



Elmbridge Borough Council Air Quality Action Plan

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

2021 - 2026



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Executive Summary

Introduction

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. 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 because areas with poor air quality are also often the less affluent areas¹.

This report outlines the actions that Elmbridge Borough Council ('the Council') will deliver between 2021 and 2026 in order to reduce levels of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the Borough. It 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.

In 2021 the Council has 6 Air Quality Management Areas (AQMAs) which have all been declared due to exceedances of the legal objective for annual mean nitrogen dioxide (NO₂). The main priority of this Air Quality Action Plan (AQAP) is working to reduce these exceedances. The full details of the AQMAs, NO₂ monitoring locations and results are reported annually in the Council's Air Quality Annual Status Reports (ASRs).

This AQAP will be reviewed every five years at the latest and progress on measures set out within this AQAP will be reported on annually within the ASRs.

Community wellbeing and supporting communities to become healthier is a priority of the Council². In working towards improving air quality across the Borough, this AQAP upholds the Council priority in supporting communities to become healthier by reducing exposure to poor air quality.

¹ Barnes et al. Emissions vs exposure: Increasing injustice from road traffic-related air pollution in the United Kingdom. August 2019.

² Council Plan 2020/2021

We have developed actions within this AQAP that can be considered under five broad topics. These are summarised in the following sections.

Reducing Emissions from Transport

The greatest contributor to air pollution from within the Borough is road transport and all exceedances of legal air quality objectives within the Borough occur along main roads and within town centres. Reducing pollutant emissions from road transport is therefore vital to improving air quality in the Borough. AQAP measures within this theme focus on encouraging use of alternative transport modes through the improvement of pedestrian and cycling infrastructure, provision of electric vehicle charging infrastructure and reducing emissions from the Council's vehicle fleet. A key action within this theme will be the development and implementation of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Elmbridge which will identify where cycling and walking improvements are needed most and will set out a delivery plan for these improvements.

The Council will also work with Surrey County Council (SCC) to deliver wider strategies, such as the Surrey Climate Change Strategy and Low Emission Transport Strategy. These strategies include a range of actions which will be beneficial for air quality across Elmbridge.

Buildings and New Development

New development should be sustainable and aim to improve air quality where possible. The theme 'buildings and new development' encompasses AQAP measures that will ensure air quality is a consideration for new development, as well as measures to reduce pollutant emissions from existing buildings. A key action for the Council will be to embed air quality within the emerging Local Plan, through specific air quality policies and guidance.

Monitoring

Monitoring is essential for identifying where air quality issues occur and measuring the impact of measures aimed at improving air quality. Measures within this theme focus on ensuring effective monitoring is undertaken within the Borough for these purposes. Whilst levels of particulates do not exceed legal limits in Elmbridge, this pollutant is associated with a wide range of adverse health effects. A key action

under this theme is the Council's commitment to install a Particulate Matter (PM) monitor to establish a baseline for levels of this pollutant in the Borough, and to monitor progress in reducing PM levels.

Raising Awareness

Awareness-raising is important for informing and educating the public about air quality issues, so that decisions can be made regarding certain behaviours (for example, whether to drive or walk to work). In recent years, the Council has delivered a successful awareness-raising programme at schools across Elmbridge which involved a range of activities such as theatre performances, cycle training, anti-idling campaigns and air quality monitoring workshops. The Council will continue to work with the Surrey Air Alliance (SAA)³ to deliver the Schools Air Quality Programme and this is a key measure of the raising awareness theme. The Council will also continue to promote the AirAlert⁴ service and utilise their website to provide the latest air quality information to the public.

Lobbying and Partnership Working

Air pollution is a transboundary issue and therefore partnership working across local authorities is essential for tackling poor air quality.

A large proportion of air pollution in Elmbridge comes from outside the Borough, particularly PM_{2.5}. The World Health Organisation (WHO) sets out more stringent target levels for PM_{2.5} than the legal air quality objectives in the UK, and the Council has ambitiously committed to achieving the WHO level by 2030. This can only be achieved through partnership working with the Surrey Authorities to drive down levels of PM_{2.5} across the County. In September 2021 the WHO introduced even more stringent Guideline Values for particulates, the AQAP target will remain at the former Guideline Value of 10 µg/m³ for PM_{2.5}.

The Council will remain an active member of the SAA which facilitates partnership working across Surrey Authorities, as well as working with SCC to ensure air quality is considered appropriately in emerging county-wide strategies such as the draft Local Transport Plan 4.

³ The SAA is formed of officer representatives from all eleven District and Borough Councils, and SCC Highways and Public Health services.

⁴ <https://airalert.info/Surrey/Default.aspx>

Table of Contents

Executive Summary	i
Introduction.....	i
Reducing Emissions from Transport	ii
Buildings and New Development	ii
Monitoring.....	ii
Raising Awareness	iii
Lobbying and Partnership Working	iii
1 Air Quality in Elmbridge	1
1.1 AQMAs.....	1
1.2 Air Quality Monitoring	2
1.3 Air Quality Modelling	4
2 Elmbridge’s Air Quality Priorities	5
3 AQAP Measures	6
Appendix A: Glossary of Terms	19
Appendix B: Impacts of COVID-19 on Air Quality.....	20
Appendix C: Public Health Context	22
Appendix D: Planning and Policies Context	24
D.1 Elmbridge Borough Council Policies.....	24
D.2 Regional Overarching Policies and Plans	27
D.3 Surrey County Council Overarching Policies	28
Appendix E: Source Apportionment.....	31
E.1 Summary.....	31
E.2 Walton-on-Thames	32
E.3 Weybridge High Street.....	33
E.4 Hampton Court	33
E.5 Hinchley Wood	33
E.6 Esher High Street	33
E.7 Walton Road, Molesey.....	34
Appendix F: Required Reduction in Emissions.....	45
Appendix G: Estimated Reduction in Emissions.....	46
G.1 Estimated Future Emissions by Vehicle Type.....	46
G.2 Estimated Future Emission Reductions in the AQMAs	47
G.3 Indicative Estimated Emission Reductions from AQAP Measures	50
Appendix H: Consultation.....	51

H.1 Consultation Undertaken	51
H.2 Steering Group.....	52
H.3 Consultation Response	53
Appendix I: Cost Benefit Analysis	54
I.1 Effectiveness of Measures	54
I.2 Estimated Cost of Measures	54
I.3 Cost-Benefit Analysis.....	55
I.4 Wider Benefits of Measures	56

List of Tables

Table 1.1: Required Reductions in NO ₂ Concentrations.....	2
Table 3.1: Elmbridge Borough Council AQAP Measures	7
Table 3.2: Surrey County Council AQAP Measures	15
Table B. 1: Percentage Reduction in Annual Mean NO ₂ (µg/m ³) between 2019 and 2020 in the AQMAs.....	21
Table E. 1: Source Apportionment Locations	32
Table E. 2: NO _x Source Apportionment (%) by Source Sector.....	35
Table E. 3: NO _x Source Apportionment (%) by Road Vehicle Type	36
Table E. 4: PM _{2.5} Source Apportionment (%) by Source Sector	37
Table E. 5: PM _{2.5} Source Apportionment (%) of Vehicle Exhaust Emissions by Vehicle Type	38
Table E. 6: PM _{2.5} Source Apportionment (%) of Vehicle Non-Exhaust Emissions by Source Type	39
Table F. 1: Required Reductions in Road NO _x Emissions	45
Table G. 1: Department for Transport Traffic Data	49
Table G. 2: Estimated Reductions in Road NO _x Emissions	50
Table H. 1: Consultation Undertaken.....	51
Table I. 1: Cost-benefit Analysis of AQAP Measures	55

1 Air Quality in Elmbridge

1.1 AQMAs

The Council has six AQMAs that have been declared due to exceedances of the legal objective for annual mean nitrogen dioxide (NO₂). The AQMAs are as follows and their locations are shown in **Figure 1.1**:

- Walton-on-Thames High Street;
- Weybridge High Street;
- Hampton Court, Molesey;
- Hinchley Wood;
- Esher High Street;
- Walton Road, Molesey.

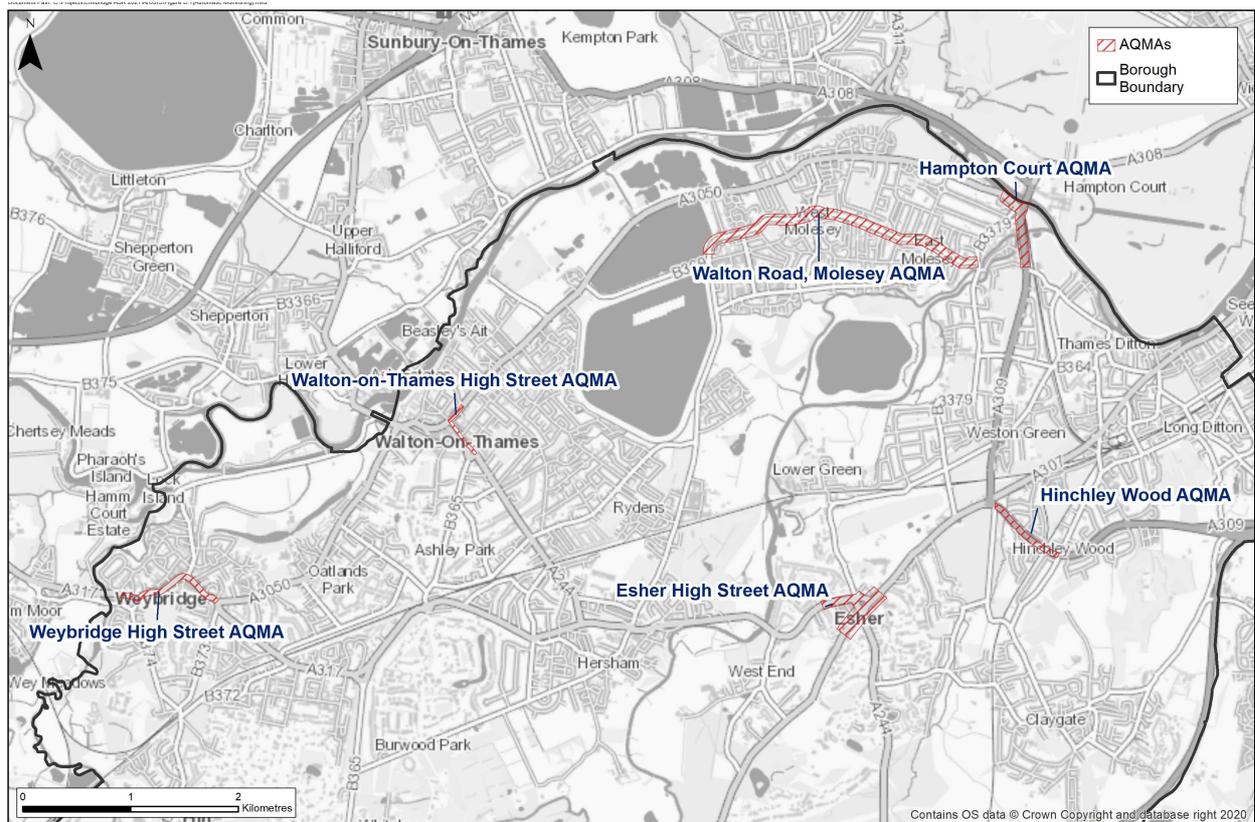


Figure 1.1: AQMAs in Elmbridge Borough

1.2 Air Quality Monitoring

The Council works to understand local air quality in the Borough through an appropriate monitoring network for NO₂ that includes passive diffusion tubes and two roadside monitoring stations. A particulate monitoring station is planned for 2022.

Details of monitoring locations and monitoring data for Elmbridge are provided in the Council's Air Quality Annual Status Reports at:

<https://www.elmbridge.gov.uk/pollution/local-air-quality/>

In 2019, monitoring in the Borough showed that there are still breaches of the legal objective for annual mean NO₂ within three of the Council's six existing AQMAs (Esher High Street, Weybridge High Street and Hampton Court). Within the remaining AQMAs, levels of NO₂ were close to exceeding the objective (i.e. within 10%). **Table 1.1** below shows the reduction in NO₂ required in each of the AQMAs. Although the legal objective is 40 µg/m³ for annual mean NO₂, the target value used in these calculations is 36 µg/m³. This is to take into account the requirement for NO₂ levels to be at least 10% below the legal objective for revocation of the AQMA to be considered.

Table 1.1: Required Reductions in NO₂ Concentrations

Location	2019 Measured Annual Mean NO ₂ Level (µg/m ³)	Reduction Required in NO ₂ (µg/m ³)
Esher High Street	46 ^a	-10
Weybridge High Street	45.6 ^b	-9.6
Hampton Court	41 ^c	-5
Walton-on-Thames High Street	39.2 ^d	-3.2
Walton Road, Molesey	39.4 ^e	-3.4
Hinchley Wood	37.4 ^f	-1.4

a) Measured at Esher 7

b) Measured at Weybridge 7

c) Measured at Hampton Court Parade automatic monitor

d) Measured at Walton 10

e) Measured at Molesey 8

f) Measured at Hinchley Wood 1

In 2020, lockdown restrictions due to the COVID-19 had a significant impact on road traffic volumes, and subsequent air pollution levels. Despite the reductions seen in pollution levels in Elmbridge's AQMAs during 2020, further action is still required as

there is uncertainty surrounding future trends in air quality following the return of traffic flows to pre-pandemic levels. Further discussion regarding the impacts of the COVID-19 pandemic on air quality in Elmbridge is provided in **Appendix B**.

Whilst levels of Particulate Matter (PM) do not exceed legal objectives in Elmbridge, particulates are associated with adverse health effects. Associations between health effects and long-term exposure to PM_{2.5} are particularly strong, as particles of this size can enter the blood stream and are linked to a range of health effects including cardiovascular and respiratory illness.

The World Health Organisation (WHO) has set Guideline Values for PM which are more stringent than current legal objectives and the Council is committed to protecting the health of the Borough's population and achieving the WHO Guideline Value for PM_{2.5} across the Borough by 2030 as part of this Air Quality Action Plan (AQAP). In September 2021 the WHO introduced even more stringent Guideline Values for particulates, the AQAP target will remain at the former Guideline Value of 10 µg/m³ for PM_{2.5}. The DEFRA background maps provide estimated background levels of PM_{2.5} across Elmbridge in future years. In 2030, the latest background maps indicate that predicted annual mean background levels of PM_{2.5} will range between 8.5 – 10.7 µg/m³. Therefore, it is considered more appropriate and realistic for Elmbridge Borough Council to commit to achieving the former annual mean WHO Guideline Value of 10 µg/m³ for PM_{2.5}, rather than the revised Guideline Value of 5 µg/m³, by 2030.

The proposed Environment Bill 2019 – 2021 also introduces a duty on the government to set new long-term targets for PM_{2.5} by October 2022⁵. A key action under this AQAP will be to install a particulate (PM₁₀ and PM_{2.5}) monitor to establish a baseline for levels of this pollutant in the Borough, and to monitor progress in reducing particulate levels.

⁵ DEFRA. Policy Paper 10 March 2020: Air Quality Factsheet (Part 4). Updated 21 October 2020.

1.3 Air Quality Modelling

Air dispersion modelling is a technique used to simulate how air pollution moves through the atmosphere. Surrey-wide dispersion modelling, carried out by Cambridge Environmental Research Consultants (CERC), establishes a clear baseline of key air pollutants across Elmbridge and the wider-Surrey area. The contour maps of predicted levels of pollutants across Elmbridge show the clear relationship between busy roads and high pollutant levels, as illustrated in **Figure 1.2**. It should be noted that the contour maps show predicted pollutant levels, which take into account a degree of uncertainty and there are therefore likely to be some discrepancies between the predicted and measured pollutant levels in the Borough. The interactive contour maps of modelled pollutant levels are hosted on the Surrey County Council (SCC) website and can be viewed in detail at:

<https://surreycc.maps.arcgis.com/apps/webappviewer/index.html?id=43910ffb100248ed972115b7a9b49d20>.

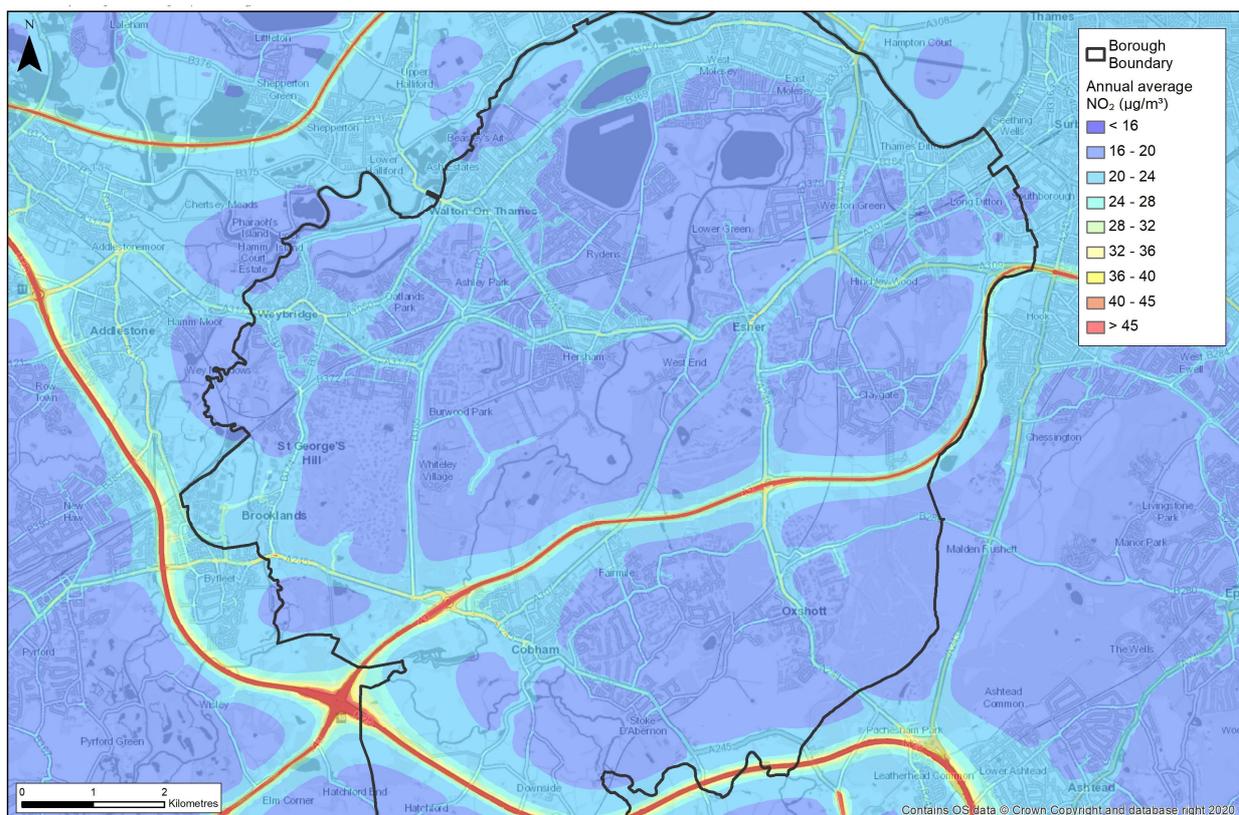


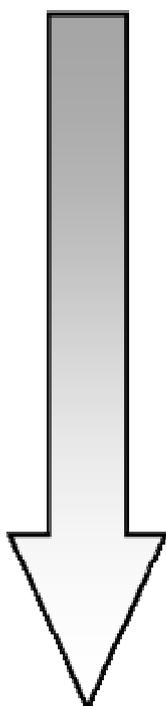
Figure 1.2: Modelled Annual Mean NO₂ Concentrations across Elmbridge in 2017

2 Elmbridge's Air Quality Priorities

The following key priorities have been developed taking into account the following:

- the public health context (**Appendix C**);
- the planning and policy context (**Appendix D**);
- the sources of pollution in Elmbridge (**Appendix E**);
- the reduction in emissions required to achieve the legal objectives (**Appendix F**); and
- estimated reductions in emissions from various AQAP measures (**Appendix G**).

The AQAP priorities for delivering compliance within the AQMAs, and improving air quality across the Borough are:



- Priority 1 – reducing NO₂ levels with the boroughs AQMAs to below the objective in the shortest time practicable.
- Priority 2 - targeting PM_{2.5} through a range of interventions with the aim of reaching the World Health Organisations former recommended level of 10 µg/m³ by 2030 within the Borough.
- Priority 3 – modal shift to more sustainable transport.
- Priority 4 – ensuring air quality continues to be a priority within the Council's policies and those of SCC and assist in delivering the projects and actions.
- Priority 5 – partnership working as part of the Surrey Air Alliance (SAA) to improve Surrey's air quality.

3 AQAP Measures

Table 3.1 and **Table 3.2** provide the AQAP measures with the aim of improving air quality in Elmbridge and achieving the Councils' Air Quality Priorities. They contain:

- a list of the actions that form part of the Plan;
- the responsible individual and departments/organisations who will deliver this action;
- a cost-benefit rating for each action based upon the cost-benefit analysis provided in **Appendix I**;
- the timescale for implementation; and
- how progress will be monitored.

Elmbridge Borough Council-led actions are detailed in **Table 3.1**, whilst **Table 3.2** outlines Surrey County Council-led actions. The AQAP measures are categorised into the under the following five themes:

- **reducing emissions from transport;**
- **reducing emissions from buildings and new development;**
- **monitoring;**
- **raising awareness;** and
- **lobbying and partnership working.**

In developing this AQAP, we have worked with other local authorities, agencies, businesses, and the local community to improve local air quality. **Appendix H** provides details of the consultation undertaken and responses considered in the development of this AQAP.

Table 3.1: Elmbridge Borough Council AQAP Measures

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
Reducing Emissions from Transport												
EBC-1	Use of, and exploration of possibilities for increasing use of, Council electric vehicles for journeys within the Borough and supporting electric vehicle use by Council contractors	Promoting Low Emission Transport	Public Vehicle Procurement – prioritising uptake of low emission vehicles	EBC	-	Each new vehicle purchased by EBC will be considered to be low emission / electric	Usage of >1900 miles/month to be cost effective	Very small	Medium	Jan to Dec 2019 usage 16,497 miles (1,375 average miles per month). Parking enforcement contractor moved to green fleet.	Review 2025	<p>The Carbon Management and Reduction Plan includes actions that will assist in the implementation of this measure including:</p> <ul style="list-style-type: none"> Review of the Council's internal purchases, working towards the ambition of an ultra-low carbon fleet. Replace and review existing electric vehicle fleet and increase number of electric pool cars. <p>The full Carbon Management and Reduction Plan can be viewed at: https://www.elmbridge.gov.uk/pollution/climate-change/</p>
EBC-2	Increasing the number of electric vehicles charging points in Council car parks	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	EBC	-	Phase 1 – main town centre car parks to be equipped with fast charging points	No. of charging points installed	Small	Medium	As part of an upgrade to council car parks, the charger at Holly Hedge Car Park in Cobham was replaced with four fast charging points and Esher Civic Centre and Churchfield Weybridge car parks to be completed by end 2022.	2022	<p>A requirement for all developments to implement electric vehicle charging points to be included in the emerging Local Plan.</p> <p>The Council adopted the Parking Supplementary Planning Document in July 2020. The document includes standards that new developments are expected to meet in relation to electric vehicle charging infrastructure.</p> <p>The Parking SPD is available at: https://www.elmbridge.gov.uk/planning/local-plan/strategic-planning/supplementary-planning-documents/</p>

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
EBC-3	Use of a tiered fee structure for taxi licensing to benefit operators with lower emission vehicles	Promoting Low Emission Transport	Taxi emission incentives	EBC	-	-	Percentage/type diesel vehicles remaining	Small	High	New EBC Taxi and Private Hire Licensing Policy adopted in September 2020.	2026	<p>The EBC Taxi and Private Hire Licensing Policy 2020 – 2025 includes a commitment to phase out use of all diesel-fuelled vehicles and petrol-fuelled vehicles that do not meet the latest Euro standard. From September 2020, new licences will not be issued for diesel-fuelled vehicles or petrol-fuelled vehicles that do not meet the latest Euro standard. Furthermore, if a licence holder wishes to replace their vehicle, the replacement vehicle must meet a higher Euro emission standard than the existing vehicle.</p> <p>The Taxi and Private Hire Licensing Policy is available at: https://www.elmbridge.gov.uk/licensing/policies-and-information-for-passengers/</p> <p>Also see SCC-3 Table 3.2, SAA DEFRA grant from Taxi project</p>
EBC-4	Reducing Council staff and fleet transport emissions as part of the Council's Carbon Reduction Strategy	Promoting Travel Alternatives	Workplace Travel Planning	EBC	-	2020 - 2030 Phased in Carbon Management and Reduction Plan.	Latest carbon reduction action plan updates.	Very small	Medium	Initial assessment of emissions completed.	2030	<p>The Carbon Management and Reduction Plan (CRMP) includes actions that will assist in the implementation of this measure including:</p> <ul style="list-style-type: none"> Review of the Council's internal purchases, working towards the ambition of an ultra-low carbon fleet. Replace and review existing electric vehicle fleet and increase number of electric pool cars. <p>The full Carbon Management and Reduction Plan can be viewed at: https://www.elmbridge.gov.uk/pollution/climate-change/</p>

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
EBC-5	Investigate options for a pilot cargo bike scheme for local businesses	Promoting Travel Alternatives	Promotion of cycling	EBC	2021-2022	2022-23	-	Very small	Medium	-	-	High streets are where the Boroughs AQMAs are located. Exploring alternate delivery options for high street businesses could help reduce emissions within AQMAs. SCC to implement measure through the Local Transport Plan 4 (LTP4).
Building and New Development												
EBC-6	Work towards fulfilling the Council's pledge to be carbon neutral by 2030	Promoting Travel Alternatives	Other	EBC	-	Ongoing. 2020-2030 phased in Carbon Management and Reduction Plan.	-	Small	Medium	Key priority in the Council's Service and Delivery Plan for 2020/2021. Carbon Management and Reduction Plan adopted.	2030	<p>The Carbon Management and Reduction Plan contains actions aimed at fulfilling the Council's Carbon neutral pledge. Such actions that will also be beneficial to air quality include:</p> <ul style="list-style-type: none"> Seeking strategic direction on enabling remote working for Council staff. Replacement of gas-fired boilers with electric or other state-of-the-art technologies at the Civic Centre. Planning for future replacement of gas-fired boilers at community centres. <p>The full Carbon Management and Reduction Plan can be viewed at: https://www.elmbridge.gov.uk/pollution/climate-change/</p> <p>The emerging Local Plan will also seek to encourage more sustainable development through the implementation of policies regarding energy usage etc.</p>

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
EBC-7	Embed air quality in the Local Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	EBC	2021	2022/23	Adoption of an Air Quality within Design and a renewables focused SPD.	Medium	High	-	2023	<p>The emerging Local Plan will seek to encourage more sustainable development through the implementation of policies regarding matters such as energy usage, sustainable transport modes and electric vehicle charging requirements, etc.</p> <p>Specific guidance relating to air quality is to be covered in two SPD's, focused on design and renewables. Consideration will be given to a separate SPD on air quality if required. These will incorporate air quality positive principles.</p> <p>The latest information regarding the emerging Local Plan can be found at: https://www.elmbridge.gov.uk/planning/local-plan/</p>
EBC-8	Indoor air quality to be considered as part of the planning process for new development in the AQMAs	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	EBC	2020-2021	Ongoing	Number of planning applications in AQMA with indoor air quality considered	Small	High	-	2021-2026	<p>Housing within existing high streets is on the increase. The six AQMA's are all high street locations. While indoor air quality is not the primary focus of an AQAP it is included as an action on the grounds of public health. Consideration will be given to inclusion within an SPD on air quality.</p>

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
EBC-9	Investigate including Air Quality Positive principles in a Design and Renewables SPD	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	EBC	2021-2022	2022-23	Number of planning applications considered to be air quality positive	Small	High	-	2023	<p>Details on how this can be achieved to be provided within SPD's covering design and renewables. Also, a separate SPD on air quality if required.</p> <p>The Publication London Plan (December 2020), which is intended to be published in 2021, requires large-scale developments to consider how air quality can be improved across the area through an Air Quality Positive approach.</p> <p>The Air Quality Positive approach requires new development proposals to consider ways in which the development could maximise benefits to local air quality, as well as what measures and design features that will be put in place to reduce exposure to air pollution.</p>
EBC-10	Encouraging residents to refrain from garden bonfires	Public Information	Via the internet	EBC	-	Ongoing	Reduction in the number of "bonfire" complaints received	Very small	Medium		2026	Use of the Council's website and social media to promote changes in behaviour to move away from burning.
EBC-11	Promoting approved wood-burning stoves and burning of approved products and encouraging recycling of waste	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	EBC	-	2022	-	Very small	Medium	Animation video on wood burning stoves produced with the SAA.	Video launched for Clean Air Day Nov 2020. Ongoing promotion Animation to be updated 2022	Wood burning stove animation video. SAA plan on update to animation following new guidance.

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
Monitoring												
EBC-12	Ensure appropriate and effective monitoring is undertaken across Elmbridge to meet statutory review and assessment duties	Other	Other	EBC	-	2021-26	Production of Air Quality Annual Status Report	Small	High	Annual reports produced.	2021 ASR submitted June 2021	The Council seeks to maintain and run and efficient monitoring network. That includes monitoring for nitrogen dioxide via passive diffusion tubes and two monitoring stations.
EBC-13	Installation of a PM _{2.5} monitor in Elmbridge	Other	Other	EBC	2020-2021	2022	Installation of a PM _{2.5} monitoring site	Small	Medium	Application submitted for CIL funds.	2022	A Community Infrastructure Levy (CIL) bid was submitted in March 2021 for a roadside particulate monitor. The Councils Cabinet meeting on 7 July 2021 approved the CIL funding. The project has started with a planned completion in 2022.
EBC-14	CERC Surrey-wide air quality modelling update	Other	Other	EBC (in partnership with the SAA)	2022-2023	2024	Air quality modelling undertaken	Small	Medium	-	2024	To undertake updated borough modelling in 2024.
EBC-15	Review of diffusion tube locations across the Borough following CERC modelling update	Other	Other	EBC	2024	2025	Report on diffusion tube location review produced	Small	High	-	2025	Once updated borough modelling has been undertaken, a further review of diffusion tube locations will be carried out.

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
EBC-16	Monitor impact of London Low Emission Zones in Elmbridge AQMAs	Other	Other	EBC	-	2020 Onwards	Results of traffic surveys and reported in air quality annual status reports	Small	High	SAA to monitor the situation	2026	Potential for negative impacts in Esher and Hampton Court with traffic rerouting around LEZ. Identification of any issues will allow further actions to be targeted in these areas.
Raising Awareness												
EBC-17	Continuation of the Schools Air Quality Programme	Public Information	Via other mechanisms	EBC (in partnership with the SAA)	-	Ongoing	No. children reached by promotional / engagement activities	Very small	Medium	-	2026	SCC and the SAA continue to support the role out of a school's programme including Golden and Green Boot Challenges. September 2021 – new online teaching package on air quality available to all schools in Surrey.
EBC-18	Use of the EBC website to promote public awareness of the Elmbridge AQMAs and air quality in general	Public Information	Via the internet	EBC	-	Ongoing	Latest ASR available on website	Very small	Medium	-	Ongoing	The Council's website publishes the ASRs back to 2017, provides a link to the CERC modelling map, plus links to both real time monitors along with a range of advice https://www.elmbridge.gov.uk/pollution/local-air-quality/
EBC-19	Continue to promote the AirAlert service	Public Information	Via other mechanisms	EBC	-	Ongoing	Number of residents subscribed in Elmbridge	Very small	Medium	282 subscriptions October 2021	Ongoing	Elmbridge continues to have the highest number of subscriptions within Surrey as of October 2021. AirAlert to be promoted via social media and website.
EBC-20	Clean Air Day Activities	Public Information	Via other mechanisms	EBC	2020	Ongoing annual project	-	Very small	Medium	-	2026, next CAD 2022	Support the annual Clean Air Day (CAD)

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
EBC-21	Raise awareness of indoor air pollution through the EBC website and social media	Public Information	Via the internet and social media	EBC	-	Ongoing	Information available on website	Very small	Medium	-	2021 and Ongoing	Consideration is also given to planning applications for residential development with AQMA's and the likely impacts on indoor air quality
Lobbying and Partnership Working												
EBC-22	Remain an active member of the Surrey Air Alliance and contributors to Work Plan	Policy Guidance and Development Control	Regional groups co-ordinating programmes to develop area-wide strategies to reduce emission and improve air quality	EBC	-	Ongoing	Adoption of Work Plan	Small	High	Constitution adopted and workplan produced. Regular meetings held.	Ongoing	The SAA facilitates Surrey Authorities, and SCC working together to improve air quality in Surrey. Examples of large projects include CERC County wide modelling project, DEFRA grant for school's project and the recent DEFRA grant for Electric Taxi fleet trial see measure SCC 3 in Table 3.2.
EBC-23	Work with the Surrey Authorities to achieve WHO Guideline Values for PM ₁₀ and PM _{2.5} in the Elmbridge Borough by 2030 and any further UK Government targets introduced.	Policy Guidance and Development Control	Regional groups co-ordinating programmes to develop area-wide strategies to reduce emission and improve air quality	EBC (in Partnership with Surrey Authorities)	-	Ongoing	Achievement of WHO Guideline Values across Elmbridge	Small	High	-	2030	Various measures within the AQAP will assist in quantifying particulate levels within the Borough and seek to reduce PM levels within a local authority sphere of control.

Table 3.2: Surrey County Council AQAP Measures

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
Reducing Emissions from Transport												
SCC-1	Supporting Transport for South East	Policy Guidance and Development Control	Other policy	SCC	-	Ongoing	-	Large	Medium	Transport Strategy adopted in Summer 2020.	Ongoing Implementation	Elmbridge is located within two of the five study areas (the inner orbital and southwest radial). The outcome of these studies will form the basis of the Transport for South East Strategic Investment Plan for new transport schemes, initiatives, and policies. The Strategic Investment Plan is expected to be published in 2022. Further information on Transport for South East can be found at: https://transportforthesoutheast.org.uk/
SCC-2	Implementation of the Low Emission Transport Strategy for Surrey	Policy Guidance and Development Control	Low Emission Strategy	SCC	-	Ongoing	Suite of indicators associated with quantum and distribution of air pollution, travel behaviour and delivery of infrastructure for low emission transport options	Large	Medium	Strategy in use	Ongoing Implementation	The Strategy is backed by £49 million of county council funding and will see the introduction of up to 80 ultra-low or zero-emission buses and 50 community transport minibuses by 2025 with the aim that all buses across the county will be ultra-low or zero-emission by 2030. The full Low Emission Transport Strategy for Surrey can be viewed at: https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan/surrey-transport-plan-strategies/low-emissions-transport-strategy

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
SCC-3	Support an electric vehicle strategy for Surrey	Policy Guidance and Development Control	Low Emission Strategy	SCC	-	Ongoing	-	Medium	Medium	Electric Vehicle Strategy produced and adopted by Elmbridge Borough Council	Ongoing Implementation As of June 2021, project in initial stages with a plan to implement Autumn/Winter 2021	<p>SCC electric vehicle charging infrastructure pilot underway. The pilot is trialling fast chargers in urban and residential streets in Guildford, Woking, Spelthorne and Waverley. The findings of the pilot will be used to develop EV charging design and policy guidelines. A report on lessons learned will be prepared to inform the delivery of a county-wide roll-out of EV charging infrastructure.</p> <p>The SAA has also submitted a grant application to DEFRA for an electric taxi fleet trial including telemetric devices in vehicles. In March 2021 the project was awarded £256,868 from the DEFRA Air Quality Grant Fund.</p> <p>The Electric Vehicle Charging Strategy is available at: https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan/surrey-transport-plan-strategies/electric-vehicle-strategy</p>
SCC-4	Implementation of the Climate Change Strategy for Surrey	Policy Guidance and Development Control	Other policy	SCC	-	Ongoing	Implementation of Strategy	Medium	Medium	Strategy in use	Ongoing Implementation	<p>The Strategy has been considered by 11 Districts and Boroughs.</p> <p>The Strategy includes measures that will be beneficial for air quality. Air quality-related actions are provided in the section 'Transport and Air Quality' of the Strategy which can be viewed at: https://www.surreycc.gov.uk/people-and-community/climate-change/what-are-we-doing/climate-change-strategy/surreys-climate-change-strategy-2020</p>

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
SCC-5	Development and implementation of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Elmbridge Borough	Promoting Travel Alternative	Intensive active travel campaign and infrastructure	SCC	2021	2022	Completion and adoption of the LCWIP	Small	Medium	-	<p>2022-2032 - implementation of the LCWIP would be ongoing over next 10 years.</p> <p>2021 - policy completed</p> <p>2021 -2022 - identify locations and corridors that need improvement.</p> <p>2022-2023 - feasibility and business cases for projects.</p> <p>2023-2024 - target for first projects to be delivered.</p> <p>2025 - delivery programme continues.</p>	<p>The LCWIP is a ten-year programme and would include the following:</p> <ul style="list-style-type: none"> • Identification of where good walking and cycling facilities would be most beneficial. • Identify what improvements are required at these locations. <p>Plan how these improvements can be delivered, and which prioritise first.</p>
SCC-6	Alteration of existing signalised pedestrian crossings on the High Street, Weybridge to reduce congestion	Traffic Management	Other	SCC	2020-2021	-	-	Small	Medium	Study on going to determine feasibility	Medium term	Still at feasibility stage. Work brief was issued to SCC's Professional Services Highway Partner in August 2021, awaiting work programme.

Measure No.	Measure	Category	Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Effectiveness Rating	Cost Benefit Rating	Progress to Date	Estimated Completion Date	Comments
SCC-7	Improvements to the Hampton Court Roundabout / junction to reduce congestion	Traffic Management	Other	SCC		-	-	Small	Medium	The Planning application was refused.	-	An agreed scheme as part of a development proposal. Could be implemented either as part of development or a standalone scheme. The planning application was refused (July 2021). Applicant may submit an appeal.
SCC-8	Installation of additional pedestrian facilities on Esher High Street	Promoting Travel Alternatives	Promotion of walking	SCC	2020-2021	-	-	Small	Medium	Feasibility study in progress	Medium term	Feasibility study remains in progress. Following a recent LSWIP workshop, feedback received noted this location is a core walking area and needs a broader consideration of the local aspirations and the competing place vs. movement functions of the road. Significant improvements to achieve the 'place' objective and improve pedestrian facilities would likely require a reduction in capacity
Lobbying and Partnership Working												
SCC-9	Working with SCC to ensure that Air Quality is appropriately considered within the Local Transport Plan 4 (LTP4)	Policy Guidance and Development Control	Regional groups co-ordinating programmes to develop area-wide strategies to reduce emission and improve air quality	SCC	2020	2022	-	Small	Medium	-	Ongoing	By the end of 2020 visions, objectives and core principles to be developed. LTP development to be started in 2021. Adoption anticipated by early 2022.

Appendix A: 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
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
COMEAP	Committee on the Medical Effects of Air Pollution
DfT	Department for Transport
EBC	Elmbridge Borough Council
EFT	Emission Factor Toolkit
EU	European Union
HDV	Heavy Duty Vehicles (vehicles >3.5 tonnes + buses)
HGV	Heavy Goods Vehicle (vehicles >3.5 tonnes)
LAQM	Local Air Quality Management
LGV	Light Goods Vehicle
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
SCC	Surrey County Council
WHO	World Health Organisation

Appendix B: Impacts of COVID-19 on Air Quality

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent, other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data⁶ suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates. The Air Quality Expert Group (AQEG)⁷ has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO₂ annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which represents an absolute reduction of between 10 to 20 µg/m³ if expressed relative to annual mean averages. During this period, changes in PM_{2.5} concentrations were less marked than those of NO₂. PM_{2.5} concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of Automatic Urban and Rural Network (AURN) monitoring data for 2018-2020, AQEG have detailed that PM_{2.5} concentrations during the initial lockdown period are of the order 2 to 5 µg/m³ lower relative to those that would be expected under business-as-usual conditions.

In Elmbridge, a decrease in annual mean NO₂ concentrations was experienced at all monitoring sites across Elmbridge in 2020 when compared to 2019. There were no exceedances of the annual mean NO₂ objective within any of Elmbridge's six AQMAs in 2020. The percentage reductions within each AQMA are shown in **Table B. 1**.

⁶ Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

⁷ Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

Table B. 1: Percentage Reduction in Annual Mean NO₂ (µg/m³) between 2019 and 2020 in the AQMAs

AQMA	Reduction in Annual Mean NO₂ (%)
Esher High Street	29% - 48%
Hampton Court	25% - 37%
Walton Road, Molesey	30% - 34%
Walton-on-Thames High Street	24% - 46%
Weybridge High Street	16% - 46%
Hinchley Wood	26% - 39%

Despite the reductions seen in annual mean NO₂ concentrations in Elmbridge's AQMAs, further action is still required as there is uncertainty surrounding future trends in air quality following the return of traffic flows to pre-pandemic levels.

Appendix C: Public Health Context

Air pollution is associated with a number of adverse health impacts. In its most recent report, the Committee on the Medical Effects of Air Pollutants (COMEAP) advised that the range of estimates of the annual mortality burden of human-made air pollution in the UK is estimated as an effect equivalent to 28,000 to 36,000 deaths⁸. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas⁹.

The AQS objectives, upon which the declaration of an AQMA is based, are pollutant concentrations recorded over a given time period (e.g. the annual mean NO₂ objective of 40 µg/m³) and are designed for the protection of human health, including sensitive groups of people. Whilst the AQS objectives do not include PM_{2.5}, the 2019 Clean Air Strategy¹⁰ includes a commitment to set a “*new, ambitious, long-term target to reduce people's exposure to PM_{2.5}*” which the proposed Environment Bill 2019-2021 commits the Secretary of State to setting. Two PM_{2.5} targets to be set under the Environment Bill are currently under consideration: an annual mean PM_{2.5} concentration target; and an exposure reduction target. The Environment Bill introduces a duty on the government to set these targets by October 2022¹¹.

The AQMAs in Elmbridge have all been declared due to exceedances of the annual mean NO₂ objective and there are no declared AQMAs for particulates (PM₁₀ or PM_{2.5}) in the Borough. However, there is now a large body of evidence linking particulates to health effects at levels still found in the Borough. Associations are particularly strong for long-term exposure to PM_{2.5}, as the particles are known to enter the blood stream and are linked to a range of health effects including cardiovascular and respiratory illness¹². The total cost due of PM_{2.5} in the UK in relation to the NHS and social care in 2017 was estimated to be £41 million, and this

⁸ COMEAP. Associations of long-term average concentration of nitrogen oxide with mortality, 2018.

⁹ Barnes et al., 2019. Emissions vs exposure: Increasing injustice from road traffic-related air pollution in the United Kingdom.

¹⁰ DEFRA. Clean Air Strategy. 2019.

¹¹ DEFRA. Policy Paper 10 March 2020: Air Quality Factsheet (Part 4). Updated 21 October 2020.

¹² DEFRA. Assessing progress towards WHO guideline levels of PM_{2.5} in the UK. July 2019.

is estimated to rise to £1.5 billion in 2025¹³. The World Health Organisation (WHO) has set Guideline Values for particulates which are more stringent than the AQS objectives and the Council is committed to protecting the health of the Borough's population and achieving the WHO Guideline Values across the Borough by 2030.

In September 2021 the WHO introduced even more stringent Guideline Values for particulates, the AQAP target will remain at the former Guideline Value of 10 µg/m³ for PM_{2.5}. The DEFRA background maps provide estimated background levels of PM_{2.5} across Elmbridge in future years. In 2030, the latest background maps indicate that predicted annual mean background levels of PM_{2.5} will range between 8.5 – 10.7 µg/m³. Therefore, it is considered more appropriate and realistic for Elmbridge Borough Council to commit to achieving the former annual mean WHO Guideline Value of 10 µg/m³ for PM_{2.5}, rather than the revised Guideline Value of 5 µg/m³, by 2030.

A priority of the Council Plan 2020/2021¹⁴ focuses on Community Wellbeing and supporting communities to become healthier. To meet this priority, the Council supports the Surrey Health and Wellbeing Strategy¹⁵. The Health and Wellbeing Strategy sets out SCC's priorities for improving health and wellbeing across the population in Surrey, including environmental factors that impact people's health and wellbeing, such as air quality. In working towards improving air quality across the Borough to below the AQS objective and WHO guideline values, this AQAP upholds the Council priority in supporting communities to become healthier by reducing exposure to poor air quality.

¹³ Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report. May 2018.

¹⁴ Council Plan 2020/2021

¹⁵ Healthy Surrey. Surrey Health and Wellbeing Strategy. February 2020.

Appendix D: Planning and Policies Context

D.1 Elmbridge Borough Council Policies

Council Plan 2020/2021

Air quality and a healthy environment is important to the Council and measures to improve air quality also feature in our Council Plan 2020/2021¹⁴. In our five-year vision, we aim to be “*a responsive and effective Council, protecting and promoting interests of residents and businesses and safeguarding our environment, while maintaining a community for all*”. A number of priorities have been defined by the Council to support this vision, including a priority to respond to the Climate Change Emergency and a commitment to becoming a carbon neutral organisation by 2030. Council actions under the climate change priority that are expected to be beneficial for air quality include the installation of more electric car charging points in the Borough and refreshing the AQAP.

Core Strategy

The Core Strategy¹⁶ is the principal planning document that sets out the vision, spatial strategy and core policies that are used for shaping future development in the Borough up to 2026. Policies relevant to the AQAP are summarised below:

- Policy CS1 – Spatial Strategy requires new development to “*be delivered in accordance with a clear spatial strategy which provides the most sustainable way to accommodate growth*”.
- Policy CS25 – Travel and Accessibility. Through this policy, the Council will promote improvements to sustainable travel, and accessibility to services, through a variety of measures including:
 - “*directing new development with a high number of trips to previously developed land in sustainable locations*”.
 - “*applying maximum parking standards to all uses*”.
 - “*requiring a transport assessment and travel plan for all major development proposals in order to promote the delivery and use of sustainable transport*”.

¹⁶ Elmbridge Borough Council. Elmbridge Core Strategy. July 2011.

- *“mitigate the detrimental environmental effects caused by transport...support will be given to schemes that help to meet the commitments contained in the Elmbridge Air Quality Strategy.”*

In July 2020, the Council adopted the Parking Supplementary Planning Document¹⁷ to provide further detail to support the implementation of Core Strategy Policy CS25. The document includes standards that new developments are expected to meet in relation to electric vehicle charging infrastructure, car club and cycle parking provision.

Development Management Plan

The Development Management Plan (DMP)¹⁸ contains detailed policies that all planning applications in the Borough are assessed against. The DMP contains Policy DM5 – Pollution which states:

“Air Quality

Within designated Air Quality Management Areas, the Council will promote measures to improve air quality and will expect development proposals to avoid introducing additional sources of air pollution. For proposals falling within an Air Quality Management Area and/or where the Council considers that air quality objectives are likely to be prejudiced, applicants will be expected to submit a detailed specialist report which sets out the impact that the proposed development would have upon air quality. Planning permission will not be granted for proposals where there is significant adverse impact upon the status of the Air Quality Management Area or where air quality may have a harmful effect on the health of future occupiers of the development, taking into account their sensitivity to pollutants, unless the harm can be suitably mitigated.”

Emerging Local Plan

EBC is currently preparing a new local plan which will shape how Elmbridge is developed in the future. Once adopted the new local plan will replace the Core Strategy 2011 and Development Management Plan 2015. The new Local Plan will play a central role in addressing the climate emergency by setting out a development strategy and policies that seek to reduce carbon dioxide emissions and support the

¹⁷ Elmbridge Borough Council (2020). Parking Supplementary Planning Document. July 2020.

¹⁸ Elmbridge Borough Council. Elmbridge Local Plan Development Management Plan. April 2015.

transition to a low carbon future. As well as delivering improvements to green and blue infrastructure, flood risk, air quality, recycling and waste management. The Plan will form the basis on which planning applications in the Borough will be determined.

Design and Renewables Focused Supplementary Planning Documents (SPDs)

EBC has committed to preparing two SPDs that will provide detailed guidance on the implementation of policies set out in the Local Plan. This includes detailed guidance for dealing with air quality and will be aimed at those involved in the submission and determination of planning applications where air quality needs to be addressed.

Carbon Management and Reduction Plan 2020 - 2030

The Carbon Management and Reduction Plan¹⁹ was approved by EBC in September 2020. The Plan outlines an ambitious ten-year action plan of projects and activities in order for EBC to become a carbon neutral organisation by 2030.

Elmbridge Borough Council Taxi and Private Hire Licensing Policy

In July 2020, the Council adopted a new Taxi and Private Hire Licensing Policy 2020 – 2025²⁰ which came into force on 1st September 2020. The new policy recognises the need to ensure the health and wellbeing of residents and aims to improve local air quality by encouraging the use of low and ultra-low emissions taxi and private hire vehicles such as electric, hybrid or liquified petroleum gas (LPG). From 1st September 2020 the Council will not issue new licences for diesel vehicles and all new petrol vehicles must meet the latest Euro emissions standards. By 1st January 2026 the Council will phase out the use of all diesel vehicles and petrol vehicles that do not meet the latest Euro emissions standard.

¹⁹ Elmbridge Borough Council (2020). Carbon Management and Reduction Plan. Available at: <https://www.elmbridge.gov.uk/pollution/climate-change-and-sustainability/>

²⁰ Elmbridge Borough Council (2020). Taxi and Private Hire Licensing Policy 2020-2025. Available at: <https://www.elmbridge.gov.uk/licensing/policies-and-information-for-passengers/>

D.2 Regional Overarching Policies and Plans

Transport for the South East was established in 2017 to determine what transport infrastructure is needed to boost the region's economy. The partnership is made up of sixteen local authorities, five local enterprise partnerships plus representatives of district and borough authorities, and protected landscapes and national delivery agencies.

The role of Transport for the South East is to add strategic value by making sure that funding and strategy decisions about transport in the South East are informed by local knowledge and priorities. At the heart of this is the transport strategy, which was published in Summer 2020 and sets out the partnership's shared vision for a better connected, more prosperous, and more sustainable South East by 2050.

To turn the vision into reality, work is taking place with key partners and stakeholders across the region to determine what the South East's priority transport schemes, initiatives and policies should be. This is being undertaken through a series of area studies (five in total).

Each study will investigate the issues, challenges and opportunities identified in the transport strategy in more detail and, ultimately, identify a shortlist of interventions to make life better for people, for businesses and for the environment. The outcomes of these studies will form the basis of the strategic investment plan – a blueprint for investment which Transport for the South East want to deliver with government and national bodies like Network Rail and Highways England.

Elmbridge is located in two study areas:

1. The inner orbital
2. Southwest radial

The inner orbital area encompasses the strategic cross-regional routes around the southern outskirts of London. It includes the M25 London Orbital motorway, which is the busiest and most congested highway corridor in the South East area. It also includes the roads that serve Heathrow Airport, the Medway Ports, and Thamesport. Further information on Transport for South East can be accessed through the following link:

<https://transportforthesoutheast.org.uk/our-work/transport-strategy/>

D.3 Surrey County Council Overarching Policies

Surrey's Climate Change Strategy

Surrey's Climate Change Strategy²¹ provides a joint framework for collaborative action on climate change across Surrey's local authorities and other partners. The strategic priorities and accompanying actions will deliver against Surrey's emissions-based reduction targets. Section 1.2 of the Strategy is focused specifically on transport and air quality, with an ambition to *"deliver and promote an integrated, accessible, affordable and reliable public and active (walking or cycling) transport system across the County, thereby reducing journeys and improving local air quality for improved health and wellbeing of our residents"*. The following strategic priorities relating to transport and air quality are included in the Strategy:

- Strategic Priority 1 – *"Prioritise investment in place-based development that creates well-connected communities close to high quality places, spaces and services to reduce the number and length of car journeys for all residents."*
- Strategic Priority 2 – *"Invest in initiatives and infrastructure to increase the uptake of walking cycling and public transport, alongside schemes to reduce reliance on the car e.g. ultra-low emission zones, pedestrianisation and car-free zones."*
- Strategic Priority 3 – *"Invest in and support the development of the infrastructure required to support the move to zero emission vehicles for journeys that cannot be made on foot, by bicycle or public transport."*

Surrey Local Transport Plan 3

The Surrey Local Transport Plan 3 (LTP3)²² is a statutory plan required by the Local Transport Act 2008 and Transport Act 2000. The vision of the plan is to *"help people meet their transport and travel needs effectively, reliably, safely and sustainably within Surrey; in order to promote economy, protect and enhance the environment and improve quality of life"*.

²¹ Surrey County Council. Surrey's Climate Change Strategy. 2020.

²² Surrey County Council. Surrey Local Transport Plan 3. April 2018.

A number of transport strategies form part of the Surrey Transport Plan including a Low Emission Transport Strategy²³. The Low Emission Transport Strategy aims “to reduce polluting emissions from road transport across the county which are harmful to health and the environment, and work with partners to achieve legal compliance with air quality locally.” A range of activities to deliver the Low Emissions Strategy are described and funding opportunities identified.

Surrey Local Transport Plan 4

SCC is currently preparing a new Local Transport Plan (LTP4) which is expected to be adopted late 2021 to early 2022. The LTP4 will be a more holistic policy than previous Transport Plans and will see air quality having a higher profile.

Other Surrey County Council Policies

Other SCC policies with an impact on air quality include:

- Surrey’s 2050 Place Ambition²⁴
- Health and Wellbeing Strategy¹⁵
- Physical Activity Strategy (2015-2020)²⁵ – includes measures to promote and encourage walking and cycling.
- Rethinking Transport Programme²⁶ – The programme has been setup to understand the current transport challenges in Surrey and look at how the relationship with transport and travel can be changed through imagining a future transport system. A number of pilot projects are planned to be delivered from 2020. The three identified core ambitions for Rethinking Transport include:
 - take journeys off the road;
 - improve air quality; and
 - increase independence via access to sustainable modes of transport.

²³Surrey County Council. Surrey Low Emission Transport Strategy.

²⁴ Surrey County Council. Surrey’s 2050 Place Ambition – our approach to place leadership and good growth. July 2019.

²⁵ Healthy Surrey. Surrey’s Physical Activity Strategy 2015-2020. 2015.

²⁶ Surrey County Council. Rethinking Transport Programme Summary. December 2019.

- Surrey Cycling Strategy (2014)²⁷ – identifies issues and priorities for improvement for cyclists. The Elmbridge Cycle Plan²⁸ sets out the practical local implementation of the Cycling Strategy.
- Local Cycling and Walking Infrastructure Plans (LCWIPs) – these are currently being developed for local authorities across Surrey, including Elmbridge. The LCWIPs are being developed in accordance with Government best practice guidance²⁹ and will consider what improvements to both walking and cycling would be most useful and where improvements should be targeted.

²⁷ Surrey County Council (2014). Surrey Cycling Strategy.

²⁸ Elmbridge Borough Council (2016). Elmbridge Cycling Plan. Available at:

<https://www.surreycc.gov.uk/roads-and-transport/cycling-and-walking/plans/elmbridge>

²⁹ Department for Transport (2017). Local Cycling and Walking Plans Technical Guidance for Local Authorities. April 2017.

Appendix E: Source Apportionment

E.1 Summary

The measures presented in this AQAP are intended to be targeted towards the predominant sources of emissions within the Council's area. Pollution in Elmbridge comes from a variety of sources. In order to evaluate the impact of pollution sources in the Borough, a source apportionment modelling exercise was carried out by CERC, on behalf of the Council, to determine the sources of NO_x and particulate pollution across Elmbridge.

The source apportionment exercise has been carried out for NO_x³⁰ rather than NO₂. This is because the contribution to different sources to the total NO₂ concentrations cannot be quantified due to the non-linearity nature of chemical reactions which take place in the atmosphere. The contribution of different sources to the total NO₂ concentrations will be related to the contribution of each source to the total NO_x concentrations and the proportion of NO_x emissions emitted as NO₂.

A proportion of pollution comes from outside of Elmbridge and is transported into the Borough by wind. These sources of pollution are reference to as 'background' sources. Across all of the six AQMAs, the greatest proportion of particulate matter pollution (PM_{2.5}) comes from background sources (ranging between 68 - 79%). The greatest proportion to NO_x also comes from background sources in the Molesey and Hinchley Wood AQMAs, and for the remaining AQMAs, background sources are the second greatest contributor to NO_x pollution.

Road sources contribute 23 - 70% of NO_x in the AQMAs, and 2 - 17% of PM_{2.5}. 'Other'³¹ sources contribute the third highest amount to NO_x and PM_{2.5} in all the AQMAs, whilst large industrial sources contribute the smallest amount.

Across all six AQMAs, vehicle exhaust emissions contribute approximately 20 – 25% to PM_{2.5} concentrations, whilst non-exhaust emissions (emissions from the breaking up of surfaces such as brake-wear, tyre-wear and road-wear) contribute

³⁰ NO_x is a mix of NO₂ and nitric oxide (NO). NO can react with oxygen to produce more NO₂.

³¹ Other sources include the following: 1) combustion in commercial, institution and agricultural sectors, 2) combustion in industry, 3) combustion in energy production and transfer, 4) production processes, 5) extraction and distribution of fossil fuels, 6) solvent use, 7) other transport and machinery, waste treatment and disposal, 8) agricultural, forests and land use change, 9) other sources and sinks.

approximately 75 – 80%. Tyre-wear emissions make up the largest proportion of non-exhaust PM_{2.5} emissions (around 40%), followed by brake-wear (around 32%) and road-wear (around 26%).

A summary of the locations within Elmbridge’s AQMAs at which source apportionment has been assessed is provided in **Table E. 1**.

Table E. 1: Source Apportionment Locations

Source Apportionment Receptor Location	AQMA
Hampton Court AQ Monitoring Station	Hampton Court
Walton Road, Molesey	Walton Road, Molesey
Walton Road, Molesey	Walton Road, Molesey
Kingston By-pass, Hinchley Wood	Hinchley Wood
Manor Road North, Hinchley Wood	Hinchley Wood
The Bear, Esher High Street, Esher	Esher High Street
Church Street, Walton-on-Thames	Walton-on-Thames High Street
High Street, Walton-on-Thames	Walton-on-Thames High Street
Church Street, Weybridge	Weybridge High Street
Weybridge High Street AQ Monitoring Station 1	Weybridge High Street

The greatest contributors to NO_x and PM_{2.5} for exhaust emissions by vehicle type within each AQMA are summarised in the following section and shown in **Figure E.2** and **Figure E.4**. **Table E. 2 - Table E. 1** provide the complete source apportionment details for NO_x and PM_{2.5} for the six AQMAs.

E.2 Walton-on-Thames

By vehicle type, diesel cars are the greatest contributor to NO_x on Church Street (44%), within the Walton-on-Thames AQMA. On the High Street, NO_x emissions from light goods vehicles (LGVs) make up the largest proportion (36%) of NO_x, with diesel cars also contributing a similar amount (34%). Of the six AQMAs in Elmbridge, the Walton-on-Thames AQMA has the highest NO_x contribution from buses and coaches (11% on the High Street).

Diesel cars are also the greatest contributor to PM_{2.5} (50% on Church Street and 37% on the High Street), followed by LGVs (24% on Church Street and 32% on the High Street).

E.3 Weybridge High Street

Diesel cars and LGVs contribute a similar proportion to the NO_x emissions in the Weybridge AQMA. On Church Street, diesel car emissions contribute 42% to NO_x concentrations, whilst LGVs contribute 34%. At the Weybridge High Street automatic monitoring station, diesel cars contribute 41% and LGVs contribute 36% to NO_x emissions.

Diesel cars are also the greatest contributor to PM_{2.5} (48% on Church Street and 47% on the High Street), followed by LGVs (28% on Church Street and 29% on the High Street). HGVs contribute around approximately 10% to PM_{2.5} concentrations on both the High Street and Church Street.

E.4 Hampton Court

Diesel cars are the greatest contributor to NO_x concentrations (41%), followed by LGVs (27%) in the Hampton Court AQMA. Of the six AQMAs in Elmbridge, the Hampton Court AQMA has the second highest NO_x contribution from buses and coaches (8%). HGVs contribute approximately 15%.

Diesel cars are also the greatest contributor to PM_{2.5} (45%), followed by LGVs (25%) HGVs contribute approximately 12% to PM_{2.5} concentrations, whilst buses and coaches contribute 10%.

E.5 Hinchley Wood

Diesel cars are the greatest contributor to NO_x (41%) within the Hinchley Wood AQMA. LGVs also contribute to a large proportion of NO_x emissions (36%). HGVs contribute approximately 12%, whilst buses and coaches contribute the smallest proportion to NO_x from road transport (approximately 2%).

Diesel cars are also the greatest contributor to PM_{2.5} (47%), followed by LGVs (31%) HGVs contribute approximately 12% to PM_{2.5} concentrations, whilst buses and coaches contribute approximately 3%.

E.6 Esher High Street

Diesel cars are the greatest contributor to NO_x within the AQMA (44%), whilst LGVs contribute the second highest proportion (30%). HGVs contribute approximately 13%,

whilst buses and coaches contribute the smallest proportion of NO_x from road transport (approximately 3%).

Diesel cars are also the greatest contributor to PM_{2.5} (49%) from road transport exhaust emissions, followed by LGVs (27%). HGVs contribute approximately 12% to PM_{2.5} concentrations, whilst buses and coaches contribute approximately 5%.

E.7 Walton Road, Molesey

LGVs are the greatest contributor to NO_x within the AQMA (40% - 39%), followed by diesel cars (29% - 32%) within the Molesey AQMA. However, the source contribution from HGVs is the highest within Elmbridge's six AQMAs (15% and 17%).

LGVs and diesel cars contribute similar amounts to PM_{2.5} (between 33% and 36%). HGVs contribute between 14% to 17% to PM_{2.5} concentrations, whilst buses and coaches contribute approximately 7% to 14%.

Table E. 2: NOx Source Apportionment (%) by Source Sector

AQMA	Location	NOx Source Apportionment by Source Sector (%)			
		Road Sources	Other ^a Sources	Background Sources	Large Industrial Sources
Hampton Court	Hampton Court AQ Monitoring Station	63.3	11.4	24.5	0.7
Molesey	Walton Rd, Molesey	32.0	19.2	47.4	1.4
	Walton Rd, Molesey	22.7	21.8	54.0	1.5
Hinchley Wood	Kingston By-pass, Hinchley Wood	32.1	16.7	49.9	1.2
	Manor Rd North, Hinchley Wood	32.2	15.9	50.7	1.2
Esher	The Bear, High St, Esher	42.4	13.7	42.8	1.0
Walton-on-Thames	Church St, Walton-on-Thames	51.3	13.8	33.9	0.9
	High St, Walton-on-Thames	34.8	17.9	46.1	1.2
Weybridge	Church St, Weybridge	70.4	7.1	21.9	0.6
	Weybridge High St AQ Monitoring Station 1	54.3	11.5	33.4	0.9

^a Other sources include: 1) combustion in commercial, institution and agricultural sectors, 2) combustion in industry, 3) combustion in energy production and transfer, 4) production processes, 5) extraction and distribution of fossil fuels, 6) solvent use, 7) other transport and machinery, waste treatment and disposal, 8) agricultural, forests and land use change, 9) other sources and sinks.

Table E. 3: NOx Source Apportionment (%) by Road Vehicle Type

AQMA	Location	NOx Source Apportionment by Road Vehicle Type ^a (%)				
		Petrol Cars and Motorcycles	Diesel Cars	Light Goods Vehicles	Buses and Coaches	Heavy Goods Vehicles
Hampton Court	Hampton Court AQ Monitoring Station	9.0	41.3	27.1	8.0	14.6
Molesey	Walton Rd, Molesey	6.3	29.1	39.8	9.6	15.2
	Walton Rd, Molesey	6.8	31.7	39.0	5.0	17.5
Hinchley Wood	Kingston By-pass, Hinchley Wood	9.3	41.1	35.9	1.7	12.0
	Manor Rd North, Hinchley Wood	9.2	40.7	36.0	2.2	11.9
Esher	The Bear, High St, Esher	9.6	44.0	30.2	3.4	12.9
Walton-on-Thames	Church St, Walton-on-Thames	9.7	44.0	29.3	2.9	14.1
	High St, Walton-on-Thames	7.2	33.5	36.4	10.8	12.0
Weybridge	Church St, Weybridge	9.2	41.6	33.8	4.4	11.0
	Weybridge High St AQ Monitoring Station 1	9.1	40.5	35.7	3.7	11.0

^a NOx source apportionment for road vehicle type is expressed as a percentage of the total NOx from road sources.

Table E. 4: PM_{2.5} Source Apportionment (%) by Source Sector

AQMA	Location	PM _{2.5} Source Apportionment by Source Sector (%)			
		Road Sources	Other ^a Sources	Background Sources	Large Industrial Sources
Hampton Court	Hampton Court AQ Monitoring Station	12.8	15.4	71.5	0.3
Molesey	Walton Rd, Molesey	3.8	20.1	75.8	0.3
	Walton Rd, Molesey	2.5	18.9	78.3	0.3
Hinchley Wood	Kingston By-pass, Hinchley Wood	4.3	17.0	78.4	0.2
	Manor Rd North, Hinchley Wood	4.2	17.1	78.5	0.2
Esher	The Bear, High St, Esher	6.1	15.0	78.7	0.2
Walton-on-Thames	Church St, Walton-on-Thames	8.6	20.0	71.1	0.2
	High St, Walton-on-Thames	4.2	20.5	75.1	0.2
Weybridge	Church St, Weybridge	17.3	14.3	68.3	0.2
	Weybridge High St AQ Monitoring Station 1	9.8	16.5	73.4	0.2

^a Other sources include: 1) combustion in commercial, institution and agricultural sectors, 2) combustion in industry, 3) combustion in energy production and transfer, 4) production processes, 5) extraction and distribution of fossil fuels, 6) solvent use, 7) other transport and machinery, waste treatment and disposal, 8) agricultural, forests and land use change, 9) other sources and sinks.

Table E. 5: PM_{2.5} Source Apportionment (%) of Vehicle Exhaust Emissions by Vehicle Type

AQMA	Location	Exhaust Emissions – Road VehicleType ^a (%)					Non-Exhaust Emissions Type ^b (%)		
		Petrol Cars and Motorcycles	Diesel Cars	Light Goods Vehicles	Buses and Coaches	Heavy Goods Vehicles	Brake-wear	Tyre-wear	Road-wear
Hampton Court	Hampton Court AQ Monitoring Station	7.9	44.7	25.5	10.3	11.6	32.6	40.7	26.7
Molesey	Walton Rd, Molesey	5.0	33.3	32.8	14.5	14.4	33.1	40.4	26.6
	Walton Rd, Molesey	5.5	36.3	34.1	7.4	16.7	32.8	40.7	26.5
Hinchley Wood	Kingston By-pass, Hinchley Wood	7.7	47.0	30.8	2.6	11.9	32.5	41.1	26.4
	Manor Rd North, Hinchley Wood	7.7	46.4	31.0	3.2	11.7	32.5	41.1	26.4
Esher	The Bear, High St, Esher	7.8	49.2	26.6	4.8	11.6	32.4	40.9	26.6
Walton-on-Thames	Church St, Walton-on-Thames	8.3	50.0	24.7	4.3	12.8	32.4	40.9	26.7
	High St, Walton-on-Thames	5.5	37.0	31.7	14.8	10.9	32.8	40.6	26.5
Weybridge	Church St, Weybridge	7.9	47.7	28.0	6.5	10.0	32.6	41.1	26.3
	Weybridge High St AQ Monitoring Station 1	8.0	46.8	28.8	5.7	10.6	32.6	41.1	26.3

^a PM_{2.5} source apportionment for exhaust emissions by road vehicle type is expressed as a percentage of the total exhaust emissions for road sources.

Table E. 6: PM_{2.5} Source Apportionment (%) of Vehicle Non-Exhaust Emissions by Source Type

AQMA	Location	Non-Exhaust Emissions Type ^a (%)		
		Brake-wear	Tyre-wear	Road-wear
Hampton Court	Hampton Court AQ Monitoring Station	32.6	40.7	26.7
Molesey	Walton Rd, Molesey	33.1	40.4	26.6
	Walton Rd, Molesey	32.8	40.7	26.5
Hinchley Wood	Kingston By-pass, Hinchley Wood	32.5	41.1	26.4
	Manor Rd North, Hinchley Wood	32.5	41.1	26.4
Esher	The Bear, High St, Esher	32.4	40.9	26.6
Walton-on-Thames	Church St, Walton-on-Thames	32.4	40.9	26.7
	High St, Walton-on-Thames	32.8	40.6	26.5
Weybridge	Church St, Weybridge	32.6	41.1	26.3
	Weybridge High St AQ Monitoring Station 1	32.6	41.1	26.3

^a PM_{2.5} source apportionment for non-exhaust emissions type is expressed as a percentage of the total non-exhaust emissions.

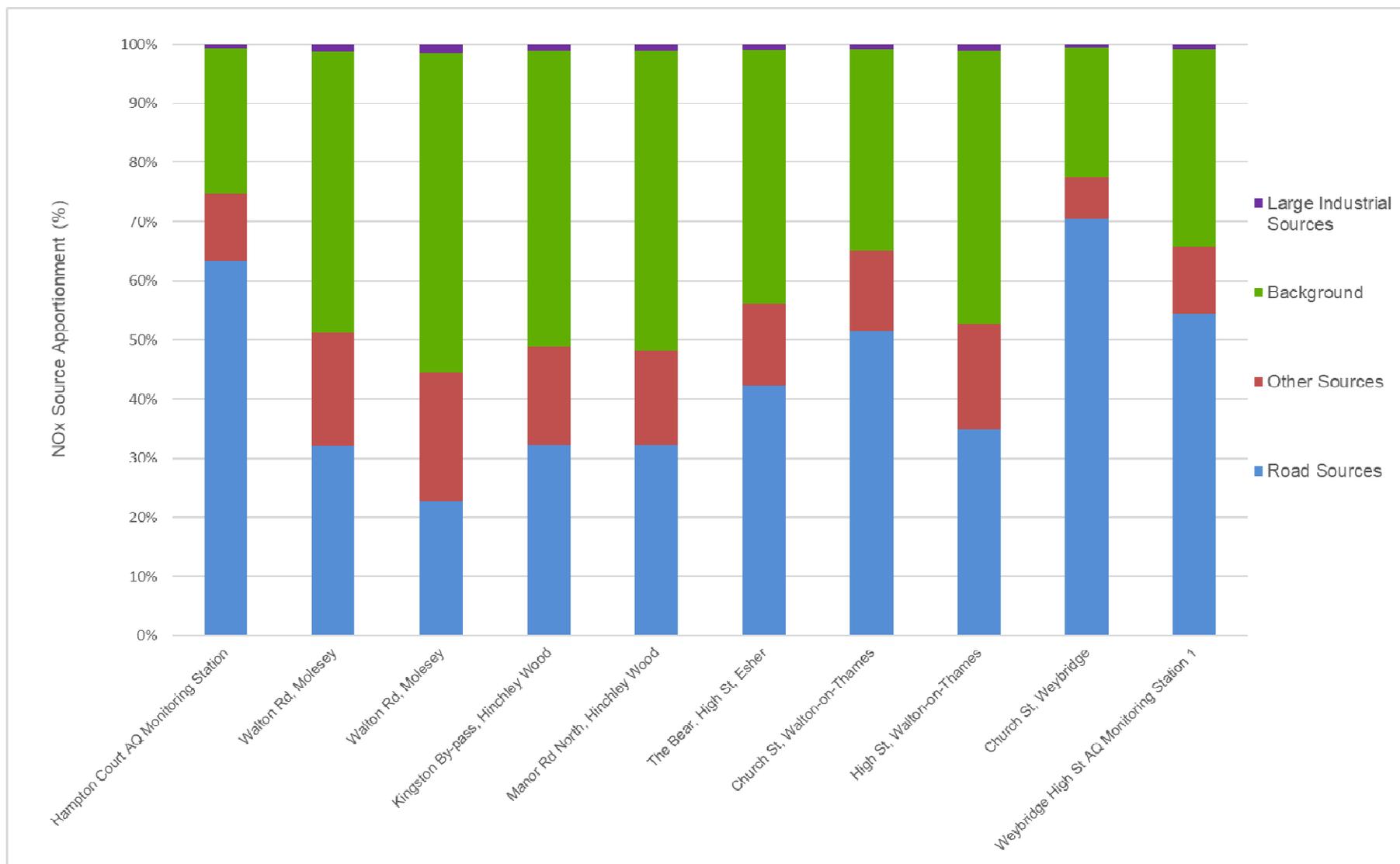


Figure E.1: NOx Source Apportionment in Elmbridge AQMAs by Sector

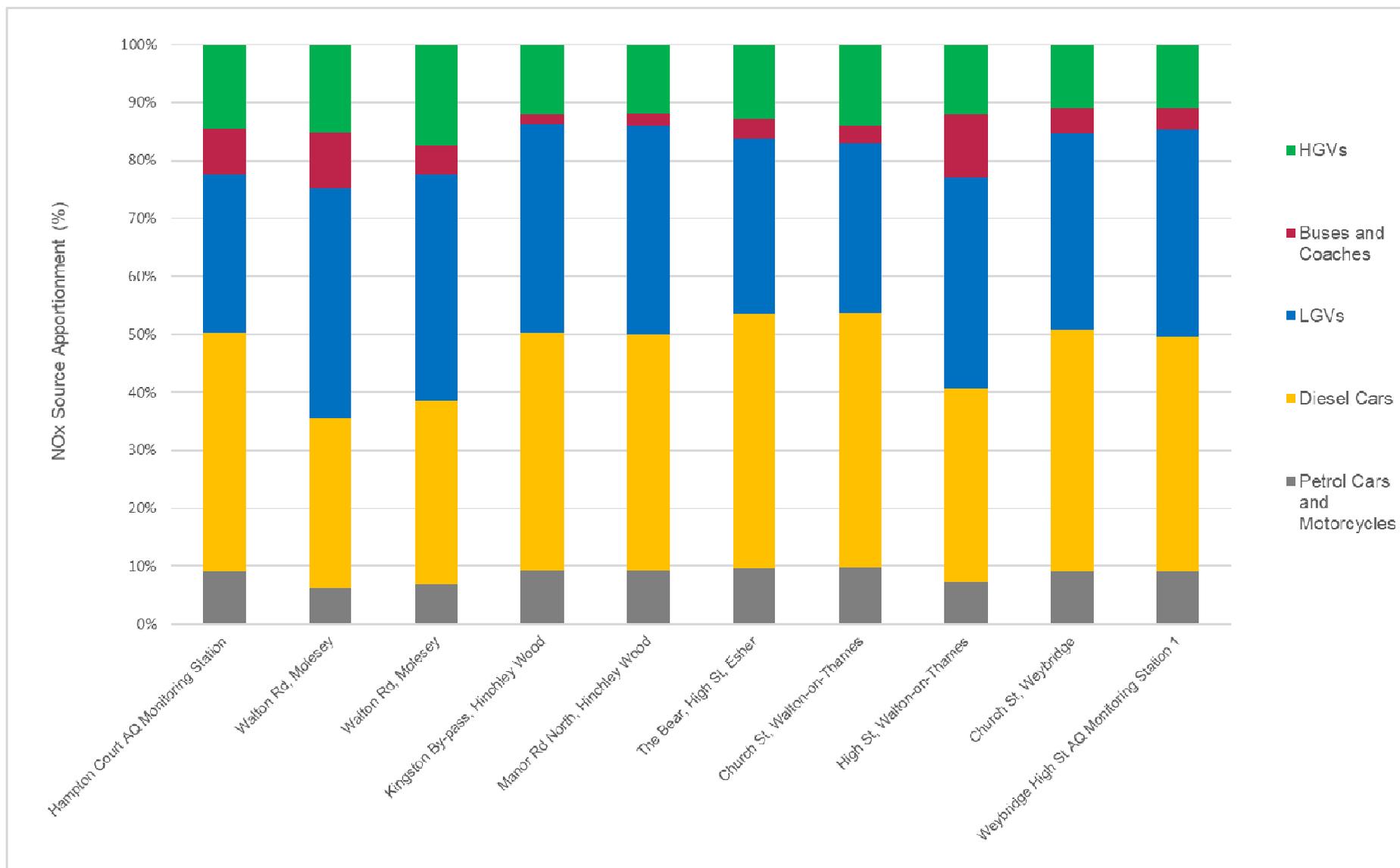


Figure E.2: NOx source apportionment in Elmbridge AQMAs by Road Vehicle Type

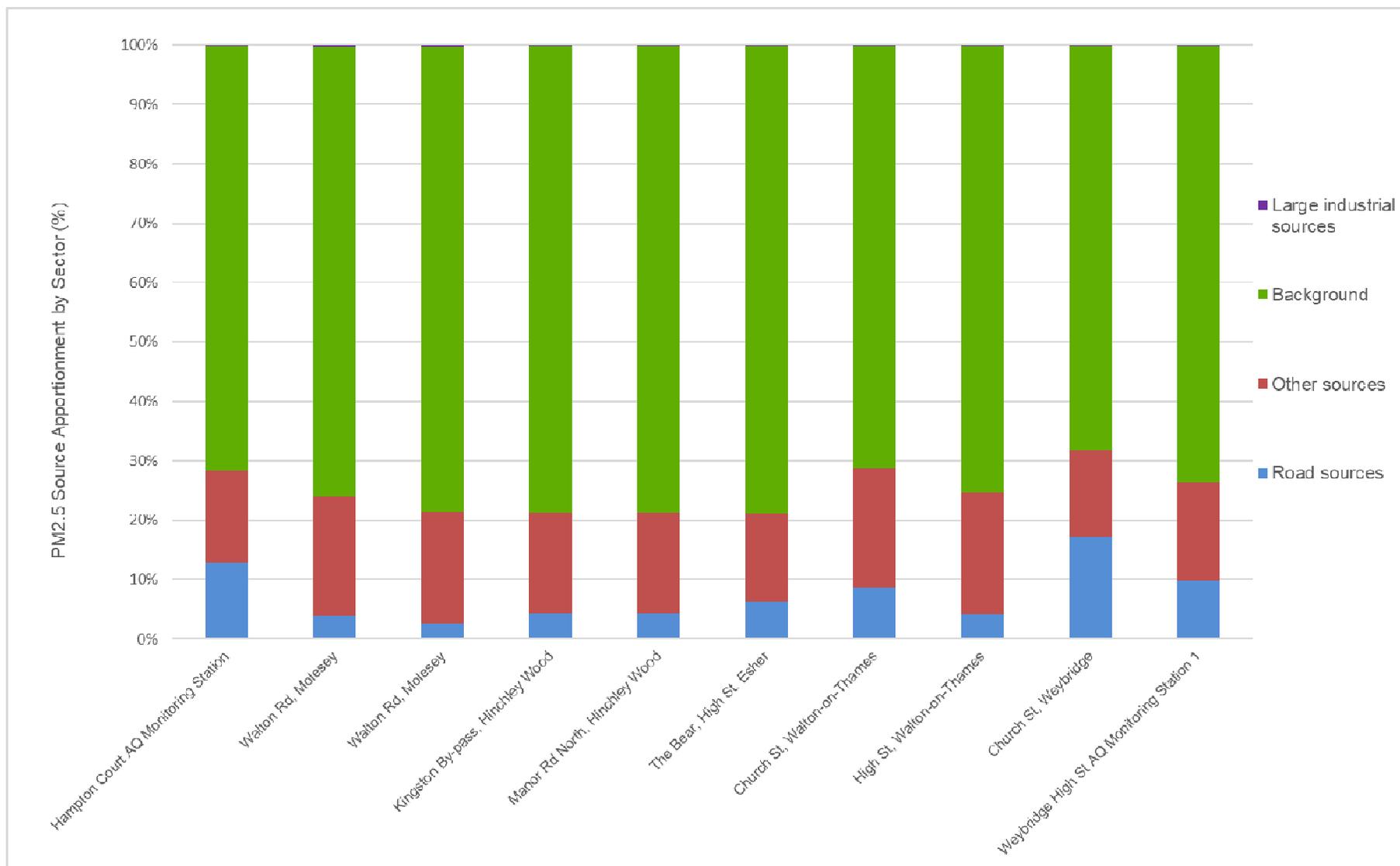


Figure E.3: PM_{2.5} Source Apportionment in Elmbridge AQMAs by Sector

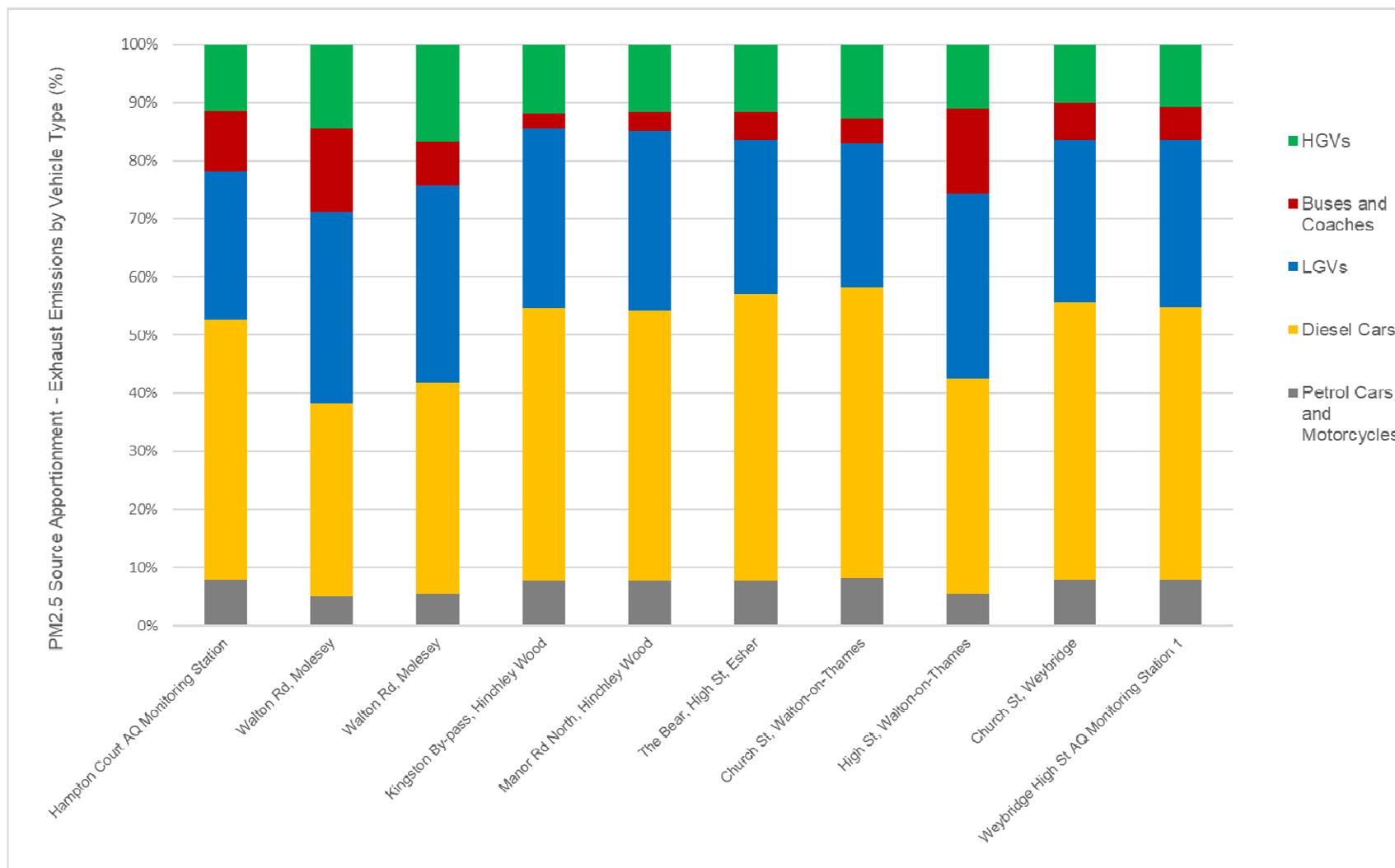


Figure E.4: PM_{2.5} Source Apportionment in Elbridge AQMAs by Road Vehicle Type³²

³² PM_{2.5} source apportionment for exhaust emissions by road vehicle type is expressed as a percentage of the total exhaust emissions for road sources.

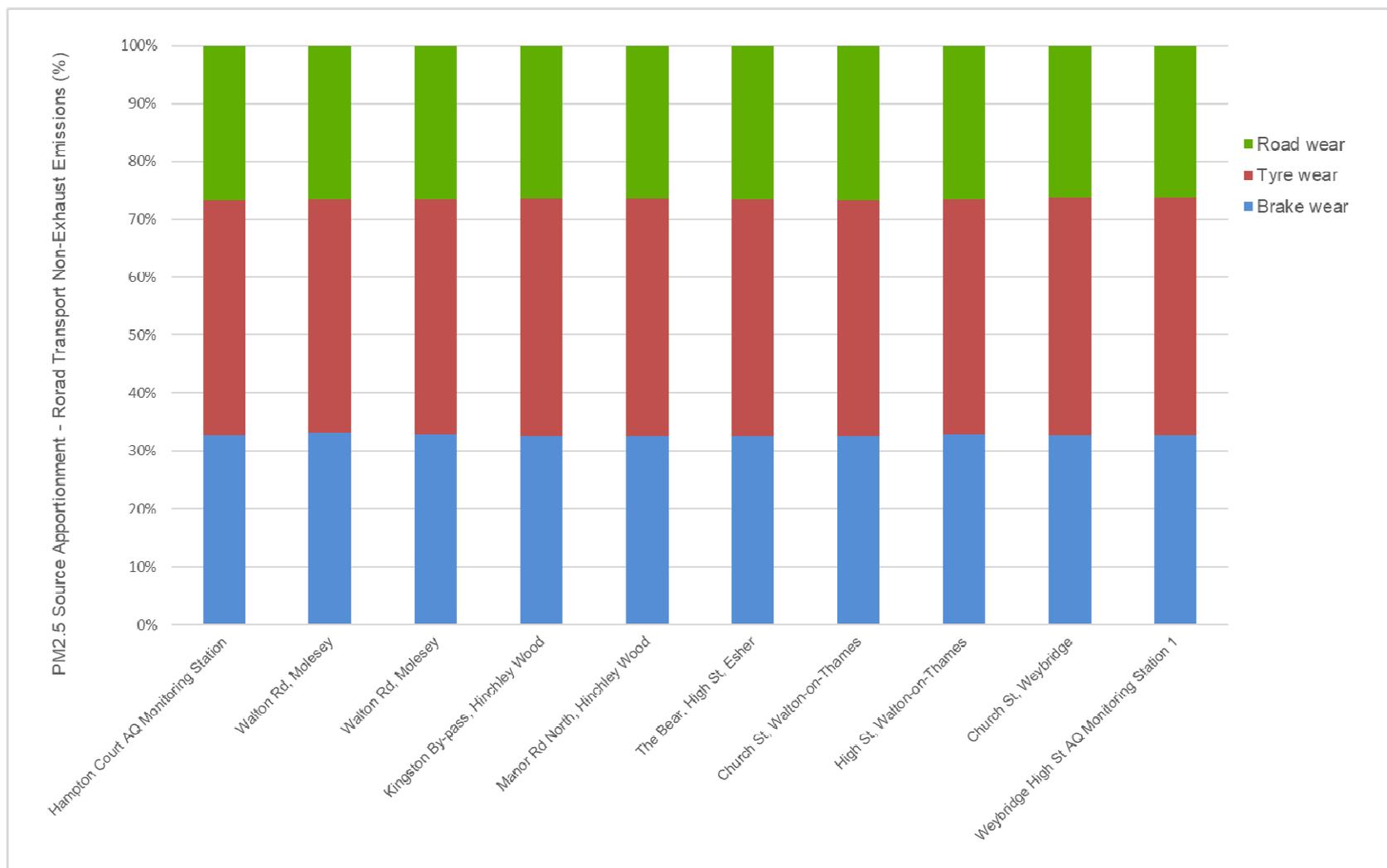


Figure E.5: PM_{2.5} Source Apportionment of Non- Exhaust Emissions in Elbridge AQMAs ³³

³³ PM_{2.5} source apportionment for non-exhaust emissions type is expressed as a percentage of the total non-exhaust emissions.

Appendix F: Required Reduction in Emissions

Table F. 1 shows the reduction in NO₂ concentrations and road NO_x emissions required in the Council’s AQMAs based on 2019 measured values. The required reduction in emissions has been calculated in accordance with Chapter 7 (Box 7.6) of the LAQM Technical Guidance 2016 (LAQM TG.16) using DEFRA’s latest NO_x to NO₂ Calculator Tool v8.1. The target value used in these calculations is 36 µg/m³ to take into account the requirement for concentrations to be at least 10% below the objective for revocation of the AQMA to be considered on the basis of monitoring data alone.

Table F. 1: Required Reductions in Road NO_x Emissions

Location	NO ₂ Concentrations (µg/m ³)		Road NO _x Emissions (%)
	2019 Measured Concentration	Reduction Required	Reduction Required
Esher High Street	46 ^a	-10	36.9
Weybridge High Street	45.6 ^b	-9.6	36.3
Hampton Court	41 ^c	-5	24.4
Walton-on-Thames High Street	39.2 ^d	-3.2	15.0
Walton Road, Molesey	39.4 ^e	-3.4	16.6
Hinchley Wood	37.4 ^f	-1.4	7.5

a) Measured at Esher 7

b) Measured at Weybridge 7

c) Measured at Hampton Court Parade automatic monitor

d) Measured at Walton 10

e) Measured at Molesey 8

f) Measured at Hinchley Wood 1

Appendix G: Estimated Reduction in Emissions

G.1 Estimated Future Emissions by Vehicle Type

In order to gain further understanding of the types of AQAP measures that would be the most beneficial in terms of improving air quality within the AQMAs, the Emission Factor Toolkit (EFT) v10.1 has been used to provide an indication of expected NO_x emission reductions between 2020 - 2025 by vehicle type. The EFT utilises NO_x emission factors taken from the European Environment Agency COPERT 5.3 emission tool. The EFT provides pollutant emission rates for 2018 through to 2030 and takes into consideration the following information available from the National Atmospheric Emissions Inventory (NAEI):

- fleet composition data for motorways, urban and rural roads in London and rest of the UK;
- fleet composition based on European emission standards from pre-Euro I to Euro 6(a-d)/VI;
- scaling factors reflecting improvements in the quality of fuel and some degree of retrofitting; and
- technology conversions in the national fleet.

Emissions have been calculated for a hypothetical road with a traffic flow of 31,000 vehicles (either 100% cars, LGVs, HGVs and buses and coaches) to determine which vehicle type is expected to result in the greatest emission reductions in the future, without the implementation of any specific AQAP measures. **Figure G.1** presents the results of the analysis of future emission reductions by vehicle type.

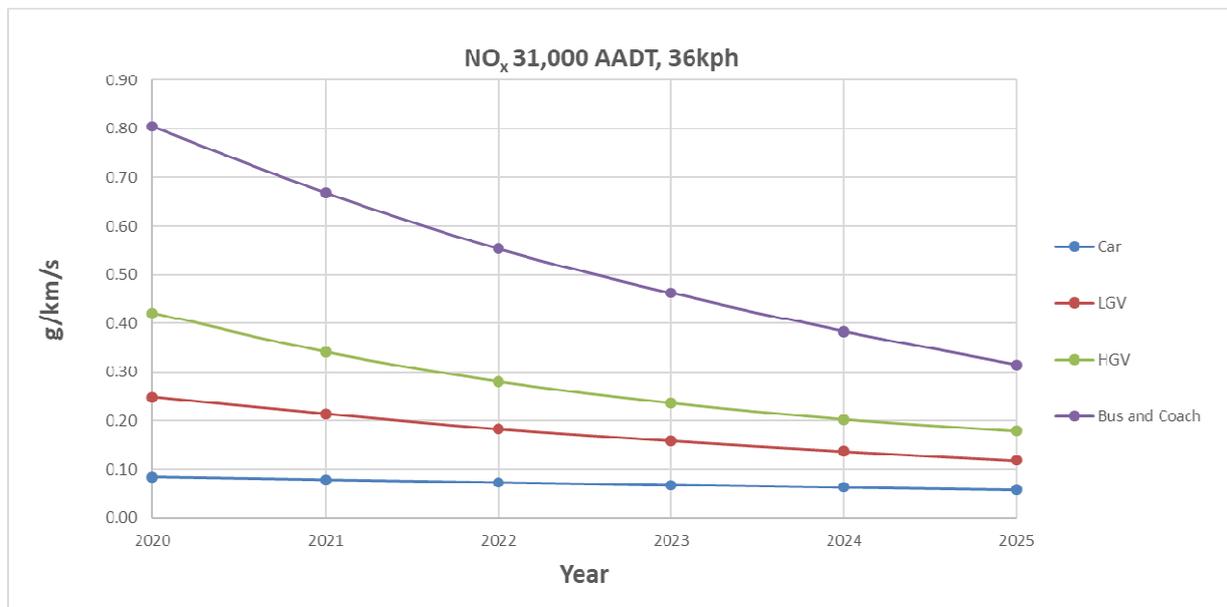


Figure G.1 – Estimated NOx Emission Reductions by Vehicle Type without AQAP Measures

Figure G.1 shows that buses and coaches are expected to have the greatest emission reductions between 2020 – 2025, without the implementation of specific AQAP measures. However, emissions from buses and coaches are still estimated to be approximately 8x higher than those from cars in 2025. Cars are expected to have the smallest reduction in emissions between 2020 – 2025 without the implementation of AQAP measures. It should be noted that the EFT does not take into account any effects of COVID-19 upon vehicle fleet changes and there are likely to be impacts on vehicle replacement rates for some years to come.

G.2 Estimated Future Emission Reductions in the AQMAs

In order to understand the future reduction in emissions within the AQMAs in a ‘business as usual’ scenario (i.e. without any AQAP measures), the EFT v10.1 has been used to calculate road NOx emissions up to 2025 within the three AQMAs where exceedances of the annual mean NO₂ objective are still present (Weybridge, Esher and Hampton Court). Publicly available traffic data for roads within the AQMAs have been obtained from the Department for Transport (DfT) and are provided in **Table G. 1**. The latest available (2019) annual average daily traffic (AADT) data has been factored to each of the corresponding future emission years to account for growth in traffic flows in the future. The National Trip End Model has been used via the TEMPro software to obtain the growth factors for each year (see **Table G. 1** for

further details). It has been assumed that the heavy-duty vehicle (HDV) split remains constant in future years. The traffic data has been inputted into the EFT to calculate road vehicle NOx emissions rates for 2019 - 2025, for an urban road type, at the speed limit on the road within the AQMAs.

Figure G.2 shows that the emission outputs from the EFT demonstrate a predicted decrease in NOx emissions between 2019 – 2025 of approximately 40% in Weybridge, Esher and Hampton Court AQMAs. Taking into consideration the emissions reductions required in the AQMAs (**Appendix F**), **Figure G.2** therefore suggests that the emissions reductions required could possibly be achieved by 2025 without the implementation of AQAP measures. However, it is recognised that AQAP measures are required in order to reduce NO₂ concentrations within the AQMAs in the shortest time possible in order to protect human health. It should also be noted that the analysis of future emission trends is based upon national fleet assumptions in the EFT, which may not be completely reflective of each area where the vehicle fleet composition may be different and may also change in a different way to the national fleet in the future.

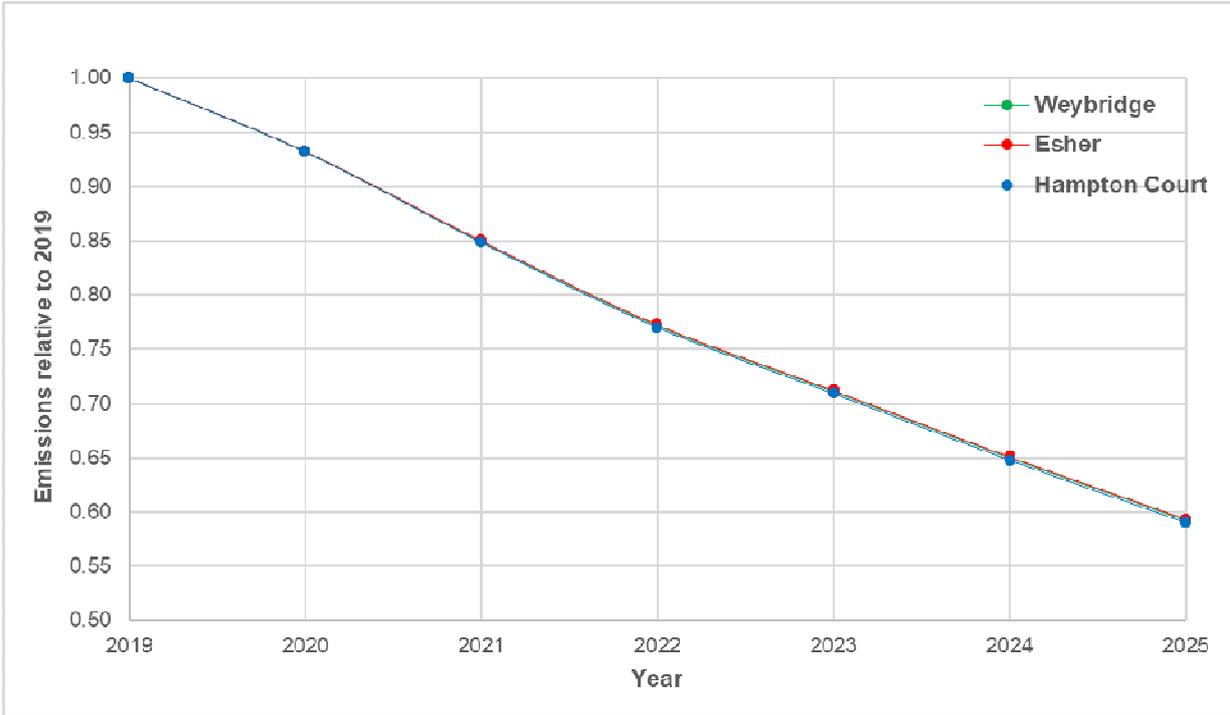


Figure G.2 – Estimated Future Road NOx Emission Reductions without AQAP Measures

Table G. 1: Department for Transport Traffic Data

Year	TEMPro Growth Factor (Elmbridge – All Roads)	Weybridge - Monument Green (DFT Count Point)		Hampton Court – A309		Esher – High Street		Hinchley Wood – Kingston Bypass		Molesey – Walton Road		Walton-on-Thames – A3050	
		Total AADT	%HDV	Total AADT	%HDV	Total AADT	%HDV	Total AADT	%HDV	Total AADT	%HDV	Total AADT	%HDV
2019	-	15732	2.01	21651	2.36	28151	1.89	28114	1.85	13822	2.56	14249	2.71
2020	1.0107	15900	2.01	21883	2.36	28452	1.89	-	-	-	-	-	-
2021	1.022	16078	2.01	22127	2.36	28770	1.89	-	-	-	-	-	-
2022	1.0346	16276	2.01	22400	2.36	29125	1.89	-	-	-	-	-	-
2023	1.0549	16596	2.01	22840	2.36	29696	1.89	-	-	-	-	-	-
2024	1.0697	16829	2.01	23160	2.36	30113	1.89	-	-	-	-	-	-
2025	1.0846	17063	2.01	23483	2.36	30533	1.89	-	-	-	-	-	-

G.3 Indicative Estimated Emission Reductions from AQAP Measures

The measures contained within this AQAP are largely centred around reducing vehicle emissions and encouraging sustainable travel modes to reduce the number of vehicles on the roads. An exercise has been undertaken to quantify the estimated emission reductions that could be expected as a result of the implementation of a range of AQAP measures. The Emission Factor Toolkit (EFT) V10.1 and publicly available traffic data from the DfT have been used to calculate estimated road vehicle NOx emissions in the AQMAs in 2019. Road NOx emission reductions in various scenarios representing different AQAP measures have then been calculated by altering the fleet composition in the EFT. These scenarios have then been compared against the baseline road NOx emissions in order to obtain an estimated percentage reduction. These calculations are only intended to provide an indication of NOx emission reductions associated with AQAP measures and the assumptions applied may not be representative in every situation.

Table G. 2: Estimated Reductions in Road NOx Emissions

Scenario	Estimated Road NOx Reduction (%)					
	Walton-on-Thames	Weybridge High Street	Hampton Court	Esher High Street	Walton Road Molesey	Hinchley Wood
Reduce number of cars by 5%	3.9	4.1	3.9	4.1	3.8	4.0
Reduce number of cars by 10%	7.8	8.1	7.8	8.2	7.6	8.0
Reduce number of cars by 25%	19.6	20.3	19.4	20.4	18.9	20.0
Change all HGVs to Euro VI	8.0	4.3	6.4	4.8	4.8	5.2
Change all Buses to Euro VI	3.5	6.1	2.1	4.1	8.7	1.5
% Reduction Required	16.6	36.3	24.4	36.9	15	7.5

Appendix H: Consultation

H.1 Consultation Undertaken

In updating 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 H. 1**. In addition, we have undertaken the following stakeholder engagement:

- EBC’s website – dedicated online consultation form on all the AQAP actions;
- promoting the AQAP consultation via Clear Channel advertisement screens at bus stops and high street locations;
- consultation email to business groups, trading associations, businesses improvement districts businesses and high street leads;
- inclusion of a link to the AQAP consultation in Council email footers; and
- consultation promoted via social media.

Table H. 1: Consultation Undertaken

Yes/No	Consultee
No	the Secretary of State
Yes	the Environment Agency
Yes	the highways authority
Yes	all neighbouring local authorities
Yes	other public authorities as appropriate, such as Public Health officials (SCC Public Health Team)
Yes	bodies representing local business interests and other organisations as appropriate

H.2 Steering Group

The Council established an Air Quality Action Plan Steering Group in August 2020 with the purpose of overseeing the formulation of the Plan by identifying new policies or actions that could positively affect air quality, as well as assisting with the implementation of the AQAP. The Steering Group includes the following stakeholders:

- Elmbridge Borough Council's Environmental Services Team, Organisational Development and Planning Team's
- Surrey County Council – Public Health Team
- Surrey County Council Highways
- Surrey Air Alliance (SAA) representatives
- Reigate and Banstead Borough Council
- Woking Borough Council
- Waverley Borough Council
- Guildford Borough Council
- Spelthorne Borough Council
- Runnymede Borough Council
- Mole Valley District Council
- Surrey Heath Borough Council

Two Steering Group Workshops were held in August 2020 to review and assess the viability of AQAP measures. A separate meeting was held with the Public Health Team at SCC to accommodate COVID-19 response demands. The Steering Group were kept informed throughout the consultation process.

H.3 Consultation Response

The Draft AQAP was released for public consultation from 10th March to 5th May 2021. During this time, the document was available on the Council website with an accompanying questionnaire. The consultation was advertised on the Council website, in Council staff email footers, via Clear Channel advertising screens at bus stops and high street locations, and on social media. A consultation email was also sent to business groups, trading associations, business improvement district businesses and high street leads encouraging them to take part in the consultation. A total of 85 questionnaire responses were received, in addition to a number of written responses. The consultation responses have been discussed with the Council's Portfolio Holder for the Environment and have been considered in this AQAP.

DEFRA's first appraisal review of the Draft AQAP submitted in March 2021, at the start of the eight-week public consultation, concluded that the AQAP was considered acceptable. Comments on the Draft AQAP were provided by DEFRA in their appraisal, and these have been incorporated into this version of the AQAP.

Since DEFRA's review, further comments have been received from Cabinet Members following a Cabinet Meeting in July 2021. The latest version of the Draft AQAP has been revised to take into account Cabinet Members comments. The AQAP was approved by Cabinet on 17 November 2021.

Appendix I: Cost Benefit Analysis

The Council is required to assess the impacts and costs of proposed actions in improving air quality. The process for undertaking this cost-benefit analysis of the proposed AQAP measures is outlined in the following.

I.1 Effectiveness of Measures

It is not practicable to provide estimates of the effectiveness of measures detailed in **Table 3.1** and **Table 3.2** in terms of the reduction in pollutant concentration, as many measures are indirect measures, such as monitoring and studies, aimed at enabling the development of measures which will directly result in pollutant reductions.

Therefore, the approach taken has been used to rate measures in terms of how favourable they are towards facilitating future air quality improvements or reducing exposure within the AQMAs. For example, BW-28 requires the Council to work with local businesses to investigate options to reduce vehicle emissions from deliveries. Whilst this measure will not necessarily lead to a direct reduction in pollutant concentrations itself, it will assist with the development of measures that can have a direct impact.

The effectiveness of each measure in relation to the potential indirect beneficial air quality impact has been rated large, moderate, small, very small or negligible.

I.2 Estimated Cost of Measures

The cost of each measure has been estimated and measures have been categorised into the following cost categories:

- Negligible/ No cost
- >£1k
- £1k - £10k
- £10k - £100k
- £100k – £1 million
- £1 million - £10 million
- >£10 million

I.3 Cost-Benefit Analysis

The cost-benefit of each measure has then been assessed considering its effectiveness and cost using the matrix below.

Cost Benefit	Negligible	Very Small	Small	Moderate	Large
Negligible/no cost	Medium	Medium	High	High	High
<£1k	Low	Medium	High	High	High
£1k- £10k	Low	Medium	High	High	High
£10k - £100k	Low	Medium	Medium	High	High
£100k - £1 million	Low	Low	Medium	Medium	High
£1 million - £10 million	Low	Low	Low	Medium	Medium
>£10 million	Low	Low	Low	Low	Medium

Table I. 1 shows the effectiveness rating, estimated cost and cost-benefit rating for each of the measures included in **Table 3.1** and **Table 3.2**. **Table I. 1** shows that the cost-benefit rating for all measures is medium or high.

Table I. 1: Cost-benefit Analysis of AQAP Measures

Measure Number	Effectiveness Rating	Cost	Cost-Benefit Rating
SCC-1	Large	£1 million - £10 million	Medium
SCC-2	Large	£1 million - £10 million	Medium
SCC-3	Medium	£100k - £1 million	Medium
SCC-4	Medium	£1 million - £10 million	Medium
SCC-5	Small	£10k - £100k	Medium
SCC-6	Small	£1k - £10k	High
SCC-7	Small	£10k - £100k	Medium
SCC-8	Small	£10k - £100k	Medium
SCC-9	Small	£10k - £100k	Medium
EBC-1	Very small	£10k - £100k	Medium
EBC-2	Small	£10k - £100k	Medium
EBC-3	Small	Negligible/no cost	High
EBC-4	Very small	£10k - £100k	Medium
EBC-5	Very small	£1k - £10k	Medium
EBC-6	Small	£10k - £100k	Medium
EBC-7	Medium	£1k - £10k	High
EBC-8	Small	£1k - £10k	High
EBC-9	Small	£1k - £10k	High
EBC-10	Very small	£1k - £10k	Medium

Measure Number	Effectiveness Rating	Cost	Cost-Benefit Rating
EBC-11	Very small	£1k - £10k	Medium
EBC-12	Small	£1k - £10k	High
EBC-13	Small	£10k - £100k	Medium
EBC-14	Small	£10k - £100k	Medium
EBC-15	Small	£1k - £10k	High
EBC-16	Small	£1k - £10k	High
EBC-17	Very small	£1k - £10k	Medium
EBC-18	Very small	£1k - £10k	Medium
EBC-19	Very small	£1k - £10k	Medium
EBC-20	Very small	£1k - £10k	Medium
EBC-21	Very small	£1k - £10k	Medium
EBC-22	Small	£1k - £10k	High
EBC-23	Small	£1k - £10k	High

I.4 Wider Benefits of Measures

Whilst a cost-benefit analysis has been undertaken in relation to the effectiveness of measures in improving air quality and reducing exposure, it should be recognised that many measures have wider social, economic and environmental benefits.

Several of the AQAP measures are designed to encourage the use of sustainable transport modes such as walking and cycling. These measures include the implementation of the Low Emission Transport Strategy for Surrey (SCC-2), development and implementation of a LCWIP for Elmbridge (SCC-5), piloting a cargo-bike scheme for local businesses (EBC-5), and installation of pedestrian facilities on Esher High Street (SCC-9). These measures are beneficial for climate change as they have potential to reduce the amount of green-house gas (GHG) emissions from vehicles, whilst also having wider social benefits, particularly in relation to wellbeing by encouraging the use of active travel modes.

The economic benefits of a number of measures are also apparent. The installation of pedestrian facilities on Esher High Street (SCC-9) has the potential to make the area more attractive for local businesses and their customers. Similarly, customers may wish to use businesses who support environmental initiatives, therefore measures such as piloting a cargo-bike scheme for local businesses (EBC-5) may also

have economic benefits for businesses in relation to increased customer numbers as well as cost-savings from reduced vehicle costs.