



IPSWICH

BOROUGH COUNCIL

Ipswich Borough Council Air Quality Action Plan 2019 - 2024

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

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Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we want to see delivered to improve air quality in Ipswich.

This action plan replaces the previous action plan which ran from September 2008.

Projects delivered through the past action plan include:

- Bus timetable improvements;
- Improved facilities at bus stations, including the provision of real time passenger information;
- The implementation of a new Urban Traffic Management and Control (UTMC) system to reduce congestions within Ipswich; and
- Improvements to town centre pedestrian and cycle routes.

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³. Ipswich Borough Council is committed to reducing the exposure of people in Ipswich to poor air quality in order to improve health.

We have developed actions that can be considered under the following broad topics:

- Public Information
- Promoting Travel Alternatives
- Promoting Low Emission Transport
- Alternatives to Private Vehicle Use
- Traffic Management
- Vehicle Fleet Efficiency

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

- Freight and Delivery Management
- Policy Guidance and Development Control
- Transport Planning and Infrastructure
- Promoting Low Emission Plant

Our priorities are:

- Priority 1 – Public health, behaviours and awareness - Facilitating a modal shift away from private vehicles towards public transport and active travel, to improve air quality and create a healthy community.
- Priority 2 – Transport - Incentivise switching to cleaner vehicles, developing effective yet realistic renewal strategies for the town's bus fleet, taxis and corporate fleets, to reduce poor air quality and to create a more sustainable environment.
- Priority 3 - Policy, planning and infrastructure - By embedding air quality measures into policy development, planning applications and major developments, to bring future improvements to air quality and create an enjoyable and sustainable place to live and work, and build a strong Ipswich economy.
- Priority 4 – Wider strategic approach- Reducing exposure to air pollution by tackling the sources of pollution from further transport initiatives and domestic sources.

In this AQAP we outline how we plan to effectively tackle air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on policies and issues beyond Ipswich Borough Council's direct influence.

Responsibilities and Commitment

This AQAP was prepared by the Environmental Protection Department at Ipswich Borough Council with the support and agreement of the following officers and departments:

Public Protection, Ipswich Borough Council

- Caroline Talbot Principal Environmental Health Officer (Environmental Protection)
- Andrew Coleman Environmental Health Officer (Environmental Protection)

Planning and Development, Ipswich Borough Council

- Carlos Hone Operations Manager Planning and Development
- Sarah Barker Planning Policy Team Leader

Growth, Highways and Infrastructure, Suffolk County Council

- Steve Merry Transport Policy and Development Manager
- Sharon Payne Principal Transport Planner

Health, Wellbeing and Children's Services (HWC), Suffolk County Council

- Marc Rolph Health Protection Manager

This AQAP has been approved by:

- Ian Blofield Head of Housing and Community Services, Ipswich Borough Council

This AQAP will be subject to an annual review, appraisal of progress and reporting to the relevant Council Committee. Progress each year will be reported in the Annual Status Reports (ASRs) produced by Ipswich Borough Council, as part of our statutory Local Air Quality Management duties.

The Air Quality Action Plan is a live document. Measures will be added and developed throughout the lifetime of this plan.

Ipswich Borough Council

If you have any comments on this AQAP please send them to the Environmental Protection Department at:

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1. Introduction

This report outlines the actions that Ipswich Borough Council want to see delivered between 2019 and 2024, in order to reduce concentrations 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 of Ipswich.

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.

This Plan will be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within Ipswich Borough Council's air quality ASR.

At the time of producing this AQAP, the Government published their new Clean Air Strategy 2019 (<https://tinyurl.com/yaex8j59>) which includes, amongst other proposals, the proposal to introduce new legislation to give Local Authorities additional powers to address air pollution problems. In addition, the Government have proposed a new Clean Air Bill (<https://tinyurl.com/y789ynkj>) which is currently being read in the House of Commons. The Government have also proposed a new Environment Bill (<https://tinyurl.com/y8k9tgwf>) which sets out how the UK will maintain and improve environmental standards following withdrawal from the European Union. Any changes in national policy deemed to influence our approach to improving air quality through this AQAP within the five year period will be considered. Furthermore, any changes in national policy that the steering group think will help improve delivery of our agreed AQAP or improve local air quality within the five-year period will be considered. If necessary, measures will be updated and reported as necessary in such an event.

2. Summary of Current Air Quality in Ipswich Borough

In order to assess local air quality, the Council operates one continuous analyser sited in Chevallier Street, Ipswich providing highly accurate data on levels of nitrogen dioxide. In addition, diffusion tubes measure levels of nitrogen dioxide at 76 locations across Ipswich.

To date, Ipswich Borough Council has declared a total of five Air Quality Management Areas (AQMA) at locations where the annual mean concentration of nitrogen dioxide (NO₂) is, or is likely to, exceed the national objective level of 40µg/m³ on a consistent basis:

- *Ipswich AQMA No.1* - Encompassing the land in and around the junction of Norwich Road, Chevallier Street and Valley Road, extending along Chevallier Street to beyond the junction with Waterloo Road (declared 2006; amended 2017);
- *Ipswich AQMA No. 2* - From the junction with Peel Street, extending along Crown Street, St Margarets Street and St Helens Street to the junction with Palmerston Road, and from St Margarets Street extending up Woodbridge Road to just beyond the junction with Argyle Street. (declared 2006; amended 2017);
- *Ipswich AQMA No. 3* - Following the route of the Star Lane / Key Street / College Street gyratory clockwise from the junction with Lower Orwell Street, extending along Star Lane, Grimwade Street, Fore Street, Salthouse Street, Key Street and College Street, terminating at the junction with Bridge Street (declared 2006; amended 2017);
- *Ipswich AQMA No. 4* - Incorporating the Bramford Road / Yarmouth Road / Chevallier Street junction and part of Chevallier Street (declared 2010);
- *Ipswich AQMA No. 5* - Incorporating the land in or around St. Matthews Street / Norwich Road between the Civic Drive roundabout and Bramford Road (declared 2017).

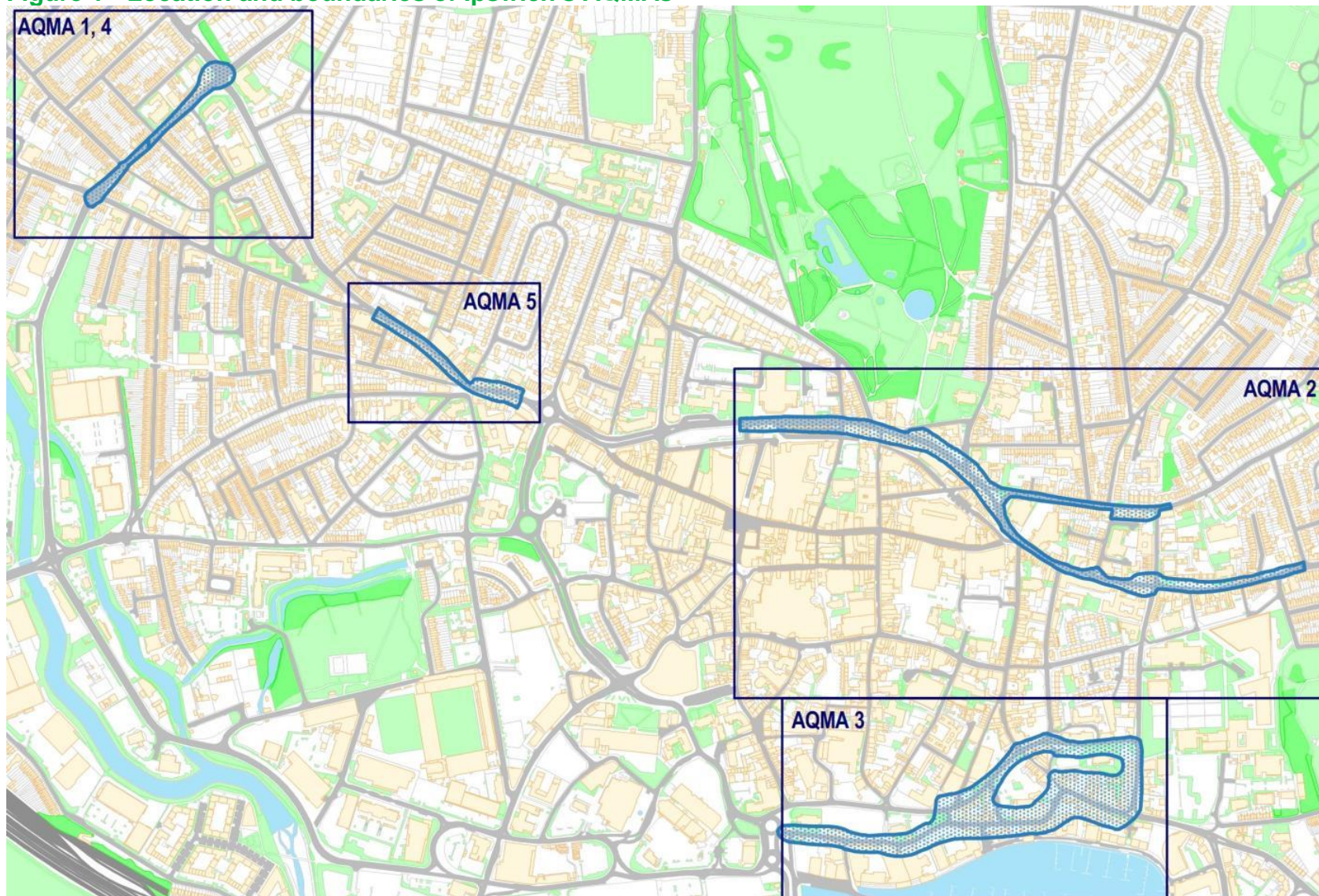
Ipswich Borough Council

Further information on the above AQMAs (shown in Figure 1 below) is available on Ipswich Borough Council's AQMA webpage on the DEFRA website – https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=133.

For the most up-to-date air quality monitoring data for the AQMAs and across the Borough, please refer to the latest ASR available on the from Ipswich Borough Council Air Quality Management website - <https://www.ipswich.gov.uk/airqualitymanagement>.

Both nationally and locally the main source of high levels of nitrogen dioxide is from vehicle emissions, so the AQAP will focus primarily on ways to reduce these emissions, as well as reducing other sources of air pollution.

Figure 1 - Location and boundaries of Ipswich's AQMAs



3. Ipswich Borough Council's Air Quality Priorities

3.1 Public Health Context

A major public health risk

Air pollution is a major public health risk ranking alongside cancer, heart disease and obesity (DoH, 2011). Causing more harm than passive smoking (Defra, 2018), a review by the World Health Organization (WHO) concluded that long-term exposure to air pollution reduces life expectancy by increasing deaths from lung, heart and circulatory conditions (WHO, 2013).

Conditions caused or exacerbated by air pollution include asthma, chronic bronchitis, chronic heart disease, and strokes. These conditions significantly reduce quality of life. They also mean that people are less able to work and need more medical care, resulting in higher social costs and burdens to the National Health Service (Defra, 2018).

Affects the most vulnerable in society

Although poor air quality can affect health at all stages of life, those most affected are the young and old (NICE, 2017). In the womb, maternal exposure to air pollution can contribute to low birth weight, premature birth, stillbirth or organ damage. Whilst in children there is evidence of a link to reduced lung capacity (RCP/RCPCH, 2016). In old age, a life-time of exposure to air pollution can result in reduced life-expectancy and reduced wellbeing at end of life. There is also emerging evidence of a link between air pollution and an acceleration of the decline in cognitive function (RCP/RCPCH, 2016).

Another group disproportionately at risk from air pollution are the socio-economically disadvantaged. Deprived communities are more likely to experience adverse health effects from poor air quality because they are more exposed to air pollution, for example, by being close to major roads (NICE, 2017). They are also less likely to live close to well-maintained green spaces associated with lower levels of air pollution, increased physical activity, and improved mental wellbeing (Defra, 2018).

The local picture

As of 2016, in Ipswich 19.9% of the population were aged 0-15, and 16.0% were aged 65 or over (ONS, 2018). This means that over 35% of the population (approximately 50,000 individuals) are especially vulnerable to the harmful effects of air pollution by virtue of their age. This susceptibility is further potentiated by disproportionately high income deprivation rates amongst these groups; rates of 21.9% affecting children and 17.5% affecting older people compared to a headline income deprivation rate within Ipswich of 16.3% (Suffolk Community Foundation, 2016).

Modelling has estimated that in 2010 across Ipswich anthropogenic PM_{2.5} air pollution was responsible for the equivalent of 63 excess deaths amongst over 25s, resulting in an estimated 653 life-years lost (PHE, 2014).

Across the UK the major pollutants of concern are particulate matter (e.g. PM_{2.5}) and nitrogen oxides (e.g. NO₂). Sources can include both natural and man-made processes such as construction, industry, power generation, agriculture, home heating, as well as motorised transport by road, rail, sea and air (SCC, 2017). Within Ipswich the major air pollutant of concern, and hence primary focus of this action plan, is nitrogen dioxide emitted from road transport. As summarised above, Ipswich currently has five AQMAs where the mean annual objective level for nitrogen dioxide is exceeded on a regular basis. In total the AQMAs cover approximately 9 hectares (or 0.23%) of the Borough.

Working together to deliver real improvement

Although primarily focused on addressing Ipswich Borough Council's LAQM responsibilities in respect of annual mean nitrogen dioxide exceedances, it is envisaged that this action plan will also help to reduce anthropogenic emissions of PM_{2.5}. Consequently, working in partnership with Public Health Suffolk it is hoped that this action plan can be used to drive both compliance with the national air quality objectives and improvements in the Public Health Outcomes Framework indicator 3.01 for Suffolk; indicator number 3.01 being the "*Fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution (measured as fine particulate matter, PM_{2.5})*" (PHE, 2018).

3.2 Planning and Policy Context

On a county-wide basis air quality management in recent years has been made a priority by the Suffolk Air Quality Management Group (SCC, 2017), which previously issued guidance for use across Suffolk - <https://tinyurl.com/y85kgwoa>. This guidance has now been superseded by the guidance documents issued by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM): “Land-Use Planning and Development Control: Planning for Air Quality guidance” [<https://tinyurl.com/yaogpp3>] and “Guidance on the assessment of dust from demolition and construction” [<https://tinyurl.com/y7ggpt2o>].

Aimed at maintaining and where possible improving air quality, this guidance is intended to ensure a consistent approach to local air quality management and new development by:

- i. identifying circumstances where an air quality assessment would be required to accompany an application;
- ii. providing guidance on the requirements of the air quality assessment; and
- iii. providing guidance on mitigation and offsetting

In addition to this, the *Suffolk Guidance for Parking* [<https://tinyurl.com/y789rjkg>] includes provisions to increase the number of electric vehicles charging points in new parking developments.

With one of the twelve strategic objectives guiding the *Ipswich Local Plan* [<https://tinyurl.com/y8zk2yw2>] being “*To improve air quality and create a safer, greener, more cohesive town*” there are references throughout the document to measures to improve air quality, including:

- i. providing infrastructure to support modal shift to active travel (walking and cycling) and public transport;
- ii. the requirement for travel planning and car clubs at significant new developments;
- iii. the importance of green infrastructure in mitigating the effects of air pollution; and
- iv. the provision of electric vehicle charging points to support the uptake of ultra-low emission vehicles (ULEVs).

This commitment to safeguarding and improving air quality is most clearly expressed in *Policy DM17: Transport and Access in New Developments*, where in addition to the above the policy states:

“To promote sustainable growth in Ipswich and reduce the impact of traffic congestion, new development shall not result in a significant impact on air quality or an Air Quality Management Area.”

The Ipswich Local Plan is currently being reviewed and updated, and will further embed air quality considerations. Within this plan, a new policy specifically relating to air quality is proposed - *Policy DM3: Air Quality*.

To support the promotion of active travel, in 2016 Ipswich Borough Council issued a Cycling Strategy Supplementary Planning Document (SPD) [<https://tinyurl.com/y7wag62m>]. In addition to this, the Council is in the initial stages of preparing a Low Emissions Strategy SPD to provide additional guidance to policies contained in the Ipswich Local Plan. The new SPD will not set new policies but will be a material consideration in taking decisions on planning applications. Providing a consistent approach to dealing with air quality and planning in Ipswich, the SPD will provide guidance on measures that can be implemented to mitigate the potentially harmful impacts of new development (e.g. increased traffic and congestion; increased emissions from the heating of new homes). As such it will consider measures regarding the use and type of vehicles; the role of walking, cycling and public transport; boiler types; and the role of trees and hedgerows in absorbing pollutants (IBC, 2016). It is envisaged that the Steering Group instrumental in the delivery of this action plan will also take a prominent role in the development of the new SPD.

3.3 Required Reduction in Emissions

To enable resources to be focused on the areas where they could have the greatest benefit, prior to commissioning a source apportionment study the 2016 bias and distance corrected diffusion tube data was used to calculate the percentage reduction in traffic related NO_x emissions necessary to comply with the air quality objective. Calculated in accordance with the method described in Chapter 7 of the *Technical Guidance LAQM.TG16* (Defra, 2018) (see Appendix 8) the required reductions for the highest exceedance in each AQMA are shown in Table 3.1 below.

Table 3.1 – Required reductions in NO₂ / traffic related NO_x

AQMA	Required NO ₂ Concentration Reduction [worst case] (µg/m ³)	Required Reduction in Road-Related NO _x Emissions [worst case] (%)	Monitoring Location [worst case]
5	11	36%	Tube 65
2	7	28%	Tube 12
1	7	26%	Tube 14
3	1	5%	Tube 5
4	-	-	-

3.4 Source Apportionment

The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within Ipswich Borough Council’s area.

Prioritising the available resource on the two AQMAs with the most significant air quality problems, a source apportionment exercise was carried out by Ipswich Borough Council in 2018. This identified that within AQMAs No. 5 and 2 the percentage source contributions were as shown in Figures 2 and 3.

Figure 2 - Road NO_x Emissions for Ipswich AQMA No. 5

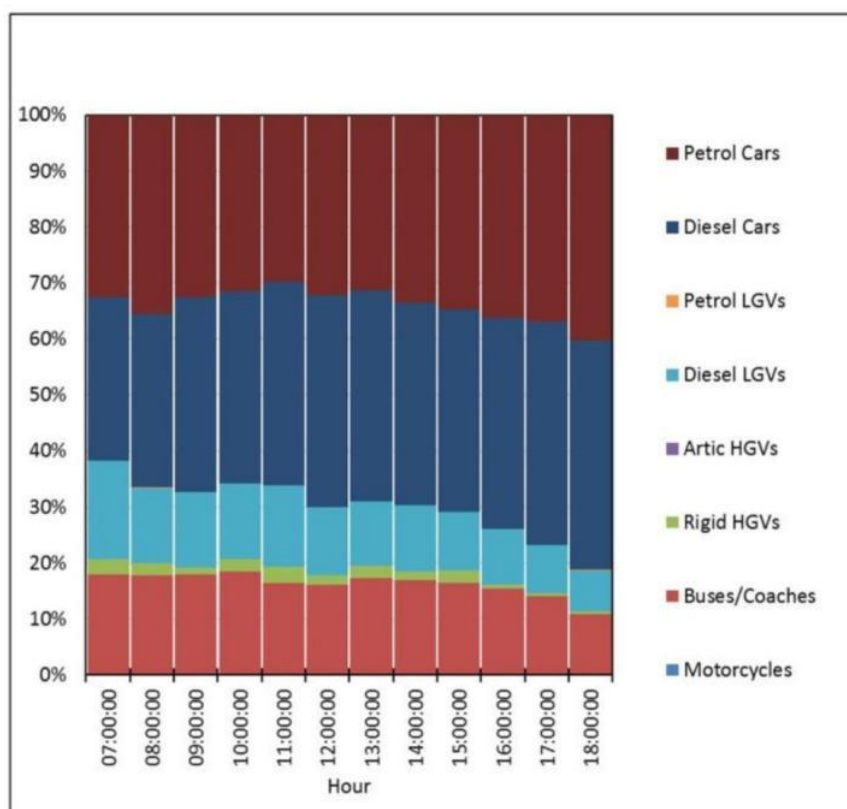


Figure 3 - Road NO_x Emissions for Ipswich AQMA No. 2

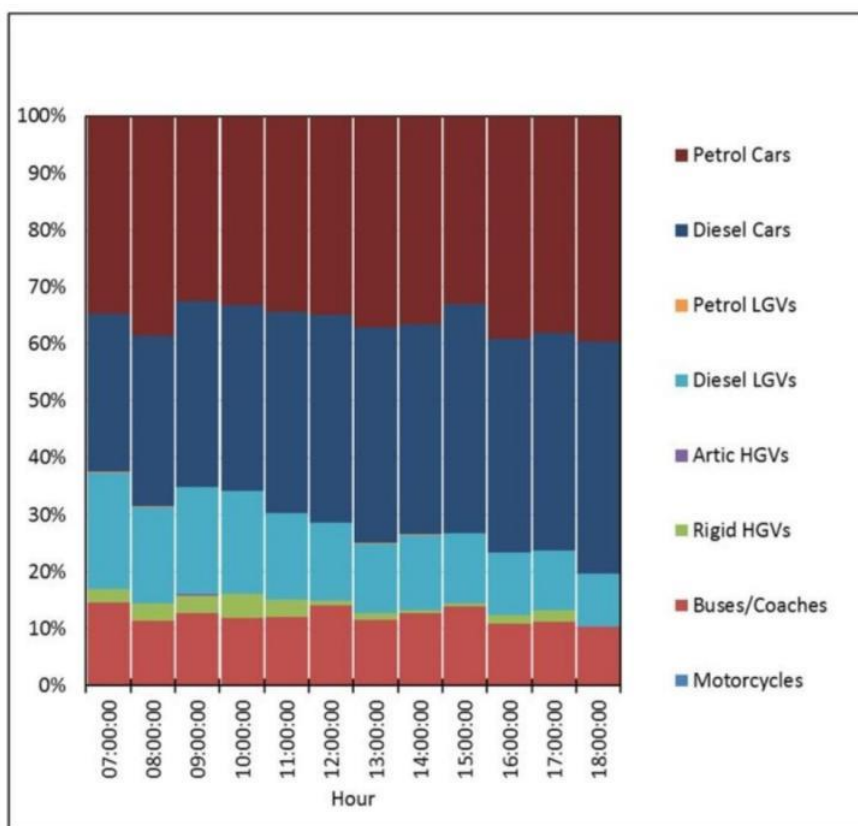


Figure 2 and Figure 3 show the percentage contribution to the total NO_x emissions by vehicle type and hour of the day for across the duration of the ANPR traffic survey undertaken as part of the source apportionment study. As such they illustrate how different vehicle types contributed to the total NO_x emissions by hour of day.

Both figures show that the NO_x emissions were dominated by car (petrol and diesel) emissions. This was to be expected as cars were the dominant vehicle types within the local fleet accounting for, on average, 35% of the total NO_x emissions each despite the number of petrol cars being higher than the number of diesel cars. Emissions from petrol LGVs, articulated HGVs and motorcycles were negligible (less than 1% each) across both AQMAs throughout the duration of the survey.

Comparison of Figure 2 to Figure 3 shows some differences between the sources of vehicle emissions in both AQMAs. Emissions within AQMA No. 5 had a greater contribution of bus and coach emissions, especially during the day, which accounted for 16% of NO_x emissions on average. Rigid HGVs accounted for just under 2% of emissions, rising to 3% around mid-morning (11:00hrs), whilst diesel LGVs accounted

for around 17% of emissions first thing in the morning, falling to about 7% by the end of the day.

Figure 3 shows that diesel LGVs accounted for around 20% of emissions at the start of the day in AQMA No. 2, falling to about 7% by the end (comparable the levels seen in AQMA No. 5). As with AQMA No. 5, rigid HGVs accounted for up to 2% of emissions and their emissions double at peak times around mid-morning (10:00hrs). Bus and coach emissions accounted for 12% of the total NO_x emissions, two-thirds the level seen in AQMA No. 5, rising slightly by a further percent or two at peak activity times such as first thing in the morning (07:00hrs), midday (12:00hrs) and mid-afternoon (15:00hrs).

These observations would appear to be consistent with what we would expect for the two AQMAs; AQMA No.5 is located on St Matthews Street / Norwich Road which forms a key bus route connecting the suburbs of northwest Ipswich to the town centre. This was reflected in the higher proportion of bus and coach emissions at this site.

Encompassing the Crown Street Bus Station, AQMA No. 2 is located on a bus route serving Ipswich's eastern suburbs. The higher proportion of diesel LGV and rigid HGV emissions, especially mid-morning, may have been due to vehicles delivering to the shops in Ipswich town centre as St. Margaret's Street forms the northern boundary of the town centre and serves as a key access route.

3.5 Key Priorities

Based upon our findings and the source apportionment study, which identified that the main impact is from road vehicle emissions, the following areas are a priority for action:

- Priority 1: Public health, behaviours and awareness - Facilitating a modal shift away from private vehicles towards public transport and active travel, to improve air quality and create a healthy community.

With the use of technology and providing information to inform the public, enable people to change their behaviours to reduce their exposure, as well as their contribution, to air pollution. This is particularly important for vulnerable members of society, such as the young, the elderly and those that may have heart or lung conditions.

Discouraging short distance commuting journeys and investing in walking and cycling can help reduce emissions of relevant air pollutants, as well as bring about health benefits to the community.

- Priority 2: Transport - Incentivise switching to cleaner vehicles, developing effective yet realistic renewal strategies for the town's bus fleet, taxis and corporate fleets, to reduce poor air quality and to create a more sustainable environment.

Influencing transport emissions through development of appropriate measures either under the council's direct control or via partnership work, which include reviewing traffic management systems, particularly around the current AQMAs, provision of electric charging points, renewing of bus fleets and taxi emissions standards.

- Priority 3: Policy, planning and infrastructure - By embedding air quality measures into policy development, planning applications and major developments, to bring future improvements to air quality and create an enjoyable and sustainable place to live and work, and build a strong Ipswich economy.

Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas.

Cooperation between transport, environmental health, public health and planning teams, as well as with partner organisations, to ensure a strategic approach to improving air quality and quality of life, especially for those living near busy roads and junctions.

- Priority 4: Wider strategic approach- Reducing exposure to air pollution by tackling the sources of pollution from further transport initiatives and domestic sources.

By taking an active role in Suffolk wide campaigns and other air pollution initiatives such as domestic burning and improvements to housing stock, to create a more sustainable environment.

4. Development and Implementation of Ipswich Borough Council's AQAP

4.1 Consultation and Stakeholder Engagement

Ipswich Borough Council is not the Highways Authority for the town, these functions are performed by Suffolk County Council. Action to reduce vehicle emissions relies on commitment by a coalition of partners, both public and private sector. Therefore whilst this AQAP has been published by Ipswich Borough Council, there are a significant number of collaborative projects that will have to be taken forward in collaboration with others. Some of these projects will be independently run, by their own project boards and groups, and may undertake their own specific consultation or stakeholder engagement. For this reason, the consultation described below will not be the only consultation which will be undertaken on the measures.

In developing this AQAP, we have worked with other local authorities, agencies, businesses and the local community to improve local air quality. The Environment Act 1995 requires local authorities to consult the bodies listed in Table 4.1. As part of the consultation process on this draft AQAP we have sought views from all these bodies. In addition, we have undertaken the following stakeholder engagement:

- Ipswich Borough Council's Website and social medial channels, including links to a questionnaire
- Consultation engagement via two 'drop in days' at the Town Hall
- Articles in the local press

The response to our consultation stakeholder engagement is given in Appendix A.

Table 4.1 – Consultation Undertaken

Yes/No	Consultee
Yes	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
Yes	bodies representing local business interests and other organisations as appropriate

4.2 Steering Group

Ipswich Borough Council's AQAP Steering Group has been set up to ensure clear governance of the plan. The Steering Group consists of the following representatives:

Chair

- Ian Blofield Head of Housing and Community Services, Ipswich Borough Council

Public Protection, Ipswich Borough Council

- Caroline Talbot Principal Environmental Health Officer (Environmental Protection)
- Andrew Coleman Environmental Health Officer (Environmental Protection)

Planning and Development, Ipswich Borough Council

- Carlos Hone Operations Manager Planning and Development
- Sarah Barker Planning Policy Team Leader

Growth, Highways and Infrastructure, Suffolk County Council

- Steve Merry Transport Policy and Development Manager
- Sharon Payne Principal Transport Planner

Health, Wellbeing and Children's Services (HWC), Suffolk County Council

- Marc Rolph Health Protection Manager

The full Steering Group met several times prior to consulting on this action plan. Following the public consultation, the Steering Group met again to discuss the findings of the consultation and amended the AQAP where appropriate. The group will aim to meet quarterly to evaluate progress with the AQAP. The steering groups response to the consultation stakeholder engagement is given in Appendix A.

The intention is for the steering group to be expanded to include other stakeholders as and when specific measures are being discussed in more detail.

5. AQAP Measures

Table 5.1 shows the Ipswich Borough Council AQAP measures. It contains:

- a list of the actions that form part of the plan
- the responsible individual and departments/organisations who will deliver this action
- estimated cost of implementing each action (overall cost and cost to the local authority)
- expected benefit in terms of nitrogen dioxide and/or concentration reduction. Accurately quantifying the effectiveness of the majority of emission reduction measures is not possible due to inherent assumptions and uncertainties. In these instances grading cost, perceived air quality impacts and timescales to a low, medium and high rating is more effective
- the timescale for implementation
- how progress will be monitored

NB: Please see future ASRs for regular annual updates on implementation of these measures

Explanation of terms: Target pollution reduction in the AQMA

Low - Action focused on a small proportion of sources contributing to an exceedance

Medium - A local or strategic measure that will reduce either emissions or exposure

High - A local or strategic measure that significantly reduces either emissions or exposure

Table 5.1 – Air Quality Action Plan Measures

#	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
A	Public health, behaviours and awareness										
1	Development and implementation of an anti-idling campaign, including where appropriate an enforcement regime	Public Information	Other	Ipswich Borough Council	2019	2019 onwards	-	Low	-	2020	Planning Suffolk wide campaign.
2	Campaign to raise awareness of air quality issues in schools near AQMAs to subsequently influence behavioural change and improve air quality near schools	Public Information	Other	Ipswich Borough Council	2019	2019 onwards	Present information to schools near AQMAs and within the borough.	Low	-	2020	-
3	Promote the Councils Green Travel Plan to employees, including use of agile working. Confirm SCC and Mid Suffolk and Babergh DC are promoting their own travel plans.	Promoting Travel Alternatives	Workplace Travel Planning	Ipswich Borough Council	2019	2019 onwards	Annual promotion of Travel Plan Increase in the number of employees walking, cycling or using public transport in the Councils Travel Plan survey	Low	-	-	To promote alternatives and reduce the need to travel everyday
4	Active participation in annual Clean Air Days	Public Information	Other	Ipswich Borough Council	Q1 2019	Q2 2019	Annual participation in clean air day 20 th June 2019	Low	-	Ongoing	Includes annual promotion of anti-idling

Ipswich Borough Council

#	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
5	Investigate the feasibility of promoting air quality messages on IBC procured variable message signs around Ipswich	Public Information	Other	Ipswich Borough Council	2019	2019	Promote anti-idling messages quarterly	Low	Ongoing	Ongoing promotion if feasible	Messages can also link to other campaigns: anti-idling/ domestic burning/ clean air day/ discounted public transport promotions
6	Promotion of travel alternatives e.g. walking, cycling, public transport, car sharing & air quality matters. Investigate the feasibility of promoting air quality messages on non-IBC owned variable message signs around Ipswich (e.g. Bury Road)	Public Information	Other	Suffolk County Council	2019	2019 onwards	-	Low	Ongoing	Ongoing promotion if feasible	Messages can also link to other campaigns: anti-idling/ domestic burning/ clean air day/ discounted public transport promotions
B	Transport										
7	Explore opportunities to increase Ipswich's Park and Ride scheme, including consideration given to re-opening the Bury Road Park and Ride, and promote current schemes to incentivise people coming into Ipswich town centre to use public transport over private cars	Alternatives to Private Vehicle Use	Bus based Park & Ride	Ipswich Borough Council	2019	2019 onwards	Increase in Park and Ride uptake	Low	Ongoing	Ongoing – promotion. Annual updates.	Suffolk County Council to advise on position regarding re-opening Bury Road
8	Procurement of low emission vehicles in Ipswich Borough Council Fleet	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Ipswich Borough Council	2019	2019 onwards	Provision of new vehicles	Low	8 pool cars to be replaced with electric vehicles in 2019	2022	3 year replacement plan for small vehicle fleet to zero emission. Larger vehicles to be euro VI standard

#	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
9	Provision of EV charging points across IBC offices, Crown Street and Elm Street public car parks and investigate the feasibility of additional charging points across IBC car parks	Promoting Low Emission Transport	Procuring alternative infrastructure to promote Low Emission Vehicles	Ipswich Borough Council	2019	2019	Provision of 4 charging stations (8 points) at Grafton House. Usage of EV charging points by the public	Low	28 charging points installed at Crown Car Park. 2 charging points (inc 1 rapid charging point) to be installed at Elm Street.	2019 for Grafton House. 2 charging points at Elm Street - TBC.	Provision of additional charging points depends on success of usage of current charging points
10	Promote the use of South Street (to be renamed Norwich Road Car Park), short term parking bays behind businesses on Norwich Road. Incentivising use of allocated parking and enforcement against unauthorised on street loading/ parking.	Traffic Management	Other	Ipswich Borough Council	2019	Q3, 2019	Reduction in congestion along Norwich Road. St Matthews Street. Number of penalty notices served	Low	-	Ongoing promotion	To reduce unauthorised parking on Norwich Road / St Matthews Street
11	Investigate what other organisations in the town are doing with regards to fleet renewal (e.g. other Local Authorities and large businesses) and whether there are opportunities (and funding) for an accelerated take up of ULEVs in the town.	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Ipswich Borough Council	2019	TBC	-	Low	-	-	-

#	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
12	Assist the Councils Car Parking Services in the development of their policies and strategies to promote clean travel and improved air quality. Review use of short and long stay car parks	Promoting Low Emission Transport	Other	Ipswich Borough Council	2019	TBC	-	Low	-	-	-
13	Continue to explore the possibility and apply to DEFRA for grant funding under Air Quality Grant Schemes and any other appropriate funding	Promoting Low Emission Transport, Promoting Travel Alternatives & Public Information	Other	Ipswich Borough Council	2019	TBC	-	-	-	TBC	Other councils used grants to raise awareness of issues/ apply for charging points/ work with businesses to reduce emissions/ cycling infrastructure
14	Work with Ipswich Buses bus fleet to encourage the renewal of their fleet to cleaner i.e. Euro VI or better and/or low emission, hybrid buses, on certain routes	Vehicle Fleet Efficiency	Other	Ipswich Borough Council	2019	2020 (and 2026)	8 Euro III/IV's buses to be replaced in 2019/2020 with Euro V or VI. 18 buses to be replaced in 2026 with buses at least Euro V or better. Reduced fleet emissions	Low	Ongoing	2020 (and 2026)	Investigate IBC funding towards improvements of bus fleet.
15	Work with other Bus Operators in the town (i.e. First, Norse, Beestons) to encourage the renewal of their fleets to cleaner i.e. Euro VI or better and/or low emission, hybrid buses, on certain routes	Vehicle Fleet Efficiency	Other	Ipswich Borough Council	2019	TBC	Reduced fleet emissions	Low	Ongoing	TBC	Awaiting further details on renewal strategy from Bus Operators i.e. First & Norse. Investigate IBC funding towards improvements of bus fleet.

<p>16</p>	<p>Introduction of taxi emissions standards policy.</p> <p><u>From 2020:</u></p> <p><i>Non-wheelchair accessible users</i> - move to Euro 4 Petrol, Euro 6 Diesel or Ultra Low Emission.</p> <p><i>Wheelchair accessible users:</i> <i>New</i> - move to Euro 4 petrol, Euro 6 diesel standard or ultra-low emissions and be less than 4 years old when first presented for licensing.</p> <p><i>Wheelchair accessible users:</i> <i>Existing</i> – move to Euro 4 petrol, Euro 5 diesel standard or ultra-low emissions and be newer than the current licensed vehicle.</p> <p><u>From 2025:</u></p> <p><i>Wheelchair and non-wheelchair accessible users</i> - Must meet Euro 5 petrol, Euro 6 diesel or ultra-low emissions and, for existing licensed vehicles, be newer than the current licensed vehicle.</p>	<p>Promoting Low Emission Transport</p>	<p>Taxi Licensing conditions</p>	<p>Ipswich Borough Council</p>	<p>Q2, 2018</p>	<p>Q1, 2019 / Q1 2025</p>	<p>Reduction in non-Euro 6 Diesel fleet</p>	<p>Low</p>	<p>-</p>	<p>Q1, 2020 / Q1 2025</p>	<p>Policy currently undergoing consultation. No cost to LA</p>
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#	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
17	Review opportunities for alterations to traffic management to reduce congestion in AQMAs (including opportunities on Berners Street while still providing a convenient facility for pedestrians)	Traffic Management	Other	Suffolk County Council	TBC	TBC	Reduction congestion on Civic Drive / St Matthews Street roundabout	AQMA No. 5 approx. 2% reduction in NO _x	-	-	No funding available at present
18	Review (in conjunction with other IBC/ SCC work streams), the traffic management arrangements in the St Matthews St/ Norwich Rd corridor. Maintaining delivery facilities, whilst minimising disruption to traffic flows.	Freight and Delivery Management	Quiet & out of hours delivery	Suffolk County Council	Q1, 2019	Q2, 2019	Reduction in congestion along Norwich Road & St Matthews Street.	Low	-	Q2, 2019	£10k plus signage for a clearway order
C	Policy, planning and infrastructure										
19	Develop and implement a Low Emission Strategy SPD	Policy Guidance and Development Control	Low Emissions Strategy	Ipswich Borough Council	Q2, 2019	Q4, 2019	-	Medium	-	Q1, 2020	Costs for preparation out of existing budgets
20	Embed air quality considerations in the Councils Local Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ipswich Borough Council	Q1.2019	2020	-	Medium	-	2020	Adopted Local Plan (February 2017) currently implemented

#	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
21	Comment on best practice measures in relation to air quality in planning applications and major developments. Support alternatives to single occupancy car use arising from new developments, through the use of robust travel plans secured through the planning process	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ipswich Borough Council	2019	Q1, 2019	100% of relevant planning applications assessed	Medium	-	Ongoing	-
22	Support Suffolk County's development of Local Ipswich Cycling and Walking Infrastructure Plans, and work to improve existing cycle routes.	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop area wide strategies to reduce emissions and improve air quality	Suffolk County Council	2019	TBC	Improvements to cycling and walking infrastructure	Medium	-	2024	Suffolk County Council to lead on this measure.
23	Support the Local Transport Plan to create a more efficient use of the highway network in and around the town, and across Suffolk.	Transport Planning and Infrastructure	Regional Groups Co-ordinating programmes to develop area wide strategies to reduce emissions and improve air quality	Suffolk County Council	TBC	-	-	Medium	-	-	-

Ipswich Borough Council

D	Wider strategic approach										
24	Development and implementation of campaign to provide information about the impacts of domestic burning and good practice, including wood burners and burning of garden waste	Public Information	Other	Ipswich Borough Council	2019	2019 onwards	Reduction in number of domestic burning complaints received	Low	-	Ongoing promotion	Planning Suffolk wide campaign
25	Consider and explore the feasibility of further measures that would improve air quality within both AQMAs and across the borough, including emissions testing within AQMAs, clean air zones, low emission zones and congestion charging	Promoting Low Emission Transport, Promoting Travel Alternatives & Public Information	Other	Ipswich Borough Council	2019	2019 onwards	-	High (if LEZ/ congestion charging introduced)	-	Ongoing	
26	Provision of A rated boilers in IBC owned housing stock	Promoting Low Emission Plant	Emission control equipment for small and medium sized stationary combustion sources	Ipswich Borough Council	Completed	Ongoing	All larger properties are to have low NOx boilers, defined as boilers that meet a dry NOx emission rating of 40mg/kWh	Low	-	2022	Continue to make improvements in this area
27	Work with the Private Sector Housing team to improve their renovation grant criteria and include air quality considerations	Policy Guidance and Development Control	Other policy	Ipswich Borough Council	2019	2019 onwards	100% of all grants with air quality implications	Low	-	Ongoing rollout of renovation grants	-

6. Appendix A: Response to Consultation

Following the approval for consultation of the draft Air Quality Action Plan (AQAP) in October 2018, a consultation process was undertaken for 6 weeks from 12th November 2018 to 23rd December 2018.

There were 2 main groups of consultees during the development of the Air Quality Action Plan, which were:

- Statutory Consultees – required by legislation
- The public – due to significant public interest in local air quality

A total of 126 responses were received (including DEFRA's comments which were received after the consultation and approval of the AQAP by Council Executive). Of these responses, 117 were received via the online questionnaire, 3 by direct email (excluding those with letters attached), 5 by letter and 1 via the public drop in sessions.

The Council have considered these comments and made some initial amendments to the plan. We will also discuss the comments received during the next steering group meeting. The AQAP will be updated again as required.

Responses from statutory consultees are outlined in full below. Responses provided by non-statutory consultees are summarised below.

Responses from Statutory Consultees

DEFRA

The Action Plan sets out information on air quality obtained by the Council as part of the Local Air Quality Management process required under the Environment Act 1995 and subsequent Regulations.

This Appraisal Report covers a Final Draft Air Quality Action Plan submitted by Ipswich Borough Council in relation to five AQMA's declared for exceedance of the annual mean objective for nitrogen dioxide:

AQMA Name	Date of Declaration	One Line Description	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Required reduction in Emissions to comply with the AQ objectives
			At Declaration	Now	
Ipswich AQMA No.1	Declared 11/04/2006 Amended 12/09/2017	An area encompassing the land in and around the junction of Norwich Road, Chevallier Street and Valley Road, this area extends along Chevallier Street to beyond the junction with Waterloo Road.	50 µg/m ³	42 µg/m ³	26%
Ipswich AQMA No.2	Declared 11/04/2006 Amended 12/09/2017	From the junction with Peel Street, this area extends along Crown Street, St. Margarets Street and St. Helens Street to the junction with Palmerston Road, and from St. Margarets Street it extends up Woodbridge Road to just beyond the junction with Argyle Street.	45 µg/m ³	49 µg/m ³	28%

Ipswich AQMA No.3	Declared 11/04/2006 Amended 12/09/2017	Following the route of the Star Lane / Key Street / College Street gyratory clockwise from the junction with Lower Orwell Street, this area extends along Star Lane, Grimwade Street, Fore Street, Salthouse Street, Key Street and College Street, terminating at the junction with Bridge Street.	50 µg/m ³	41 µg/m ³	5%
Ipswich AQMA No.4	Declared 14/12/2010	Area encompassing the land in or around the Bramford Road / Yarmouth Road / Chevallier Street junction and part of Chevallier Street	55 µg/m ³	37 µg/m ³	N/A
Ipswich AQMA No.5	Declared 12/09/2017	Area encompassing the land in or around St. Matthews Street / Norwich Road between the Civic Drive roundabout and Bramford Road.	49 µg/m ³	54 µg/m ³	36%

The new Action Plan has been developed to replace the 2008 AQAP. It has involved the Environmental Protection Team of the Council with the support of a local steering group formed from officers in key Transport, Planning and Health Departments within the District and County Councils.

The final draft Action Plan is due to be subject to Statutory Consultation and additional local consultation.

A source apportionment exercise was carried out on the basis of exceedances registered from 2016 Diffusion tube data, and used as a basis for prioritising further actions as follows:

- Priority 1: Public health, behaviours and awareness - Facilitating a modal shift away from private vehicles towards public transport and active travel, to improve air quality and create a healthy community.
- Priority 2: Transport - Incentivise switching to cleaner vehicles, developing effective yet realistic renewal strategies for the town's bus fleet, taxis and corporate fleets, to reduce poor air quality and to create a more sustainable environment.
- Priority 3: Policy, planning and infrastructure - By embedding air quality measures into policy development, planning applications and major developments, to bring future improvements to air quality and create an enjoyable and sustainable place to live and work, and build a strong Ipswich economy.
- Priority 4: Wider strategic approach- Reducing exposure to air pollution by tackling the sources of pollution from further transport initiatives and domestic sources.

The AQAP shows links to the Ipswich local plan policies, but there are no references to the Local Transport Plan.

The Council is advised to take consideration of the following commentary in the further development of its action plan.

Commentary

1. The final draft AQAP report has been submitted by Ipswich Borough Council following development within the Borough Council with support from a Steering Group including the local transport authority from the County Council.
2. The actions outlined for further consideration and development within the AQAP have followed a source apportionment exercise detailed within the report.
3. The latest monitoring results suggest that most effort will be required within AQMA2 and AQMA5 in order to achieve the objectives. AQMA 4 currently meets

the objective, whilst AQMA 1 and AQMA 3 are now only marginally above objective levels.

4. It is understood that the measures detailed within the draft AQAP will still be subject to further assessment and consideration.
5. There are no details provided on any cost-benefit assessment or detailed consideration of whether the AQAP measures are capable of delivering the emissions reductions required to achieve the AQ objectives within each AQMA.
6. The source apportionment exercise was carried out with reference to 2016 diffusion tube data that was available at the time. More recent data particularly in relation to AQMA3 (DT5, DT30), and AQMA 5 (DT65), all show increases in concentrations in 2017 compared to 2016.
7. The emissions reduction calculations have been based on a reduction to achieve the 40 µg/m³ annual mean objective for nitrogen dioxide, with no safety margin. This highlights that the quoted levels of emissions reductions required are potentially underestimated.
8. For traffic in central urban locations, maintaining smooth traffic flows, and avoiding congestion are key factors to consider for achieving effective emissions reductions. Reference is made to this within proposed measure 17, where it is stated no funding is available at present. This measure should be given due consideration in the next stages of the AQAP development.
9. There is no clear consideration within the report of whether the proposed measures have the capability of achieving the objectives. The target pollution reduction are subjective considerations.
10. The listed measures within the AQAP table represent a reasonable consideration of measures that may be assessed and developed further. It will be important to consider in more detail, alongside the knowledge of local traffic conditions, to understand how local measures can be expected to address the areas identified within localised pollution hotspots. Further assessments of some options may be required, using more detailed traffic and air quality modelling.
11. There are no links within the draft AQAP to the Local Transport Plan. This should be given due consideration in the next stages of development.
12. Technical Guidance LAQM TG(16) makes clear that as a minimum AQAP's should include the following:

- Quantification of source contributions (e.g. HGVs, buses, taxis, other transport)
- Quantification of impacts of proposed measures including, where feasible, expected emission and concentration reductions (either locally obtained and/or via national monitoring/modelling statistics). It is important that the local authority shows how it intends to monitor and evaluate the effectiveness of the plan;
- Clear timescales
- Defined roles and responsibilities

[LAQM TG(16) para 2.69]

13. The draft Action Plan has provided a solid basis for developing effective measures to address the local exceedances, but measures must be targeted on addressing effective emissions reductions in each AQMA, and measures considered within a final plan should be assessed in relation to their ability to deliver the air quality objectives within a short time scale if possible.
14. The final action plan and updates in subsequent ASR reports should ensure the progress in developing action plan measures is clearly presented so that measures that are being taken forward to implementation are distinguished from those that are not.

Response: Comments are noted. Since the receipt of DEFRA's comments, the Council has been in communication with the Local Air Quality Management Helpdesk and are working towards further addressing the points raised. The AQAP will be updated again as required.

Environment Agency (via questionnaire)

Comments: Thank you for the opportunity to comment on your air quality action plan. Unfortunately we are not able to provide detailed comments on every air quality action plan we receive so we have compiled a summary of the issues/priorities that we feel are common to each air quality action plan and where possible/appropriate, we have made authority specific comments. The Environment Agency – our role in Air Quality We have a number of duties related to air quality; 1. We ensure that the industrial facilities we regulate comply with the Environmental Permitting (England and Wales) Regulations 2016, thus contributing to compliance with: · UK requirements such as the UK Air Quality Strategy, the Countryside and Rights of Way Act and the Natural Environment and Rural Communities Act; and · EU requirements on the UK such as Air Quality Directives, Habitats Directive, the National Emissions Ceiling Directive and the Industrial Emissions Directive. 2. We support local authorities in improving local air quality, particularly through providing technical guidance on behalf of Defra to local authorities in respect of industrial facilities they regulate. 3. We coordinate ambient air quality monitoring for incidents that may have a significant impact on air quality. 4. We were not generally responsible for assessing or monitoring ambient air quality until April 2016 when we took on the contract management of the latter in the form of the ten monitoring networks that were formally managed by Defra. The Environment Agency is committed to working with local authorities and to play our part fully in Local Air Quality Management (LAQM). We have found that several sectors we regulate under the Environmental Permitting Regulations have the potential to affect air quality negatively. Nationally some individual installations in these sectors have already been found to contribute significantly and we have been working with the affected local authorities for some time to implement the necessary improvements. Installations we regulate may be covered by freestanding Air Quality Action Plans or ones, which are transport-related and incorporated into Local Transport Plans. Preferred Position – In principle any air quality action plan should; 1. Have a clear commitment to meeting the relevant air quality standards; 2. Clearly state the current status of air quality within the borough. 3. Clearly report on the progress against targets set out in any previously published air quality action plan (if appropriate). 4. Where the borough does not meet the relevant air quality standards, they should clearly detail what mitigation measures will be used to ensure compliance with air quality standards in the shortest possible time period. It should ensure that compliance is not just 'possible' but 'likely'. 5. Make clear what other organisations the borough is working with/planning to work with to implement improvement measures. 6. Include basic costs required to implement the required mitigation standards and compare against the level of funding available. 7. Take steps to; a) Implement any policies on transport which pertain to improving air quality. b) Require any waste transfer stations to be in a building, enclosed on all vertical sites with small access and egress points covered by doors which default closed when not in use and an air extraction and filtration system to collect particulates. 8. Contribute to achieving EU established health-based standards and objectives for the relevant air pollutants (particularly NO₂, PM₁₀, and PM_{2.5}). Traffic – Where there is a significant incidence of poor air quality within and adjacent to the area of concern and in most cases this is directly attributable to emissions from road traffic. For this reason air quality policies must work in partnership with transport policies but also the authorities' own fleet procurement policies. The plan makes reference to guidance for parking and Developments – It is acknowledged that Suffolk has produced a guide by the Suffolk Air Quality Management Group (SCC, 2017) which provides guidance on air quality for new

developments and we therefore have no further comments under this heading. Regional Approach to Local Air Quality – It is recognised that Ipswich Borough Council will need to work with others on the implementation of the measures necessary to address poor air quality as the matter is not confined to one planning authority area, and development is often governed by separate regulatory regimes and legislation, such as building regulations and environmental permitting.

Response: Comments are noted. The AQAP has been reviewed to include clear targets and timescales for a number of actions. The means of measuring success will be through the Annual Status Reports to DEFRA as part of the Local Air Quality Management regime.

Accurately quantifying the effectiveness of the majority of emission reduction measures is not possible due to inherent assumptions and uncertainties. The AQAP has been amended to include a brief description of what the 'low', 'medium' and 'high' gradings mean with reference to the target pollution reduction in the Air Quality Management Area (AQMA).

The guidance produced by the Suffolk Air Quality Management Group has now been superseded by the guidance documents issued by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM): "Land-Use Planning and Development Control: Planning for Air Quality guidance" and "Guidance on the assessment of dust from demolition and construction". The AQAP has been amended accordingly in light of this.

The Council are currently working on a 3 year plan to replace all small vehicles within the fleet to low emission vehicles by 2022. Larger vehicles to be euro VI standard. This is detailed within measure 8 of the AQAP.

Highways Authority

Comments: Input into draft AQAP prior to consultation. No comments provided during consultation.

Response: N/A

Suffolk County Council Public Health Team

Comments: 1. Section 1 – Introduction: You state that it is to be delivered between 2019 to 2024, it might be worth putting in something that relates to revision of the report as/when/if national guidance is produced that would supersede this. I'm just thinking that in 2019 the clean air strategy is due to be published and the Clean Air bill is making its way through the Houses at Westminster. So maybe reference these as the plan is updated?

2. Section 2 – AQMAs: In AQMA 1, 2 & 3 it states that they were amended in 2017. It might be worth highlighting what the changes were. Were the AQMAs increased or decreased?

3. Section 3 – IBC AQ priorities – Reading through, it states that NOx is the "major" air pollutant, but the report also highlights the dangers of PM2.5. I think that you might want to elaborate more on why NOx has been the focus a bit more. For example was this picked up in the source appointment studies? Is there a PM2.5 issue? If so is it being measured? I just think that there is more & more focus on PM2.5, so it might be worth just

highlighting why the report focuses on NOx. Maybe some explanation that by focusing on NOx, this will in turn help reduce the PM2.5 as they are often caused by the same source (or something like that);

4. In the action plan, not very many have performance indicators. Is there a way that some of these could have some? Such as raising awareness could be through social media messaging and the number of engagements with the message can be tracked? It is just that some form of evaluation can then be undertaken & possibly mapped to increases in public transport? My concern is that if the bulk of the measures do not have a performance measure, how will we see improvement?

5. In the action plan, the bulk are rated as low for "Target Pollution Reduction in the AQMA". I'm not too sure what this means. Does this mean that the impact of the measure on AQ would be low? I just wonder if there is any further work that we could do to have a medium or a high rating? Or if it is clearly highlighted that evidence shows that the cumulative impact of small changes can have a big impact. It is just that the report highlights that there are 5 AQMAs & the priorities of IBC, but the ratings of the interventions are all low.

Response: The draft AQAP has now been amended to include reference to the Governments draft Clean Air Strategy and the draft Clean Air Bill. The AQAP is a continually developed document and will be reviewed at least annually when the Annual Status Report is compiled. Out of date measures will be deleted and new measures added to keep the document current.

AQMAs 1,2 and 3 were amended but the overall size of these have largely remained the same. Details of the current AQMAs can be found at: https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=133

Historic modelling has indicated that objective levels for PM10 are not exceeded within the Borough. The Council are not required to monitor PM2.5. We anticipate measures implemented within this action plan will also reduce concentrations of particulate matter.

The AQAP has been reviewed to include clear targets and timescales for a number of actions. The means of measuring success will be through the Annual Status reports to DEFRA as part of the Local Air Quality Management regime.

Accurately quantifying the effectiveness of the majority of emission reduction measures is not possible due to inherent assumptions and uncertainties. The AQAP has been amended to include a brief description of what the 'low', 'medium' and 'high' gradings mean with reference to the target pollution reduction in the AQMA.

First Buses

Comments: Input into draft AQAP prior to consultation and provided a response via the online questionnaire.

The AQAP could be improved by further emphasis on encouraging both visitors and employees of local businesses to use more sustainable methods of transport to access the town centre. This could even involve giving financial "green" benefits to companies that sign up to this if they hit certain specified targets.

If there was further demand for services we would be happy to look at increasing the frequencies of local bus services to cater for the demand.

At present, buses are stuck in the same queues as general traffic, so there is little incentive for car users to switch, especially when there is such a prolific amount of cheap car parking in the town centre.

We would welcome being part of any steering group, looking at air quality, car parking strategy and bus priority along with other operators, both Suffolk County and Ipswich Borough Councils and any other parties.

Response: Comments in relation to traffic flow and car parking will be passed to Passenger Transport and Parking Services for consideration.

The steering group is made up of officers from the Council and other organisations who are responsible for the delivery of measures in the action plan so does not include representatives from community groups or other stakeholders. However, where appropriate, Council officers involved in air quality will consult with representatives of such groups and feed their comments back to the steering group for consideration. The steering group recognises the contribution that local bus operators have and will seek to utilise their local knowledge for the benefit of improving local air quality.

No responses were received from East Suffolk Council, Babergh and Mid Suffolk Council, West Suffolk Council, the Planning Department at Suffolk County Council, Ipswich Central and Suffolk Chamber. Furthermore, no responses were received from Ipswich Buses and Suffolk Norse, although Ipswich Buses provided input into the draft AQAP prior to consultation.

Responses from non-Statutory Consultees

Non-statutory consultees included the Ipswich Liberal Democrat Group, Ipswich Conservative Group, Save our Community Spaces, the Northern Fringe Protection Group, Advancing Sustainability Ltd, the Motorcycle Action Group and Certas Energy UK Ltd.

General comments of the draft plan/consultation process

- Several respondents queried whether the plan was compliant with DEFRA guidelines and that IBC have weakened commitment to improving air quality.
- Some concerns over the AQAP lacking innovation.
- More specific measures, in particular, with focus on AQMAs, KPIs, quantifiable targets, clear areas of responsibility, and specific deadlines that will deliver emission reductions required.
- Concern about the seriousness of the air quality problem in the town. One mentioned the plan should state whether air quality targets could be more effectively met if central Government took action.
- Lack of partnership working between IBC and SCC and other District Councils.
- Call for more joined up working e.g. with highways, hospitals, cycle groups, bus companies, taxi providers, transport companies.
- Call to resource Environmental Health adequately to enable them to fulfil legal obligations.
- Lack of public engagement with the consultation and promotion of the consultation, including where to find the draft AQAP and the drop-in sessions. Concerns with the closing date being immediately before Christmas limiting responses. Some mentioned presenting the data shown in a clearer format.
- Concerns that the annual 'Clean Air Day' event is postponed

- Two respondents denied air quality was a problem and called for the plan to be withdrawn.
- Concerns over particulates and whether they were an issue in Ipswich.

Response:

The AQAP has been reviewed to include clear targets and timescales for a number of actions. The means of measuring success will be through the Annual Status Reports to DEFRA as part of the Local Air Quality Framework management regime.

Accurately quantifying the effectiveness of the majority of emission reduction measures is not possible due to inherent assumptions and uncertainties. The AQAP has been amended to include a brief description of what the 'low', 'medium' and 'high' gradings mean with reference to the target pollution reduction in the AQMA.

Inevitably the Council must work within the scope of its powers and its locality but as the Plan develops we will be looking to see how actions can be enhanced.

The steering group is made up of officers from the Council and other organisations who are responsible for the delivery of measures in the action plan so does not include representatives from community groups or other stakeholders. However, where appropriate, Council officers involved in air quality will consult with representatives of such groups and feed their comments back to the steering group for consideration.

The Council has sufficient Environmental Health resources to fulfil our obligations with regards to air quality. Most of the measures within the AQAP require partnership working with other departments and stakeholders in order for them to be delivered. Furthermore, specific measures and projects are likely to be subject to separate funding arrangements by the lead organisation in each case.

The consultation ran for 6 weeks from 12th November 2018 to 23rd December 2018 and was promoted via the Councils website, social media pages and via the East Anglian Daily Times and the Ipswich Star. A link to the air quality consultation and questionnaire was provided along with a correspondence address to provide respondents with different options on how they could comment on the plan. The drop in sessions were promoted on the Councils website and were arranged as such to enable respondents an opportunity to attend. The Councils approach to the consultation is comparable to other Local Authorities across the UK. In light of the above, the Council believes that respondents were given adequate time to comment on the draft AQAP and that the consultation was adequately promoted. The AQAP was created via a document provided by DEFRA; data will be presented more clearly if possible.

The Council will be participating in the Global Action Plans' 'Clean Air Day' event on 20th June 2019. Measure 4 of the AQAP relates to the Councils ongoing commitment to participate in the annual Clean Air Day event.

The Council does not agree with two respondents concerns that air quality is not a problem. Ipswich has 5 AQMAs as a result of exceedances in the national objective level of nitrogen dioxide. It is a statutory requirement to produce an AQAP where an AQMA has been declared. It is vital that the Council works in partnership with other stakeholders to deliver the measures in the AQAP to improve air quality and subsequently lessen the negative social, environmental and economic impacts caused by exposure to poor air quality.

Historic modelling has indicated that objective levels for PM10 are not exceeded within the Borough. The Council are not required to monitor PM2.5. We anticipate measures implemented within this action plan will also reduce concentrations of particulate matter.

Comments relating to traffic management and traffic flows

- Numerous respondents made comments relating to traffic lights in the town, relating to how they worsen congestion, cause cars to idle unnecessarily by stopping traffic flow, poor filtering/phasing/sequencing (e.g. lights on red but no pedestrians crossing/filter traffic moving).
- Some suggested replacing traffic lights with pedestrian crossings, roundabouts. One suggested turning off the lights and see what happens
- Reference made to traffic issues on specific roads: St Margaret's Green, St Helens Street, Grove Lane, Bolton Lane, Valley Road, Crown Street, Henley Road, Dale Hall Road and Wherstead Road.

Response: Comments in relation to traffic flow will be passed to Suffolk Highways and Transport Policy for consideration. Caution should be exercised when altering street layouts and junctions as it potentially could lead to the worsening of traffic flows and/or creating new pollution hotspots.

There are 3 specific measures that address these points. Measure 17 relates to the review of opportunities for alterations to traffic management to reduce congestion in AQMAs. Measure 18 specifically relates to reviewing the traffic management arrangements in the St Matthews Street/ Norwich Road corridor. Measure 23 relates to supporting the Local Transport Plan to create more efficient use of the highway network.

Comments relating to highways/road layouts

- Poor road layouts
- One way systems have not helped to improve traffic
- Not enough separated provision for active travel e.g. cycling and walking
- BC encouraging people to drive with cheap car parks
- Agreed with the Norwich Road/St Matthews Street Clearway
- Pedestrianise more of the town centre.
- A few people mentioned building a ring road/ Northern Bypass/ Orwell Crossing.
- One mentioned that if the Orwell Bridge is closed, diversionary routes need to be assessed and avoid AQMAs.

Response:

Comments in relation to traffic flow will be passed to Suffolk Highways and Transport Policy for consideration. Caution should be exercised when altering street layouts and junctions as it potentially could lead to the worsening of traffic flows and/or creating new pollution hotspots.

Measure 17 relates to the review of opportunities for alterations to traffic management to reduce congestion in AQMAs. Measure 18 specifically relates to reviewing the traffic management arrangements in the St Matthews Street/ Norwich Road corridor, including the possibility of a Clearway Order. Measure 23 relates to supporting the Local Transport Plan to create more efficient use of the highway network.

Comments in relation to separated provision for active travel will be passed to the Transport Policy and the Planning and Development departments. Measure 22 relates to supporting Suffolk County Councils development of a Local Cycling and Walking Infrastructure Plan and work to improve existing cycle routes. Caution has to be exercised when reviewing cycling and walking infrastructure on existing narrow roads in the town as this may have the knock on impact of reducing traffic capacity and increasing congestion, with negative impacts on air quality.

The issue with closure of the Orwell Bridge is being discussed with Highways England who manage and maintain the route.

Comments relating to discouraging car use

- Greater enforcement of illegal parking/use of roads (e.g. St Matthews Street/ Dogs Head Street, Upper Brook Street).
- Stop vans/lorries blocking key routes whilst loading/unloading.
- Increase parking costs, making public transport the cheaper option. One mentioned increased costs of parking when pollution levels are high.
- General comments regarding banning/discouraging cars from the town centre
- Penalties for single car use
- Make the town traffic free during certain hours
- A few people mentioned congestion charging, Clean Air Zones/Low Emission Zones, banning diesels and container traffic from the Town Centres, banning high NOx emitting vehicles from AQMAs during peak periods.
- One mentioned vehicle checking of exhausts
- Banning parking/idling near school entrances. More focus around tackling poor air pollution near schools/childcare facilities.

Response: The above comments will be passed to the relevant stakeholders/service areas for consideration.

Whilst we do not have the resources to enforce illegal parking, or loading, on every strategic road all day long, we will ask our parking services department to be robust in dealing with illegal parking. Intelligence surrounding roads with known illegal parking issues will be passed to parking services so resources can be targeted appropriately.

The exploration of the feasibility of low emission zones, congestion charging and emissions testing within AQMAs is detailed in measure 25 of the AQAP. The exploration of introducing a Clean Air Zone in light of emerging Government policy has now been included in measure 25 of the AQAP.

Measure 1 relates to the development and implementation of an anti-idling campaign. The campaign will be run across Suffolk, with the intention of raising awareness in schools as detailed in measure 2. It should be noted however that the promotion of air quality issues in schools does not guarantee participation, and individuals need to consider how their own behaviour can impact on air quality. The banning of parking near schools needs to be carefully considered otherwise the issue of idling and associated emissions could be displaced to other roads in the vicinity.

The Local Plan will address opportunities which arise through development proposals to mitigate air quality issues that might arise from development.

Comments relating to improving public transport

- Public transport to cover rural areas/outlying villages
- Make it cheaper for families, some suggested free bus travel (e.g. to commuters and school runs)
- Make buses run more frequently and are punctual
- Loyalty cards i.e. go on 10 journeys and get one free
- Provide an integrated transport card for greater Ipswich e.g. like an Oyster Card.
- Promotion of public transport rather than cheap £1 car parks.
- Concerns over the rising costs of public transport. Some stated more expensive than to drive into town and park
- More emphasis in the plan on public transport
- Consideration to buses with low emissions, electric, hybrids or hydrogen buses.
- Concerns that Ipswich Buses not moving to Euro VI quick enough, and IBC, as owner of Ipswich Buses, should be leading on this. Reference was also made to more stringent upgrades directed at Taxis then to Ipswich Buses.
- Suggestion that bus companies consider joint fleet upgrades to benefit from economies of scale.
- Increase provision of bus lanes / zones that can only be used by buses
- Expansion of green travel plan for non-work travel
- Limited routes, with comments that some areas of the town are not provided with any services (e.g. to the waterfront). One respondent stated that you can't get to the station without changing buses from the whole north side of town. They suggested running the bus services through to tower ramparts, and then essentially they would change route and become a bus going south and vice versa. So you would have the same number of buses and drivers but each would cover two routes worth of distance so fewer passengers had to change routes.
- Push for all bus stops to have real time information and shelters.

Response: Comments in relation to traffic flow will be passed to Suffolk County Council Passenger Transport, Suffolk Highways and public transport operators for consideration. It is recognised that it is vital to work in partnership with these stakeholders to address the concerns raised above and will continue to do so via the steering group and other appropriate forums.

Local Plan policies have been developed to accommodate the growth in traffic associated with the Local Plan commitment to new homes and employment. This will need to address an integrated approach to transport issues mentioned above. The plan will quantify the necessary infrastructure measures to support air quality mitigation and seek developer contributions through the development management process.

Comments relating to cycling and walking infrastructure

- Widen cycle lanes
- Dangerous cycle lanes – narrow, broken glass, unclear signage/merging lanes, poorly lit, not joined up between neighbouring authorities (e.g. at Rushmere Common)
- Aggressive drivers parking in lanes
- Absence of cycle lanes with some reports of them being removed e.g. Felixstowe Road (mentioned more than once). One mentioned building a super-highway from key points on the outskirts of town
- Absence of cycle racks

- Provide mixed lanes for walkers and cyclists.
- Consider a reporting hotline for cycle hazards. e.g. broken glass in a lane

Response: Ipswich Borough Council and Suffolk County Council will seek to improve facilities for cyclists and walkers, and address priorities set out in local transport plan. Joint working on planning issues to maintain and enhance the existing cycling and walking network and ensure further development management process gives due consideration to cycling and walking. The Council is supportive of Suffolk County Councils development of a Local Ipswich Cycling and Walking Infrastructure Plan and this is included as measure 22 in the Action Plan.

It is encouraged to report issues with regards to dangerous cycle lanes, such faded lanes and signage via Suffolk County Councils highways reporting hotline.

Comments relating to planning/development issues

- Robust enforcement of national policies dealing with air pollution from development
- Join up Local Plan with Air Quality Action Plan. In particular, action plan needs to reflect new Local Plan Policy DM3: Air Quality.
- Confusion whether IBC are using EPUK/IAQM guidance to assess the impacts of air quality in new developments as the 2011 Suffolk Supplementary Planning Guidance document mentioned in the draft AQAP is dated. A response stated the EPUK/IAQM guidance should be adhered to.
- Require consideration of the cumulative impacts of development on air quality, including assessing emissions for the first year of occupation of each phase of a development.
- Ensure new developments encourage active travel, public transport and are provided with green infrastructure e.g. EV charging points in new developments, linked up cycle lanes.
- Stop further developments e.g. Northern Fringe/Ipswich Garden Suburb which will exacerbate air quality issues, such as traffic generated through construction and the provision of new homes. Concerns over construction traffic passing through AQMAs.
- No evidence to show that air quality will not worsen as a result of the Ipswich Garden Suburb development.
- Avoid street canyons forming/narrow roads which hold pollution
- Fit new build properties with solar panels and retro-fit Council housing stock with solar panels
- Any buses serving new/large developments should be at least Euro V/VI if they pass through an AQMA.
- Creating modal shift difficult when IBC granting planning permission for unused sites in the town centre to be car parks.

Response: The Local Plan is air quality aware and the importance attached to the issue in the National Planning Policy Framework is now addressed by a separate policy in the new Local Plan (Policy DM3 – Air Quality). Measure 20 specifically relates to embedding air quality considerations in the Local Plan. Further initiatives will be taken through the joint SCC/ IBC working group to develop improvements in air quality as part of the combined effort to mitigate the increase in traffic arising from Local Plan growth in the period to 2036.

In addition to the above, measure 19 relates to the development of Low Emissions SPD and measure 21 relates to commenting on best practice measures in relation to planning applications and major developments.

The guidance produced by the Suffolk Air Quality Management Group has now been superseded by the guidance documents issued by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM): “Land-Use Planning and Development Control: Planning for Air Quality guidance” and “Guidance on the assessment of dust from demolition and construction”. The AQAP has been amended accordingly in light of this.

Comments relating to providing more trees and open green spaces

- Focus more on green planting
- More open spaces
- Encourage building owners to have green rooftops.

Response: The Council has an active tree planting programme to assist with maximising tree planting in parks and green spaces within the borough. However, consideration needs to be given to the link between planting and improvements in air quality. The DEFRA air quality information site suggests that trees can help absorb air pollution. In some cases, tree planting can worsen air quality by creating a canyon effect and preventing pollutants from dispersing so care with the design of landscaping schemes should seek to avoid this issue.

The Council has a large amount of green space which includes maintaining 650 Hectares of open space, including 1 Special Protection Area, 2 Sites of Special Scientific Interest, 12 Parks and Garden sites of which 2 are English Heritage listed, 50 Amenity Green Spaces, 95 play areas, 19 allotment fields, 4 Conservation Areas, 4 managed cemetery grounds, 19 County Wildlife sites and 8 Local Nature Reserves. Furthermore, the Council has signed up to the ‘Charter for Trees’ and ensure the forest charter is delivered and currently we are reviewing our tree management policy.

Local Plan Policies seeking the continuing growth of the tree canopy throughout the Borough are in the adopted Local Plan (2017), and officers seek to maintain these provisions in the emerging Local Plan.

The Local Plan also promotes the retention and enhancement of open spaces and the delivery of new green spaces in new development proposals. Green roofs and walls are suggested in the reasoned justification supporting emerging “Sustainable Construction” policy DM1 of the preferred options Local Plan.

Comments relating to grants

- Take up government incentives to install EV charging points
- Grant fund electric bikes, rural bus services, engine retrofiting

Response: Where appropriate, the Council will apply for Government incentives, including grants for EV charging points. Measure 13 relates to applying for grant funding.

Reopening/increasing Park and Ride Services

- A few respondents desired the reopening on the Bury Road Park and Ride site. One respondent highlighted the desire for a Park and Ride site on this side of town, particularly as three AQMAs are on routes into the Town Centre from the North and Western approaches.
- As IBC own Ipswich Buses, comments made on IBC taking ownership to reopen Bury Road Park and Ride.
- Establish park and bike schemes on the outskirts of town.

Response: Measure 7 deals with the exploration of increasing Ipswich's Park and Ride scheme, including the re-opening of the Bury Road Park and Ride site.

Comments regarding Ultra-Low Emission Vehicles (ULEVs)

- Permit use in bus lanes and clean air zones
- Free parking in IBC car parks and free charging
- Reserved spaces in residents parking zones for ULEVs
- New car parks exclusively for ULEVs
- Provide EV charging infrastructure more widely over town, including at taxi ranks, in all IBC car parks and residents on-street parking
- One mentioned bringing forward LEV requirements for Taxis.

Response: The Council will continue to investigate the feasibility and implement initiatives to incentives the use of ULEVs this is addressed through measures 9, 11 and 12 of the Action Plan. In addition, the Council are reviewing its own fleet which is included as measure 8.

Comments relating to public awareness

- Increased promotion of cycling and walking
- Promoting walking to schools
- Promote and support EV users
- Increased promotion of the impacts of poor air quality, including using accessible formats
- Promotion of the location of AQMAs to enable more informed choices e.g. whether to drive/ walk a different route to avoid passing through AQMAs.
- Provide the public with real time information on air quality e.g. via AirText app. Includes promotion of diversion routes when NO2 levels are high.
- Promote the use of motorcycles and scooters
- Promote how to burn solid fuel correctly

Response: The action plan contains measures relating to the promotion of cycling and walking. A measure is included in the action plan to develop a campaign and raise awareness of air quality issues near schools; the promotion of walking will be included in this.

Measures 9, 11, 12 and 13 relate to supporting EV users. The Council have already installed 28 EV charging points at the Crown Street Car Park and 2 charging points are to be installed at Elm Street Car park. Throughout the life of this action plan, the Council will

evaluate the feasibility of providing additional charging points in Borough owned car parks and exploring opportunities for grant funding to encourage and support EV users.

A meeting has been held between representatives of Ipswich Borough Council, Suffolk County Council and the Motorcycle Action Group where motorcycling and air quality matters are being discussed. If appropriate, the AQAP can be further amended to include the promotion of motorcycles and scooters.

The action plan contains a measure relating to the development of a domestic burning campaign which will include information on how to store and burn solid fuel.

Comments relating to Antisocial Behaviour/Public Health Issues

- Ban smoking/vaping in the centre of town
- Stronger action to deal with those smoking cannabis
- Concerns regarding antisocial behaviour on Norwich Road causing people to drive

Response: Smoking is not considered to be a significant element of ambient air quality so an action has not been included. OneLife Suffolk run re smoking cessation clinics which can be accessed via GPs or pharmacies.

The Council encourages respondents to report incidents of anti-social behaviour to the relevant authorities i.e. the police.

Other comments

- One respondent advised on the exploration and usage of alternative fuels to improve air quality. The respondent attended a drop in session and confirmed information on GTL fuel was also disseminated to Ipswich Buses and the Transport Manager at IBC.
- One respondent was concerned over IBC spraying herbicides
- One respondent mentioned giving consideration to no smoke zones
- One called for the greater assessment of impacts on local residents and businesses
- Two mentioned about supporting car clubs

Response: The steering group is made up of officers from the Council and other organisations who are responsible for the delivery of measures in the action plan so does not include representatives from community groups or other stakeholders. However, where appropriate, Council officers involved in air quality will consult with representatives of appropriate groups and feed their comments back to the steering group for consideration.

7. Appendix B: Reasons for Not Pursuing Action Plan Measures

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

Action category	Action description	Reason action is not being pursued (including Stakeholder views)

8. Appendix C: Calculation for Required Reduction in Emissions for Each AQMA

8.1 Calculation of % reduction in Road-NO_x required to meet air quality objective in Ipswich AQMA No. 1

2016 Background NO_x and NO₂ Concentration in Ipswich AQMA No.1, µg/m³

Relevant Grid Square centred at: 615500/245500

Pollutant	Mapped Total Background Concentration	Contribution to Background due to Traffic Sectors	Adjusted Background Concentration with contribution from Traffic Sectors removed
NO _x	21.9	7.7	14.2
NO ₂ *	15.7		10.5

* NO₂ concentration adjusted using the NO₂ Adjustment for NO_x Sector Removal Tool (v6.0)

Estimated Contributions of Road Traffic Emissions to Monitored NO₂ Concentrations for 2016

(Diff. tube data bias corrected)

Tube	2016 Annual Mean NO ₂ Concentration (µg/m ³)	Background NO ₂ Contribution (µg/m ³)	Background NO _x Contribution (µg/m ³)	Road-NO _{x-current} Contribution* (µg/m ³)	Road-NO _x Contribution as % of Total	Road-NO _{x-required} Contribution* (µg/m ³)	% Reduction in Road-NO _x Required to Meet Objective
14	47.4	15.7	21.9	69.5	76%	51.19	26%
45	27.4	15.7	21.9	23.2	51%	51.19	-
46	27.4	15.7	21.9	23.2	51%	51.19	-
47	27.6	15.7	21.9	23.6	52%	51.19	-
45, 46, 47	27.5	15.7	21.9	23.3	52%	51.19	-

* Road-NO_x Contribution calculated using the NO_x to NO₂ Calculator (v6.1) [2016/Ipswich/All UK Traffic]

8.2 Calculation of % reduction in Road-NO_x required to meet air quality objective in Ipswich AQMA No. 2

2016 Background NO_x and NO₂ Concentration in Ipswich AQMA No.2, µg/m³

Relevant Grid Square centred at: 616500/244500

Pollutant	Mapped Total Background Concentration	Contribution to Background due to Traffic Sectors	Adjusted Background Concentration with contribution from Traffic Sectors removed
NO _x	28.1	11.1	16.9
NO ₂ *	19.5		12.3

* NO₂ concentration adjusted using the NO₂ Adjustment for NO_x Sector Removal Tool (v6.0)

Tube 72 - Relevant Grid Square centred at: 617500/244500

Pollutant	Mapped Total Background Concentration	Contribution to Background due to Traffic Sectors	Adjusted Background Concentration with contribution from Traffic Sectors removed
NO _x	23.5	6.5	17.0
NO ₂ *	16.6		12.3

* NO₂ concentration adjusted using the NO₂ Adjustment for NO_x Sector Removal Tool (v6.0)

Estimated Contributions of Road Traffic Emissions to Monitored NO₂ Concentrations for 2016

(Diff. tube data corrected for bias and distance)

Tube	2016 Annual Mean NO ₂ Concentration (µg/m ³)	Background NO ₂ Contribution (µg/m ³)	Background NO _x Contribution (µg/m ³)	Road-NO _{x-current} Contribution* (µg/m ³)	Road-NO _x Contribution as % of Total	Road-NO _{2-required} Contribution* (µg/m ³)	% Reduction in Road-NO _x Required to Meet Objective
11	44.7	19.5	28.1	54.3	66%	43.15	21%
12	46.9	19.5	28.1	59.7	68%	43.15	28%
19	44.7	19.5	28.1	54.4	66%	43.15	21%
21	36.3	19.5	28.1	34.6	55%	43.15	-
22	35.7	19.5	28.1	33.5	54%	43.15	-
24	38.0	19.5	28.1	38.5	58%	43.15	-
25	35.9	19.5	28.1	33.7	55%	43.15	-
27	38.5	19.5	28.1	39.7	59%	43.15	-
66	35.0	19.5	28.1	31.8	53%	43.15	-
68	41.3	19.5	28.1	46.3	62%	43.15	7%
72	35.8	16.6	23.5	39.6	63%	49.25	-
76	34.2	19.5	28.1	30.0	52%	43.15	-
80	32.4	19.5	28.1	26.2	48%	43.15	-
81	32.7	19.5	28.1	26.7	49%	43.15	-
82	32.5	19.5	28.1	26.4	48%	43.15	-
80,81,82	32.5	19.5	28.1	26.4	48%	43.15	-

* Road-NO_x Contribution calculated using the NO_x to NO₂ Calculator (v6.1) [2016/Ipswich/All UK Traffic]

8.3 Calculation of % reduction in Road-NO_x required to meet air quality objective in Ipswich AQMA No. 3

2016 Background NO_x and NO₂ Concentration in Ipswich AQMA No.3, µg/m³

Relevant Grid Square centred at:

616500/244500

Pollutant	Mapped Total Background Concentration	Contribution to Background due to Traffic Sectors	Adjusted Background Concentration with contribution from Traffic Sectors removed
NO _x	28.1	11.1	16.9
NO ₂ *	19.5		12.3

* NO₂ concentration adjusted using the NO₂ Adjustment for NO_x Sector Removal Tool (v6.0)

Estimated Contributions of Road Traffic Emissions to Monitored NO₂ Concentrations for 2016

(Diff. tube data corrected for bias and distance)

Tube	2016 Annual Mean NO ₂ Concentration (µg/m ³)	Background NO ₂ Contribution (µg/m ³)	Background NO _x Contribution (µg/m ³)	Road-NO _{x-current} Contribution* (µg/m ³)	Road-NO _x Contribution as % of Total	Road-NO _{x-required} Contribution* (µg/m ³)	% Reduction in Road-NO _x Required to Meet Objective
5	41.0	19.5	28.1	45.5	62%	43.15	5%
33	33.0	19.5	28.1	27.5	49%	43.15	-
34	37.0	19.5	28.1	36.3	56%	43.15	-
39	40.7	19.5	28.1	44.7	61%	43.15	3%

* Road-NO_x Contribution calculated using the NO_x to NO₂ Calculator (v6.1) [2016/Ipswich/All UK Traffic]

8.4 Calculation of % reduction in Road-NO_x required to meet air quality objective in Ipswich AQMA No. 4

2016 Background NO_x and NO₂ Concentration in Ipswich AQMA No.4, µg/m³

Relevant Grid Square centred at:

615500/245500

Pollutant	Mapped Total Background Concentration	Contribution to Background due to Traffic Sectors	Adjusted Background Concentration with contribution from Traffic Sectors removed
NO _x	21.9	7.7	14.2
NO ₂ *	15.7		10.5

* NO₂ concentration adjusted using the NO₂ Adjustment for NO_x Sector Removal Tool (v6.0)

Estimated Contributions of Road Traffic Emissions to Monitored NO₂ Concentrations for 2016

(Diff. tube data corrected for bias and distance)

Tube	2016 Annual Mean NO ₂ Concentration (µg/m ³)	Background NO ₂ Contribution (µg/m ³)	Background NO _x Contribution (µg/m ³)	Road-NO _{x-current} Contribution* (µg/m ³)	Road-NO _x Contribution as % of Total	Road-NO _{x-required} Contribution* (µg/m ³)	% Reduction in Road-NO _x Required to Meet Objective
2	39.43	15.7	21.9	49.8	69%	51.19	-
28	35.52	15.7	21.9	40.8	65%	51.19	-
43	37.09	15.7	21.9	44.4	67%	51.19	-

* Road-NO_x Contribution calculated using the NO_x to NO₂ Calculator (v6.1) [2016/Ipswich/All UK Traffic]

8.5 Calculation of % reduction in Road-NO_x required to meet air quality objective in Ipswich AQMA No. 5

2016 Background NO_x and NO₂ Concentration in Ipswich AQMA No.5, µg/m³

Relevant Grid Square centred at:

615500/244500

Pollutant	Mapped Total Background Concentration	Contribution to Background due to Traffic Sectors	Adjusted Background Concentration with contribution from Traffic Sectors removed
NO _x	23.5	9.0	14.6
NO ₂ *	16.7		10.7

* NO₂ concentration adjusted using the NO₂ Adjustment for NO_x Sector Removal Tool (v6.0)

Estimated Contributions of Road Traffic Emissions to Monitored NO₂ Concentrations for 2016

(Diff. tube data corrected for bias and distance)

Tube	2016 Annual Mean NO ₂ Concentration (µg/m ³)	Background NO ₂ Contribution (µg/m ³)	Background NO _x Contribution (µg/m ³)	Road-NO _{x-current} Contribution* (µg/m ³)	Road-NO _x Contribution as % of Total	Road-NO _{x-required} Contribution* (µg/m ³)	% Reduction in Road-NO _x Required to Meet Objective
42	41.1	16.7	23.5	51.7	69%	48.97	5%
49	41.5	16.7	23.5	52.5	69%	48.97	7%
50	25.9	16.7	23.5	18.1	43%	48.97	-
51	37.7	16.7	23.5	43.7	65%	48.97	-
52	46.5	16.7	23.5	64.9	73%	48.97	25%
53	45.3	16.7	23.5	61.8	72%	48.97	21%
64	50.0	16.7	23.5	73.8	76%	48.97	34%
65	50.9	16.7	23.5	76.2	76%	48.97	36%
64, 65	50.4	16.7	23.5	75.0	76%	48.97	35%

* Road-NO_x Contribution calculated using the NO_x to NO₂ Calculator (v6.1) [2016/Ipswich/All UK Traffic]

9. Glossary of Terms

Abbreviation	Description
ANPR	Automatic Number-Plate Recognition
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
Defra	Department for Environment, Food and Rural Affairs
DoH	Department of Health
EU	European Union
HGV	Heavy Goods Vehicle
IBC	Ipswich Borough Council
LAQM	Local Air Quality Management
LGV	Light Goods Vehicle
NICE	National Institute for Health and Care Excellence
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
RCP	Royal College of Physicians
RCPCH	Royal College of Paediatrics and Child Health

Abbreviation	Description
SCC	Suffolk County Council
SPD	Supplementary Planning Document
ULEV	Ultra-Low Emission Vehicle
UTMC	Urban Traffic Management and Control
WHO	World Health Organization

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