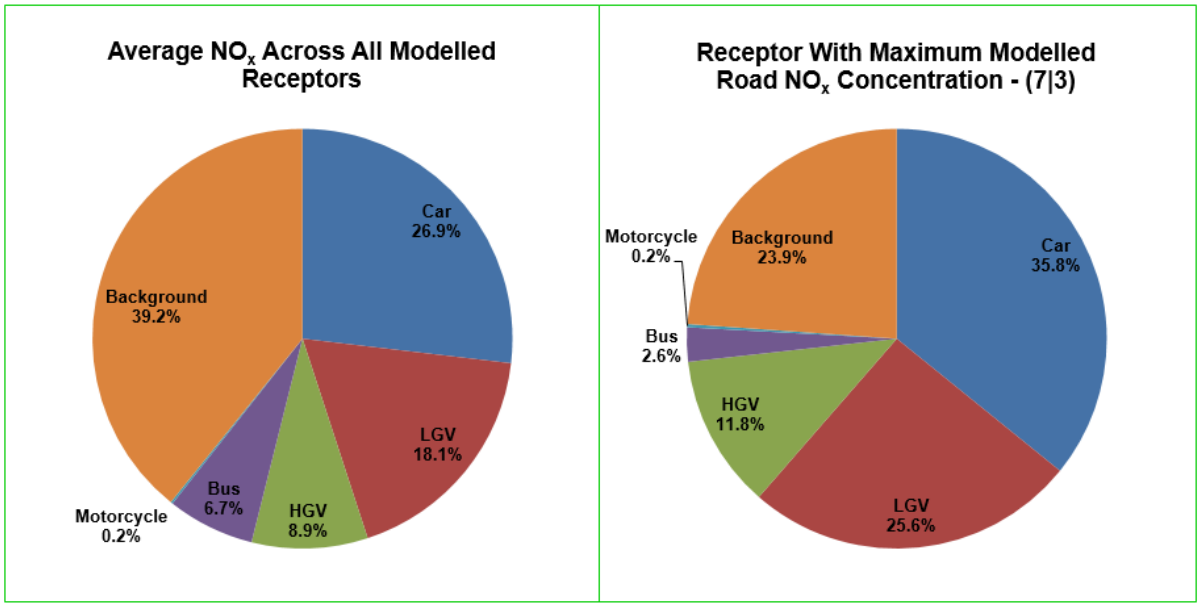
1.3.6 Borough Green Air Quality Management Area (7)

For the Borough Green AQMA, of the 49 modelled receptor locations, all receptor locations were predicted to be in compliance with the annual mean NO_2 objective, but there was one receptor predicted to have an annual mean to be within 10% of the objective. As detailed below in Table 0.6 and Figure 0.6, the results of the source apportionment exercise present that across all modelled receptors the vehicular proportion of NO_x concentration is 60.8%, and this increases to 76.1% at the receptor with the maximum modelled concentration. Across both source apportionment scenarios, the proportion of vehicular sources ranks high to low through cars, LGVs, HGVs, bus and coaches, and motorcycles.

Table 0.6 – Source Apportionment: Borough Green Air Quality Management Area

Metric	All Vehicles	Car	LGV	HGV	Bus & Coach	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration ($\mu g/m^3$)	26.4	11.7	7.9	3.9	2.9	0.1	17.1
Percentage of Total NO_x	60.8%	26.9%	18.1%	8.9%	6.7%	0.2%	39.2%
Percentage Contribution to Road NO_x	100.0%	44.2%	29.8%	14.7%	11.1%	0.3%	-
Receptor With Maximum Modelled Road NO_x Concentration (7|3)							
NO_x Concentration ($\mu g/m^3$)	53.6	25.3	18.0	8.3	1.9	0.2	16.8
Percentage of Total NO_x	76.1%	35.8%	25.6%	11.8%	2.6%	0.2%	23.9%
Percentage Contribution to Road NO_x	100.0%	47.1%	33.6%	15.6%	3.5%	0.3%	-

Figure 0.6 – Source Apportionment: Borough Green Air Quality Management Area



1.3.7 All Air Quality Management Areas

In addition to the source apportionment that has been completed within each of the six AQMAs, an assessment across all AQMAs has been complied to better assess the source contributions of NO_x across the borough as a whole. As would be expected, due to the assessment of each AQMA, out of the vehicular sources it is the car proportion that is the highest, this is true both in terms of the average across all modelled receptors and for the average across receptors with a predicted NO_2 concentration greater than 40µg/m^3.

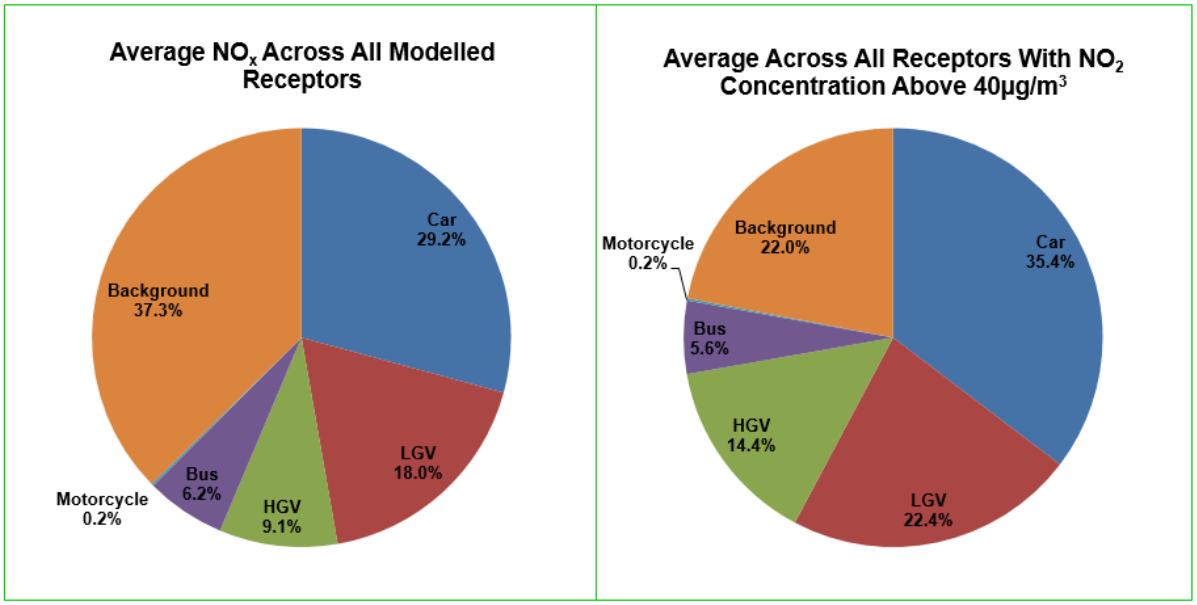
When comparing all receptors to those with NO_2 concentrations greater than 40µg/m^3 it can be seen that there is much less of a contribution from background, 37.3% compared to 22.0%. At the receptors that have been predicted to be in exceedance of the AQS annual mean objective close to 80% of the NO_x contribution is predicted to be from vehicular sources, with the highest proportion of the vehicular source to be from cars (35.4%).

The above emphasises that localised road traffic is contributing to the elevated concentrations recorded within the AQMAs, background pollutant concentrations within the AQMAs are exacerbated by road traffic emissions. It can be seen that cars and LGVs are contributing the most to NO_x concentrations, therefore there has been an emphasis upon these vehicular groups within the development of the action plan measures.

Table 0.7 – Source Apportionment: All Air Quality Management Areas

Metric	All Vehicles	Car	LGV	HGV	Bus	Motorcycle	Background
Average Across All Modelled Receptors							
NO_x Concentration (µg/m^3)	30.1	14.0	8.6	4.4	3.0	0.1	17.9
Percentage of Total NO_x	62.7%	29.2%	18.0%	9.1%	6.2%	0.2%	37.3%
Percentage Contribution to Road NO_x	100.0%	46.6%	28.7%	14.5%	9.8%	0.3%	-
Average Across All Receptors With NO_2 Concentration Greater Than 40µg/m^3							
NO_x Concentration (µg/m^3)	71.5	32.4	20.5	13.2	5.2	0.2	20.1
Percentage of Total NO_x	78.0%	35.4%	22.4%	14.4%	5.6%	0.2%	22.0%
Percentage Contribution to Road NO_x	100.0%	45.3%	28.7%	18.5%	7.2%	0.2%	-

Figure 0.7 – Source Apportionment: All Air Quality Management Areas



1.3.8 Summary

The source apportionment assessment, completed individually in relation to each of the six designated AQMAs and in combination, has confirmed that the dominant source in regard to NO_x emissions across all of the designated AQMAs is from local road transport sources. In terms of the different vehicles that contribute to the overall vehicle NO_x source, although the specific percentages vary between each AQMA there is a clear trend for cars and LGVs contributing the highest proportion of NO_x emissions and motorbikes contributing the lowest. In terms of the car and LGV contribution, the majority of NO_x emissions are from diesel fuelled vehicles due to NO_x emissions being on average ten times higher from a diesel vehicle rather than a petrol vehicle The proportion of HGVs and Buses and Coaches varies between AQMAs with HGVs provided a higher proportion within the M20 AQMA, and in contrast Buses and Coaches providing a higher proportion within the Tonbridge High Street AQMA.

Based upon the findings from the source apportionment exercise, and from the nature of the existing AQMAs (designated to include / located close to strategic road links and / or traffic junctions), local traffic management and sustainable transport action plan measures may assist in reducing NO_x emissions, and subsequently NO_2 concentrations within the designated AQMAs and across the borough as a whole.

1.4 Required Reduction in Emissions

In line with the methodology presented in Box 7.6 of TG(16)[7], the necessary reduction in Road NO_x emissions required to bring the each current AQMA into compliance is calculated below, as shown in Table 0.8. This has been completed at the maximum annual mean

concentration location, either monitored or modelled, for each existing AQMA. The TG(16) procedure calculates the required reduction of road NO_x to achieve a total NO_2 concentration of 40µg/m^3. To take into account possible uncertainties with dispersion modelling, and also the degree of potential inaccuracy with diffusion tube monitoring a figure of 36µg/m^3 for total NO_2 concentration has been used instead (10% lower than the annual mean AQS objective). This has been used as a conservative conservation target to ensure that an AQMA is only revoked once NO_2 concentrations are confirmed to be below the AQS objective.

Table 0.8 – NO_x Reduction Required Within Each Air Quality Management Area

Metric	AQMA 1	AQMA 3	AQMA 4	AQMA 5	AQMA 6	AQMA 7
Maximum monitored/modelled NO_2 concentration (µg/m^3)	51.6	39.0	58.1	46.5	42.0	39.6
Road NO_x Concentration (µg/m^3)	83.2	57.9	110.2	45.9	59.4	57.7
Required Road NO_x Reduction (µg/m^3)	38.6 (46.4%)	7.1 (12.2%)	64.3 (58.4%)	25.4 (35.6%)	14.2 (23.9%)	8.5 (14.7%)

1.5 Key Priorities

Based on the information presented with Section 0, and the conclusions drawn from this, there are a number of separate area of action than can be defined.

1.5.1 Priority 1: Transport

The main source of air pollution that has caused the declaration of the AQMAs across Tonbridge and Malling is associated with road transport emissions. Therefore, reducing transport emissions through the measures contained within the AQAP are a key priority. The approach taken focuses on areas where the Tonbridge and Malling has direct control (e.g. planning and procurement of outsourced functions), or areas where measures can be implemented via a partnership e.g. with National Highways (in terms of the M20 AQMA) and / or Kent County Council.

1.5.2 Priority 2: Planning and Infrastructure

The new Local Plan, through LP:20 and subsequent policies sets out the considerations that will be applied by Tonbridge and Malling Borough Council when considering all development proposals. The Council will work with developers and partner organisations to ensure the delivery of infrastructure, services and community facilities necessary to develop and maintain sustainable communities, this is not just in terms of air quality but all relevant environmental aspects. Further Section 106 agreements are to be sought through developments to allow aspects of funding to the secured for future mitigation measures to be developed and implemented.

1.5.3 Priority 3: Policy Guidance

The existing strategies and policies currently adopted by Tonbridge and Malling Borough Council and by Kent County Council are key mechanisms for reducing emissions across the borough, most prevalent in terms of transport that has been identified as the main source of NO_x emissions and therefore NO_2 concentrations within the existing AQMAs. For effective reductions in NO_x emissions to be realised, in addition to the implementation of the measures outlined within the AQAP future revisions of Transport Plans, Freight Strategies, Climate Change Strategies, Cycle Strategies etc should all be completed with potential air quality impacts taken into account.

1.5.4 Priority 4: Public Health and Wellbeing

As discussed in further detail within Section 1.1, the impact of air pollution on public health is detrimental therefore improving air quality within the borough is a key priority. The main sources of air pollution in areas of public exposure within Tonbridge and Malling are from vehicle emissions from vehicles travelling on the road network within the borough. Aside from restricting vehicle usage through measures such as Clean Air Zones / Low Emission Zones, the most effective way to achieve a reduction in vehicle numbers is to change the attitudes / behaviour of the population towards travel. Tonbridge and Malling Borough Council are responsible for encouragement and facilitation of these changes through education and awareness as well as through schemes which incentivise change. Improving air pollution to ensure the health of the public is maintained requires a wide-reaching perspective and will therefore not be specific to the AQMA but instead aim to have a wider impact across the borough.

1.5.5 Priority 5: Air Quality Monitoring

Currently, NO_2 is monitored across Tonbridge and Malling using passive diffusion tubes and a continuous monitoring station. Air quality monitoring is a useful way to continually assess the extent of the air pollution problem within Tonbridge and Malling. It also assists in quantifying the improvements that have materialised as a consequence of implementing measures to reduce emissions, and as an evidence base for AQMAs to be revoked.

Development and Implementation of Tonbridge and Malling's AQAP

1.6 Steering Group

A steering group was established at the start of the update process to drive forward the development of the new AQAP. The core aim of the steering group was to identify measures for inclusion within the AQAP that would be both effective in terms of reducing NO_2 concentrations and also would be feasible in terms of implementation and delivery.

The steering group is composed mainly of Tonbridge and Malling Council officers from those Services with an interest or potential impact on air quality and who may have an influence on the action measures being considered. Members included officers from Environmental Protection, Planning Services, Environmental Health, Housing Services and also representatives from Kent County Council in terms of Highways and an external consultant Bureau Veritas. The officers have and continue to provide guidance in their respective areas of expertise to ensure selection, and continual evaluation of the most appropriate measures. Environmental Protection have taken the lead responsibility for the production, and any subsequent updates of the plan.

The first steering group meeting was held in December 2018 with subsequent meetings carried forward through 2019, 2020 and into 2021 to finalise the AQAP. The meetings included presentations and agendas covering an overview of the action planning process, the identification of the existing issues, with an assessment of the existing AQMAs and source apportionment exercise to inform all officers, followed by a period whereby the refinement of possible action measures was completed to those contained within the AQAP which have been agreed upon in terms of the most effective, feasible and cost-effective measures for Tonbridge and Malling Borough Council to pursue. In addition to the steering group meetings, separate individual meetings between Environmental Protection and officers from each department were also conducted in order to discuss measures in more depth.

It is thought that the steering group will continue to meet at regular intervals following the adoption of the AQAP. This is essential to provide progress reports on individual actions in relation to the AQAP measures, discuss any key lessons learnt from the continual implementation of the measures and to continue to discuss any new ideas in terms of future measures and actions within the borough.

1.7 Consultation and Stakeholder Engagement

In developing this AQAP, we have worked with other local authorities, agencies, businesses and the local community to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 0.1.

Table 0.1 – Consultation Undertaken

Yes/No	Consultee
Yes	Tonbridge and Malling Borough Council – all relevant departments
Yes	Kent County Council
Yes	Neighbouring Local Authorities
Yes	Local residents
Yes	Bodies representing local business interests and other organisations as appropriate

Public consultation was completed on the draft AQAP between 1st February and 30th April 2021 via an online questionnaire and email responses. The questionnaire consisted of sixteen questions relating to air quality within Tonbridge and Malling, and also to transportation choices for individuals. The survey was promoted on the Tonbridge and Malling website and via a press release arranged by the Councils communications team. Interested parties were also able to email views on the draft AQAP directly to the Council.

1.7.1 Consultation Outcomes

The results of the consultation were largely positive, with the generally feeling being that air quality issues within Tonbridge and Malling are very important. The confidence in the AQAP measures, in relation to additional ideas put forward, was mostly positive with a high number of the comments provided in-line with the AQAP measures to be taken forward to implementation.

A common theme in the responses received was the recommendation for the development of Junction 5 on the M25/M26 Motorway at Sevenoaks to include an off slip for M26 westbound traffic. Due to the limited availability of slip roads off the M25 in this area a large number of HGVs currently travel along the A25 rather than the M26, passing through Borough Green. It is acknowledged that this is a positive measure and the Council are committed to working with all relevant stakeholders (neighbouring local authorities, Kent County Council and engaging with National Highways) to raise the profile of this option and push for its implementation where possible.

Additionally, there were a number of responses that related to the possibility of changes to access rights to Tonbridge High Street, e.g. pedestrianisation, restriction of vehicle types, implementation of a one-way system. A number of these recommendations were explored during the measure appraisal stage by the steering group. Unfortunately, it was deemed that there was not enough political support and funding to initiate a major highways scheme such as this. Whilst these possible measures were excluded from this plan, they can be taken into consideration at a later date.

An analysis of the consultation responses and the comments provided through the consultation engagement are presented in Appendix B.

AQAP Measures

Throughout the development of the AQAP, a wide range of measures aimed at improving air quality within the six existing AQMAs and the wider borough have been considered. TG(16)[7] states that AQAPs should be adapted to every local situation and most importantly are seen as part of an integrated package of measures , particularly in relation to linking with other key policy areas.

An evaluation of all possible measures was initially undertaken by the Environmental Protection team and other offices within the steering group to complete the refinement of measures, taking into consideration their local knowledge, the source apportionment results and existing local council policies. There were a number of measures that were considered, but not included within the AQAP. These measures, along with the reasons for non-inclusion within the AQAP are detailed within Appendix C.

Having undertaken this evaluation process, the resultant action measures contained within this AQAP are considered the most effective, feasible and cost-effective to pursue in terms of potential air quality improvements within the AQMAs and the wider borough. Given that road traffic has been identified as the principal source of NO_x emissions and therefore NO_2 concentrations within the AQMAs, the measures presented below focus on the promotion of low / zero emission transport, traffic management improvements and improved community awareness.

Table 0.1 presents the Tonbridge and Malling Borough Council AQAP measures, it contains the following:

- a list of the actions that form part of the plan;
- the responsible individual and departments/organisations who will deliver this action;
- estimated cost of implementing each action (overall cost and cost to the local authority);
- expected benefit in terms of pollutant emission and/or concentration reduction;
- the timescale for implementation; and
- how progress will be monitored.

The progress of the implementation of each measure, as per TG(16)[7] will be reviewed annually, with details provided within subsequent ASRs completed following the implementation of the AQAP.

Table 0.1 – Air Quality Action Plan Measures

Measure Number	Measure	Category	Classification	Lead Authority	Lead officer	AQMA Covered	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
Transport											
1	Formation of an Enhanced Bus Partnership to help upgrade Bus Fleet	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	TMBC	Bartholomew Wren / Steven Saxbee (TMBC)	Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPI measured via the % of buses meeting a set EURO standard.	In areas of high bus usage, such as within the Tonbridge High Street AQMA an NO_2 in conjunction with other measures a reduction of between 1 – 3µg/m^3 is to be aimed for.		2021-2022	Establish or extend neighbouring QBP(s) to help drive up the quality and emissions performance of the local bus fleet. KCC have begun works relating to the National Bus Strategy and have set out a response to this to be followed by an implementation plan. Pursue funding opportunities from DfT, Defra and elsewhere as appropriate. To make sure cleaner buses are used on all routes, especially those operating through AQMAs.
2	Review Taxi/Private Hire Vehicle Policy and license fees, implement a strategy to encourage a switch to low emission vehicles	Vehicle Fleet Efficiency	Fleet Efficiency and Recognition Schemes	TMBC	Katie Shipman / Anthony Garnet (TMBC)	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPI measured via the % of taxis and private hire vehicles meeting a set EURO standard and to have the review completed by a set date.	To be confirmed once full fleet information is available – use of the Emissions Factor Toolkit (EFT) to define NO_x emission reductions for changes within the fleet per annum.		2025-2030	Support the review of taxi licensing policy to include options to reduce the age of vehicles in use, and to complete a review of licensing fees to work towards increasing the uptake of ULEVs. All vehicles to be petrol hybrid Euro 5 or petrol and diesel Euro 6 by 2025. By 2030 all vehicles to be zero or ultra-low emissions such as electric or liquid petroleum gas
3	Reduce emissions from local delivery HGV's/LGV's through the development of a Freight Quality Partnership	Freight and Delivery Management	Freight Partnerships for Town Centre Deliveries	TMBC	Steven Saxbee / Jeremy Whittaker (TMBC)	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPI measured via the % vehicles meeting a set EURO standard, and/or by the % of business participation in recognition schemes.	To be confirmed once fleet information is available – use of the EFT to define NO_x emission reductions for changes within a fleet.		2022	Opportunities for sustainable urban freight deliveries at existing locations and for new developments, can also help promote recognition schemes such as ECO Stars. Through Kent Invicta Chamber of Commerce etc and on media / website If LoCASE is extended past March 2020 then businesses can get grant from KCC up to 40% of costs towards low carbon and greener fuels projects (max £20,000) Advertise this on media / website
4	Develop and implement a borough-wide school transport scheme	Promoting Travel Alternatives	School Travel Plans	KCC	Relevant KCC officer/team to lead, Contact at TMBC to be Tamsin Ritchie	Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPIs to include the following: % reduction of children travelling to school in cars % of children cycling or walking to school. Number of schools implementing individual school travel plans.	Measure has the potential to have a medium to high impact upon short term NO_2 concentrations close to schools depending on the uptake of the schemes across the borough. On a borough wide scale a lesser impact upon on concentrations would be realised.		2021-2022	Walking buses, action to focus on school run drop offs, feasibility of school start time variations. Work closely with KCC in developing these travel plans and feasibility studies. Bike Smart (Tonbridge) Tonbridge schools (secondary) Anti-idling outside school gates. Signs Banners etc Walk to school needs to start organising in Jan for sept role out. Bike to school. Bike Week? dates?

Measure Number	Measure	Category	Classification	Lead Authority	Lead officer	AQMA Covered	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
5	Create Anti-idling zone at Tonbridge taxi rank Develop and enforce a borough wide anti-idling campaign	Traffic Management	Anti-Idling Enforcement	TMBC to lead but working closely with KCC Highways team where they have input	At TMBC, Katie Shipman / Anthony Garnet (Tonbridge taxi rank) Steven Saxbee (borough wide)	Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPI measured via an annual review of the number of fixed penalty fines and number of complaints received. After an initial year of results the % change in penalty fines and complaints can be quantified.	Measure is more an awareness raising tool, however it is also a useful measure to prevent vehicles idling and causing congestion in specific locations, which is a significant cause of emissions.		2022	Borough-wide anti idling enforcement at taxi ranks, bus stops, and outside schools etc. Social Media posts to encourage behavioural change. School case study to be chosen
6	Pilot a Car Club within the Council for individuals use in local communities	Promoting Travel Alternatives	Workplace Travel Planning	TMBC	Steven Saxbee / Jeremy Whittaker (TMBC)	Wateringbury, Aylesford, Larkfield	The introduction of pool cars can result in a reduction of approximately 20% in business mileage. KPI relating to usage at the Council can be measurements of reduction in annual mileage undertaken per team.	NO_x emission reduction achieved by the Council will be able to be calculated annually.		2022	Tunbridge Wells Borough Council operate a successful car club, to be contacted for information. Car club campaigns, possibility to include advertising and sponsorship opportunities. Contact Liberty at Kings Hill for setting up round the estate Also advertise Kent Journey share (when COVID-19 restrictions lifted)
7	Continue to explore traffic improvement options on various roads including Wateringbury crossroads, and the A25 at Borough Green emphasis on looking at capacity and flow	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	KCC/National Highways	Tim Middleton at KCC (with possible assistance from TMBC Technical Services)	Wateringbury, Borough Green	KPI to be formulated once option has been developed, to be based around vehicle turning counts and/or queuing statistics.	An improvement to the Wateringbury crossroads would aim to reduce NO_2 concentrations by between 1 – 5µg/m^3. Similarly the building of a westbound slip on the M26 at Sevenoaks could create similar improvements in the Borough Green AQMA		2026	Following the completion of a feasibility study a preferred option will be taken forward within Wateringbury. Continue to work with National Highways for improvements to J5 M25/M26 to include new slip road allow through traffic to favour M26 rather than A25
8	Encourage companies to continue to promote home working where possible	Other	Via the internet and other mechanisms	TMBC	Jeremy Whittaker / Steven Saxbee (TMBC)	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	Yearly surveys to companies for numbers of staff and number of days a week staff work at home	Small impact upon NO_2 concentrations from measure individually, estimated to be less than 5µg/m^3. Based on small uptake		To start in 2021 and be ongoing	To promote on website multimedia and targeted adds campaigns to local office-based companies using momentum from for home working from COVID-19 restrictions
Planning and Infrastructure											
9	Explore the process for standardising Section 106 agreement funding from development for AQ improvements	Policy Guidance and Development Control	Other Policy	TMBC	Steven Saxbee / Emma Keefe (TMBC)	Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPI may be the total number of Section 106 agreements secure in terms of AQ funding per annum, or the total amount of funding secured per annum.	N/A		Ongoing	Standardising the process for securing S106 agreements for AQ to be linked with planning department to ensure harmonious implementation. Conditions to be more specific in planning decisions regarding green energy, low emission vehicle and EV parking (policy compliant).
10	Installation of electric charging points within Council car parks throughout the borough	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	TMBC to lead with input from KCC	Andrew Young (TMBC)	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPI should include the number of EV charging points installed within the borough from a baseline year, and the number and % increase per annum.	Small impact upon NO_2 concentrations from measure individually, estimated to be less than 1µg/m^3 based upon a low to medium uptake.		2025	Council car parks, TMBC funded with possible assistance from KCC Applications to be made through OZEV schemes: Workplace Charging Scheme: WCS On-Street Residential Chargepoint Scheme: ORCS Electric Vehicle Homecharge Scheme: EVHS

Measure Number	Measure	Category	Classification	Lead Authority	Lead officer	AQMA Covered	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
11	Installation of green walls and increased vegetation across the borough	Other	Other	TMBC	Tamsin Ritchie /Steven Saxbee (TMBC)	Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	The number of green walls / vegetation installed within the borough per annum.	N/A		2024	Investigate areas like Wateringbury where results are close to hourly mean or increasing vegetation can made a difference Look into if grant funding is available To be installed as a physical barrier to increase distances between the road and pedestrians. See if can be done through planning applications
Public Information, Strategies and Policy Guidance											
12	Raise public awareness through the launch of a Travel Choices Campaign	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	TMBC to lead with assistance from KCC (see comments)	Tamsin Ritchie / Steven Saxbee (TMBC)	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	Usage statistics for public transport across the borough per annum.	Small impact upon NO_2 concentrations from measure individually, estimated to be less than 1µg/m^3.		2022	Possibility of partnership with 'Step Ahead of the Rest' KCC Active travel programme. Social Media advertising. Community projects
13	Prepare a new Local Cycling and Walking Infrastructure plan (LCWIP)	Promoting Low Emission Transport	Promotion of cycling	TMBC working closely with KCC	Bartholomew Wren (TMBC)	Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	Usage statistics for healthy travel across the borough per annum.	Identify infrastructure improvements to support existing and new communities to walk and cycle more frequently, through the provision of a more joined up route network. Work with partners including KCC Highways and Public Rights of Way.		2022	Identify if there any specific routes that can be improved upon or require the introduction of new routes.
13b	Delivery of identified cycling and walking schemes	Promoting Low Emission Transport	Promotion of cycling	KCC	Relevant KCC officer/team	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	KPIs to include: Usage of rental schemes. Numbers of cycle to work schemes Implementation of new routes per annum. Obtain figures from use of new cycle hub and Tonbridge station	Small impact upon NO_2 concentrations from measure individually, estimated to be less than 1µg/m^3 based upon a low to medium uptake.		2021-2030	Following the completion of the LCWIP, the identified cycling and walking routes will be improved / new routes are to be introduced. In addition cycle to work schemes are to be encouraged and supported through local campaigns, events and planning negotiations. Active travel to be promoted in partnership with KCC – Kent Connected. Tie in with 11. Bike Smart Tonbridge. Bike Smart Malling (Wrotham School). Tie in with 11
14	Education and encouragement in terms of air quality across the borough: public workshops, leaflet campaigns, advertising, approaching schools, businesses, community centres	Public Information	Via leaflets and other mechanisms	TMBC	Tamsin Ritchie (TMBC)	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	Usage statistics for public transport and zero emission transport options (walking and cycling) across the borough per annum. Most of the individual parts to this measure can be developed immediately, again it may be beneficial to have a KPI relating to implementation time.	Small impact upon NO_2 concentrations from measure individually, estimated to be less than 1µg/m^3.		2022	Available AQ information, current issues, what the council is doing paired with what the public can do as a bottom up approach. Provision of workshops, physical and digital leaflets, drop-in sessions, dedicated phone-line etc. Social media visibility is a key element with potential to link to other KES/ELES communications. Community Champions / case studies

Measure Number	Measure	Category	Classification	Lead Authority	Lead officer	AQMA Covered	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
15	Implement an improved public transport information platform	Public Information	Via the internet and other mechanisms	KCC	TBC	M20, Tonbridge, Wateringbury, Aylesford, Larkfield, Borough Green	Usage statistics for public transport across the Borough per annum.	Small impact upon NO_2 concentrations from measure individually, estimated to be less than 1µg/m^3.		2022	To include links to Kent Connected and options to download it on website. To include the provision of high-quality accessible information on sustainable travel, also the promotion of public transport use to incentivise usage. All available information to be linked to 'smarter cities' initiative.

Appendix A: Maps of Current Air Quality Management Areas

Figure A.1 – M20 Air Quality Management Area

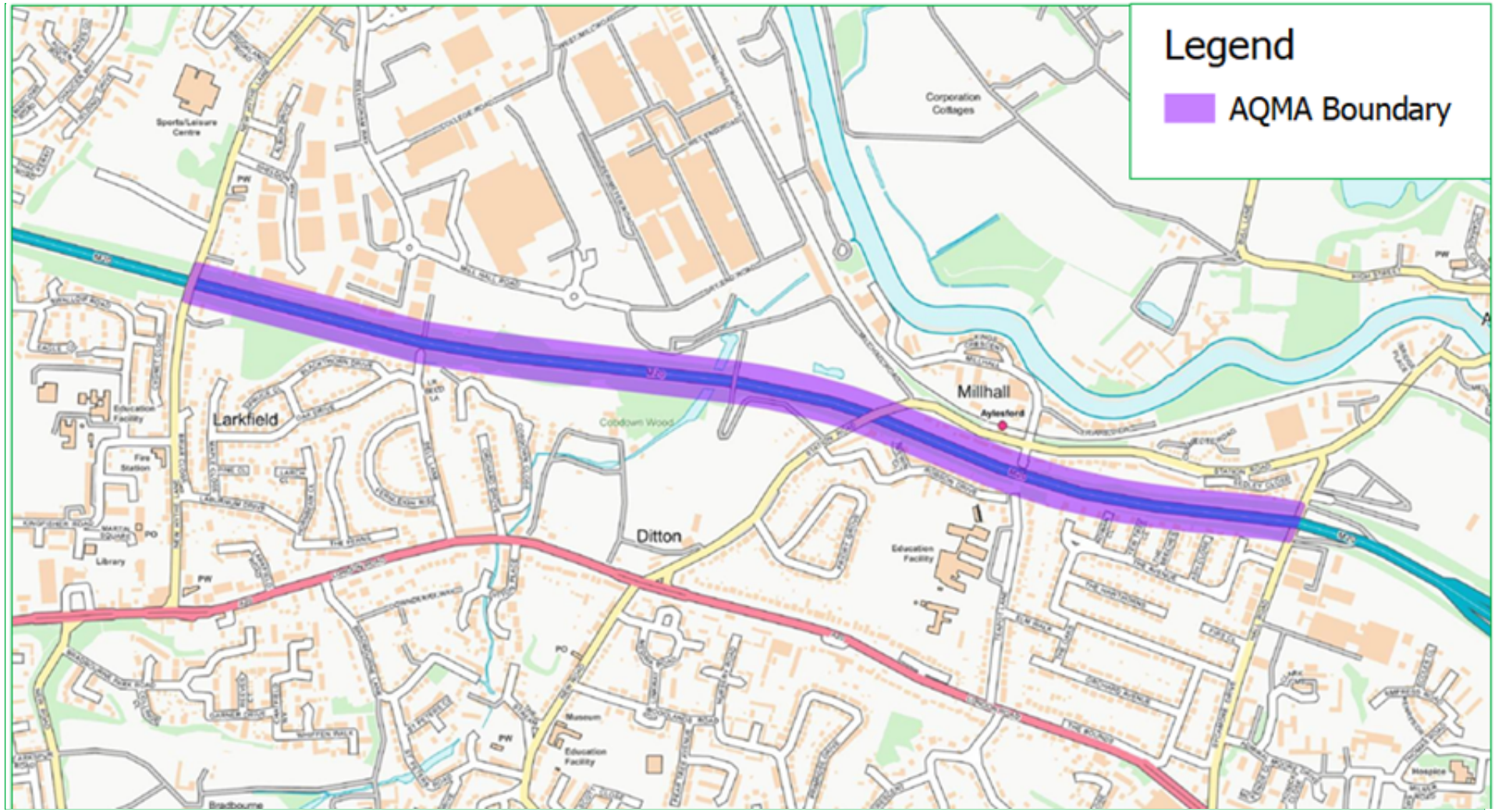


Figure A.2 – Tonbridge High Street Air Quality Management Area

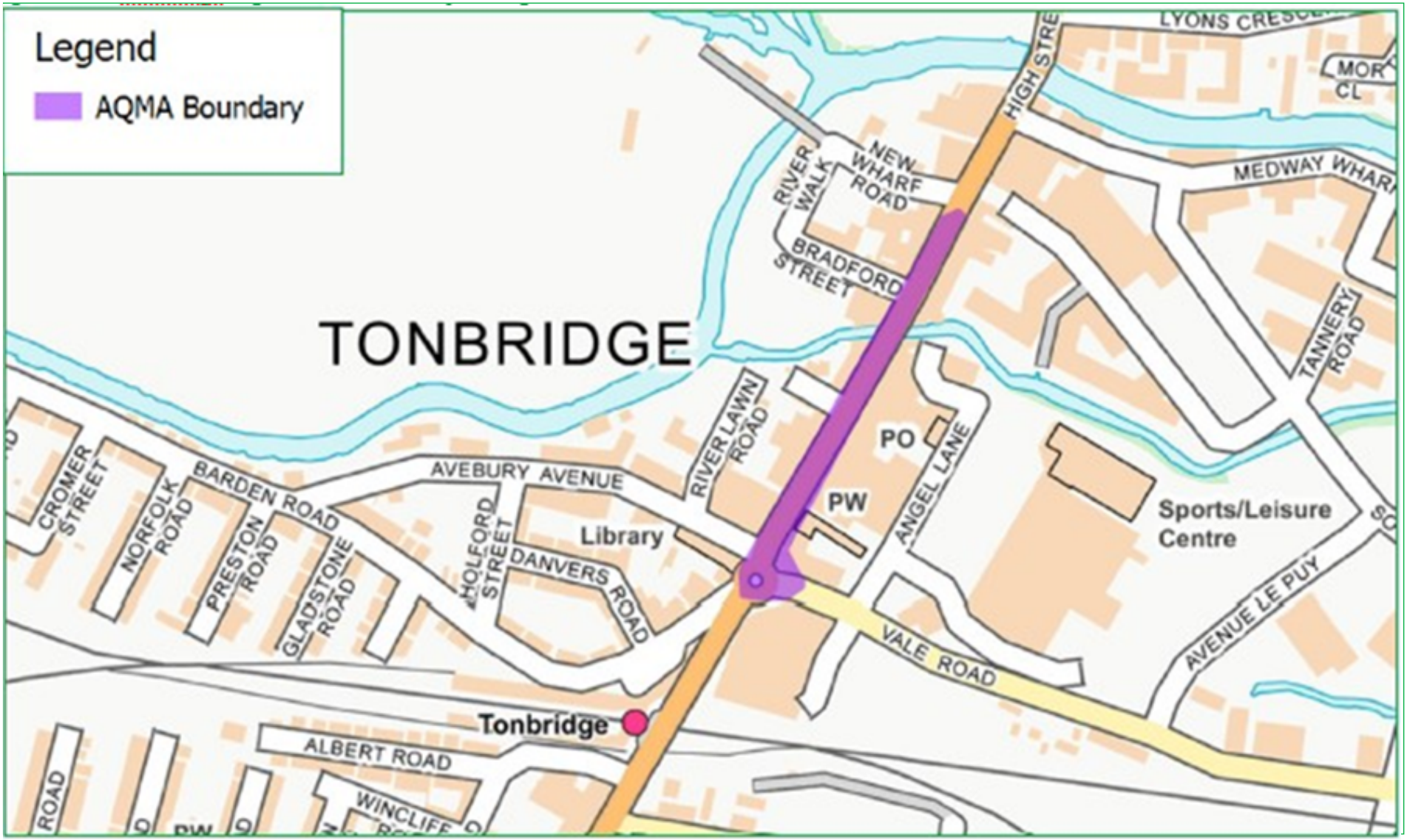


Figure A.3 – Wateringbury Air Quality Management Area

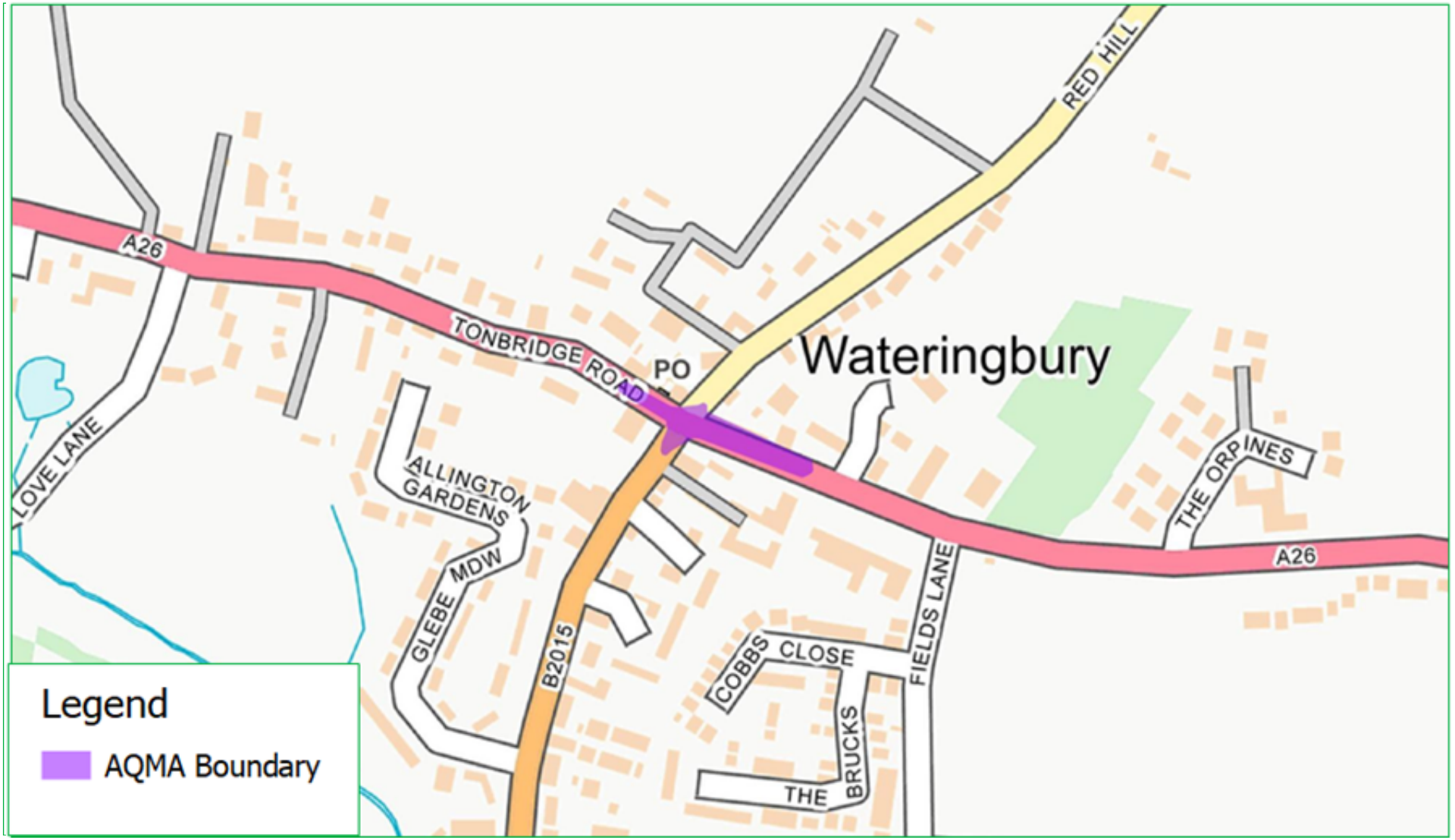


Figure A.4 – Aylesford Air Quality Management Area (Amended)

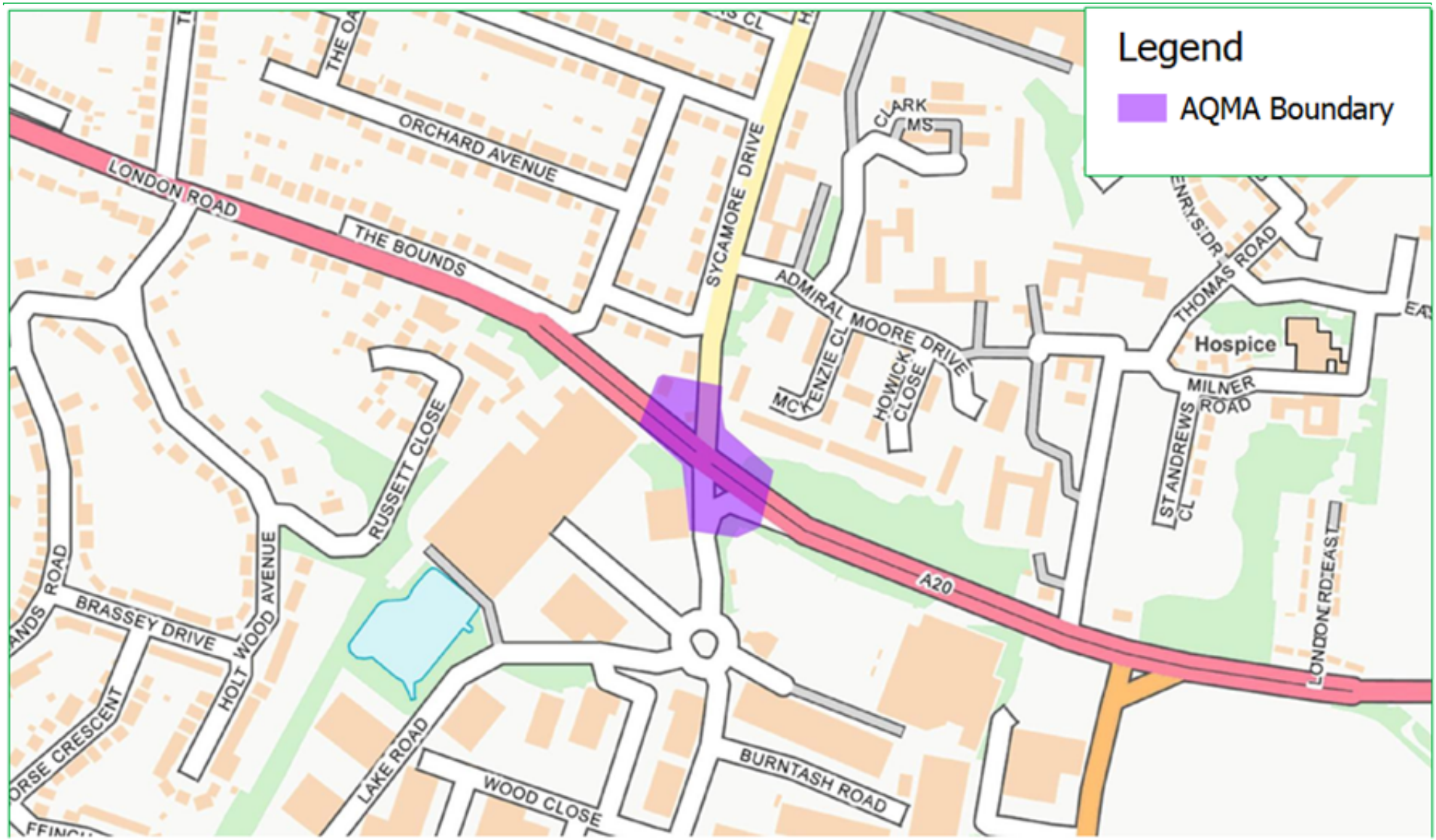


Figure A.5 – Larkfield Air Quality Management Area (Amended)

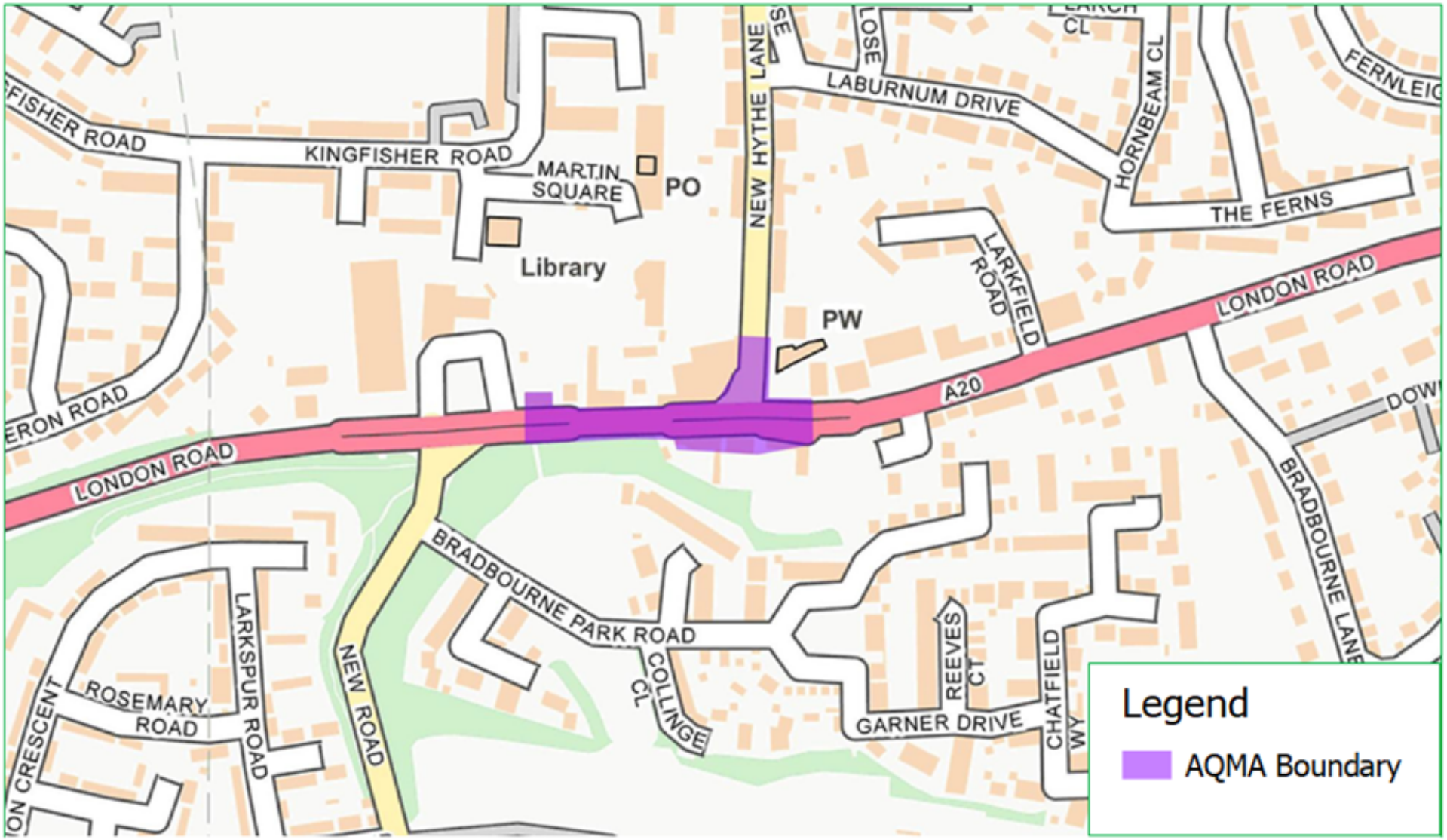
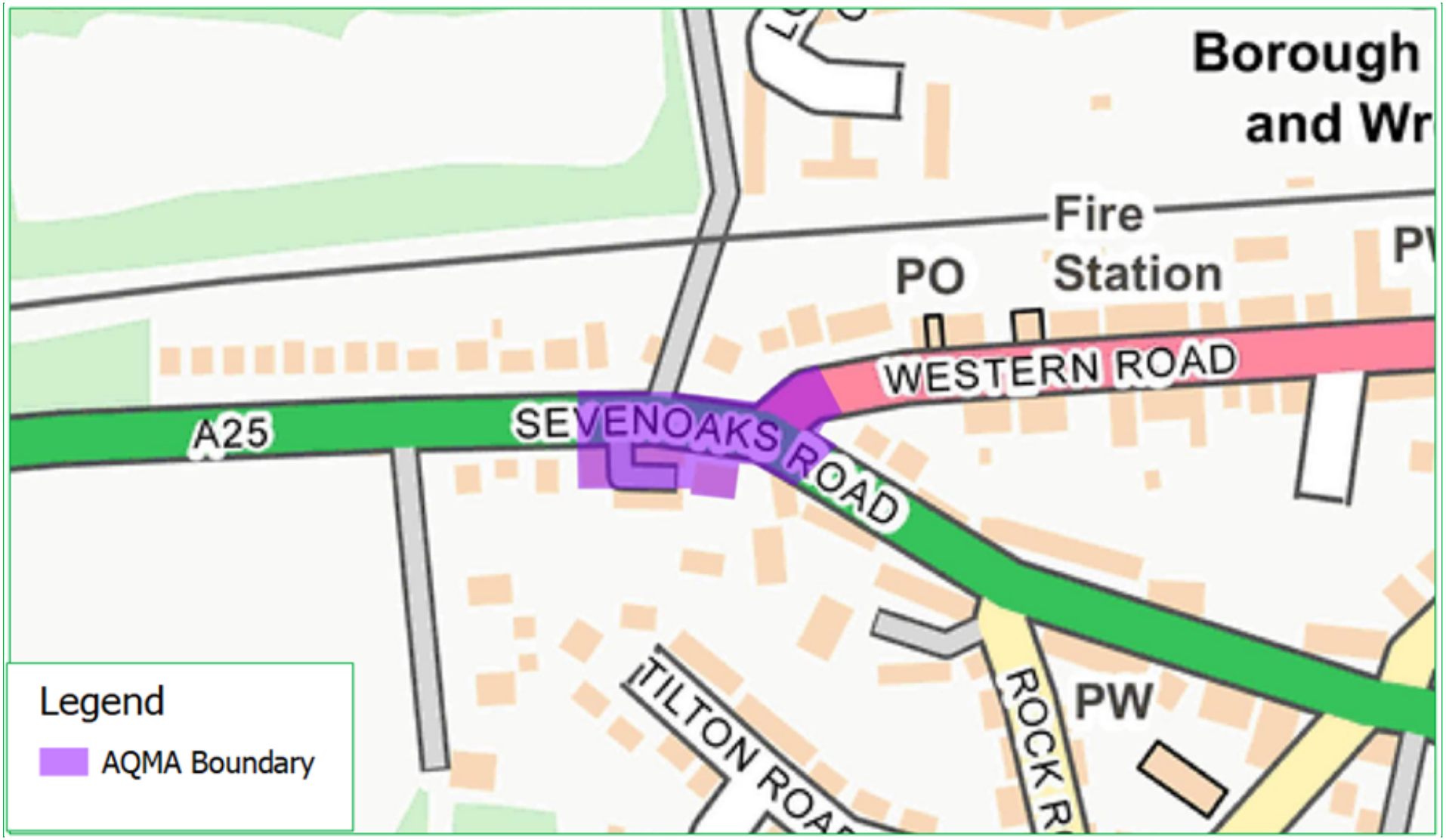


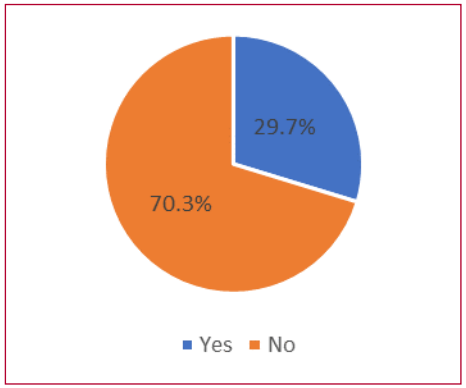
Figure A.6 – Borough Green Air Quality Management Area (Amended)



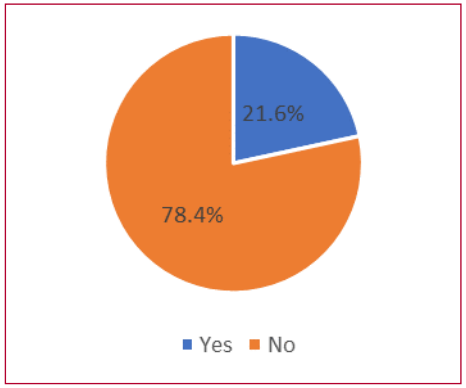
Appendix B: Response to Consultation

There were 74 responses to the consultation questionnaire that was circulated to inform the development of the AQAP. A summary of results from a number of the completed questions, based upon the 74 responses received, are presented in the charts below.

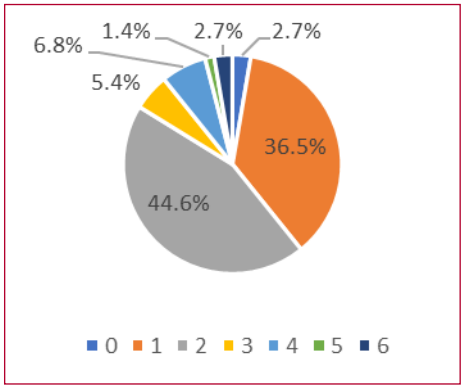
Question 1: Were you aware that Tonbridge and Malling currently has six Air Quality Management Areas?



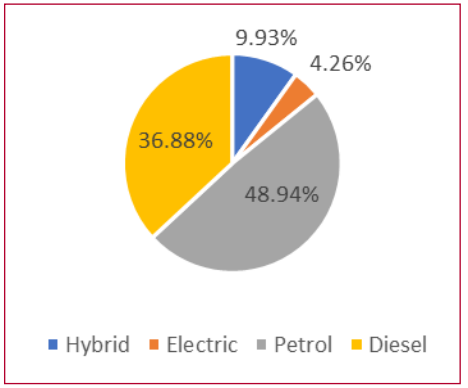
Question 3: Do you suffer from any medical conditions attributed to air pollution?



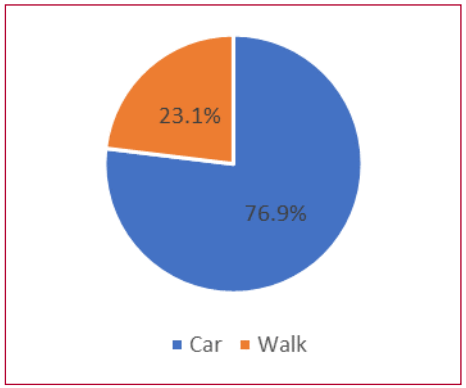
Question 4: How many vehicles are present within your household?



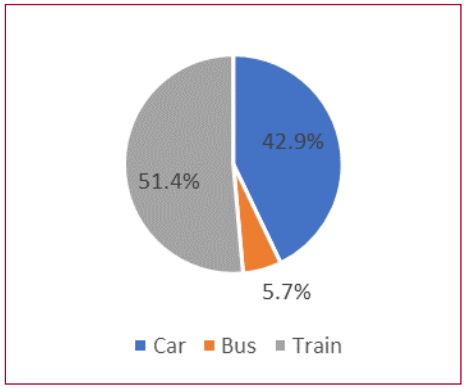
The percentage of different fuel types of all the vehicles detailed within the survey.



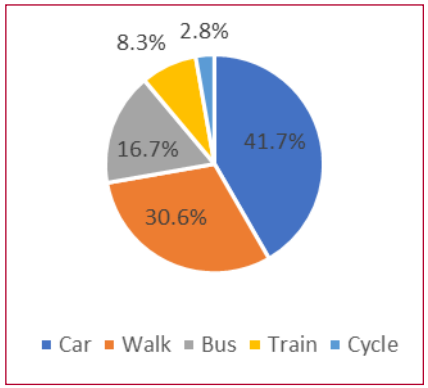
Question 5a: If you work within Tonbridge and Malling how do you get to work?

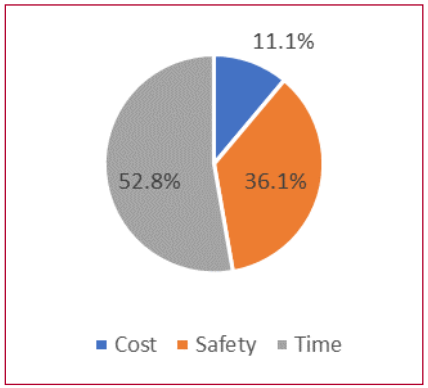


Question 5d: If you work outside of Tonbridge and Malling how do you get to work?

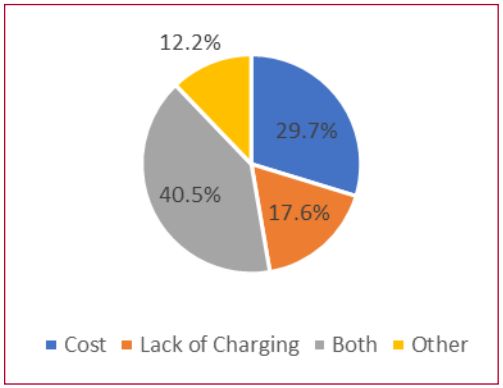


Question 6 and 7: How do your children travel to school? What influences your choice of travel?

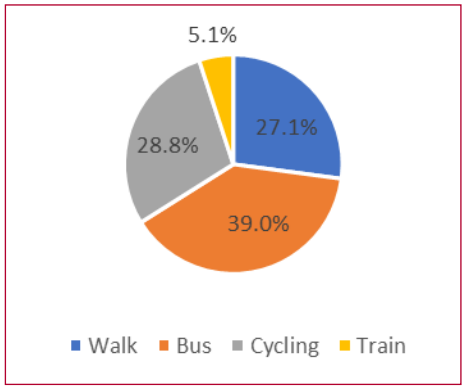




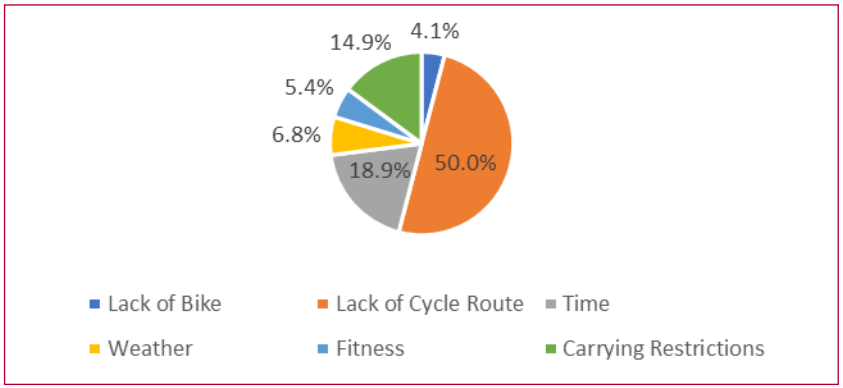
Question 11: What is the deciding factor(s) that would stop you from buying an electric car?



Question 13c: What mode of transport should Tonbridge and Malling Borough Council be promoting more?



Question 1dc: Within Tonbridge and Malling what barrier stops you from cycling to work?



All comments received through the consultation questionnaire are detailed in the table and text below. Any consultation responses that were not constructive towards the development of the AQAP have been removed.

Table B.1 – Summary of Responses to Consultation and Stakeholder Engagement on the AQAP

Consultee	Response
Members of the Public	Recent speed limit reduction is widely not being adhered to and measures to improve this would help. Giving pedestrians more priority crossings around schools would make walking easier
	Electric buses on local routes would be fantastic.
	Council seem to be paying lip service to zero emission. All council car parks and all car parks in kings hill should have EV charging. All new houses (of which there are plenty in kings hill) should be built with solar and ground source heat pumps. All council vehicles and buses should be EV. There should be incentives for using public transport and EV and disincentives for polluting vehicles. Idling should be banned everywhere (when people idle in front of my house esp on cold mornings my bedroom fills up with fumes even with all windows and vents closed).
	There is no traffic flow, too many lights and pinch points causing jams. There are no usable cycle routes, the traffic is very heavy and aggressive. At least in kings hill you can ride on the pathways
	Limit the amount of traffic going through the towns, it's not complicated. Pedestrianise Tonbridge High Street. Mostly focus on HGVs, as well as cars using the borough as a thoroughfare, rather than using the dual carriageways and motorways.

	We badly need a M25 J5 slip road. This council should be pushing to expedite this development. I can't understand why it's not happening.
	Please consider supporting the J5 slip road on M25 at Sevenoaks. This would greatly reduce the HGV traffic through our villages and make a huge difference to both air quality and safety.
	There are far too many Lorries coming through Borough Green. They seem to use it as a cut through to the motorways.
	Too many lorries and large vehicles on the A228 Platt. It's extremely dangerous to pedestrians, I take my child to school 25 miles away due to the pollution and how dangerous it is walking 10 mins to the local school. He is asthmatic and I do not want him breathing in more fumes than he needs to. Time again I have nearly been clipped by door mirrors walking along the footpaths, my dog actually has panic attacks walking there so we have to stick to the back roads.
	For cleaner air, get rid of diesel. Have diesel trucks unload at the edge of towns in mini depot areas and last part of journey can be done by electric vehicles like the old milk floats we used to know, or by petrol vans.
	Slip roads off M25 near junction of M5 would vastly improve air quality of all villages along that section of the A25.
	The missing J5 Slips in vicinity of M25 J5 Sevenoaks.
	First of all lower the speed limit borough wide, change traffic situation near Ightham school. Every 2 months a car is totalled. Also kids can't walk along the A25 towards the walking bridge safely. Once a car drove into the hedge on the sidewalk just before school ended. Make Ightham centre a one way road.circle around the A25 and roundabout. Kids are not able to walk from St Peters church to school because the road is too narrow near the pub. Make it one way and you can have a full walking path.
	J5 Slips to M25 M26
	Ensure large trucks stick to main A roads
	Need west facing slips onto the m25 at Sevenoaks
	Stop building houses in green belt land.
	Please consider J5 slip roads to reduce the high levels of heavy goods traffic that passes through Borough Green causing air pollution as well as noise and damage.
	Building 3000 houses as the Borough Green Garden City will increase the air pollution drastically in this area. Please reduce the number of properties proposed to avoid long term issues with air pollution and traffic congestion.
	You need to dramatically reduce the sheer volume of traffic, especially lorries, through Borough Green, Platt etc
	Take current areas where air quality is poor and areas where future development is likely and prioritise these for aggressive traffic reduction, green wall, sustainable transport measures. Consider how these areas will be affected by additional development and take advance action to mitigate these effects.
	Building a mass housing estate in the green belt is not the action of a council concerned about air quality. Leave the green spaces alone, get a decent local plan in place, and stop lorries thundering through our villages.
	The air quality around Borough green and Ightham and so the potential build of 3,000 new houses being built should be looked at as this will only increase the bad pollution

	Stop allowing or building new houses. The population is large enough and roads busy enough without adding more. Rewilding and planting or more trees should be a priority.
	Stop development along A20 corridor
	Borough Green badly need the proposed new relief road to improve AQA in the rest of the town. The new development is needed to achieve this.
	J5 Slips would be the single most action that could be taken to dramatically improve the air quality in this area. I live just off A25 which is permanently busy with cars & non-stop lorries coming off the motorway to drive & deliver to Sevenoaks. Our child is asthmatic too & the pollution will not be helping their health.
	More greenery everywhere, more cycle routes, make buses electric and increase no of buses - create a spoke system, more frequent and shorter routes with good interchanges and information.
	The introduction of J5 Slips on the M25 would drastically reduce traffic and air pollution through the villages along the A25. Preserve greenbelt to help CO_2 emissions i.e. do not build mass housing estate in Borough Green.
	Install an exit on the motorway at Sevenoaks. Have a comprehensive public transport system that is reasonably priced, always turns up on time and gets passengers to destinations on time
	Reduce traffic through Borough Green by opening J5 slip roads
	The 20mph scheme increases all forms of pollution. Get this removed to make an immediate improvement.
	This is a matter of urgency. Please work together as a council and community groups, putting politics aside. Less talking, time for action.
	You need to improve the local Bus service. You are never going to get more people on buses unless there is a more regular service.
	Junction 5 slip roads would drastically improve the air quality to the borough green area and beyond. Improved bus services to smaller villages to stations would reduce traffic.
	Junction 5 slips that would remove HGV and LGV TRAFFIC from areas like Borough Green, Platt, Seal & Wrotham Heath. They don't need to be here.
	Heavily discounted public transport for school children. The number of cars driving down our road dropping their secondary school aged children off at Toggs, Weald etc is ridiculous. Secondary school children should get to school under their own steam. I would cycle to work more often if there was a safe route between Tonbridge and Tunbridge Wells
	Subsidised public transport that is cheaper than owning or using a car
	If London and other metropolitan areas can introduce congestion charging and insist of low pollution vehicles, why can't TMBC?
	Please can you look at domestic wood burning stoves - the smoke from these is very polluting and impacts on whole neighbourhoods
	The Tonbridge High Street zone should be expanded up to the Pembury Road junction to capture data on the appalling traffic by the station and the excessively large taxi rank. There should be a comprehensive review of the traffic flow through the town. This should not be carried out by Kent Highways as they clearly do not have the expertise to develop such schemes.
	Like to see reduction of Speed to 30 in all major routes for example Hadlow Road / Cornwallis Avenue

	Stop trying to remove Green Belt Land , TMBC should object to the Tunbridge Wells Borough Draft Plan as over 50% of TWBC's housing allocation is on the border of TMBC, there will be significant air quality issues within Capel with over 4,000 new homes proposed with 1,000's of acres of Green Belt lost. Tonbridge will see a substantial deterioration in air quality due to these proposed developments as well as increased costs as people will continue to use cars from Tudeley Village to access Tonbridge, people will not use electric bikes or walk 4 km they will drive. The infrastructure burden from these proposals will be immense on TMBC, why should TMBC pay for all of TWBC costs and have further air quality issues.
	Integrated, cycle, train and bus. Travel passes for young people that include ALL forms of public transport and do not just serve to shore up bus companies. Work with rail companies to improve branch line timetables. Build link roads to main routes to divert through traffic away from villages. Consider impact of development on traffic. Build proper cycle routes, not white lines that disappear at junctions. Reduce speed and improve flow.
	Community Tree Planting
	Enter into a dialogue with Kent County Council about making Tonbridge High Street one way. Ask all schools and youth organisations in the borough to introduce or develop the Bikeability cycle training programme to encourage children and young people to ride safely and to help them develop a lifelong enjoyment and use of cycling as a means of transport. To clearly separate the areas within TMBC control and those outside it, such as KCC-controlled matters, and to focus on those it controls. To use their PLANNING powers to impose on developers the highest standards of non-fossil fuel heating - I saw no space elsewhere for this comment but this has a HUGE impact on Air Quality.
	Out of date data. With 20mph in Tonbridge air pollution has increased and more areas should be tested e.g. A227 by Sainsburys and York Parade. Well documented scientific evidence that 20mph increases air pollution. ALL MAIN "A" ROADS SHOULD BE NO LOWER THAN 30MPH. Also the connecting roads between A26 and A227 i.e. The Ridgeway and Yardley Park also 30mph. Keep housing estates off main roads at 20mph during peak school travel times, commuter times only. This will work better if monitored. At moment just frustration with drivers, worse driving, increased pollution and no police monitoring so no obeyed anyway.
	Decrease in air quality due to more vehicles on the road due to increase housing! Seriously look at your housing plan to stop estates being built on top of each other which would reduce traffic jams & areas getting clogged with traffic!!
	The points don't go far enough to be effective - Further action needs to be taken, look at pedestrianisation of public spaces, use of Low traffic neighbourhoods, one way streets, segregated cycle routes, reducing through traffic through the centre of town that could be applied borough wide. For example as a new resident to Tonbridge, I am shocked at the cut through traffic that uses Cannons Wharf as a rush hour rat run between the industrial estate and Tonbridge High Street, there is no way this should be a through route as there is not enough space for cars going in two directions in places, let alone at speed. This issue is worsened by the lack of parking controls, with cars parking all over the pavements reducing available road space further. This also leads to making the pavements hard to use and forcing pedestrians onto the road as there is no space for them. It seems an accident waiting to happen, when it seems no traffic should be really using this route to cut through and should be blocked off to by the gas work to separate the spaces and stop it from happening. It is unsafe, damaging the road surfaces and ultimately is feeding the pollution of the High Street and surrounding streets.
Tonbridge and Malling Green Party	While we broadly support the thrust of the Plan we fear that it is not ambitious enough and rather than seeking to reduce the effects of air pollution to the legal limit we should be aiming to improve air quality at every location in the Borough and taking a more holistic approach in terms of transport policy, highways infrastructure and new development. The response received was very detailed and a number of the points welcomed. A number of the key points of the consultation response were as follows: • We do not believe that the Action Plan as it stands will be enough to stimulate the necessary kind of modal shift away from the most polluting modes of transport or insists on more sustainable housing by demanding higher energy standards through an effective Local Plan. The highways infrastructure measures identified to tackle the increase in traffic generated by new developments will not the limit the damage many developments will inflict on neighbouring communities.

	• There is no mention of the developmental effects of poor air on children. The Tonbridge AQMA is in an area where many schoolchildren pass through on their way to and from school it is not just the effect on mortality rates, we should be concerned about but the lifelong effects that poor air quality has on our children and grandchildren. We have no particulate monitoring in Tonbridge and this pollution will endure irrespective of the phasing out of petrol and diesel engines. • The SW Tonbridge Site will only make the situation in the AQMA in Tonbridge worse. The Plan was submitted before the impact of the redesign of the road system had been factored in. The Brook Street Roundabout is far too constrained to allow it to mitigate the effect of over 500 potential houses either side of Lower Haysden Lane. • The need to draw up a Local Cycling, Walking Infrastructure Plan cannot be understated, cycling provision has stalled in Tonbridge and we require a comprehensive network of routes, preferably physically separated from roads to allow novice and young cyclists to make two wheels the preferred mode of transport and remove as many vehicles from the roads as possible. • The regeneration of Tonbridge Town Centre was done while completely ignoring the impact on the AQMA or active travel other than pedestrian access. The High Street is now a far more hostile place for cyclists and many now avoid the road and take other routes or cycle on the pavements. The cycleway at River Walk is completely invisible since it was resurfaced and we have a bizarre policy from this Council where it is fighting to prevent the registration of a bridleway at River Lawn which forms part of the cycle route from Big bridge to Avebury Avenue. • We need to see more use of our rail network to deliver freight which would have been possible at the Panattoni/Aylesford Newsprint site but the sidings are being developed. We need to reduce the number of HGVs in our AQMAs either by better signposting of alternative routes or restricting their access between certain hours. • Greater regulation of the bus network by a passenger transport executive to oversee the timetable and franchises could also compel the assignment of the cleanest vehicles to the most polluted routes. Restricting HGV movements through the AQMA has to be considered either by insisting on certain loading times outside of the most congested periods in Tonbridge High Street. • . The massive rises in the cost of school bus travel will lead to even more pupils being driven to school and more cars being on the roads, the direct opposite of the intention of the Freedom Pass when it was introduced. Young people are not encouraged to cycle between Tonbridge and Tunbridge Wells because of a completely inadequate cycle infrastructure especially the section between Bidborough and Brook Street and the section of Shipbourne Road between Yardley Park road and Portman Park. There is no obvious safe cycling route between most of North and South Tonbridge and the Local Cycling and Walking Infrastructure Plan needs to consider proposals for cycle routes along Hadlow Road. • We advocate the removal of more HGVs from Tonbridge High Street and making the High Street effectively one-way other than for buses and cyclists. Prioritising buses through this stretch will improve their efficiency and cyclists will also benefit. The removal of a lane of traffic during the refurbishment work was not as detrimental as first thought and mitigation measures at the Medway Wharf Road/Sovereign Way and Angel Lane/Vale Road junctions will further improve the flow of traffic. The suggestion is to carry out a three-month trial to evaluate alternatives to the current layout.
West Malling Parish Council	Planners should require the highest possible standards of sustainable design and tools designed to improve air quality. These should include: • A requirement to include alternative energy provision on all new developments. This could include a combination of solar power, deep and efficient ground source heat pumps and other renewable means of energy generation. Consideration should be given to stipulating that a proportion of the total energy input to new builds should come from renewable sources, to be determined at planning stage. • A further requirement that all new builds are equipped with the highest possible grade insulation materials, limiting heat loss, improving home efficiency and reducing energy usage • Electric car charging points wherever possible and as a requirement for new builds. In some instances, it will be possible to install exterior, standalone chargers and this should be encouraged. In other locations it will be necessary to consider other means, which could include simply having power connections provided to outdoor space.

	• Recognition of the power of planting as a means of dramatically improving air quality. Small quantities of trees are simply not effective and developers should be encouraged to include low-growing planting and species which are particularly effective at carbon capture such as cotoneaster wherever possible. • Consideration in larger developments of communal heating systems. These are often popular with residents and provide a cheap, effective and efficient way of heating homes. Lessons could be learnt here from ambitious proposals and developments overseas and in the UK, for example in the London Borough of Enfield. When it comes to commercial development, all of the above should apply at scale, in a way which reflects the increased energy and resource consumption of commercial activities. In addition to requiring developers to go further on clean air and sustainable design, planners should also work with residents to encourage the inclusion of similar systems and materials in upgrades and extensions to existing buildings. We are fully supportive of TMBC initiative of improving the quality of the air that we breathe. We would like to see an enhanced network of smaller electric buses. Delivery drivers could be incentivised to use electric HGV & LVG's through the premises they are delivering too. All taxi licences should cost less if the taxi is electric. Increased use of electric vehicles needs to run alongside a reduction journeys. There are many health benefits of walking and cycling but it is essential that the lack of feeling safe is addressed. It would be advantageous to have an enhanced network of 'Quiet Streets' where walking, then cycling, takes precedence. Idling should be banned outside schools, taxi ranks, pick-up points and shops. A huge number of more electric charging points are needed but an understanding of how this would work for residents, with no off-street parking, is essential. The speed of traffic needs to be reduced and implemented. The stopping of driveways being concreted over would reduce the rainwater which is now lost as it runs off into the streets. While green walls have a place in reducing air pollutants we also need our whole residential network to feel safer and be more environmentally friendly. Planters full of wild flowers could also be used for traffic calming. Hedgerow, which will lock up more carbon, could be planted alongside miles of Kent's roads. More trees in towns would provide shade as our climate warms.

Appendix C: Reasons for Not Pursuing Action Plan Measures

Table C.1 – Action Plan Measures Not Pursued and the Reasons for that Decision

Action Category	Action Description	Reason action is not being pursued (including Stakeholder views)
Traffic Management	Introduce permanent speed reduction zone on M20 (J3-5) on completion of smart motorway in 2020	National Highways Road – smart motorway has been implemented partly of AQ grounds – impact to be assessed before any further actions to be taken
Promoting Low Emission Transport	Council car fleet upgrades	Measure 6 to be taken forward following removal of all COVID-19 restrictions
Promoting Low Emission Transport	Taxi scrappage/retrofit scheme to upgrade vehicles over 5 years' old	Scrappage scheme would have to be on a national scale to have intended impact
Vehicle Fleet Efficiency	Collaborative waste fleet upgrades across the county	A number of different operators with a number of different contracts would make this too difficult to implement
Vehicle Fleet Efficiency	Pollution abatement equipment for local delivery HGVs/LGVs	Emissions from local delivery HGVs/LGVs to be targeted through a Freight Quality Partnership under Measure 3
Vehicle Fleet Efficiency	Clean van commitment, review of delivery routes through AQMAs, LGV delivery consolidation	Emissions from local delivery HGVs/LGVs to be targeted through a Freight Quality Partnership under Measure 3
Traffic Management	Restrictions on HGVs in AQMAs during Peak Periods/HGV's Routing	Emissions from local delivery HGVs/LGVs to be targeted through a Freight Quality Partnership under Measure 3
Traffic Management	Smart' traffic lights within Wateringbury looking at capacity and flow, trying to improve flow	The feasibility of other options to be looked at for Wateringbury junction
Promoting Low Emission Transport	Workplace parking levy's - payments linked to vehicle emission standards?	Charges based upon vehicle emission rates deemed non-inclusive, detrimental to lower-income groups
Promoting Travel Alternatives	Partial pedestrianisation of Tonbridge High Street	Major highways scheme is unrealistic at this time, to be reviewed periodically
Policy Guidance and Development Control	Review the Kent and Medway Air Quality and Development Control Guidance; adapt to TMBC and adopt	Air quality impacts of new developments to continue to be assessed by the Environmental Protection team where required
Promoting Travel Alternatives	Council and local businesses to promote a home working scheme to reduce car use	Home working to be promoted under Measure 8
Promoting Travel Alternatives	Encouragement of car sharing, campaign to reduce single occupancy trips	Public awareness campaign to be completed under Measure 12

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
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CAZ	Clean Air Zone
COMEAP	The Committee on the Medical Effects of Air Pollution
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
HGV	Heavy Goods Vehicle
EU	European Union
KCC	Kent County Council
LAQM	Local Air Quality Management
LGV	Light Goods Vehicle
NO_2	Nitrogen Dioxide
PCM	Pollution Climate Mapping
NO_x	Nitrogen Oxides
PHE	Public Health England
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