



LDF



WIGAN LOCAL DEVELOPMENT FRAMEWORK CORE STRATEGY



Natural resources and pollution Final Topic Paper 13

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Core Strategy Submission Version



Places Directorate
www.wigan.gov.uk/ldfcorestrategy

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ONE

Introduction

Purpose of this document

1.1 This is Topic Paper 13 on 'Natural resources and pollution'. It is one of 13 topic papers that we have produced to help ensure that our Local Development Framework Core Strategy is properly backed by robust and credible evidence. The 13 topic papers are:

1. Health and recreation
2. Community safety and neighbourhood quality
3. Community development and involvement
4. Education and learning
5. Economy and employment
6. Housing
7. Retail and centres
8. Accessibility
9. Built environment and landscapes
10. Wildlife habitats and species
11. Energy
12. Waste
13. Natural resources and pollution

1.2 Each topic paper provides a summary and analysis of the evidence which informs the Core Strategy and the Sustainability Appraisal. The evidence is set out in detail in a series of evidence reviews of the same name which sit alongside the topic papers. This topic paper focuses on the following policies:

- CP16 'Minerals'
- CP17 'Flooding'
- CP18 'Environmental protection'

1.3 We have combined the evidence gathering stages for both the Core Strategy and the Sustainability Appraisal, to streamline the documentation produced and avoid duplication. This has ensured that sustainable development is embedded in the process of producing the Core Strategy. This topic paper also sets out how we have engaged with the community and other stakeholders and established the legality and soundness of the policies. More details of this are set out in Section 9 'An assessment of legality and soundness'.

1.4 Each topic paper can be read in isolation but, inevitably, there are important related matters in other topic papers and evidence reviews. The key related topic areas for natural resources and pollution are:

- Health and recreation
- Community safety and neighbourhood quality
- Education and learning
- Economy and employment
- Accessibility
- Built environment and landscape
- Wildlife habitats and species
- Energy
- Waste

1.5 Rather than preparing an additional report on climate change, we have considered this important theme within each topic paper. This is to make sure that it is not viewed as a 'stand alone' issue.

How the Local Development Framework will be used

1.6 The Local Development Framework is the planning strategy for the borough. The Core Strategy is the principal development plan document in our Local Development Framework. It sets out what development is needed for the next 10-15 years, where this will go and how it can be achieved. For the most part the details will be determined in other policy documents that will make up the Local Development Framework. These will include an Allocations and Development Management Plan, area action plans and supplementary planning documents. All of these other documents will have to conform to the Core Strategy and be equally founded on a robust and credible evidence base.

1.7 We have to work with national and European legislation on Sustainability Appraisal and national and regional planning policy. Of particular importance to natural resources and pollution are Planning Policy Statements 23 'Planning and Pollution Control' and 25 'Development and Flood Risk'; Planning Policy Guidance note 24 'Planning and Noise'; Minerals Policy Statements, in particular Minerals Policy Statement 1 'Planning and Minerals'; and the Regional Spatial Strategy, which is currently part of the development plan for the borough but will be revoked once the Decentralisation and Localism Bill is enacted.

1.8 Wigan has a long industrial history. Activities including coal mining, heavy engineering, foundries and landfills have left a legacy of potentially contaminated land. Many of these sites have been identified and prioritised for future investigation with a view to remediation. Industrial sites are traditionally close to residential areas. This and the associated road transport network has led to air pollution and noise issues.

1.9 Work is being carried out in partnership with other authorities in Greater Manchester to tackle and improve poor air quality across the borough. Noise is currently mitigated using planning and environmental controls. However, work is ongoing on the strategic assessment and management of environmental noise in the borough.

1.10 Over one third of the borough is agricultural land, of which around one tenth is grades 1-3a 'best and most versatile' land. Soil is an essential but vulnerable resource that can be easily damaged or contaminated as a result of erosion and loss of nutrients or damaging or polluting activities.

1.11 Similarly, water resources can be easily damaged or contaminated through polluting activities and water pollution is a key issue affecting priority wildlife species in the borough. The quality of the borough's rivers continue to be monitored with actions for improvement being prioritised through River Basin Management Plans.

1.12 Incidences of flooding have increased nationally and there are risks from several types of flooding including rivers and streams, surface water, drains and sewers and combinations of these. A strategic flood risk assessment has been produced for the borough including strategic flood risk maps. These are being used to locate development away from areas at high risk of flooding. This work is ongoing. A surface water

management plan is being prepared for Greater Manchester. It is essential that we continue protect and find new ways to improve the quality of our environment to ensure a sustained quality of life for everyone in the borough.

How the Sustainability Appraisal framework will be used

1.13 The purpose of the Sustainability Appraisal is to appraise the social, environmental and economic effects of strategies and policies in the documents that form the Local Development Framework. This has been done from the outset in preparing the Core Strategy to ensure that decisions are made that accord with sustainable development.

1.14 A framework of sustainability objectives has been used to test and ask questions of each approach considered in the Core Strategy. The appraisal process has a number of set stages that must be followed, but each stage has been revisited as new information became available.

1.15 This topic paper contains the information we have used to help us establish the issues for natural resources and pollution. This information has helped us to establish a set of sustainability objectives and sub-questions to tackle these issues, see Section 8 'Our sustainability framework'.

Viewing documents

All documents related to the Core Strategy are available to view on our website at: www.wigan.gov.uk/ldfcorestrategy.

Paper copies of the Core Strategy, Sustainability Appraisal and the 13 Topic Papers are also available at:

- All our public libraries (except the children's library)
- Wigan Town Hall*
- Wigan Life Centre, College Avenue, Wigan, WN1 1NJ*

** Until January 2012, when documents will be available at The One Stop Shop, Wigan Life Centre, The Wiend, Wigan, WN1 1NH*

TWO

Key plans, policies and strategies reviewed

2.1 This section focuses on the most relevant published plans, policies and strategies and draws out the key messages for the Core Strategy and Sustainability Appraisal. The plans and strategies which provide support for policies CP16, CP17 and CP18 and contribute to policies SP1, SP3 and SP4 from a natural resources and pollution perspective are:

International plans, policies and strategies

- **Air Quality Framework Directive (2008/50/EC)** - This requires us to monitor and improve air quality to avoid, prevent or reduce harmful effects on human health and the environment as a whole.
- **Water Framework Directive (2000/60/EC)** - This establishes the framework for the protection of inland surface waters, including groundwater, on which national legislation is built.
- **Environmental Noise Directive (2002/49/EC)** - This requires competent authorities to draw up strategic noise maps and action plans to reduce noise where necessary, and maintain environmental noise quality where it is good.

National plans, policies and strategies

- **The Natural Choice: Securing the Value of Nature (2011)** - This White Paper outlines Government's aspirations for changing the way land is managed to reduce flood risk, improve soil quality and protect our best and most versatile agricultural land.
- **Flood and Water Management Act (2010)** - This requires local authorities to take a lead role in managing local flood risk, from surface water, ground water and ordinary watercourses. It aims to reduce the likelihood and impacts of flooding and reduce pollution and improve water quality.

Planning Policy Statement 1 - Delivering Sustainable Development (2005)

Paragraph 20 states that development plan policies should take account of environmental issues such as air quality and pollution; land contamination; the protection of groundwater from contamination; noise and light pollution; and conserving soil quality.

Supplement to Planning Policy Statement 1 - Planning and Climate Change (2007)

Planning authorities should prepare, and manage the delivery of, spatial strategies that secure the highest viable resource and energy efficiency and reduction in emissions, in providing for the homes, jobs, services and infrastructure needed by communities; and deliver patterns of urban growth and sustainable rural developments that help secure the fullest possible use of sustainable transport including for moving freight.

Planning Policy Statement 7: Sustainable Development in Rural Areas (2004)

It is for local planning authorities to decide whether best and most versatile agricultural land can be developed, having carefully weighed the options against other sustainability considerations (paragraph 29).

Planning Policy Guidance 14: Development on Unstable Land (1990)

The Government wishes to encourage the full and effective use of land in an environmentally acceptable manner. The aim of the policy is to ensure that development is suitable and that the physical constraints of land are taken into account at all stages of planning. 'Any scope for remedial, preventive or precautionary measures must be fully explored so that land is not sterilised unnecessarily'.

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

The Government attach great importance to controlling and minimising pollution and expects local planning authorities to adopt a strategic approach to integrate the land use planning process with plans and strategies for the control, mitigation and removal of pollution.

Planning Policy Guidance 24: Planning and Noise (1994)

Noise can have a significant effect on the environment and on the quality of life enjoyed by individuals and communities. Plans should contain policies designed to ensure, as far as is practicable, that noise sensitive developments are located away from existing sources of significant noise and that potentially noisy developments are located in areas where noise will not be such an important consideration or where its impact can be minimised.

Planning Policy Statement 25: Development and Flood Risk (2010)

Planning Policy Statement 25 sets out Government policy on development and flood risk. It aims to ensure that flood risk is taken into account at all stages in the planning process, to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk. Where new development is exceptionally necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and, where possible, reducing flood risk overall.

Local planning authorities should prepare and implement planning strategies that help deliver sustainable development by appraising, managing and reducing flood risk and working in partnership to ensure plans are effective.

Managing surface water can have a significant impact on reducing flood risk. Local planning authorities should promote the use of sustainable drainage systems for the management of run-off and should ensure policies support and compliment sustainable rainwater drainage.

Minerals Planning Statement 1 - Planning and Minerals (2006)

This emphasises the importance of mineral resources to the country and sets out the special characteristics of minerals extraction as a land use, including the need for beneficial after-use of sites to avoid dereliction. It describes the relationship of development plans to mineral extraction programmes and covers a number of policy considerations including land banks and the continuity of production; protected areas; the water environment, and restoration, aftercare and after-use of sites.

Minerals Planning Statement 2 - Controlling and Mitigating the Environmental Impact of Minerals Extraction in England (2005)

Development plan policies and proposals for minerals extraction and associated development should take into account:

- The impacts of mineral working, such as visual intrusion, de-watering, water pollution, noise, dust and fine particulates, blasting and traffic;
- The impacts on landscape, agricultural land, soil resources, ecology and wildlife, including severance of landscape and habitat loss, and impacts on sites of nature conservation, archaeological and cultural heritage value;
- The benefits such as providing an adequate supply of minerals to the economy and hence for society (including construction materials needed for the development of national infrastructure and the creation of sustainable communities), creating job opportunities and the scope for landscape, biodiversity and amenity improvements through mineral working and subsequent restoration; and
- The methods of control through planning conditions or agreements to ensure that impacts are kept to an acceptable minimum.

Minerals Planning Guidance 3 - Coal mining and colliery spoil disposal (1999)

This sets out the criteria against which future proposals for coal extraction should be assessed as it states. It states that: "It is becoming increasingly difficult to find sites that can be worked without damaging the environment to an extent that local communities and society in general find unacceptable".

National and regional guidelines for aggregate provision in England 2005-2020

These guidelines set out the national and regional levels of aggregates production required for the 16 years to 2020.

2.2 Other key national plans, policies and strategies which provide support for policies CP16, CP17 and CP18 and contribute to policies SP1, SP3 and SP4 from a natural resources and pollution perspective include:

- **Air Quality Strategy for England, Scotland, Wales and Northern Ireland (DEFRA, July 2007)** - This sets out a framework to achieve cleaner air that will bring health and social benefits.

- **Food 2030 Strategy (DEFRA, January 2010)** -This strategy is a response to the big food challenges, sustainability, security and health. It sets out the priorities for Government on food and can be used as a basis for deciding how to move forward in protecting land for food.
- **Safeguarding our Soils - A Strategy for England (DEFRA, September 2009)** -This sets out a vision to guide future policy development and the practical steps we should take to prevent further degradation of soils and enhance, restore and ensure their resilience.
- **Reducing the threat, building resilience, empowering communities (Environment Agency/DEFRA, 2011)** -This is the National Flood and Coastal Erosion Risk Management Strategy for England. It takes forward the findings of the Pitt Review and sets out how the Flood and Water Management Act will be implemented to ensure the risk of flooding is properly managed, including through a risk-based approach to flood erosion management.
- **Future Water - A Water Strategy for England (DEFRA, February, 2008)** -This sets out a high level vision to guide the future of our water environment. It includes improving the quality of our rivers and lakes, sustainably managing flood risk and ensuring a sustainable use of water resources.

Regional / sub-regional plans, policies and strategies

The North West of England Plan - Regional Spatial Strategy to 2021 (2008)

The Regional Spatial Strategy forms part of the development plan for the borough; setting the context for our Core Strategy and other development plan documents.

Policies with a particular relevance to natural resources and pollution are:

Policy DP1: Spatial Principles - The principle 'make the best use of existing resources' underpins the Regional Spatial Strategy, as too does 'reduce emissions and adapt to climate change'.

Policy DP4: Make the Best Use of Existing Resources and Infrastructure - Priority should be given to developments in locations which build upon existing concentrations of activities and existing infrastructure and that do not require major investment in new infrastructure including water supply and sewerage. Existing buildings and

previously-developed land should be reused in preference to other land. Natural and man-made resources should be managed prudently and efficiently. Sustainable construction and efficiency in resource use (including reuse and recycling of materials) should be promoted.

Policy DP7: Promote Environmental Quality - Environmental quality should be protected and enhanced, especially by [measures including] reclaiming derelict land and remediating contaminated land for end-uses; assessing the impacts of traffic and mitigating the impacts on air quality, noise and health.

Policy DP9: Reduce Emissions and Adapt to Climate Change - As an urgent regional priority, plans and strategies should identify, assess and apply measures to ensure effective adaptation to likely environmental, social and economic impacts of climate change. Adaptation measures might include minimising threats from, and the impact of increased pressure on water supply and drainage systems; protection of the most versatile agricultural land; and sustainable urban drainage.

Policy EM2: Remediating Contaminated Land - Plans, strategies, proposals and schemes should encourage the adoption of sustainable remediation technologies.

Policy EM5: Integrated Water Management - In achieving integrated water management and delivery of the EU Water Framework Directive, plans and strategies should have regard to River Basin Management Plans, Water Company Asset Management Plans, Catchment Flood Management Plans, and the Regional Flood Risk Appraisal.

Local planning authorities and developers should protect the quantity and quality of surface, ground waters, and manage flood risk.

Policy EM7: Minerals Extraction - Government policy promotes the general conservation of minerals while at the same time ensuring an adequate supply is available to meet needs. Regional Spatial Strategy requires that plans should make provision for a steady and adequate supply of a range of minerals to meet the region's apportionments of land-won aggregates and requirements.

Policy EM8: Land-won Aggregates - As a large scale user of aggregates, the North West relies heavily on imports from other regions. Planning Authorities should work together to make provision for the agreed regional apportionment of land-won aggregate requirements to 2016.

Policy EM9: Secondary and Recycled Aggregates - This policy promotes the need to maximise the role played by secondary and recycled aggregates in meeting the regions requirements through a series of measures including through the identification of sites and criteria for the provision of recycling plants for construction in appropriate locations.

2.3 Other key regional and sub-regional plans, policies and strategies which provide support for policies CP16, CP17 and CP18 and contribute to policies SP1, SP3 and SP4 from a natural resources and pollution perspective include:

- **Air Quality Strategy and Action Plan (AGMA, 2006 and revised Annex 10 2008/09)** - The most significant source of pollutants affecting air quality in Greater Manchester is road traffic. The document contains a number of actions for reducing local transport related emissions and was incorporated into Local Transport Plan 2 for Greater Manchester.
- **Greater Manchester Derelict Land Strategy (AGMA, 2002)** - This set the framework for the reclamation of derelict land and buildings across Greater Manchester.
- **Water for life and livelihoods: River Basin Management Plan, North West River Basin District 2009 - 2015 (Environment Agency, 2009)** - River basin management is an opportunity for collaborative working to improve the quality of every aspect of the water environment. This plan identifies pressures facing the water environment in the North West river basin district, and the actions that will address them.

Local plans, policies and strategies

Wigan Unitary Development Plan (2006)

Local planning policies for natural resources and pollution are contained in Chapters 6 'Green Belt and safeguarded land policies'; 9 'Environment and design policies'; 13 'Mineral working policies'; and 15 'General policies' of Wigan's Unitary Development Plan.

In chapter 6, policy GB3 'Agricultural land protection' reflects the national policy position on protecting best and most versatile agricultural land.

In chapter 9, policy EV1A 'Land reclamation and renewal' identifies a range of sites for reclamation and renewal. One of the largest, the former Sandyforth opencast site has since been reclaimed; and policy EV1B 'Pollution' covers air pollution, pollution of watercourses and groundwater, noise and contaminated land.

In chapter 13, policy MW1A 'Protection of mineral resources' seeks to avoid the sterilisation of mineral deposits; policy MW1B 'Aggregate production' is a criteria-based policy for new aggregate mineral workings; policy MW1C 'Mineral working and exploration' is another criteria-based policy for all new mineral working and exploration; policy MW1D 'Remnant mossland' seeks to restrict peat extraction or ensure subsequent restoration for wetland / lowland bog; policy MW1E 'Operation and restoration of mineral workings' is another criteria-based policy covering the conditions of extraction, restoration and aftercare; and policy MW1F 'Control of mineral workings' sets out a range of controls that may be applied.

In chapter 15, policy G1A 'Impact of development on amenity' covers noise, smell, fumes, light spillage and other nuisance; and policy CG1C 'Development and flood risk' sets out a range of factors that would make development unacceptable in flood risk terms.

It is proposed to replace policy MW1 with policy CP16 'Minerals'; policy G1C with policy CP17 'Flooding'; and policies GB3 and G1A with policy CP18 'Environmental protection', as set out in Appendix A of the Draft Core Strategy (Proposed Submission version). The other mineral working policies will be replaced by policies in the Greater Manchester Joint Minerals Development Plan Document. Policies EV1A and EV1B will be replaced by policies in a subsequent development plan document.

2.4 Other local plans, policies and strategies which provide support for policies CP16, CP17 and CP18 and contribute to policies SP1, SP3 and SP4 from a natural resources and pollution perspective include:

- **Vision 2026: Sustainable Community Strategy (Wigan Council, 2008)** - Policies CP16, CP17 and CP18 are in line with the 'Ambitious Communities' priority area identified in the community strategy.

2.5 There are other relevant plans, policies and strategies that contribute to the natural resources and pollution evidence base. These are summarised in our 'natural resources and pollution evidence review' that is available on our website.

THREE

Other key evidence reviewed

Key sources of information

3.1 This section brings together and analyses the key evidence relating to natural resources and pollution. It outlines the key characteristics, trends, issues and opportunities and supports the policies relating to air quality, soil, minerals, noise, water quality and flooding. It also gives an overview of the infrastructure and climate change considerations and a summary of stakeholder and community involvement.

3.2 The main sources of information used are:

National

Produced by UK government unless stated otherwise.

- Air Pollution – Action in a changing climate (2010)
- Review of Local Air Quality Management: Final Report (2010)
- Low Emissions Strategies: using the planning system to reduce transport emissions - Good Practice Guidance (2010)
- Policy guidance on Local Air Quality Management (2009)
- Air Quality and Climate Change - A UK Perspective (Air Quality Expert Group, 2007)
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009)
- Technical Information Note 049 - Agricultural Land Classification: Protecting the best and most versatile agricultural land (2009)
- National and Regional guidelines for aggregates provision in England 2005 - 2020 (2009)
- A Guide to Mineral Safeguarding in England (British Geological Survey, 2007)
- Noise Action Plans (2010)
- Noise Policy Statement (2010)
- Surface Water Management Plan: Guidance (2010)
- Water for people and the environment - Water Resources Strategy for England and Wales (2009)

- Policy Statement on appraisal for flooding and coastal erosion risk management (2009)
- Making space for water (2004 onwards)
- The Pitt Review 'Lessons learned from the 2007 floods' (2008 onwards)
- Sustainable Urban Drainage Systems: An Introduction (Environment Agency, 2008)

Regional / sub-regional

Produced by the Association of Greater Manchester Authorities unless stated otherwise.

- Greater Manchester Air Quality Action Plan Progress Report 2007/8 (2008)
- Low Emission Strategies: Greater Manchester Approach (Presentation, 2008)
- Greater Manchester Environmental Infrastructure Study (Environment Agency, 2010)
- Report on The Investigation into Minerals Resources in Greater Manchester - (Greater Manchester Geological Unit, 2007)
- Strategic Noise Mapping for Greater Manchester (2008)
- Greater Manchester Phase 1 Strategic Flood Risk Assessment (2008)
- Mersey Estuary Catchment Flood Management Plan (Environment Agency, 2008)
- River Douglas Catchment Flood Management Plan (Environment Agency, 2006)

Local

Produced by Wigan Council unless stated otherwise.

- Wigan's Draft Core Strategy Transport Study: Emissions Modelling - EMIGMA (2011)
- Development and Air Quality Supplementary Planning Document (2007)
- Air Quality Management Area Maps (2006)
- Second Round Local Air Quality Management Detailed Review and Assessment of Air Quality (2004)
- Local Air Quality Management updating and screening Assessment (2009)
- State of the Borough Report (2005)
- Wigan Contaminated Land Study (2008)
- Wigan Contaminated Land Inspection Strategy (2001)
- Derelict Land Register
- Wigan Derelict Land Survey (2005)

- Wigan Preliminary Flood Risk Assessment (2011)
- Wigan Borough Hybrid Strategic Flood Risk Assessment (2011)
- WISDOM - The Dynamic Online Mapping system for Wigan

Air quality

3.3 Good air quality is important for human health, wildlife and the wider environment. Compared to around 50 years ago environmental air quality nationally is generally very good. However, there are still unacceptably high levels of pollution in some areas.

3.4 In Wigan, road traffic is the major cause of poor air quality, primarily the emissions of nitrogen oxides and particulate matter from vehicle exhausts. These pollutants act locally. This is of particular concern as around 10% of the borough's population live close to main roads. Examples include the M6 motorway at Ashton-in-Makerfield and the A577 Orrell Road at Orrell. In a 'Citizens Panel' survey conducted on behalf of the council in 2006, almost half of respondents reported that they had been bothered to some degree by air pollution from traffic.

3.5 Serious health problems such as respiratory, cardiovascular illness and even premature death can also be associated with air pollution. It is estimated that there are over 32,000 premature deaths in the UK each year from air pollution. The effects are most commonly felt by sensitive and vulnerable groups such as the infirm, people with asthma, children and the elderly. It is also often the case that those living in deprived areas suffer the worst air pollution.

3.6 In addition to the pollution we emit affecting us locally, we are also affected by pollution generated elsewhere and contribute to pollution affected other places. Whilst we cannot control indirect pollution it is important that we reduce our own emissions to reduce the health impact. Topic Paper 1 'Health and recreation' provides information on the health impacts. In addition, steps taken to reduce polluting emissions can also help reduce emissions of climate change gases.

3.7 Wigan Council is working with the other Greater Manchester councils towards achieving government air quality objectives. Part of this involves work on air quality management areas, which are areas of potentially poorer air quality. All of these areas

in Wigan follow the principal roads because this is where the majority of emissions, and problems occur. Up-to-date information on our air quality management areas is available from the council's Environmental Protection service.

3.8 To work towards improving these areas of poorer air quality, an Air Quality Action Plan was established for Greater Manchester. The plan sets out measures to be taken at both Greater Manchester and local levels. In 2006 this plan was incorporated into the Local Transport Plan due to the recognised significance of traffic emissions. The related action plan now also includes measure to tackle both air quality and climate change gas emissions. Progress reports are published annually.

3.9 A key measure in the action plan is to ensure the planning system is used where possible to minimise the impact of new development and, where possible, reduce local air pollution. Local planning is one of the few areas a local authority can directly influence air quality impact. For example, there are opportunities through location, siting and design to reduce the emissions impact of new development. It can provide opportunities to meet the air quality objectives in some areas, by contributing to off site improvements for walking, cycling and public transport.

3.10 A 'Low Emission Strategy' approach is currently being promoted which seeks to put policies and plans in place to minimise both polluting and greenhouse gas emissions from new developments. Topic Paper 8 'Accessibility' includes related information on reducing air pollution through transport.

Emissions modelling for the Core Strategy

3.11 Emissions modelling, using the EMIGMA model, has been carried out for a period to 2016 to inform the first five years of the Core Strategy. This is the period for which evidence is likely to be more reliable and consequently we are required to demonstrate a greater degree of certainty about proposals in the Core Strategy. It provides indications of the likely air quality impacts from the traffic generated by the the key strategic site and broad locations by 2016. The report outlines the forecast change in emission of carbon dioxide (CO₂), nitrogen oxides (NO_x), which is made up of nitric oxide (NO) and nitrogen dioxide (NO₂), and particulate matter of less than 10 micrometers (PM₁₀).

3.12 Carbon dioxide emissions tend to rise over time as they are closely related to increases in vehicle kilometres. For the borough as a whole, carbon dioxide emissions are forecast to increase by just over 10% between 2009 and 2016, with the largest increases forecast to be in Platt Bridge and Wigan.

3.13 The modelling shows that nitrogen oxides are anticipated to fall by around 30% over large parts of borough, reflecting improvements in engine efficiency. This is not however, reflected in nitrogen dioxide concentrations. Nitrogen dioxide monitoring currently undertaken by the council does not indicate a declining trend in levels at roadside. The roadside diffusion tube monitoring indicator used since 2007 has shown a year on year increase. It is not clear why this is happening but it might reflect increased usage of diesel vehicles, which emit a greater proportion of nitrogen oxides as nitrogen dioxide, or the effect of abatement equipment targeted at reducing particulates, which can produce increased emissions of nitrogen dioxide. Research is ongoing.

3.14 The forecast changes in nitrogen oxides emissions from road traffic by EMIGMA should therefore be treated with some caution, particularly when used as a proxy for changes in emissions of nitrogen dioxide. However, the forecasts can be used as a guide to relative changes, with zones/links showing the greatest changes in nitrogen oxides being likely to exhibit the greatest changes in nitrogen dioxide.

3.15 Particulate matter (PM10) is shown to fall by 2% overall, with the greatest decrease in the less built up parts of the borough. Increases in PM10 levels are shown in central Wigan and between Wigan and Leigh. These local variation are due to:

- Variations in traffic growth, due to redevelopment / and use changes
- Local changes in vehicle kilometres, due to re-assignment / re-routing effects
- Local variations in vehicle speeds, due to modelled congestion
- Local changes in fleet composition (car / LGV / OGV proportions).

Land

3.16 Only 22% of the borough is classified as urban land. Other land uses in the borough include 36% grassland, 16% arable farmland, 13% woodland and scrub and 2% water.

Soil

3.17 The recent Government White Paper 'The natural choice: securing the value of nature' outlines the Government's aspiration that, by 2030, all of England's soils should be managed sustainably and degradation threats tackled successfully.

3.18 Soil is an essential but vulnerable resource.

3.19 Soil resources can be damaged contaminated or as a result of erosion, loss of nutrients, industrial and agricultural pollution or other natural or human activities, including insensitive development and land management techniques. Some of the most significant impacts on soil properties occur as a result of activities associated with construction. Construction activity can have adverse impacts on soil in a number of ways, including covering soil with impermeable materials, over-compacting soil, reducing soil quality by mixing topsoil with subsoil and wasting soil by mixing it with construction waste.

3.20 Soil fulfils a number of functions which have social, economic and environmental benefits, including:

- Production of food and fibre
- Drainage
- Carbon storage and climate regulation
- Supporting wildlife habitats and species.

Agricultural Land

3.21 The Agricultural Land Classification provides a method for assessing the quality of farmland to enable informed choices to be made about it's future use within the planning system. The classifications are based on the long term physical limitations of land for agricultural use. Factors affecting the grade are climate, site and soil characteristics and the important interactions between them.

3.22 Land is classified into 5 grades with grade 3 subdivided into sub-grades 3a and 3b (post1988) and includes 3c (pre-1988). Only two areas of the borough (Sandyforth and Cutacre open cast coal sites) have been mapped under the current agricultural land classification guidelines (post 1988).

3.23 The best and most versatile agricultural land is defined as grades 1, 2 and 3a by Planning Policy Statement 7. This is the land which can best deliver future crops for food and non food uses such as biomass, fibres and pharmaceuticals. National, regional and local policy supports the protection of the 'best and most versatile' agricultural land.

3.24 In the far south-east of the borough, around Astley and Bedford Mosses, there is quite a large expanse of grade 1 and grade 2 agricultural land (source: Department of Food and Rural Affairs). This is also protected as part of the Green Belt. However, only a very small amount is grade 1 agricultural land (the highest quality) and this is constrained by its position alongside the Manchester Mosses Special Area of Conservation.

3.25 There are also smaller pockets of grade 2 and grade 3a agricultural land in the west boundary of the borough near Orrell and Billinge; in the north around Shevington, Standish and Haigh; and also to the south of Leigh and Golborne.

3.26 Other agricultural land classifications, while not being the 'best and most versatile', however are still valuable for food production, particular the higher 3b and 3c grades. Soils can be improved for food production, including local food production. Examples can include specialist or co-operative farmers growing of fruit and vegetables for local sale and distribution, or growing your own fruit and vegetables in community and/or allotment gardens. This can contribute positively to healthy lifestyles. There is an increasing public demand for good quality, locally sourced food.

Derelict land

3.27 Partly due to its industrial legacy, Wigan has many brownfield sites, which is land that has been previously developed. These sites have the potential to become a valuable resource for local communities and the borough as a whole. Bringing derelict land and other previously developed land back into use is also a key way of reducing the demand for building on 'greenfield' land, but such sites are usually more difficult and expensive to develop.

3.28 In 1993 the Government recorded a total over 600 hectares of derelict land in the borough. In 2002, Wigan had the highest proportion of derelict sites in Greater Manchester with 624 of 3,227 sites identified. In 2005 the council undertook its own derelict land survey. It revealed that there was now less than 450 hectares, spread over 102 sites. In 2010 this was reduced to around 383 hectares as work was completed on the restoration

of the former open cast site of Sandyforth opencast site at Billinge (59 hectares). A further 16 hectares has since been reclaimed at the former Bickershaw Colliery (south) site near Leigh. Around 60 hectares of the remaining derelict land is at the Bickershaw Colliery (north) site, which remains a priority for reclamation as part of the Greenheart countryside park. Other areas with significant amounts of derelict land are Northleigh, south of Hindley, Abram and Standish.

Contaminated land

3.29 The borough has over 5,000 sites which have had been in use for coal mining, manufacturing or other industrial processes. As a result they are regarded as being likely to have a legacy of land contamination. The council's Contaminated Land Inspection Strategy (2001) describes how the sites of greatest risk to the public and the environment will be dealt with. Due to the costs involved the planning application and development process will continue to be the primary route for the effective treatment of such sites, unless the contamination is not contained.

3.30 With significant pressures on land for development it makes sound environmental sense to reuse previously-developed 'brownfield' sites, thereby reducing the need to use undeveloped land that is likely to have a good soil resource. Nevertheless, the cleaning up a contaminated site can be very costly and a significant constraint on development and regeneration.

Minerals

3.31 Minerals, in this context, include any material originally sourced from below the earth's surface, including coal, which has clearly been significant locally; aggregates, which include sand, gravel and crushed rock and alternative, including recycled, materials supplied or used as aggregate; brick clay; natural building and roofing stone; and onshore oil and gas resources.

3.32 Minerals are essential to the nation's prosperity and quality of life. It is essential that there is an adequate and steady supply of material to provide the infrastructure, buildings and goods that society, industry and the economy needs, but it is also essential that this is balanced with environmental and other social interests as far as is reasonably possible.

3.33 Minerals development is different from other forms of development because minerals can only be worked where they naturally occur. Potential conflict can therefore arise between the benefits to society that minerals bring and impacts arising from their extraction and supply.

3.34 In order to secure the long-term conservation of minerals it is necessary to make the best use of them. It is national policy to achieve by adopting a hierarchical approach to minerals supply, which aims firstly to reduce as far as practicable the quantity of material used and waste generated, then to use as much recycled and secondary material as possible, before finally securing the remainder of material needed through the primary extraction of raw materials from the ground.

3.35 The key issues identified in the Regional Spatial Strategy are:

- Plans and policies should provide for a steady supply of minerals to meet the the region's share of appropriate land-won aggregates.
- Opportunities for utilising rail and water links for transport and minimising road transport should be recognised.
- Known mineral resources should be safeguarded from other development - minerals can only be worked where they are found.
- Restoration and after-uses should be environmentally sensitive.
- The contribution of secondary and recycled aggregates in meeting regional requirements should be maximised.

3.36 The Greater Manchester Geological Unit has undertaken an investigation into mineral resources in Greater Manchester, as part of its preparation of the Greater Manchester Joint Minerals Development Plan Document. There were 10 existing sites identified in Wigan Borough, as set out in the table below:

Area	Location / site	Minerals	Status
Wigan	Morleys Hall Quarry, East of Leigh	Sand	Active
Wigan	Crankwood Road, Abram	Clay and Shale	Active
Wigan	Bedford Moss	Peat	Active

Area	Location / site	Minerals	Status
Salford / Wigan	Chat Moss	Peat	Active
Salford / Wigan	Astley Moss	Peat, Sand and Gravel	Active
Bolton / Salford / Wigan	Cutacre	Open cast coal	Active
Wigan	Land at Ackhurst Lane, Orrell	Sand	Inactive
Wigan	Land at Highfield Lane / Moss Lane, Lowton	Sand	Inactive
Wigan / Chorley	Seven Stars Quarry	Sand	Inactive
Wigan	Land at Crankwood Road, Abram	Clay	Inactive

Table 3.1 Existing quarries in Wigan Borough (Greater Manchester Geological Unit, 2009)

3.37 The Greater Manchester Joint Minerals Development Plan Document is due to be submitted to the Secretary of State in late 2011 and adopted in the Autumn of 2012. When adopted it will form part of the development plan for the borough as part of the Wigan Local Development Framework. The minerals issues of particular relevance to Wigan Borough are the possible presence of coal bed methane suitable for extraction; the presence of deposits of peat which serve both as a valuable wildlife habitat and a valuable 'carbon sink'; and the need to establish Mineral Safeguarding Areas for the surface coal (shallow coal) deposits that exist in the borough.

Environmental noise

3.38 The decline in traditional industry in the borough has reduced noise pollution from those sources but this has been countered in many respects by noise from road traffic. This is replicated across the country but most people in the UK are affected by noise from one or other of both of these sources. Government recognises that it is necessary to manage and control this noise, as exposure to it can have direct and indirect effects on health and quality of life. As such they have been implementing the Environmental Noise Directive. This introduces a strategic approach to environmental noise. It requires:

- The drawing up of noise maps
- Making information available to the public
- The drawing up of local action plans.

3.39 In 2008 strategic noise maps were published for major roads, major railways and agglomerations with a population of more than 250,000. Areas in the north east of the borough including Atherton, Tyldesley, Hindley and parts of Leigh have been included on the map for Manchester. The maps will be used to help future policy making/strategies to tackle noise. Noise maps can help:

- Improve our knowledge of present noise levels and the scale of public exposure to the main sources of environmental noise.
- Develop co-ordinated and cost effective action plans to reduce noise.
- Enable us to monitor the effectiveness of action plans and planning policies and procedures including development of indicators.

3.40 Noise Action Plans have been designed to manage noise issues and effects, including noise reduction if necessary to promote good health and good quality of life. A Noise Action Plan for Greater Manchester (2010) has been adopted by Government. It covers noise issues arising from road, railway, aviation and industrial sources. First priority locations include:

- Tyldesley Road, Atherton and Hindsford
- Parts of East Lancashire Road
- Atherton Road, Hindley
- Market Street/Castle Hill Road, Hindley
- Leigh Road, Leigh
- Chapel Street, Leigh.

Water

3.41 The north-west of the borough is within the River Douglas catchment, which drains southwards to Wigan town centre and then north-westwards to Appley Bridge and West Lancashire. The east of the borough drains southwards into Glaze Brook and the south-west southwards into Sankey Brook, both ultimately into the River Mersey. The River Douglas corridor is followed by the Leeds-Liverpool Canal. The Leigh Branch

connects it to the Bridgewater Canal at Leigh, which continues eastwards to Worsley in Salford. Alongside the route of the canal between Wigan and Leigh there are a number of flashes. These are, effectively, lakes that have been formed where the land has sunk due to undermining and the hollows created have filled with water.

Flooding

3.42 Although flooding is a natural process it has become a hazard in part because we have built houses and located business within flood plains. So when flood events occur they can cause significant disruption, damage to property and affect human health. In addition, one of the predicted impacts of climate change in England is increased winter rainfall, which is also likely to be more intense. This will result in more numerous flooding and more severe events.

3.43 Several types of flood events can occur depending on the prevailing conditions, intensity and duration of rainfall. Rivers, streams and canals may be filled beyond their capacity; sewers and drains may be overwhelmed; and surface water may not be able to drain naturally, or may take a different course causing flash floods.

3.44 Another reason why floods are becoming more of a hazard is because of the way we have developed our houses and businesses. The ground naturally soaks up rainfall and releases it into watercourses over time, although it is acknowledged that the clay-based soil structure in much of Wigan is not as permeable as most other soils. Nevertheless, hard surfaces such as roofs, driveways and roads do not soak up rainwater - it runs off quickly. From there, traditional drainage is designed to move rainwater as rapidly as possible into a watercourse, sewer or 'soak-away'. In the majority of cases it goes into a combined sewer with wastewater.

3.45 The results of this fast discharge of rainwater are sudden rises in water levels and flow rates in watercourses; possible increased risks of flooding downstream; contaminants such as oil and organic matter getting into rivers and groundwater; and depleted ground water and reduced flows in watercourses in dry weather.

3.46 During storm events the amount of surface water discharged from roofs, driveways and roads can be 50 times the amount of foul sewage discharged from internal uses in the property. The fate of this surface water is key to preventing flood risk. This is a major issue that can only be addressed through reducing and slowing surface water run-off. Measures that can be taken include:

- The implementation of sustainable drainage systems, including hard engineered solutions and/or 'natural' solutions
- The use of permeable surfaces to allow rain water to soak through
- Other diversionary options such as green roofs, which retain water, and water butts which store water to be used in dry periods, usually for the garden.

3.47 Sustainable drainage systems are a way to release surface and groundwater run off slowly, replicating the natural rate. By maintaining and restoring natural flow regimes, they can reduce flood risk. Natural solutions can create wildlife habitats such as wetlands and ponds which support a wide range of flora and fauna. Green roofs also make use of natural processes. Water butts also reduce the demand for clean water in dry periods.

3.48 There has been a rapidly evolving legislative and policy response to reduce flood risk from all sources, as a result of a succession of high profile floods nationally. In 2008, the Pitt review 'lessons learned from the 2007 floods' was published. It examined both how to reduce the risk and impacts of floods and recommended fundamental changes in the way we adapt to the increased risk of flooding, in particular, how flood risk could be managed and mitigated against more effectively. It was a catalyst report from which stemmed the Flood and Water Management Act, 2010.

3.49 In response to national legislation and policy, a number of local plans and assessments have been produced:

- **North West River Basin Management Plan** - This Environment Agency plan from 2009 is about the pressures facing the water environment in the north west river basin district, and the actions that will address them. It is the first of a series of six-year planning cycles.
- **Catchment Flood Management Plans** - The Environment Agency has produced these more detailed plans for the River Douglas and the Mersey Estuary, including the Glaze Brook and Sankey Brook catchments. Within the Douglas and Mersey

Estuary catchments there are areas where rivers pose significant flood risk to communities. Future works to minimise the flood risk will be required to take account of the River Basin Management Plans and future growth pressures. Indeed, the Environment Agency has a number of committed projects in the borough, including the impending completion of a flood alleviation structure (dam) across the River Douglas valley, and flood mitigation schemes on Millingford Brook and Jack Brook in Ashton.

- **Strategic Flood Risk Assessment** - This assessment has been done in two parts: a level 1 (part) strategic assessment of Greater Manchester and a more local level 1 (part) / level 2 hybrid assessment for Wigan Borough. The hybrid assessment was done for the borough only because we do not have a close flood risk relationship with the rest of Greater Manchester and other areas downstream had been assessed separately. The Environment Agency, United Utilities and British Waterways were all involved in the assessments. The assessment comprises guidance and recommendations for flood issues in the borough. It has enabled early sequential and exceptions tests to be carried out as part of our Strategic Housing Land Availability Assessment, Employment Land Availability Reports and the selection of sites and locations for the Core Strategy. This has identified that there are no major issues with regards to the risk of flooding on the key strategic site at Northleigh and the 6 broad locations proposed.
- The suitability of the Council's green infrastructure areas have been assessed to determine those sites that may be used to provide a strategic flood mitigation function in the future. Further detail can be found in section 3 of Topic Paper 9 'Built Environment and Landscapes'.
- **Preliminary Flood Risk Assessment** - This is a requirement of the 2010 Act and is being undertaken for Greater Manchester. Stage 1 determined whether there is a local flood risk from surface water, groundwater, ordinary watercourses and canals based on historic and potential flood risk data. It used a grid of 1 kilometre squares across the area. An indicative flood risk area was identified from all of the 1 kilometre grid square where there is at risk from potential flooding, that are joined to other such grid squares on a continuous basis. The indicative flood risk area identified has a total population of 86,500. It covers parts of all ten districts but only a very small part

of Wigan Borough, where a grid square in Westhoughton (Bolton) overlapped the borough boundary. This has been amended to exclude the borough so while further stages of the assessment need to be carried out in the rest of Greater Manchester, no further work on the assessment is needed in Wigan.

- **Surface Water Management Plan** This is also a requirement of the 2010 Act. Wigan Council, as a Lead Local Flood Authority is responsible for producing a surface water management plan for the borough. We have joined together with the other Greater Manchester councils to produce a Joint Surface Water Management Plan for Greater Manchester. Work is ongoing.

Flood risk areas

3.50 The Environment Agency publishes flood zones nationally. These can be viewed on the Environment Agency website. Land is classified into zones 1 to 3 depending on the risk of flooding in an area. Flood zone 3 has highest risk. It is split into zones a and b. Flood zone 3b is the functional flood plain. In Wigan 3,888 properties (13,942 people) are in Flood Zone 3 and 4,027 (7,607 people) are in medium risk Flood Zone 2. The rest of the borough is classified as low risk Flood Zone 1.

3.51 Our Strategic Flood Risk Assessment supplements this information using other historic data and modelling. A suite of strategic flood risk maps have been produced. Logically, the high and medium probability flood zones in the borough are the lower lying areas around the rivers and other water courses, including the River Douglas in the centre of Wigan; Hey Brook, from Platt Bridge to Leigh; Pennington Brook in Leigh; and Millingford Brook in Ashton-in-Makerfield.

Local flood risk and vulnerability

3.52 Flooding can arise in a number of ways from a number of sources, most obviously from the rivers and other watercourses; but also from the sea, albeit not in Wigan Borough; ground water; surface water; drains and sewers; and other water bodies including canals and reservoirs.

Flooding from rivers

3.53 In river systems, the upper reaches are susceptible to short-term intense rainfall events such as thunderstorm activity. For Wigan's rivers these areas are largely outside of the borough to the north but include the River Douglas north of Wigan town centre. The lower reaches of rivers tend to be more at risk from prolonged rainfall. Areas where tributary streams and rivers meet main river channels have an increased flood risk, particularly if flood peaks coincide on both watercourses or flow exceeds culvert capacity. This is a known problem in the Poolstock area of Wigan where Smithy Brook and the River Douglas converge. Flooding due to flow restrictions, which can be attributed to sedimentation or blockage of structures and weirs by objects such as fallen trees, is also a risk, primarily upstream of structures. The Green Street Siphon that allows the River Douglas to pass under the Leeds - Liverpool Canal near Wigan town centre is known to be partly blocked but is monitored as stable.

3.54 Flood risk from rivers is generally contained within clearly defined and low-lying areas of Wigan which reflects the Environment Agency's Flood Zone maps.

Flooding from canals

3.55 Canals do not generally pose a direct flood risk as they are a regulated water body. The residual risk from canals tends to be associated with lower probability events such as overtopping and embankment failure and it is difficult to determine as it depends on a number of factors such as source of surface water runoff, canal size, construction materials and level of maintenance.

3.56 For Wigan's Strategic Flood Risk Assessment (2011), a series of overtopping and breach appraisals were undertaken at selected locations along the canal system in Wigan. However, due to the potentially numerous locations for failure scenarios, the canal mapping is considered indicative only. The locations where canal breach is considered most likely are summarised below:

- The River Douglas may overtop into the canal during a severe flood event in Wigan where the Leeds Liverpool canal crosses the river. However, the aqueduct in this location is raised by approximately 6-7 metres above the river level, suggesting the risk of this low.

- Risk of blockage of the inlets of the twin siphons that pipe the River Douglas under the Leeds Liverpool Canal.
- The risk of breach of canal embankments causing significant flooding to people or property within the area appears to be low. The most likely flooding risk along the Leeds Liverpool canal appear to be overtopping of the Leigh branch of the canal into the low lying areas south of Poolstock.
- The greatest flood risk appears to be a reoccurrence or similar of the April 2009 event where the opening of sluice gates by third parties caused downstream flooding in the Poolstock Lane area. This scenario could potentially happen at any local gates throughout Wigan.

Flooding from reservoirs

3.57 There are a number of large reservoirs within or upstream of the borough. Table 3.2 Identifies the main reservoirs and urban areas at risk immediately downstream of them.

Reservoir Name	Local Authority	Downstream Area
Adlington	Wigan Council	Chorley Road Standish, Thorn Hill, Marylebone, central Wigan, Scholes
Arley	Wigan Council	Chorley Road Standish, Thorn Hill, Marylebone, central Wigan, Scholes
Worthington	Wigan Council	Chorley Road Standish, Thorn Hill, Marylebone, central Wigan, Scholes
Wrightington New Pond	West Lancashire	Appley Bridge, Shevington Vale, Holland Lees (included as a potential risk to Wigan area)
Atherton Lake FSR	Wigan Council	Leigh

Reservoir Name	Local Authority	Downstream Area
Rivington Lower	Chorley / Bolton	Adlington (included as a potential risk to Wigan area)

Table 3.2. Key reservoirs

Groundwater flooding

3.58 There have been very few reported incidences of groundwater flooding across the Borough. In the Douglas catchment there has been groundwater pumping for many years, but this has now mostly ceased. Since pumping has stopped, there have been reports of local flooding of property in Appley Bridge.

3.59 There is flood risk from the Rufford aquifer as the groundwater level would naturally be above the surface but the aquifer is covered by a thin layer of clay, which prevents the groundwater flowing to the surface.

Flooding from surface water and sewers

3.60 Surface water flooding is a known problem in the borough, not least because of the clay-based soils throughout much of the borough. Surface water flooding arises when intense rainfall exceeds drainage capacity. Surface water flooding in Wigan tends to be highly localised.

3.61 Sewer flooding is regarded as a risk at locations throughout the borough, particularly during storm events. Flash flooding can occur from a number of sources, when water cannot soak in where it has fallen or a source of floodwater overtops, and falls overland to the lowest point it can reach.

3.62 Certain locations are particularly sensitive to an increase in the rate of surface water runoff and/or volume from new development. These areas have been defined as critical drainage areas in the Wigan's Strategic Flood Risk Assessment. Nine critical drainage areas have been identified at:

1. Ashton-in-Makerfield including parts of Bryn
2. Lowton

3. Golborne
4. Hindley including part of Platt Bridge
5. Hindley Green
6. Mossley Common
7. Astley
8. Wigan including parts of Pemberton and Winstanley
9. Wigan including Scholes, Whelley and New Springs.

3.63 These are made up of areas in flood zones 3 and 2 and other locations considered to be particularly sensitive to surface water flooding, including from ground water, drains and sewers and surface water run-off. Further investigations, in the form of a site or location specific flood risk assessment, are required in these areas. This is likely to lead to particular drainage measures being required as part of any development, in order to reduce flood risk.

Water quality

3.64 Standards of water quality in our rivers, lakes and aquifers (underground water) are derived from the Water Framework Directive, which came into force in December 2000. The North West River Basin Management Plan sets targets for improvements of the region's rivers by 2015. The recent Government White Paper 'The Natural Choice: securing the value of nature' includes the aspiration that, by 2050, water bodies in England will be in excellent health, with reduced pollution.

3.65 However, in 2009 only 5 out of 6,114 rivers in England and Wales were judged to be in pristine condition. Only one-in-four were judged to be of high or good quality status. Well over half were in moderate condition. Even so, the quality of our rivers is improving and has improved for 19 years in a row.

3.66 Generally, the worst quality rivers flow through urban or industrial locations and suffer from polluted surface water run-off, sewage overflows and abstraction for drinking water.

3.67 In Wigan Borough, the chemical quality of rivers is high and better than the national average, despite the fact that they flow through urban areas. However, long lengths of the rivers have been heavily modified due to channel realignment and only 60% of the borough's river length has been classified as being 'good' or 'fair' for biological quality.

This means that many aquatic fauna and flora may be restricted from flourishing. In fact, water pollution has been identified as one of the key issues affecting three of the four 'Wigan Biodiversity Action Plan' species.

3.68 All controlled waters including rivers, lakes and aquifers have been identified as sensitive receptors requiring protection from contamination and contaminated land. This is particularly important for water within the Environment Agency Source Protection Zone, which covers large parts of the borough in the south / south-east.

3.69 Anticipated climate changes such as heavy downpours could have a negative impact on storm drainage and wastewater systems, leading to pollution problems. Higher temperatures in freshwater lakes and streams could also harm some fish species and encourage weeds to grow.

Water resources and efficiency

3.70 The average household uses over 100,000 litres of water a year (317 pints or 180 litres per person per day). Taking steps now to use water wisely will help ensure the future of our water supply, limit the effects of climate change and protect the natural environment. Water efficiency saves not only water but also the energy needed to pump, treat and often heat it, which contributes to mitigating against climate change. It can also reduce the strain on the natural flow of rivers, reducing flood risk and water quality issues. The government's vision as outlined in its water strategy for England 'Future Water' is to 'reduce daily water consumption by 20 litres per person by 2030'.

3.71 The water usage for Wigan is currently unknown. However, water use in the United Utilities service area is lower than the national average. This includes use in the home and services such as street cleaning, sewerage and leisure.

3.72 According to United Utilities, water leakage is measured at approximately 120 litres per property per day in Wigan, which is also lower than the national average, of 148 litres per property each day. The North West is classified by the Environment Agency as an area of low water stress. Nevertheless, United Utilities has estimated that water demand will outstrip supply by approximately 50 megalitres per day by 2023. Water shortages could become more of an issue in the future, particularly for vulnerable groups such as the elderly or those living in poverty.

3.73 'Water neutrality' is an ambitious concept which aims to ensure there is enough water to support new development without requiring additional water resources. The definition used by Government and the Environment Agency is that the total water use after a development does not exceed the total water use before development. Amendments to Building Regulations now mean that all new homes (2010 onwards) will have a whole building performance standard of 125 litres (or below) per head of population per day for water use. Ways to encourage the more efficient use of water include water meters and rain water harvesting.

Water for leisure and tourism

3.74 Water can be a valuable asset for tourism and recreation. There are many ponds, canals, rivers and other bodies of water in Wigan, including the flashes, that are used for recreational purposes such as fishing, sailing and boating, as well as walking, cycling and horse-riding alongside. They are also important for wildlife and thereby of interest to wildlife watchers.

3.75 Wigan Flashes and Pennington Flash are important on a regional scale and are at the heart of the Wigan Greenheart initiative to develop the area for leisure and wildlife. Environmental assets such as this need to be protected and enhanced wherever possible.

Climate change considerations

3.76 How we prepare for climate change and reduce further greenhouse gas emissions is a major challenge. It requires changes to almost everything we do and must, therefore, be considered from many different perspectives. The issues that are particularly important for natural resources and pollution are:

Air quality

- Many sources of air pollution are also sources of greenhouse gases.
- Air quality and climate change issues are therefore closely linked and should be tackled together.

Soil resources

- Anticipated implications of climate change, such as heavy downpours will increase the risk of erosion and cause loss of nutrients from soils. Subsidence may also be an increased risk.
- Hotter, drier summers will impact on the growing seasons, resulting in changes to agricultural production.

Water and flooding

- One of the predicted impacts of climate change in the North West of England is increased winter rainfall, which is likely to be more intense. This results in both a greater risk of flooding and more severe events.
- An increased risk of flooding in the borough is likely to have an impact in areas of socially vulnerable groups, community buildings, businesses and many homes.

Carbon storage

- Existing peat bogs act as a carbon sink to prevent the release of carbon dioxide into the atmosphere.
- The prevention of further extraction of peat for horticultural uses would help to store carbon and minimise climate change effects.

Key community and stakeholder involvement

3.77 There are a number of 'key stakeholders' who have played an important role in the development of our approach to natural resources and pollution issues. By identifying and involving these key stakeholders from an early stage, we have been able to establish a stronger evidence base and more sustainable policy options.

3.78 The following 'key stakeholders' have been involved:

- Greater Manchester Public Protection Partnership
- Transport for Greater Manchester (Greater Manchester Transportation Unit)
- Highways Agency
- Greater Manchester Geological Unit
- Environment Agency
- United Utilities
- Natural England
- Greater Manchester Ecological Unit
- Neighbouring councils
- Major developers and landowners
- Wigan Borough Partnership, our local strategic partnership
- Community groups, including townships forums and the community network
- Residents of the borough

3.79 These key stakeholders have been involved at all stages of the Core Strategy's preparation including issues and options, preferred options, revised proposals and draft policies and proposed submission.

3.80 There were four representations on policy CP16 'Minerals', with support from the Coal Authority and Greater Manchester Ecology Unit. Greater Manchester Geological Unit suggests that the policy should encourage the sustainable transport of minerals, be reworded to be consistent with the Greater Manchester Minerals Plan and relate to the most recent aggregate apportionment figures. These are proposed as minor changes 1.32, 1.33 and 1.34.

3.81 There was one representation in support of policy CP17 'Flooding' from United Utilities, subject to the installation of mitigation measures to manage surface water and reduce flood risk. This is proposed as minor change 1.35.

3.82 There were five representations on policy CP18 'Environmental protection', with support from Greater Manchester Ecology Unit, United Utilities and a member of the public. The Coal Authority requests the extension of the policy criteria to incorporate the need to address coal mining legacy issues during the development process. This is proposed as minor change 1.36. The Environment Agency is concerned that the reference to the Water Framework Directive is inaccurate and this is corrected in minor change 1.38.

3.83 Further information is available in our Consultation Reports. Changes are set out in the 'Schedule of Minor Changes to the Draft Core Strategy for Submission to the Secretary of State'.

Infrastructure audit

3.84 This section establishes the infrastructure provision in the borough for facilities such as water supply, waste water and flood prevention. It also identifies gaps or capacity issues in provision. The infrastructure is managed by United Utilities unless stated otherwise.

Water supply and wastewater

3.85 United Utilities is the statutory body for providing the borough with a clean, safe supply of drinking water, and dealing with waste water. The company owns and operates the water and wastewater networks for the whole of the North West of England. It supplies 2,000 million litres of water every day via a network of around 40,000 kilometres of water mains; 1,444 kilometres of aqueduct; and over 100 water treatment works, to around 7 million people in 2.9 million households and business premises.

3.86 Wigan Borough is currently provided with drinking water from Thirlmere in the Lake District, Lake Vyrnwy in North Wales and a number of boreholes in the borough.

3.87 With regard to wastewater, United Utilities is concerned about sewage flooding in the borough, with 381 properties identified as being at risk. This is higher than any other district in the region. The Ince, Hindley and East Lancashire Road pumping stations have performance problems and have caused flooding issues and pollution. Tyldesley and Hindley waste water treatment works also have capacity and flooding issues. Figure 3.1 below shows the spread of wastewater pumping stations and treatment works in the borough. The borough is also served by waste water treatment works at Hoscar in West Lancashire and Gateworth in Warrington.

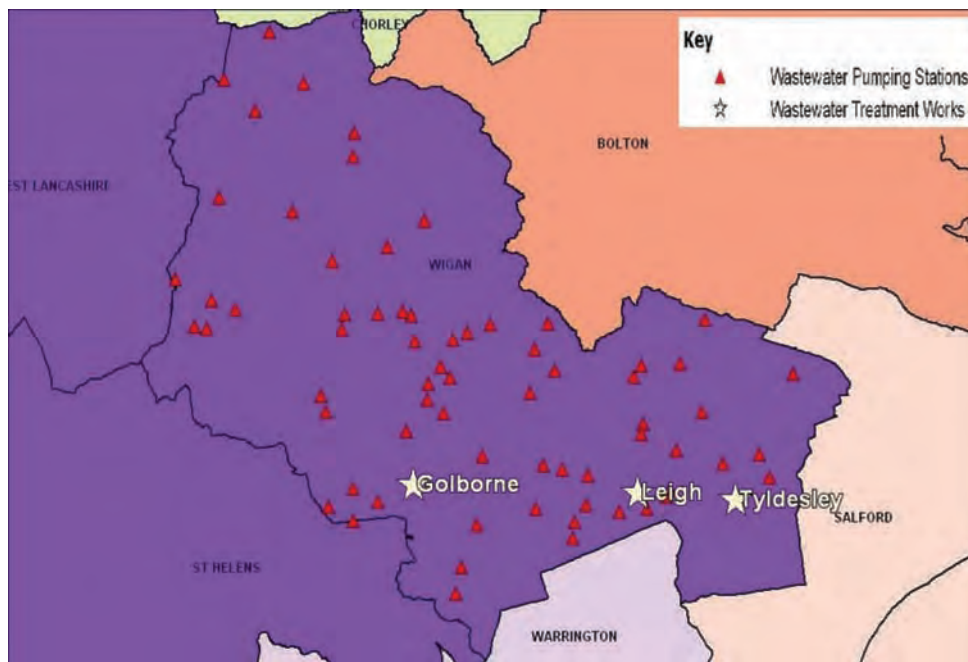


Figure 3.1 Waste Water facilities in the Wigan Borough

3.88 The Wigan Demand Management Zone forecasts for water demand by Million litres per day (Ml/d) are summarised below. The general trend is a falling average demand with increases in peak demands due to usage patterns. These forecasts take into account the projected growth predicted in the Core Strategy.

Wigan Demand Management Zone	2006/07	2014/15 forecast	2024/25 forecast	2034/35 forecast
Average normal demand (Ml/d)	91	86.3	87.2	90
Peak week demand (Ml/d)	-	107.1	109.2	113.6
Peak day demand (Ml/d)	-	115.7	118	122.7

3.89 Every five years the UK's water companies have to submit a Business Plan for approval by the water regulator, Ofwat. This outlines the investment they want to make to their network of pipes, sewers, water and wastewater treatment works and reservoirs.

3.90 United Utilities current approved Business Plan is for 2010 to 2015. In that period they will be spending a record £3.7 billion on upgrading the North West's water and wastewater systems. This investment is intended to bring major improvements for customers and ensure the region meets the latest environmental targets and drinking water legislation. Specific to, or otherwise including Wigan Borough, it includes:

- Construction of a West-East link pipeline from Merseyside to Greater Manchester via Wigan Borough: this 55 kilometre pipeline will be capable of carrying up to 100 million litres of water a day and, consequently, will improve United Utilities' ability to transport water around the region from where supplies are greatest. It is due to be in operation by 2012.
- Maintenance and upgrading of plant and pipe work: wastewater treatment works will be upgraded and the network of pumping stations will be improved to reduce the risk of pollution of watercourses. Sewers will be upgraded to cut flooding caused by sewer collapses or blockages. The plans include the resolution of problems at the Ince, Hindley and East Lancashire Road pumping stations and Tyldesley and Hindley waste water treatment works.
- Improving drinking water: the cleaning and renewal of water pipes across the region, bringing even better drinking water quality, to improve the taste and smell of tap water and to remove lead pipes from the water network.
- Upgrading of storm overflows, to reduce the number of discharges into coastal and inland waterways.

3.91 The Wigan Core Strategy proposes a significant amount of growth to meet the needs of forecast increases in population and households. The level of proposed new housing and employment development is likely to result in the need for investment in the water supply network, sewerage infrastructure and wastewater pumping stations, particularly in the south and west of the borough. A number of potential sites within some of the proposed broad locations and elsewhere in specific areas of the borough will require this infrastructure investment. More detail is contained in our 'Key Sites and Broad Locations Evidence Paper' and will be part of the Allocations Development Plan Document.

Flood protection

3.92 Flood prevention incorporates defence assets which may be hard formal structures designed for the purpose, such as flood walls, or may be informal structures which were not designed as defence structures but are performing that role. The following flood preventions are in place across the borough:

- Lilford Park Flood Storage Basin (Environment Agency)
- Bedford Pumping Station (Environment Agency)
- Pennington Pumping Station (Environment Agency)
- Culverts: where appropriate (various landowners)
- Weirs: numerous (various landowners)
- Green Street Siphon, Wigan (landowner)
- Rivington Reservoir
- Worthington/Arley/Adlington system
- Leeds-Liverpool canal (British Waterways)
- Significant flood defence structures in the Poolstock area of Wigan (Environment Agency).

3.93 The Environment Agency has a number of committed projects in the borough, including the impending completion of a flood alleviation structure (dam) across the River Douglas valley, and flood mitigation schemes on Millingford Brook and Jack Brook in Ashton. The agency is also scoping flood risk management projects in Leigh East and West. These projects are currently at the appraisal stage. The adoption of these projects is subject to approval by the agency's National Review Group. Subject to approval, these schemes are scheduled for 2013.

Inalienable land

3.94 Future work is needed to identify areas of inalienable land. This is defined as land that cannot be sold or mortgaged. In Wigan Borough this may include some community assets.

FOUR

Key messages

4.1 A number of key messages have been drawn from the evidence identified in Sections 2 and 3. The table below identifies these and the most relevant source documents. These key messages have all been addressed in the Core Strategy, particularly by policies CP16, CP17, CP18, SP3 and SP4 and the natural resources and pollution elements of policies SP1, SP3 and SP4.

Message	Source Documents
<p>The cumulative impact of new development on air quality and it's link to climate change needs consideration. There is potential to exceed the health based annual mean air quality objective for nitrogen dioxide at various roadside locations across the borough.</p>	<ul style="list-style-type: none"> • Second Round Local Air Quality Management Detailed Review and Assessment of Air Quality (2004) • Air Quality and Climate Change - A UK Perspective (2007) • Local Air Quality Management Updating and Screening Assessment (2009) • Low emission strategies, using the planning system to reduce transport emissions: Good Practice Guidance (2010) • Air Quality Strategy and Action Plan - Greater Manchester Local Transport Plan (2006)

Message	Source Documents
<p>There is a need to identify and remediate land where contamination is causing unacceptable risks to health or the wider environment and to prevent contamination in the first place.</p>	<ul style="list-style-type: none"> ● Wigan Contaminated Land Inspection Strategy (2001) ● Wigan Contaminated Land Study (2008)
<p>There is a need to protect the long-term capability of our best and most versatile agricultural land, and conserve our vulnerable soil resources for use in a sustainable way.</p>	<ul style="list-style-type: none"> ● Planning Policy Statement 7 - Sustainable Development in Rural Areas (2007) ● Safeguarding our Soils - A Strategy for England (2009) ● Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009)
<p>The amount of derelict land has reduced in the borough but a significant amount remains.</p>	<ul style="list-style-type: none"> ● Greater Manchester Derelict Land Survey (2002) ● Wigan Derelict Land Survey (2005)
<p>Minerals are essential to the nation's economy and quality of life. An adequate supply of minerals is needed whilst remaining resources are conserved. The environmental impacts during and after mineral works need to be managed carefully.</p>	<ul style="list-style-type: none"> ● Minerals Planning Statement 1: Planning and Minerals (2006) ● Minerals Planning Statement 2: Controlling and Mitigating the Environmental Impact of Minerals Extraction in England (2005)
<p>Environmental noise needs to be assessed and managed.</p>	<ul style="list-style-type: none"> ● Strategic Noise Mapping Mapping for Greater Manchester (2008) ● Noise Action Plans (2009)

Message	Source Documents
<p>The issues of water supplies, drainage and flooding need to be tackled in a holistic way, taking into account the likely impacts of climate change.</p>	<ul style="list-style-type: none"> ● River Douglas Catchment Flood Management Plan (2009) ● Water for people and the environment: A Water Resources Strategy for England and Wales (2009) ● Water for life and livelihoods –North West River Basin Management Plan 2009 - 2015 (2009) ● Planning Policy Statement 25 - Development and Flood Risk (2010)
<p>Generally, in terms of water quality, the worst rivers flow through urban or industrial locations and suffer from increased flooding, sewage run-off and pressure for drinking water.</p>	<ul style="list-style-type: none"> ● North West River Basin Management Plan 2009 - 2015 (2009)
<p>River basin management is an opportunity for everyone to work together to improve the quality of every aspect of the water environment.</p>	<ul style="list-style-type: none"> ● North West River Basin Management Plan 2009 - 2015 (2009)

FIVE

Main spatial planning issues identified

5.1 Set out below are the issues relating to natural resources and pollution which have been identified during the preparation of the Core Strategy. Section 5 of the Draft Core Strategy lists the headline issues for the borough.

Issue NRP 1

Air quality away from roads is generally good. However near main roads there are incidences where acceptable levels of pollution are exceeded. The designated Air Quality Management Areas follow the main roads as road traffic is the main polluter. 10% of the borough's residents live close to the main roads.

Issue NRP 2

There is potential for land contamination to be present as a result of historical land uses at over 5,000 sites across the borough.

Issue NRP 3

A large proportion of land has been modified by previous mining and industrial activity, notably in inner areas and Standish. Soil quality has been reduced in these areas. Only a relatively small part of the open land at Billinge, Shevington and the mosslands on the fringe of the borough is classified as best and most versatile agricultural land.

Issue NRP 4

There is some peat extraction still being undertaken in the mosslands, south of Astley.

Issue NRP 5

Coal extraction has been a major factor in the borough's history but no active coal mining remains. Only limited sand extraction is still taking place, at Morley's Hall quarry to the south east of Leigh and at Astley Moss. However, known mineral resources remain and the use of primary minerals in construction remains high.

Issue NRP 6

While noise from heavy industry and mineral extraction has generally reduced as a result of the decline in those industries, there is a significant amount of environmental noise in many locations, particularly from road traffic and other transport.

Issue NRP 7

Only 60% of the river length in the borough is classified as 'good' or 'fair' for biological quality.

Issue NRP 8

The Poolstock, Newtown and Pier Quarter areas of Wigan, the town centre southwards in Hindley and parts of Pennington and Bedford in Leigh are the main urban areas at risk from flooding from rivers in the borough. Surface water and sewer flooding are also emerging as issues in several areas notably Wigan, Hindley, parts of Platt Bridge, Astley, Golborne, and Ashton.

Issue NRP 9

There has been a significant legacy of derelict land in the borough but most has been reclaimed and improved. However, there is still a significant 383 hectares of derelict land remaining, including some 60 hectares at the North Bickershaw site which is a priority for reclamation.

SIX

Main infrastructure issues identified

The infrastructure audit in section 3 sets out the current provision in the borough. A number of gaps and/or capacity issues within the existing provision have been identified and are set out below:

Issue NRP 10

Water pressures are known to be generally low in some areas and there may be a need to provide local water network reinforcement for significant developments at the expense of the developer.

Issue NRP 11

We need to ensure that the appropriate infrastructure is in place to deal with surface water run off before development can take place.

Issue NRP 12

The level of proposed new housing and employment development, within some of the proposed broad locations and elsewhere in specific areas of the borough, is likely to result in the need for investment in the water supply network, sewerage infrastructure and wastewater pumping stations.

Issue NRP 13

Where United Utilities apparatus affect a proposed development site, appropriate works/mitigation measures must be carried out before development commences.

Issue NRP 14

There is a known risk of flooding from local sources in a few locations within Wigan Borough. Some of these locations, in time, will require management intervention and this may include improvements to infrastructure.

SEVEN

Main sustainability issues identified

7.1 We have identified key issues for the sustainability appraisal to ensure that it is appropriately focused on what is most important and relevant for Wigan Borough. These help to inform the sustainability appraisal framework. They are:

Issue NRP 15

New development is likely to produce some additional emissions of NO_x (nitric oxide or nitrogen dioxide), PM₁₀ (particulates of 10 micrometres or less) and carbon dioxide which may affect health and impact on climate change.

Issue NRP 16

Soil resources need to be preserved and enhanced and mineral resources conserved and extracted in a way that meets our economic, social and environmental requirements.

Issue NRP 17

Climate change increases the existing risk of flooding in the borough, with a particular impact in areas of socially vulnerable groups, community buildings, businesses and many homes.

Issue NRP 18

40% of the river length in the borough is not of 'good' or 'fair' biological quality, which is a problem for a number of Biodiversity Action Plan species.

EIGHT

Our sustainability framework

Sustainability objectives and criteria

8.1 The following sustainability objectives, appraisal criteria and monitoring indicators have been established as part of the framework for assessing the Core Strategy. The objectives have been developed to reflect:

- Government guidance on sustainability appraisal such as 'Sustainability Appraisal of Regional Spatial Strategies and Development Plan Documents (2005)' and recognised frameworks such as the Integrated Appraisal Toolkit (North West Regional Assembly and other agencies).
- The key sustainability issues identified in this topic paper.
- Policy context and legal requirements.
- Feedback and suggestions from consultation on the Sustainability Appraisal Scoping Report (which contained a draft set of objectives and criteria).

8.2 The Sustainability Appraisal is underpinned by 19 headline objectives. Objectives 2, 3 and 4 specifically relate to air quality, soil and minerals, and water respectively.

Sustainability objectives	Appraisal criteria / sub questions
Objective 2: To protect and improve local air quality	Will it improve or have an insignificant affect on local air quality, ensuring minimum impact on people's health?
	Will it encourage the use of clean technologies & working practises?
Objective 3:	Will it protect soil quality (erosion, processes, function, contaminates etc...) and tackle existing problems such as contamination?

Sustainability objectives	Appraisal criteria / sub questions
To preserve and enhance the borough's soil and mineral resources.	<p data-bbox="523 510 1315 546">Will it ensure the sustainable use of mineral resources?</p> <p data-bbox="523 584 1461 667">Will it preserve and enhance the best and most versatile agricultural land?</p>
<p data-bbox="240 734 424 770">Objective 4.</p> <p data-bbox="240 815 469 1084">To ensure sustainable and Integrated management of the borough's water resources</p>	<p data-bbox="523 734 1445 913">Will it help the borough to manage local flood risk and withstand the potential implications of climate change? (Provision of space for water, sustainable drainage systems, location of development in low risk areas etc...)</p> <p data-bbox="523 958 1422 1041">Will it protect and improve the quality of inland water resources such as rivers, canals, ponds, wetlands and groundwater?</p> <p data-bbox="523 1086 1461 1169">Will it promote the sustainable use of the borough's water resources for leisure, tourism and recreational purposes?</p> <p data-bbox="523 1214 1461 1296">Will it ensure that water is used efficiently and demand is managed? (Rainwater recycling, grey water use etc..)</p> <p data-bbox="523 1341 1445 1424">Will it help maintain or improve downstream and upstream water quality and flood controls?</p>

Baseline Position

8.3 This section identifies the key indicators and baseline data relating to natural resources and pollution for the Sustainability Appraisal process. These indicators will also inform the Core Strategy monitoring indicators to help ensure delivery of the strategic objectives and policies.

Baseline Indicators for Sustainability Objective 2: To protect and improve local air quality.

Indicator	Wigan baseline	Wigan trends	Relevant Targets	Comparisons	Issues / comments
Number of days per year when air pollution exceeds national 24hr standard for dust/particles (PM10)	1 day (2009)	Indicated decrease since 2004 (25 days) maintained	No more than 35 days	London (Westminster) 31 days (2007) Orkney Islands (no data)	Wigan is within the standards for dust particles for the vast majority of the year, but data is only from a limited number of monitoring sites. There is a considerable year on year variation and trends are difficult to establish.
Annual average background nitrogen dioxide concentration (ug/m ³)	24 (2009)	Decrease from 35 in 2004 maintained	To not exceed 40	London (Westminster) 37 (2007)	Background nitrogen dioxide concentration is well within the threshold. However, this is a background measurement and

Indicator	Wigan baseline	Wigan trends	Relevant Targets	Comparisons	Issues / comments
				Orkney Islands 1	'exceedances' occur at a number of roadside locations.
Average of Annual mean levels for selected nitrogen dioxide road side diffusion tube sites (ug/m ³)	35 (2009)	Decrease from 41 in 2007	Reduction over time	N/A	Local indicator of relevant exposure to traffic pollution across the borough
Number of tonnes of NOx emitted annually from road transport	1396 (2009)	Decrease from 1815 in 2007	1141 by 2011	N/A	Indicator used in LTP2 to measure progress on reduction of NOx/NO2 mass emissions from road transport
Number of tones of CO2 emitted annually from traffic on local roads	120,594 (2009)	Decrease from 127,965 in 2007	Reduction over time	N/A	Indicator used in LTP2 to measure CO2 emissions on major roads.

Baseline Indicators for Sustainability Objective 3: To preserve and enhance soil and mineral resources.

Indicator	Wigan baseline	Wigan trends	Relevant targets	Comparisons	Issues / comments
Percentage of land remediated through development	28% of identified contaminated land (0.4% of total potentially affected land)	Not established	Increase in % of land being cleaned up year on year		This is a new indicator and may be subject to review. Also, some assumptions have had to be made to the level of land affected by contamination.
Number of planning permissions granted that would result in irreversible loss of grade 1, 2 or 3A agricultural land.	23 approvals (2009/10)	Decrease in approvals from 2005. Maintained	nil		Most approvals are for development in already established developed areas and/or for minor domestic extensions to existing dwellings. None of the approvals since 2005 have/ will result in a real loss of 'best and most versatile' agricultural land.
Hectares of derelict land reclaimed	59 ha (Total)	13% of the total remaining in 2005 have been reclaimed at Sandyforth.	24 named sites (plus others)		Wigan's Derelict Land Survey undertaken in 2005 shows a total of 442ha remaining,

Indicator	Wigan baseline	Wigan trends	Relevant targets	Comparisons	Issues / comments
	remaining derelict land in Wigan is 383ha.)				spread over 102 sites.

Baseline Indicators for Sustainability Objective 4: Sustainable and Integrated management of the Borough's water resources.

Indicators	Wigan Baseline		Wigan Trends	Relevant Targets	Comparisons	Issues / comments
New development permitted in flood risk areas. (<i>apps = planning applications</i>)		Number of Residential properties.	Amount of Retail Floorspace (sqm)	Nil		Although development is still occurring in flood risk areas. 20010/11 saw a considerable decrease in the number of residential applications approved.
	2002	22 (1 app)	48934 (1 app)			
	2003	17 (5 apps)	1775 (1 app)			
	2004	28 (3 apps)	1935 (1 app)			
	2005	17 (6 apps)	706 (5 apps)			
	2006	90 (12 apps)	7231 (2 apps)			
	2007/08	34 (3 apps)	-			
	2010/11	1 app (outline)	664 (1 app)			
		Nil (2009/10)	Nil (2005) Nil (2006)			
Number of planning permissions granted contrary to Environment Agency advice on flooding.						

Indicators	Wigan Baseline	Wigan Trends	Relevant Targets	Comparisons	Issues / comments
		Nil (2007) Nil (2008)			to satisfy the objections and 2 were yet to be determined.
Number of planning permissions granted contrary to Environment Agency advice on water quality.	Nil (2009/10)	Nil (2005) Nil (2006) Nil (2007) Nil (2008)	Nil		There were no objections recorded in 2009/10 on grounds of water quality.

NINE

An assessment of legality and soundness

9.1 This topic paper provides a summary of the evidence required for our Core Strategy and Sustainability Appraisal. The policies in the Core Strategy that this topic paper serves are policies CP16 'Minerals', CP17 'Flooding' and CP18 'Environmental protection'. The purpose of this section is to demonstrate that we have produced our Core Strategy in line with legal requirements and that the policies are sound.

9.2 Some of the legal requirements are procedural and concern the Core Strategy as a whole rather than individual policies; these are covered in the Self Assessment of Soundness and Legal Compliance document that accompanies the Core Strategy. The 4 legal requirements that are specific to contents of the Core Strategy are:

1. Community and stakeholder involvement
2. Subject to sustainability appraisal
3. Regard to the sustainable community strategy
4. Conforms generally to the Regional Spatial Strategy

9.3 A further requirement is to have "regard to national policy" but this is also covered under a similar 'test of soundness'.

9.4 To be sound the Core Strategy must be **justified, effective** and **consistent with national policy**. Compliance with these tests of soundness is assessed against the following 6 'soundness' sub-headings:

1. Founded on a robust and credible evidence base
2. The most appropriate strategy when considered against the reasonable alternatives
3. Deliverable, including:
 - Identifying what physical, social and green infrastructure is needed to enable the amount, type and distribution of development proposed for the borough.
 - Ensuring that there are no regulatory or national policy barriers to delivery.
 - Ensuring that partners who are essential to delivery are signed up to it.
 - Being coherent with the core strategies prepared by our neighbouring councils.

4. Flexible
5. Able to be monitored
6. Consistent with national policy

9.5 The remainder of this section sets out the case for policies CP16, CP17 and CP18 against these 4 legal requirements and the tests of soundness.

Policy CP16 Minerals

Community and stakeholder involvement

9.6 The community and key stakeholders including Greater Manchester Geological Unit (and through their work on preparing the Joint Minerals Plan, the minerals extraction industry) and the other 9 Greater Manchester councils involved in the Joint Plan have all been involved at each stage in preparing the Core Strategy. Their views and comments have been considered and have helped to shape the content and direction of policy CP16. Details are set out in section 3 of this topic paper and are also included in the Consultation Reports which accompany the Core Strategy. As such, policy CP16 has been prepared in accordance with the Statement of Community Involvement in respect of who has been involved or consulted and how and when consultation has taken place.

Subject to Sustainability Appraisal

9.7 Policy CP16 has been shaped by the outcomes of a robust sustainability appraisal that satisfies the requirements of the Strategic Environmental Assessment Directive. The appraisal process was founded on the collection of thorough baseline information about minerals and key stakeholders were involved, including the Greater Manchester Geological Unit (and through their work on preparing the Joint Minerals Plan, the minerals extraction industry). The process informed the original choice of policy and subsequently tested it against sustainability principles and objectives. It was then further adapted to address sustainability issues and, as a result, is the most sustainable policy for Wigan Borough that we could reasonably include in the Core Strategy. The full details of the appraisal can be found in the Sustainability Appraisal Report (August 2011).

General conformity with the Regional Spatial Strategy

9.8 Policy CP16 is in general conformity with the Regional Spatial Strategy, specifically it:

- Promotes efficiency in the use of minerals whilst ensuring that an adequate supply is available in accordance with policy EM7.
- Promotes joint working to meet the agreed regional apportionment of land-won aggregates in accordance with policy EM8.
- Promotes the need to maximise the role of secondary and recycled aggregates in accordance with policy EM9.

Regard to the Sustainable Community Strategy

9.9 Our sustainable community strategy 'Vision 2026' was produced in 2008 in line with the Core Strategy time frame. It identifies four priority areas and policy CP16 is in line with one: ambitious communities.

Founded on robust and credible evidence

9.10 Policy CP16 is founded on robust and credible evidence as shown in sections 2, 3 and 4 of this topic paper. This is backed up further by our separate 'natural resources and pollution evidence review' document. The key sources of evidence which support policy CP16 is the evidence base put together to inform the preparation of the Greater Manchester Joint Minerals Development Plan Document, which is due to be submitted to the Secretary of State in late 2011.

The most appropriate strategy when considered against the alternatives

9.11 Although most of the detail of minerals policy is set out in the Joint Minerals Plan, the overall strategy for minerals is set by policy CP16. The strategy chosen, of promoting efficiency in the use of minerals, working jointly to safeguard minerals and identifying sites and areas for mineral working, whilst ensuring adequate restoration and after care of such sites, is the most appropriate strategy as it complies with the requirements laid down both nationally and regionally for minerals extraction. Alternative approaches would not comply with this guidance.

Deliverable

9.12 The means of delivering policy CP16 is set out in a key delivery items table under the policy and include working jointly to define minerals safeguarding areas, identifying sites and areas of search for mineral working and dealing with planning applications for mineral extraction.

9.13 In addition to Wigan Council, a number of organisations including the Greater Manchester Geological Unit, the minerals extraction industry and the other 9 Greater Manchester councils will play a crucial role in the delivery of this policy. The support of these organisations is demonstrated in the Consultation Reports that accompany the Core Strategy.

9.14 Neighbouring authorities have been involved at all stages of the policy's preparation. No representations have been received from neighbouring authorities relating to policy CP16, indicating that these policies are coherent with their Core Strategies.

9.15 There are no regulatory or national policy barriers to the delivery of the policy.

Flexible

9.16 Policy CP16 establishes the strategic focus for minerals extraction but, as a Core Strategy policy, is flexible about where and how it will be achieved and the sites identified.

Able to be monitored

9.17 The means for monitoring policy CP16 are set out in chapter 10 of the Draft Core Strategy: Proposed Submission version, specifically:

- Production of primary land-won aggregates
- Production of secondary/recycled aggregates.

Consistent with national policy

9.18 Policy CP16 is consistent with national policy, specifically:

- Minerals Planning Statement 1 - Planning and Minerals
- Minerals Planning Statement 2 - Controlling and Mitigating the Environmental Impact of Minerals Extraction in England

- Minerals Planning Guidance 3 - Coal mining and colliery spoil disposal
- National and Regional Guidelines for Aggregate Provision in England 2005-2020

Policy CP17 Flooding

Community and stakeholder involvement

9.19 The community and key stakeholders including the Environment Agency, United Utilities and neighbouring councils have all been involved at each stage of preparing the Core Strategy. Their views and comments have been considered and have helped to shape the content and direction of policy CP17. Details are set out in Section 3 of this Topic Paper and are also included in the Consultation Reports which accompany the Core Strategy. As such, policy CP17 has been prepared in accordance with the Statement of Community Involvement in respect of who has been involved or consulted and how and when consultation has taken place.

Subject to sustainability appraisal

9.20 Policy CP17 has been shaped by the outcomes of a robust sustainability appraisal that satisfies the requirements of the Strategic Environmental Assessment Directive. The appraisal process was founded on the collection of thorough baseline information about flooding and key stakeholders were involved, including with the Environment Agency and United Utilities. The process informed the original choice of policy and subsequently tested it against sustainability principles and objectives. It was then further adapted to address sustainability issues and, as a result, is the most sustainable policy for Wigan Borough that we could reasonably include in the Core Strategy. The full details of the appraisal can be found in the Sustainability Appraisal Report (August 2011).

General conformity with the Regional Spatial Strategy

9.21 Policy CP17 is in general conformity with the Regional Spatial Strategy, specifically it:

- Supports integrated water management in accordance with policy EM5 by managing flood risk through new development.
- Promotes Manchester City Region Priorities in accordance with policy MCR1 by supporting integrated flood management works through the delivery of joint Surface Water Management Plans and preliminary flood risk assessment.

Regard to the Sustainable Community Strategy

9.22 Our sustainable community strategy 'Vision 2026' was produced in 2008 in line with the Core Strategy time frame. It identifies four priority areas and policy CP17 is in line with one: ambitious communities.

Founded on robust and credible evidence

9.23 Policy CP17 is founded on robust and credible evidence as shown in sections 2, 3, and 4 of this topic paper. This is backed up further by the separate 'natural resources and pollution evidence review' document. The key source of evidence which support policy CP17 are our Strategic Flood Risk Assessments.

The most appropriate strategy when considered against the alternatives

9.24 The strategy chosen, to reduce flood risk from all sources in areas vulnerable to flooding, including locations downstream of development, is the most appropriate strategy as it complies with the requirements laid down both nationally and regionally for managing flood risk. The surface water run-off rates have been guided by key evidence documents. Alternative approaches would not comply with national and regional planning policy and guidance, including key evidence.

Deliverable

9.25 The means of delivering what is set out in policy CP17 is set out in a key delivery items table beneath the policy in the Core Strategy. These include working jointly with other Greater Manchester councils to produce a joint Surface Water Management Plan and Preliminary Flood Risk Assessment; producing a Wigan Mitigation Strategy and assessing planning applications including any supporting flood risk assessments for proposed development in areas vulnerable to flooding.

9.26 In addition to Wigan Council, a number of organisations including the Association of Greater Manchester Authorities, the Environment Agency and United Utilities will play a crucial role in the delivery of this policy. The support of these organisations is demonstrated in the Consultation Reports that accompany the Core Strategy.

9.27 Neighbouring authorities have been involved at all stages of the policy's preparation. No representations have been received from neighbouring authorities relating to policy CP17 indicating that these policies are coherent with their Core Strategies.

9.28 There are no regulatory or national policy barriers to the delivery of the policy.

Flexible

9.29 Policy CP17 establishes a focus on reducing flood risk from all sources. The strategic nature of the policy provides direction for new development to help reduce the risk of flooding, whilst retaining some flexibility as appropriate, on how this will be done. The surface water run-off rates apply a minimum threshold which can be increased in practice as necessary. The policy therefore has the ability to adapt to future changes as new evidence and technology comes forward within the plan period.

Able to be monitored

9.30 The means for monitoring policy CP17 are set out in chapter 10 of the Draft Core Strategy: Proposed Submission version, specifically:

- Number of planning permissions granted contrary to Environment Agency advice.

Consistent with national policy

9.31 Policy CP17 is consistent with national policy, specifically:

- Planning Policy Statement 25: Development and Flood Risk.

Policy CP18 Environmental protection

Community and stakeholder involvement

9.32 The community and key stakeholders including the Environment Agency have all been involved at each stage of preparing the Core Strategy. Their views and comments have been considered and have helped to shape the content and direction of policy CP18. Details are set out in Section 3 of this topic paper and are also included in the Consultation Reports which accompany the Core Strategy. As such, policy CP18, has been prepared in accordance with the Statement of Community Involvement in respect of who has been involved or consulted and how and when consultation has taken place.

Subject to Sustainability Appraisal

9.33 Policy CP18 has been shaped by the outcomes of a robust sustainability appraisal that satisfies the requirements of the Strategic Environmental Assessment Directive. The appraisal process was founded on the collection of thorough baseline information about environmental protection and key stakeholders were involved, including with the Environment Agency. The process informed the original choice of policy and subsequently tested it against sustainability principles and objectives. It was then further adapted to address sustainability issues and, as a result, is the most sustainable policy for Wigan Borough that we could reasonably include in the Core Strategy. The full details of the appraisal can be found in the Sustainability Appraisal Report (August 2011).

General conformity with the Regional Spatial Strategy

9.34 Policy CP18 is in general conformity with the Regional Spatial Strategy, specifically it:

- Promotes environmental quality in accordance with policy DP7 by safeguarding soil functions, actively seeking the reclamation and re-use of derelict sites, tackling land contamination, managing air quality and ensuring that new development does not give rise to the pollution of any watercourse.
- Supports a reduction in emissions and adapts to climate change in accordance with policy DP9.
- Promotes the remediation of contaminated land in accordance with policy EM2 by promoting the appropriate remediation of sites.

- Supports integrated water management in accordance with policy EM5 by protecting the quality of surface and ground waters.
- Supports the Manchester City Region Priorities for improving the image of the borough in accordance with policy MCR1 by promoting the appropriate remediation of contaminated land.

Regard to the Sustainable Community Strategy

9.35 Our sustainable community strategy 'Vision 2026' was produced in 2008 in line with the Core Strategy time frame. It identifies four priority areas and policy CP18 is in line with one: ambitious communities.

Founded on robust and credible evidence

9.36 Policy CP18 is founded on robust and credible evidence as shown in sections 2, 3, and 4 of this topic paper. This is backed up further by the separate 'natural resources and pollution evidence review' document. The key sources of evidence which support policy CP18 are:

- Local Air Quality Management updating and screening assessment (2009)
- Air Quality Management Area Maps
- EMIGMA modelling (2011)
- Best and Most Versatile Agricultural Land Maps
- Wigan Derelict Land Study (2005)
- Wigan Contaminated Land Study (2008)
- Water for life and livelihoods: North West River Basin Management Plan (2009).

The most appropriate strategy when considered against the alternatives

9.37 The strategy chosen, of protecting and enhancing our environment through protecting best quality agricultural land; actively seeking reclamation of derelict land; tackling land contamination; managing air quality including through new development; and requiring that development does not have an undue adverse impact on amenity and quality of life, is the most appropriate strategy as it complies with the requirements laid down both nationally and regionally for environmental protection. It both protects and aims to improve environmental quality where circumstances allow. Alternative approaches would not comply with these requirements.

Deliverable

9.38 The means of delivering on what is set out in policy CP18 is set out in a key delivery items table under the policy. These include a revision of the Air Quality Supplementary Planning Document and an assessment of planning applications as appropriate to ensure continued protection and enhancement of the environment including adverse impact on amenity.

9.39 In addition to Wigan Council, a number of organisations including the Association of Greater Manchester Authorities and developers will play a crucial role in the delivery of this policy. The support of these organisations is demonstrated in the Consultation Reports that accompany the Core Strategy.

9.40 Neighbouring authorities have been involved at all stages of the policy's preparation. No representations have been received from neighbouring authorities relating to policy CP18 indicating that these policies are coherent with their Core Strategies.

9.41 There are no regulatory or national policy barriers to the delivery of the policy

Flexible

9.42 The strategic nature of the policy provides direction for protecting and enhancing our environment. It establishes a focus for protecting environmental quality but, as a Core Strategy policy, does not set out in detail how this will be achieved. It retains a level of flexibility which gives the policy the ability to adapt to future changes during the plan period.

Able to be monitored

9.43 The means for monitoring policy CP18 are set out in chapter 10 of the Draft Core Strategy: Proposed Submission version, specifically:

- Number of planning permissions granted that would result in irreversible loss of Grade 1, 2 or 3a agricultural land.
- Hectares of derelict land reclaimed.
- Pollution: water quality, air quality, ground contamination (improvement in quality / reduction in contamination).

Consistent with national policy

9.44 Policy CP18 is consistent with national policy, specifically:

- Planning and Climate Change - Supplement to Planning Policy Statement 1
- Planning Policy Statement 7: Sustainable Development in Rural Areas for protecting our best and most versatile agricultural land.
- Planning Policy Statement 23: Planning and Pollution Control
- Planning Policy Guidance 24: Planning and Noise.

TEN

Next steps

10.1 This is the final version of the topic paper summarising and analysing evidence on natural resources and pollution that we have gathered to inform our Core Strategy: Submission Version and the accompanying Sustainability Appraisal.

10.2 Previous versions of each topic paper and evidence reviews are available from the 'Issues and Options', 'Preferred Options' and 'Draft Core Strategy - Proposed Submission version' webpages for the Core Strategy, on our website at www.wigan.gov.uk/ldfcorestrategy. This is to provide a record of what evidence was available at each stage of Core Strategy preparation.

10.3 We may update this topic paper to inform a future development plan document or a review of the Core Strategy.

LDF

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