



Gedling Borough Council

Air Quality Action Plan

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

2019

Gedling Borough Council

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Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Gedling Borough Council between 2019 - 2024.

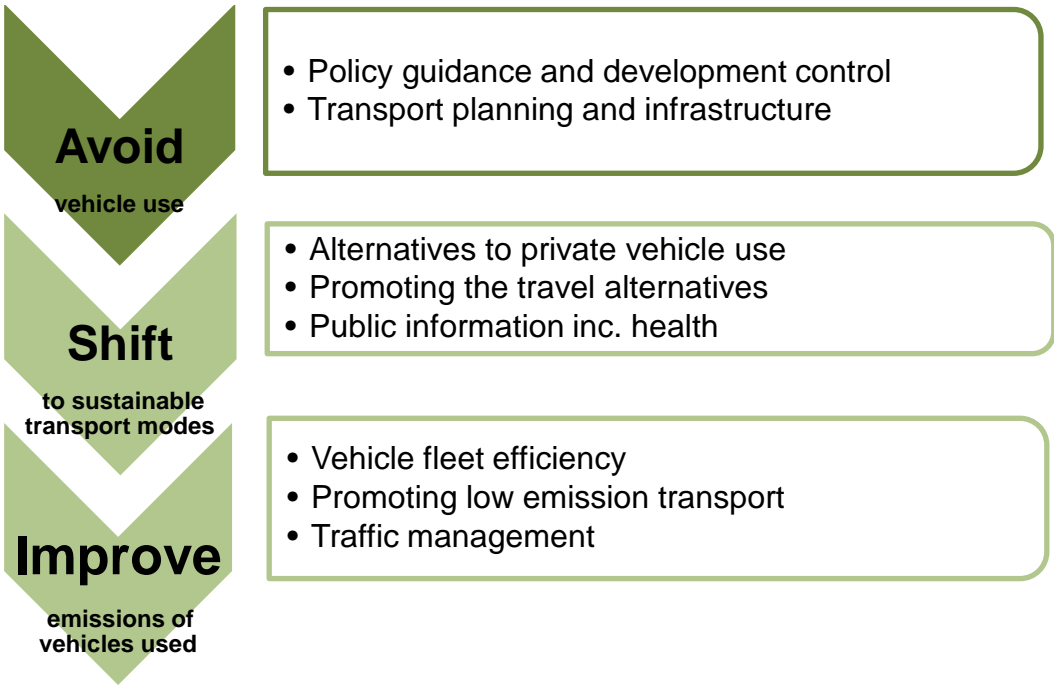
This action plan replaces the previous action plan which ran from November 2012 until the adoption of this plan. Projects delivered through the past action plan include:

1. Public transport infrastructure improvements at bus stops within and close to the Air Quality Management Area (AQMA), including:
 - Real time information displays at 85 stops
 - Bus shelters at 49 stops
 - Raised boarding kerbs at 61 stops
 - Enforceable bus stop clearways at 37 stops.
2. Introduction of AVL Traffic Light Priority for buses at eight key junctions in the AQMA and corridors feeding into the AQMA to improve the reliability of the bus services.
3. Continuation of the [ECO Stars Fleet Recognition Scheme](#) in the Nottingham Urban Area. Membership stands at 112 members operating over 7500 vehicles.
4. Personalised travel planning undertaken with residents in areas adjoining the AQMA which resulted in a **14%** reduction of journeys to work by car amongst participants.
5. Personalised travel planning travel clinics undertaken at major workplaces within the AQMA.
6. School travel plans developed by the County Council at schools in the borough
7. Eco-driver training amongst Borough and County Council employees
8. The introduction of advisory 20mph speed limits outside all schools in the borough to encourage more people to walk and/or cycle to school.

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 health 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. Gedling Borough Council is committed to reducing the exposure of people in Gedling Borough to poor air quality in order to improve health.

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

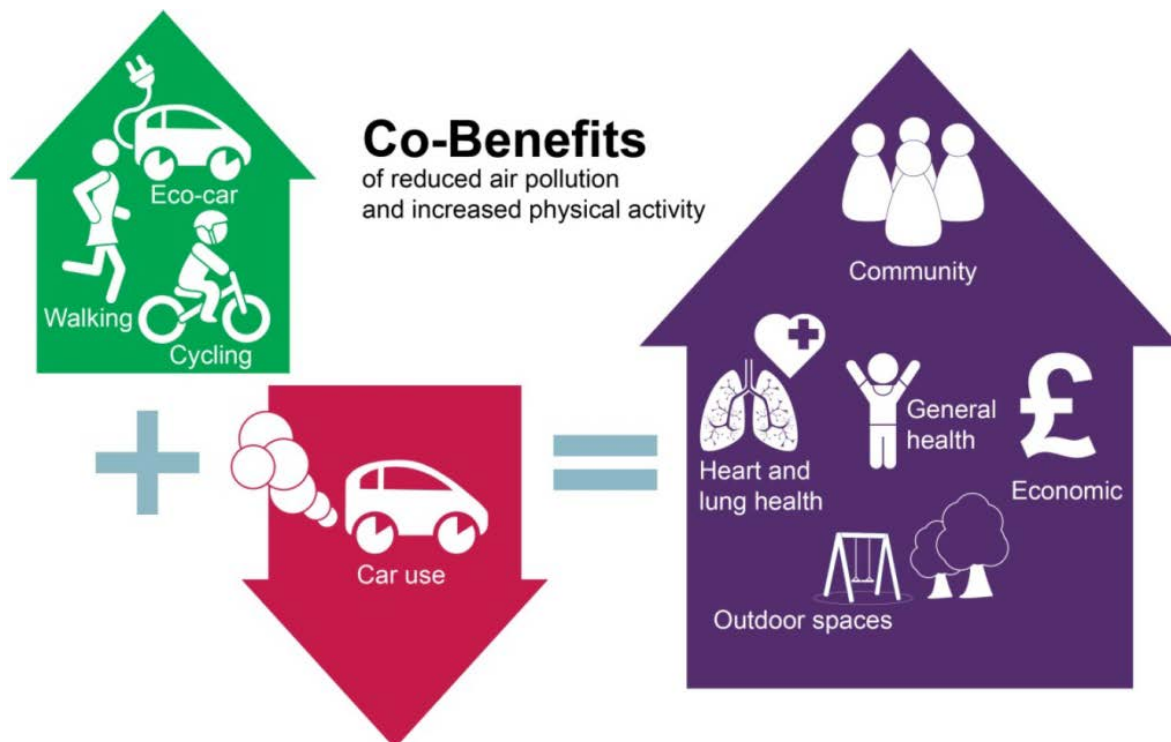


¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010
² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Which are aimed at meeting 5 broad priorities:

- Priority 1 – Work with the Highways Authority to manage traffic volume and improve flows.
- Priority 2 – Ensure that future development is designed to allow residents to make low emission transport choices.
- Priority 3 – Promotion and education.
- Priority 4 – Reduce emissions from buses and taxis.
- Priority 5 – Reduce emissions from HGVs and LGVs.

The aim of these priorities is to encourage a shift to low emission transport options and smarter transport choices; which facilitates and encourages walking, cycling and public transport use; all of which have co-benefits on health and wellbeing.



Source: *Air Pollution and Public Health*; 2017035, PHE 2017

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 or taxation of fuel and vehicles in the UK), 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 Gedling Borough Council's direct influence.

Responsibilities and Commitment

This AQAP was prepared by the Public Protection Service of Gedling Borough Council (GBC) with the support and agreement of the following stakeholders:

Gedling Borough Council

- Ward Members
- Cabinet Members
- Planning Policy Officers
- Economic Growth & Regeneration Officers
- Transport and Waste Officers
- Corporate Directors
- Public Protection Officers
- Development Management Officers
- Community Relations Officers

Nottinghamshire County Council

- Transport Officers
- Public Health Officers

Nottingham City Council

- Transport Officers
- Environmental Health Officers

Other Bodies

- Public Health England
- NHS Nottingham North and East Clinical Commissioning Group (CCG)

This AQAP has been approved by:

The Environment and Licensing Committee approved the Draft Plan to go out for an 8 week consultation period on the 4th December 2018. It was resolved that following the consultation:

- responses be considered by the Service Manager for Public Protection in consultation with the Chairman of the Environment and Licensing committee and with Nottinghamshire County Council (the Highways Authority) and other stakeholders.

Following the review of responses the following options were resolved:

1. Should any significant changes be made to the plan as a result of the consultation response, these will be reported to Committee prior to the Plan being adopted.

or

2. If the consultation responses did not need further consideration by the Committee as outlined above, that members approve the Air Quality Action Plan 2018/9.

Contd.

See Appendix A outlining consultation responses; it was determined that as no significant changes were required to the draft document the Plan could be adopted as per option 2.

As a result the Plan was adopted on 28th June 2019.

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

If you have any comments on this AQAP please send them to **Public Protection Service** at:

Address	Civic Centre, Arnot Hill Park, Arnold, Nottinghamshire, NG5 6LU
Telephone	0115 9013901
E-mail	environmental.health@gedling.gov.uk

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1 Introduction

This report outlines the actions that Gedling Borough and Nottinghamshire County Councils will deliver between 2019-2024 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.

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 Gedling Borough Council's air quality ASR.

Where measures are relevant also to Local Development Plan policies these will also be reported through the Authorities Monitoring Report.

Where the air quality improves to a point that the Air Quality Management Area (AQMA) is revoked this action plan would therefore cease to be relevant.

2 Summary of Current Air Quality in Gedling Borough Council

The main pollutants of concern in the Borough relate to the exhaust emissions from motor vehicles. As such the main commuter routes into Nottingham, through the Borough, are the main areas of concern (those with higher traffic levels): the A60 Mansfield Road, A612 Colwick Loop Road and B684 Mapperley Plains/Woodborough Road. Ambient background levels are affected by emissions from domestic heating: NO_x from domestic gas boilers and PM from wood/coal burners.

Nitrogen Dioxide (NO₂) is the primary pollutant of concern in the Borough; Gedling Borough has an Air Quality Management Area (AQMA) along the A60 Mansfield Road (See Appendix D). Nitrogen Dioxide monitoring results for the last year (2017) show exceedances within the AQMA.

Background levels of PM_{2.5} across some parts of the Borough are modelled to be over the World Health Organisation guideline level (10µg/m³).

For greater detail please refer to the latest ASR from Gedling Borough Council.

2.1 Existing Air Quality Action Plan

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Gedling Borough Council between 2019 - 2024.

This action plan replaces the previous action plan which ran from November 2012 until the adoption of this plan. Projects delivered through the past action plan are presented below.

Table 2.1 – Completed Air Quality Action Plan Measures (2012-2018)

Measure No.	Measure	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Progress to Date	Estimated Completion Date	Comments
2a	Re-routing of freight operators - Restriction of vehicle types using the road at certain times	NCC	2013	2014	Review/Feasibility Assessment	Study Undertaken during 2013/14 considered a number of alternative routes for HGVs that normally travel along A60. Each of the routes was, however found to be unsuitable.	Complete	Not feasible to introduce
2b	Re-routing of freight operators - Restricting the road as appears on route finders and Satellite Navigation Systems	NCC	2013	2014	Review/Feasibility Assessment	As 2a	Complete	Not feasible to introduce
2c	Re-routing of freight operators - Consider diverting HGVs	NCC	2013	2014	Review/Feasibility Assessment	As 2a	Complete	Not feasible to introduce
3c	Traffic control and management - Consideration of bus priority measures at traffic signal junctions	NCC/Via EM; integrated transport block funding	N/A	2012/13	Restrain average journey times in the morning peak to a 1% increase per year	SCOOT/MOVA installed at nine sets of signals within AQMA	2012/13	
3d	Traffic control and management - Review of 24hr bus lane restrictions	NCC	2012	2013-14	Review	Complete	Complete	
6	Low emission zone	NCC	2013	2014	Review	Given the lack of an alternative HGV route it is not currently considered feasible to introduce a low emission zone on A60.	Complete	
7b	Improve links with local planning and Local Development Framework - Ensure AQAP and AQMA are considered in future planning policy frameworks (Local Plans).	GBC/NCC	2012	2012-13	Ongoing consultation with Core Strategy/ Local Plan development	LPD11 Air Quality in proposed Draft LP	Complete	Local Plan due for adoption in 2018
7e	Improve links with local planning and Local Development Framework - Development of an Air Quality Supplementary Planning Document (SPD)	GBC	2013	2013-15	Development of SPD	Complete	Complete	

Gedling Borough Council

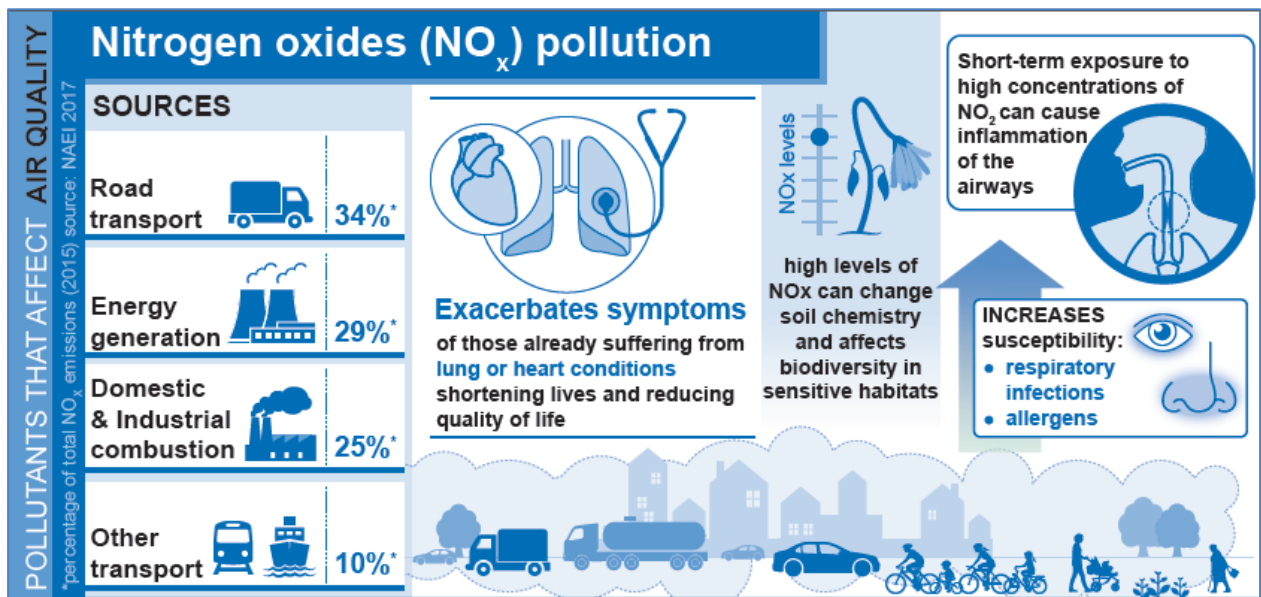
Measure No.	Measure	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Progress to Date	Estimated Completion Date	Comments
9b	Target reductions in emissions from buses - Promotion of the benefits of Eco-driving training	GBC	2012	2012-15	N/A	Complete	Complete	SAFED training no longer available
10b	Target reductions in emissions from heavy and light goods vehicles - Promotion of the benefits of Eco-driving training	GBC	2012	2012-15	N/A	Complete	Complete	SAFED training no longer available
12c	Target reductions in emissions from the council fleet and contract vehicles - Run Eco-driving training course	GBC	2012	2012-13	N/A	Membership of ECO Stars scheme. Review of emissions reduction carried out. Eco driving training supplied to staff.	Complete	Gedling membership of ECO Stars continues
13a	Encourage the uptake of alternative fuels - GBC consider installing electric charging points for visitors and staff.	GBC	2012	2013	N/A	One charging point part of Plugged in Midlands.	Complete	See measure 14 in new plan for continuation.
15a	Travel plans - Review/refresh Gedling Borough Council Travel Plan;	GBC	2013	2013-14	N/A	Review Completed	Complete	Ongoing will be kept under review
15b	Travel plans - Nottinghamshire County Council to review travel plan for its sites	NCC; integrated transport block funding	N/A	Ongoing		PTP travel clinics held at NCC buildings within the AQMA during 2014/15	Complete	Ongoing - operational for nearly 20 years
15c	Travel plans - Continue to support the implementation of school travel plans	NCC: DfT funding	N/A	2000-2011	Restrain average journey times in the morning peak to a 1% increase per year	STPs developed with 43 of the 45 schools in the Borough	Mar-11	Central Govt grant funding to deliver STPs no longer available
16a	Promoting travel choices - Undertake personalised travel planning within Gedling borough	NCC/AECOM; integrated transport block/Access Fund funding	2015/16	2015/16	Restrain average journey times in the morning peak to a 1% increase per year	PTP undertaken in Daybrook during 2014/15.	Complete	New wave of PTP work being undertaken – see Measure 28 p20.
17d	Public transport -Review, install/ replace flagpoles/ timetable cases along key AQMA corridors	NCC	2012	2012-	N/A	Flagpoles and timetable cases have been installed at all bus stops along the A60 AQMA corridor.	Complete	

Measure No.	Measure	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Progress to Date	Estimated Completion Date	Comments
17f	Public transport - Install 'real time' bus information along key AQMA corridors	NCC	2012	2014-15	Complete	Complete	Complete	
18c	To encourage adoption cycling and walking as alternatives to using private vehicles - Consider the use of advance cycle stop lines at feasible junctions within the AQMA	NCC	2012	2012-15	Complete	Complete	Complete	
18f	To encourage adoption cycling and walking as alternatives to using private vehicles - Consider walking and cycling infrastructure and facility enhancements	NCC	2012	2017/18	Increased cycling trips	Arnold/Woodthorpe/Carlton strategic cycling network developed.	2018/19	LGF secured in December 2016; construction to be undertaken during 2018/19
EXTRA 2	20mph speed limits outside schools	NCC; integrated transport block funding	2012/13	2013-2016	Increased walking/cycling trips	Advisory 20mph speed limits installed outside all feasible schools	2016/17	

3 Gedling Borough Council's Air Quality Priorities

3.1 Public Health Context

Nitrogen Dioxide is an acidic gaseous pollutant produced by combustion processes, such as diesel and petrol engines, space heating and cooking that uses hydrocarbon fuel (e.g. coal, oil, natural gas, wood or other biomass). Short term exposure to NO₂ is associated with respiratory symptoms, hospital admissions and mortality.⁴



Source: DEFRA, 2017

Studies of long-term exposure to NO₂ report associations with all-cause, respiratory and cardiovascular mortality, children's respiratory symptoms and lung function.

The UK Committee on the Medical Effects of Air Pollutants (COMEAP) examined existing papers compiled in a number of countries, including the UK, looking at the effect that long-term exposure to NO₂ may have on mortality.

However, after several years of analysis and deliberation over the available data, Committee members concluded that uncertainty in assessing the impact of NO₂ individually compared to other pollutants, such as PM_{2.5}, made it difficult to arrive at an individual figure wholly attributable to NO₂.

⁴ Getting to grips with air pollution – the latest evidence and techniques, A Briefing for Directors of Public Health, Defra, February 2015

One reason for this is that both pollutants can often be emitted from a single source, for example from road transport, meaning that it can be difficult to differentiate between the individual effect of each pollutant.

The report⁵ does include exploratory calculations based on both PM_{2.5} and NO₂, using information from studies in which the overlap of effects associated with the two pollutants has been accounted for; although there was disagreement within the committee a majority view was published:

“the range of estimates of the annual mortality burden of human-made air pollution in the UK is estimated as an effect equivalent to 28,000 to 36,000 deaths.”

These figures are thought to be the closest overall estimate to the mortality impact of air pollution in the UK – however as more research on the impacts of nitrogen dioxide is carried out, this could yet be further refined.

We aim to reduce air pollution concentrations below the air quality standards/objectives as much as possible, rather than aiming to meet them. There are no safe levels associated with air pollution (strongest evidence is with PM and NO₂) and a reduction of air pollution concentrations at any level will have positive impacts on public health.

3.2 Planning and Policy Context

Guidance on Air Quality has been prepared to set out the measures, which will be taken to help reduce vehicle emissions that occur as a result of development proposals. ([LINK TO DOCUMENT](#)) The guidance applies across the whole Borough in order to improve air quality and avoid other areas having to be designated as AQMAs.

⁵ Committee On The Medical Effects Of Air Pollutants: Associations of long-term average concentrations of nitrogen dioxide with mortality, Accessed 01/10/2018 <https://www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality>

The [Local Planning Document](#) was adopted on 18th July 2018 and includes an updated policy on Air Quality, which makes reference to the Air Quality and Emissions Mitigation guidance.

Policy LPD11: Air Quality states:

Planning permission will not be granted for development proposals that have the potential to adversely impact on air quality, unless measures to mitigate or offset their emissions and impacts have been incorporated, in accordance with the Council's Air Quality and Emissions Mitigation guidance and other associated guidance documents.

In areas where air quality is a matter of concern, development proposals will be required to deliver a positive impact on air quality.

Development proposals must not exacerbate air quality beyond acceptable levels, either through poor design or as a consequence of site selection.

This brings the requirements of the guidance into the statutory development plan giving it more weight.

3.1 Source Apportionment

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

Gedling Borough Council carried out a source apportionment exercise in 2017. This identified that within the AQMA, the percentage source contributions were as follows:

3.1.1 Background NO₂ Contributions

Statutory Guidance TG(16) provides in Box 7.5 a method of calculating the regional and background contribution at a particular relevant receptor 43µg/m³.

See Appendix C for the calculations that lead to:

Local NO₂ contribution = **24.25µg/m³**

This then provides an estimate of the apportionment of NO₂ at the worst-case receptor (43µg/m³) as:

- Regional background = 5.09µg/m³
- Local Background = 13.66µg/m³
- Local Traffic = 24.25µg/m³

Section 3.1.2 (below) outlines the process by which the local traffic emissions have been apportioned. Using this information the Local Traffic NO₂ concentrations can be further split into:

- Vans and Lorries = 7.51µg/m³ (31%)
- Buses = 2.65µg/m³ (11%)
- Cars = 14.09µg/m³ (58%)

This is the 24.25 split using % from EFT outputs below.

3.1.2 Local Contributions

The Authority has used the Emissions Factor Toolkit (EFT) (v8.0.1) (available at <https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>) to carry out the local source apportionment of NO_x.

In order to achieve site-specific results the tool has been run using Average Annual Daily Traffic (AADT) flow data and vehicle fleet composition data obtained from traffic studies conducted around the AQMA; Nottinghamshire County Council provided the data. Other assumptions used include an average daily speed of 30kph to allow for any congestion during rush hour periods (speed limit is 30mph).

The results of the apportionment exercise show that overall diesel vehicles contribute to the vast majority (92%) of emissions. Of those diesel vehicles the spread is:

- Diesel Cars – **50.01%**
- Diesel Light Goods Vehicles (LGV) – **18.72%**
- Heavy Goods Vehicles (HGV) – **12.05%**
- Coaches and Buses – **11.24%**

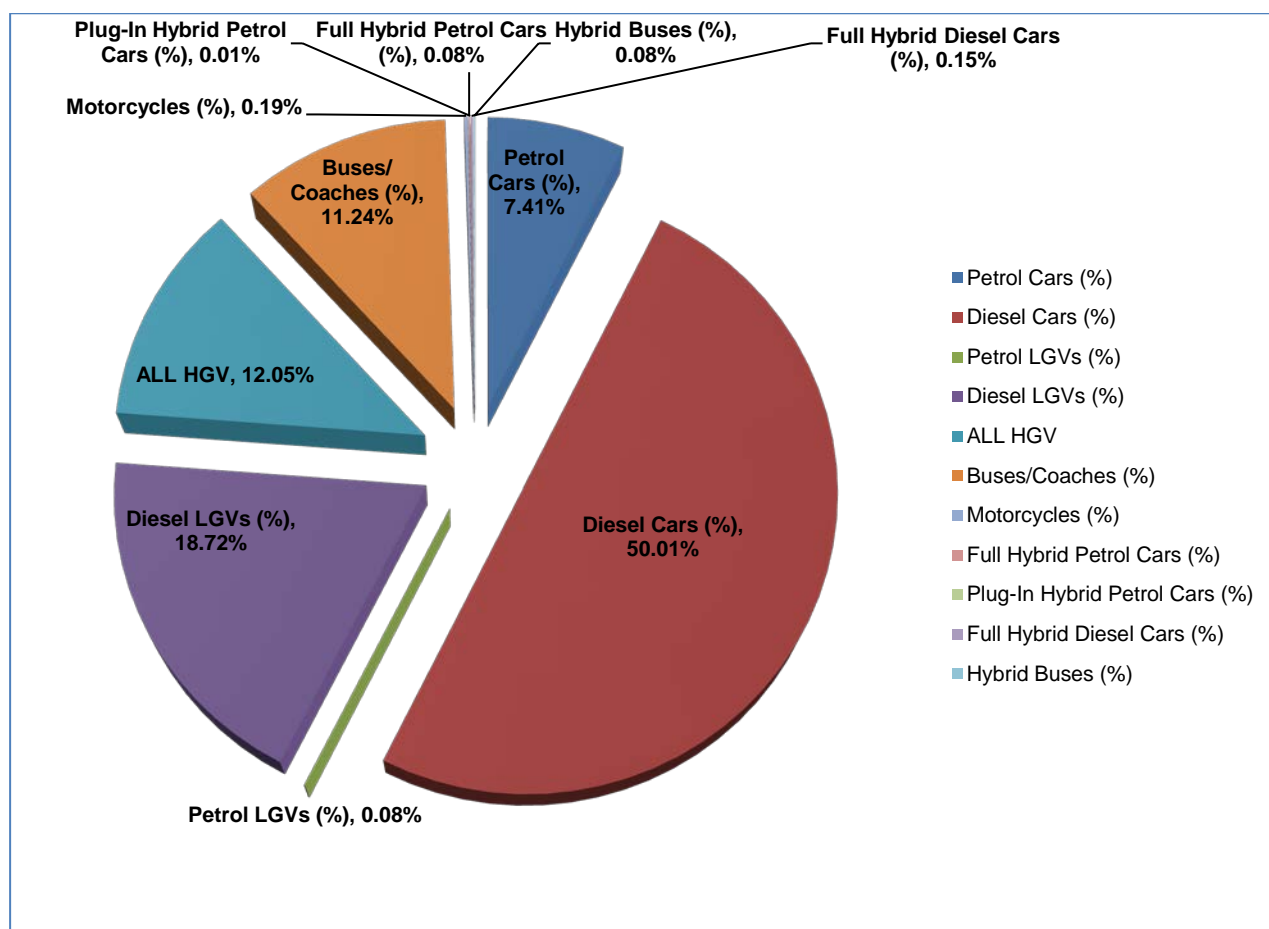


Figure 3.1 - Percentage NOx Emissions by Vehicle Type (sum of all road links)

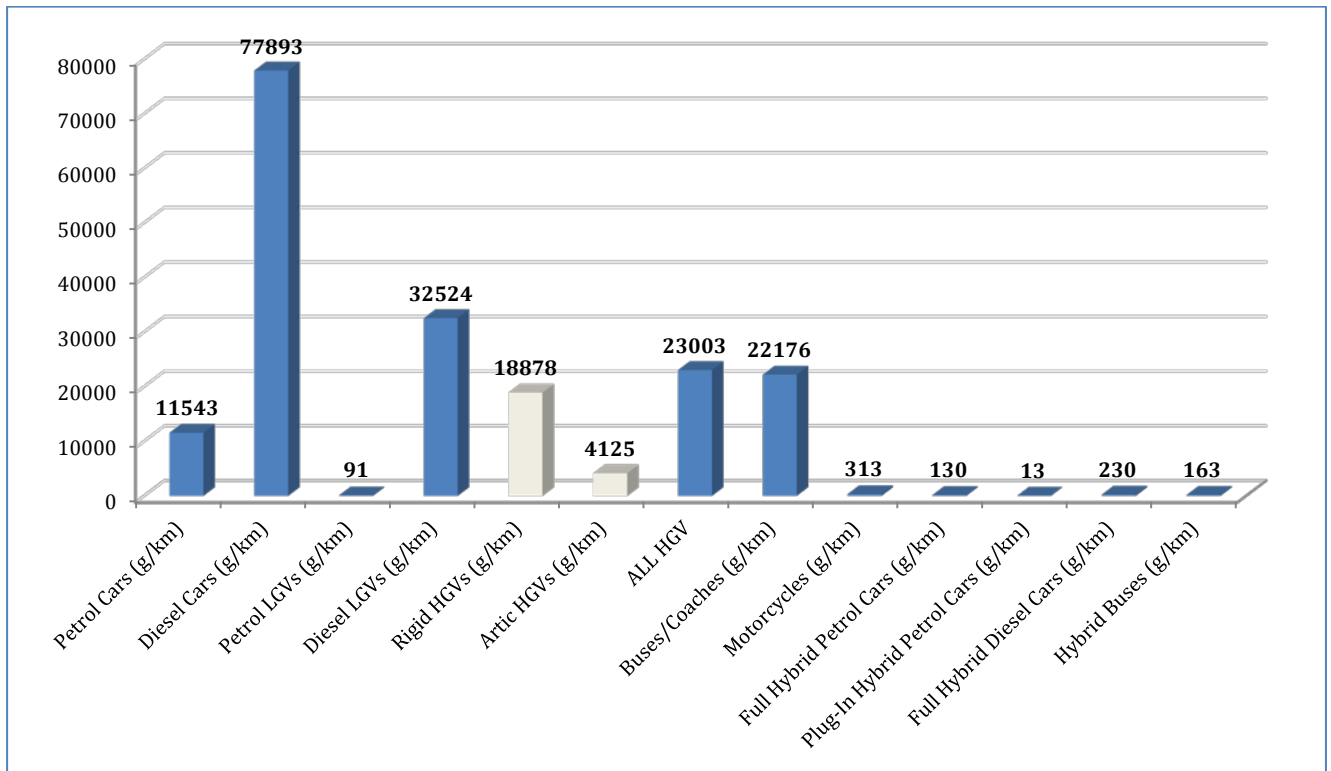


Figure 3.2 - Total NOx Emission Rates by Vehicle Type (sum of all road links)

3.2 Required Reduction in Emissions

The Statutory Guidance requires Local Authorities to estimate both the required reduction in pollutant emissions. In the case of NO₂ alongside roads, the required reduction should be stated as the µg/m³ reduction in the NO₂ concentration.

Based on 2017 worse case adjusted diffusion tubes results this would equate to a **3 µg/m³ reduction in NO₂ from 43 to 40 µg/m³.**

However, the required percentage reductions of local emissions should be expressed in terms of NO_x due to the local road traffic. This is because the primary emission is of NO_x and there is a non-linear relationship between NO_x concentrations and NO₂ concentrations.

Box 7.6 found in TG(16) provides an example of how to calculate the reduction in road NO_x emissions required to meet the 40µg/m³ objective; using the NO_x to NO₂ calculator tool (v6.1). See Appendix C for the calculations.

Road NO_x reduction = **7.15µg/m³** which represents a **14% reduction**.

4 Development and Implementation of Gedling Borough Council AQAP

4.1 Consultation and Stakeholder Engagement

In updating this AQAP, we have worked with other local authorities, agencies, businesses and the local community to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 4.1.

The Council commits to undertaking a full public consultation on the revision to the AQAP via the following stakeholder engagement:

- *Have Your Say* area of the Gedling Borough Website
- Articles in local newspaper/GEN/Facebook/Twitter
- Letter to households/businesses within the AQMA

The responses to our consultation stakeholder engagement will be presented in Appendix A; any actions that are subsequently deemed undeliverable following stakeholder and resident's consultation will be logged in Appendix B.

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

4.2.1 Steering Group Members

In order to establish options for consideration in the plan a workshop event was held in May 2018, invited stakeholders; included:

Gedling Borough Council

- Ward Members*
- Cabinet Members*
- Planning Policy Officers*
- Economic Growth & Regeneration Officers*
- Transport and Waste Officers
- Corporate Directors
- Public Protection Officers*
- Development Management Officers*
- Community Relations Officers

Nottinghamshire County Council

- Transport Officers*
- Public Health Officers*
- Chair of Communities and Place Committee
- Ward Members*

Nottingham City Council

- Transport Officers*
- Environmental Health Officers*

Other Bodies

- Public Health England
- NHS Nottingham North and East Clinical Commissioning Group (CCG)*

* Attended workshop

Where stakeholders were unable to attend the workshop they were included in further correspondence allowing comment on drafts of the plan.

4.2.2 Activity

The outputs from the workshop have been incorporated, and refined during meetings with the County Council Transport Planning Officers creating a list of potential measures for further consideration and prioritisation.

The first draft of the action plan was then submitted for internal consultation with the stakeholders above, for their comments. These comments were then incorporated to form the final draft submitted for public consultation.

5 AQAP Measures

5.1 Key Priorities

The key priorities for Gedling Borough Council are to continue to:

- Priority 1 – Work with the Highway Authority to manage traffic volume and improve flows.
- Priority 2 – Ensure that future development is designed to allow residents to make low emission transport choices.
- Priority 3 – Promotion and education.
- Priority 4 – Reduce emissions from buses and taxis.
- Priority 5 – Reduce emissions from HGVs and LGVs.

The aim of these priorities is to encourage a shift to low emission transport options and smarter transport choices; which facilitates and encourages walking, cycling and public transport use; all of which have co-benefits on health and wellbeing.

These priorities also include within them a desire to reduce exposure for those who are most vulnerable.

5.2 National Policy Measures

Section 3.1 has highlighted that the main source of emissions are those from private diesel cars. In this AQAP we outline how we plan to effectively tackle air quality issues within the Borough and County Councils 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, taxation of fuel and vehicles in the UK, for example.

5.3 Long Term Measures

Through the stakeholder event a number of measures were highlighted that were perhaps more long term, often infrastructure based measures. These measures are important to include but may extend beyond the intended life of this revision of the AQAP. Where appropriate they have been included at the end of the list of measures present in Table 5.1.

5.4 Action Plan Measures

The stakeholder workshop also highlighted a number of areas that could be seen as higher-level pledges, Borough-wide which would benefit the AQMA and the Borough as a whole. Whilst these have not been included as measures they are neither the less important and are included below as part of the Action Plan. Gedling Borough Council will therefore seek:

- Pro-active joint working with Nottinghamshire County and City Council's focussing on cross boundary solutions.
- Promote development of long-term strategic transport infrastructure projects.
- Supporting improving public transport services both within the Borough and outside; pulling away commuter traffic.
- Work with highway authority/LGA/other partners to lobby for transport funding. Support joint bids for sustainable transport funding.
- Promotion of clear corporate message on clean air/pollution with partners.

The location of the AQMA and the site constraints makes it difficult to remedy the problems with small-scale infrastructure improvements.

5.4.1 Quantifying expected pollutant emission and/or concentration reduction

Quantification of emissions and/or concentrations reduction can be difficult for most of the action plan measures. There are often various confounding factors that make it difficult to directly attribute concentration changes, as a result of intervention measure implementation. Quantification of the emissions reduction will often be easier to calculate than an estimate of the concentration reduction; which would otherwise require the application of detailed dispersion models to make suitable predictions.

Where direct quantification of emissions reduction cannot be achieved, LAs are asked to apply best judgement in a qualitative manner; such as a matrix based approach whereby each measure is assigned an indicative reduction of NO₂ with associated timescales. (See over)

Air Quality Impacts		Timescale	
Score	Indicative Reduction in NO ₂ Concentration		Years
7	>5 µg/m ³	Short (S) ↓	<2
6	2 - 5 µg/m ³		↓
5	1 - 2 µg/m ³		↓
4	0.5 - 1 µg/m ³	Medium (M) ↓	2.5
3	0.2 - 0.5 µg/m ³		↓
2	0 - 0.2 µg/m ³	Long (L) ↓	>5
1	0 µg/m ³		↓

Table 5.1 shows the Gedling 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
- expected benefit in terms of pollutant emission and/or concentration reduction (where applicable)
- the timescale for implementation
- how progress will be monitored

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

Table 5.1 – Air Quality Action Plan Measures

No.	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
Priority 1 - Work with the Highway Authority to manage traffic volume and improve flows.											
1	Traffic control and management - Consideration and installation of SCOOT/MOVA and other traffic signal efficiency improvements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	NCC/Via EM; integrated transport block funding	N/A	2019/20	Restrain average journey times in the morning peak to a 1% increase per year	5(L)	SCOOT and MOVA equipped signals within AQMA rephrased but require periodic review.		Further signal improvements planned at A60/Sir John Robinson Way. Following this a review of signal operation along AQMA corridor to be undertaken
2	Traffic control and management - traffic control centre that monitors traffic movement and provides real time traffic control over many traffic signal installations	Traffic Management	UTC, Congestion management, traffic reduction	Nottinghamshire County Council (NCC)/Via EM Ltd/Nottingham City Council (NCIC): NCC and NCIC revenue funding	N/A	Ongoing 2019-2024	Restrain average journey times in the morning peak to a 1% increase per year	4(S)		Ongoing	
3	Traffic control and management - co-ordination of street works to minimise traffic disruption and unnecessary congestion	Traffic Management	UTC, Congestion management, traffic reduction	NCC/Via EM/NCIC: NCC and NCIC revenue funding	N/A	Ongoing 2019-2024	Restrain average journey times in the morning peak to a 1% increase per year	3(S)		Ongoing	
4	Traffic control and management - management of incidents to minimise traffic disruption and unnecessary congestion	Traffic Management	UTC, Congestion management, traffic reduction	NCC/Via EM/NCIC/Highways England (HE): NCC, NCIC, HE revenue funding	N/A	Ongoing 2019-2024	Restrain average journey times in the morning peak to a 1% increase per year	2(S)		Ongoing	
5	Traffic control and management - Effective contingency planning to minimise traffic disruption and unnecessary congestion	Traffic Management	UTC, Congestion management, traffic reduction	NCC/Via EM Ltd: NCC revenue funding	N/A	Ongoing 2019-2024	Restrain average journey times in the morning peak to a 1% increase per year	2(S)		Ongoing	Information conveyed by all forms of media (press, radio, website, social media etc.). Implementation ongoing
6	Parking management and control - Bus stop clearways	Traffic Management	UTC, Congestion management, traffic reduction	NCC/Via EM Ltd: NCC revenue funding	Ongoing	N/A		3(S)	Bus stop clearways introduced at bus stops within the AQMA where parked vehicles were identified as impeding traffic flows	Ongoing	Additional bus stop clearways will be considered in the future should vehicles parking in bus stops be identified as impeding traffic flows at additional locations

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No.	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
7	Parking management and control - Ensure that car parking in and around the AQMA is managed and reviewed	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	NCC; NCC revenue funding	N/A	Introduction of junction protection and targeted roadside parking restrictions along feeder corridors into the AQMA.	Manage parking to improve journey time reliability	2(S)		Ongoing	Improvements will only be considered should vehicles parking in bus stops be identified as impeding traffic flows. Parking restrictions already in place along the A60. No additional side-road/off-line locations currently identified as requiring restrictions to aid traffic flow.
8	Improving links with local transport strategy	Transport Planning and Infrastructure	Other	NCC/GBC	N/A	Ongoing 2018-2024	N/A	N/A(S)		Ongoing	Ensuring existing strategies complement and enable actions to improve air quality
9	Analyse journeys through AQMA	Other	Other	NCC/GBC	Dependent on GBC securing funding	Dependent on GBC securing funding	survey	N/A(M)			Project would require acquiring origin/destination journey data over a massive geographic area and therefore would be very expensive to deliver. GBC therefore need to determine and secure funding before such surveys could be undertaken
10	Consider walking infrastructure and facility enhancements	Transport Planning and Infrastructure	Other policy	NCC/GBC	N/A	Ongoing	Increased walking trips	3(S)		Ongoing	Walking infrastructure improvements delivered as part of annual integrated transport programme. GBC secure s38 and s106 funding for improvements as part of new development
11	Consider cycling infrastructure and facility enhancements	Transport Planning and Infrastructure	Other policy	NCC/GBC	N/A	Ongoing	Increased cycling trips	3(S)		Ongoing	Cycling infrastructure improvements delivered as part of annual integrated transport programme. GBC secure s38 and s106 funding for improvements as part of new development. NCC secured LGF and NCC funding to deliver cycle network improvements delivered during 2018/19 improvements in Arnold
Priority 2 - Ensure that future development is designed to reduce exposure and improve air quality.											
12	Improve links with local planning and Local Development Framework - Ensure sustainable development on vacant sites within and in the vicinity of the AQMA	Policy Guidance and Development Control	Other policy	GBC	N/A	Ongoing 2019-2024	No. of AQ impact assessments related to AQMA	3(S)		Ongoing	
13	Improve links with local planning and Local Development Framework - Co-ordination of land-use planning and transport infrastructure	Policy Guidance and Development Control	Other policy	GBC/NCC	N/A	Ongoing 2019-2024	N/A	4(S)		Ongoing	
14	Improve links with local planning and Local Development Framework - Secure appropriate levels of developer contributions (Section 106 and/or CIL) for use on air quality improvement projects	Policy Guidance and Development Control	Other policy	GBC/NCC	N/A	Ongoing 2019-2024	Sums collected for air quality projects	4(S)		Ongoing	

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No.	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
15	Improve links with local planning and Local Development Framework - Use of planning conditions for mitigation; inc. travel plans etc. enforcement to ensure compliance	Policy Guidance and Development Control	Other policy	GBC	N/A	Ongoing 2019-2024	N/A	4(M)		Ongoing	
16	Encourage the uptake of alternative fuels - wider network of charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	GBC	2018	2019-2020	N/A	4(M)			£6.1m funding secured (GoUltra Low) for 2016-2021. Preferred delivery partner procured. Site investigation to determine feasibility of sites underway as part of GoUltra Low project
Priority 3 - Promotion and education											
17	Communication and education - awareness raising of local air quality issues - Tackling the school run – communication with school children and parents	Public Information	Via other mechanisms	GBC/NCC Public Health	2019	Ongoing 2019-2024		3(M)			
18	Communication and education - awareness raising of local air quality issues - the link with poor health	Public Information	Via other mechanisms	GBC/NCC Public Health	2018-19	Ongoing 2019-2024	Publication of relevant promotional material	1(M)		Ongoing	Nottinghamshire Clean Air Strategy currently being reviewed linked to wider work carried out at County Level
19	Travel plans - Work with local businesses/ organisations to encourage the development and implementation of travel plans	Promoting Travel Alternatives	Workplace Travel Planning	GBC planning/NCC	N/A	Ongoing 2019-2024	Restrain average journey times in the morning peak to a 1% increase per year	3(S)			Developed with businesses as part of planning conditions. Targeted travel planning (funded by the County Council) was held at workplaces within the AQMA during 2014/15
20	Promoting travel choices - Undertake personalised travel planning in Commuter Areas	Promoting Travel Alternatives	Personalised Travel Planning	NCC	2018	2019	Restrain average journey times in the morning peak to a 1% increase per year	3(M)		2019	Funding DfT Access Fund funding secured by NCC to deliver PTP during 2019
21	Promotion of EV Charging Network	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	NCC/NCIC	N/A	2018-2020		4(M)		2020	OLEV funding secured to promote take-up of ULEVs. Identification of potential sites underway Promotion of GoUltra Low network
22	Promoting travel choices - Consideration of extending existing city-based car club into the county	Alternatives to private vehicle use	Car Clubs	NCC		Dependent on demonstration of success of existing Car Club	Restrain average journey times in the morning peak to a 1% increase per year	2(L)			Nottm City scheme introduced in 2014. Expansion of scheme into county dependent on demonstration of its success
23	Promoting travel choices - The promotion and facilitation of car sharing schemes.	Alternatives to private vehicle use	Car & lift sharing schemes	NCC	N/A	Ongoing 2019-2024	Restrain average journey times in the morning peak to a 1% increase per year	2(S)		Ongoing	3,141 members registered. Implementation ongoing

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No.	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
24	Promoting travel choices - Residential Travel Packs, to be issued to all new built homes	Promoting Travel Alternatives	Other	GBC/NCC	N/A	Ongoing 2019-2024	N/A	2(M)		Ongoing	Planning conditions to ensure travel plans are required where appropriate
25	Public transport - Development of ITSO smartcard ticketing	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	NCC/NCIC/PT operators	N/A	Ongoing 2019-2024	Increased passenger transport patronage	2(S)		Ongoing	Integrated ticketing strategy developed in 2014/15. New smartcard platform introduced in 2014. Robin Hood card scheme introduced in 2015
26	Public transport - Deliver the free countywide off-peak concessionary fare scheme for the over 60s and disabled.	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	NCC/NCIC/PT operators	N/A	Ongoing 2019-2024	Increase passenger transport patronage	2(S)		Ongoing	
27	Public transport - publicise web based journey planners	Public Information	Other	NCC	N/A	Ongoing 2019-2024	Increased walking/cycling/ passenger transport trips	2(S)		Ongoing	Available at http://www.nottinghamshire.gov.uk/transport/public-transport/plan-journey
28	Public transport - Consider bus provision on the A60 and surrounding area.	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	NCC/PT operators	N/A		Increased bus patronage	2(S)		Ongoing	Bus service provision is provided on a commercial basis with support from NCC where justified; and reviewed periodically
29	Public transport - Consider capacity increases on the GO2 services along the A60 corridor	Transport Planning and Infrastructure	Other	NCC	N/A		N/A	2(S)		Ongoing	Capacity increases will be considered should passenger information demonstrate that there is insufficient capacity on existing services
30	To encourage adoption of cycling and walking as alternatives to using private vehicles - Develop and undertake annual cycling promotional marketing	Promoting Travel Alternatives	Promotion of cycling	NCC	N/A	2019-2020	Increased cycling trips	2(S)		2020	Implementation ongoing. PTP to be delivered during 2019/20 following completion of planned cycle route improvements
31	To encourage adoption cycling and walking as alternatives to using private vehicles - Deliver adult and child cycle training	Promoting Travel Alternatives	Promotion of cycling	NCC; DfT funding	N/A	Ongoing 2019-2024	Increased cycling trips	1(S)		Ongoing	7,518 people received cycle training in 2017/18. Implementation ongoing
32	To encourage adoption cycling and walking as alternatives to using private vehicles - Develop and undertake annual walking promotional marketing	Promoting Travel Alternatives	Promotion of walking	NCC	N/A	Ongoing 2019-2024	Increased cycling trips	1(S)		Ongoing	Greater Nottingham cycling maps produced; to be reviewed once network complete

Gedling Borough Council

No.	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
Priority 4 - Reduce emissions from buses and taxis.											
33	Promotion of low emission vehicles through taxi licensing.	Promoting Low Emission Transport	Taxi emission incentives	GBC	2019	Ongoing 2019-2024	Review of Taxi Licence criteria	3(M)			
34	Target reductions in emissions from buses - ECOStars Fleet Recognition Scheme.	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	GBC	N/A	2018-19	Scheme membership	4(S)	7 bus/coach operators members Operating ~740 vehicles		DEFRA Grant funding secured for 19/20
35	Target reductions in emissions from buses - Ongoing delivery of Quality Bus Partnerships	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	NCC/NCIC/PT operators; NCT (operator)	N/A	Ongoing 2019-2024	Ongoing take-up of cleaner vehicles	5(M)		Ongoing	SQBP in place affecting all buses travelling through AQMA. Operator NCT secured £4.4m OLEV funding and invested a further £12.4m to upgrade its facilities to enable running of a gas fleet, including two services which travel through the AQMA.
36	Encouragement of low-emission public transport fleets (new vehicles and retro-fitting)	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	NCC/PT operators	N/A	Ongoing 2019-2024	On-going take-up of cleaner vehicles	4(S)		Ongoing	Operator NCT secured £4.4m OLEV funding and invested a further £12.4m to upgrade its facilities to enable running of a gas fleet, including two services which travel through the AQMA NCC secured £1.3m; from the Green Bus Technology Fund in Feb 2018 to retrofit older buses, including services 'Threes', 56, 57 and 59 which operate in the AQMA
37	Target reductions in emissions from buses - Encouraging the use of emissions standards when procuring school bus contracts and supported bus services.	Promoting Low Emission Transport	Other	NCC/PT operators	N/A	Ongoing 2019-2024	On-going take-up of cleaner vehicles	4(S)		Ongoing	
Priority 5 - Reduce emissions from HGVs and LGVs.											
38	Target reductions in emissions from heavy and light goods vehicles - ECOStars Fleet Recognition Scheme	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	GBC	N/A	2018-19	Scheme membership	4(S)	106 HGV/LGV Members operating ~7000 vehicles		DEFRA Grant funding secured for 19/20
39	Target reductions in emissions from the council fleet and contract vehicles - Gedling Borough membership of ECOStars scheme.	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	GBC	N/A	2018-19	N/A	3(S)		Continuation dependant of funding	Gedling Fleet a 4 star member
40	Target reductions in emissions from the council fleet and contract vehicles - Ensuring new vehicles procured are cleanest possible.	Vehicle Fleet Efficiency	Other	GBC	N/A	Ongoing 2019-2024	N/A	3(S)		Ongoing	
41	Target reductions in emissions from the council fleet and contract vehicles - GBC Green Procurement	Vehicle Fleet Efficiency	Other	GBC	N/A	Ongoing 2019-2024	N/A	2(M)		Ongoing	

No.	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
Long Term Measures/Projects influencing AQMA											
42	The creation of a park and ride scheme.	Alternatives to private vehicle use	Bus based Park & Ride	NCC	2016-2026	Dependent on feasibility and funding availability		4(L)			This proposal is retained as a potential safeguarded scheme by NCC but is subject to feasibility, business case, planning, consultation, funding availability and political and public acceptability
43	New Trent crossing	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	NCC/NCIC/GBC				2(L)			Feasibility studies undertaken in 2016 determined no compelling case for inclusion in any programme. To be reviewed to be considered alongside future Local Plan growth strategies (post 2032) Future scheme dependent on feasibility, business case for any proposals, identifying appropriate site, prior to consultation and securing funding
44	Review of public transport infrastructure along A60 corridor	Transport Planning and Infrastructure	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	NCC/NCIC/GBC				4(L)			This proposal is subject to feasibility, business case, planning, consultation, funding availability and political and public acceptability

Appendix A: Response to Consultation

Below, Table A.1, are the results of the Stakeholder consultation responses.

Table A.1 – Summary of Responses to Stakeholder Engagement on the AQAP

Consultee	Category	Response
Nottinghamshire County Council – Transport Planning	Table 2.1	Minor suggested text amendments to clarify actions undertaken/ongoing actions
Nottinghamshire County Council – Transport Planning	Paragraph 5.4	Minor suggested text amendments to make bullet points clearer
Nottinghamshire County Council – Transport Planning	Table 5.1	Minor suggested text amendments to take account of recent progress on measures
Public Health England	Page iv and 13	Minor amend to text
Public Health England	Text p7	Request to emphasise the need to reduce levels below standards/objectives



Letters were sent, highlighting the consultation, to 1017 residential addresses and 71 businesses addresses; those lying within the AQMA and within a 100m buffer of the AQMA boundary.

14 responses were submitted via the online survey, no responses were received via post or directly. A summary of the responses can be found below in Table A.2.

Many of the responses related to the improvement of walking and cycling infrastructure. In the draft document measure 33 did relate to improvements to both walking and cycling infrastructure; to make this more clear item 33 was removed and replaced to two separate items (for cycling and walking) these now appear as **Measures 10 and 11**.

A new measure has been inserted into Priority 4 (*Reduce emissions from buses and taxis*). **Measure 36** *Encouragement of low-emission public transport fleets (new vehicles and retro-fitting)* has been inserted to reflect ongoing work by the public transport companies operating in the area.

Table A.2 – Summary of Responses to Public Consultation on the AQAP

Question	Response
Q1. Do you agree with the council's priorities listed in Section 5.1 of the Draft Action Plan?	 <p>Yes (9) 64%</p> <p>No (5) 36%</p>
Q2. If 'No,' please let us know what we should change in the space below:	<p>Most of the responses related to particular issues/concerns rather than priorities, however one respondent did offer that a priority should be to:</p> <ul style="list-style-type: none"> assist residents to make low emission transport choices by developing existing infrastructure as well as in future development. <p>Other concerns included:</p> <ul style="list-style-type: none"> Not directly targeting diesel passenger vehicles The Council's own parking arrangements at Civic Centre Traffic flow issues along A60 Planning developments north of the AQMA
Q3. Do you agree that the council should be taking the actions listed in Table 5.1 of the consultation document?	 <p>Yes (11) 79%</p> <p>No (3) 21%</p>
Q4. If 'No,' please let us know what you don't agree with in the space below; please include the action number in your response.	<p>Whilst the majority thought that we should be taking the actions some respondents considered that more could be done:</p> <ul style="list-style-type: none"> more emphasis should be placed on infrastructure improvements for low emission alternatives (bus, walking and cycling) Subsidise/free bus services. Land to the north of the AQMA allocated for housing in the Local Development Plan is going to make the situation worse.

Q5. Do you think the council should be taking more actions than those listed in Table 5.1?



Q6. If 'Yes,' please let us know what we could add to this plan in the space below:

Responses indicated that the Council should be taking more actions than those in the plan. Other considerations suggested included:

- Making better arrangements for pedestrians
- Implementation of cycle lanes and/or better road surfaces
- Implement harsher restrictions to cut down on vehicles.

Q7. If you have any other comments on the Draft Air Quality Action Plan please provide them in the space below:

Comments submitted here again included some site specific problems/concerns but some more general thoughts included:

- Working with GP practices and commissioners to provide '*fitness prescriptions*'
- People need to be forced/financially motivated to use alternative transport or purchase more environmentally friendly cars.
- Penalizing companies who continue to use high polluting trucks and lorries on our highly residential roads?

Appendix B: Source Apportionment

Background NO₂ Contributions

Statutory Guidance TG(16) provides in Box 7.5 a method of calculating the regional and background contribution at a particular relevant receptor **[T-NO₂]** (43µg/m³); using data from national mapping of background concentrations and the following calculations:

- Total Background NO₂ [TB-NO₂] = 18.75µg/m³
- Total Background NO_x [TB-NO_x] = 26.78µg/m³
- Regional Background NO_x [RB-NO_x] = 7.27µg/m³

1) Local Background NO_x is derived from;

$$\mathbf{[LB-NO_x]} = \mathbf{[TB-NO_x]} - \mathbf{[RB-NO_x]} = 19.51\mu\text{g}/\text{m}^3$$

2) Therefore, to apportion the total background NO₂ into the regional and local using the regional and local NO_x proportions;

$$\mathbf{[RB-NO_2]} = \mathbf{[TB-NO_2]} \times (\mathbf{[RB-NO_x]} / \mathbf{[TB-NO_x]}) = 5.09\mu\text{g}/\text{m}^3$$

$$\mathbf{[LB-NO_2]} = \mathbf{[TB-NO_2]} \times (\mathbf{[LB-NO_x]} / \mathbf{[TB-NO_x]}) = 13.66\mu\text{g}/\text{m}^3$$

3) Thus, to calculate the local NO₂ contribution at the worst case receptor

[L-NO₂];

$$\mathbf{[L-NO_2]} = \mathbf{[T-NO_2]} - \mathbf{[TB-NO_2]} = 24.25\mu\text{g}/\text{m}^3$$

This then provides an estimate of the apportionment of NO₂ at the worst-case receptor (43µg/m³) as:

- Regional background = 5.09µg/m³
- Local Background = 13.66µg/m³
- Local Traffic = 24.25µg/m³

Required Reduction in Emissions

Box 7.6 found in TG(16) provides an example of how to calculate the reduction in road NO_x emissions required to meet the 40µg/m³ objective; using the NO_x to NO₂ calculator tool (v6.1).

Step 1: Calculate the NO_x concentration that equates to **[T-NO₂]** (43µg/m³).

$$\text{Therefore, [Road NO}_x\text{]} = 51.93\mu\text{g/m}^3$$

Step 2: Background concentrations for 2017 are:

$$\text{Total Background NO}_2\text{ [TB-NO}_2\text{]} = 18.75\mu\text{g/m}^3$$

$$\text{Total Background NO}_x\text{ [TB-NO}_x\text{]} = 26.78\mu\text{g/m}^3$$

$$\text{[Total NO}_x\text{]} = 26.78 + 51.93 = 78.71\mu\text{g/m}^3$$

Step 3: Calculate the current 'road NO_x' **[Road NO_x current]** which is:

$$\text{[Total NO}_x\text{]} - \text{[TB-NO}_x\text{]} = 51.93\mu\text{g/m}^3$$

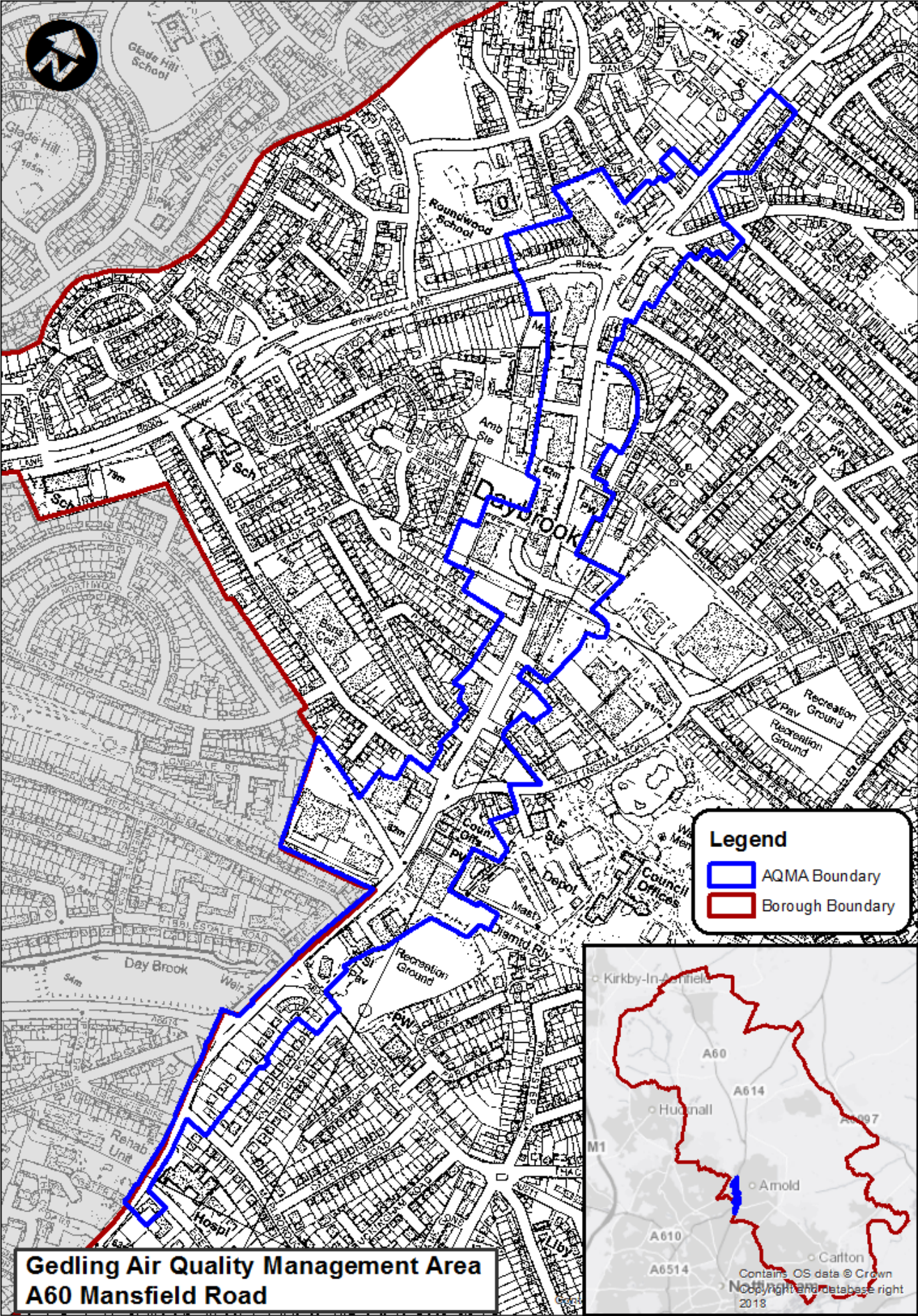
Step 4: Calculate the road NO_x concentration required to give a total NO₂ concentration of 40 µg/m³. **[Road NO_x required]** = 44.78µg/m³

Step 5: Calculate the road NO_x reduction to go from [Road NO_x current] to the [Road NO_x required].

$$\text{Road NO}_x\text{ reduction} = 51.93 - 44.78$$

$$\text{Road NO}_x\text{ reduction} = 7.15\mu\text{g/m}^3 \text{ which represents a } 14\% \text{ reduction.}$$

Appendix C: Map



Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
LEP	Local Enterprise Partnership
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM/PM _{2.5}	Particulate Matter / Particulate Matter of with an aerodynamic diameter of 2.5µm or less
GBC	Gedling Borough Council
NCC	Nottinghamshire County Council
NCiC	Nottingham City Council
LGA	Local Government Association
HGV	Heavy Goods Vehicle
LGV	Light Goods Vehicle
CAZ	Clean Air Zone
AADT	Average Annual Daily Traffic
SCOOT/MOVA	<i>Split Cycle Offset Optimisation Technique / Microprocessor Optimised Vehicle Actuation</i> are systems designed to control traffic lights based on the presence of vehicles, detected on the approach to a traffic light junction.