Breckland Council

Air Quality Action Plan

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

2018

Local Authority Officer	Andrew Grimley
Department	Environmental Protection
Address	Elizabeth House Walpole Loke Dereham Norfolk NR19 1EE
Telephone	01362 656241
E-mail	Andrew.grimley@breckland.gov.uk
Report Reference number	AP01/18
Date	9 October 2018

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 Breckland Council between 2018 and 2020

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3]. Breckland Council is committed to reducing the exposure of people in Swaffham to poor air quality in order to improve health.

We are developing actions that can be considered under the following broad topics:

- Alternatives to private vehicle use
- Freight and delivery management
- Policy guidance and development control
- Promoting low emission energy usage;
- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Transport planning and infrastructure
- Traffic management

Our priorities are to look at NO_2 emissions from traffic travelling through town and investigate ways to reduce congestion and exposure to emissions. 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 Breckland Council's direct influence.

[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

Responsibilities and Commitment

This AQAP was prepared by the Environmental Protection Team of Breckland Council with the support and agreement of the following officers and departments:

Zandra Waterford	Environmental Protection Officer
Andrew Grimley	Team Leader Environmental Protection
Richard Boole	Manager Environmental Protection

This AQAP has been approved by:

Steering Group - members as set out in Chapter 4

Swaffham Town and Breckland District Councillors

Public Heath England – Phil Shreeve Advanced Public Health officer – Healthy Places

Norfolk County Council Transport Planning Ian Parkes Infrastructure and Economic Growth

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

*Overview and scrutiny committees were established in English and Welsh local authorities by the Local Government Act 2000. They were intended as a counterweight to the new executive structures created by that Act (elected mayors or leaders and cabinets). Their role was to develop and review policy and make recommendations to the council. Today, the legislative provisions for overview and scrutiny committees for England can be found in the Localism Act 2011.

If you have any comments on this AQAP please send them to Andrew Grimley at:

Breckland Council
Elizabeth House
Walpole Loke
Dereham NR10 1EE
01362 656241 or Andrew.Grimley@breckland.gov.uk

Table of Contents

List of Tables

List of Figures

1 Introduction

This report outlines the actions that Breckland Council aims to deliver between 2018 - 2022 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 Breckland Council area of Swaffham

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 Breckland Council's air quality ASR.

2 Summary of Current Air Quality in Breckland Council

For the latest figures, please refer to the latest ASR from Breckland Council

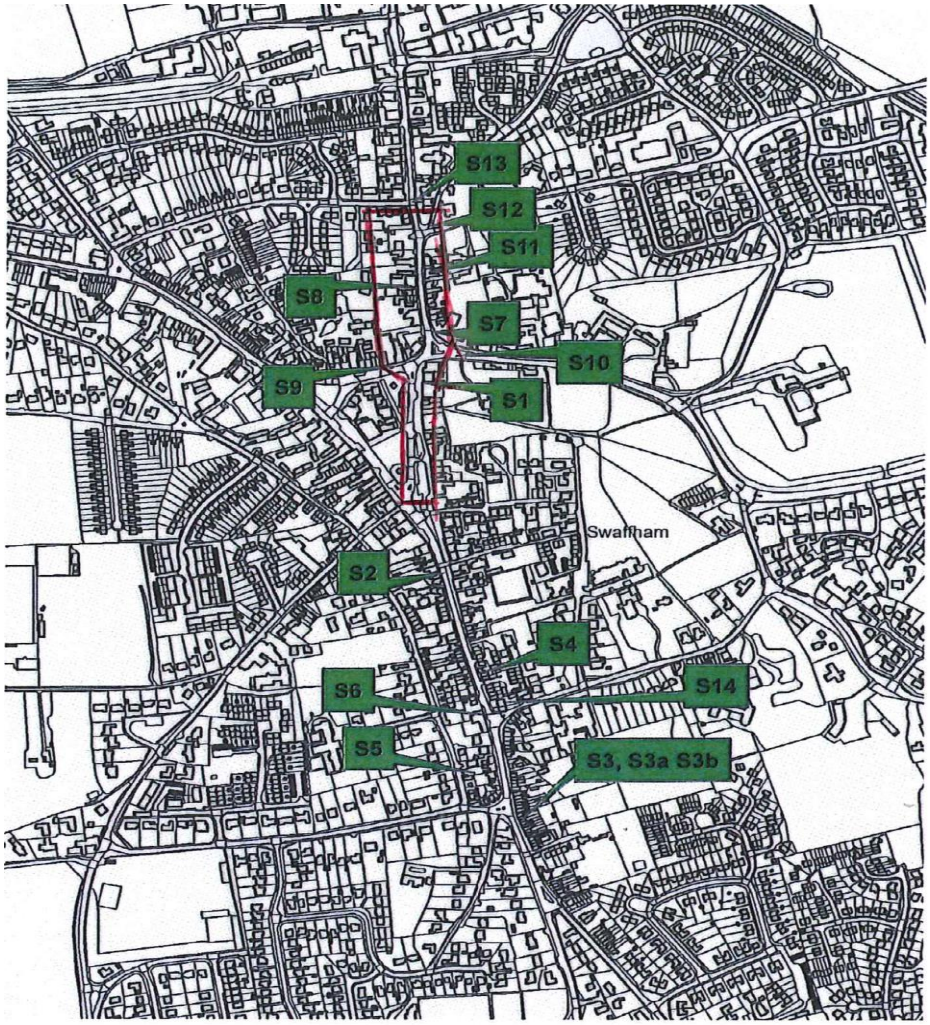

Figure 1 Swaffham location of monitoring sites

In 2006 a mini roundabout was installed at the junction of Whitecross Road and London Street. At the request of residents concerned with rising traffic levels, a diffusion tube was located at the junction on the façade of the nearest house. This showed an exceedance of the annual objective and in 2008 continuous monitoring was installed further south along London Street.

The results since have not shown an exceedance at this location but the expanding tube network has shown that there are several locations along Station Street that are just above or below the annual objective. It is these exceedances that we have tried to address with various measures, including altering the timing of the traffic lights and commissioning reports to model changes to the town layout. Excerpts of the Report

are shown in Appendix B. Further work in this area will be required to assess the financial viability of the schemes suggested and to develop them further with our partner organisations.

We have not been successful in reducing NO_2 concentrations with these measures and have now declared the AQMA in order to focus on a wider range of measures, as set out above, and in Table 5.1, with partner organisations.

Full details of all monitoring can be found in the Annual Status Report viewable at https://www.breckland.gov.uk/article/3244/Air-Pollution

As a result of this monitoring and the continuing exceedance of the annual mean for traffic related NO_2 in Swaffham, an Air Quality Management Area (AQMA) was declared on 1 May 2017.

In 2017 the results showed that an exceedance of the annual mean is not likely. Results show lower concentrations of NO_2 and after the application of the bias adjustment factor for the tubes this is reduced considerably. It must be added that there is some question of why the factor is much lower this year because it appears to be a very widespread effect. There may more to add to this if any evidence is found but currently the adjusted figures are used.

Results can be seen in Appendix D

3 Breckland Council's Air Quality Priorities

Air Quality is high on the political agenda in Breckland and this is demonstrated in the planning and policy context given below.

Breckland Air Quality Priorities

1. **To continue to encourage sustainable travel**. The main sources of emissions in Swaffham are from road transport. Any planning application in Swaffham is assessed for impact on air quality and potential mitigation is requested to address that impact.

2. **To reduce exposure to air pollution and to raise awareness.** We are limited in what we can do to reduce poor air quality, as it is estimated that a proportion of the pollution in Swaffham is from sources outside the District. But we can help our residents to reduce their exposure by travelling differently, etc. We can also help residents to understand how they can make positive changes in their own behaviour to reduce pollution. This will be delivered through *Public Health & Awareness Raising* in the action plan.

3. **To work in partnership with residents, community groups, businesses and other organisations to concentrate on local pollution problems in Swaffham.** The only way to ensure our AQAP is successful is to work closely with those the plan was written for, who know their local area better than anyone else and know where the problems are. This aim will be realised through the measures in the action plan.

3.1 Public Health Context

Air pollution is harmful to everyone. However, some people suffer more than others because they:

- live in deprived areas, which often have higher levels of air pollution
- live, learn or work near busy roads
- are more vulnerable because of their age or existing medical conditions

The Royal College of Physicians' 2016 Report 'Every Breath We Take' states: *'Each year in the UK, around 40,000 deaths are attributable to exposure to outdoor air*

pollution, with more linked also to exposure to indoor pollutants.'[10] Air pollution is associated with a number of adverse health impacts, particularly respiratory illnesses. It is also 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[11,12]. See Figure 3.1 below for a breakdown of emissions by sector.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[13]. Breckland Council is committed to reducing the exposure of people in Swaffham to poor air quality in order to improve health. The Public Health England 'Public Health Outcomes Framework' indicator '3.01 Fraction of mortality attributable to particulate air pollution (particulates under 2.5 micrometres in 2015 (the most recent year available) for Breckland is 4.8% (compared to 5.3% in 2013). The same figures for England are 5.3% and 5.1% respectively.

[10] Every Breath You Take – The Lifelong Impact of Air Pollution, Royal College of Physicians, February 2016.
[11] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[12] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[13] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

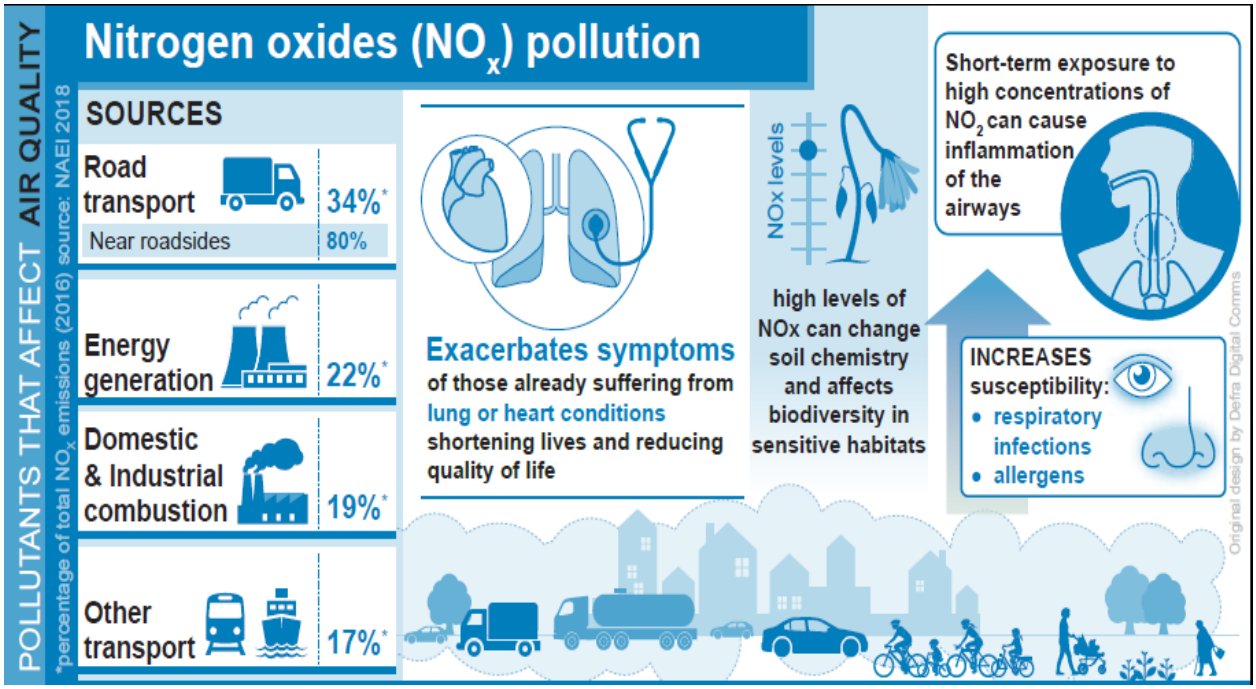

Figure 3.1 Information on NOx: source Defra 2018

3.2 Planning and Policy Context

The Local Plan includes the following paragraph from Policy COM 01 Design

Development should be designed to reduce the impact on local air quality, particularly from road traffic, especially in those areas in or likely to impact on, areas identified as 'at risk' of exceeding air quality objectives.

There are several planning related measures set out in Table 5.1 below that are aimed at addressing this matter and ensuring that all future development that could affect the air quality of Swaffham will be considered when planning applications are received.

3.3 Source Apportionment

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

In Swaffham there is no major industry that is a significant source of NO_2 and the evidence we have is that road traffic is the most significant contributor.

A simple source apportionment exercise has been carried out by Breckland Council and the results are as follows. This will help identify the percentage source contributions from each sector to better help us target the most appropriate measures.

A Traffic count was carried out on the A1065, which bisects the AQMA, by Norfolk County Council in 2014. The count was for northbound traffic only and it must be borne in mind that there may be a difference in the composition of the southbound traffic. The overall totals will certainly be affected. This has been used in a simple source apportionment exercise by Breckland Council in 2018 and the results are as outlined below. This identified that within the AQMA, the percentage source contributions were as follows:

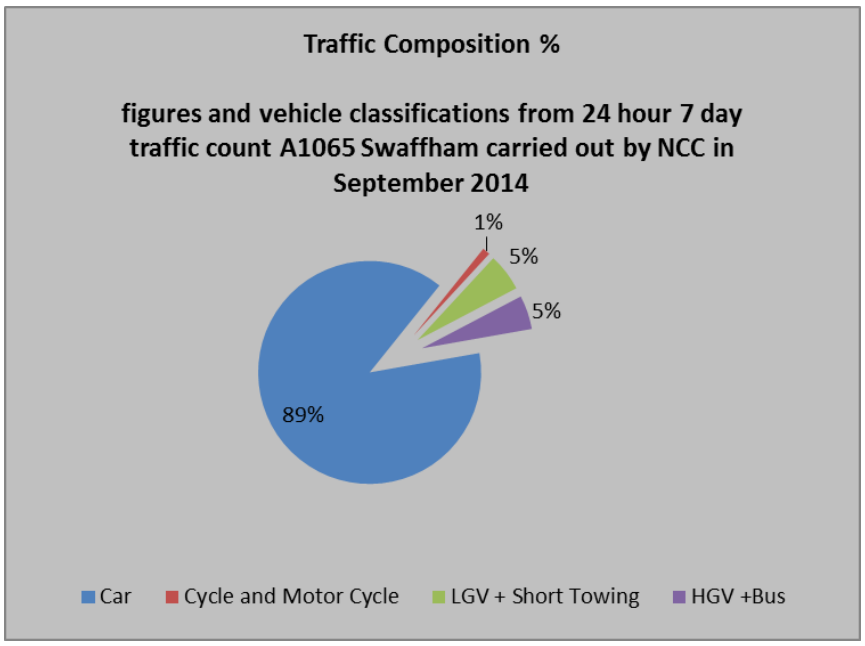

Figure 3.1 Norfolk County Council 7 day Traffic count N Bound A1065 Swaffham 2014

Norfolk County Council 7 day Traffic count N Bound A1065 Swaffham 2014		
Category of Traffic	Total count	Percentage
Car	43148	88.5
Cycle and Motor Cycle	541	1.1
LGV + Short Towing	2645	5.4
HGV +Bus	2395	4.9

Table 3.1 Percentages of traffic types 2014

Note – N Bound only

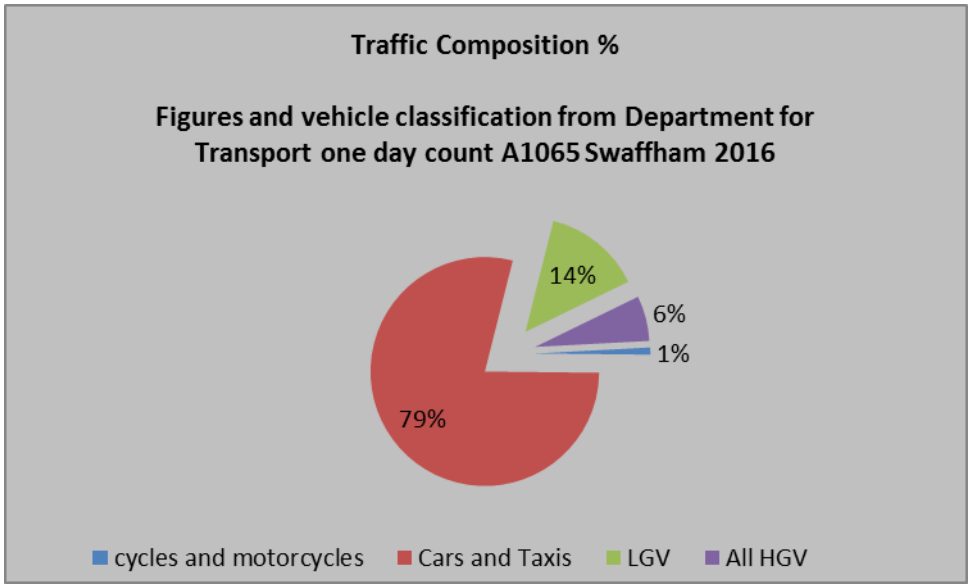

Figure 3.2 DfT website A1065 – B1145 junction actual manual 1 day traffic count 2015

Department for transport 1 day AADT for 1065 N and S Bound 2016		
Category of Traffic	Total count	Percentage
Cars Taxis	5928	78.5
Cycle and Motor Cycle	75	1.0
LGV	1043	13.8
All HGV	480	6.3

Table 3.2 Percentages of traffic types 2016

The Department for Transport has also published figures for a traffic count carried out in 2016. The figures are reported above but there is no information on whether the count is for north and south bound traffic, or if it has been adjusted for anything such as seasonality and time of day. To try and improve the comparison the percentages were calculated and set out in Table 3.2 above. In future the Council will commission improved and up to date counts

Source apportionment of NO_2 using LAQM TG(16) and Figures 3.1 and 3.2 above				
	NCC count 2014 (% of traffic composition)	**DfT count 2016 (% of traffic composition)**	**NCC count 2014 (% of NO_2 contribution)**	**DfT count 2016 (% of NO_2 contribution)**
Cars	88.5	79	35.4%	32%
HGV + Bus	4.9	6.3	23 %	28%
LGV	5.4	13.8	21.9%	20.2%

Table 3.3 Percentage NO_2 contribution from sectors of traffic

Table 3.3 above shows a difference in contributions of NO_2 from the 3 sectors calculated but it should be borne in mind that there are differences in methodology between the surveys that would likely lead to these differences. However, it does show that the contributions are broadly similar. There appears to be a slight fall in the contribution from cars between 2014 and 2016. Again this may be due to the differences in the counting methodology.

There is no information on the age and fuel type of the different categories of traffic and no information on what is local traffic and what is national or regional traffic. It is likely that the summer traffic is more likely to be national due the route taken to the holiday resorts of North Norfolk. [4]

[4] https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html
Local Air Quality Management Technical Guidance (TG16) February 2018

An informal count was also carried out by the Swaffham Neighbourhood Plan traffic group showed a similar composition of HGVs to cars and vans but the figures not included due the nature of the study.

The vehicle counts organised by the Swaffham Traffic Group on the 4th and 8th September, 2017 covered the period 7am to 7 pm on each day and recorded all vehicle types northbound and southbound passing either side of the Buttercross. There were13, 585 vehicles northbound and 13,864 southbound over the two days giving a total figure of 27,449. HGV figures were 1240, 4.5% of the total. Of these HGV's, 64% were 5 and 6 axle vehicles (326) on the A1065 route (east side) and those passing on the west side of Market Place totalled 183, (40%)."

3.4 Required Reduction in Emissions

This was calculated in line with Technical Guidance LAQM.TG16 Chapter 7. Information on the background levels of NO_2, obtained from the Defra website and measured results from the Council monitoring regimes was used.

The result is that we require a 5.8% reduction of road NOx. This equates to a reduction of NO_2 concentrations to the annual objective of 40ug/m3 at the worst site in Station Street. This is the reduction required by Defra.

3.5 Key Priorities

The purpose of this plan is to protect the health and wellbeing of the people, who live, work in and visit Swaffham from the effects of air pollution.

- **Tackling the sources of pollution that the council can control** – for example through our planning policies, working with Highways.
- **Raising residents' and businesses' awareness** of what they can do to reduce their own emissions and how to avoid exposing themselves to existing pollution.
- **Lobby** the government to make the changes needed to improve air quality across the Country
- **Work with our partner organisations** to make the improvements needed to reduce pollution in Swaffham

4 Development and Implementation of Breckland Council AQAP

4.1 Consultation and Stakeholder Engagement

In developing/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 the Act

In addition we have undertaken, or are continuing to undertake, the following stakeholder engagement:

- Open days in Swaffham
- Articles in local newspaper and the town Newsletter
- Questionnaires in electronic and paper format made available on the website and at venues in the Town.
- Working with the Swaffham Neighbourhood Plan Group.
- Local businesses

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

The AQAP Steering Group is chaired by the Chair of the Overview and Scrutiny Committee. Minutes of the Steering Group meetings and reports showing any changes to the actions listed or new actions added, along with their rationale, will be available on Breckland Council's Website.

The AQAP Steering Group has been formed to ensure clear governance and ownership of the plan. The Steering Group consists of representatives from Breckland Council, and also Norfolk County Council Traffic Planners, Breckland Planning Department, Public Heath Norfolk, Swaffham Town Council (Neighbourhood Planning Group) and other interested organisations. The group will meet every two months initially but thereafter as and when, but not less than 6 monthly, to evaluate progress in implementing the AQAP, to approve Annual Status Reports (every 12 months) and to identify the following:

- if there are existing programmes in other areas that will contribute to emissions reductions (or increases) that should be accounted for within the AQAP
- what may influence the local pollution situation in the near future (i.e. 5 to 10 years)
- the future trends that are likely to contribute (regional emissions trends as well as local factors)
- if more technical assessment may be required before proceeding to updating the AQAP
- if traffic management interventions are required

Local Planners also attend the Steering Group meetings and are fully aware of the implications for development in and around the AQMA. Future development in Swaffham will be appraised in accordance with the amended Local Plan and with full consideration of air quality issues. There will be mitigation of any potential impact upon air quality in and around the AQMA.

Highways Planners are also investigating ways of modifying traffic flows to improve air quality in and around the AQMA. Appendix B shows some details from a previous study carried out by Norfolk County Council at the request of Breckland Council in 2015. A number of options were modelled and it can be seen that there is a

possibility that the overall roadside NOx concentrations can be reduced to the extent that the annual objective and be met in future. It must be borne in mind that this study did not model the impact of including pedestrian crossings so the resulting reduction in NOx concentrations may not be as great as suggested in the study. Further work will be required to assess the financial and safety implications of the various modelled scenarios.

Defra also include the importance of involving not only the above mentioned bodies but the following:

- environmental protection and energy management officers;
- waste managers;
- economic development, regeneration and tourism departments;
- the Environment Agency; and
- Highways England.

The Environmental Protection and the Economic Development Teams are fully engaged with the AQAP process. Waste providers will be consulted as part of the overall traffic management. To date we do not have reason to work with the Environment Agency (they are consulted).

5 AQAP Measures

Table 5.1 shows the Breckland 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 pollutant emission and/or concentration reduction
- the timescale for implementation
- how progress will be monitored

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

No	Measure	EU Measure Category	EU Measure Classification	Focus	Lead Authority	Planning phase	Implementation phase	Indicator	Estimated complete date	Target NO2 reduction impact ($\mu g/m^3$)
	POLICY ACTIONS									
1	Consideration of Air Quality Impacts when providing comments on planning applications within an AQMA or where an AQMA could be impacted or created.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Comment on pre-application discussions, advise planners on significance of impacts, agree conditions and S106 agreements	District Council (LPA & Env Protection Team)	ongoing	ongoing	Number of pre application discussions and planning applications		Up to 1
2	With regard to National Planning Policy Framework, include air quality considerations in the Local Plans and adopt an air quality Development Management Policy.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Give appropriate weight to air quality in the decision making process	District Council (LPA & Env Protection Team)	Completed	2017	Production of documents		Up to 1
3	With regard to National Planning Policy Framework, adopt Norfolk Technical Guidance on Air Quality and provide pre-application advice on planning applications	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Raise air quality concerns early in the decision making process and provide a technical framework	District Council (LPA & Env Protection Team)	2018	2020	Production of documents	2020	Up to 1
4	Include air quality considerations with the scoping and determination of planning applications	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Raise awareness of air quality issues with planning authority and developers	District Council (LPA & Env Protection Team)	2018	2018	Production of documents	2020	Up to 1
5	Include air quality as a topic in the Neighbourhood Plan and future Local Plan documents	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Raise awareness of air quality issues with planning authority	District Council (LPA & Env Protection Team)	2018	2018	Production of documents	2020	Up to 1

6	Review car parking policy arrangements and consider the implementation of control measures, enforcement and the likely benefits. This will need to be compatible with the proposed countywide review of Civil Parking Enforcement (CPE)	Traffic Management	Other	Agreement with Town and District Councils	County Council District Council Town Council	2018	2020	Production of documents	2020	Up to 1
TRANSPORT MEASURES										
7	Further investigate an improvement at the Station Street/Mangate Street junction to reduce queuing and delays particularly on Station Street and, if appropriate, devise a scheme for implementation. This may result in removing the traffic lights.	Transport Planning and Infrastructure	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective	Work with NCC Highways	County Council District Council Town Council	2018	2020	Production of documents	2022	Up to 1
8	Review town centre one-way system to create a better circulation of traffic around the town and, if appropriate, devise a revised layout	Transport Planning and Infrastructure	Other	Work with NCC Highways	County Council District Council Town Council	2018	2020	Production of documents	2022	Up to 1
9	Review town centre car parking arrangements to minimise vehicular traffic in sensitive areas and, if appropriate, devise a revised strategy	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	Work with Town Council	County Council District Council Town Council	2018	2019	Production of documents	2020	Up to 1
10	Consider options for new car parks on the edge of the town to keep vehicles from entering the town centre	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	Work with Town and District Councils	County Council District Council Town Council	2018	2019	Production of documents	2020	Up to 1

11	Review illegal and habitual bad parking on Station Street that hinders traffic flow and devise restrictions to prevent it happening	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	Work with Town Council	District Council Town Council	2018	2019	Production of documents	2020	Up to 1
12	Investigate the possibility of an HGV ban on the A1065 through the town centre and, if appropriate, devise a scheme for implementation	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	Work with NCC Highways	County Council District Council Town Council	2018	2020	Production of documents	2022	Up to 1
13	Undertake preliminary investigations into an A1065 bypass linking to the A47 with a view to establishing it in the Neighbourhood/Local Plan	Traffic Management	Strategic highway improvements, Re-prioritising road space away from	Work with NCC Highways and District Planners	County Council District Council Town Council	2018	2018	Production of documents	2018	Up to 1
14	Encourage greater use of public transport for journeys into the town centre	Transport Planning and Infrastructure	Public transport improvements -interchanges stations and	Encourage alternatives to car use and to single car occupancy and reduce need to travel for work. Particularly at	County Council District Council Town Council	2018	2019	Production of documents	2020	Up to 1
15	Improve walking and cycling facilities in and around the town	Promoting Travel Alternatives	Bus route improvements Cycle network Public cycle hire scheme	Encourage alternatives to car use and to single car occupancy and reduce need to travel for work. Particularly at	County Council District Council Town Council	2018	2019	Production of documents	2022	Up to 1
16	Review existing travel arrangements to schools and any existing Travel Plans including the role of car sharing	Promoting Travel Alternatives	Bus route improvements Cycle network Public cycle hire scheme	Encourage alternatives to car use and to single car occupancy and reduce need to travel for work. Particularly at large employers	County Council District Council Town Council	2018	2018	Production of documents	2020	Up to 1
17	Investigate the possibility of car clubs to encourage lower car ownership and lower car use when non car alternatives are not suitable	Traffic Management	Other	Work with local interest groups	County Council District Council Town Council	2018	2019	Production of documents	2020	Up to 1
EMISSIONS ACTIONS										

18	Investigate the provision of electric vehicle (EV) charging points to encourage greater use of EV	Promoting Low Emission Transport	Priority parking for LEV's	Encourage the use of electric vehicles within the town centre	County Council District Council Town Council Highways England	2018	2018	Production of documents	2019	Up to 1
19	Investigate measures to encourage/enforce bus operators to use vehicles with the best emissions standards	Promoting Low Emission Transport	Intensive active travel campaign & infrastructure	Contract between the Council and bus operators that include type of bus, level of service and vehicle emissions	County Council	2018	2019	Production of documents	2020	Up to 1
20	Encourage greater use of public transport for journeys into the town centre	Promoting Travel Alternatives	Other	Public campaigns in town	County Council District Council Town Council	2018	2018	Production of documents	2019	Up to 1
	PUBLIC HEALTH MEASURES									
21	Promotion of road safety/Eco driving awareness, anti-idling at junctions. Education of AQ issues at Schools	Public Information	Other	Raising local awareness of the Health aspects of AQ issues and promoting alternative transport and better use of current modes	Public Health District Council	2018/19	2019	Production of documents and events	2019	Up to 1
22	Investigate Green Space Initiatives	Other	Other	Investigating potential of additional green spaces in town to reduce or mitigate emissions of NO_2	District Council Town Council	2018/19	2019	Designation of spaces	2019	Up to 1

Table 5.1 – Air Quality Action Plan Measures

Appendix A: Response to Consultation

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

Consultee	Category	Response
Public Health England	Health Authority	Agree
Norfolk County Council Highways	Highways	Agree
Norfolk County Council	Public Health	Agree but addition - Page i suggests £16Bn costs due to PM – is it worth using the latest (and much higher estimates) released with the strategy? https://www.gov.uk/government/publications/air-pollution-a-tool-to-estimate-healthcare-costs Page 6
Environment Agency	Industrial Emissions	Thank you for the opportunity to comment on the Breckland Council 2018 Air Quality Action Plan [Report #AP01/18 dated 15 May 2018]. In future it would help if you can send requests for consultations to our National Customer Contact Centre (Email – enquries@environment-agency.gov.uk, CCd) stating that you are within our East Anglia Area so we can coordinate a response for you via our local Customer & Engagement Team. Following a realignment of teams the Norfolk Installation Team is taking a lead on responding to enquiries on air quality that fall within this part of our East Anglia Area. 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.

		However, the changes to the electricity market means that have suggested that the potential impacts from medium combustion plant and specified generators should be included in any updated plan that is developed from this consultation. General Air quality has a significant role to play in the health and wellbeing of communities and the prospects of the natural environment, reducing both life expectancy and biodiversity in heavily polluted areas, and otherwise impacting upon the perception of the quality of life and amenity offered by the area. For example reports suggest that there over 40,000 early deaths per year in the UK due to air pollution. 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. It is important to note that we are not aware of any waste facilities or other industrial installations regulated by the Environment Agency in the East Anglia Area that are causing or contributing to failures of air quality standards. 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. 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) Require all new buildings be constructed and designed in a manner that minimises emissions of pollutants to the air both during construction and demolition and post-construction, making new development 'air quality neutral' or better; b) In the case of a major development, include an air quality assessment that considers the

		potential impacts of pollution from the major development and on neighbouring areas during construction and operation, including development related traffic and the potential for exposure to pollution levels above c) Implement any policies on transport which pertain to improving air quality. d) 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. e) Require all industrial sites that use non road going mobile machinery to meet the latest NRMM standards on the date of purchase. 8. Contribute to achieving EU established health-based standards and objectives for the relevant air pollutants (particularly NO2, PM10, and PM2.5). 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. Developments – Any new development, particularly in air quality hotspots, will need to consider how they mitigate the impacts of poor air quality. During construction, the main air quality effects from development are anticipated to result from emissions of oxides of nitrogen (NOx) and fine particulate matter and dust (PM10 and PM2.5) emanating from an increase in road traffic, and from traffic management schemes. Therefore mechanisms for minimising air pollution will need to be closely tied into the transport policies in the Local Plan. Major developments planned within the authority will need to significantly mitigate their emissions and thus contribute towards improving local air quality. This is particularly the case where they include potentially new sources of emissions such

		as biomass boilers, combined heat and power plants, and increased traffic-generated emissions. The effects on air quality during construction will also need to be managed, both in terms of that generated from traffic, and from the treatment and processing of material from demolition and excavation. Please note that following the coming into force of the Environmental Permitting Regulations 2018 (Statutory Instrument 110) we will be placing more controls on medium combustion plant and specified generators and it would be useful to have a commitment in your Air Quality Plan to ensure that we work collaboratively at identifying problem developments especially as the electricity generation market is changing from a centralised to decentralised supply arrangement. Construction Sites & NRMMs – Construction and demolition works should be required to meet or exceed the requirements set out in the Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction or the Mayor of London's published supplementary planning guidance on Sustainable Design and Construction and on the Control of Dust and Emissions during Construction and Demolition. This includes Non-Road Mobile Machinery used on these sites. Waste Management Sites – Waste management sites are a potential source of dust and fine particulate emissions to air. Those sites which mitigate the potential effects of air pollution by enclosing processes within buildings tend to be less polluting and enclosure is now recognised as best practice for such sites. Consequently we encourage any new air quality management area declaration, air quality action plans and/or proposed clean air zones to require the further enclosure of existing waste handling sites, and expect future waste development to be fully enclosed within buildings to minimise health impacts and contribute towards improving air quality. Regional Approach to Local Air Quality – It is recognised that the Breckland 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. We would be pleased to work with any working groups that you have set up, with representatives from adjacent councils, on ensuring air quality issues from sources within our regulatory oversight are taken into account.
West Suffolk Council	Environment Officer	I've had a quick look at your action plan and have some questions / observations on your source apportionment exercise. • The % of NO2 contribution in Table 3.3 is 54.9% (2014) and 53.7% (2016). It's not clear what is contributing the remaining 45.1% (2014) 46.3% (2016). Is this all background contribution or are there other contributing sources not included within the report? • I'm also not sure if the figures in tables 3.1 and 3.2 have been copied in to table 3.3 correctly (NCC and DfT figures seemed to have been swapped and the LGV figures from the DfT appear to have changed from 13.8% to 5.4%. • I'm interested to know how HGV + Buses are contributing such a low percentage of pollution. The work I have undertaken shows that HGVs provide a significant proportion of pollution even though they are only a small percentage of the volume of traffic (e.g. in Great Barton our source apportionment exercise identified that HGVs are 7.5% volume of traffic but contributing 30.3% to the roadside NO2).
Swaffham Neighbourhood Plan Group	Local Interest Group – link to Town Council	Agree
Swaffham Town Council	Town Council	Agree and are happy with the plan
Swaffham Highways and Access Focus	Local Interest Group – link to Town	Para 3.3 at the end. There appears to be something missing in the text. We would like to see this para having more detail about the counts taken by Swaffham Traffic Group and suggest the

Group	Council	following: "Vehicle counts organised by the Swaffham Traffic Group on the 4th and 8th September, 2017 covered the period 7am to 7 pm on each day and recorded all vehicle types northbound and southbound passing either side of the Buttercross. There were13, 585 vehicles northbound and 13,864 southbound over the two days giving a total figure of 27,449. HGV figures were 1240, 4.5% of the total. Of these HGV's, 64% were 5 and 6 axle vehicles (326) on the A1065 route (east side) and those passing on the west side of Market Place totalled 183, (40%)." Our other comments concentrate mainly on examining the 22 Action Points listed in Table 5.1 of the AQAP report but add in additional ideas. The numbers below refer to those in the Table. We believe that selecting proposals which reduce pollution, benefit the town in other ways, offer good value for money and are relatively easy to implement should be considered first in a Priority List. A general point - a reduction in "up to 1" in NO2 has been applied to all measures proposed, which we don't find credible. Is there any basis in fact? Suggested Priority List POLICY ACTIONS 1, 2, 3 4 and 5, especially 4. We think these actions should be strengthened so there is a mandatory requirement that planning applications deal properly with the impact of development proposals on air quality. Investment in more accurate measuring devices is also needed. 6. It is understood that a new enforcement regime is about to start in the central (Breckland owned) parking areas which should increase turnover of spaces and reduce the number of cars cruising round looking for empty spaces. On the remaining measures proposed, we suggest below those which should be progressed immediately as probably offering the best value for money and are relatively easy to implement. Those which in our view should not be pursued or dealt with later are listed at the end, with reasons. TRANSPORT MEASURES 8. Theatre Street, reassess original proposal to revert to two–way in existing one – way section. This will reduce pollution by giving cars more direct access from the south into the car park. It is

		understood funding for this review is available. 9. Town centre parking space removal. Supported, as this will also offer a reduction in pollution and also improve the attractiveness of the town centre. 12. HGV Ban in Station Street. We feel this is worth while pursuing as it will have a marked effect in reducing pollution in Station Street. Mandatory signs would be “no HGV’s over 7.5 tonnes, except for access” This would be a relatively inexpensive scheme which could go in as a traffic experiment with proper monitoring of the effects. Access to premises would need to be allowed. In parallel with this proposal, we would like to see an advisory scheme being developed to encourage long distance HGV’s to divert onto the A10 / A148 route via King’s Lynn. This would require signs at Fakenham for southbound lorries and for northbound lorries at Junction 9 on the M11 to request drivers to continue along the M11 and then take the A14 and A10 route to north Norfolk via King’s Lynn. Alternatively, drivers are already advised by signage at the Mildenhall roundabout “for Swaffham take A11 and A134”. At the Mundford roundabout they could be advised “For North Norfolk, use A134 and then A10 / A148”. 13. N – S Relief Road, all necessary survey work to establish the feasibility of a route either to the east or west of the town should be put in hand as soon as possible. This longer term measure will have a marked effect on pollution levels in the town generally, not just in the declared area. 18 and 22. Electric car points and green space initiatives (especially tree planting) are supported. The remaining Action Items are not supported for the reasons given:- 7. Improvements at Station Street / Mangate Street traffic signals. It is understood the settings have already been altered to longer green times for the N / S traffic. A more radical scheme which might involve removing the signals is likely to be expensive and offer poor value for money especially when pedestrian movements are taken into account. 10. Consider options for new car parks. Not needed at present as there is spare capacity in the system. 11. Review illegal and bad parking in Station Street. The single yellow lines (8 am to 6 pm) on

		the west side only go as far as Spinners Lane. It would be possible to extend them further along the stretch where Station Street is particularly narrow, but the properties have no off street parking land so this could prove difficult. 14. Public Transport, 15. Walking and Cycling, 16 Travel to Schools and Car Sharing. 17, Car Clubs all worthy but unlikely to have much effect on pollution. EMISSIONS ACTIONS 19 Low Emission buses, 20 Public transport - unlikely to have much effect on local pollution. PUBLIC HEALTH MEASURES 21 – Promotion of Road safety, Eco Driving – not much local effect on pollution. JDD 2 July 2018
Public	Local interest Group	**Percentage /Number** Local resident 84.13% 159 Local business owner/manager 2.65% 5 School pupil in Swaffham 2.65% 5 Person who works in Swaffham 7.94% 15 Person who visits Swaffham town centre 29.63% 56 Local councillor 2.12% 4 Local community group representative 4.23% 8 Other (please specify) 4.23% 8 All broadly agree with comments below
Les Scott	Resident	Within your plan you state under section 2 that the main sources of emissions are from road transport. Any planning application in Swaffham is assessed for impact on air quality. It is also noted as a key priority in 2.3 that it is within your control to use planning policy to tackle sources of pollution. Currently, you are asking individual developers to provide a report showing the impact their individual site will have on air quality in Swaffham. Each report will be costly, a cost which will be used by the developer to reduce the affordable element of the development. The data required for the report

		will be difficult to collect because of factors outside of the developer's control, such as infrastructure and traffic priorities. It would make far more sense for BDC to provide their own report setting out the cumulative impact of the extra vehicle journeys resulting from the planned housing contained within their local plan, phased over the lifetime of the plan. BDC will also be in a position to take into account the effect of any measures to reduce pollution. Your plan correctly states the harm to Health in 2.1. It follows that any increase in pollution levels, however small, will cause more harm. The aim of your plan should be to reduce pollution levels to below the legal limits as a minimum and to reduce it further in the long term. Your Air Quality Plan should then be able to direct planning so that new developments only come forward as AQAP policy actions take effect or if a development can demonstrate a net reduction in pollution.

Questions asked in the Public Consultation exercise

1. Consider the impact on air quality when commenting on planning applications within or adjacent to an Air Quality Management Area.
2. Include air quality matters in the Swaffham Neighbourhood Plan, and Breckland's emerging Local Plan.
3. Consider the impact on air quality when scoping and determining planning applications, and when providing pre-application advice.
4. Adopt an Air Quality Development Management policy - this would provide guidance for developers on how to minimise the impact of development on air quality.
5. Review car parking policy, and investigate further control and enforcement measures.
6. Investigate improvements to improve traffic flow in the town centre, including junctions, traffic controls and new layouts
7. Investigate car parking arrangements; this could include options for new car parks on the edge of town.
8. Investigate measures to keep HGVs out of the town centre, including consideration of an A1065 bypass.

9. Investigate ways to reduce the environmental impact of traffic, including encouraging the use of public transport and car-share, and improving walking and cycling facilities in town.
10. Investigate the provision of infrastructure for electric vehicles (EV).
11. Encourage bus operators to use vehicles with the best emissions standards.
12. Educate drivers on how different driving styles can affect air quality, and encourage them to adopt more eco-friendly driving to reduce this.
13. Introduce air quality as a topic in local schools.
14. Investigate green space initiatives, for example, creating green corridors within the town so people are able to avoid areas with air quality issues.

While there was broad agreement with most measures, some received less support. These were as follows

- Educate drivers to adopt more eco-friendly driving styles' (76% support),
- Introduce air quality as a topic in schools' (82% support)
- and 'investigate car parking arrangements' (79% support).

Other suggestions/comments were as follows

- Reducing the amount of HGV / agricultural traffic through the town centre (25%),
- Limiting future development until traffic issues have been resolved (5%)
- Investigation of providing a by-pass (22%),
- Looking at traffic enforcement measures to reduce speed / car parking issues (4%)
- Increase traffic flows (1%),
- Introducing more greenery (2%),
- Improving signage (2%),
- Providing more cycle lanes and safe walk ways (8%),
- Improving public transport (4%)
- Investigating road and car parking within the town (11%)

There were some detailed comments on traffic planning and road layouts that will be investigated as part of the ongoing discussion with partner organisations into the viability of the relevant specified measures. Individual comments are not included here.

Appendix B: Excerpts from Previous Feasibility Study

A1065 Swaffham – Option testing – Traffic and Air Quality assessment
Technical Note – August 2015

Appendices	
A	Existing traffic signal layout
B	Modelled options (1-4)
C	Diagram of modelled vehicle emissions as compared
D	Option 1A

Introduction

The main aim was to investigate whether removing traffic signals (Appendix A) from the junction of A1065 with C562 in Swaffham, would have a significant impact on air quality, particularly on the A1065 Station Street approach. The level of provision for pedestrians was also considered when developing alternative junction layouts.

Existing conditions

Vehicles

A traffic survey carried out on Tuesday 24th March 2015 recorded 11,595 vehicles passing through the junction between 0700-1900hrs, with the following demand to/from each approach:

Table 1: Vehicles from all directions

7am-7pm	Origin	%	Destination	%	Two-way flow	%
A1065 Station Street	4129	36%	4073	35%	8202	35%
C562 Mangate Street	2163	19%	1785	15%	3948	17%
A1065 Market Place	3212	28%	4053	35%	7265	31%
C652 The Shambles	2091	18%	1684	15%	3775	16%
Total	**11595**	**100%**	**11595**	**100%**	**23190**	**100%**

A permanent traffic counter on the A1065 at Hillborough suggests main road traffic could increase by up to 30% during the summer peak periods.

Non-motorised users

A count of non-motorised users was carried out alongside the traffic survey and recorded crossing movements over a 12 hour period. Figure 1 illustrates the type of crossing at each location and table 2 shows total movements:

Figure 1: Location and type of pedestrian crossing points

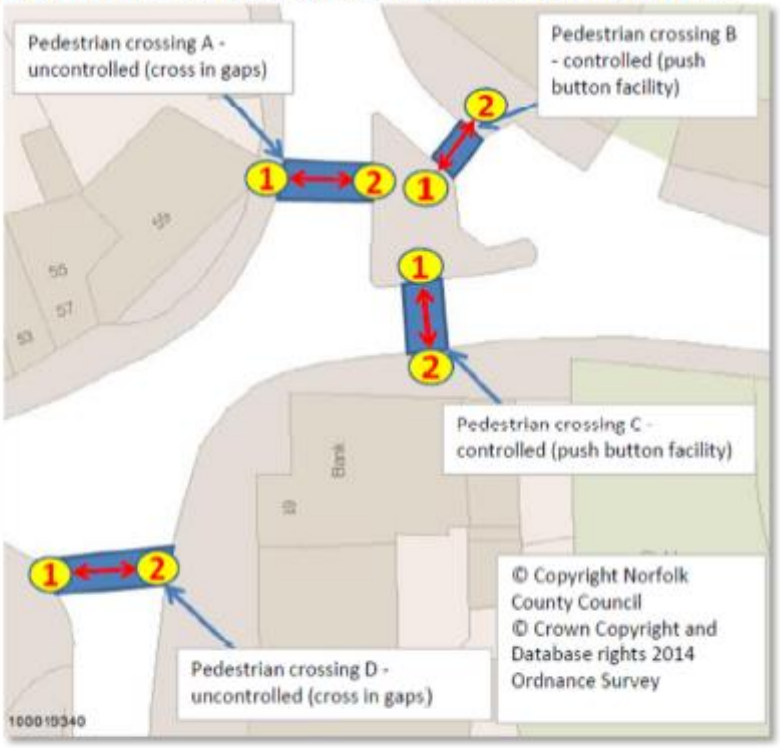

Table 2: Pedestrians and cyclists crossing survey results

7am-7pm	Pedestrians	%	Cyclists	%
A - A1065 Station Street (ahead + right)	280	13%	3	11%
B - A1065 Station Street (left)	700	31%	7	26%
C - C562 Mangate Street	544	24%	7	26%
D - A1065 Market Place	715	32%	10	37%
Total	**2239**	**100%**	**27**	**100%**

Alternative junction layouts

Four alternative layouts (Appendix B) without signals were produced using AutoCAD and modelled in S-Paramics. The existing 4-way traffic signal junction has been split into two, 3-way junctions, each between the main road (A1065) and corresponding side road (either C562 Mangate Street or C562 The Shambles). The following table shows the combination of each junction type as designed and modelled:

Table 3: Alternative layout options (modelled) at each junction

	A1065 junction with C562 Mangate Street		A1065 junction with C562 The Shambles	
Option	Mini-roundabout	Major/minor priority junction	Mini-roundabout	Major/minor priority junction
1	✗	✓	✗	✓
2	✓	✗	✓	✗
3	✗	✓	✓	✗
4	✓	✗	✗	✓

The A1065 has been given priority over the side roads for each option with a major/minor priority junction.

It was considered that uncontrolled pedestrian crossing facilities with central refuge islands could be provided at all approaches with each option.

However, any improvements such as 'zebra' style or controlled crossings would require further work, particularly to confirm this would not compromise the main aim of air quality improvement.

Model results

Alternative layouts compared with existing

Considering the main aim, total modelled emissions were compared for all vehicles travelling from Station Street, through the junction over a period of 12hours (7am to 7pm). See appendix C for a diagram showing the vehicle paths over which emissions were collected and reported in table 4 below:

Table 4: Modelled vehicle based emissions from A1065 Station Street (7am-7pm)

	NOx (mg)		PM10 (mg)		Total Carbon (mg)	
Base	3,449,146	% change	73,968	% change	444,656,703	% change
Option 1	2,633,786	-24%	61,545	-17%	351,682,230	-21%
Option 2	3,012,270	-13%	66,154	-11%	385,288,502	-13%
Option 3	2,801,337	-19%	63,838	-14%	367,148,630	-17%
Option 4	2,949,805	-14%	67,222	-9%	385,291,771	-13%

Traffic conditions have been tested based on traffic survey information collected on 24th March 2015. Within this context, existing delay from traffic signals is significantly reduced with each of the proposed layouts.

If a scheme is progressed further, it is suggested that the preferred option/options are tested to determine reductions to air quality improvement as a result of providing different pedestrian facilities.

Option 1 performed best with a reduction of 24% modelled NOx emissions. This would provide priority to A1065 Station St approach over both side roads. A right turn area (from A1065 into C562 The Shambles) is provided to allow the ahead movement to continue when a vehicle on the main road is waiting for a gap in oncoming traffic (from A1065 Market Place) to turn right. This is also the route that all buses take from A1065 Station St to the C562 The Shambles.

Option 3 resulted in a reduction of 19% modelled NOx emissions. Vehicles on the A1065 Station St approach would be delayed when giving way to vehicles turning right out of C562 The Shambles at the mini-roundabout.

Options 2 and 4 each performed comparably with the smallest reductions in emissions (13% and 14%). In both, the A1065 Station St approach would be delayed when giving way to vehicles turning right into C562 Mangate St at the mini-roundabout.

Option 1 performed significantly better than the base model and in comparison to other proposals therefore it is considered the best option for further development.

Appendix C: 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)

No measures have been removed at this point. More detailed costings and cost/benefit analysis will be required to assess the full feasibility before the decision not to pursue will be made.

<Appendix D: Diffusion Tube results for 2017>

2017	ID	January	February	March	April	May	June	July	August	September	October	November	December	**Annual mean**	National Bias adjustment0.89
High Street Attleboroug	A1	36.35	35.63	30.01	29.69	24.22	23.90	19.01	25.08	25.17	26.99	30.76	23.08	27.49	24.47
Croft Green Attleboroug	A2	19.81	15.27	13.09	9.65	7.97	7.59	7.31	8.71	10.93	12.18	16.5	12.87	11.82	10.52
High Street Dereham	D1	41.62	39.00	35.23	36.32	31.37	32.39	32.48	40.18	28.43	38.10	37.35	39.10	35.96	32.01
Station Road 2	D2	36.26	29.38	31.95	27.48	21.94	29.68	25.15	30.31	24.07	32.34	31.93	27.70	29.02	25.82
Wellington Street Dere	D3	13.72	9.36	8.16		6.94	7.97	12.35	21.56	18.94	23.62	28.34	24.38	23.37	20.80
Impsons Butchers Swa	S1	34.14	32.78	25.07	21.14	22.36	20.38	18.3	20.45	22.58	20.30	25.32	18.64	23.46	20.87
Ceres Books Swaffham	S2	50.33	47.98	42.07	40.4	30.03	33.00	33.76	36.61	35.54	37.33	45.49	34.34	38.91	34.63
London St Opp PO3	S3	43.87	34.14	27.90	24.23	28.75	23.70	27.7	27.78	30.88	27.39	32.1	23.06	29.29	26.07
London St Opp PO3a	S3a	44.56	36.36	28.88	27.90	29.40	27.92	27.49	28.77	32.18	27.53	31.01	21.75	30.31	26.98
London St Opp PO3b	S3b	41.65	36.19	28.76	28.30	29.81	28.34	26.01	28.86	30.39	28.90	30.76	25.37	30.28	26.95
Bridewell Place Swaffh	S4	28.68	33.06	23.62	27.40	25.94	23.63	22.01	13.2	25.38	22.14	27.66	19.38	24.34	21.66
London St Opp zebra c	S5	33.57	29.86	25.14	29.29	23.18	21.68	24.58	16.14	26.2	23.8	35.19	27.48	26.34	23.44
London St N Roundabo	S6	44.78	38.25	34.33	34.39	27.75	30.57	32.33	33.13	33.29	32.91	36.97	27.52	33.85	30.13
Station Road Swaf	S7	44.04	41.38	39.60	31.05	33.15	32.51	30.42	31.34	32.7	30.04	35.48	32.86	34.55	30.75
Station Road Swaf	S8	51.92	47.82	40.72	38.57	30.88	36.86	38.02	39.16	39.44	41.04	34.46	39.49	39.87	35.48
Anglia Computer Soluti	S9	35.68	28.47	25.19	26.90	21.70	22.46	22.93	21.82	25.14	22.14	29.49	23.62	25.46	22.66
Kev's tackle	S10	31.59	28.63	24.42	27.65	22.93	27.79	21.86	24.18	23.19	23.27	32.64	28.63	26.40	23.49
13 Station Road	S11	45.09	47.77	34.97	36.12	32.57	37.01	31.23			31.70	32.87	27.02	35.64	31.72
Glaisedale L Post	S12	40.22			38.28	35.75	24.30			38.3	34.9	37.51		35.61	31.69
33 Station Rd	S13	35.98	30.78	25.23	24.98	24.16	24.10	20.3	23.88	25.11	22.17	24.98	20.93	25.22	22.44
Corner Whitecross	S14	34.79	27.63	25.12	24.32	21.75		20.54	22.00	23.54	21.30	27.71	22.10	24.62	21.91
London St opp Fire Sta	T1	40.76	31.59	31.09	31.43	24.01	32.31	24	28.77	25.8				29.97	26.68
55 Bury Road Thetford	T2	32.23	29.94	26.58	24.31	24.08	26.19	19.22	25.65	21.93				25.57	22.76
41 E.Cavell Close Thetf	T3	26.82	18.61	17.52	15.39	10.18	17.28	10.15	11.74	13.26	15.40	21.91	18.50	16.40	14.59
High Street Corals	W1	33.03	31.76	25.91	29.8	25.96	30.37	22.5	24.87	25.05	28.20		31.40	28.08	24.99
Charles Avenue footpat	W2	23.79	16.73	14.28	11.93	10.44	16.10	8.59	8.87	11.19	14.21	19.21	18.35	14.47	12.88
															0.00
Wretham 20	20	20.43	14.67	13.06	9.52	8.21	15.02	8.16	9.01	8.72	11.35	14.79	12.08	12.09	10.76
Wretham 20a	20a	22.01	15.29	13.27	8.89	8.82	15.63	7.96	9.48	9.55	11.93	20:38	14.93	12.72	11.32
Wretham 20b	20b	20.03	14.69	12.79	9.04	8.96	15.29	8.32	8.63	9.22	11.73	14.98	15.36	12.42	11.05
East Harling/Brandon F	30	26.94	17.74	17.47	14.20	13.37	20.01			10.44	10.61	15.14	13.14	12.33	10.98

Results for diffusion tube monitoring of NO_2 in Swaffham 2017 using National Bias adjustment factor

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
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
…	…

References

LAQM TG(16) (2016), *Local Air Quality Management Technical Guidance LAQM.TG(16)*. DEFRA publications London

Breckland Council, (2012) *Upgrading and Screening Assessment*. Breckland Council Website

Bureau Veritas, (2012) *Detailed Assessment for Swaffham*. Breckland Council Website

Breckland Council, (2013) *Progress Report*. Breckland Council Website

Breckland Council, (2014) *Progress Report*. Breckland Council Website

Breckland Council, (2015) *Upgrading and Screening Assessment* Breckland Council Website

Breckland Council, (2016) *Annual Status Report* Breckland Council Website

Bureau Veritas, (2016) *Detailed Assessment for Swaffham*. Breckland Council Website

Breckland Council (2017) *Air Quality Management Order* Breckland Council website.

Defra (2006) *Air quality and social deprivation in the UK: an environmental inequalities analysis*

Defra. (2013) *Abatement cost guidance for valuing changes in air quality*.

Defra (2018) Information on NOx

Royal College of Physicians, (2016) *Every Breath You Take – The Lifelong Impact of Air Pollution,*

European Journal of Environmental Health (2010) *Environmental equity, air quality, socioeconomic status and respiratory health*.