Air Quality Action Plan

2011-2016
Executive Summary

The Environment Act 1995 requires local authorities to review air quality, and to assess this against national objectives. Where an exceedence of an objective is identified, the authority must declare an Air Quality Management Area (AQMA) and produce an Air Quality Action Plan (AQAP), which must work towards achieving the objective level within the AQMA.

Exeter City Council declared an AQMA in 2007 because levels of nitrogen dioxide (NO$_2$) exceeded the annual average objective level at various locations. The area covers all of the main traffic routes in the city. This boundary was determined using the NO$_2$ concentration data, which are highest beside busy roads. Further studies showed that the high NO$_2$ concentrations are caused by traffic emissions along congested routes.

In April 2011 the AQMA order was amended to include exceedence of the short-term objective for NO$_2$ as well as the annual average objective. This occurred at a few locations within the existing area because of localised high traffic emissions. Exeter City Council’s two Further Assessment Reports provide greater information on the local scale of the exceedences, specific sources of emissions and the type of improvements needed in order to meet the objective level. There are large-scale maps of each part of the area in the 2012 Updating and Screening report (Exeter City Council 2012). This, and Exeter City Council’s other air quality reports are available at: http://www.exeter.gov.uk/index.aspx?articleid=4292&listid=4261

The first Exeter AQAP covered the period 2008-2011. Because the source of the NO$_2$ emissions is traffic on the local road network it drew heavily from the Devon County Council (DCC) Second Local Transport Plan (LTP2, 2006-2011). Air quality was one of the four national shared priorities within the LTP2 and progress against Action Plan targets was generally good. Successes include:

- Consistently decreasing traffic levels on the majority of Exeter’s key routes over the five year period;
- Modal shift to sustainable modes including a 31% increase in cycle, 15% increase in bus, 75% increase in Park and Ride and 57% increase in train trips. (Devon County Council 2011)

Despite these changes, there was no clear trend of reducing NO$_2$ concentrations over the plan period. Reductions can be seen at most monitoring sites since 2010, however it is not possible to tell whether these are the start of a long-term trend, possibly resulting from measures in the LTP2, or examples of normal inter-annual variability. This situation will need to be kept under review in future years.

With the replacement of LTP2, the AQAP also requires updating. This document reflects the changed priorities in LTP3 along with changes in national, regional and local policy that have occurred since 2008. The measures are proportionate to the funding and resources within LTP3 and from partners. Another key change since the first AQAP is the significant
upward pressures on NO\textsubscript{2} emissions which will result from the proposed development in the greater Exeter area. In recognition of this contemporary context, the AQAP2 sets four key objectives, which are listed below.

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<th>Action Plan Aims:</th>
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<td>1. To describe the impact of predicted growth and existing plans on NO\textsubscript{2} concentrations within the AQMA.</td>
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<td>2. To identify where further improvements are required, how these could be achieved and where multiple benefits can be realised.</td>
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<td>3. To provide a process for assessing the air quality aspect of the sustainability of future plans and policies.</td>
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<td>4. To provide tools to engage local communities in air quality issues alongside wider sustainability issues.</td>
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The AQAP2 explains what actions the City Council will take with partners to meet these aims as part of delivering sustainable development. It identifies that current plans and policies will have a low positive impact on air quality, although it is accepted that there is some uncertainty associated with this. This is a modest predicted change, but should be set against the background of significant development in the city and therefore significant upward pressure on emissions.

The AQAP also proposes three areas of further work. These are the development of a Low Emissions Strategy and feasibility study for a Low Emissions Zone, the development of closer links between air quality and climate change work, and the need to increase understanding of the health impacts of poor air quality. Programs of work in these areas will be included in the annual Action Plan Progress Reports. They will connect air quality to two key national and local policy imperatives; the low carbon agenda and the creation of local Health and Wellbeing Boards at the upper tier local authority level (DCC).

The AQAP also introduces a methodology for transport and forward planners to understand the impacts of development and mitigation measures on air quality and to assess these in a simple and repeatable fashion. A commitment is also made to improve engagement with communities on air quality issues, and understanding amongst the local population. Future development of the AQAP may be driven (or otherwise) by these planners and by communities, rather than by the Environment Directorate and it is important that both groups are supported so that they understand the need for reductions in emissions and how to evaluate proposals.

Because of uncertainty over funding, delivery of development, policy context and future legislation the AQAP2 contains relatively little detail on specific measures which will implement the actions described. Instead the annual Action Plan Progress Reports (AQAP PRs) will contain detailed information on the recent progress and intended direction of particular measures. This annual reporting mechanism allows for the program to be updated regularly, as DCC and other partners update their schemes. This is seen as the most efficient
way of ensuring that the AQAP remains relevant. The first AQAP PR is being published concurrently with the AQAP2.
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1.0 Introduction

Local Air Quality Management

1.1 The Environment Act 1995 requires local authorities to review air quality, and to assess this against national objectives. Where an exceedence of an objective is identified, the authority must declare an Air Quality Management Area (AQMA). A Further Assessment must then be undertaken to identify the sources of the pollution. This information is used to inform the production of an Air Quality Action Plan (AQAP), which must work towards achieving the objective level within the AQMA.

Exeter Air Quality Management Area

1.2 Exeter City Council declared an AQMA in 2007 because levels of nitrogen dioxide (NO₂) exceeded the annual average objective level at various locations. The AQMA covers all these locations and links them together to form a single AQMA. It can be seen from Figure 1 that the area covers all of the main traffic routes in the city. This boundary was determined using the NO₂ concentration data, which are highest beside busy roads. This observation is confirmed by Further Assessment studies which show that the high NO₂ concentrations are caused by traffic emissions along congested routes (Exeter City Council 2006 & 2007).

1.3 Joining all the individual areas of NO₂ exceedence into a single AQMA has three major advantages. Firstly, a single, integrated Action Plan can be produced for the whole city. Secondly, any areas where concentrations are close to the objective are included, so air quality improvements can be made before an exceedence occurs. Finally, it ensures that the impact of the AQAP on all roads is considered, which should prevent any measure having a significant negative impact on adjoining roads.

1.4 In April 2011 the AQMA order was amended to include exceedence of the short-term objective for NO₂ as well as the annual average objective. This occurred at a few locations within the existing area because of localised high traffic emissions. Exeter City Council’s two Further Assessment Reports provide greater information on the local scale of the exceedences, specific sources of emissions and the type of improvements needed in order to meet the objective level (Exeter City Council 2006 & 2007). There are large-scale maps of each part of the area in the 2012 Updating and Screening Assessment (Exeter City Council 2012a).
Figure 1  The Exeter AQMA

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1.5 The first Exeter AQAP covered the period 2008-2011. Because the source of the NO\textsubscript{2} emissions is traffic on the local road network it drew heavily from the Devon County Council (DCC) Second Local Transport Plan (LTP2) (2006-2011). Air quality was one of the four national shared priorities within the plan. LTP2, set a target for compliance with the NO\textsubscript{2} objective to be achieved through reduced congestion by 2011.

1.6 Although action by DCC through the LTP2 was most significant, the first AQAP recognised that there were also measures that Exeter City Council (ECC) could implement, for example controlling the cost and number of parking spaces available. Many such measures were already included in existing plans and strategies, (the Environmental Strategy for Exeter, Climate Change Strategy, Air Quality Strategy and Transportation Strategy). The Local Plan also contained policies to ensure that future development did not significantly affect the environment (including air quality).

1.7 The first AQAP drew together all relevant measures from these various plans and policies and considered them in terms of estimated costs and potential benefits to air quality. Other benefits such as improved health were also considered. Measures were then prioritised. The Plan contained targets for implementation of the measures and consequent improvements in traffic etc. The success of the Plan was monitored by means of Progress Reports, published in 2009 and 2010.

1.8 The 2010 Action Plan Progress Report showed that most measures were implemented. Some exceptions included measures connected to the Core Strategy, the High Quality Public Transport (HQPT) Scheme, the Ide Park and Ride site, bus priority measures for Livery Dole and a scheme to reduce congestion at Red Cow Village. These were delayed as a result of changed priorities in the light of reduced funding opportunities, or in the case of Ide Park and Ride, refused planning permission. The HQPT scheme was a significant part of the LTP2 strategy for addressing air quality problems. It originally comprised a Transport Innovation Fund bid for improved public transport in combination with demand management measures. However no funding was forthcoming and so the aspirations for the HQPT scheme were adapted and the element of demand management removed from the LTP2 programme.

1.9 Progress against Action Plan targets was generally good. Successes include:

- Consistently decreasing traffic levels on the majority of Exeter’s key routes over the five year period;
- Modal shift to sustainable modes including a 31% increase in cycle, 15% increase in bus, 75% increase in Park and Ride and 57% increase in train trips. (Devon County Council 2011)

Despite these changes, there was no clear trend of reducing NO\textsubscript{2} concentrations over the plan period (Figure 2). Therefore a team from Exeter University were commissioned to review the effectiveness of the LTP2 measures on air quality. This work identified that the measures within the
LTP2 programme would not solve the air quality problems as anticipated, and that further measures would be required (Exeter University 2009).

1.10 Reductions in NO$_2$ concentrations have now been seen at most monitoring sites in Exeter since 2010, however it is not possible to tell whether these are the start of a long-term trend, possibly resulting from measures in the LTP2, or examples of normal inter-annual variability. This situation will need to be kept under review in future years.

Figure 2 Trends in Nitrogen Dioxide Concentrations and Peak Time Traffic Levels in Exeter

2.1 With the replacement of LTP2, the AQAP also requires updating. This document reflects the changed priorities in LTP3 along with changes in national, regional and local policy that have occurred since 2008. The measures are proportionate to the funding and resources within LTP3, from partners and from developer contributions.

Vehicle Emissions

2.2 The amount of NO$_2$ emitted by vehicles varies with type of vehicle, vehicle age (emission technology) and speed as shown in Figure 3. Newer vehicles generally have improved emissions and over time this should contribute towards improved air quality.

2.3 Vehicle speed has an impact upon emissions. Increases in speed up to about 75 km/hr (45 mph) reduce emissions. At this speed engines tend to operate most efficiently. This means that reducing congestion can have a positive impact upon air quality and that air quality can vary on a temporal basis. However, higher speeds can be detrimental to road safety and within built up areas it is not possible for vehicles to operate at the most efficient speed.

2.4 A bus or heavy goods vehicle can emit over ten times as much NO$_2$ as a car, and diesel vehicles are worse than equal-sized petrol ones. This means that when policy supports an increase in bus provision, the air quality changes delivered by a modal shift from cars to buses are not easy to predict. Whilst car emissions would be reduced, an increase in the number of buses could actually result in higher total NO$_2$ emissions. Therefore in order for modal switch to be effective it is necessary to ensure that buses are well used.

2.5 Exeter University found that an increase in the proportion of HGVs was increasing emissions on some routes in Exeter despite an overall reduction in vehicle flow (Exeter University 2009).

2.6 Vehicles meeting more recent standards should have significantly lower NOx emissions (Figure 3), and this trend of improving emissions technology was predicted by DEFRA to reduce roadside NO$_2$ concentrations in 2010 by 26.6%, relative to 2001 levels (DEFRA 2011). However reductions of this scale have not been observed in practice (Figure 2). This may be partly because of concurrent changes in other traffic parameters (eg flow, speed etc), but research also shows that modern engine systems may not actually deliver the improvements expected (DEFRA 2010), particularly in diesel vehicles. This makes action planning more difficult and will be considered further in subsequent sections.
Figure 3  Nitrogen Oxides Emissions per Kilometre Travelled for Different Types of Vehicle and Varying Speeds
2.7 It is not always immediately clear how air quality considerations fit into the current national transport policy context. This policy is attempting to make sense of the conflict between significant economic challenges which necessitate better use of resources, and a growing population which requires new housing and employment (Devon County Council 2011).

2.8 The box below shows the Government’s vision and priorities for transport from the White Paper ‘Creating Growth, Cutting Carbon, Making Sustainable Transport Happen’ (DfT 2011). The National Planning Policy Framework (NPPF) has similar priorities for transport developments (DCLG 2012).

“Our vision is for a transport system that is an engine for economic growth, but one that is also greener and safer and improves quality of life in our communities.”

Transport priorities are:
- To help the economy grow, and
- Tackling carbon emissions

‘These priorities are underpinned by the need for transport to contribute towards better health and wellbeing, promote safety, enhance the environment and offer equality of opportunity for all’.

2.9 Economic growth and reducing carbon emissions are therefore primary and interlinked considerations. The transition to a low carbon economy is an economic opportunity which could give the UK a competitive edge in a new global economy. There should be a presumption in favour of sustainable development in order to allow this to happen (DCLG 2012).

2.10 Current national transport policy does still encompass air quality issues, although not explicitly. The need to contribute to better health and enhance the environment could both involve air quality improvements. The NPPF states that policies should sustain compliance with and contribute towards EU limit values (DCLG 2012).

2.11 In addition, the processes of managing local air pollutant and carbon emissions are interlinked as both arise largely from the same combustion sources - vehicle engines, power generation, homes and industry. Both issues can therefore often be tackled together, e.g. by reducing fossil fuel combustion, however in certain cases there can be trade-offs where one set of emissions falls at the expense of the other. For example, retro-fitting HGVs with particulate traps to improve local air quality can increase fuel use and therefore carbon emissions. Encouraging car drivers to switch to diesel cars, which have lower carbon emissions, has an adverse impact on local NO\textsubscript{2} concentrations (EPUK 2011).
2.12 Currently at least 35,000 premature deaths a year in the UK can be attributed to air pollution, around 6% of all deaths. Some research suggests this figure may be as high as 50,000. Estimates of the wider costs of transport in English urban areas show that the costs of poor air quality could be as high as £10bn per annum (EPUK 2011). Reducing these impacts is a significant reason for reducing air pollution emissions.

2.13 The Government proposes to reform the NHS and public health services in England as part of the Health and Social Care Act. The proposed changes will give upper tier local authorities (Devon County Council) the lead for public health instead of the NHS. This will involve working with the new Clinical Commissioning Groups and partners to set up Health and Wellbeing Boards to produce local health and wellbeing strategies. These strategies should set out how the Board will deliver improvements to public health and reduce health inequalities. They should follow the Marmot agenda for addressing the wider determinants of health (Marmot 2010).

2.14 Government has also committed to move away from performance indicator targets towards delivering outcomes. It has published a Public Health Outcomes Framework which sets objectives and describes indicators which will be used to measure progress (DH 2012). Objective 3 aims to protect the population’s health from major incidents and other threats, while reducing health inequalities, and includes an air pollution indicator. (Although this is based on estimates of PM$_{2.5}$ exposure, rather than NO$_2$ concentrations). The Devon Health and Wellbeing Board is in its early stages however there should be impetus from this source for improvement in local air pollution levels.

2.15 Further local impetus may be achieved if Government passes on fines for non-compliance with the EU air quality standards to Local Authorities using the Localism Act 2011. DCLG has proposed arrangements by which such fines may be passed on and the circumstances under which this could occur. They state that costs would only be incurred by those local authorities that had responsibility to comply and had demonstrably caused or contributed to the sanction being applied by the EU. DCLG regard this measure as reducing the likelihood of such sanctions being levied against the UK by incentivising local authorities to ensure compliance.

Local Challenges

2.16 In Exeter the 2011 NO$_2$ concentrations were generally lower than in 2009, but similar to previous years (Exeter City Council 2012a). There is no clear long-term trend in levels (Figure 2) although there is a clear spatial variation in the magnitude of the exceedence. Figure 4 shows that the percentage reduction in NO$_2$ required to achieve compliance varies between 0% and >46% at East Wonford Hill.

2.17 The Further Assessment Reports modelled the changes required to meet the objective in various locations (Exeter City Council 2006 & 2007). Figure 5 shows the necessary percentage reductions in flow and increase in speed.
that would be required (assumed to take place equally over all vehicle types). The required changes are potentially achievable at some locations (eg a flow reduction or speed increase of less than 5% at Church Road Alphington). At the worst affected locations however, the required changes are large and unrealistic as an isolated measure (eg a 65% flow reduction at East Wonford Hill).

2.18 Achieving reductions in flow or increases in speed are further complicated by the predicted growth in the demand for travel. Exeter has a large catchment area as an employment, retail and cultural centre, and the population of greater Exeter could increase by as much as 50% by 2026. There are major developments planned at the following locations (Figure 6):
- Newcourt urban extension (3,500 homes);
- Monkerton urban extension (2,500 homes);
- Southwest Exeter urban extension (2,500 homes);
- Cranbrook new town (up to 7,500 homes);
- 2,500 jobs at the Science Park; and
- 7,000 jobs at the Sky Park.

2.19 New homes are also planned for towns around Exeter including Crediton, Tiverton, Teignmouth, and Newton Abbot. This level of development is good news for the local economy, but will put considerable pressure on the highway network. Accommodating this growth and ensuring the transport system can cope with higher levels of traffic is recognised as a challenge (Devon County Council 2010). Figure 7 illustrates that traffic levels are already consistently high along key routes such as Topsham Road, Alphington Road and Heavitree Road. The ability for these roads to carry more traffic is limited but any growth in traffic levels will also increase NO\textsubscript{2} emissions (Devon County Council 2010).

2.20 Figure 8 shows a predicted trajectory of future increased population and dwellings within the city. This does not include development in the wider Exeter area, but even in this limited context, it becomes very evident that if the development is to be accommodated, the level of car usage in and around the city will have to be tackled. Greater use must be made of sustainable travel options such as walking, cycling and public transport. Innovative and possibly radical solutions will need to be considered to keep Exeter moving (Devon County Council 2011) and to prevent an uncontrolled increase in NO\textsubscript{2} emissions. However as discussed above, modal shift from cars to buses does not necessarily result in immediate air quality benefits, because larger vehicles have higher emissions and new vehicles do not necessarily achieve the reductions in pollution levels that have been predicted of them. Any such measures require careful modeling in order to predict their overall impact.

2.21 Any solutions to Exeter’s air pollution problems will also need to address goods vehicles. Heavy Goods Vehicles (HGVs) produce a higher proportion of the total NO\textsubscript{2} emissions than their percentage in the traffic flow would suggest (Figures 9 and 10). For example at Cowley bridge Road, HGVs make up approximately 5% of traffic flow and yet contribute more than 38% of the total NO\textsubscript{2} emissions.
Community Involvement

2.22 Changes including the emerging Localism Bill mean that local communities, with assistance from public organisations, will have greater powers to make changes in their communities. Stakeholders and the public will have a much greater role in making decisions and delivering local services. For example, communities will be encouraged to prepare Neighbourhood Development Plans which describe their aims for the long term future of their area. The St James area of the city is a front-runner in piloting this scheme. The Health and Wellbeing Board will also include representatives of the local community.

2.23 The AQAP will describe how community engagement will be used to raise the profile of air quality as an issue. It will describe how the City Council will attempt to explain the importance of air pollution to the wider community so that groups and individuals can make informed decisions, for example on future development.
Figure 4  The Percentage Reduction in Pollution Required in order to meet the Objective Level.

Please note this map shows a simplification of the existing situation, with a complete data available in the Further Assessment Reports.

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Figure 5   The Percentage Reduction in Vehicle Numbers and the Approximate Increase in Speed required in order to meet the Objective Level (assuming that all other parameters remain equal)

Please note that the error lines on each bar show the likely range in flow reduction or speed increase that will be required. It is not possible to define the change exactly because both the traffic parameters (speed and flow) and the pollution concentrations vary slightly every year.
Figure 6  Proposed Developments in and around Exeter

Figure 7  Inbound Traffic Flows on Two Major Radial Routes

(Devon County Council 2010)
Figure 8  Predicted Future growth in Dwellings and Population of Exeter
Figure 9  The Proportion of Vehicles of Different Types on Roads within the Air Quality Management Area

Figure 10  The Contribution of Different Vehicle Types to NO$_2$ Pollution on Roads within the Air Quality Management Area
Delivering Air Quality Improvements

2.24 The AQAP exists within a landscape of other local plans and strategies, which are already having an impact on future air quality. In some, reducing emissions to air is an explicit aim, in others, it is included within wider objectives to improve the local environment, improve health, reduce carbon emissions or cut congestion. Some strategies may have the effect of increasing emissions.

2.25 The AQAP will therefore test existing plans and strategies to identify their air quality impacts, either intentional or otherwise. It will highlight where there will be multiple benefits from a scheme or program (e.g. improvements in air quality, carbon emissions and journey times etc). This is important in order to identify potential conflicts, avoid unnecessary duplication and should improve cost-effectiveness by increasing the value of benefits and spreading them over a longer timescale. For example it could combine a short-term air quality benefit with a longer term climate change impact (EPUK 2011).

2.26 Where plans or strategies are likely to have a negative impact on air quality, the Action Plan will highlight this. This approach should reduce expenditure on remedial actions, by preventing unintentional adverse consequences, or increases in emissions from policies with conflicting outcomes.

2.27 As well as testing these existing plans and strategies, the AQAP recognises that it will be these same documents which deliver air quality solutions in practice, especially the LTP3 and the new Local Development Framework (LDF). The LTP3 is the mechanism by which Devon County Council will identify, program and implement infrastructure schemes and allocate funding for sustainable transport. This will be done through a series of Implementation Plans which provide detail on how the LTP’s vision and aims will be applied in practice. It is important therefore that the AQAP also sets a framework by which air quality impacts can be included in the decision making process in future. This will provide a means by which air quality impacts can be weighed against other considerations. The way that air quality benefits are considered in future Implementation Plans etc will depend on the success of this AQAP.

2.28 The LDF will progressively replace the Local Plan as the document setting out the planning policies for the City. It will provide the policy basis in support of development which will deliver air quality benefits, and prevent harmful development. Usefully, the NPPF explicitly states that the cumulative impact on air quality from individual sites in local areas must be considered, which will facilitate the mitigation of the impacts of large development areas, even if they are brought forward in a piecemeal fashion (DCLG 2011). However, it should be noted that the pooling of S106 contributions from multiple developments is set to cease and instead there will be a reliance on the Community Infrastructure Levy (CIL) to fund strategic transport improvements. The CIL schedule of schemes can be reviewed at any time and will also need to consider the cumulative impact of development if there is to be funding for mitigation.
2.29 The impact of the proposed Health and Wellbeing Board on air quality policy is not yet clear, but the AQAP will provide a mechanism by which the Board can be engaged on air quality issues. There may be a potential to make use of ring-fenced public health funding for air quality measures. A successful AQAP which engages early with other public health professionals will increase the likelihood of this.

2.30 The AQAP will therefore seek to deliver lasting air quality benefits by a variety of pragmatic means, recognising that air quality cannot exist in isolation of other policy agendas.

Steering Group

2.31 A Steering Group of officers from Devon County and Exeter City Council has worked on the production of the second AQAP, proving input on highways management, transport planning, sustainable travel, forward planning, development control, carbon management and health impacts. Technical input has also been provided by the Centre for Energy and the Environment at the University of Exeter where required.

Summary Aims of the Second AQAP

2.32 In light of the context which has been described above, the steering group has identified that this document should aim to achieve the key objectives listed below. In order to allow the Plan to react to changes in funding, delivery of development, context and legislation it is intended that the Plan itself will contain relatively little detail. The annual Action Plan Progress Reports will instead contain more detailed information on measures, recent progress and targets.

1. To describe the impact of predicted growth and existing plans on NO\textsubscript{2} concentrations within the AQMA.
2. To identify where further opportunities exist and where multiple benefits can be realised.
3. To provide a process for assessing the air quality aspect of the sustainability of future plans and policies.
4. To provide tools to engage local communities in air quality issues alongside wider sustainability issues.
3.0 Evaluation of Predicted Development, Current Plans and Strategies

3.1 Figure 2 shows the recent NO₂ concentrations within the AQMA. From this it is clear that further action will be required to reduce concentrations to below the objective level of 40 µg/m³ even if all other factors remain the same. In fact such a situation is unlikely to occur. Figure 8 shows an estimate of the predicted increase in traffic levels within the AQMA if the demand for car travel grows unchecked as a result of proposed development. In reality network constraints may make this level of growth impossible (Devon County Council 2010) but it clearly shows the need for careful planning of development, services and infrastructure if development is to be sustainable.

3.2 There are a number of existing plans and strategies which contain measures that will either address existing problems, or help to mitigate adverse impacts of development. Some of these measures are specific to air quality, whereas others will have only indirect benefits for traffic emissions. This section of the Action Plan will bring together, describe and evaluate all these measures. A summary at the end of the section will attempt to create a picture of likely future air quality in the Exeter AQMA.

3.3 The relevant plans and policies which have been considered are:

- Exeter Vision (Sustainable Community Strategy)
- Exeter City Centre – A City Centre Vision for a Green Capital
- The Environmental Strategy
- The Air Quality Strategy
- The Climate Change Strategy
- The Exeter Core Strategy
- Exeter Local Plan First Review
- Residential Design Guide
- Development area Masterplan documents
- Bus and Coach Station Development Principles (consultation version)
- Planning Obligations SPD
- Car Club SPG
- Sustainable Transport SPD (draft)
- Exeter City Centre Transport Study
- Exeter Infrastructure Delivery Plan
- Exeter Community Infrastructure Levy Evidence Base
- LTP3 and Exeter Strategy
- Exeter Cycle Strategy
- Exeter Walking Strategy
- Exeter Growth Bus Strategy (draft)

These are discussed in more detail under themes below.
Vision Strategies

3.4 The highest level policy document relating to Exeter’s air quality is the Exeter Vision. Under the theme “An Accessible City”, this proposes a city where jobs, key services and facilities can be accessed by public transport, walking and cycling, and there is less dependence on cars. The Vision is also for a city that cares for the environment, where the natural environment is supported and valued, and where communities develop in a sustainable way. It aspires to minimise all pollution.

3.5 The City Centre Vision sets aspirations for the growth of the city centre into a ‘green capital’ that balances cultural, retail and employment needs as well as providing a pleasant and sustainable place to live. It sets basic principles, including the need for future development to demonstrate its sustainability.

3.6 The Exeter Vision and the City Centre Vision contain no specific, quantifiable measures. Rather they set the overarching policy framework which is implemented by a number of supporting strategies, as discussed below.

Environmental Strategies

3.7 The primary environmental strategy which implements the Exeter Vision is the city’s Environmental Strategy. This has a series of daughter strategies, including the Climate Change and Air Quality Strategies. These aim to control the impact of the Council’s activities on the environment, provide leadership within the community and encourage future sustainable development. The Air Quality Strategy has the following two specific aims:

- To ensure that the air breathed by residents and visitors to the City is of the highest possible quality and without unacceptable risk to health.
- To ensure that air quality issues are identified, considered and taken into account by the Council in order to secure more sustainable forms of development.

3.8 One area of potential conflict between these strategies is energy use. The Climate Change Strategy supports the use of biomass fuels however these have potential air quality implications, because of direct emissions from the plant, and from road transport of fuels. However the Environmental Strategy should mean that a broad definition of sustainability is applied and therefore such proposals are not supported if they will have an unacceptable impact on the AQMA.

3.9 There are clear areas of synergy between the strategies on transport. They all support a reduction of emissions from Council vehicles using the Green Travel Plan and improved fleet management. This includes specifying the latest Euro emission standards for all new vehicle purchases and use of electric vehicles where appropriate. The Climate Change Strategy also pledges continued
support to DCC and partners in improving sustainable travel options within the city through the LTP etc.

3.10 All the strategies aim to raise the profile of environmental issues both internally within Exeter City Council and externally in the community and with partners. This includes running events and training activities to raise awareness. It also includes developing systems to ensure that the principles of sustainable development are considered during the preparation of Council strategies, plans, policies and activities. Specifically, the Air Quality Strategy states that officers will ensure that “air quality issues are taken into consideration at both the development and adoption of the Council’s Development Plan documents and policies, and when members consider planning applications”.

3.11 The Air Quality Strategy also describes how Exeter City Council will regulate businesses under the Environmental Permitting Regulations 2010, to ensure that they use the Best Available Techniques (BAT) to prevent, or where that is not possible, to minimise pollution or other harm to human health. However this is unlikely to have an impact on the AQMA because the Further Assessments have shown that industrial emissions are not a significant contributor to NO₂ concentrations within the area.

3.12 All specific actions that are proposed by these Strategies were assessed in the last AQAP, and were predicted to have a negligible/low air quality impact. The other, ‘soft’ measures will have an unquantifiable impact on air quality within the AQMA, but will ensure that local air pollution as an issue is promoted and considered, whenever appropriate. The effectiveness of the Strategies will primarily be seen therefore in the extent that they have influenced policies within the Local Plan, Core Strategy and LDF.

Health and Wellbeing Policy

3.13 Devon County Council and the Health and Wellbeing Board have a draft Local Health and Wellbeing Strategy which will be published in its final form in April 2013. This process is still at an early stage, but the finished strategy will set out how the Board will deliver improvements to public health and reduce health inequalities by addressing the wider determinants of health, including air pollution.

Spatial Planning Policy

3.14 The LDF is progressively replacing the Local Plan as the document setting out the planning policies for the City. It consists of Development Plan Documents, the most significant of which is the Core Strategy which sets out a broad
vision for the development of the City in the period up to 2026. This will be amplified by Supplementary Planning Documents (SPDs) covering issues such as sustainable transport, planning obligations etc.

3.15 The Core Strategy commits to deliver sustainable development. It requires development to be located and designed so as to minimise and, if necessary, mitigate against environmental impacts. Within the AQMA, it provides for measures to reduce pollution and meet air quality objectives to be brought forward. The Strategy identifies a comprehensive package of strategic transport measures that will be required to accommodate the additional development proposed for the City and adjoining areas and it commits to deliver these in a timely fashion. Details of specific measures are included in supporting documents such as the Masterplans for individual areas, which are discussed below under a separate heading.

3.16 The Core Strategy also contains a commitment to delivering a step change in the quality, capacity and environmental performance of public transport, especially between the City Centre and proposed developments adjoining the City to the east in East Devon and to the south west in Teignbridge. There is a recognition that this will need to be delivered alongside demand management measures.

3.17 The Planning Obligations SPD sets a framework by which developer contributions towards infrastructure and other improvements will be determined and obtained. This includes obligations for contributions towards car clubs, highways works, public transport etc which will have air quality benefits.

3.18 LDF policies also specify how development should be planned to make sustainable travel choices a realistic and attractive proposition. Until the Strategic Allocations and Development Management DPD is adopted, the detailed development management policies in the Local Plan First Review also remain relevant. The transport-related policies are being expanded upon in the draft Sustainable Transport SPD, which intends to ensure a consistent approach to determining planning applications and mitigating the impact of development. Between them, these policies cover the following:-

- Protection and expansion of existing sustainable transport infrastructure;
- Connections between sustainable transport modes, eg pedestrian and cycling links to existing or proposed rail stations;
- Development and public realm layouts should give priority to pedestrian and cycle movement;
- Minimum standards for the provision of facilities for pedestrians and cyclists including cycle parking, showering facilities at workplaces etc;
- The level of financial and other support required for car club schemes where developers are required to provide these;
- Encouraging development in the city centre and in areas well served by public transport;
o Recognition of the needs of bus operation through and alongside new development including the provision of suitable roads, bus stops and other associated facilities;
o Phasing development so that areas closest to existing transport infrastructure and services are developed first;
o Promotion of city centre development without private parking (except for disabled people); and
o A requirement for student accommodation to be located so as to limit the need to travel by car.

3.19 Masterplan documents for the development areas at Newcourt and Monkerton have included air quality assessments, which predict that no new exceedences of the NO₂ objective will occur as a result of the development and the impact on current concentrations within the AQMA will be small to very small i.e. <10% change). The air quality impact of the majority of spatial planning policies has not been quantified specifically however. The Core Strategy has been subjected to a sustainability appraisal, which tested its policies against a series of objectives, including (number 13) ‘To maintain a high quality environment in terms of air, soil and water’. This qualitative process has not identified that any Core Strategy policy will conflict with this objective. The Strategy should therefore, not worsen the current NO₂ concentrations within the AQMA, despite delivering a significant level of development. In addition, the infrastructure that it delivers may tend to reduce current emission levels somewhat, although the extent of this is likely to be unpredictable.

Transport Planning Policy

3.20 The LTP3 sets out an overall vision for a 15 year timespan, with objectives that include the following:-
- delivering and supporting new development and economic growth;
- working with communities to provide safe, sustainable and low carbon transport choices;
- strengthening and improving the public transport network; and
- making Devon the “place to be naturally active”.

3.21 The findings of the Exeter City Centre Transport Study have been used to inform the LTP3. This study identified the barriers to walking and cycling, and enhancements that could be made to overcome these. It concluded that removing traffic from Sidwell Street could help to make a more attractive pedestrian and cyclist environment. Improvements to South Street/Fore Street and at Central Station were also recommended and the River Exe was identified as a particular barrier to travel by sustainable modes.

3.22 Specific measures to address these issues and to deliver the objectives of the LTP3 are described in the Exeter Strategy. Under the headings of “Improving
access to the city centre” and “Enabling and supporting smarter travel”, this contains details of the following relevant policy areas:

- To maintain and develop a high quality bus network by implementing real-time information, smart-card technology, additional priority measures and interchanges with other transport modes.
- The Devon Metro scheme involves expanding the role of railways serving Devon, including new stations within Exeter at Newcourt and Marsh Barton and improved links from surrounding local towns.
- New Park and Ride sites to the north and west of Exeter.
- Provide charging facilities for electric vehicles at key locations and expand this network as required.
- Increase cycling and walking by the development of further targeted routes between key residential and employment areas.
- Promote car sharing and car clubs with negotiated contributions from developers to expand these schemes as required.
- Proactive traffic management involves managing peak pressures using real time displays and developing a traffic signal strategy for key corridors.
- Introduce further HGV priority measures and investigate the potential for freight consolidation centres.
- Promote healthier and sustainable travel options using a variety of media to raise awareness and provide information.
- Support existing school travel plans and work with key employers and employment areas to develop further travel plans.

3.23 There is further information on all of these measures in the Exeter Strategy. It does not however identify actual schemes or allocate funding. This will be done through a series of implementation plans. In the Strategy, Devon County Council also recognises that “with funding opportunities limited, it will be necessary to negotiate contributions towards sustainable transport infrastructure from all new development, including funding for travel planning measures. Alternative sources of funding will also need to be sought and using demand management measures such as workplace parking for new developments will help generate income for reinvesting in the transport system.”

3.24 In recognition of the success of the LTP2 in supporting cycling in the city, the LTP3 also targets significant attention to this mode. The Exeter Cycle Strategy has a vision of a city where “cycling is fully integrated into the fabric of the city and seen as the first choice mode for a large proportion of everyday and leisure journeys.” To support this, it sets targets of:

- 20% of journeys to work by bicycle (currently 10%);
- 20% of primary school journeys by bicycle (currently 15%);
- 30% of secondary school journeys by bicycle (currently 22%); and
- Doubling the number of cycle trips in Exeter from 2005 baseline by 2016 with rolling targets thereafter.

The Strategy discusses the steps that will need to be taken to achieve these targets, including improvements to the cycle route network, engaging and empowering residents, providing opportunities to learn to cycle, improving information and inspiring people to cycle.
The Walking Strategy for the city is a more informal policy document, which contains a checklist for a good walking environment, and priority areas for improvement. These are access to and around the city centre, access to key public transport interchanges, access to local centres and establishing good quality links between new developments. The strategy does not set numeric targets for pedestrian numbers but does encourage monitoring of pedestrian flows as part of scheme development.

The LTP3 intends to manage the impact of future development, and to use this to deliver improvements to the current transport situation as well where possible. This is reflected in the findings of the Strategic Environmental Assessment of the LTP3, which were that it would have a low positive impact on air quality. The SEA recognises that there is high uncertainty associated with this, as the pace and timing of the delivery of development and associated infrastructure is not certain. The air quality impacts will also be affected by behavioural responses to the various measures and these can be hard to predict accurately.

Infrastructure Delivery Plans

The Exeter Infrastructure Delivery Plan is part of the LDF and describes, in detail, the infrastructure which is required in order to deliver the development that is proposed for Exeter. It was produced in conjunction with DCC and summarises the infrastructure needs, timescales, costs, funding sources, bodies responsible for delivery, risks, and potential mitigation strategies. It will be periodically monitored and reviewed as development progresses to ensure that it remains relevant.

Masterplan documents for the major development areas also clearly identify the sustainable transport infrastructure that is required for each area:

- **Newcourt**
  - transport hub to be focussed on a new rail halt;
  - good permeability through a safe network of walking and cycling routes;
  - bus routes with priority eg. along Topsham Road;
  - possible improvements to the strategic road network.

- **Monkerton/Hill Barton**
  - comprehensive footpath and cycleway network;
  - public transport to be convenient to all dwellings;
  - rail halt on Exmouth branch;
  - highest densities along public transport corridors;
  - road and bus link to area east of motorway.

- **South of Alphington**
  - good permeability and links for pedestrians and cyclists;
  - high quality bus service to city centre;
- rail halt in the Matford area.

3.29 Devon County Council will produce a series of LTP3 Implementation Plans, which contain detail on the specific projects that they will be taking forward over the next year. Inevitably, delivery of projects will be tied to the pace of development, especially housing completions. This means that Exeter City and Devon County Councils have relatively little control over the timescales of delivery, but will ensure that appropriate infrastructure is delivered for each phase of development.

3.30 One way in which they can control the pace of development and delivery of infrastructure is by use of the CIL (Community Infrastructure Levy). The Exeter Community Infrastructure Levy Evidence Base report investigates the viability of setting different levels of CIL to ensure that the necessary infrastructure is provided, without stifling development.

Summary of Measures and Impacts

3.31 The table below summarises all of the measures which have been discussed above. It shows which policy documents they are from or are supported by. It states their predicted air quality impact, other anticipated benefits and funding sources.

3.32 Further detail on the measures, including specific actions, timescales and targets will be included in the annual AQAP Progress Reports. This allows for the program to be updated annually, as DCC and other partners update their schemes. Given the uncertainty in timing of development, funding sources etc this is seen as the most efficient way of ensuring that the AQAP remains relevant.

3.33 The table shows that the package of measures should have a low positive impact on air quality, although it is accepted that there is some uncertainty associated with this. This is a modest predicted change, but should be set against the background of significant development in the city and therefore significant upward pressure on emissions. The plans and policies discussed above are all pragmatic in recognising that delivering this development in a sustainable fashion will be a significant challenge in its own right, before attempts are made to reduce emissions below current levels.
<table>
<thead>
<tr>
<th>Action</th>
<th>Plans and supporting documents</th>
<th>AQ Impact</th>
<th>Other Benefits</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Centre Vision</td>
<td>Env. Strat.</td>
<td>Core Strategy</td>
<td>Masterplans</td>
<td>Car CLUBS SPG</td>
</tr>
<tr>
<td>AQA Impact</td>
<td>Other Benefits</td>
<td>Funding</td>
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<td></td>
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<tr>
<td>Publicity, awareness raising and events</td>
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<tr>
<td>Increase walking and cycling</td>
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<tr>
<td>Promote car clubs and car sharing</td>
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<tr>
<td>Integrating transport modes and travel planning</td>
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<tr>
<td>Devon Metro</td>
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<tr>
<td>Increase bus use and reduce PSV emissions</td>
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<tr>
<td>Enhanced bus services</td>
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<tr>
<td>Park and Ride</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Improvements to road network and traffic management</td>
<td></td>
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</tr>
<tr>
<td>Parking control and demand management</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Electric vehicles</td>
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<td></td>
</tr>
<tr>
<td>Freight transport</td>
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</table>
4.0 Further Potential Measures and Future Work

4.1 This section of the AQAP will discuss areas of further work that are required. This includes measures that could achieve (or work towards achieving) the balance of any air quality changes required after implementation of the measures that are discussed in the previous section. Because the exact predicted impact of the existing measures has not been quantified, it is hard to know what further improvements will be required. However it is likely that exceedences will remain in the worst affected areas at least, for example East Wonford Hill (Figure 4). In particular, this section focuses on how multiple benefits can be identified and realised.

4.2 Potential measures which could further reduce NO$_2$ concentrations are therefore identified and evaluated below.

Low Emissions Strategy/Zone (LES/Z)

4.3 In 2009 a report by Exeter University investigated what package of measures would be most effective in reducing NO$_2$ concentrations within the city. This identified three additional measures which would have the greatest impact if implemented in addition to the LTP2:

a) The Grace Road link between Alphington Cross and Marsh Barton;
b) An HGV routing strategy for the Heavitree Corridor; and
c) An LEZ covering both buses and HGVs across the whole AQMA.

Of these measures, the Grace Road link has been completed and the HGV routing strategy is included for consideration within the LTP3.

4.4 The LEZ that was modelled by Exeter University was based on restricting both buses and HGVs in the AQMA to Euro 4 or above in 2011 and Euro 5 in 2016. This resulted in a reduction in the areas of exceedence of the objective level by 2016 to just parts of East Wonford Hill, Honiton Road, Western Way and Exe Bridges. It did not remove all exceedences altogether.

4.5 The modelling was based on predicted emission factors for different vehicle types and technologies. These emission factors have been found to underestimate actual emissions in some cases, especially for diesel vehicles (as were modelled in this scenario) (DEFRA 2010). The actual impact of such an LEZ scheme may not therefore be as significant as was predicted by Exeter University in 2009.

4.6 The impact of the University’s proposed LEZ is therefore uncertain, and the costs were not quantified. It is however an approach which could have a significant impact on NO$_2$ concentrations within the AQMA. ECC have therefore obtained DEFRA grant funding to implement an LES and investigate the feasibility of an LEZ. The project will last 18 months and has the following strategic aims.
To integrate low emission strategies into mainstream policy development for transport and planning within Exeter and the greater Exeter area.

To reduce emissions from the Council owned fleet and grey fleet, including by increased uptake of low emission vehicles.

To work with partners in the private and public sectors to increase the uptake of sustainable transport choices, including low emission vehicles within the greater Exeter area.

4.7 In order to achieve these aims, the following objectives have been set for the project:

A) To develop an evidence base for emissions and their impacts for a base year, and evaluate the effects of planned development and current transport policy.

B) To engage with Devon County Council, local employers, communities and other partners within ECC in order to:

1) Establish a steering group and separate stakeholder group.

2) Promote potential benefits to stakeholders and nurture partnership working to realise successful outcomes.

3) Identify implementation barriers and opportunities to strengthen public awareness of the impact of poor air quality on health and the benefits of sustainable transport options. This will include a review of case studies, developing a local best practice guide, creating partnerships and developing links with community and business groups in order to engage with local communities in making sustainable transport decisions.

4) Work with the steering and stakeholder groups to identify viable sustainable transport options, based on the emissions evidence, which could be promoted amongst specific vehicle groups.

5) Identify the potential options for a Low Emissions Zone, including the geographic extent, scope and regulatory options for implementation and enforcement. Select a range of LEZ options with the steering group for further investigation.

6) Quantify the relative socio-economic impacts, barriers, costs and effectiveness (in terms of noise, carbon and local air pollution emissions) of the options identified in steps (d) and (e). Report on the findings of this assessment, cataloguing the decision-making process and supporting information.

7) Obtain commitment from employers to take measurable steps to reduce their transport emissions. A target will be set to gain
commitments from a specified number of businesses in conjunction with the DCC Sustainable Transport Team who have experience in this area.

C) Work with partners, to develop, consult upon and publish a Low Emissions Strategy for the city. This will include stretching but realistic targets for reductions in emissions, and programs of measures which will achieve these (including an LEZ, depending on the outcomes of the assessment above).

4.8 A detailed work plan, officer responsibilities and target dates for specific items will be developed by the project management team. Project progress against this plan will be monitored regularly and reported in the annual Action Plan Progress Reports.

Health Impact Mitigation Measures

4.9 It is recognised that poor air quality affects health, and this is the basis behind the air quality objectives. Quantification of the health impacts and associated costs of exposure to vehicle emissions is the subject of much current scientific research. The evidence is not yet available to estimate what impact the exceedences of the NO₂ objective within the Exeter AQMA is having on the health of those living within the area, but it must be assumed that at the least it is exacerbating existing conditions such as asthma. This measure therefore would aim to evaluate the costs of poor air quality in Exeter, and introduce practical measures to reduce the impact on individuals.

4.10 This would involve working closely with health professionals. A future forum for this might be the Devon Health and Wellbeing Board. The Board will bring together elected councillors, representatives of clinical commissioning groups, directors of public health, children’s services and adult social services, and patients’ representative bodies.

4.11 The exact scope of the research element of this work, or the nature of the mitigation measures which might be proposed is as yet undetermined. For example it could involve creating a grant fund for mitigation measures to affected properties, or an alert system to advise residents of poor air quality conditions.

4.12 This measure would not reduce NO₂ concentrations within the AQMA, but it would aim to address any human impact of the exceedences. It may also have an indirect effect on actual concentrations if research shows that the cost of reducing emissions is lower than the health costs of the status quo.

4.13 Measures to retro-fit mitigation measures to dwellings may also have other benefits in terms of improved housing conditions and reduced noise levels. These mutual benefits will need to be investigated further. Particular focus will be paid to areas of improvement in health inequalities.
4.14 The initial stages of this measure have relatively low costs, involving research work by Exeter City Council staff. Progress with this will be reported annually through the AQAP Progress Report.

Carbon Emissions

4.15 As discussed in previous sections, there are significant trade-offs between reducing carbon emissions and improving local air quality. In a context where the need to reduce carbon emissions has greater prominence and political support than air quality, this could be used to advantage.

4.16 In practice, this means recognising measures which will have mutual benefits and promoting these, over measures which will achieve one objective but not the other. Figure 11 below shows that the majority of likely local measures do have mutual benefits, but not all.

**Figure 11** The Air Quality and Climate Change Impacts of a variety of Local Measures

<table>
<thead>
<tr>
<th>Measure/Technology</th>
<th>Impact on Air Quality</th>
<th>Impact on Climate Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transport</strong></td>
<td></td>
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</tr>
<tr>
<td>Alternative Fuels</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Retrofit of exhaust abatement equipment</td>
<td>Green</td>
<td>Amber</td>
</tr>
<tr>
<td>Low emission zones</td>
<td>Green</td>
<td>Amber</td>
</tr>
<tr>
<td>Low emission strategies</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Fleet management strategies and driver training</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Emissions related car parking charges</td>
<td>Amber</td>
<td>Green</td>
</tr>
<tr>
<td>Travel plans</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Car clubs</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td><strong>The Built Environment</strong></td>
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<tr>
<td>Domestic energy environment</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Commercial energy efficiency</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Combined heat and power</td>
<td>Amber</td>
<td>Green</td>
</tr>
<tr>
<td>Biomass heat</td>
<td>Red</td>
<td>Green</td>
</tr>
<tr>
<td>Micro wind turbines</td>
<td>Neutral</td>
<td>Green</td>
</tr>
<tr>
<td>Solar</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Heat pumps</td>
<td>Green</td>
<td>Neutral</td>
</tr>
</tbody>
</table>

From Air Quality and Climate Change: Integrating Policy within Local Authorities, Environmental Protection UK, 2011
4.17 In order to achieve the potential mutual benefits, staff involved in the AQAP and LES will also report to the Council’s Climate Change Strategy Board. This is the forum where all the work being undertaken by different officers within ECC in the field of climate change will be co-ordinated. It will allow air quality to be considered in the early stages of climate change strategy development, and to be fully integrated with it. The initial stages of this measure have relatively low costs, involving work by Exeter City Council staff. Progress with this will be reported annually through the AQAP Progress Report.

Summary

4.18 This section has proposed three measures for improving air quality in addition to the implementation of existing plans and strategies. These are the development of a Low Emission Strategy and feasibility study for a Low Emissions Zone, work to focus on the health aspects of air pollution and to develop links with climate change. Progress with these areas of work will be reported annually.
5.0 Evaluating the Impact of Future Programs on Air Quality

5.1 This section of the AQAP provides guidance on how individual schemes that come forward in the future can be assessed for their air quality impact. The process has been designed for transport and forward planning schemes, but the same steps would be involved in assessing any other scheme (although different models may be required). The process is intended for use on any scheme that may have an air quality impact, whether or not it has been designed to have a beneficial effect. It is not yet clear how implementation of this method will be achieved, by public bodies and/or developers. These matters will be discussed further in the annual Action Plan Progress Reports.

Stage 1 – Initial Screening

5.2 This stage is intended to give an initial indication of whether the scheme will be of benefit to air quality or the opposite and whether further, more detailed investigation is required. This stage involves screening by the scheme’s originator, and reporting of results to ECC for further assessment and/or inclusion in the annual air quality reports as relevant. In the event that emissions change is close to neutral (i.e. +/- 2%), ECC will make a decision as to whether further investigation is required.

<table>
<thead>
<tr>
<th>Scheme Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predict current and future traffic parameters on relevant road link(s) both with and without policy</td>
</tr>
<tr>
<td>Use simple tools such as the <strong>Emissions Calculator</strong> spreadsheet (DEFRA 2012)</td>
</tr>
<tr>
<td>Mass emission per km and/or total emissions predicted for each scenario</td>
</tr>
<tr>
<td>Compare results with and without policy</td>
</tr>
</tbody>
</table>

- **>2% reduction in emissions**
  - Within AQMA – go to stage 2
  - Outside AQMA - no further action although consider reporting in AQAP PR and/or PR/USR

- **Less than +/-2% change**
  - Within AQMA or large scale scheme* – consult ECC
  - Outside AQMA and small scale scheme – no further action

- **>2% increase in emissions**
  - Inside AQMA or large scale scheme* – go to stage 2
  - Outside AQMA and small scale scheme – no further action although consider reporting in PR/USR
* Large scale schemes are defined as those affecting roads of over 5,000 AADT, or which increase daily HGV/PSV movements by more than 200, or include more than 100 parking spaces.

Stage 2 – Dispersion Modelling

5.3 This stage involves the use of detailed dispersion models to predict the impact of the scheme on NO₂ concentrations. Again, it should compare the future situation with and without the scheme.

5.4 Once the LES project has completed an emissions inventory for Exeter, the modelling should be based on this where possible. In all cases however, relevant current guidance should be followed regarding the methods used and a sensitivity analysis should be undertaken. This should consider the extent to which the modelled outcome is dependent on the accuracy of future emissions factors or other model input parameters.

5.5 Following this assessment, schemes should progress to stage 3 if:
   - They result in an increase in concentrations at a relevant location within the AQMA; or
   - They result in a new exceedence at a relevant location; or
   - They result in a decrease in concentrations within the AQMA, but the project would not necessarily be implemented for other reasons and therefore an estimate of the monetarised air quality benefit is required.

5.6 In all cases, even if no further assessment is required, the details of the scheme and its air quality impact should be reported in the AQAP PR and/or PR/USR as relevant.

Stage 3 – Impact Assessment

5.7 This stage describes examples of tool which could be used to estimate the monetarised air quality impact of the scheme. The outcomes of these methods can be compared to the other costs and benefits of the scheme to allow an informed decision to be made on whether to implement it.
5.8 The approaches referred to have been described by DEFRA and the Interdepartmental Group on Costs and Benefits of Air Quality (the IGCB(A)), although tools for all of them have not been developed. The approaches set out a broad method to use when assessing monetary costs and benefits, and efforts will have to be made to follow this independently, where a tool has not been provided by DEFRA.

5.9 The Abatement Cost Approach recognises the fact that mitigation measures become increasingly expensive as the extent of the exceedence of any objective increases. This concept is a powerful argument for avoiding even modest increases in concentrations as a result of development yet is rarely considered in the decision-making process.
6.0 Community Engagement

6.1 Poor air quality has a direct impact on health and well-being as well as on the natural environment. In the UK over 35,000 annual premature deaths are thought to be attributable to air pollution, with the problem concentrated in busy urban areas and close to congested roads. (EPUK 2011) Giving communities the knowledge to understand this and to make informed decisions is important, particularly in the context of increased localism. For example, it allows residents to make better decisions as a part of neighbourhood planning. The information which is likely to be of use is therefore:

- Current neighbourhood-specific air pollution levels;
- Simple descriptions of the health impacts of measured levels;
- Explanations of the air quality and health impacts of proposed developments;
- Simple ways to describe the costs and effectiveness of different mitigation measures; and
- Accessible information to explain how air quality fits within the wider sustainability agenda.

6.2 In order to provide this information, Exeter City Council will firstly review and update its air quality website information to ensure that it is accessible and readily provides information for residents. As neighbourhood planning develops, further work with these groups will be required. Greater detail on this aspect and progress with it will be reported upon in the annual Action Plan Progress Reports. Part of the work of the LES project team will involve looking at examples of best practice for community engagement and this work will feed into the wider AQAP.
7.0 Consultation

7.1 In addition to work with the steering group on the production of this AQAP, it has also been submitted to the following consultees and the Exeter City Council Scrutiny Committee – Community:

- Devon County Council – Environment Directorate
- Environment Agency
- Highways Agency
- East Devon District Council
- Mid Devon District Council
- Teignbridge District Council
- Health Protection Agency

7.2 The measures that are discussed in this AQAP which are contained within existing plans and policies (Section 3) have already been consulted upon and details of this are available with each document. These measures will be implemented irrespective of this Action Plan and therefore no further public consultation on these measures is deemed to be necessary.

7.3 Section 4 contains proposals for new actions that will be undertaken as a result of this AQAP. In the case of the LES/LEZ project, this contains a significant element of partnership working with stakeholders and consultation. This will be undertaken during the development of the LES. Additional consultation may be required for the other measures in Section 4, i.e. Health Impact Mitigation and linkages with Carbon Emissions. As yet specific project plans for these have not been developed, but it is anticipated that these will include consultation at appropriate stages. This will be reported upon in the annual Action Plan Progress Reports.
8.0 Conclusions

8.1 This document replaces the first Exeter Air Quality Action Plan which covered the period 2008-2011. It is required because of the significant changes in local and national policy since that time, as well as the significant upward pressures on NO$_2$ emissions which will result from proposed development in the greater Exeter area. In recognition of this context, it was decided that the Plan would aim to achieve the key objectives listed below. In order to allow the flexibility to react to changes in funding, delivery of development, context and legislation the Plan itself contains relatively little detail on specific measures. The annual Action Plan Progress Reports will instead contain much greater information on the recent progress and intended direction of particular measures.

1. To describe the impact of predicted growth and existing plans on NO$_2$ concentrations within the AQMA.
2. To identify where further opportunities exist and where multiple benefits can be realised.
3. To provide a process for assessing the air quality aspect of the sustainability of future plans and policies.
4. To provide tools to engage local communities in air quality issues alongside wider sustainability issues.

8.2 This AQAP has summarised the likely future trends in air quality within Exeter’s AQMA resulting from development and proposed mitigation measures. This exercise concludes that despite significant upward pressures on emissions as a result of development, mitigation measures should have a low positive impact on air quality. These measures come from a range of existing plans and strategies, which aim to deliver the proposed development in a sustainable fashion. This AQAP is pragmatic in accepting that this will be a significant challenge in its own right, before attempts are made to reduce emissions below current levels.

8.3 Further detail on the measures, including specific actions, timescales and targets will be included in the annual AQAP Progress Reports. This allows for the program to be updated annually, as DCC and other partners update their schemes.

8.4 The AQAP also proposes three areas of further work. These are the development of a Low Emissions Strategy and feasibility study for a Low Emissions Zone, the development of closer links between air quality and climate change work, and the need to increase understanding of the health impacts of poor air quality. Programs of work in these areas will be included in the annual Action Plan Progress Reports. They will connect air quality to two key national and local policy imperatives; the low carbon agenda and the creation of local Health and Wellbeing Boards at the upper tier local authority level (DCC).
8.5 The AQAP also introduces a methodology for transport and forward planners to understand the impacts of development and mitigation measures on air quality and to assess these in a simple and repeatable fashion. A commitment is also made to improve engagement with communities on air quality issues, and understanding amongst the local population. Future development of the AQAP may be driven (or otherwise) by these planners and by communities, rather than by the Environment Directorate and it is important that both groups are supported so that they understand the need for reductions in emissions and how to evaluate proposals.
9.0 References

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All Exeter City Council reports are available on the website at www.exeter.gov.uk

• Exeter University 2009. Analysis of Measures to Meet Air Quality objectives in Exeter through the Devon Local Transport Plan.