The Beacons Low Emission Strategies Working Group

The Beacons Low Emission Strategies Group comprises representatives from the four Air Quality Beacon Authorities (Croydon, Greenwich, Sefton and Sheffield), the Greater London Authority, Kensington and Chelsea Council, City of London Corporation, Cenex and ARUP.

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The project was initiated with a brainstorm workshop held in June 2007. This was followed up by a review meeting in October of the same year. Supporting research, drafting and project management was provided by Cenex. Thanks are also due to David Muir (Bristol City Council) and Andrew Gillah (York City Council) for their help in providing case studies.

Delivering Cleaner Air

The Beacon Scheme was set up to disseminate best practice in service delivery across local government. Themes are selected for each round of the scheme by government ministers. The themes represent issues which are important in the day-to-day lives of the public and reflect key government priorities. Beacon status is granted to those authorities who can demonstrate a clear vision, excellent services and a willingness to innovate within a theme. In 2007 Beacon status was awarded for the theme of ‘delivering cleaner air’. The successful authorities were Croydon, Greenwich, Sefton and Sheffield (For more information on the Beacons Scheme visit: www.beacons.idea.gov.uk).

CENEX is the centre of excellence for low carbon and fuel cell technologies. It acts as an independent broker dedicated to low carbon and fuel cell projects. It specialises in connecting potential consumers with technology providers to broker projects designed to field-trial new technology. Cenex’s brokerage promotes both supply-push and user-led innovation. Technology demonstrations help suppliers acquire essential know-how through ‘learning-by-doing’, while Cenex’s work on forward commitment projects with public and private sector fleet operators enables early adopters to influence the availability of new vehicle technology designed to meet their operational needs. The initiative is funded by Department for Business, Enterprise and Regulatory Reform (for more information visit www.cenex.co.uk).
Low Emission Strategies -
using the planning system to reduce transport emissions

About this Guidance

Low emission strategies provide a package of measures to help mitigate the transport impacts of development. Their primary aim is to accelerate the uptake of low emission fuels and technologies in and around the development site. They complement other design and mitigation options, such as travel planning and the provision of public transport infrastructure. Strategies are secured through a combination of planning conditions and legal obligations. They may incorporate policy measures and/or require financial investments in and contributions to the delivery of low emission transport projects and plans, including strategic monitoring and assessment activities.

Some authorities are already making effective use of low emission strategies, while others are struggling to take full advantage. This guidance is intended to support wider adoption of the approach, and to encourage of the use of both well established and more innovative measures.

It is intended for use by local authority planners and those who work closely with them such as environmental health, transport planning and sustainable development teams. The report outlines the underlying principles of low emission strategies, presents current good practice and introduces some of the latest thinking on linking the approach with transport assessment. Supporting information and case examples are provided as an annexe to the main text.

The report focuses on low emission strategies delivered via the spatial planning system. Low emission strategies may also be implemented via transport policy mechanisms, and the London Low Emission Zone is one such example. Although the policy delivery mechanisms differ, the underlying objectives and principles of operation are much the same.

The report was developed by the Beacons Low Emission Strategies Working Group. It was compiled and edited by Andrew Whittles (Project Development Manager, Cenex) and Rob Pilling (Associate Consultant, Cenex).

Consultation draft

We welcome feedback on any aspect of this report. A set of consultation questions is listed on page 3. Full details of the consultation process and deadline are available by visiting the Cenex website www.cenex.co.uk.
Executive summary

The need for change

Climate change is the greatest long-term challenge facing the world today. At the same time, air pollution causes major harm to health and the environment. The problems arise from similar emission sources. Joined up policies are particularly important for the transport sector, which is by far the most common cause for the declaration of air quality management areas and is the only sector where carbon dioxide emissions continue to increase. There is an urgent need for continued action; and spatial planning has a pivotal role in helping to secure enduring progress against the UK’s emission targets.

The national planning policy framework for tackling air quality and climate change is evolving rapidly. The planning white paper, the new Planning Bill and the recent consultation on PPS: climate change reinforce the importance of using the planning system effectively to manage the environmental impacts of new development, including the emission of air pollutants and greenhouse gasses.

Low emission strategies

Low emission strategies provide a package of measures to help mitigate the transport impacts of development. Their primary aim is to accelerate the uptake of low emission fuels and technologies in and around the development site. They complement other design and mitigation options, such as travel planning and the provision of public transport infrastructure. Strategies are secured through a combination of planning conditions and legal obligations. They may incorporate policy measures and/or require financial investments in and contributions to the delivery of low emission transport projects and plans, including strategic monitoring and assessment activities.

Some authorities are already making effective use of low emission strategies, while others are struggling to take full advantage. This guidance is intended to support wider adoption of the approach, and to encourage the use of both well established and more innovative measures. It is intended for use by local authority planners and those who work closely with them such as environmental health, transport planning and sustainable development teams. The report outlines the underlying principles of low emission strategies, presents current good practice and introduces some of the latest thinking on linking the approach with transport assessment. Supporting information and case examples are provided as an annexe to the main text.

The main benefit of low emission strategies is to reduce transport emissions by accelerating the uptake of low emission fuels and technologies in and around a new development. The approach may also: contribute towards achieving local government performance targets; provide local economic benefits; help to streamline planning decisions; and contribute to wider sustainable development goals.

Measures and funding

Low emission strategies enable a broad package of measures to be assembled, which work together to reduce transport emissions. These may address both construction and operational phases of a development. Typical operational phase measures include parking policies, investment in low emission infrastructure, fleet emission improvement, emission based tolling, procurement and supply chain initiatives and contributions to local transport projects and strategic monitoring.

A practical approach for mitigating the cumulative impacts of transport emissions from development is to require contributions to a central low emission fund. The fund may be used to support a variety of local projects as well as for assisting the implementation of air quality action plans, climate change action plans and local transport plans. The ‘Greenwich Formula’ is presented as one example of a pragmatic funding approach.
Transport assessment

Transport assessment provides the logical mechanism for integrating the development of low emission strategies with wider planning processes. However, the current national guidance fails to take an integrated approach on air quality and climate change, provides a rather weak basis for assessing the overall impacts of transport emissions and under-emphasises the mitigation potential of the typical measures associated with low emission strategies. Enhancements are proposed:

(i) adoption of combined emission based assessment for Climate Change (CO₂) and Air Quality (PM, NOₓ);
(ii) adoption of emission based thresholds for assessing the transport impacts of development; and
(iii) more explicit promotion of low emission strategies and associated measures.

Consultation questions

We welcome feedback on any aspect of this consultation document. We are interested in your opinions on both the underlying principles and also on the practicalities of implementing them. More detailed questions are listed below. Please try to be specific in your responses and to support your arguments with evidence and examples wherever possible.

1 Low/zero emission developments

Do you support the principle of seeking low/zero emission developments, which take both air quality and greenhouse gas emissions from transport into account?

2 Additional measures and examples

Please suggest any additional low emission measures, which could be included in Table 1 of paragraph 29. We are also very interested to hear of further examples of low emission measures/strategies implemented via planning conditions and/or obligations (Annexe 3).

3 The funding formula

Do you support use of the ‘Greenwich formula’ (paragraph 33)? Should we promote a standard formula more strongly to enhance consistency across local authorities? Or should we provide general guidelines and leave greater flexibility for individual authorities to set their own local formulae?

4 Planning bill and community infrastructure levy

The Government’s Planning Bill introduces a range of new proposals, including provision for a Community Infrastructure Levy. What implications, opportunities or challenges do you see with regard to the adoption and implementation of low emission strategies?

5 Enhancing transport assessment

Do you support the proposed enhancements to transport assessment (paragraphs 55-56)?

What opportunities or challenges do you see for applying this approach in practice?

(And what (if any) are the implications of the ongoing ‘NATA Refresh’ for the approach?)

6 Status of this guidance

Would you support incorporation of guidance on low emission strategies into national policy guidance?

7 Supporting information and tools

Please suggest any additional information requirements or tools which would support wider development and implementation of low emission strategies.
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Part 1: Background

Climate change and air quality

1. ‘This Government believes that climate change is the greatest long-term challenge facing the world today. There is strong and indisputable evidence that climate change is happening and that man-made emissions are its main cause [...] If left unchecked, climate change will have profound impacts on our societies and way of life [...] Action is needed now."

2. ‘Air pollution still harms health and the environment [...] it is currently estimated to reduce the life expectancy of every person in the UK by an average of 7-8 months with estimated equivalent health costs of up to £20 billion each year [...] Clearly there are significant benefits to be gained from further improvements.’

3. Air pollution and climate change both arise from the emission to atmosphere of the products of combustion. They are intrinsically linked. The government advises local authorities to ‘bear in mind the synergies between air quality and climate change, and the added benefits to the local, regional and global environment of having an integrated approach to tackling both climate change and air quality goals.’

4. Joined up policies are particularly important for the transport sector, which is by far the most common cause for the declaration of air quality management areas and is the only sector where carbon dioxide emissions continue to increase.

The planning response

5. ‘There is an urgent need for action. Used positively, spatial planning has a pivotal and significant role in helping [to] secure enduring progress against the UK’s emissions targets, by direct influence on energy use and emissions, and in bringing together and encouraging action by others [...]’

6. ‘The planning systems across the UK for land use and transport planning are also an important part of an integrated approach to air quality improvements [...] Local Development Frameworks should contain air quality policies to set a strategic framework to deal with air quality in the local planning system.’

7. ‘Regional planning bodies, and all planning authorities should prepare and deliver spatial strategies that [...] deliver patterns of urban growth that help secure the fullest possible use of sustainable transport for moving freight, public transport, cycling and walking; and, overall, reduce the need to travel, especially by car.’

8. The national planning policy framework for tackling air quality and climate change is evolving rapidly. The planning white paper, the new planning bill and the recent consultation on PPS: climate change are important developments which serve to reinforce the importance of using the planning system effectively to manage the environmental impacts of new development, including the emission of air pollutants and greenhouse gases.'
Planning obligations

9. PPS23 outlines the statutory basis for applying a combination of planning conditions and legal obligations to address the environmental impacts of proposed developments. In particular, it notes that ‘Section 106 Agreements can be used to improve air quality, make other environmental improvements […] or offset the subsequent environmental impact of a proposed development.’\(^1\)

10. Planning conditions and obligations have been successfully employed to help mitigate the transport impacts of development by stimulating and accelerating the uptake of low emission fuels and technologies. They are also widely used to support the implementation of air quality action plans, and to support strategic monitoring activities. The table below lists a number of examples.\(^2\)

11. A package of conditions and obligations applied to a given development to achieve the aims of paragraph 10 is described as a ‘Low Emission Strategy.’

<table>
<thead>
<tr>
<th>Ref (^3)</th>
<th>Development</th>
<th>Authority</th>
<th>Agreed</th>
<th>Operational Phase Measures</th>
<th>CP (^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Post Office</td>
<td>Greenwich</td>
<td>2000</td>
<td>Fleet emission improvement</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Greenwich Peninsula</td>
<td>Greenwich</td>
<td>2004</td>
<td>Parking policies and fleet improvement</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Greenwich Millennium Village</td>
<td>Greenwich</td>
<td>2006</td>
<td>Parking policies</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>The Warren</td>
<td>Greenwich</td>
<td>2006</td>
<td>Parking policies and fleet improvement</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Tripcock Point</td>
<td>Greenwich</td>
<td>2006</td>
<td>Site travel plan and coordinator</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>Love Lane</td>
<td>Greenwich</td>
<td>2007</td>
<td>Raft of transport (and non-transport) measures</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Thames Gateway Bridge</td>
<td>BCG (^2)</td>
<td>2006 (^3)</td>
<td>Emission-based differential tolling</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>2012 Olympics</td>
<td>FBG (^4)</td>
<td>2004</td>
<td>Access policy and low emission fleet procurement</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>Queens Hospital</td>
<td>Croydon</td>
<td>2005</td>
<td>Contributions to local projects</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>Broadmead</td>
<td>Bristol</td>
<td>2002</td>
<td>Contributions to monitoring and local mitigation measures</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>AQ Monitoring Contributions</td>
<td>York</td>
<td>2002</td>
<td>Contributions to air quality monitoring</td>
<td>No</td>
</tr>
</tbody>
</table>

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1. CP: Agreement also includes construction phase measures
2. BCG - the ‘Boroughs Consultative Group’ (Greenwich, Newham, Redbridge, Barking and Dagenham)
3. 106 agreement signed April 2006, though planning application subject to ongoing public inquiry
4. FBG - the ‘Five Boroughs Group’ (Greenwich, Newham, Tower Hamlets, Hackney and Waltham Forest)

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\(^{12}\) PPS 23 Annex 1: Pollution Control, Air and Water Quality (2001, paragraph 1.50). (See also Annexe 1 of this document - statutory basis for low emission strategies).

\(^{13}\) See also Annexe 3 of this document for examples of low emissions strategies and measures.
Part 2: Low Emission Strategies

Definition

12. A Low Emission Strategy provides a package of measures to help mitigate the transport impacts of development. The primary aim is to accelerate the uptake of low emission fuels and technologies in and around the development site.

13. Low emission strategies compliment other design and mitigation options, such as travel planning and the provision of public transport infrastructure.

14. Strategies are secured through a combination of planning conditions and legal obligations. They may incorporate policy measures and/or require financial investments in and contributions to the delivery of low emission transport projects and plans, including strategic monitoring and assessment activities.

15. A low emission zone refers to a geographic area within which a low emission strategy applies.¹⁴

Underlying principles

16. Almost any development has potential to increase harmful transport emissions and/or increase human exposure to transport related air pollutants. In some cases these impacts are so significant that they justify planning refusal or major re-design of the project. In other cases, design modification and mitigation measures are the most important considerations.

17. The developer is expected to make all reasonable efforts to reduce the emission impacts of a proposed development, firstly through appropriate design features, and secondly by proposing mitigation measures. Where site specific mitigation is not possible, financial contributions, which are proportionate to the unmitigated impacts, may be pursued to fund local low emission plans and measures to offset the impacts of the development.

18. For all developments over a set threshold, it is practical to request a standardised contribution calculated using a transparent methodology, which contributes to a general fund for low emission projects and related activities. For larger developments, it is also good practice to request a detailed emissions assessment and to agree a detailed site specific low emission strategy.¹⁶

19. It is important that the local development framework embeds the aims and principles of low emission strategies into high level policy objectives.¹⁷

20. The development and delivery of low emission strategies is enhanced by the provision of clear, concise and locally relevant operational guidance. It may be appropriate to develop a dedicated low emission strategy supplementary planning document. Alternatively, the relevant information may be presented as part of a broader document (e.g. supplementary planning document covering: air quality and climate change, sustainable transport or planning obligations).¹⁸

21. It is common practice for developers to pay the legal costs for developing and negotiating a low emission agreement. Similarly, it is justified to seek contributions to cover the cost of relevant compliance checks and enforcement work.¹⁹

¹⁴ Low emission zones may apply directly to the road network (e.g. the London Low Emission Zone), or to areas of development land (e.g. Greenwich Peninsula scheme).

¹⁵ See also Annexe 1 for a summary of the statutory basis for low emissions strategies.

¹⁶ See Annexes 3-B and 3-C for examples. See also Part 3 of this report for further discussion on pursuing combined emissions assessment as part of transport assessment. Emissions assessment may also feed directly into air quality assessment.

¹⁷ See also Annexe 3-A for examples of local low emission policies, which support the development and implementation of low emissions strategies.

¹⁸ See also Annexe 3-B for examples of local guidance, which supports the development and implementation of low emissions strategies.

¹⁹ See Annexe 3-C-1 and 3-C-8 for specific examples.
Benefits - contributing to sustainable development

22. The main benefit of low emission strategies is to accelerate the uptake of low emission fuels and technologies in and around a new development, thereby complementing other design and mitigation options, such as travel planning and the provision of public transport infrastructure (note: since vehicles may travel considerable distances, these benefits will also be felt beyond the immediate vicinity of the development). Low emission strategies may also contribute towards local authority performance indicators and targets for climate change mitigation and air quality (i.e. NI 185, 186 and 194).[20]

23. The approach has potential to provide local economic benefits. Agreements may be tailored to support the development of local low emission supply chains (e.g. fuel and vehicle supply, local renewable energy resources, vehicle leasing/maintenance services, battery recycling) and to take advantage more generally of the wider societal shift towards a low emission and low carbon economy.

24. Transparent and well executed low emissions planning policies ensure that developers are clear as to what is expected of them. This in turn helps to streamline the planning process and speed up decisions.

25. Good quality low emission development contributes to public health and sustainable development goals and helps to create the attractive environments and vibrant communities, which are vital for continued wellbeing and local prosperity.

Benefits - market stimulation

26. Fleet operators and vehicle purchasers are often more comfortable opting for well established and well proven technologies. This conservatism creates barriers to the adoption of new low emission systems, even where the combined environmental and economic case is strong.

27. Low emission strategies provide a mechanism for helping to overcome market barriers for new technologies. They do this by catalysing early adoption, helping to bring down unit costs and by raising customer confidence. This stimulation can influence local, regional, national and even international markets. This potential for catalysing future emission reductions may be very significant.

28. When considering options for inclusion in a low emission strategy, three levels of significance with regard to technological innovation may be considered:

   **Basic:** accelerate the adoption of established and readily available technologies (e.g. purchase of standard hybrid passenger cars). Measures are probably significant only at the local level.

   **Advanced:** Support adoption of innovative technologies (e.g. local demonstration of near-commercial technologies). Measures may be significant at the local and regional level.

   **Pioneer:** Major initiatives with potential to shift markets for new fuels and technologies and to drive uptake and penetration (e.g. significant investment in new technologies through forward commitment or supply chain intervention). Measures may be significant nationally and even internationally.

Typical measures

29. Low emission strategies enable a broad package of measures to be assembled which work together to reduce transport emissions. The following table provides a selection of typical low emission measures.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Operational Phase Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction phase</td>
<td>Refer to the London Code and TGB case study.</td>
</tr>
<tr>
<td>On-site parking</td>
<td>Graduated price parking permit schemes (e.g. graduation based on VED emission bands/Euro Standards)</td>
</tr>
<tr>
<td></td>
<td>Residential parking space set aside (e.g. for car clubs and/or low emission vehicles)</td>
</tr>
<tr>
<td></td>
<td>Customer parking allocation for low emission vehicles (e.g. supermarket)</td>
</tr>
<tr>
<td>Low emission infrastructure</td>
<td>Provision of electric charging bays or low emission fuelling points</td>
</tr>
<tr>
<td></td>
<td>Car clubs - development and promotion (including provision of low emission vehicles or electric charging bays)</td>
</tr>
<tr>
<td></td>
<td>Public transport fleet improvements (e.g. bus technology demonstration)</td>
</tr>
<tr>
<td>Fleet emission improvement</td>
<td>Fleet improvement agreements</td>
</tr>
<tr>
<td>Emission-based differential tolling</td>
<td>Toll rates based upon emission performance of vehicles</td>
</tr>
<tr>
<td>Innovative ideas</td>
<td>Creative and opportunistic measures. For example:</td>
</tr>
<tr>
<td></td>
<td>● Low emission travel incentives via store loyalty card</td>
</tr>
<tr>
<td></td>
<td>● Local ESCO addressing transport issues</td>
</tr>
<tr>
<td></td>
<td>● Inter-authority partnership (see paragraph 30)</td>
</tr>
<tr>
<td>Procurement and supply chains</td>
<td>Forward commitment procurement</td>
</tr>
<tr>
<td>Contributions to local plans/projects</td>
<td>Use of procurement potential to help accelerate market entry for low emission technologies</td>
</tr>
<tr>
<td></td>
<td>See paragraph 32</td>
</tr>
</tbody>
</table>

Table 1: Typical low emission measures

30. Table 1 should not be considered exhaustive. There is considerable potential for applying the principles of low emission strategies in new, creative and opportunistic ways:

One interesting idea is to develop an AD-biogas plant in one location with tandem investment in gas vehicles and fuelling infrastructure in another. Inter-authority partnership working supported by low emission strategy cross-funding and/or a forward commitment to purchase future bio-methane supply has potential to drive an exciting low carbon initiative, which would not otherwise occur.

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21 The control of dust and emissions from construction and demolition. Best Practice Guidance (GLA, November 2006).
22 See Annexe 3-C-4 for an example of a construction phase agreement.
23 Private communication (Andrew Whittles, November 2007).
Funding strategies

31. A practical approach for mitigating the cumulative impacts of transport emissions from development is to require standardised contributions from all developments over a certain threshold. Contributions secured in this way are most usefully allocated to a general low emission strategy fund, which is used to reduce transport emissions in the local area.

32. The fund may be used to support a variety of local plans and projects (including the full range of measures listed in the table of paragraph 29), as well as for assisting the implementation of air quality action plans, climate change action plans, local transport plans, strategic monitoring/assessment activities and relevant enforcement/compliance work. Projects may support, for example, enhancements to the emissions performance of the local authority’s own fleet.

33. One example of an appropriate funding formula is that adopted by Greenwich Council and presented in Box 1 below. Other authorities, who have developed similar approaches, include Croydon, York and Bristol.24

Box 1: Low emission funding - ‘The Greenwich Formula’

Contributions will be sought for all residential schemes of 10 dwellings and above, and mixed use and commercial schemes of 500 m² and above.
A standard contribution will be sought of £100 per dwelling for residential development and £10 per m² for town centre and commercial developments.

34. Contributions could be set at a level which enables full mitigation or offsetting of the residual transport derived emissions impacts of a new development. They could, for example, be derived by estimating the emission damage costs.25, 26 In this context, the Greenwich Formula equates to a relatively modest level of mitigation and should be recognised as just one element of the authority’s broader approach to the mitigation and management of emissions.

35. The size of contribution, how it is calculated and the manner in which the approach is applied, are all important. The overall effect must be to encourage low emission development rather than to provide an easy option for developers simply to buy the right to pollute.

36. A flexible approach is likely to improve the ease and effectiveness of implementation. For example, a local authority may decide to use low emission strategy funding to work in partnership with a progressive developer on a low emission project associated with a specific development. Equally, for a particularly innovative and advanced development it may be appropriate to waive the flat rate in recognition.

37. The purpose for which developer contributions are secured must be defined carefully. This should be broad enough to provide flexibility to direct the money where it is most useful and effective. At the same time, it must not be so broad as to risk diversion to unrelated activities: wording such as ‘for the implementation of low emission strategies and measures’ is appropriate.

24 For further information see Annexe 3-B.
25 Damage costs – Carbon dioxide: Transport Analysis Guidance (TAG) Unit 3.3.5. (Web link: http://www.webtag.org.uk)
26 Damage costs – Air Quality: Damage Costs for Air Pollution (AEA Technology, March 2006).
38. It is clearly important for the integrity of the scheme that the fund be administered transparently and for the money to be spent wisely and for the purposes for which it is obtained. Appropriate financial management and scrutiny (including, for example, ante - and post - implementation assessment of outcomes and cost effectiveness) are vital for ensuring that this is the case.

Setting low emission standards

39. The European vehicle emission standards provide a strong driver for reducing air pollution from transport. Their progressive introduction ensures that almost any fleet renewal activity works to the benefit of air quality. The current increasing focus on lower carbon transport has potential to provide further gains. These may arise as co-benefits of new technologies or simply by accelerating fleet renewal and so encouraging the market penetration of more stringent Euro vehicles.

40. In some instances, there are trade-offs to be made between toxic emissions and carbon dioxide. For example, small diesel passenger cars may be highly fuel efficient, but their use can be detrimental to air quality in urban centres, compared to a petrol equivalent. Advanced after-treatment systems help to mitigate these concerns, enabling low carbon benefits to be realised without adverse effects on public health. An integrated approach on air quality and climate change helps to ensure that the win-win benefits are maximised and that trade-offs are actively managed through well informed policy decisions.

41. The A-G energy labelling for passenger cars goes some way to providing emission standards for carbon dioxide. However, even where these standards exist, it can be difficult to compare options and understand the likely impact on real world emissions (for example, hybrid and multi-fuel vehicles will perform differently depending upon how they are operated). The task is harder within the commercial vehicles sector, where there are no recognised standards and where performance is highly dependent on the application and duty cycles involved.

42. During the construction phase, emissions from non-road mobile machinery (NRMM) may cause increased emissions. A low emission strategy may usefully specify NRMM emissions standards.

43. A range of professional services and assessment tools are available to support green fleet improvement. These may also be used to inform the development and negotiation of low emission strategies.

Future proofing

44. Development build times can span decades. It is important that agreements remain effective during both the construction phase and on into the operational phase. They should take account of technological progress, social trends and the effects of climate change. It is important that agreements are based upon best available knowledge and make all efforts to avoid simply reflecting a business as usual progression. Where developments take place over long time frames, the low emission strategy agreement should establish periodic review dates to update the agreement as appropriate at that time.

45. While low emission strategies are primarily concerned with reducing transport emissions, it is important to recognise the importance of climate change adaptation within the planning context. Local authorities should ensure that their approach on low emission strategies is well integrated with their wider approach on adaptation.

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28 Further discussion and direction to useful sources of information is provided in Annexe 4.

29 See Annexe 3-C-2 for typical wording.
Part 3: Linking Low Emission Strategies with Transport Assessment

Current guidance

46. Planning Policy Guidance Note 13: Transport (PPG13)\(^{30}\) requires a Transport Assessment (TA) for any new development, which is ‘likely to have significant transport implications.’ Where the implications are more limited, it is common practice to provide a simplified assessment in the form of a Transport Statement (TS). In cases where the implications are very limited, then no formal assessment is required. The Department for Transport published ‘Guidance on Transport Assessment’ (GTA)\(^{31}\) in March 2007. The note is intended to assist stakeholders in determining whether an assessment may be required and, if so, what the level and scope of that assessment should be.

47. Transport Assessment is promoted as ‘a comprehensive and systematic process that sets out transport issues relating to a proposed development.’\(^{32}\) It proposes measures both to deal with anticipated impacts and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport. In doing so, it helps the local planning authority assess the development’s compatibility with planning policy and the relevant transport strategy (usually the Local Transport Plan) and, where appropriate, identify measures to achieve a more sustainable and environmentally sound outcome.

An iterative approach to transport assessment for a typical assessment process

![Flowchart](image-url)

Fig 1: Iterative approach to transport assessment for a typical assessment process
(Source: adapted from GTA, DfT, 2007)

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30 Planning Policy Guidance 13: Transport (CLG (formerly ODPM), March 2001)
31 Guidance on Transport Assessment (CLG and DfT, March 2007)
32 ibid., paragraph 1.2
48. GTA recommends an iterative approach for completing a transport assessment, which is laid out in Figure 1. Initial analysis leads into a hierarchy of impact management options: Reducing the need to travel, maximising ‘sustainable access’ (i.e. access for all modes, but in particular public transport, cycling and walking) and dealing with residual trips. Together these lead to a package of mitigation measures. This cycle may be repeated until adequate mitigation is achieved.

Environmental assessment

49. GTA emphasises the need to address the environmental impacts of any significant development. The guidance recognises air quality and climate change impacts as important transport related concerns (although it makes no explicit link between the two). It also advises that Transport Assessment requires ‘accurate quantitative and qualitative analyses of the predicted impacts of residual trips from the proposed development.’

50. GTA recognises that while exceedence (or risk of exceedence) of statutory thresholds is an important consideration within transport assessment, it is not the determining factor in identifying the need for and extent of mitigation. Unfortunately, in practice it is often difficult to argue that impacts are significant, without some reference to a statutory threshold. This practical emphasis on thresholds creates difficulties for both air quality and climate change:

- For air quality, the relevant statutory thresholds are the air quality objectives set out in the national air quality strategy. Impact modelling is expensive, complex and beset with uncertainties. Results are heavily confounded by meteorology and pollution backgrounds. It is rare for the air quality impacts of a single development to be considered significant. This is not to say that such developments are non-polluting or non-detrimental to health; rather that the assessment methodology is too crude for its intended purpose and fails to give adequate consideration to cumulative effects.

- For carbon dioxide, the emphasis is on emissions rather than concentrations. There is an established methodology, but no statutory threshold to provide a basis for assessment. Again, it is rare for the impacts to be considered significant and again, cumulative effects are often ignored.

51. An attractive integrated solution is to assess both air quality and climate change on an emissions basis, and to require full mitigation from prospective developers. This move makes sense not only to improve the usefulness of the assessment, but also because we now know that all emissions of PM and NO\textsubscript{X} are harmful to public health and the environment.34

52. A range of professional services and assessment tools are available or under development, which may be applied for the combined assessment of the emissions impacts of development.35

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33 GTA notes that the aim of the assessment is to identify ‘potential breaches of statutory thresholds and mitigation measures to address such impacts.’ Elsewhere it adds that ‘… it is likely that the developer would be required to provide mitigation measures to address any adverse environmental impacts … and not simply those where breaches of statutory limits may be likely to occur.’

34 Reference 2, paragraph 24/table 1 (PM\textsubscript{10} is considered a non-threshold pollutant, PM\textsubscript{10} comprises primary and secondary particles. NO\textsubscript{X} emissions contribute to formation of secondary particles (NO\textsubscript{X} emissions also contribute to acidification and eutrophication of sensitive eco-systems).

35 See Annexe 4 for information on emission assessment tools and technical support.
53. Embedding emission based objectives within the local planning framework could provide effective threshold criteria and so reinforce an emissions based approach. Indeed, the Government’s own target for ‘zero carbon homes’\textsuperscript{36} points in this direction. The definition currently excludes transport related emissions, but there appears no reason why the principle cannot be extended.

**Mitigation options**

54. GTA advises that mitigation measures should ‘avoid unnecessary physical improvements to highways and promote innovative and sustainable transport solutions.’ It is surprising therefore that there is little explicit support within the document for the types of measures associated with low emission strategies. One reason for this is the emphasis placed upon trip management almost to the exclusion of emissions management. Consequently, mitigation options focus on shifting travel modes, provision of basic infrastructure and changing travel behaviour. The contribution which low emission fuels and technologies can make is not adequately considered.

**Enhanced Transport Assessment**

55. Transport assessment provides the logical mechanism for integrating the development of low emission strategies with wider planning processes. However, current guidance fails to take an integrated approach on air quality and climate change, provides a rather weak basis for assessing the overall impacts of transport emissions and under-emphasises the mitigation potential of the typical measures associated with low emission strategies.

56. The following refinements to the transport assessment approach will provide a more robust platform:

- Combined emission-based assessment for Climate Change ($\text{CO}_2$) and Air Quality (PM, $\text{NO}_x$)
- Recognition of emission-based thresholds for transport impacts of development
- Promotion of Low Emission Strategies to supplement mitigation options under consideration.

\textsuperscript{36} Building a Greener Future: Towards Zero Carbon Development (CLG, December 2006)
Fig 2: Enhanced approach to transport assessment
(Source: adapted from GTA, DfT, 2007, with additional annotations)

Note: DfT recently published a consultation\textsuperscript{37} on proposals for ‘refreshing’ the New Approach to Transport Assessment (NATA). GTA draws heavily on NATA principles. So the refresh is likely to have implications for future development of transport assessment within the planning systems.

\textsuperscript{37} The NATA Refresh: Reviewing the New Approach to Appraisal (DfT Consultation, October 2007).
PPS23 and its accompanying annexes lays out the statutory basis for low emission strategies. The following extracts provide a summary. Emphasis has been added with **bold italics** for key statements.

**A) Planning Policy Statement 23: Planning and Pollution Control (2004)**

Planning Policy Statements (PPSs) set out the Government’s core policies and principles on the most important aspects of land use planning. The policies in PPS23 and the advice in the accompanying Annexes (Annexe 1: Pollution Control, Air and Water Quality; and Annexe 2: Development on Land Affected by Contamination) should be taken into account by Regional Planning Bodies (RPBs) and Local Planning Authorities (LPAs) in preparing Regional Spatial Strategies (RSSs) and Local Development Documents (LDDs) - referred to in this Statement as ‘development plans’. They are also material to decisions on individual planning applications. Where these policies are not reflected adequately in local development documents, or taken into account in relevant development control decisions, the First Secretary of State may use his powers of direction to seek changes to the documents or may intervene in the consideration of planning applications. This PPS and its associated annexes carry equal weight.

**Material planning considerations**

In paragraph 2, PPS 23 advises that:

- any consideration of the quality of land, air or water and potential impacts arising from development, possibly leading to impacts on health, is capable of being a material planning consideration, in so far as it arises or may arise from or may affect any land use.
- the planning system plays a key role in determining the location of development which may give rise to pollution, either directly or indirectly, and in ensuring that other uses and developments are not, as far as possible, affected by major existing or potential sources of pollution.

**B) PPS 23 Appendix A: Matters for Consideration in Preparing Local Development Documents and Taking Decisions on Individual Planning Applications**

Appendix A lists matters (not in any order of importance), which should be considered in the preparation of development plan documents and may also be material in the consideration of individual planning applications where pollution considerations arise. These include:

- The possible impact of potentially polluting development (both direct and indirect) on land use, including effects on health, the natural environment or general amenity.
- The *environmental benefits* that the development might bring, such as:
  - (i) resulting reductions in the need to travel
  - (ii) accompanying improvements to transport infrastructure
  - (iii) the economic and wider social need for development.
- Meeting regional or national environmental objectives including the existing, and likely future, air quality in an area, including any Air Quality Management Areas (AQMAs) or other areas where air quality is likely to be poor (including the consideration of cumulative impacts of a number of smaller developments on air quality, and the impact of development proposals in rural areas with low existing levels of background air pollution). The findings of air quality reviews and assessments will be important in the consideration of local air pollution problems and the siting of certain types of development:
  - The need to limit and where possible reduce greenhouse gas emissions and take account of potential effects of climate change.
- Existing action and management plans with a bearing on environmental quality including:
  - (e.g. Air Quality Management Area Action Plans (prepared by LAs under Part IV of the Environment Act 1995…)).
C) PPS 23 Annex 1: Pollution Control, Air and Water Quality

Annexe 1 explains the background to the Pollution Control legislation, its interactions with the planning system and how these interactions are dealt with in planning. The document also explains how planning conditions and planning obligations can be used to protect and enhance the environment.

Local air quality management (para. 1.11 - 1.13)

1.11 (Describes LA responsibilities under LAQM).
1.12 (Promotes planning, transport and AQ functions to work closely together).
1.13 Air quality in AQMAs will inevitably be influenced by factors beyond their and individual LA boundaries. It is therefore important that the possible impact on air quality of developments close to an AQMA is also considered. Local planning authorities (LPAs) should also note that air quality can be an important consideration, whether or not levels of air pollution in areas on which the proposed development may impact due to dispersion or cumulative load are already high enough to justify the designation of an AQMA. More details are set out in Appendix 1G. Advice has also been issued by the Department of the Environment, Food and Rural Affairs (Defra) in Part IV of the Environment Act 1995 Local Air Quality Management, Policy Guidance LAQM. PG(03) and Technical Guidance LAQM. TG(03) (see www.defra.gov.uk/environment/laqm).

Climate change (para. 1.14 - 1.16)

1.14 (Lays out national commitments on climate change).
1.15 The CO₂ contribution from any individual development is often only a small fraction of the total emissions for an area. However, promoters of major developments can be asked by the LPA for an energy statement and data on the expected CO₂ emissions generated by the new development. LPAs should take account of climate change considerations in their development plans both in terms of mitigating the local contributions to climate change and adapting to the effects of climate change. LPAs should also consider how the climate may change over the lifetime of developments, by referring to the latest climate change scenarios and other guidance from the UK Climate Impacts Programme (see www.ukcip.org.uk). They should consider whether this is likely to have implications for the proposed development and neighbouring areas, and on levels of pollution and natural resource use that need to be taken into account.
1.16 (makes reference to good practice guide on climate change).

Planning conditions (para. 1.47 - 1.49)

1.47 It should not be necessary to use planning conditions to control the pollution aspects of a development that are subject to prior approval by a pollution control authority.
1.48 In some cases, however, it may be appropriate to use planning conditions to control other aspects of the development, provided these are not covered by the pollution permit and that a land use planning consideration can be clearly distinguished.

Appendix A to PPS23 provides a list of matters for consideration when examining individual planning applications. For example, planning conditions could be used in respect of transport modes, the hours of operation where these may have an impact on neighbouring land use, landscaping, plant and buildings, the timescale of the operations, non-PPC processes, and impacts such as noise, vibrations, odour, air pollutants and dust from certain phases of the development such as demolition and construction.

1.49 Consultations with the relevant pollution control authority should also ensure that any planning conditions are necessary and appropriate and based on valid information, and do not duplicate conditions more appropriately imposed through the pollution control authorisation or licence, or vice versa. Further advice on planning conditions can be found in CLG Circular 01/95.
Planning obligations (para. 1.50)

1.50 Where it is not appropriate to use planning conditions to address the impact of a proposed development, or where a development is planned in or near to an area of existing sources of pollution, it may be appropriate to enter into a planning obligation under Section 106 of the Town and Country Planning Act 1990 (as substituted by the Planning and Compensation Act 1991).

Properly used, Section 106 Agreements can be used to improve air quality, make other environmental improvements before a development goes ahead or offset the subsequent environmental impact of a proposed development. Planning obligations should be relevant to planning in land use terms and directly related to the proposed development if they are to influence a decision on a planning application.

Measures which it might be possible to consider for Section 106 Agreements include: limiting car parking, car-free developments, supporting public transport, other transport infrastructure such as walking and cycling routes/paths; and the purchase, installation, operation and maintenance of air quality monitoring equipment or provision of other assistance or support to enable authorities to implement any necessary monitoring or other actions in pursuit of an Air Quality Action Plan.

Further advice on planning obligations can be found in CLG Circular 05/05.

D) PPG13: Transport

Planning Policy Guidance 13’s (PPG13) objectives are to integrate planning and transport at the national, regional, strategic and local level and to promote more sustainable transport choices both for carrying people and for moving freight.

Transport and planning

Paragraph 3 recognises that: ‘Land use planning has a key role in delivering the Governments integrated transport strategy. By shaping the pattern of development and influencing the location, scale, density, design and mix of land uses, planning can help to reduce the need to travel, reduce the length of journeys and make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking, and cycling.’

The document identifies a set of planning objectives (para. 6) which include:

- ‘Ensure[ing] that strategies in the development and local transport plan complement each other and that consideration of development plan allocations and local transport investment and priorities are closely linked’
- ‘Use[ing] parking policies, alongside other planning and transport measures, to promote sustainable transport choices and reduce reliance on the car for work and other journeys.’

Planning conditions

Paragraph 82 considers appropriate planning conditions to support the planning objectives outlined in paragraph 6. It provides a typical list, but notes that the list is not exhaustive. It also notes that, since such measures may form a travel plan, a condition may be used to require aspects of a travel plan to be implemented.

Planning obligations

83. The development plan should indicate the likely nature and scope of contributions which will be sought towards transport improvements as part of development in particular areas or on key sites. This will give greater certainty to developers as to what will be expected as part of development proposals and also provide a firmer basis for investment decisions in the plan area.

84. Planning obligations may be used to achieve improvements to public transport, walking and cycling, where such measures would be likely to influence travel patterns to the site involved, either on their own or as part of a package of measures. Examples might include improvements to a bus service or cycle route which goes near to the site, or pedestrian improvements which make it easier and safer to walk to the site from other developments or from public transport. When entering into a planning obligation, consideration should be given to the usual statutory and policy tests.

Statutory Nuisance and Best Practicable Means

Every local authority has a duty to ‘cause its area to be inspected from time to time to detect any statutory nuisances which ought to be dealt with […] and, where a complaint of a statutory nuisance is made to it by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint.’

‘Statutory nuisances’ include ‘Dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance.’

Abatement Notices

Where a local authority is satisfied that a statutory nuisance exists, or is likely to occur or recur, in the area of the authority, they must serve an abatement notice. This will prohibit or restrict the nuisance. It may also specify the necessary steps to be taken and the required timeframe. Failure to comply with the notice is an offence and renders the offender liable to a fine of up to £5,000 per daily recurrence (up to £20,000 total) and/or a 2 year jail sentence.

Defence of Best Practicable Means

In proceedings for an offence in respect of statutory nuisance, it is a defence to prove that ‘Best Practicable Means were used to prevent, or to counteract, the effects of the nuisance’ (note: various exceptions apply).

‘Practicable’ is interpreted as being ‘reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications.’

The ‘means’ to be employed include ‘the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and structures.’

Note 1: Full provisions regarding statutory nuisance and best practicable means are laid out in the Environment Protection Act 1990 sections 79 and 80.

Note 2: For construction phase activities, the guidance report ‘control of dust and emissions from construction and demolition’ (GLA, November 2006) provides an important reference for determining what constitutes best practicable means. For example, it advises on the specification of emissions performance for non road mobile machinery (NRMM).

The planning white paper sets a vision for a planning system ‘which supports vibrant, healthy sustainable communities, promotes the UK’s international competitiveness, and enables the infrastructure which is vital to our quality of life to be provided, in a way that is integrated with the delivery of other sustainable development objectives, and ensures that local communities and members of the public can make their views heard.’

It observes that ‘long-term challenges for planning are increasing. Over the coming decades, debate and decisions about where development should take place are likely to become more difficult. We must ensure that the whole planning system […] is fit and able to cope […]’

The paper tackles a range of priority issues including ensuring adequate new housing provision, supporting economic growth, streamlining the planning system and ramping up efforts on climate change.

Environmental challenges

The white paper recognises two key environmental challenges (para 1.14):

- ‘Meeting the challenge of climate change: The evidence is now compelling that greenhouse gas emissions from human activity are changing the world’s climate. The recent Stern Review makes it clear that ignoring climate change will eventually damage economic growth, people’s health and the natural environment […] the planning system also has an important role to play in enabling the UK to meet those challenges […]’

- ‘Protecting and enhancing the environment and natural resources: Continuing economic growth and the need to build more homes puts pressure on the environment and natural resources. Planning has a role to protect and enhance the quality, character and amenity value of the countryside and urban areas as a whole, through positive policies. […] Planning should contribute to improving the quality of water, land and air, and the conservation of renewable and non-renewable resources and to sustainable waste management.’

PPS Climate Change

The white paper outlines the Government’s expectations for the contribution which local planning authorities should make in tackling climate change. It also clarifies next steps regarding the proposed PPS on climate change:

7.7 The draft Planning Policy Statement (PPS) Planning and Climate Change (on which consultation recently closed) sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and which are resilient to climate change. We have put tackling climate change at the centre of what is expected from good planning.

7.9 Local planning authorities have a crucial role to play in tackling climate change. We want to see up-to-date development plans to help secure progress against the UK’s emissions targets – both through direct influence on energy use and emissions and through bringing together and encouraging action by others.

7.10 We will expect development plans to be tested on their carbon ambition. They should deliver patterns of urban growth that help secure the fullest possible use of sustainable transport and, overall, reduce the need to travel. New development should be located to reduce as far as practicable its direct carbon emissions and those it generates through the transport activities of its occupiers and users.

The Government plans to ‘finalise the Planning Policy Statement on climate change and introduce legislation to set out clearly the role of local planning authorities in tackling energy efficiency and climate change.’
Planning Gain Supplement (PGS) and Community Infrastructure Levy (CIL)

As part of its response to Kate Barker’s review of housing supply, published in 2004, the Government consulted on a proposal for a PGS, designed to capture a ‘modest portion’ of the uplift in land value accruing to landowners as a result of the granting of planning permission. As part of the proposal, the use of planning obligations would be scaled back to cover only ‘direct impact mitigation’ plus affordable housing, in order to ‘increase certainty’ and reduce negotiation costs.

The planning white paper explains that: ‘At Budget 2007 the Government made further announcements for allocating the revenues generated by the proposed Planning-gain Supplement (PGS) to help finance the local and regional infrastructure necessary for sustainable economic development. The Government remains engaged with stakeholders on its proposals for PGS, and will consider their views, alongside the need for additional infrastructure investment and the mechanisms that could help provide these resources. If, after further consideration, PGS continues to be deemed workable and effective, PGS would be introduced no earlier than 2009.’

The subsequent Planning Bill makes provision for introduction of CIL, and an accompanying initial impact assessment provides a summary of the approach as follows:

The CIL was an alternative approach proposed in the Housing Green Paper to the implementation of the Planning-gain Supplement. Following consultations with industry, local government and other stakeholders, the Government concluded that the best way to increase contributions towards infrastructure was the introduction of a CIL (formerly Planning Charges).

The CIL option would enable local authorities to apply a levy to all new developments (residential and commercial) in their area, subject to a low de minimis threshold. Where appropriate, the local planning authority would use a CIL to supplement a negotiated agreement, which may be required for site specific matters, including affordable housing.

The CIL should be based on a costed assessment of the infrastructure requirements arising specifically out of the development contemplated by the development plan for the area, taking account of land values and potential uplifts. Standard charges would be set, which may vary from area to area and according to the nature of development proposed.

The CIL would break the current planning obligation regime’s required link between a contribution and a particular development.

38 Changes to Planning Obligations - a Planning-gain Supplement consultation (CLG, December 2006)
39 Reference 9, paragraph 1.12
40 2007 Pre-budget Report and Comprehensive Spending Review (HMT, October 2007, paragraph 6.17)
41 Community Infrastructure Levy – Initial Impact Assessment (CLG, November 2007)
Annexe 3: Examples of Low Emission Policies, Strategies and Measures

A) Local Policies

It is important to identify exactly which policies and objectives in the local development framework low emission strategies will help to deliver. It is also helpful to identify opportunities for improving local policies as opportunities arise to enhance delivery of low emission developments. Two current practice examples are provided, highlighting key policies and objectives within Greenwich and Sheffield development frameworks.

Greenwich Unitary Development Plan (adopted 20 July 2006)

Strategic policies (SE1-SE4) aim to:

(i) encourage environmentally sustainable development;
(ii) protect and improve the environment in terms of air and water quality;
(iii) reduce the impact of pollution, noise, smell, especially from transport;
(iv) protect areas liable to flood; and
(v) reduce generation of waste and encourage recycling.

Policies have been adopted which tackle air pollution and support sustainable transport:

- **Air Pollution (E6):** Policy E6 relates specifically to air pollution and aims to ensure that proposals, which would result in a deterioration in air quality will be resisted unless measures are included to minimise the impact of air pollutants. Assessments of impacts are required to be submitted, and in areas of poor air quality appropriate mitigating design solutions will be required.

- **Transport Policies (M1 - 42):** Cover a host of transport issues including travel planning and transport assessment.

Sheffield Development Framework (adoption 2008 - 2010)

‘Transformation and Sustainability’

The Sheffield Development Framework (SDF) shares the vision of the Sheffield City Strategy, which aims to create ‘a successful, distinctive city of European significance at the heart of a strong city region, with opportunities for all’. In order to achieve the SDF vision of transformation and sustainability, five broad aims are laid out in the Core Strategy of the SDF:

(i) A strong economy;
(ii) Opportunities for all;
(iii) The natural environment conserved;
(iv) Improved accessibility and connections;
(v) Places well designed, distinctive and revitalised.

The core strategy recognises possible tensions between these aims and identifies sustainability appraisal as an approach to decision making.

The Core Strategy identifies high level policy objectives which include:

- **S10.1** Improvements to public transport supported, and energy-efficient and low-polluting modes of travel given priority.
- **S11.1** Developments laid out, designed and constructed to minimise carbon emissions and other harmful impacts on the climate and local environment, to reduce obsolescence, to use energy efficiently and to work with natural processes.
- **S12.3** Air and water quality improved in excess of minimum requirements.

Annexe 3:
Examples of Low Emission Policies, Strategies and Measures
Key Policies (Core Strategy - submitted version Sept 2007)

SE4 - Air quality
Action to protect air quality will be taken in all areas of the city. Action to improve air quality will be taken across the urban area, and particularly where residents are exposed to levels of pollution above national targets.

ST1 - Strategic priorities for transport
The strategic priorities for transport are: promoting choice by developing alternatives to the car, maximising accessibility, containing congestion levels, improving air quality, improving road safety, delivering economic objectives through demand management measures and sustainable travel initiatives.

ST4 - Demand management
Increasing demand for travel in all parts of the city will be managed to meet the different needs of particular areas through:

(i) promoting good quality public transport and routes for walking and cycling to broaden the choice of modes of travel;

(ii) making best use of existing road capacity through the use of variable-message signing and Intelligent Transport Systems;

(iii) implementing Travel Plans for new developments to maximise the use of sustainable forms of travel and mitigate the negative impacts of transport, particularly congestion and vehicle emissions;

(iv) active promotion of more efficient and sustainable use of vehicles through car clubs, car sharing to increase vehicle occupancy and incentives for using alternatively fuelled vehicles. These will be associated with new residential and commercial developments and particularly in the City Centre;

(v) managing public car parking to reduce long-stay commuter parking in favour of short-stay and providing long-stay park-and-ride facilities near the edge of the main urban area;

(vi) creating Controlled Parking Zones to manage traffic levels in constrained locations and encourage the use of more sustainable modes of travel […]

(vii) applying maximum parking standards for all new developments to manage the provision of private parking spaces.

Key Policies (City Policies - proposed April 2007, NB: subject to change in final form)

PP01: Outlines Sheffield approach to Planning Obligations. It identifies (a non-exhaustive) list of objectives for which contributions may be sought. This includes the three objectives listed above.

PR6 Air Quality: Development will not be permitted if it would cause deterioration in air quality that would have an unacceptable impact. Developers will be required to assess the likely impacts of developments on air quality and mitigate any negative impacts. Wherever possible, developments should include measures to improve air quality.

PT1 Travel Plans: The implementation of Travel Plans* will be required for all new developments with significant transport and accessibility implications. Implementation should:

(a) prevent excessive congestion […]

(b) mitigate any negative environmental and health impacts of transport movements; and

(c) maximise sustainable access opportunities for new developments. […] Developers will be required to contribute to the development and maintenance of sustainable transport measures.

[*note: In the Sheffield documents, a travel plan is described as: ‘A document that outlines in detail the processes for managing all travel impacts and maximising accessibility arising from a specific organisation or site.’]
B) Supplementary Guidance

Supplementary planning guidance helps to strengthen development and delivery of low emission strategies. A key challenge is to integrate the approach with wider planning priorities and processes. Advice may be presented in the form of a dedicated supplementary planning document, or it may be provided within a broader document (e.g. SPD covering: air quality and climate change, sustainable transport or planning obligations).

Four examples of current practice are provided below. Building on these examples, the Beacons Low Emission Strategies Group suggests three important considerations for an authority developing new guidance:

a) The attraction of moving away from exclusive consideration of pollutant concentrations towards including explicit emission reduction strategies;

b) Better integration of air quality and climate change (e.g. taking damage costs of both air quality pollutants and greenhouse emissions into account in a single assessment);

c) The advantages of providing a clear (non-exhaustive) list of mitigation options, which the planning authority actively promotes and encourages the developer to consider in drawing up an application.

GREENWICH (Draft, June 2007)

Further information: environmental.protection@greenwich.gov.uk

Greenwich has developed an SPD, which provides detailed guidance on the type and scale of planning obligations for development proposals. It provides advice on how contributions will be assessed and the process by which contributions will be sought. The SPD is a material planning consideration for use in guiding and determining development proposals. This document includes an annex dealing specifically with provisions relating to environmental health and waste management. Provisions relevant to low emission strategies are summarised below:

<table>
<thead>
<tr>
<th>Section</th>
<th>Relevant Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>‘Guidance for deriving the provision, including planning contributions, towards environmental health and waste management.’</td>
</tr>
<tr>
<td>Definitions</td>
<td>‘Contributions for the maintenance or improvement of environmental health.’</td>
</tr>
<tr>
<td>Justification</td>
<td>‘High regard for environmental health is essential in maintaining the well-being of communities.’</td>
</tr>
<tr>
<td>Policy context</td>
<td>‘UDP Policy E6 seeks to minimise the impact of air pollution and requires appropriate mitigating design solutions.’</td>
</tr>
<tr>
<td>Qualifying developments</td>
<td>‘All residential schemes of 10 dwellings and above, and mixed use and commercial schemes of 50 m² and above, which may significantly degrade levels of environmental health.’</td>
</tr>
<tr>
<td>Methodology</td>
<td>‘A standard contribution will be sought of £100 per dwelling for residential development and £10 per m² for town centre and commercial developments.’</td>
</tr>
<tr>
<td>Worked examples</td>
<td>For example: ‘the total cost of contributions for a mixed use development of 50 dwellings and 650 m² commercial floor space is £11,500.’</td>
</tr>
</tbody>
</table>
CROYDON
(Air Quality SPG, July 2004)
Further information: pollution@croydon.gov.uk

‘The Council will seek to use section 106 agreements and planning conditions to mitigate significant detrimental impacts of development on air quality.’ Croydon calculate an air quality contribution of £100 per car parking space for all developments with greater than 50 parking spaces.

An accompanying box lists examples of measures which ‘can form part of a mitigation scheme and developers should consider including them in their proposals…’ The list includes: The use of clean fuel fleets of vehicles in, and associated with, new developments, and managing the use of parking spaces (for example, giving priority to multiple occupancy vehicles and electric vehicles).

YORK
(Draft Air Quality SPD, March 2007)
Further information: environmental.protection@york.gov.uk

NB: York policy is draft - not yet adopted

Direct impacts
‘Where air quality mitigation measures are required as a direct result of a new development, applicants will be requested to enter a S106 agreement to implement measures to offset any increase in local pollution, and/or make an appropriate financial contribution towards improvement measures or air quality monitoring.’

Developer contributions will be used for one or more of the following:
(i) Mitigation measures to help offset any increase in pollution;
(ii) Air quality improvement measures;
(iii) Air quality monitoring in the vicinity of the proposed development.

Cumulative impacts
‘Financial contributions may also be appropriate for cumulative developments, particularly where further study is required to assess potential cumulative air quality impacts arising from a number of developments in close vicinity.’ The document goes on to propose a formula for calculating contributions, which gives weight according to the existing air quality, the likely impacts, and the number of new properties affected. Two examples are provided:

1. Developers were required ‘to contribute a certain financial sum towards the Foss Basin Transport Masterplan, […] which,] consists of initiatives such as new bus lanes, provision of new bus routes, provision of cycle lanes etc. […]and for] future air quality monitoring…’

2. In another, a process is proposed whereby a number of developments provide ‘a financial contribution to the air quality action plan relative to the size (or traffic generating ability) of the development.’ The combined pot would be used ‘to implement elements of the action plan such as improvements in public transport, encouragement of sustainable modes of travel etc. It is unlikely that any one measure would be directed at the location of any particular development, but instead would be aimed at reducing traffic flows over a wider area.’

SHEFFIELD
(SPD Development Plan 2007 - 2010)
Further information: steve.simmons@sheffield.gov.uk

SPDs are proposed for air quality and sustainable transport:

2007: Travel plans, car clubs and other developer contributions (early draft policies): are already being negotiated when deciding about planning applications, for example, where traffic impacts would otherwise be unacceptable. Early informal guidance will help to inform this.
2008: Air Quality: Guidance is required to help achieve the targets for the new Air Quality Management Area, covering all of the main urban area. An updated proposal is to develop a ‘low emission SPD’ – which incorporates the planned air quality SPD, and enhances it by integrating air quality and climate change considerations, and reflecting latest guidance on low emission strategies.

2010: Sustainable Transport: The full Sustainable Transport Supplementary Planning Document will incorporate the early draft policies on travel plans, car clubs and other developer contributions, taking account of expected new legislation on planning obligations. It will also include Parking Guidelines to support the City Polices document.

C) Low Emission Strategies

The earliest examples of low emission strategies are those established by Greenwich City Council. The Council’s pioneering work was borne out of an agreement secured as part of the planning agreement with the Post Office for the construction of a new sorting office. Since then, the approach has been extended and applied to a host of developments across the borough, including Greenwich Peninsula and the O2, Greenwich Millennium Village, The Warren and Tripcock Point. Elsewhere in London, a group of local authorities have negotiated a low emission strategy for the proposed Thames Gateway Bridge, and low emission planning policies form a core element of the 2012 Olympics sustainability plan. Further examples are reported from Croydon, Bristol and York.

The table below lists example low emissions strategies, secured through 106 agreements. Summary information on each agreement is provided in the following pages. The table includes contacts who would be happy to provide further information if required. We are keen to compile further examples for inclusion in the final report. Please send any information to Andrew.Whittles@cenex.co.uk.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Development</th>
<th>Authority</th>
<th>Agreed</th>
<th>Further Information</th>
</tr>
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<td>7</td>
<td>Thames Gateway Bridge</td>
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<td>10</td>
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<td>Bristol</td>
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<td><a href="mailto:david.muir@bristol.gov.uk">david.muir@bristol.gov.uk</a></td>
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<td><a href="mailto:environmental.protection@york.gov.uk">environmental.protection@york.gov.uk</a></td>
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* BCG - the ‘Boroughs Consultative Group’ (Greenwich, Newham, Redbridge, Barking and Dagenham).
** 106 agreement signed April 2006, though planning application subject to ongoing public enquiry.
*** FBG - the ‘Five Boroughs Group’ (Greenwich, Newham, Tower Hamlets, Hackney and Waltham Forest).
1. THE POST OFFICE
(Greenwich, 2000)

The development: Construction of a sorting office and vehicle depot in Greenwich.

Low emission strategy: So far as practicable and in order to minimise nitrogen dioxide and sulphur dioxide and particulate emissions to use reasonable endeavours:

(i) to ensure the use of low sulphur diesel in the owner’s fleet of vehicles at the development;
(ii) to fit particle abatement technology to diesel vehicles when it becomes reasonably practicable;
(iii) to conform with statutory guidelines and Department of Environment Transport and Regions recommendations; and
(iv) to comply with European Union emissions standard banding stage 3 by the year 2004.

Legal costs: The agreement also requires ‘the owner to pay the council’s reasonable legal costs in connection with the preparation of this Deed in the sum of £2500.’

2. GREENWICH PENINSULA
(Greenwich, 2004)

The development: ‘Over the next 15 years, the new riverside community, with homes for 20,000, and workplaces for 24,000, alongside places to eat, shop, and relax, will attract people from all over the capital.’ (www.GreenwichPeninsula.co.uk)

Low emission strategy: agreed (via 106 agreement) on 23rd Feb 2004. It sets minimum euro-standards for the majority of vehicles entering the development site. The transformation is achieved via a combination of parking controls and low emission agreements as shown in the table below.

Review clause: The agreement includes the following review clause: The developer to ‘at the dates set for periodic review, to submit to the council for approval a review of the operation of the low emission zone, including the low emission zone controls over the preceeding period and proposals for the following period shall use all reasonable endeavours to obtain the council’s approval thereto.’

<table>
<thead>
<tr>
<th>Sector</th>
<th>Euro</th>
<th>Compliance*</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (affordable)</td>
<td>3</td>
<td>2009</td>
<td>Euro based parking charges, with cut off 2013</td>
</tr>
<tr>
<td>Residential (private)</td>
<td>4</td>
<td>2009</td>
<td>Euro based parking charges, with cut off 2013</td>
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<tr>
<td>Visitors</td>
<td>n/a</td>
<td>-</td>
<td>No emission based controls</td>
</tr>
<tr>
<td>Taxis</td>
<td>3</td>
<td>2010</td>
<td>Reasonable endeavor by developer and TfL</td>
</tr>
<tr>
<td>Coaches</td>
<td>Eq.TfL</td>
<td>2010</td>
<td>Reasonable endeavor by developer</td>
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<tr>
<td>Offices</td>
<td>4</td>
<td>2009</td>
<td>Parking controls on tenant parking</td>
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<tr>
<td>Management company</td>
<td>4</td>
<td>2009</td>
<td>Plus reasonable endeavor to attain highest Euro Std</td>
</tr>
<tr>
<td>Hotel patrons</td>
<td>2</td>
<td>2010</td>
<td>Plus incentives for meeting Euro 4 by 2009</td>
</tr>
<tr>
<td>Waterfront transit</td>
<td>-</td>
<td>-</td>
<td>'expected to be of the highest Euro Standard'</td>
</tr>
<tr>
<td>HGVs/construction</td>
<td>-</td>
<td>-</td>
<td>80% Euro II plus RPC up to 2007</td>
</tr>
</tbody>
</table>

* Compliance by date indicated or 36 months after completion/opening, whichever is the earlier.
3. GREENWICH MILLENNIUM VILLAGE (Greenwich, 2006)

The development: Greenwich Millennium Village is the first of the Government’s Millennium Communities. It covers 72 acres of the Greenwich Peninsula, and is grouped into communities arranged around a village green and newly created lake. The development comprises more than 1300 homes plus significant commercial space (www.greenwich-village.co.uk).

Low emission strategy: The strategy applies to all vehicles using the car parking facilities within Greenwich Millennium Village (sections 1C, 1D and village square). It stipulates emission based parking charges, which incentivise vehicles which are A-banded for CO₂ and also those which are Euro 4 compliant.

4. THE WARREN, ROYAL ARSENAL (Greenwich, 2006)

The development: Royal Arsenal, Woolwich, exemplifies a mixed urban development and forms part of an entire regeneration of a historic riverside location in London. Ultimately, the 76 acre site will form a new neighbourhood in London. This mix of commercial, residential and leisure facilities will be complete by 2015 (www.royal-arsenal.co.uk).

Low emission strategy: The agreement requires the developer to submit to the council for approval details of a ‘low emission zone’ and ‘low emission zone controls’. The low emission zone must aim ‘to prohibit the most polluting vehicles within the development scheme while promoting the use of the cleanest vehicles.’ The agreement goes on to outline more detailed provisions to be included for both construction and operational phases of the development. The latter includes measures to manage emissions from both commercial and residential vehicles using the site.

For the operational phase, ‘reasonable endeavours’ are required to ensure that commercial vehicles comply with Euro 5 by 2012 (plus a ‘target quota’ complying with Euro 6). For residential vehicles, the emphasis is on using parking controls to reduce carbon dioxide emissions. A combination of measures are suggested, which include parking permits, car share schemes, car clubs and information provision. The agreement also includes provision for the developer to purchase, site and operate an air quality monitoring station to operate until 10 years after completion of the last residential property.

5. TRIPCOCK POINT (Greenwich, 2006)

Low emission strategy: The owner is required, prior to implementation, to submit to the council for approval a low emission strategy. The strategy should seek ‘by a variety of means to manage construction emissions and to encourage, educate and advise the occupiers of the dwellings with regard to low emission standards from private motor vehicles.’ The strategy is to identify methods of reducing emissions which shall include:

(i) use of public transport; and
(ii) measures to encourage occupiers to purchase motor vehicles that meet low emission standards.

More detailed provisions lay out requirements of the strategy to manage both construction and operational phase emissions. For the operational phase, ‘reasonable endeavours’ are required to ‘actively promote low emission travel behaviour’ amongst residents, employees, visitors and suppliers entering the site. The prime mechanism of doing this will be the site travel plan with its associated travel plan coordinator. The agreement also includes provision for siting of an air quality monitoring station and for financial contributions to support its installation and operation (£160k).
6. LOVE LANE, WOOLWICH TOWN CENTRE (Greenwich)

The development: Major mixed use scheme comprising 960 residential accommodation, community and/or offices, retail store, retail, food and drink units, as well as 1,172 parking spaces and cycle parking. The whole borough is an Air Quality Management Area for nitrogen dioxide and particulates. Woolwich town centre has good accessibility (PTAL = 6).

Low emission strategy:

(i) **Construction phase measures:** approved method statement required, to include: monitoring to targets, regular report, and adherence to available best practice (e.g. Mayor’s Best Practice Guidance).

(ii) **Transport measures:** Provision of a car club; emissions based charging for 500 residential parking spaces (annual charge ranging from £0 to £300 depending on VED banding); Controls on parking permits and transfers; Provision of ten electric vehicle charging points within the residential car park, 50% of delivery vehicles and 50% home delivery vehicles to meet Euro 5 rating by store opening and to be using bio-fuel (plus 100% within 5 years).

(iii) **Additional non-transport emissions measures:** 10% renewable energy commitment; BREEAM excellent rating, CHP plant including community heating;

(iv) **Monitoring contribution:** £160,000 per annum for ten years towards Greenwich Council’s environmental monitoring;

(v) **Reporting:** Low emission zone implementation report required at time of store opening and subsequently after five and ten years respectively.

7. THAMES GATEWAY BRIDGE (London, April 2006)

The development: A new bridge for East London. The Thames Gateway Bridge is proposed as a local road bridge connecting Beckton to Thamesmead in East London.

(Note: The scheme was subject to a public enquiry, which closed in May 2007. In response to the inspectors report (July 2007), the Secretary of State considered it necessary to re-open the enquiry to further consider the planning proposal.)

http://www.persona.uk.com/thamesgateway/news.htm

**Low emission strategy:** The 106 agreement (19th April 2006) requires TfL to prepare a low emission strategy for the Thames Gateway Bridge. This strategy will have regard to the views of the Borough’s Consultative Group (BCG) and to all practicable opportunities to mitigate adverse air quality impacts from vehicles using the TGB. More detailed provisions lay out requirements of the strategy to manage both construction and operational phase emissions.

The construction phase provisions (which are a minimum to be kept under review by TfL) apply to all contractors’ vehicles and require:

- HGVs (>7.5mt): Euro II plus exhaust after-treatment by the start of construction and Euro IV by 2010.
- Non-road mobile machinery (NRMM): To use ultra low sulphur diesel; to comply with current or previous EU NRMM emission standards; be fitted with diesel particulate filters; and be subject to on-site performance checks.
The operational phase provisions set standards for busses and taxies which use the bridge (Buses: Euro III NOx, Euro IV PM by 2012. Taxis: Euro III NOx/PM by 2012) and, crucially, require the introduction of differential toll charging based upon the emissions performance of vehicles using the bridge.

**Legal precedent:** In the report of July 2007, the planning inspector concluded that the TGB proposal conflicts with the London plan (questions over the assessment of the regeneration benefits versus conflict with PPG13 and impacts on AQ and climate change). However, in coming to his conclusions, the inspector considers that ‘weight should attach to the provision regarding a low emission strategy not just during construction, but also during operation.’ This is an important ruling.


The plan: A plan has been drawn up to ensure that the 2012 Olympics are as sustainable as possible. It covers five key themes: waste, climate change, biodiversity, inclusion and healthy living. The Sustainability Plan looks at all stages of the project, from preparation for the Games, staging the Games and planning for after 2012. Managing transport impacts is a priority, which run through all stages.

The Olympic bidding document outlined the following key transport measures:

**Key measures:**

(i) 100% public transport for spectators;
(ii) Maximise use of the Channel Tunnel rail link to reduce air travel;
(iii) Implementation of a low emission zone for the Olympic Park;
(iv) Procurement of a low/zero emission Olympic vehicle fleet;
(v) Active spectator programme for walking and cycling; and
(vi) Carbon offset programme for all Olympic travel.

The Low Emission Zone: The Olympic Park will be designated as a Low Emission Zone (LEZ) during the Games:

(i) The Olympic Park LEZ will permit entry only to vehicles less than five years old and that meet best practice noise and emission standards;
(ii) LEZ criteria will also be set for fleet contract specifications, thereby extending the benefits of reduced emissions and noise across all Olympic venues and facilities;
(iii) Air and noise pollution impacts of demolition, site remediation and construction will be reduced by following the London Code of Construction Practice.

Work is underway to develop and implement these measures. Plans include a stronger focus on carbon dioxide emissions in tandem with air quality (further information: http://www.london2012.com/contact-us.php).

9. QUEENS HOSPITAL
(Croydon, April 2005)

The development: Redevelopment of Queen’s Hospital site to provide 360 dwellings and a meeting hall.

Low emission strategy: Agreed via 106 for the developer to pay £12,600 for ‘air quality initiatives within the administrative area of the council, which are of benefit to residents living in the development’.

Monitoring costs: ‘Upon completion of this Deed the Owner shall pay the Council the sum of £1000 as a contribution towards the cost of monitoring this agreement.’

Legal costs: ‘The owner shall pay the Council’s reasonable legal costs for the preparation and completion of this Deed upon the date of this Deed.’
10. BROADMEAD EXPANSION DEVELOPMENT (Bristol, April 2004)

Financial contribution secured for ‘A programme of air quality mitigation, improvement and monitoring in connection with the Development, to be prepared and implemented by the Council.’

A sum of £75k was allocated for monitoring work, with a further £400k for mitigation measures.

11. AIR QUALITY MONITORING CONTRIBUTIONS (York, 2002)

Site A: A planning application was received for a residential development within an existing technical breach area. The air quality impact assessment submitted in support of the application demonstrated that levels of nitrogen dioxide would deteriorate slightly as a direct result of the development. A sum of £5000 was requested for air quality initiatives which was put towards the cost of operating a new NOx analyser in the vicinity of the proposed development. The wording on the agreements reads: ‘To pay the Air Quality Initiative Contribution to the council prior to the occupation of more than 50% of the dwellings developed on the land pursuant to the planning permission.’

Site B: A planning application was received for a 5 story office block within an existing area of technical breach. On the basis of the additional traffic movements generated by the development, a sum of £5000 was requested for air quality initiatives which was put towards the cost of operating a new NOx analyser in the vicinity of the proposed development. The following restrictions and conditions applied: To apply any payment received to the designated scheme within 5 years of first occupation of any part of the office block comprised in the Development, and to repay this amount to ‘The Owner’ on demand any sum not applied or utilised in accordance with the conditions in the agreement.

Annexe 4:
Low Emission Technologies

In the final report, this section will provide a short briefing on currently available Low Emission Technologies and the future outlook. It will also signpost useful sources of information and advice. Its aim is to help inform the specification of Low Emission Strategies.

During the consultation phase, readers are encouraged to explore the information provided by the Low Carbon Knowledge Transfer Network (www.low-carbon-ktn.org.uk). This website provides a range of useful information around Low Emission Technologies.

We welcome suggestions as to how this site could be developed to provide more tailored information to support Low Emission Strategies. We also welcome wider suggestions around the nature and form of technical information and advice, which would be most helpful to you. Please include these suggestions in your consultation response or send specific ideas directly to the Beacons Low Emission Strategies Group (care of Rob.Pilling@cenex.co.uk).