

Title: Review of Local Air Quality Management (LAQM) IA No: Lead department or agency: Defra Other departments or agencies:	Impact Assessment (IA)		
	Date: 16/12/2014		
	Stage: Consultation stage		
	Source of intervention: Domestic		
	Type of measure: Secondary legislation		
Contact for enquiries: Kirsty Lord-Smith 0207 238 1081			

Summary: Intervention and Options	RPC Opinion: N/A
--	-------------------------

Cost of Preferred (or more likely) Option

Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Measure qualifies as One-Out?	
£12.75m	£0m	£0m	No	NA

What is the problem under consideration? Why is government intervention necessary?
 Since Local Air Quality Management (LAQM) was introduced in 1997, local authorities have been required to review and assess the air quality within their geographical areas. The process is designed to identify any pollution exceedances and implement a plan to reduce pollution levels. The need for government intervention is reflected at local level with local authorities having declared a large number of areas where national pollution objectives have not been met. The overarching market failure is the presence of environmental externality associated with air quality which has a significant impact on our health and well-being. Independent assessment has concluded that LAQM can be improved to ensure that local action is focused on what is necessary to support air quality improvements to benefit public health.

What are the policy objectives and the intended effects?
 The objective and intended effect is to transform local air quality management or LAQM so that local authorities focus more on actions to improve air quality and to achieve better public health and environmental outcomes rather than on the monitoring and reporting process. This entails removing redundant pollutants from the scope of LAQM, introducing a PM_{2.5} role in statutory guidance, clarifying roles and responsibilities for action; reducing reporting burdens and providing local authorities with access to evidence on best practice measures to improve air quality.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base): The options considered are: **0: Business As Usual;** **1: Improve delivery of LAQM** including: i) remove redundant objectives for reporting purposes, including Benzene, 1, 3 Butadiene, Carbon Monoxide, and Lead; ii) current reporting elements subsumed into a single annual improvement report; LAs will no longer required to carry separate Updating and Screening Assessments, Progress Reports, and Detailed Assessments; iii) add a PM_{2.5} role to enable LAs to put in place measures to reduce pollution concentration based on national assessment; iv) clarify roles and responsibilities; and v) revise current Defra guidance to introduce more real-life examples of improvement measures and other improvements. Option 1 is the preferred option because public health benefits will arise from better action planning and quicker implementation of measures to improve air quality.

Will the policy be reviewed? It will be reviewed. If applicable, set review date:						
Does implementation go beyond minimum EU requirements?				No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.		Micro No	< 20 No	Small No	Medium No	Large No
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)				Traded:		Non-traded:

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: _____ Date: _____

Summary: Analysis & Evidence

Policy Option 1

Description: Improve delivery of LAQM

FULL ECONOMIC ASSESSMENT

Price Base Year 2013	PV Base Year 2013	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 10.7	High: 67.9	Best Estimate: 12.7

COSTS (£m)	Total (Constant Price)	Transition Years	Average (excl. Transition) (Constant Price)	Annual (Constant Price)	Total (Present Value)	Cost
Low	N/A	1	0.1			0.5
High	N/A		0.1			0.6
Best Estimate	N/A		0.1			0.6

Description and scale of key monetised costs by 'main affected groups'

In this option local authorities would acquire a flexible role to take practical measures to reduce PM_{2.5} emissions based on national assessment. There will be some additional costs to Defra from having to carry out air quality modelling and reporting to compensate for that not carried out by local authorities, £0.55m PV.

Other key non-monetised costs by 'main affected groups'

There will be some one-off and ongoing costs to local authorities from having to assimilate new guidance. Local air quality hotspots outside the national assessment that might otherwise have been taken into account by LAs might get overlooked and lead to some local health impacts. These are considered negligible and therefore have not been monetised.

BENEFITS (£m)	Total (Constant Price)	Transition Years	Average (excl. Transition) (Constant Price)	Annual (Constant Price)	Total (Present Value)	Benefit
Low	N/A	1	1.4			11.3
High	N/A		8.9			68.3
Best Estimate			1.7			13.3

Description and scale of key monetised benefits by 'main affected groups'

PV Benefits are cost savings to local authorities from no longer carrying out: Updating and Screening Assessment, Detailed Assessments and Progress Reports, PV £13.1m. It is uncertain how much LAs will reduce monitoring in response to this option, so savings from diffusion tube monitoring £13.7m and Automatic monitoring £41.4m are included as a high estimate, and to reflect the fact that it is not a requirement of the regulation. Small cost saving to Defra, PV £0.2m. High and low estimates represent a range of +/- 15% to reflect the level of uncertainty with central estimates.

Other key non-monetised benefits by 'main affected groups'

The removal of the LA reporting requirement for the four pollutants should lead to potential indirect benefits as a result of encouraging LAs to focus their resources on reducing pollution rather than monitoring it. Non monetised public health benefits should therefore arise from better action planning and quicker implementation of measures to improve air quality. Non-monetised impacts also include benefits arising from improved service as a result of enhanced relationship and more clearly defined roles and responsibilities.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The high end cost savings associated with diffusion tube monitoring and automatic monitoring assume 15% per annum decrease in costs from the 4th year, the former averages to £500k from the first three years and the latter averages to £5m over the first three years. This assumes that local authorities would take more significant actions to improve air quality rather than reduce focus on air quality overall. Impacts on business are assumed to be indirect, as option does not guarantee change in LA behaviour that would impact business.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: 0	Benefits: 0	Net: 0	No	IN/OUT/Zero net cost

Review of Local Air Quality Management (LAQM): Executive Summary

Rationale for intervention: Air Pollution is an environmental externality that can have a significant impact on health and wellbeing. The LAQM system has been in place for over a decade and was introduced to require local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedances are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. Whilst it has been very good at diagnosing air pollution more is needed to help LAs focus on actions that can be taken on the ground to tackle air quality problems and address the public health impacts. This impact assessment explores a baseline option of do nothing and a further, preferred option.

Recommendation and Preferred Option

Preferred Option: To improve delivery of LAQM via streamlined reporting and improved guidance:

- i) Focusing reporting on those pollutants that remain a current issue (such as NO₂ & PM₁₀) by removing 4 obsolete pollutants (benzene; 1, 3 butadiene, carbon monoxide and lead).
- ii) Adding guidance on a PM_{2.5} role for local authorities (in pursuance of the Public Health Outcomes Framework air quality indicator to reduce fine particulate pollution) to reflect the public health impact of this pollutant.
- iii) Streamlining current reporting burdens on LAs – removing four reports and amalgamating them into a single, annual ‘status’ report. Reports to be removed include: updating and screening assessments, detailed assessments, progress reports and action plan progress reports. Air Quality Action Plans will remain as separate documents in their own right.
- iv) Revising policy and technical guidance to clarify roles and responsibilities, especially in two tier authorities, and provide more information on effective measures.

Costs and Benefits of preferred option: The proposals will meet Red Tape Challenge commitments by streamlining reporting burdens, simplifying the regulatory landscape and improving public health through quicker implementation of air quality action plan measures. Streamlining of the LA reporting processes should lead to Present Value cost savings in the order of £13.14m. Including guidance on PM_{2.5} will also tie in with local authorities’ new public health outcomes responsibilities, which include an air quality indicator based on reducing fine particulates. Clarifying roles and responsibilities should improve the partnership approach and strengthen mitigation measures. There will be some small costs to Local Authorities as they assimilate the guidance changes. Many of the measures to address PM_{2.5} are also those that can be used to address PM₁₀ or other air quality issues, therefore we do not anticipate significant additional costs to LAs from this change to guidance.

Expectation on local authority duties: Local authorities will still have a statutory requirement to review air quality in their areas as per the Environment Act 1995, and, where a pollutant objective is (or is projected to be) in exceedance, declare an Air Quality Management Area around the location in question and prepare an air quality action plan setting out how they intend to mitigate the problem. They will need to provide an annual ‘status’ progress report on developments. These reports will effectively amalgamate core information and data requirements from those reports which are to be removed.

Evidence Base

Introduction

This impact assessment accompanies the second of a series of three planned consultations on Local Air Quality Management in England. The second consultation is split into two parts: a regulatory consultation covering proposals to remove the requirement on local authorities to report on four pollutants; and initial proposals on changes to statutory policy and technical guidance, the precise details of which will form the focus of the third consultation. This impact assessment is therefore also the second iteration of a series of three.

Whilst there have been significant improvements in air quality over many decades poor air quality continues to impact upon public health and the environment, acting as an externality resulting in far more pollution than is socially desirable. Impacts from fine particulate matter alone (PM_{2.5}) have been associated with an effect on mortality equivalent to nearly 29,000 deaths at typical ages of death in 2008 in the UK and an average loss of between six months life expectancy¹. The cost of this poor air quality has been estimated to be about £16billion in 2008 prices².

The most significant pollutants of concern today are nitrogen dioxide (NO₂), particulate matter (PM) and ozone. Measures to reduce emissions of NO₂ and PM have been agreed at EU level especially with respect to industrial sources and transport sources. At national level the UK Government has implemented measures to incentivise reductions in emissions through, for example, promoting ultra-low emission vehicles (such as hybrid and electric cars) or promoting the uptake of newer vehicles that have higher emission standards (or Euro standards).

Despite these national measures local air quality problems can still arise. These can be caused by the density of traffic within cities, congestion, the age and make up of local vehicle fleets or other factors. For these reasons the Government introduced Local Air Quality Management in the Environment Act 1995. This required local authorities to periodically review and assess local air quality against national objectives and where it did not meet these objectives local authorities would declare an air quality management area and put in place measures to reduce pollution in pursuance of relevant national objectives.

The overall business need for reviewing LAQM is to enhance the current system so that it is streamlined and local action is focused on what is necessary to support air quality improvement to benefit public health and to work towards national and EU air quality standards. Defra conducted a public consultation on the review of LAQM in July 2013 which received over 18,000 campaign email and 232 substantive responses confirming the huge public interest in the area. The consultation-stage impact assessment identified options to reform LAQM by reducing cost burdens for Local Authorities and focusing action on improving air quality rather than monitoring and reporting processes.

This latest impact assessment reflects the feedback received during the consultation process and subsequent stakeholder workshop held on 10th September 2014. In light of the feedback, specific aspects of the preferred option have been modified. These changes are presented in the options analysis section below.

Problem under consideration

Despite measures to improve air quality, the UK, like many other Member States, is having problems meeting EU Air Quality standards. In part this is caused by the poor abatement performance of euro standards for certain vehicle classes and also increased dieselization of the vehicle fleet. This has meant that the UK has reported significant exceedances of the limit

¹ <http://www.comeap.org.uk/images/stories/Documents/Reports/comeap%20the%20mortality%20effects%20of%20long-term%20exposure%20to%20particulate%20air%20pollution%20in%20the%20uk%202010.pdf>

² <http://archive.defra.gov.uk/environment/quality/air/airquality/panels/igcb/documents/100303-aq-valuing-impacts.pdf>

value for NO₂ especially and 3 zones are unlikely to be able to comply with these limits until 2030. Revised projections based on updates to the modelling, including a more pessimistic assessment of the performance of vehicle Euro standards based on real world operations, has shown that 38 of the 43 air quality zones will not be compliant by 2015.

At present we face significant challenges and infringement risk, especially on nitrogen dioxide, and we continue to experience health impacts from particulate matter pollution. This is despite significant reductions achieved from national measures to reduce transport emissions and emissions from other sources.

The challenge in meeting EU air quality limits is reflected at local level with local authorities having declared a large number of local air quality management areas where national objectives, especially for NO₂, have not been met almost entirely as a result of road transport pollution. Past reviews of local air quality management have concluded that local authorities are very effective at diagnosing air quality hot spots but have been less effective at implementing measures to improve air quality³. Given the scale of challenge we face in meeting EU pollution limits, it is more important that resources are focused on taking actions to improve air quality and reduce the public health impacts of poor air quality.

Local action to improve air quality can play a part in helping to meet national and EU air quality standards by helping to better target national measures or to manage traffic congestion and demand etc. Local action has been more focused on diagnosing local air quality hotspots rather than taking strategic measures towards improving air quality.

The Environment Act 1995 and the National Air Quality Strategy (2007) require Local Authorities to periodically assess a number of pollutants. Some of these, such as NO₂ and PM₁₀ form part of ongoing EU requirements and there have been several Air Quality Management Areas (AQMA) established to deal with these pollutants⁴. However there are also a number of pollutants for which Local Authorities have never had cause to establish an AQMA and/or for which England has been comfortably meeting any EU targets for several years. Periodically assessing and reporting on these pollutants (Benzene, 1,3 Butadiene, Carbon Monoxide and Lead) was recognised by consultees to be an unnecessary distraction to Local Authorities from tackling current pollution problems.

The World Health Organisation has indicated that there is no recognised safe level for exposure to PM_{2.5} as its fine particles can penetrate deep into the human respiratory system. Local public health authorities have a Public Health Outcome Indicator for air quality and public health based on the impact of particulate matter (PM_{2.5}) on mortality, enabling Local Directors of Public Health to prioritise action on air quality in their local area to help reduce the health burden from this air pollution. The National Air Quality Strategy 2007 requires national Government to take action in relation to PM_{2.5}, based on EU targets, but not Local Authorities. Consultation responses indicated that while there were some pollutants that no longer needed to be reported on by Local Authorities, the public health risk posed by PM_{2.5} meant that there would be benefit in including PM_{2.5} within LAQM. However, consultees were uncertain of the best way to do this in light of concerns over sources of pollution, LA knowledge on measures and potential costs.

Consultation responses in 2013 implied that differences in responsibilities between different tiers of authorities can mean that environmental health officers, who are responsible for air quality, are reliant on other agencies and authorities to take appropriate action, especially in

³ <http://archive.defra.gov.uk/environment/quality/air/airquality/local/documents/laqm-report.pdf>

⁴ When the LAQM Review and Assessment process identifies an exceedance of an Air Quality Strategy objective, the Local Authority must declare an "Air Quality Management Area" (AQMA) and develop an Action Plan to tackle problems in the affected area(s). Such a plan may include a variety of measures such as congestion charging, traffic management, planning and financial incentives.

relation to transport matters. This has been raised as a particular issue in two-tier authorities. This has meant that delivering improvements is made more challenging and the relevant powers available are not used to best effect. Discussions with local authorities and their representatives have highlighted the challenges of working together effectively to improve air quality. Unitary Authorities can experience this split internally, with air quality practitioners and transport and planning departments often appearing to work against each other's interests because of different priorities or poor communications.

Defra has provided guidance and tools to support local authorities so that they are able to produce detailed and comprehensive reports on local air quality. However the initial consultation responses implied that the guidance and tools currently available are located within a range of different documents or websites of government departments and other organisations, and this makes them difficult to find and maintain. Local authorities would also like to see more real-life examples of the implementation of air quality improvement measures that explain how the measures were established and provide information as to how successful they have been in terms of reducing emissions or improving ambient air quality.

Rationale for intervention

Given that there is a generally good understanding of local air quality, the existing regulatory requirements divert resources away from LAs that could be spent on mitigation measures and taking more strategic action to improve air quality and to work towards compliance with national and EU obligations.

There are significant health benefits to be gained from achieving national and EU obligations and also valuable local environmental and amenity benefits from having better air quality in our towns and cities. There is therefore a need to reinvigorate and refocus local air quality management; to clarify its role alongside other actions to improve air quality; and to highlight what local authorities can do through working together to improve air quality.

We want to ensure that people work strategically and that those with a key role to improve air quality understand their responsibilities and take appropriate action with others to reduce pollution. This would encourage local authorities to pool expertise and resources to deliver effective local area based strategies to improve air quality rather than focus on hot spots only.

Policy objective

The objective of this consultation is to develop options for reforming LAQM whereby:

- Local action is focused on what is necessary to support air quality improvements to benefit public health and support EU air quality obligations, where practical
- Local government and other stakeholders are clear on their roles and responsibilities and work together to improve air quality
- Local authorities have simple reporting requirements with less bureaucracy and more time and resources to concentrate on actions to improve air quality and public health
- Local authorities have access to information about evidence based measures to improve air quality including on transport and communications.

Initial Options Analysis from 2013 consultation

A consultation-stage IA was included in the first consultation exercise in 2013, with questions specifically seeking views on the IA and inviting respondents to provide further insight which could strengthen the analysis.

This initial impact assessment⁵ looked at four policy options. The business as usual option maintained existing practices and regulation in relation to the LAQM reporting and assessment process but removed the need for Further Assessments. It also would have seen an assessment on compliance with objectives to identify any areas where action could have been reduced.

The second and third options explored would have seen a reduced focus on reporting and assessment and greater emphasis on taking action – reducing the number of separate reports that needed to be produced and greater alignment between Air Quality England Regulations and Air Quality Standards Regulations (EU requirements). Option three went further than option two, further streamlining reporting and proposing to consolidate the two sets of regulations so that local authority legal duties were linked more directly in helping to meet and maintain compliance with EU air quality limit values and targets. This would have seen less focus on local air quality hotspots.

The fourth option proposed repealing the LAQM requirements for Local Authorities. This would place the emphasis mainly at the national level although LAs would still have to take account of air quality when appraising transport and development proposals and policies.

Outcomes of the 2013 consultation

The majority of stakeholders who responded to the consultation supported an approach to align the national objectives in the UK Air Quality Strategy with EU air quality standards (limit values, targets), where practicable; to review those national objectives that were not found in EU standards such as the 15 minute objective for Sulphur Dioxide (SO₂) and other objectives currently being met. Strong support was also given for streamlining the current reporting burden; clarifying roles and responsibilities in guidance; and, in line with local authorities new public health responsibilities, developing a role in which they could help reduce emissions of PM_{2.5}. We now have a clearer view on how to progress improvements to LAQM. These are outlined in Option 1 below. Option 0 (Business as Usual) is included as a baseline measurement.

Local authorities currently assess local air quality against national objectives in the Air Quality Strategy. In addition to these local assessments, the UK Government must report annually to the European Commission on compliance with European Air Quality Standards set down in the Ambient Air Quality Directive. For this the UK Government carries out a separate assessment of air quality across the UK. In the initial 2013 consultation we proposed an option to consolidate the regulations governing Local Air Quality Management with those that transposed EU air quality standards. The aim being to reduce any uncertainty or confusion over which standards local and national government were working towards. Concerns were raised amongst many stakeholders that consolidation would not lead to a material improvement in LAQM delivery and could have the opposite effect, particularly in relation to monitoring of localised hotspots. A follow-up business case study and further views from stakeholders supported this view, recommending that LAQM remain separate as now. Consequently it was decided not to precede with this option.

Updates to Option Analysis since the 2013 Consultation Stage IA

The options differ largely in the extent to which local duties are mandated: Option 0 reflects minimal change, but Option 1 would see a reduction in LAQM regulations (in respect of removing pollutants which are already met) and streamlining the number of reports currently required under the review and assessment cycle, into a consolidated single, annual report.

⁵ https://consult.defra.gov.uk/communications/https-consult-defra-gov-uk-laqm_review/supporting_documents/Impact%20Assessment%20.pdf

Option 0 – Business as usual (BAU)

Business As Usual (BAU) is included in this Impact Assessment, against which the preferred option is compared. Under this option the only direct streamlining of reporting will be the removal of Further Assessments as part of the Deregulation Bill currently going through Parliament (under the Government's Red Tape Challenge). We will also make some minor improvements to policy guidance and air quality support tools over 2015 and beyond as specific needs arise. In essence, though, the BAU option means that the problems identified earlier will remain and will prevent the Government from achieving its main objective of materially improving LAQM delivery.

Option 1 – Improve delivery of LAQM

- Overview of option

The overarching aim of this option is to enhance the current Local Air Quality Management system so that it is better focused on delivering actions to improve air quality and as a result ensure that measures focus on what is necessary to deliver national and EU obligations and health benefits. Responses collected at the 2013 consultation stage provided a significant qualitative evidence base that contributed to our revising the proposals but retaining the core remit of our preferred option for streamlining and improving LAQM delivery. We consulted further on the assumptions, as articulated in the 2013 consultation stage Impact Assessment, however as no evidence on the costs or benefits was received we have come to the conclusion that there is no basis on which to change these unless further evidence is received in the future.

Option 1 is effectively a combination of the following sub-options: removing redundant objectives; introducing a PM 2.5 role in statutory guidance; streamlining reporting requirements; and revision of official guidance. The costs and benefits have been explored in the section below and the preferred option is to implement all of them.

- Removing redundant objectives for LAQM reporting purposes:

This proposal forms part one of the accompanying consultation document and relates to the draft statutory instrument on which we are also consulting.

Feedback from the first consultation showed wide support for the removal of the following pollutants:

- Benzene
- 1,3 Butadiene
- Carbon Monoxide
- Lead.

On the 15-minute mean objective for Sulphur Dioxide (SO₂), which we consulted on last year, whilst it is not an EU requirement, our own health based reports continue to affirm that the short-term impact of SO₂ on human health is significant. Therefore we recommend retaining SO₂ for reporting purposes. Consequently the remaining Air Quality Objectives included in Regulations for the purpose of LAQM in England are: Nitrogen Dioxide; Particulate Matter (PM₁₀); and Sulphur dioxide.

The goal of this change is to reduce bureaucracy and administrative burden (in line with the Government Red Tape Challenge) thus allowing more time to concentrate on actions to improve air quality and public health.

Costs/Benefits:

These pollutants, for which only one AQMA has ever been declared (revoked in 2010), are not a burden on local authorities in terms of monitoring hence their removal from England regulations will not result in significant cost savings. However there is a potential non-monetised indirect benefit as a result of encouraging LAs to focus their resources on reducing pollution, as opposed to monitoring it.

The following proposals form part two of the accompanying consultation document. The detail of these changes will be developed over the coming months and be subject to further consultation and a further impact assessment.

- Develop PM_{2.5} role (in statutory guidance)

There is clear evidence that particulate matter has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases⁶. PM_{2.5} - especially, penetrates deep into the human respiratory system. Local public health authorities have a Public Health Outcome Indicator for air quality and public health based on the impact of particulate matter (PM_{2.5}) on mortality. This means that Local Directors of Public Health are able to prioritise action on air quality in their local area to help reduce the health burden from air pollution. We therefore want to introduce a PM_{2.5} role for local authority air quality teams so that alongside their measures to tackle other pollutants, they also consider action if necessary to address PM_{2.5} issues in their area, aligning their interests with those of public health officers.

Sources of PM_{2.5}

Main anthropogenic sources of PM_{2.5} derive from road transport (including brake and tyre wear) and industrial processes. Up to half of PM_{2.5} is transboundary, and therefore outside the scope of local action, as are fine particles from natural sources such as wind-blown dust, sea spray and accidental or natural fires in forests or crops etc.

Monitoring/Modelling of PM_{2.5}

As was proposed in the 2013 consultation, we would not expect local authorities to conduct their own monitoring/modelling of PM_{2.5} (which would represent a disproportionate cost for many) but instead make use of the data available via the Automatic Urban and Rural Network (AURN), which is freely available via the UK-Air website.⁷ PM_{2.5} is currently monitored with both hourly and daily measurements

The two main PM_{2.5} options considered are described below:

- Option a) would be to add a general role into LAQM guidance for Local Authorities to have regard to PM_{2.5} when carrying out their air quality activities. This will enable them to consider measures that could also help reduce PM_{2.5} exposure, based on data from the national assessment, where they consider it a priority for action. In order to avoid unnecessary costs, local authorities will have the choice to supplement this with their own local data where practical. This option assumes that local authorities would be required to have regard to PM_{2.5} alongside other pollutants when tackling their own fleets and services and/or work with communities and businesses to achieve improvements in air quality. Placing it in guidance recognises that while LA actions can help towards reducing PM_{2.5} concentrations in their areas, the overall effect may not always be significant due to external factors.

⁶ *The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom* (COMEAP, 2010)

⁷ Currently there are approx. 75 AURN stations monitoring PM_{2.5} across the UK.

- Option b) would be to add a role on PM_{2.5} to LAQM Regulations, for example the stage 2 EU limit value of 20 µg m⁻³ annual mean to be achieved by 2020. Evidence indicates such an EU limit value would be achieved by most authorities already, thus generating little/no further action. Setting a specific target would not make any real difference to how the local authority set about tackling PM_{2.5}. This option might also give a false impression that PM_{2.5} levels below 20ug are acceptable, whereas PM_{2.5} is a “no health threshold pollutant” as reported by the World Health Organisation, and we want to generate actions to reduce it at any level of concentration consistent with local public health priorities. However, from a legal perspective, a more general role to tackle PM_{2.5} would not be well suited to regulation.

We believe that this role fits better in statutory guidance, not regulation (see above), because in guidance it strikes the right balance between tackling the public health impacts and allowing the necessary flexibility. This flexibility also fits better with the Localism agenda and is less burdensome to LAs than regulation. Moreover Section 88 of the Environment Act (1995) imposes a duty on local authorities to follow ANY guidance issued by the Secretary of State.

The general consensus from the consultation was that most LAs would not want the burden of measuring and reporting on PM_{2.5} themselves therefore the best policy would be to use the national network to inform LAs where the problem areas were. Therefore under this modification local authorities would not be tasked with reviewing and assessing PM_{2.5} at the local level, but implement or strengthen existing measures that can target PM_{2.5}.

Costs/Benefits:

While improvements to air quality and the resulting public health outcomes are policy objectives, local authorities will have the freedom to decide how they tackle the problem. Having this flexibility around what measures are put in place will result in differences in how each LA reduces pollution (in line with different local conditions and local costs/benefits). Therefore the impact of such behavioural change on air quality has not been estimated at this stage and is non-monetised.

Many of the actions that LAs can take to address PM_{2.5} are also those that can be used to address PM₁₀ and other AQ issues, therefore while it is not possible to monetise the air quality impacts of this proposal in relation to PM_{2.5} specifically, it should lead to air quality benefits and strengthen the overall case for taking action to address local air quality, leading to air quality benefits.

The Public Health Outcomes Framework (PHOF) sets out a wide range of opportunities to improve public health and maintain systems to protect the population against existing and future threats, including a PM_{2.5} indicator. If LAs took action to improve PM_{2.5} it would be challenging to distinguish the impacts resulting from including the pollutant in LAQM only. There is a degree of uncertainty regarding the extent to which LAs will add additional actions which have not already been prioritised by Directors of Public Health. Incorporating PM_{2.5} in LAQM sends a consistent message in regards to the importance of air pollution effects and the necessity of action in local areas.

Not only is it uncertain whether incorporating PM_{2.5} would lead to any additional action by LAs, it is also uncertain what actions they would decide to take. There are a wide variety of actions that can improve concentrations of PM_{2.5} (see the table below, which provides some examples). These will have very different potential costs and benefits. To improve the evidence on the likely benefits of this policy, further information is being sought during the second consultation period.

Particular questions we would welcome responses on are:

- What proportion of LAs are likely to implement a PM_{2.5} measure as part as of LAQM?
- What measures might be implemented, and what would the corresponding costs and benefits arising from them be?

While it is difficult to quantify the impact that any action that LAs might take to address PM_{2.5} will have on health, the impact assessment⁸ for the Public Health Outcomes Framework indicates that part of the criterion for choosing any indicator, including the Air Pollution indicator, were that improvements in the measure would lead to improvements in health related quality of life, help reduce inequalities in health and help lead to improvements in healthy life expectancy. It is expected that LAs will conduct assessments of the impact of any measures they are considering implementing, considering both the possible costs and benefits, and that only measures that have a clear benefit would be implemented.

Possible measures to reduce PM_{2.5}:

With the introduction of the Public Health Outcomes Framework (PHOF) and the move of public health responsibilities onto local authorities, those authorities responsible for Public Health will have need to investigate what measures are available to reduce this pollutant so as to reduce local health burdens where this has been identified as a priority. Measures to tackle PM_{2.5} can be separated along mobile and non-mobile sources: some examples of the measures that can be taken are set out in the table below. These are measures that LAs may already be taking to address other pollutants such as PM₁₀ and NO_x.

Mobile source measures:

1	Retrofitting of diesel engines - public service vehicles (PSVs) and Heavy Goods Vehicles (HGVs) – e.g. apply Euro standards through local Low Emission Zone
2	Non-road retrofitting – e.g. replace/rebuild with particle filters
3	Anti-idling programmes for HGVs, locomotives and other mobile sources
4	Transport control measures – traffic calming schemes not only have the direct effect of slowing vehicles, they may also have the indirect effect of deterring traffic from using roads as a short cut. They will also reduce tyre and break wear. Encouraging a smooth driving style avoids repeated acceleration and deceleration – driving training courses can be offered by local authorities for free.
5	Low Emissions Strategies – reduce emissions of high emitting vehicles – accelerate clean-up, including repair/maintenance programmes.
6	Incentivise uptake of cleaner burning, fuels.

Non-mobile source measures:

7	Stationary diesel engine retrofit, rebuild or replace with particle filter.
8	New or upgraded emission control requirements for direct PM _{2.5} emissions at stationary sources (e.g. fabric filters or 3 stage electrostatic precipitators; improved monitoring methods).
9	New or upgraded emission controls for PM _{2.5} precursors at stationary sources (e.g., wet/dry scrubbers).
10	Energy efficiency measures to reduce fuel consumption - promote electric cars (and associated infrastructure).
11	Measures to reduce fugitive dust from industrial sites. Local authorities can use current planning controls to mitigate PM _{2.5} from construction sites, especially

⁸ http://www.yhsccommissioning.org.uk/docs/Impact_Assessment.pdf

	where there are high volumes of dust and emissions from machinery. Must ensure S106 agreements etc for air quality measures are secured.
13	Reduce emissions from woodstoves and fireplaces (e.g. domestic coal use) Local Authorities may designate Smoke Control Areas to help tackle PM _{2.5} from – wood burning, bonfires etc.
14	Regulate commercial cooking operations (e.g. under Odour and Noise regulations)

- Clarifying roles and responsibilities

We want to strengthen guidance on the air quality roles and responsibilities in two-tier authorities so as to improve partnership between County and District. Consultation responses made it clear that a greater partnership approach was required, particularly around enhancing communications. The main options considered were improvements to the statutory policy guidance (PG09) to further clarify roles and responsibilities or strengthen wording in regulations (e.g. section 86 of the Environment Act 1995).

In line with the Localism agenda, we believe that the best way to encourage local authorities to work more closely together to deliver effective local area-based strategies to improve air quality will be achieved under improvements to the statutory guidance. This option assumes a strengthening of language, alongside examples of good practice, in revised guidance would be more practical since most local authorities will be referring to the LAQM guidance on a day to day basis. It also recognises that LAs already must have regard to the statutory guidance.

Costs/Benefits:

Non-monetised impacts include benefits arising from improved service as a result of enhanced relationship between different departments within unitaries and in two-tier authorities between County and District, and more clearly defined roles and responsibilities. There would be some one-off and ongoing costs to local authorities from having to assimilate new guidance.

- Streamlining of reporting requirements

There is scope to simplify the reporting requirements and to ensure reports prepared are more outward facing and informative to members of the public and local stakeholders. We want to revise most of the current reporting requirements so that local authorities produce a single annual Air Quality Improvement report. This report would set out local measures being implemented to improve air quality, as well as the results of monitoring being used to provide the evidence base for local action. It would also include the findings of any more detailed assessments carried out to define the scale of the problems and to support the development of improvement measures.

The following individual reports will no longer be required but they will form part of the annual single report, where appropriate:

- Updating and Screening Assessment (USA)
- Detailed Assessment
- Progress Report

The Action Plan will remain a separate document but updates on Action Plan measures will be included in the Annual Improvement Report, not as a separate Action Plan progress report. This is in line with current advice. There was also strong stakeholder support to retain current, official processes for declaration/revocation of AQMAs. This is because AQMAs form the basis for current air quality policy as it currently stands, and around which action plans are devised.

Table 1: Assumptions

Assumption	Value
<p><u>Updating and Screening Assessments (USAs):</u></p> <p>Consultancy costs: USAs are carried out every three years, with Progress reports in the remaining years. Discussion with representatives suggests that LAs produce in total 310 APs/PRs. We also assume that 10% of LAs use consultants for USAs and 5% for PRs, at a cost of £2.5k and £1.7k per report respectively.</p> <p>Officer costs: The cost of each activity was obtained from discussion with LAs. We estimated the average time needed to complete each activity and multiplied it by the average wage rate paid to local authority officials. We used the 2011 Annual Survey of Hours and Earnings to estimate local authority officials' salaries based on the mean-full time salary for comparable job titles and updated to 2013 prices. The standard 30% uplift for non-wage costs was also applied. The same method was used to estimate AP; DA; AR; and monitoring costs.</p>	<p>Consultancy costs: The estimated annual cost for USAs is therefore: $310 \times 10\% \times 1/3 \times £2.5k = £26k$ and the annual cost estimate for PRs is therefore: $310 \times 5\% \times 2/3 \times £1.7 = £17k$ in 2013 prices.</p> <p>Officer costs: The estimated annual costs for USAs officer time is therefore: $(310 \times (1.3) \times 2632)/1000 = £1061k$ and the annual officer costs estimated for PRs are therefore: $(220 \times 1.3 \times 1124)/1000 = £321k$ in 2013 prices.</p>
<p><u>Action Plan (AP):</u></p> <p>Assume an annual average of 40 action plans produced, of which around 10% would be undertaken by consultants, at a cost of around £8,000 per plan.</p>	<p>Consultancy costs: The annual cost for APs is estimated at $40 \times 10\% \times £8.3k = £33.4k$ in 2013 prices.</p> <p>Officer costs: The annual cost for APs is estimated at $(40 \times 1.3 \times 2731)/100 = £142k$ in 2013 prices</p>
<p><u>Detailed Assessments (DA):</u></p> <p>Assume around 50 per annum, all undertaken externally. We assume costs of £2.6k for a DA</p>	<p>Consultancy costs: The estimated total annual cost for DAs is $50 \times £2.6k = £130k$ in 2013 prices.</p> <p>Officer time: the annual cost for DAs is estimated at $50 \times 1.3 \times 1220 = £79k$ in 2013 prices</p>
<p><u>Annual Report (ARs):</u> sets out measures being implemented to improve air quality, as well as the results of monitoring. Also includes the findings of any more detailed assessments carried out to define the scale of the problems.</p>	<p>The estimated total annual cost for producing an Annual report is $310 \times 1.3 \times 2693 = £1085k$</p>
<p><u>Monitoring:</u></p> <p>Assume around 30 tubes per LA. We assume a cost, incurred monthly (i.e. 12 per year) of around £5 in laboratory costs per tube.</p>	<p>Consultancy cost: The estimated total for diffusion tubes is therefore $326 \times 30 \times 12 \times £5.2 = £612.3k$ in 2013 prices.</p> <p>Officer costs: the estimated cost for diffusion</p>

<p>Diffusion tube monitoring includes officer time costs for site visits and laboratory costs in monitoring NO₂</p> <p>Option 1: for the high sensitivity range we have assumed that demand for monitoring will fall, as there are less compliance requirements than BAU. We assume that the costs fall slightly over the first 3 years, averaging £500k per year for diffusion tube monitoring, and £5m per year for automatic monitoring. Following that, we projected a decline in spending at a rate of 15% per year.</p>	<p>tubes is therefore $(310 \times 1.3 \times 3579)/1000 = £1443k$</p>
<p><u>Monitoring:</u> Assume around 600 sites monitoring NO_x, with average maintenance costs of £9.4k/year. PM₁₀ is monitored in around a quarter of these, with additional maintenance costs assumed at £3.1k/year.</p>	<p>Consultancy cost: The total cost of monitoring is therefore around £6.7m per year (600 x £9.4k + 150 x £3.1k + £612.3k from diffusion tubes above) in 2013 prices.</p> <p>Officer costs: the estimated cost for automatic monitoring is $(310 \times 1.3 \times 6432)/1000 = £2592k$</p>
<p><u>Cost to Defra:</u> We assume that policy and technical guidance documents would require updating as soon as restructure of LAQM is agreed. This is an estimate of the average annual costs for preparing guidance based on spend over the past 10 years when the guidance was updated in 2003 and 2009)</p> <p>Guidance tools costs is an estimate of the average annual costs for updating tools such as diffusion tubes bias adjustments and emission factor toolkit.</p> <p>Helpdesk and website represents the costs for the operation and maintenance of the LAQM helpdesk and website.</p> <p>Report appraisal represents the contractor costs for technical appraisal of Local Authority report submissions.</p> <p>AQ grant administration includes contractor costs to technically appraise air quality grant applications. This includes the cost to Defra to assess and determine the distribution of grants.</p> <p>Additional monitoring costs: we assume that LA will steadily close down sites due to economic conditions. The burden on Defra includes a cost to maintain affiliate sites as part of national network We assume that 3 new monitoring site are needed per year with an estimated £7k</p>	<p>Cost of preparing guidance is calculated to be £10,000 per year.</p> <p>The baseline cost of updating guidance tools is £50,000 per year</p> <p>The cost of operating the LAQM helpdesk and website is calculated as £70,000 in year 1. The cost is increased by the rate of inflation thereafter.</p> <p>Report Appraisal cost is £90,000 per year.</p> <p>AQ grant administration costs Defra £30,000 per year.</p> <p>The estimated cost in year one is therefore £21,000 and increases by the same amount each year.</p>

costs per new site.	
<p><u>Source consultancy costs:</u> costs are based on expert knowledge within Defra and feedback from the survey of local authorities about the various activities undertaken on behalf of local authorities. We make assumptions about the cost per activity, and frequency of various activities. These assumptions will be tested through the second consultation.</p> <p><u>Source officer costs:</u> We established the baseline costs of LAQM associated with local authority officer's work by applying costs in a manner consistent with the Standard Cost Model. We apply the standard 30% uplift for non-wage costs. Representatives of 11 local authorities were asked to provide information regarding the amount of work associated with each activity by grade. The cost of each activity was also obtained from discussion with LAs. The results were quite diverse: both by grade and the number of hours worked, and when calculating the total salary costs. Further evidence will be sought during the second consultation.</p>	

Costs/benefits

We would expect non-monetised benefits from greater focus on action planning and implementation of measures to improve air quality and health outcomes. Cost savings for Local Authorities are set out in Table 2 below.

For the high sensitivity we have included monitoring cost savings, assuming the demand for monitoring will decline, as there are fewer compliance requirements than BAU. We assume the costs fall slightly over the first 3 years, averaging £500k per year for diffusion tube monitoring, and averaging £5m per year for automatic monitoring. Following that, we project a decline in spending on monitoring at a rate of 15% per year. This equates to monitoring PV savings for LAs of £55.03m over 10 years. While it is not a statutory requirement for local authorities to undertake their own monitoring/modelling, many have, over the years, gathered bespoke data (e.g. with diffusion tubes and non-EU compliant monitors) to assess localised hotspots more accurately than might be possible via national monitoring. Local Authorities are encouraged to do this in policy guidance. Due largely to budget constraints we continue to see a reduction in local monitoring stations, with the expectation that there will be greater reliance on cheaper forms of data gathering (e.g. diffusion tubes) and the national monitoring network. Under the preferred option, LAs will be further encouraged to make use of national monitoring. Changes in monitoring costs are only factored into the sensitivity range due to the level of uncertainty regarding how much monitoring would fall by. Monitoring costs are optional and not a requirement of the regulations hence they are only included in the high range.

Table 2: Cost savings to Local Authorities

Local authority cost savings: central case	Annual cost saving (undiscounted), £m 2013	PV cost saving, £m 2013 (2013 PV base year)
Updating and Screening Assessment (USA)	1.09	8.73
Detailed Assessment (DA)	0.21	2.72
Progress Report (PR)	0.34	1.69
Total	1.64	13.14
Additional cost savings under high scenario		

Diffusion tube monitoring	1.55p.a. first 3 years, increasing 15% p.a. thereafter	13.66
Automatic monitoring	3.70p.a. first 3 years, increasing 15% p.a. thereafter	41.37

Costs to Defra will also change as a result of this proposal. There are report appraisal cost savings for Defra of £20k per annum. Some costs to Defra will increase as a result of no longer requiring USAs. Costs of preparing guidance will be £77k higher in the first year and £31k higher per year thereafter. There are also additional modelling and reporting costs, of £33k per year which represent additional 4 weeks worth of work at SSO level at mid pay for the brand for inner London staff. These impacts are set out in Table 3 below. There might also be non-monetised costs associated with reduced detailed understanding of local air quality.

Table 3: Cost impacts for Defra (central estimates, negative values imply cost savings)

Cost impacts for Defra	Annual additional cost (undiscounted), £m 2013	PV additional costs, £m 2013 (2013 PV base year)
Guidance tools	£0.08m first year, £0.03m thereafter	£0.29m
Report appraisal	-£0.20m	-£0.16m
Additional monitoring/reporting costs	£0.3m	£0.27m
Total additional costs		£0.55m
Cost savings		£0.16m
Net impact for Defra		£0.39m additional cost

High and low estimates in Table 4 below (+/- 15%) reflect the level of uncertainty with central estimates. The high scenario additionally incorporates costs savings to LAs from reduced monitoring. A full breakdown of the cost and benefit estimates is in Annex 1.

- Revision of official guidance

Under this proposal the current guidance will be updated in line with the Smarter Guidance Review in order to reflect the advised changes outlined above. The purpose is to provide Local Authorities with improved guidance and information on evidence based best practice and quantification. We also want to help local authorities to better quantify the benefits they can obtain from measures implemented.

There would be some one-off and ongoing costs to Defra from having to revise guidance but these are considered to be negligible.

For the reasons given above, it is not desirable for the UK carry on with a BAU approach. Option 1 is therefore the preferred option

Table 4: Summary of Costs and Benefits

	Low	Central	High
PV costs	0.47	0.55	0.64
PV benefits	11.31	13.30	68.33
NPV	10.83	12.75	67.69

Risks and Assumptions

One key uncertainty is around the extent to which Local Authorities will use resource savings to work on taking action to improve air quality, rather than using the financial savings for other purposes.

Risks:

- Greater costs might be incurred by Defra from having to take more significant national action to improve air quality should local authorities no longer prioritise this issue.
- Increasing focus on meeting EU obligations might lead to air quality hotspots outside these obligations not being addressed and increasing air quality impacts as a result.
- Local authorities may be less well equipped to select the most appropriate measures locally if local monitoring differs significantly from national assessment.

Direct costs and benefits to business calculations (following OITO methodology)

None of the options would impose direct costs or benefits to businesses. The impact is on LAs and Defra only. If reformed LAQM drives new policies or approaches to LAQM by LAs, costs to business could be incurred, depending on what LAs choose to do. For example, they might choose to implement a measure which reduces traffic flows and hence increases business delivery efficiency. However possible measures could also entail a compliance cost to business. We expect LAs to assess the impacts of actions and only implement the options where there is a clear case, taking into account possible impacts on business. The proposals in this IA do not require LAs to take additional actions, but are intended to encourage further action or improve actions that would otherwise have been taken. It will be up to LAs to decide what, if any, actions they take. As such any impacts on business occurring as a result of any LA action are considered second-round impacts, and consequently the impacts are out of scope of OITO.

Wider economic, social and environmental impacts

This is an options impact assessment and concerns policy which impacts on local authorities only. It is not expected to have any wider impacts upon business, competition or the economy. As indicated above there may be health benefits arising from better air quality but these benefits are not monetised.

Measures to improve air quality can also benefit climate change and noise. It is therefore possible that increased action to improve air quality might lead to secondary benefits in these two areas. The preferred option is not expected to have environmental impacts beyond this.

Annex 1: Breakdown of costs and benefits

Table A1: Baseline costs

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Local authority officer time										
Updating and screening assessments	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Progress reports	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Detailed assessments	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Action Plans	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Annual reporting	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Diffusion tube monitoring	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
Automatic monitoring	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70
Costs to Defra										
Guidance documents	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Guidance tools	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Helpdesk and website	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Report appraisal	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
AQ grant administration	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Additional monitoring costs	0.02	0.04	0.06	0.10	0.13	0.17	0.22	0.27	0.32	0.36
Additional monitoring/reporting costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A2: Option 1 costs (undiscounted, relative to baseline; negative indicates cost saving), £m

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Local authority costs										
Updating and screening assessments	-1.09	-1.09	-1.09	-1.09	-1.09	-1.09	-1.09	-1.09	-1.09	-1.09
Progress reports	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34
Detailed assessments	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21
Action Plans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual reporting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diffusion tube monitoring	-1.55	-1.55	-1.55	-1.63	-1.69	-1.75	-1.79	-1.83	-1.87	-1.89
Automatic monitoring	-3.70	-3.70	-3.70	-4.45	-5.08	-5.63	-6.09	-6.48	-6.81	-7.09
Costs to Defra										
Guidance documents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Guidance tools	0.08	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Helpdesk and website	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Report appraisal	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
AQ grant administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Additional monitoring costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Additional monitoring/reporting costs	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Total costs	0.11	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06

(central)										
Total benefits (central)	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66

Table A3: Option 1 costs (central scenario discounted, relative to baseline), £m

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Total costs	0.10	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.55
Total benefits	- 1.55	- 1.49	- 1.44	- 1.39	- 1.35	- 1.30	- 1.26	- 1.21	- 1.17	- 1.13	13.30
NPV	1.44	1.44	1.39	1.34	1.29	1.25	1.21	1.17	1.13	1.09	12.75