

# North Lanarkshire State of the Environment Report North Lanarkshire Council and Scottish Natural Heritage

December 2005







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# Executive Summary

North Lanarkshire Council and Scottish Natural Heritage appointed WSP Environmental Limited in August 2005 to prepare a State of the Environment Report for North Lanarkshire.

In response to changes in the planning system in Scotland, and the changing development context in the North Lanarkshire region, the Council is modernising its system of development plans for the area. In particular, a new area-wide Local Plan for North Lanarkshire is being proposed. This State of the Environment Report is intended to provide valuable information to the Local Plan process and to the Strategic Environmental Assessment (SEA) of the developing Plan which is currently underway.

The report has been structured around the identification of ten environmental topics which collectively set the context for the environmental baseline in North Lanarkshire. Within each topic chapter, the components of the baseline environment have been identified along with the associated trends and pressures on the resource. Analysis of this information and the stakeholder workshop has led to identification of a series of key environmental assets and the report suggests appropriate measures for protection and enhancement of these assets.

Many of the environmental topics presented have cumulative significance both through synergies and interactions between environmental resources and as a result of their geographical locations. This report includes a discussion on the significance of these cumulative baseline features and discusses the implications of climate change which is a cross-cutting issue of particular significance for planning today. The community also plays an important role in many aspects of the North Lanarkshire environment, through shaping the way in which land is used, by applying a demand and pressures on land such as for housing, through the use of environmental resources and through land management activities. The report has identified the linkages between communities in their environment and in particular the importance of accessibility of the community to areas of open and green space in the urban, sub-urban and rural hinterland areas.

This State of the Environment Report will provide an environmental baseline for use within the Strategic Environmental Assessment of future plans and strategies within North Lanarkshire. This will allow future planning to take all aspects of the environment into consideration in developing sustainable plans for land use, community and environmental resources in North Lanarkshire.







# 1 Introduction

## 1.1 BACKGROUND

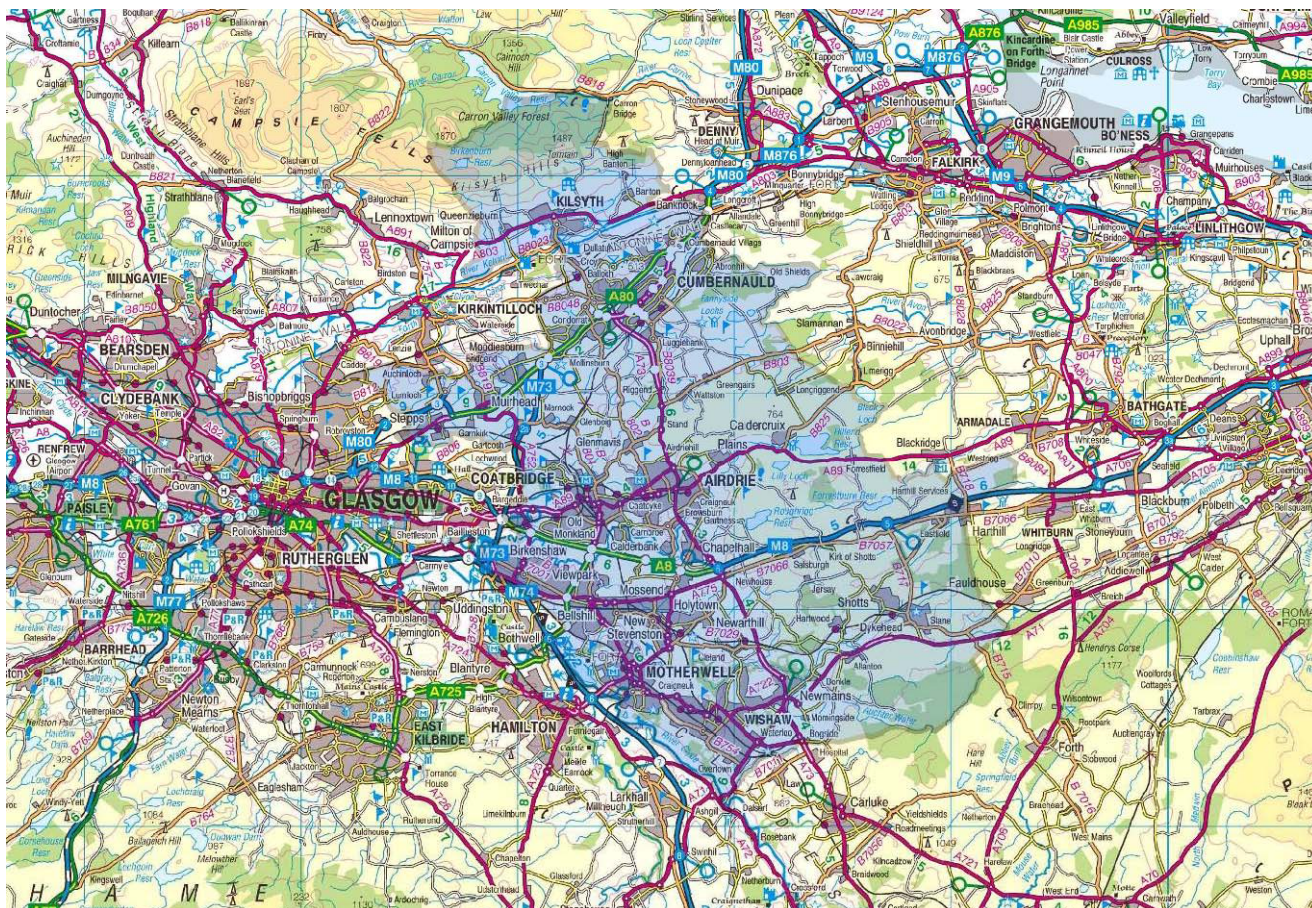
1.1.1 This State of the Environment Report has been prepared for North Lanarkshire Council and Scottish Natural Heritage to provide an overview of the status and health of the natural and built environment in North Lanarkshire. The report was commissioned in August 2005 and has been prepared by WSP Environmental Ltd.

1.1.2 In response to changes in the planning system in Scotland, and the changing development context in the North Lanarkshire region, the Council is modernising its system of development plans for the area. In particular, a new area-wide Local Plan for North Lanarkshire is being proposed (see Section 2.1). This State of the Environment Report is intended to provide valuable information to the Local Plan process and to the Strategic Environmental Assessment of the developing Plan.

## 1.2 NORTH LANARKSHIRE SETTING

1.2.1 North Lanarkshire was formed as a unitary authority area in 1996 following local government reorganisation. It covers an area of approximately 47,000 hectares (470 square kilometres) and is situated within West Central Scotland between the urban conurbations of Glasgow and Edinburgh (see Figures 1.1 to 1.3). North Lanarkshire is Scotland's fourth largest Local Authority based on population and is principally linked economically and socially with Glasgow and the Clyde Valley.

**Figure 1.1 North Lanarkshire**





1.2.2 The region forms a geographically diverse area between the urban conurbation of Glasgow which it borders to the west and the moorlands of central Scotland to the east. The southern part of North Lanarkshire is heavily populated, particularly in the south western area around the large town of Motherwell and adjacent settlements. The south eastern and northern parts of the region are more rural in character with lower population densities and more extensive areas of open countryside.

1.2.3 North Lanarkshire is traversed by several important road, railway and waterway transport corridors which run approximately in an east-west direction across the region. The topography of North Lanarkshire is also influenced by the valleys of a number of significant watercourses including the Rivers Kelvin, North Calder and South Calder, each of which drains westwards to the River Clyde. Patterns of settlement tend to reflect the communication routes and established towns such as Motherwell, Coatbridge and Airdrie which developed largely during the industrial revolution as a result of their proximity to sources of raw materials.

1.2.4 Industrial change has been a key component in shaping the social, natural and built environment of North Lanarkshire. This industrialisation has been followed by an era of decline and more recently by a newer mix of light manufacturing, storage and service industries which has affected the land use and landscape of the area.

1.2.5 A more detailed description of the land uses of North Lanarkshire is presented in Section 3.

### 1.3 STRUCTURE OF THE REPORT

1.3.1 This State of the Environment Report is structured with a series of chapters which deal with the different elements of the environment in North Lanarkshire. These sections have been identified so that in combination they address all relevant aspects of the environmental baseline to support development and environmental appraisal of the Local Plan.

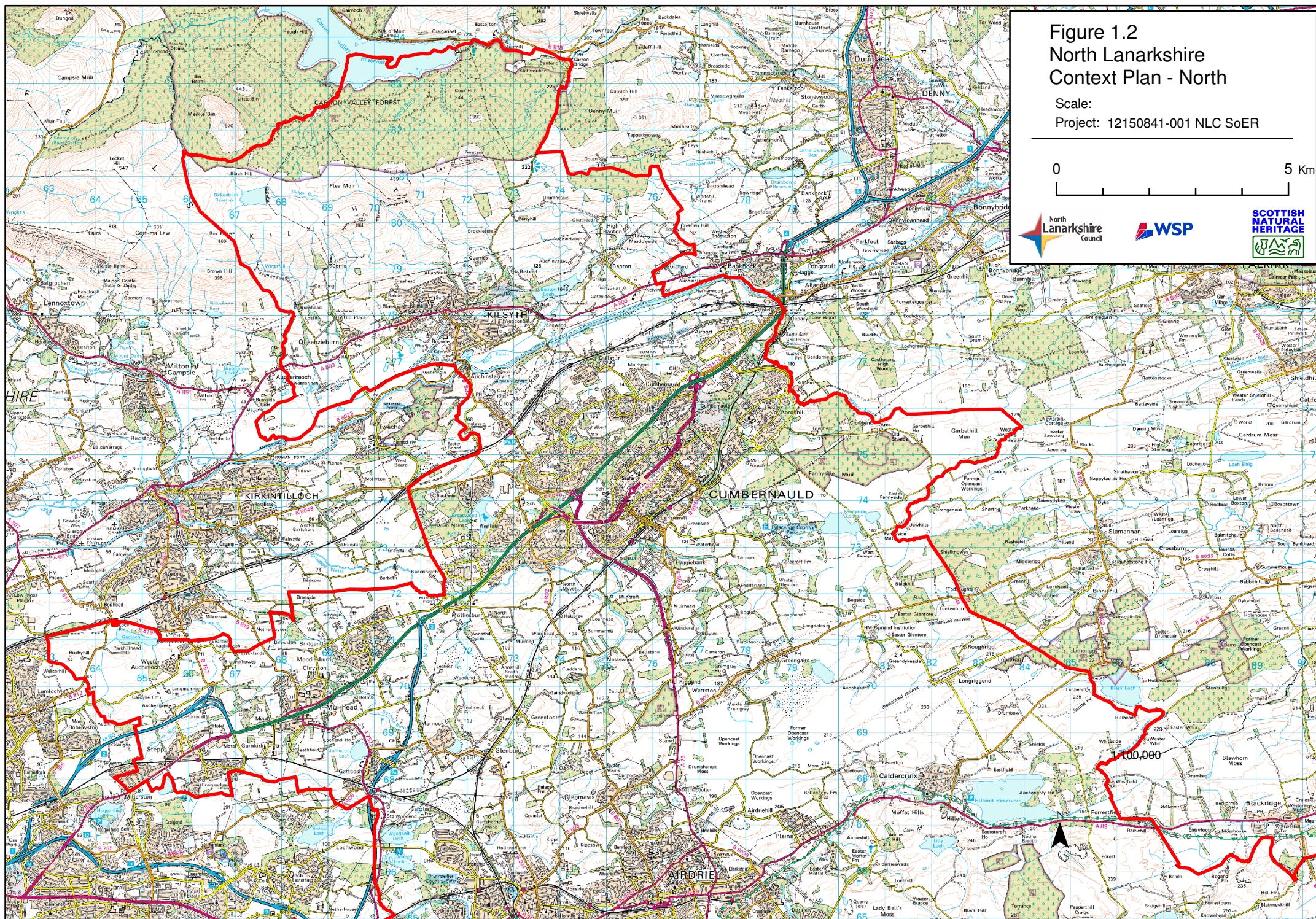
1.3.2 Following a discussion of the purpose and approach to the State of the Environment reporting process in Chapters 2 and 3, Chapters 4 to 14 then present and analyse the environmental baseline for North Lanarkshire. A summary of the key issues from each chapter is then presented and discussed in Chapter 15 of this report. Plans and figures are used throughout the report and are located at the end of each relevant chapter along with a list of the references used for each topic.



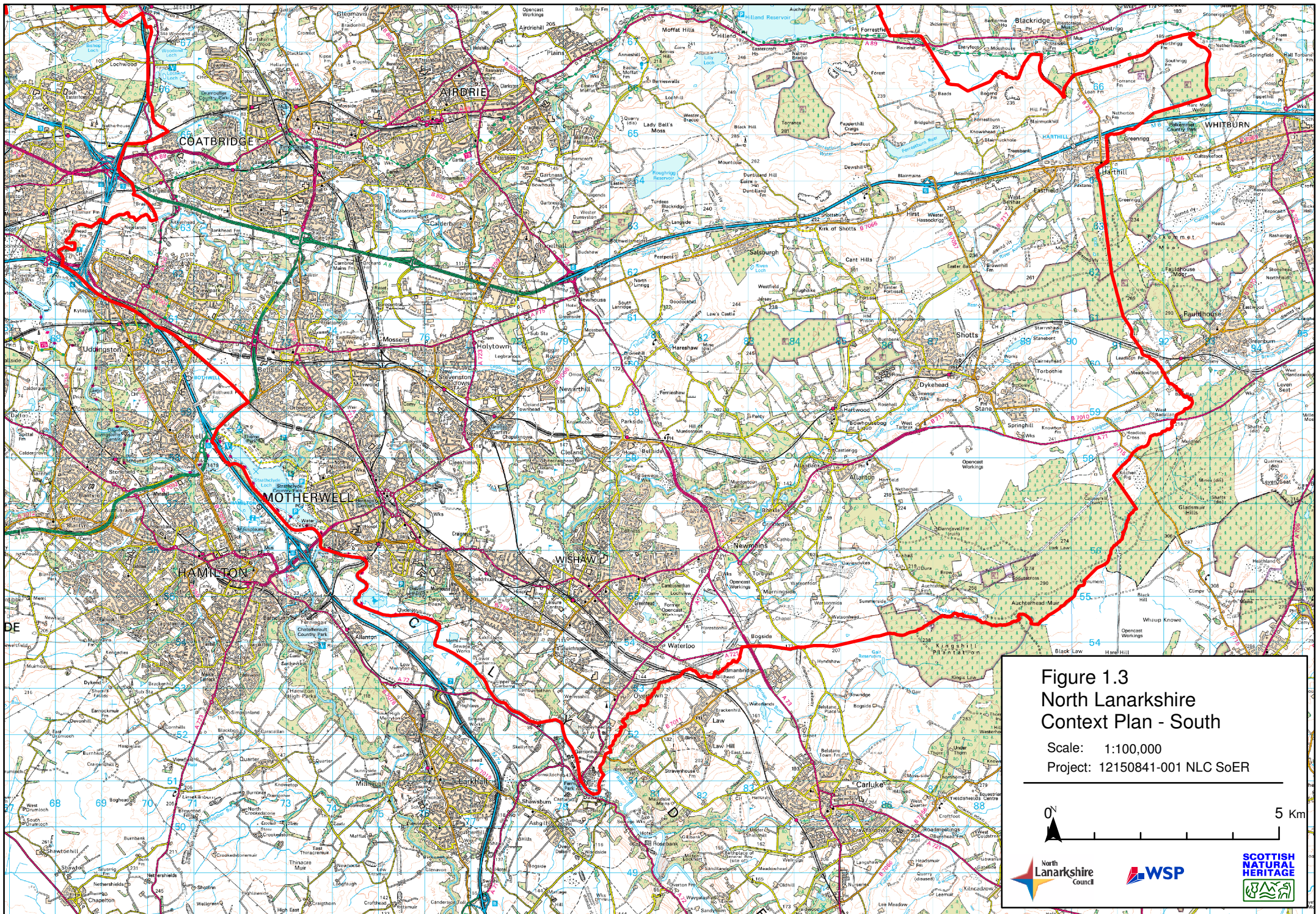
Figure 1.2  
North Lanarkshire  
Context Plan - North

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## 2 Purpose of the Report

### 2.1 PLANNING CONTEXT

2.1.1 The North Lanarkshire Council area is currently covered by 11 local plans and 1 subject plan. In October 2002 the Council announced its intention to prepare a Council-wide plan that would replace all of the local plans with one single plan. The preliminary work for the North Lanarkshire Local Plan is well underway with a pre-draft public consultation exercise concluded in April 2004. The Council is working towards the development of a Consultative Draft Plan and Finalised Plan in 2006 and plan adoption in 2007.

2.1.2 The new Local Plan will be subject to both a Sustainability Appraisal (SA) and a Strategic Environmental Assessment (SEA) to ensure that development in North Lanarkshire is guided by the Plan in a sustainable way. An overview of the legal requirements for SEA of plans and programmes in Scotland is presented in Section 2.2. The initial SA of the Plan is discussed in Section 2.3.

2.1.3 The development of the Local Plan and the SEA and SA of the Plan depends upon a comprehensive and up-to-date environmental baseline. This State of the Environment Report has been commissioned to establish the current baseline of data necessary for consideration of the most appropriate planning policies for the Plan and to enable the measurements of the effects of land use policy on the environment. The baseline information will also facilitate effective monitoring of the effects of the Plan during its implementation.

2.1.4 It is also intended that the baseline data and analysis presented in this report will provide an appropriate foundation for environmental appraisals of other strategies and plans which may be developed by North Lanarkshire Council and other public sector agencies in North Lanarkshire in the coming years.

### 2.2 STRATEGIC ENVIRONMENTAL ASSESSMENT

2.2.1 Scotland has implemented the requirements of the European Council Directive (2001/42/EC) on the assessment of the environmental effects of plans and programmes, through The Environmental Assessment of Plans and Programmes (Scotland) Regulations 2004 (known as the SEA Regulations).

2.2.2 SEA offers a new approach to the development of strategies and plans. In addition to a comprehensive examination of environmental effects, it improves the plan-making process, identifying strengths and weaknesses, and contributing to a greater level of sustainability through the transparency of the process involved (including consultation) and the breadth of the assessment.

2.2.3 SEA can be defined as the process of identifying and assessing the environmental consequences of a plan, programme or strategy and to propose measures to prevent, reduce or offset any significant adverse effects.

2.2.4 A series of procedural and assessment stages are implied by the SEA Regulations, some of which are specific to the environmental assessment process and some of which require co-ordination with the overall plan making process. SEA differs from more traditional forms of environmental assessment (e.g. project level Environmental Impact Assessment or EIA) as it requires much closer integration of the environmental appraisal process with the various stages of the development of the plan, programme or strategy. Critically these include environmental assessment input to the development of the plan's policies and measures, and integration of the SEA with the public consultation phase of the plan.

2.2.5 The development of the environmental baseline forms the key preliminary stage of the SEA process. It is critically important, not only in collating a baseline view on environmental conditions in the study area for the plan, but also in feeding into the development of objectives for the plan's appraisal through identification of key environmental issues and problems.



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## 2.3 SUSTAINABILITY APPRAISAL

2.3.1 North Lanarkshire Council is also undertaking a Sustainability Appraisal (SA) of the Council-wide local plan. The work to date has focussed on a series of workshops with Council members and officials and community plan partners in 2004 and 2005 and integration of sustainability considerations with drafting of the Plan. The process has involved identification of key issues for sustainable development in North Lanarkshire which will feed into policy development and appraisal of the Plan.

2.3.2 Whilst the SA will consider a wider range of social and economic issues than those addressed within the SEA, an integrated approach is envisaged. The SA will also draw on the baseline information presented under the 'community' section of this report (see Chapter 12). It is intended that the Council-wide North Lanarkshire Local Plan will be published with accompanying reports of the SA and SEA.

## 2.4 USES OF THIS REPORT

2.4.1 This State of the Environment Report is intended to fulfil a number of purposes. Primarily the report provides a detailed review of the baseline resource and analysis of the health of the environmental assets in North Lanarkshire. The information presented will form a comprehensive resource from which North Lanarkshire Council and others may draw baseline environmental data required during the preparation of SEAs, in particular for the emerging Council-wide Local Plan.

2.4.2 The information presented in this report is the result of an extensive data review and collation exercise (see Chapter 3). The baseline which has been documented in the report will be used by North Lanarkshire Council to develop a policy approach to the protection and enhancement of the environment through the Local Plan process. It also provides a reference source for other policy development and analysis purposes by the Council and other agencies in North Lanarkshire.



## 3 Methodology and Approach

### 3.1 APPROACH

3.1.1 The approach to the collation and analysis of environmental information has followed a series of defined stages as follows:

- Identification and sourcing of baseline data;
- Collation and manipulation of data;
- Identification of data gaps and action to complete gaps;
- Establishing and reporting key baseline environmental features;
- Analysis of environmental baseline features; and
- Identification of key assets including recommendations for their enhancement and protection.

3.1.2 The analysis undertaken in the stages identified above has developed the baseline environmental information much further than a simple presentation of data on existing features. The process has included an analysis of the data, trends in the data, pressures on the resource and then identification of those assets which are considered to be fundamental to the health of the environment in North Lanarkshire.

3.1.3 The analysis of the environmental baseline, establishment of trends and pressures, and the identification of key environmental assets was informed by the following activities:

- From the collation, reporting and review of the detailed environmental baseline information to provide an initial view of environmental conditions;
- From a review of spatial baseline data which was prepared using a Geographic Information System (GIS);
- From a process of internal brainstorming workshops held by WSP Environmental to identify key features, assess their condition and prioritise environmental assets; and
- By obtaining input from a range of stakeholders in North Lanarkshire on the draft environmental assets through an external workshop facilitated by WSP Environmental.

3.1.4 The analysis process sought to interpret the environmental data, rather than simply present it, so that linkages could be made between the baseline data and trends and the condition, vulnerability and health of the resource, and its significance to the environment in North Lanarkshire. To structure this process, WSP Environmental used mind mapping techniques to identify the essential features of the baseline resource in each environmental topic during the internal workshop process. A matrix was then prepared to structure the analysis of each of these features through consideration of the following aspects:

- Distribution and abundance;
- Trends and pressures;
- Health and vulnerability;
- Distinctiveness and significance of the resource in North Lanarkshire.

3.1.5 From this analysis, the key assets were identified by the project team and prepared as a draft set of assets for further discussion with the client group and external stakeholders via the workshop. For each group of key assets, commentary has been provided in the relevant chapter of this report on the issues for resource protection and enhancement. It is anticipated that the list of assets and the issues for their future protection will link directly into the policy development of the Council-wide Local Plan (in as much as the Development Plan can influence the assets identified). Indicators will be developed as part of the SEA to assess the environmental effects of the Plan and to track the effects of the Plan's implementation against these key assets.



3.1.6 The environmental data sets which have been collated for the project have been structured into electronic data sets within a database and GIS. This approach has facilitated the process of manipulating, analysing and reporting environmental information, including the preparation of maps and plans for the report from the GIS. This database, which contains the source data from which the environmental baseline has been analysed and reported, has been made available to the client group as a separate project deliverable from the State of the Environment Report.

## 3.2 SCOPE OF THE REPORT

3.2.1 The scope and content of the report has been guided by the relevant criteria for Environmental Reports set out in Schedule 2 of the SEA Regulations. The technical chapters of this report have been structured so that key elements of the environment in North Lanarkshire are grouped into clear headings or topics. Table 3.1 below illustrates the relationship between the report chapters and the criteria required by SEA Regulations.

**Table 3.1: Scope of the State of the Environment Report**

Report Chapters	SEA Regulations Criteria	Environmental Features
Land Use	Material assets	Landfill and mineral sites; other brownfield sites; greenfield land; agricultural land; urban and suburban land (developed areas)
Ecology	Biodiversity; fauna; flora	Designated sites at international, national, regional and local levels; priority habitats; other habitats; priority species
Aquatic Environment	Water, climatic factors	Water availability; rivers, streams and their catchments; still waters; groundwaters; flood plains
Geology and Soils	Soil, material assets	Designated sites; solid and drift geology; soil resources; land stability
Waste and Resources	Material assets, soil, population	Waste arisings and flows; waste management
Energy	Material assets, climatic factors	Energy use and demand; energy production and supply
Landscape & Visual	Landscape	Designated areas; landscape character areas; landscape wedges and corridors
Cultural Heritage	Cultural heritage, material assets	Designated cultural heritage sites; non designated sites (known and potential archaeology)
Air Quality and Noise	Air, climatic factors, human health	Air quality; noise climate
Communities	Population, human health	Health; population; community facilities; initiatives

3.2.2 The table also provides a summary of the key environmental features and issues addressed in each technical chapter of this State of the Environment Report. In preparing this structure it is recognised that there are certain environmental themes and issues which are cross-cutting and cannot readily be addressed within the scope of a single chapter given the report structure which has been adopted. An example is the built environment which has implications for land use, townscape, communities and cultural heritage. The approach adopted has been to address such multi-layered issues within the context of each separate chapter.

3.2.3 In addition, a chapter has been included in the report on cumulative environmental baseline issues which discusses the cumulative significance of assets on a geographic basis, in terms of areas of particular cumulative environmental significance, as well as in relation to the inter-relationship between different types of environmental asset. This chapter also deals with the phenomena of climate change which has implications across a range of environmental media including climate, flooding, material assets and air quality.



### 3.3 DATA ISSUES

3.3.1 Data for this report have been provided from a range of sources, these being primarily the relevant North Lanarkshire Council Departments and Scottish Natural Heritage. Where further information has been required then the relevant parties were contacted and the data requirement discussed. WSP Environmental has obtained both raw data and data which have been interpreted by other parties. The sources of the data used, and any subsequent manipulation / interpretation which has been undertaken, is identified throughout the report chapters. A list of the key organisations consulted is presented in Box 3.2 below.

#### Box 3.1: Key Organisations Consulted

North Lanarkshire Council	Scottish Water
Scottish Natural Heritage (SNH)	Meteorological Office
Scottish Environment Protection Agency (SEPA)	West of Scotland Archaeological Service (WoSAS)
Royal Society for the Protection of Birds Scotland (RSPB)	Central Scotland Forest Trust (CSFT)
Scottish Wildlife Trust (SWT)	Forestry Commission (FC)

3.3.2 The collation, manipulation and analysis of environmental information for this report have involved handling of significant quantities of data in both electronic and hard copy and from a range of sources. Synthesis of these data has in some cases led to the identification of inconsistencies across the range of different data sets which have been used and referenced. Where such problems have been encountered, commentary has been provided within the “data gaps and limitations” sub-section of each chapter. This has occurred in particular for data on land use and woodland cover for example and is generally associated with different survey dates and differing criteria used in the data collection and surveying processes.

3.3.3 Similarly, since the baseline data have been obtained from a wide variety of sources, there is a variation in the currency of the information provided. It therefore follows that the date of the ‘baseline’ within this report is not necessarily uniform. Reference to the relevant year of data is made throughout the report associated with reported data and plans.

3.3.4 In many cases the data presented in report tables is based on raw data and such data has been rounded to a given number of decimal places. The totalling of rounded figures may not therefore equal the total figure presented.

3.3.5 The majority of data obtained for this baseline report was specific to North Lanarkshire. However, in some instances data have been provided as part of trans-boundary datasets. These include:

- National or regional datasets where sites cross the North Lanarkshire boundary (such as ecologically designated sites). In these instances the datasets were intersected with the North Lanarkshire boundary to obtain the data pertinent to North Lanarkshire. In these cases, revised site areas for cropped sites have been calculated.
- National or regional datasets where data are specific to a larger area than North Lanarkshire (such as NHS Lanarkshire or the Central Scotland Forest). In these instances where a subdivision of the dataset specific to North Lanarkshire cannot be obtained, the data have been reported for the wider area in which it was collected or reported and discussed on this basis in the report.

3.3.6 The research and data gathering process has also sought to identify, where available, trends in the data. In some instances historical data cannot be directly compared with current baseline data given the difference in sources and criteria for the data.

3.3.7 In many instances, where available and beneficial, the data for North Lanarkshire have been compared with the Scottish average to allow an assessment of the relative levels of environmental abundance and health within North Lanarkshire.

3.3.8 The next sections of this report set out the results of the analysis of data for each of the topics set out in Table 3.1 above. Details of specific interrogation and manipulation of data is presented in Appendix A and details of data gaps and limitations are presented within each chapter and within Appendix B.







## 4 Land Uses in North Lanarkshire



Figure 4.1 – Key Road and Rail Networks

### 4.1 CONTEXT

4.1.1 North Lanarkshire has a diverse range of land uses with the main urban settlements occupying the western part of the area and a predominance of pastoral farmland and woodland/forestry across the remainder of North Lanarkshire. North Lanarkshire's historical development has resulted in a large amount of vacant and derelict land across much of the area which represents not only a detrimental impact on the land of North Lanarkshire but also opportunities for enhancement.

4.1.2 North Lanarkshire is located within the Central Belt of Scotland and contains various major transport links including the M8, A8 and A80 trunk roads and a railway network and there is a wide variety of industrial activity associated with the central location of North Lanarkshire. In addition to these developed areas there are less managed areas of upland associated with the Kilsyth Hills in the north and the Central Scotland Plateau in the eastern part of the region.

4.1.3 Figure 4.1 presents a schematic plan of the key urban areas within North Lanarkshire along with the principal road and rail network.



## 4.2 BASELINE CHARACTERISTICS

4.2.1 The discussion of land use within this chapter is based primarily on the divisions of land use identified within the land use survey of 2004 undertaken by North Lanarkshire Council. Reference is also made to the areas of North Lanarkshire which have been designated as Green Belt.

### Land Use Categories

4.2.2 Land use within North Lanarkshire comprises a mixture of developed urban and industrial land, managed and unmanaged rural land. Digital land use cover for 2004 identifies a series of 47 categories of specific land use which have been defined within the ten broad categories presented within Table 4.1 and Figure 4.2.

**Table 4.1 Land Use Categories with Area**

Land Use Category	Area (ha)	% of North Lanarkshire
Agriculture	18,066	38%
Forestry / Woodland	6,477	14%
Scrub / Heath / Moor	5,214	11%
Standing and Running Water and Bog	1,765	4%
Inland Rock	15	0%
Minerals and Waste (Quarries and Landfills)	2,042	4%
Urban (Predominately Residential)	3,592	8%
Urban (Predominately Industry/Commercial)	6,642	14%
Outdoor Recreational Land & Open Space	2,893	6%
Un Categorised	494	1%
<b>North Lanarkshire Total</b>	<b>47,200</b>	<b>100%</b>

Source: Land Use Shape File provided by NLC (2004)  
Note: Land use categories derived as per Appendix A.1

4.2.3 Further discussion of the categories identified above is presented below.

### Agriculture

4.2.4 North Lanarkshire contains land suitable for a range of agriculture from arable farmland associated with more fertile soils to pastoral / grazing farmland on a variety of generally poorer soils. Table 4.2 below provides a breakdown of the land use data summarised above.

**Table 4.2 Breakdown of Agricultural Land Use within North Lanarkshire**

Agricultural Land Use: Sub-Categories	Area (ha)	% of Total Agriculture
Field Crops	847	5%
Fallow Land	85	<1%
Horticulture and Orchards	80	<1%
Improved Pasture	14,950	83%
Field margins	196	1%
Unimproved Grassland	1,758	10%
Agricultural Buildings	150	1%
<b>North Lanarkshire Agricultural Land Total</b>	<b>18,066</b>	<b>100%</b>

Source: Land Use Shape File provided by NLC (2004)

4.2.5 The data on agricultural land uses within North Lanarkshire indicate that the majority of agricultural land is pastoral farmland with approximately 83% of the agricultural land utilised for improved pasture.



4.2.6 Land Capability for Agriculture maps produced by the MacAulay Institute for Soil Research identify the range of capability of the soils of North Lanarkshire for supporting different types of agriculture. Prime Agricultural Land (defined as the best and most versatile land) is present within North Lanarkshire in small pockets mainly in the lowland areas near Cumbernauld and in the west of North Lanarkshire. Further discussion of the capability of land within North Lanarkshire for agriculture is presented in Chapter 7: Geology and Soils.

4.2.7 Information on farms within Scotland is prepared by the Scottish Executive. The agricultural / farm baseline which has been obtained from the Economic Report on Scottish Agriculture (2005) is presented below. The report divides Scotland into four main agricultural areas and North Lanarkshire lies within the 'South-West' area within a sub-division for the Clyde Valley area.



4.2.8 The principal farm types represented in North Lanarkshire are:

- Cattle and Sheep Farms. These farm types are located in the northern part of North Lanarkshire, to the north of the Cumbernauld area;
- Dairy Farms. These are prevalent throughout North Lanarkshire except the far northern area;
- Cereal Farms. A small number of cereal farms are present in the west central area approximately between Stepps and Glenboig; and
- Mixed Farms. These typically occupy an area between Airdrie and Bellshill in the south central area of North Lanarkshire.

4.2.9 Specific details on farm sizes and activities are presented within Tables 4.3 and 4.4 with figures for North Lanarkshire, the Clyde Valley and Scotland allowing comparison between regional and national averages.

**Table 4.3 Farm Sizes**

Farm Size	Number of Holdings and Areas					
	North Lanarkshire		Clyde Valley		Scotland	
0 – 2 ha	53 (10%)	68 ha	327 (10.3%)	355 ha	8,361 (16.5%)	9,723 ha
2 – 5 ha	86 (16%)	286 ha	557 (17.6%)	1,821 ha	10,456 (20.6%)	33,127 ha
5 – 10 ha	69 (13%)	506 ha	337 (10.7%)	2,379 ha	5,878 (11.6%)	41,717 ha
10 – 20 ha	48 (9%)	699 ha	295 (9.3%)	4,279 ha	4,931 (9.7%)	69,935 ha
20 – 50 ha	120 (22%)	4,075 ha	527 (16.7%)	18,040 ha	6,249 (12.3%)	206,778 ha
50 – 100 ha	103 (19%)	7,618 ha	585 (18.5%)	42,328 ha	5,594 (11.0%)	405,401 ha
100 – 200 ha	51 (9%)	6,673 ha	321 (10.1%)	43,304 ha	4,739 (9.3%)	664,597 ha
200 ha +	14 (3%)	4,722 ha	215 (6.8%)	108,054 ha	4,591 (9.0%)	4,085,828 ha
Total (ha)	544 (100%)	24,647 ha	3,164 (100%)	220,559 ha	50,799 (100%)	5,517,106 ha
Average Size of Holding	Approximately 45 ha		Approximately 70 ha		Approximately 109 ha	

Source: Economic Report on Scottish Agriculture, Scottish Executive, 2005 and data provided by SEERAD (4 November 2005)

4.2.10 As the data demonstrates, there are relatively few farms greater than 100 hectares in North Lanarkshire and the average size of farm holding is significantly smaller than for the Clyde Valley and Scotland average.

4.2.11 The report also provides a breakdown of the different farm types within North Lanarkshire, the Clyde Valley and Scotland as a whole and these are summarised in Table 4.4. These data identify that the majority of farms within North Lanarkshire are classified as 'other' (59%) which compares to a similar figure for the Clyde Valley and Scottish averages of 51% and 44% respectively. Approximately 26% of farms in North Lanarkshire are for cattle and sheep.

**Table 4.4 Farm Types**

Farm Type	Number of main and minor holdings		
	North Lanarkshire	Clyde Valley	Scotland
Cereals	18 (3%)	115 (3.6%)	3,983 (7.8%)
General Cropping	0 (0%)	23 (0.7%)	2,281 (4.5%)
Horticulture	7 (1%)	78 (2.5%)	899 (1.8%)
Specialist Pigs	0 (0%)	6 (0.2%)	147 (0.3%)
Specialist Poultry	11 (2%)	64 (2.0%)	1,034 (2.0%)
Dairy	32 (6%)	275 (8.7%)	1,569 (3.1%)
Cattle and Sheep (LFA)	119 (22%)	799 (25.3%)	13,669 (26.9%)
Cattle and Sheep (Lowland)	22 (4%)	121 (3.8%)	2,337 (4.6%)
Mixed	12 (2%)	69 (2.2%)	2,479 (4.9%)
Other	323 (59%)	1,614 (51.0%)	22,363 (44.1%)
Total	544 (100%)	3,164 (100%)	50,761 (100%)

Source: Economic Report on Scottish Agriculture, Scottish Executive, 2005 and data provided by SEERAD (4 November 2005)

#### Forestry / Woodland

4.2.12 There is a range in the nature and extent of forestry / woodland within North Lanarkshire. This includes commercial plantations and natural native woodland with significance for nature conservation. Within the central belt of Scotland there is extensive forest / woodland cover with the Central Scotland Forest Trust (CSFT) and the Forestry Commission (FC) undertaking to manage and promote woodland for a range of social, economic and environmental purposes. Further discussion of woodland as a habitat is presented within the Chapter 4: Ecology.

4.2.13 There is a variation in the figures for woodland cover in North Lanarkshire which is discussed in more detail in Chapter 4. However, in broad terms, the land use cover survey for 2004 identifies that approximately one sixth of North Lanarkshire is occupied by forestry and woodland.



#### Scrub / Heath / Moorland

4.2.14 Throughout North Lanarkshire there are locations of scrub and heathland. The more extensive areas of heath are those associated with the upland areas, such as the Kilsyth Hills in the north and the Central Scotland Plateau in the eastern part of North Lanarkshire.

#### Standing and Running Water / Bog

4.2.15 North Lanarkshire lies predominately within the catchment of the River Clyde with the watercourses generally flowing in a westerly direction. Watercourses in the catchments of the Rivers Avon and Almond in the east of the region drain eastwards. There are areas of open standing water throughout the area with large lochs / reservoirs located in the upland Plateau in the east of the area. Further discussion of watercourses and standing water is presented within Chapter 5: Aquatic Environment.

#### Inland Rock

4.2.16 The land use data identifies area of inland rock although this land use makes up a relatively small quantity of the land cover of North Lanarkshire and has not been considered further in this report.

#### Minerals and Waste Sites

4.2.17 Surface mining / quarrying has historically been undertaken throughout Central Scotland. The land use survey identifies 1,814 ha of mineral workings and quarries (approximately 4% of North Lanarkshire's area) and 229 ha of landfills (<1% of the North Lanarkshire area).



4.2.18 The Department of Trade and Industry (DTI) website identifies that within North Lanarkshire there is one operational opencast coal mine (as of March 2005), this being at Drumshangie, near Greengairs. There are also a number of quarries (for sands and gravels etc). Aggregate extraction is discussed further in Chapter 7: Geology and Soils.

4.2.19 Within North Lanarkshire there are two municipal landfill sites (Greengairs and Auchinlea) as well as a number of privately operated landfill sites which have been identified by SEPA. Further analysis of waste management facilities is presented in Chapter 8: Waste and Resources.



#### Urban Areas

4.2.20 Throughout North Lanarkshire there are urban areas, many villages and towns having been established alongside industrial activities such as coal mining and steel making. Large settlements are now focussed in the south-western and central parts of North Lanarkshire generally on areas of lower lying land. Growth of urban areas has also been affected by the use of North Lanarkshire's towns as commuter settlements for Glasgow in particular.

4.2.21 The Headline Results for North Lanarkshire from the 2001 Census (produced by NLC Chief Executive's Office) identifies 136,100 dwellings within North Lanarkshire in 2001.

4.2.22 Figures within the Local Housing Strategy report that there is an adequate supply of land in appropriate locations to deliver the objectives contained within the strategy which relate to future housing supply. The two relevant objectives are:

- To improve the accessibility and sustainability of housing development by increasing the proportion of new build housing built on 'brownfield' sites by 2009; and
- Enable the supply of new build housing stock by 3,974 units by 2008 to meet identified need and anticipated rise in household numbers as agreed in the Structure Plan.

#### Outdoor Recreational Land Use and Open Space

4.2.23 Throughout North Lanarkshire there are areas of public open space and allotments, these ranging from roadside verges to Country Parks and including urban green space, golf courses and public parks. These facilities are predominantly located in and around urban areas with land uses such as golf courses and country parks often being located in rural areas. Further discussion of access to recreational facilities is discussed within Chapter 13: Communities.

4.2.24 Data from North Lanarkshire Council's Open Space Strategy (2004) identifies the following areas of open space within North Lanarkshire:

- 970ha of parkland;
- 6 town parks and 1,070 amenity open spaces;
- 263 formal pitches and 86 kick about areas; and
- 281 play spaces.

#### Uncategorised Land Use

4.2.25 Some parts of North Lanarkshire were not categorised within the Land Use 2004 data. The uncategorised area accounts for approximately 1% of the North Lanarkshire area.



## Land Use Designations

### Green Belt

4.2.26 The Glasgow and Clyde Valley Structure Plan and relevant local plans identify parts of North Lanarkshire which require additional development controls, primarily due to their urban fringe and inter-settlement open space function. Green belt designations place restrictions on the types of development which will be permitted on such land. Within North Lanarkshire, an area of 17,121ha of land (approximately 36% of North Lanarkshire) is designated as green belt. The extent of the Green Belt is shown in Figure 4.3.

4.2.27 Analysis using GIS identifies that within the green belt area, a number of locations have been identified which are also designated for their ecological and/or landscape value. These sites occupy an area of approximately 1,940ha of the green belt (11% of the green belt) and indicate sites which can be seen to have a particular importance for landscape and conservation, often in urban fringe areas.

### Brownfield Land

4.2.28 The 2004 Scottish Vacant and Derelict Land Survey identifies that there are 392 vacant and derelict sites with an approximate area of 1,300ha. Details of the breakdown of this land in North Lanarkshire is presented within Table 4.5 and is displayed graphically in Figure 4.4.

4.2.29 The area of vacant and derelict land accounts for approximately 2.8% of the North Lanarkshire land area.

4.2.30 The area of vacant and derelict land within North Lanarkshire (in 2004) accounted for over 12% of total area of vacant and derelict land in Scotland.

4.2.31 Brownfield land<sup>1</sup> is land which has previously been used but has become vacant, derelict and/or contaminated. North Lanarkshire Council report that in 2003/04 67% of completed residential properties within North Lanarkshire were completed on brownfield sites. Contaminated land is discussed further in Chapter 7: Geology and Soils.

**Table 4.5 Vacant and Derelict Land (2004)**

	North Lanarkshire	Scotland
<b>Derelict Land</b>		
Area (ha)	945	7,638
Number of Sites	209	1,868
<b>Urban Derelict Land</b>		
Area (ha)	376	3,023
Number of Sites	183	2,306
<b>Total Derelict and Urban Vacant Land</b>		
Area (ha)	1,321	10,661
Number of Sites	392	4,174

Source Scottish Vacant and Derelict Land Survey 2004, Scottish Executive Statistical Bulletin ENVIRONMENT/2004/2, December 2004

## Summary of Land Use Baseline

4.2.32 Table 4.6 summarises the baseline land use resources identified within this section along with their geographical distribution and abundance. Distinction is made with open space between 'Agricultural Land' (being active agricultural land), 'Greenfield Land' (open greenfield land that is not under agricultural use) and 'Green Belt' (this being Local Plan designated land).

**Table 4.6 Summary of Baseline Distribution**

Feature	Distribution	
	Geographical	Abundance
Agricultural Land	<ul style="list-style-type: none"> <li>Distribution is limited by topography, soils and climate, but occurs throughout North Lanarkshire</li> </ul>	<ul style="list-style-type: none"> <li>38% of North Lanarkshire is agricultural land. 83% of this agricultural land is improved pasture</li> </ul>
Greenfield Land (non-agricultural)	<ul style="list-style-type: none"> <li>This includes woodland, scrub, waterbodies and open space (excludes agricultural land)</li> <li>Well distributed throughout North Lanarkshire with the greatest area in the east of the region</li> </ul>	<ul style="list-style-type: none"> <li>35% of North Lanarkshire is greenfield land (excluding agricultural land). 14% of North Lanarkshire is woodland and 11% is scrub, heath and moor</li> </ul>

<sup>1</sup> The UK Parliamentary Office of Science and Technology defines brownfield land as any land that has been previously developed.

Feature	Distribution	
	Geographical	Abundance
Green Belt Designated Land	<ul style="list-style-type: none"> <li>Predominantly designated in the west and north of North Lanarkshire surrounding urban areas and transport corridors</li> </ul>	<ul style="list-style-type: none"> <li>36% of North Lanarkshire (approximately 17,000 hectares) is designated Green Belt</li> </ul>
Urban and suburban land (developed areas)	<ul style="list-style-type: none"> <li>Generally related to urban expansion of Glasgow conurbation and along transport corridors with isolated settlements</li> <li>Legacy from historical industrial activity</li> </ul>	<ul style="list-style-type: none"> <li>22% of North Lanarkshire is urban and suburban land. 35% of this urban area is occupied by residential land uses</li> </ul>
Landfill and Minerals Sites	<ul style="list-style-type: none"> <li>Minerals and waste sites are dispersed across North Lanarkshire with significant land uses in the central and southern areas</li> </ul>	<ul style="list-style-type: none"> <li>4% of North Lanarkshire is occupied by minerals and waste sites, of which the majority are mineral sites</li> </ul>
Brownfield Sites	<ul style="list-style-type: none"> <li>Concentration of vacant and derelict land in the south-west, central west areas and around settlements</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 3% of North Lanarkshire has been classified as vacant or derelict land</li> <li>Approximately two thirds of new build houses are on brownfield land</li> </ul>

### 4.3 TRENDS IN THE RESOURCE

4.3.1 No data exist for direct comparison of the overall land use within North Lanarkshire however, through data for specific land uses obtained for other sections of this report, an indication can be presented for the trends in specific land uses.

#### Agriculture

4.3.2 No trend data are available for agricultural land in North Lanarkshire.

#### Woodland

4.3.3 There is no direct trend information for North Lanarkshire however the Central Scotland Forest Trust identify that within their area, part of which comprises North Lanarkshire, there has been a 27.5% increase in woodland cover between 1994/95 and 2003/04.

#### Urban Areas

4.3.4 Whilst there is no trend data on the extent of urban areas within North Lanarkshire, figures are available on the increases in the number of residential properties. Residential properties are recorded within the Census and this demonstrates an increase of 9% in the number of residential properties in North Lanarkshire between the 1991 and 2001 Census. Whilst this does not represent total urban land coverage it provides an indication as to the expansion of residential properties within urban areas.

#### Brownfield Land

4.3.5 Data are available from the Scottish Vacant and Derelict Land Survey (2004) which shows a general decrease in the area of land classified as vacant and derelict land (Table 4.7).

4.3.6 These figures show that a significant decline in the amount of land classified as vacant or derelict in North Lanarkshire since 1996, which is well ahead of the national average. Whilst this is considered likely associated with a change in the area of vacant and derelict land, potential changes in classification may result in changes in the area designated.

**Table 4.7 Derelict Land Area**

Year	North Lanarkshire			Scotland		
	Derelict	Urban Vacant	Total	Derelict	Urban Vacant	Total
1996	2,179	579	2,757	8,482	4,618	13,101
1997	1,651	716	2,367	7,858	4,612	12,470
1998	1,385	572	1,958	7,787	4,425	12,212
1999	1,335	686	2,021	7,237	4,371	11,608
2000	1,335	686	2,021	7,148	4,086	11,233
2001	1,332	607	1,939	6,825	3,692	10,517
2002	1,090	513	1,603	7,767	3,282	11,049
2003	1,040	469	1,509	7,741	3,107	10,847
2004	945	376	1,321	7,638	3,023	10,661
Change (1996-2004)	- 57%	- 35%	- 52%	- 10%	- 35%	- 19%

Source: Scottish Vacant and Derelict Land Survey 2004, Scottish Executive, 2004

4.3.7 Summaries within the report identify that 89% of vacant and derelict and vacant land in North Lanarkshire comprises urban vacant land with 11% being rural vacant and derelict land.

4.3.8 The report identifies the size of vacant and derelict sites and these are summarised in Table 4.8 below.

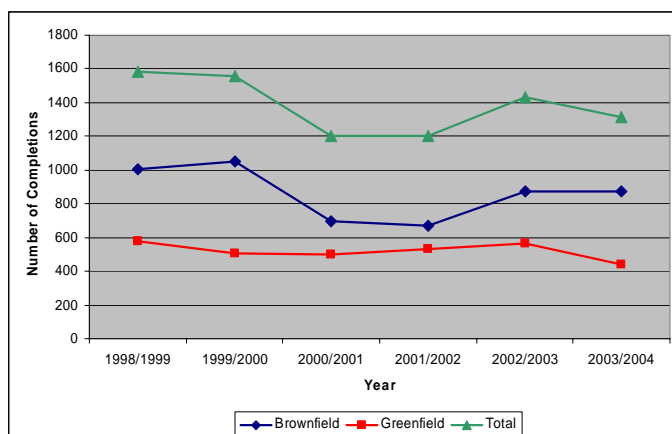
**Table 4.8 Percentage of Vacant and Derelict Land by Site Area**

	North Lanarkshire	Scotland
<0.5ha	39%	43%
0.5 – 1.0ha	17%	19%
1.0 – 5.0ha	30%	29%
5.0 – 10.0ha	7%	5%
>10.0ha	7%	4%
Average Size	3.4ha	2.6ha

Source: Scottish Vacant and Derelict Land Survey 2004, Scottish Executive, 2004

4.3.9 North Lanarkshire Council maintain records on the development of brownfield land with regard to completion of residential properties. Table 4.9 below present the trends in residential development completion on brownfield and greenfield land in North Lanarkshire between 1998 and 2004.

**Graph 4.1 and Table 4.9 Trends in Residential Housing Completions on Brown and Greenfield Land**



	Brownfield Land		Greenfield Land	
	Number	%	Number	%
1998/99	1004	63%	578	37%
1999/2000	1049	67%	508	32%
2000/01	698	58%	502	42%
2001/02	672	56%	529	44%
2002/03	871	61%	563	39%
2003/04	877	67%	439	33%

Source: North Lanarkshire Council Housing Completion Figures

4.3.10 These data demonstrate a fairly consistent proportion of residential development completions on brownfield land over the time period assessed, although the absolute number of completion has decreased slightly since 1998/99. The trends in residential properties developed on brownfield land will be subject, in part, to the supply and availability of brownfield land.

#### 4.4 PRESSURES ON THE RESOURCE

4.4.1 There are a range of pressures on the land use of North Lanarkshire, comprising both opportunities and threats, primarily associated with development pressures on the urban fringe and locations which are accessible to existing settlements and communications networks.

4.4.2 The increasing number of residential properties within North Lanarkshire and the predicted continuation of such trends will and is placing a pressure on open, developable land. Predictions from North Lanarkshire Council identify a 9% increase in the number of properties between 2002 and 2016. In particular, agricultural and open land in the vicinity of existing urban areas is vulnerable given its accessibility to existing urban infrastructure. This increase in the number of properties and associated development pressure does however provide opportunities for high quality designs, more energy efficient buildings and improvements to the physical environment.

4.4.3 There are pressures on agricultural land which is marginal farmland with regard to economics and policy of agriculture. Farm sizes and economics within the farming industry place pressure on the viability of farm units and





thus on the potential for agricultural land to be developed. Agricultural land close to the urban fringe is also likely to be under greater pressure for development such as new housing.

4.4.4 Initiatives and schemes result in variety of pressures on land use. Woodland grants and other agri-environmental schemes may place pressure on uneconomic land such as poor quality farmland or open land to be converted to woodland.

4.4.5 Whilst Green Belt designated land is afforded a level of protection through the development planning process, there are pressures on these areas through developments, urban expansion and inappropriate development.

4.4.6 There are pressures to re-use brownfield land where practicable instead of the use of greenfield land for example through land allocations in the development plan and national incentives for remediation of contaminated land. The pressures for the re-use of brownfield sites varies geographically with a greater pressure on those gateway sites in urban and urban fringe locations which are likely to be more attractive to developers. As discussed in Section 4.6, brownfield land also provides an opportunity for quality design and development.

4.4.7 Landfill sites and mineral working have the potential to impact on land use and on other environmental assets including ecological habitats and landscape and visual resources. These pressures may also be brought about from workings which receive planning permission in neighbouring local authority areas which border North Lanarkshire.

## 4.5 CONDITION OF THE RESOURCE

4.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. The resource condition is summarised in Table 4.10.

**Table 4.10 Assessment of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Agricultural Land	<ul style="list-style-type: none"> <li>No specific data on trends in agricultural land uses or extent of agricultural land</li> </ul>	<ul style="list-style-type: none"> <li>Lowland areas around settlements particularly vulnerable to development</li> <li>Marginal land vulnerable to economics and policy of agriculture</li> </ul>	<ul style="list-style-type: none"> <li>Grazing and agricultural land management practices help to define the lowland and upland landscapes</li> </ul>
Greenfield Land	<ul style="list-style-type: none"> <li>No specific data on trends in greenfield land</li> <li>Woodland cover has increased in recent years in Central Scotland (see Chapter 5)</li> </ul>	<ul style="list-style-type: none"> <li>Sites close to transport corridors and urban areas more vulnerable</li> <li>Greenfield land uses influenced by incentives for woodland planting and upland land management</li> </ul>	<ul style="list-style-type: none"> <li>Major contribution to rural and undeveloped areas</li> </ul>
Green Belt	<ul style="list-style-type: none"> <li>Green Belt is a planning designation rather than a land use specifically. Health of Green Belt is affected by development control decisions and primacy of the Development Plan and its Green Belt policies</li> <li>Gaps in Green Belt should reduce vulnerability of other (designated) areas</li> </ul>		<ul style="list-style-type: none"> <li>Helps to maintain settlement boundaries</li> </ul>
Urban and suburban land (developed areas)	<ul style="list-style-type: none"> <li>Development pressures and increases in households indicate that urban land areas are increasing</li> </ul>	<ul style="list-style-type: none"> <li>Not vulnerable</li> </ul>	<ul style="list-style-type: none"> <li>Mix of developments and land uses has created a lack of identity in some locations</li> </ul>



Resource	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Landfill and Minerals Sites	<ul style="list-style-type: none"> <li>Environmental requirements for landfill restoration and after use are such that these land uses tend to be transitional albeit over long periods of time</li> </ul>	<ul style="list-style-type: none"> <li>Land supply generally is vulnerable to demand for waste disposal and minerals exploitation, including demand associated with neighbouring authorities</li> </ul>	<ul style="list-style-type: none"> <li>Distinctive in local contexts</li> <li>Restoration quality likely to be a key issue</li> </ul>
Other Brownfield Sites	<ul style="list-style-type: none"> <li>There has been a decrease in the total area of vacant and derelict land of 52% between 1996 and 2004</li> </ul>	<ul style="list-style-type: none"> <li>Remoter sites hard to find an end use for</li> <li>Regulatory pressure is driving requirement for land reclamation</li> <li>Geographical and ownership issues affect rate of remediation</li> </ul>	<ul style="list-style-type: none"> <li>Brownfield land still quite prevalent but sites such as Ravenscraig offer opportunities for enhancement</li> </ul>

## 4.6 KEY ASSETS

4.6.1 Based on the analysis of environmental information within Sections 4.2 to 4.5, the following key land use assets have been identified along with a discussion of these assets.

**Table 4.11 Key Land Use Assets**

Key Asset	Description
Productive Agricultural Land (Agricultural Land)	Productive Agricultural Land is a key asset within North Lanarkshire given its importance as an agricultural resource. Agricultural land uses comprise predominately pastoral farming. There are limited areas of prime agricultural land within North Lanarkshire. Agricultural land is important within North Lanarkshire for its roles within the husbandry of the land and the interactions with the landscape.
Publicly Accessible Open Space (Greenfield Land)	Publicly Accessible Open Space is a key asset given its role in providing communities with access to areas of woodland, parkland and other greenfield sites which offer opportunities for recreational and health benefits.
Woodland (Greenfield Land)	Woodland is a key land use asset within North Lanarkshire through its provision of a significant land use/landscape and the benefits to ecological value and community access and well-being.
Green Belt (Greenfield Land)	Green Belt is a key asset given the protection it affords open space in the urban fringe and inter-settlement areas. A large amount of North Lanarkshire lies within the Green Belt, in particular areas between the main settlements of Motherwell and Airdrie/Coatbridge. Green Belt is important in maintaining the settlement pattern and restricting settlement coalescence and urban sprawl.
Potential for Physical Enhancement of Communities (Urban and Suburban Land)	The physical environment of communities in many parts of North Lanarkshire could benefit from physical improvements, the opportunity for physical enhancement of communities is therefore a key asset / opportunity.



Key Asset	Description
Potential Recreation and Ecological Resource (Landfill and Minerals)	There is a Potential Recreation and Ecological Resource associated with landfill and minerals sites following closure or cessation of operations. This includes former landfills being converted to grassland and woodland for habitat and public open space, or quarries being converted into lakes for habitat and recreation.
Brownfield Land Regeneration Potential (Other Brownfield Sites)	Brownfield Land Regeneration Potential is a key asset within North Lanarkshire. Given the industrial history of many parts of the area, there is a large amount of brownfield / vacant and derelict land which provides an opportunity for redevelopment and enhancement of the built environment and/or new community facilities.
Brownfield Land Gateway Sites (Other Brownfield Sites)	Brownfield Land Gateway Sites are key assets within North Lanarkshire. These are sites where there is a greater regeneration potential due to their location within urban locations, urban fringe sites and/or on main transport links. As above, they provide an opportunity for development and enhancement of the built environment.

## 4.7 ISSUES FOR RESOURCE MANAGEMENT & PROTECTION

4.7.1 The features and key assets identified within this chapter require a differing degree of management and protection based on the nature of the feature/asset, the pressures affecting them and the scarcity of the resource.

4.7.2 Land management and protection is undertaken by a range of public and private bodies and with regard to the nature and use of the land. Farming and forestry are key land uses within North Lanarkshire and management focuses on a range of activities associated with agricultural and timber production, habitat management and conservation and development of recreational opportunities. The management of this resource, current and future, has an important impact on other environmental aspects of the land as well as ensuring the mosaic and viability of land uses is maintained and opportunities are sought to promote public access with attendant benefits for health and well being.

4.7.3 The Green Belt planning designation affords undeveloped areas of North Lanarkshire with a level of protection from inappropriate development, primarily in locations close to and between urban areas. Green Belt policy is a primary tool in the management and protection of these undeveloped areas and plays a role in ensuring that urban areas and communities are discrete and identifiable through the avoidance of urban sprawl and to provide an open an attractive area of open space accessible to these communities. Green Belt policy however needs to be flexible as in some instances, high quality and sensitive development may contribute to the Green Belt or to other opportunities for the community which may allow local environmental enhancement through development quality, design and planning gain.

4.7.4 Management of developments which exploit the land such as mineral workings and landfill sites need to ensure that the impact on various aspects of the environment are minimised and that suitable measures are in place with regard to the restoration and re-use of the land following cessation of works. These developments offer the opportunity for enhancement of the land through measures such as the creation of ecological habitats or public open space on restored sites.

4.7.5 New developments have the potential to place pressure on land use of North Lanarkshire, primarily this being through the loss of land which is being used or could be used for other purposes (e.g. informal recreation). Development should be managed so as not to compromise land use viability such as with regard to agricultural productivity or alternative opportunities for conservation, landscape, recreation or community facilities.

4.7.6 A significant opportunity exists within North Lanarkshire with regard to the extensive brownfield land / vacant and derelict land resource and the potential that exists for redevelopment of these areas. Whilst there





is an aspiration to promote development on brownfield sites there also need to be controls to ensure that developments are of quality design and build and appropriate to the location. In some cases, brownfield sites have been largely undisturbed for many years and have developed as locally important habitats for plants and animals therefore the potential for enhancement of these sites for conservation after-uses should also be considered.

4.7.7 New developments also offer the opportunity for improved publicly accessible locations both within an around settlements and communities. Measures such as the enhancement and creation of footpaths and open green areas provide additional benefits to the ecological, landscape and community aspects of the environment as well as contributing to creating quality developments, and can be provided in some cases through planning gain.

## 4.8 DATA GAPS AND LIMITATIONS

4.8.1 Limited trend data for land uses are available, and no comparative digital land use survey data are available for previous years to compare with the 2004 survey reported in this chapter. Data on trends in urban land use was not available and trends in the number of households were used to provide an indication in the residential growth of urban areas.

## 4.9 REFERENCES

4.9.1 The following sources of information were referred to in this chapter:

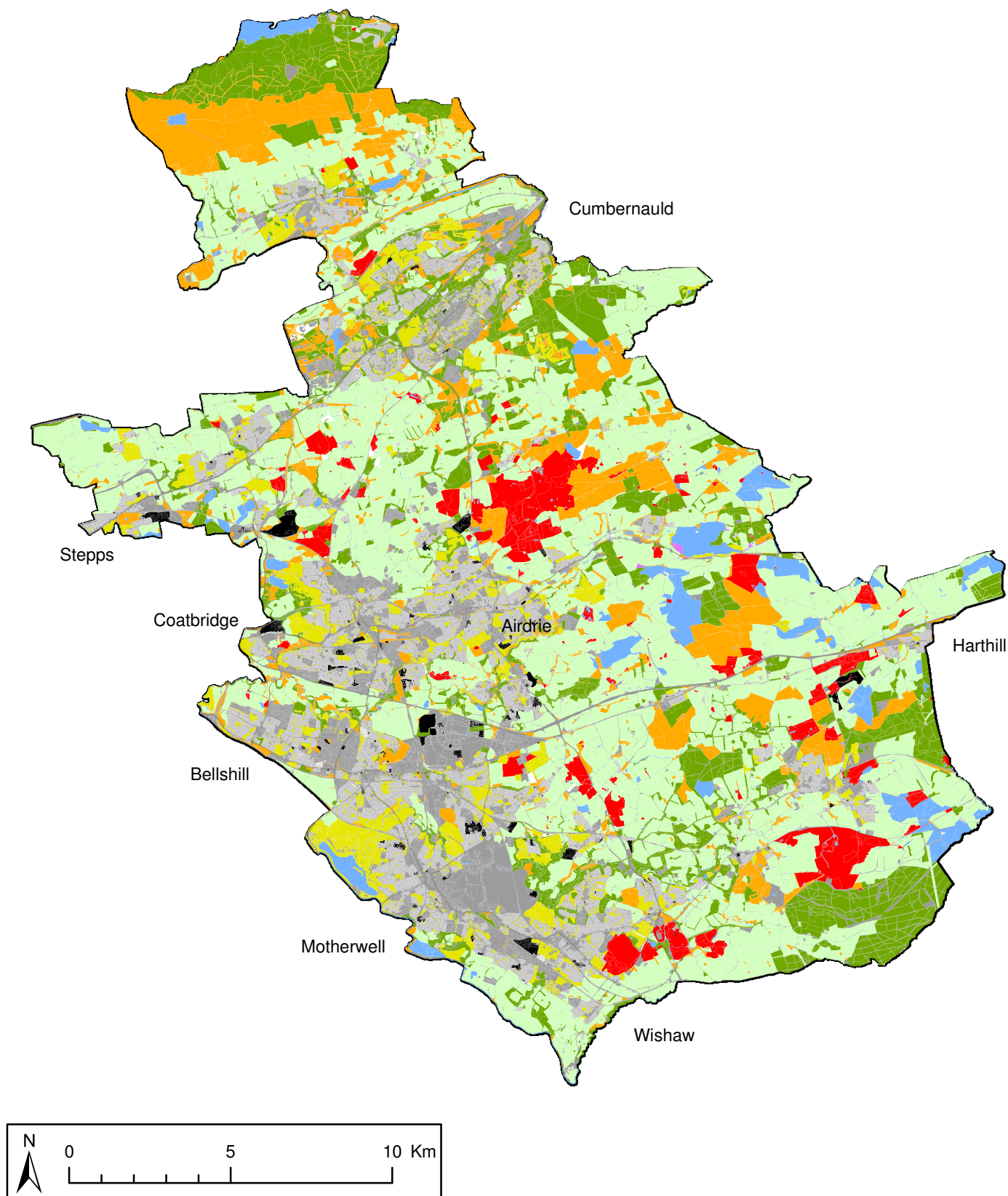
- GIS land use survey 2004 data (NLC, 2004);
- Green Belt data supplied by NLC (GIS Data);
- Land Capability for Agriculture Maps (Sheets 64 and 65), MacAulay Institute for Soil Research, 1986
- *Census 2001 Headline Results*, North Lanarkshire Council, August 2003;
- *Local Housing Strategy 2004 – 2009*, North Lanarkshire Council, 2004;
- *Open Space Strategy*, North Lanarkshire Council, 2004;
- *Glasgow and Clyde Valley Joint Structure Plan 2000*, Produced by the eight relevant Councils including North Lanarkshire Council, 2003;
- *Economic Report on Scottish Agriculture*, Scottish Executive, 2005;
- *Scottish Vacant and Derelict Land Survey 2004*, Scottish Executive Statistical Bulletin ENVIRONMENT/2004/2, December 2004;
- *Housing Trends in Scotland; Quarter Ending 31 March 2005*, Scottish Executive Statistical Bulletin (Housing Services), Scottish Executive, August 2005;
- Department of Trade and Industry: Coal Energy website. <http://www.dti.gov.uk/energy/coal/>. Webpage on opencast sites in production as of 31 March 2005.

## 4.10 MAPS AND PLANS


4.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
4.1	Plan of Key Land Use Features (road & rail, urban etc)
4.2	Plan of Land Use Divisions
4.3	Green Belt Including Designated Areas
4.4	Plan of Vacant and Derelict Land 2004





### Legend

	Agricultural Land		Minerals and Waste
	Forestry / Woodland		Urban (Predominately Residential)
	Scrub / Heath / Moor		Urban (Industrial / Commercial)
	Waterbodies & Bogs		Outdoor Recreational / Open Space
	Inland Rock		Un-Categorised

**Figure 4.2**  
**Land Use**  
**Land Use Divisions**

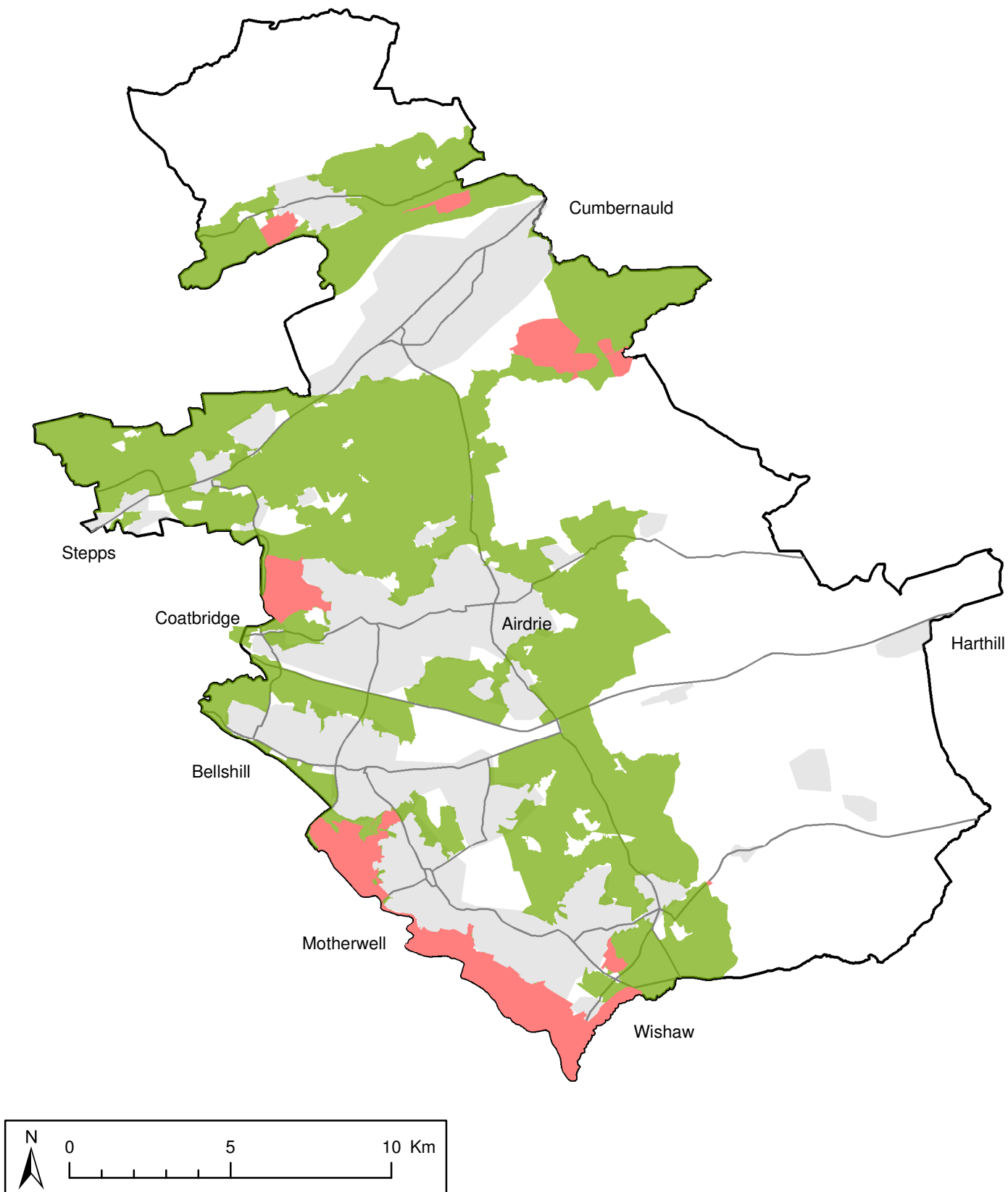
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 12.12.05  
Revision: -  
Drawn by: JS





## Legend

- Green Belt
- Designated Sites for Ecology and Landscape within the Green Belt

**Figure 4.3**  
**Land Use**  
**Green Belt**

Scale: 1:170,000

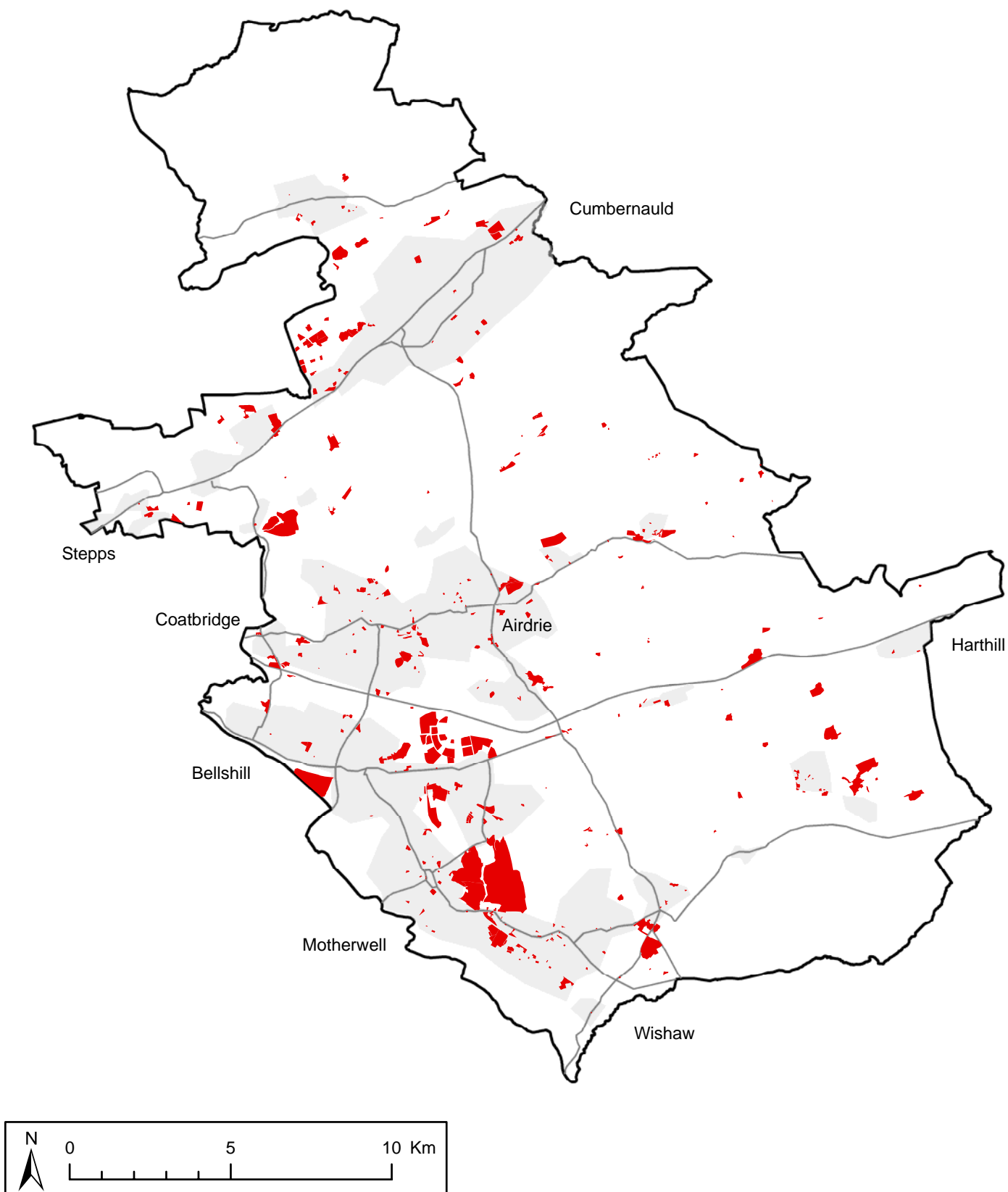
Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS







## Legend

Vacant and Derelict Land 2004

**Figure 4.4**  
Land Use  
Vacant & Derelict Land, 2004

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS





# 5 Ecology

## 5.1 CONTEXT

5.1.1 North Lanarkshire has a diverse range of habitats with a series of designated sites of European, national and local importance. The Local Biodiversity Action Plan (LBAP) identifies four habitats and 15 species of particular importance for conservation. The diversity of the ecological resource within North Lanarkshire is influenced by the variety in the geography and topography of the Council area.

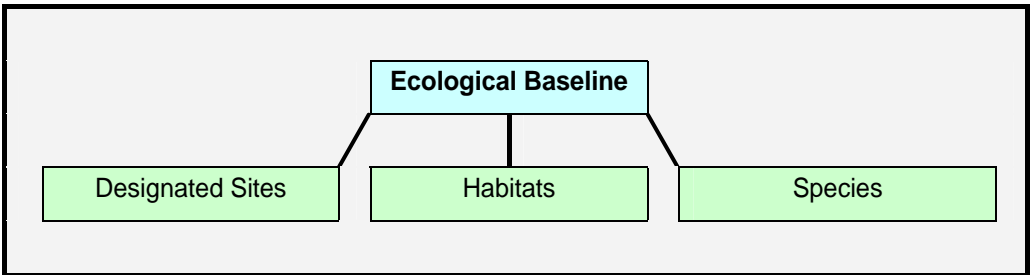
5.1.2 There is an opportunity to protect, enhance and create habitats and ecological resources throughout North Lanarkshire and to incorporate the ecological resource into new developments. Such improvements would not only provide a benefit to the ecological resource of North Lanarkshire but also contribute to the local and area-wide landscape, the aquatic environment and to the community resource and well-being.



## 5.2 BASELINE CHARACTERISTICS

5.2.1 The ecological baseline of North Lanarkshire comprises a series of habitats and species. Specific areas within North Lanarkshire have been designated at a European, national and local level for their ecological quality. For the purpose of the identification of the ecological baseline, this section has been structure into sections according to these three key ecological baseline features; designated sites, habitats and species.

**Box 5.1 Ecological Baseline Features**



### Designated Sites

5.2.2 Table 5.1 identifies the range and type of ecological designations within North Lanarkshire and their associated areas. Some of these designations continue across the Council boundary into adjoining Council areas. Figures 5.1 to 5.4 present the geographical locations of the designated sites within North Lanarkshire.





**Table 5.1 – Designated Sites within North Lanarkshire**

Designation	Number of Sites	Area (ha)
Special Areas of Conservation (SAC) <sup>1</sup>	4	211
Sites of Special Scientific Interest (SSSI) <sup>1</sup>	11	513
Local Nature Reserves (LNR) <sup>1</sup>	3	115
Country Parks <sup>1</sup>	3	934
Sites of Importance for Nature Conservation <sup>2</sup>	358	6,257
RSPB Reserves <sup>3</sup>	2	166
Scottish Wildlife Trust Reserves <sup>4</sup>	5	344
Wildlife Sites <sup>4</sup> (2 of which are SWT reserves and 8 of which are SSSIs)	22	911

Notes:

SSSIs include biologically designated SSSIs only. Geological SSSIs are covered within Chapter 7: Geology and Soils.

\* The area of Local Nature Reserves does not include that for Langlands Moss which was not on the SNH digital file at the time of report preparation.

Sources: Digital information supplied by <sup>1</sup> Scottish Natural Heritage, <sup>2</sup> North Lanarkshire Council, <sup>3</sup> RSPB and <sup>4</sup> Scottish Wildlife Trust.

5.2.3 Many of the designated sites within North Lanarkshire are subject to several designations, for instance SAC sites are also designated as SSSIs. Discussion of these designated sites is presented below.

5.2.4 A summary of the European and national designations present within North Lanarkshire are presented in Table 5.2, which includes a brief description of the reason for designation (citation).

**Table 5.2 Summary of European and National Designations**

Site	Summary of Citation
<b>Special Area of Conservation</b>	
All Special Areas of Conservation (SAC) are Sites of Special Scientific Interest (SSSI), see below for details.	
There is a proposed Special Area of Conservation (pSAC) being considered in the vicinity of Fannyside Lochs.	
<b>Site of Special Scientific Interest</b>	
Bishop Loch	A base rich water body and the best example for fresh water invertebrates with a transition from open water to fen, marsh, grassland and woodland.
Black Loch Moss (also Black Loch Moss SAC)	This site supports a large area of raised mire vegetation.
Dullatur Marsh	This marsh is a remnant of the once extensive Kelvin Valley marshes, adjacent to the Forth and Clyde Canal.
Garrion Gill (also Clyde Valley Woods SAC)	A gorge woodland consisting predominately of native hardwood species such as oak, birch, rowan, ash and elm.
Hamilton Low Parks	An area of very wet grassland and open pools with deciduous woodland with regular flooding from the River Clyde. The site attracts significant numbers of wildfowl.
Hassockrigg and North Shotts Mosses (also part is North Shotts Moss SAC)	Hassockrigg Mosses are situated on a gently undulating plateau and are part of a former extensive area of linked peat.
Lady Bells Moss	This is a remnant of a formerly more extensive raised bog but is the best example of its type in the reported search area.
Longriggend Moss	Longriggend Moss is the best area of blanket bog in the area of search
North Bellstane Plantation	This site contains peatland (with heather and bog cotton) and adjacent birch woodland.
West Fannyside Moss (also West Fannyside Moss SAC)	The site is an extensive area of bog which has formed at a relatively low altitude. The site
Woodend Loch	This is the best example in the area of a base-rich loch rich in freshwater invertebrates and wildfowl.
<b>Local Nature Reserve</b>	
Dumbreck Marsh	An area of grassland and woodland
Perchy Pond	An area of open water and grassland
Langlands Moss	An area of peatland and grassland

Source: SNH GIS attribute files for SACs, SSSIs and LNRs.



5.2.5 There are 358 Sites of Importance for Nature Conservation (SINCs). These sites contain a wide range of habitats including:

- Aquatic habitats with wetlands, marshes, lochs, running water and other open water;
- Peatlands, raised and blanket bogs;
- Woodland;
- Moorland, heath and scrub; and
- Grassland and meadows.

5.2.6 There are two RSPB reserves within North Lanarkshire which are afforded protection and management by RSPB. These two reserves are primarily used by wintering birds such as geese although other bird and mammal species are present and recorded.

5.2.7 The five SWT reserves within North Lanarkshire are located in and around Cumbernauld. Predominately these are woodland reserves with one site characterised by marshland.

5.2.8 SWT identify the presence of wildlife sites within North Lanarkshire. These sites are generally privately owned where environmental management and conservation is undertaken under the supervision of SWT.

## Habitats

5.2.9 The Local Biodiversity Action Plan (LBAP) notes that without a place to live a species is lost, so ensuring that a diversity of habitats is maintained into the future is an essential part of the LBAP plan.

5.2.10 The Local Biodiversity Action Plan prepared by North Lanarkshire Council in 1999 identifies the main types of natural and semi-natural habitats within North Lanarkshire. These are presented in Box 5.2.

**Box 5.2 Natural and Semi-Natural Habitats**

<b>Wetland</b>	<b>Woodland</b>
Fen, marsh & swamp	Broadleaved
Carr	Mixed and yew
Reedbeds	Upland oakwood
Standing open water	Upland mixed ash
Rivers and streams	Wet woodland
Canals	Conifer plantation
Floodplain grazing marsh	Lowland wood pastures & parkland
<b>Peatland</b>	<b>Grassland</b>
Lowland raised bog	Acid grassland
Intermediate bog	Unimproved neutral grassland
Blanket bog	Calcareous grassland
	Improved grassland
<b>Other</b>	
Hedgerows	Urban gardens
Cereal field margins	Road verges
Drystone walls	Derelict land / bings etc

5.2.11 The presence and quality of the habitats within North Lanarkshire is important for the wide range of species supported by them and, given their physical permanence, it is more reliable to measure the extent of habitats as opposed to species.

5.2.12 Based on the identification of these habitats, the LBAP selected four habitats for priority action. The aim of these Priority Action Plans being to halt further habitat loss, enhance the quality of the remaining habitat and increase habitat area. The four priority habitats identified within North Lanarkshire's LBAP are identified below and detailed in the following paragraphs.

- Lowland Raised Peat Bogs;
- Broadleaved and Mixed Woodland;
- Rivers and Streams; and
- Floodplain Grazing Marsh.

5.2.13 **Lowland Raised Peat Bogs.** There are two types of peat bogs present within North Lanarkshire, these being: Blanket Bogs and Lowland Raised / Intermediate Bogs. North Lanarkshire Council has prepared a Habitat Action Plan (HAP) for the Lowland Raised / Intermediate Bogs (November 1999). These bogs comprise a raised area with deep accumulations of water-logged peat with two types recognised:

- Primary – those bogs where the dome is intact and undisturbed; and
- Secondary – those bogs which have been damaged through peat extractions, afforestation, agricultural intensification and other development but where the water table has stabilised through the drainage pattern being stabilised.

5.2.14 The HAP identifies that both these types of Lowland Raised Bogs are considered to be of European conservation importance. Lowland raised bogs are one of Europe's rarest and most threatened habitats and within North Lanarkshire there are several bogs of national importance, three of which are European designated sites as SACs (West Fannyside Moss, Black Moss and North Shotts Bog). The extent of the bogs identified within the HAP is presented in Table 5.3.

5.2.15 SNH's bog inventories identify the presence of 121 Lowland Raised Bogs and 5 Intermediate Bogs within North Lanarkshire, details of the areas covered are presented within Table 5.3. These bogs are present across much of the rural area of North Lanarkshire. The locations of these bogs, and the area covered by blanked bog, are shown in Figure 5.5.

**Table 5.3 Extent of Raised, Intermediate and Blanket Bogs within North Lanarkshire**

Bog Type	Area (ha)	
	Habitat Action Plan 1999 <sup>Note 1</sup>	SNH Bog Inventories (surveyed 1990-94) <sup>Note 2</sup>
Priority Action Bog Habitats		
Raised Bog (ha)	2,052	2,118
Intermediate Bog (ha)	1,672	1,631
Other Bog Habitats		
Blanket Bog (ha)	1,936	1,619
Fen Peat Area (ha)	11	No Data Available
Total Peatland (ha)	5,671	5,368

Sources: 1 – Figures obtained from the Lowland Raised / Intermediate Action Plan (November 1999)  
 2 – Figures obtained from SNH's lowland raised bog and intermediate bog inventories (Released 1997, surveyed 1990-94) and blanket bog inventories (September 1997) provided by SNH.

5.2.16 There is some discrepancy in the areas of bog identified within the HAP compared with the bog inventories. This may be due to a range of factors including:

- GIS layers for bogs within SNH's raised bog and intermediate bog inventories are provided as point locations with an associated area. In some instances the actual boundary of the bog may cross the North Lanarkshire boundary and therefore these figures may represent total area of bog including parts of surrounding Council areas; and
- Differences in mapping and classification of the two surveys which were undertaken at different times.



5.2.17 These bog habitats are noted within the HAP as being important for a number of priority species (both national and local). These include plants such as moss, invertebrates and wading birds.

5.2.18 **Broadleaved and Mixed Woodland.** There are a wide variety of woodlands present within North Lanarkshire ranging from ancient natural woodlands to commercial coniferous plantations. The LBAP identifies one woodland habitat in particular, Broadleaved and Mixed Woodland, for which a HAP was prepared in November 1999.

5.2.19 The HAP identifies that approximately 10% of North Lanarkshire (4,920ha) is occupied by woodland. The HAP does not provide specific cover for Broadleaved and Mixed Woodland however it does state a figure of 1,247ha of woodland identified on the Ancient, Semi-Natural and Long Established Woodlands Inventory of 1991. The majority of the remaining 3,673ha is reported to be commercial conifer plantation. The HAP notes that many of the semi-natural woods are found in river gorges and on steep slopes where there has been little human intervention. The geographical distribution of the ancient and semi-natural woodland is presented within Figure 5.6.

5.2.20 In terms of specific habitat, the 2002 National Inventory of Woodland and Trees prepared by the Forestry Commission (based on survey data from 1995) identified 48ha of Broadleaved Woodland and 1,664ha of Mixed Woodland. Further details of the types and extents of woodland identified within this inventory are presented in Table 5.4 below. The geographical distribution of these woodlands is presented in Figure 5.7.

5.2.21 The HAP identifies that these woodlands typically contain species such as oak, birch and rowan with ash, elm and alder. In addition, introduced species include beech and sycamore. These woodlands are often even aged with a poor understorey, little ground flora and limited natural regeneration. They do however contain some indicator species such as bluebells.

5.2.22 Some of the Broadleaved and Mixed Woodland within North Lanarkshire lie within designated sites, this includes the following designated sites:

- Clyde Valley Woods SAC & SSSI
- North Bellstane Plantation SSSI
- Woodend Loch SSSI
- Various SINCs
- Palacerigg, Drumpelie and Strathclyde Country Parks
- Part of Baron's Haugh, RSPB Reserve
- Four SWT reserves around Cumbernauld (Northside Wood, Cumbernauld Glen, Forest Wood and Luggiebank Wood).

5.2.23 The HAP identifies that Broadleaved and Mixed Woodland contains six of North Lanarkshire's priority species and 30 species that are found on the LBAP audit list for North Lanarkshire. Notable species include bluebell, primrose, bat species, badger, roe deer and fungi.

5.2.24 **Rivers and Streams.** The HAP prepared in November 1999 identifies that rivers and streams are frequently the sole remaining semi-natural feature in the landscape, forming linear corridors of varying width and conservation value across North Lanarkshire. There is a substantial watercourse network within North Lanarkshire and the key watercourses are identified within Chapter 6: Aquatic Environment. Digital information on surface watercourses within North Lanarkshire identifies a total length of approximately 1,650km of rivers, streams and drains. This network of rivers and streams within North Lanarkshire lies predominately within the Clyde catchment.



5.2.25 The River and Streams habitat comprises two distinct parts, these being the watercourse itself and the adjacent habitat (riparian habitat) although the two are interdependent in many respects. These habitats are of ecological value both in their own right and through their function as wildlife corridors linking surrounding habitats. In many places the rivers are located within incised river valleys such as that of the South Calder Water near Motherwell.



5.2.26 In addition to the natural river and stream habitats there are also man-made water channels such as the Forth and Clyde Canal which provide an aquatic and riparian habitat and create a wildlife corridor.

5.2.27 The LBAP identifies key species within these aquatic habitats including water vole, otter, kingfisher, Atlantic salmon and sea trout.

5.2.28 Further details on watercourses are presented within Chapter 6: Aquatic Environment.

5.2.29 **Floodplain Grazing Marsh.** The HAP defines floodplain grazing marsh as periodically inundated pasture or meadow with ditches containing standing fresh water which regulate or maintain the water levels. This habitat category covers improved grassland, fen or marshy grassland and wet pasture and supports a range of species including wading birds (such as lapwing, redshank and snipe), grazing geese, swans, brown hare, marsh orchids and butterfly species.

5.2.30 Within North Lanarkshire the HAP identifies that the most intact area of floodplain grazing marsh is within the wetland corridor from Banknock in the east to Inchterf in the west (close to Kirkintilloch), along the River Kelvin. No figures exist on the total area covered by Floodplain Grazing Marsh although the HAP identifies two sites in North Lanarkshire where measures have been undertaken to protect and enhance the habitat. These are:

- Drumbreck Marsh Local Nature Reserve; and
- Dullatur Marsh SSSI (predominately a SWT reserve).

5.2.31 **Other Habitats.** As identified in Box 5.2, in addition to the four habitats with specific HAPs, there is a wide range of other habitats within North Lanarkshire. These provide habitats for a diverse range of wildlife. Information which is available for a number of other habitats has been reported in the following paragraphs.

5.2.32 A range of woodland habitats are present within North Lanarkshire and there is a range of data to characterise the extent of these, obtained from three main sources which are discussed in the paragraphs below. The data available from these sources are subject to differences in survey methodology, varying definitions and different survey dates. Table 5.4 presents information on woodland in North Lanarkshire which clearly shows a discrepancy in the overall estimate of woodland cover in the region. The data show a varying level of forest / woodland cover within North Lanarkshire. This difference is primarily associated with the nature of the reported data and the basis and accuracy of the survey. It does however provide a range of baseline data with which future comparison of similar data can be made.

**Table 5.4 – Extent of Woodland within North Lanarkshire**

Designation	Area (ha)
Ancient Woodland Inventory <sup>1</sup>	1,541
of which Semi-Natural Woodland Inventory	564
National Inventory of Woodlands and Trees <sup>2</sup>	
Coniferous	6,842
Broadleaved	48
Mixed	1,664
Young Trees	294
Felled Ground	302
Ground Preparation	211
Undifferentiated Low Scrub	278
Various	1,989
Total Woodland from NIWT	11,628
Land Use Data <sup>3</sup>	
Conifer Woodland	2,687
Mixed Woodland	1,206
Broadleaved Woodland	1,050
Undifferentiated Young Woodland	875
Felled Woodland	11
Land Cultivated for Afforestation	648
Total Woodland from Land Use Data	6,477

Sources: Digital information supplied by <sup>1</sup> Scottish Natural Heritage (2000), <sup>2</sup> Forestry Commission (1995 data within the 2002 NIWT), <sup>3</sup> North Lanarkshire Council Land Use data (2004).

5.2.33 The **Ancient Woodland Inventory** (including sites on the Semi-natural woodland inventory). Woodlands on the Inventory are those which appear on historic map records and have remained as woodland until present day. These woodlands generally support a high conservation habitat given the timescales over which they have developed. Figure 5.6 presents the locations of sites on the Ancient Woodland Inventory.

5.2.34 The **National Inventory of Woodland and Trees (NIWT)** is maintained by the Forestry Commission. The Forestry Commission has undertaken these surveys through the use of the digital Land Cover of Scotland map (1988) and statistical sampling of the woodland. The NIWT comprises a range of categories (as detailed in Table 5.4). These baseline data will be comparable with future NIWT update surveys undertaken by the Forestry Commission. The 2002 NIWT is reportedly based on surveys undertaken in 1995. Figure 5.7 presents the location of sites on the NIWT by the divisions presented in Table 5.4.

5.2.35 The Forestry Commission operates various grant schemes which represent land where some form of planting, re-stocking or management of forest / woodland will or is being undertaken. The Woodland Grant Schemes include the following:

- Woodland Grant Scheme (Mk1, Mk2 and Mk3). These schemes were operated by the Forestry Commission between 1988 and February 2003 when it was superseded by the Scottish Forestry Grant Scheme (SFGS). The following number of sites and total area within each scheme in Scotland is presented below:
  - Woodland Grant Scheme Mk 1, 117 sites (346ha)
  - Woodland Grant Scheme Mk 2, 212 sites (703ha)
  - Woodland Grant Scheme Mk 3, 1,047 sites (7,703ha)
- Scottish Forestry Grant Scheme (SFGS). This scheme is operated by the Forestry Commission and provides grants for; woodland expansion and creation of new woodlands, restocking grants for replanting following felling and stewardship grants for a range of activities. There are 12 sites within this scheme (total area of 542ha).
- Forest Plans. These schemes have been introduced by the Forestry Commission for landowners who are planning to carry out felling, restocking and thinning of their woodlands over a 20 year period. There are currently 4 sites within this scheme (total area of 456ha).

5.2.36 **Land Use Data** provided by North Lanarkshire Council contains six woodland categories (based on a 1988 survey). There are limitations with the data in that the survey is a snapshot of woodland cover at a specific time. For example felled ground or ground under preparation may be given over to coniferous or broadleaved future use.

5.2.37 Data on woodland within central Scotland have also been provided by the Central Scotland Forest Trust (CSFT). The CSFT does not provide a breakdown of forestry and woodland specifically within North Lanarkshire however the area occupied by the Central Scotland Forest is currently 24,770ha (2003/4 data).

5.2.38 The Central Scotland Forest covers many parts of central Scotland with an aim to increase woodland cover in central Scotland to 34,000 hectares by 2015 (Ref. CSFT Annual Report 2003/4). The Central Scotland Forest is not a traditional forest but a mosaic of woodlands with ecological benefits and social ones. Table 5.5 presents a summary of information from CSFT's latest annual report which identifies projects undertaken by CSFT within North Lanarkshire and the Central Scotland Forest as a whole.



**Table 5.5 –CSFT Project Details (2003/4)**

Designation	North Lanarkshire	CSFT Area
Number of Capital Projects	8	16
Total Area of Woodland Established	12.4ha	28.5ha
Area of Woodland Established on Farms	10.0ha	23.7 ha
Area of Woodland Established on Mineral / Landfill Sites	0 ha	0 ha
Area of Woodland Established on Derelict Land	0 ha	0 ha
Area of Native Woodland Established	1.3 ha	9.5 ha
Area of Woodland brought into Management	8.7 ha	12.7 ha
Area of Native Woodland brought into Management	8.7 ha	8.7 ha
Length of Road Corridor Improvements	2.2km	7.2km

Sources: CSFT Annual Report 2003/4.



5.2.39 **Farmland** habitats are present across North Lanarkshire, these include some areas of arable farmland with extensive pastoral farmland and associated habitats such as hedgerows and small areas of woodland.

5.2.40 **Urban** habitats provide a complex mix of habitats including urban green space. Such habitats contain a diverse mix of species including a range which have adapted to the increasing areas of urban development.

5.2.41 **Moorland Areas** area present in the northern (Kilsyth Hills) and eastern (Central Scotland Plateau) parts of North Lanarkshire. The land use survey data (1988) identifies that there is an area of approximately 5,210ha of scrub, heath and moorland within North Lanarkshire (11% of the area).

5.2.42 **Blanket Bog** is present within the northern (Kilsyth Hills) and eastern / south-eastern (Harthill area) parts of North Lanarkshire. Data on blanket bogs provided by SNH identifies that there is approximately 1,620ha of blanket bog within North Lanarkshire.

5.2.43 **Brownfield** habitats are extensive within North Lanarkshire and, in some cases, provide a specific habitat for rare or notable species. The LBAP notes that, at the time of the report, part of the former Ravenscraig steelworks site was home to an inland colony of grayling butterfly and a rare flower, the blue fleabane. One of Scotland's largest known Great Crested Newt populations has been found at Gartcosh Industrial Park.

5.2.44 Land reclamantion projects have been undertaken to provide habitats such as at Strathclyde Country Park with a habitat for winderting waterfowl. Former mining land has been converted into parks and reserves at Drumpellier Country Park, Perchy Pond and Drumbreck Marsh Local Nature Reserves.

## Species

5.2.45 The Local Biodiversity Action Plan (LBAP) prepared by North Lanarkshire Council has identified fifteen species for which Priority Action Plans have been prepared. The LBAP has selected these species where specific action needs to be targeted on them given their rarity or restrictions to specific sites. These species are presented within Box 5.3. The LBAP also identified another 180 species which were included in the ecological audit (1999).

**Box 5.3 North Lanarkshire Priority Action Species.**

<b>Mammals</b>	<b>Birds</b>
Water Vole	Waders (Lapwing, Redshank & Snipe)
Otter	Bean Goose
Bats – Pipistrelle, Long-eared,	Willow Tit
Daubenton's and Natterer's	Swift
	Barn Owl
<b>Amphibians</b>	<b>Fish</b>
Great Crested Newts	Atlantic Salmon
<b>Plants</b>	<b>Insects</b>
Bluebell	Small Pearl-Bordered Fritillary Butterfly
Blue Fleabane	
Yellow-wort	
Herb Paris	

5.2.46 Baseline information is available for these and other species within North Lanarkshire. It should however be noted that whereas habitats can be recorded and mapped for the entire region, species are generally mapped in specific locations (such as a Country Park or nature reserve or where surveys are required prior to a development). Whilst such recording gives an indication on localised species numbers and trends it does not provide a figure for total numbers within North Lanarkshire nor does it allow for cross boundary migration. Records for certain species can be used where their presence is limited to specific areas. In North Lanarkshire this can be seen within the Bean Geese population on the Central Scotland / Slamannan Plateau.

5.2.47 There is only one location where Bean Geese over-winter in the Scotland, the Slamannan Plateau, part of which lies within North Lanarkshire, the remaining area within the boundary of Falkirk Council's administration. The Bean Goose is protected under the provisions of the Wildlife and Countryside Act 1981 but is not on Schedule 1. North Lanarkshire's LBAP has a Species Action Plan (SAP) for Bean Geese which was prepared in November 1999. The SAP identifies bird numbers in 1999/2000 at an estimated 189. This area is being considered for a proposed Special Area of Conservation (pSAC).

5.2.48 The Bean Geese Working Group was established in 1994 to specifically monitor this species and this group has carried out monitoring and research. In 1996 the RSPB acquired land at Fannyside Mill (East Fannyside Loch) to ensure favourable management of the habitat. This group has produced annual reports with their survey results. Details of trends in numbers are presented within Section 5.3.

5.2.49 Data for 2003 – 2004 identifies that there were a total of 14,764 bird days on fields within North Lanarkshire (78% of the total bird days for the Slamannan Plateau). Whilst these figures do not present absolute numbers of birds present they do provide an indication of the number of birds and their length of stay.

5.2.50 **Other Priority Action Species.** Whilst available data does not allow an accurate picture of species numbers and distribution across North Lanarkshire, information is available for general areas where the species are more prevalent or the type of favoured habitat. Such locations and/or habitats have been identified below:

- Atlantic Salmon. Present within watercourses with suitable water flow and quality. Reported by the SAP to be present within the Clyde Catchment. See discussion below on fish stock information.
- Barn Owl. The SAP estimates that there are less than five pairs thought to remain within the countryside of North Lanarkshire, mostly located within the Kelvin Valley. In particular, for foraging, Barn Owls favour grassland and hedgerows.
- Bluebell. The SAP identifies that Bluebells are indicator species for woodland growing best on brown forest types on clay. A survey undertaken by North Lanarkshire Council in 1997 involving observations from members of the public revealed the plant to be most common in the Clyde Valley (Motherwell, Wishaw and Overtown), in relict woodlands in the Gartcosh / Coatbridge / Airdrie area, and in the glens around Cumbernauld and in the Kelvin Valley.
- Daubenton Bat. The SAP identifies that these bats are widely spread through river valleys within North Lanarkshire and are primarily associated with slow flowing water courses with wooded bankside vegetation.
- Great Crested Newts. Great crested newts favour standing water. A 1999 study reportedly found great crested newts present at nine waterbodies in North Lanarkshire, three main locations being Gartcosh Industrial Park, Drumcavel Quarry and Croy Hill.
- Otter. Otters are commonly found in almost all wetland habitats including lochs, rivers, burns, ditches, reedbeds and marshes. Otters require clean water with a plentiful supply of food and bankside vegetation.
- Pipistrelle Bats. The SAP identifies that their habitat is predominately houses and properties.
- Redshank, Lapwing and Snipe. The SAP identifies that these breeding waders are commonly associated with lowland farmland habitats (essentially mixed farming areas ranging from moorland edge and valley bottom pastures to arable mixes). In addition (such as around Cumbernauld) industrial development has allowed waders to breed on marshy grassland close to industrial developments. Also temporary habitat on Fannyside Muir and opencast sites being restored may be favoured. The majority of key wader areas are not protected under designated sites with the exception of one SSSI and some SINC.

The SAP identifies the current populations within North Lanarkshire (based on SAP of November 1999). These are Lapwing (150), Snipe (80) and Redshank (40) although the SAP notes that these may be over-estimates.

- Small Pearl-bordered Fritillary. The SAP identifies that the preferred habitats are rushy grassland and wet rides or glades at the edges of moorland/woodland. Concentrations are noted from Kilsyth Hills to Harthill and around Croy Hill / Dullatur, to the south of Cumbernauld and in the Caldercruix-Hillend Reservoir area.





- **Swift.** The SAP identifies that Swifts nest almost exclusively in buildings. Strathclyde Park is identified as an important feeding area for swifts.
- **Water Vole.** Water Voles favour a range of watercourses and bodies with suitable cover and the SAP identifies that they are surviving in urban settings.
- **Willow Tit.** The SAP identifies that there are likely fewer than 20 pairs in Lanarkshire with the stronghold being in the Wishaw-Larkhall area. Willow Tits reportedly required a steady supply of decayed wood.

5.2.51 **Fish Stocks** are monitored across the majority of the Clyde Catchment by the Clyde River Foundation. The Clyde River Foundation undertake regular monitoring of watercourses to identify fish numbers and species. The Clyde River Foundation however hold no data for watercourses within the North Lanarkshire area.

5.2.52 Within the timescales for the study, detailed bird count data could not be provided by the British Trust of Ornithology.

## Summary of Ecological Baseline

5.2.53 Table 5.6 summarises the baseline ecological resources identified within this section along with their geographical distribution and abundance.

**Table 5.6 Summary of Baseline Distribution**

Resource	Distribution	
	Geographical	Abundance
Designated Sites	<ul style="list-style-type: none"> <li>■ SACs and SSSIs predominantly in eastern and more undeveloped areas</li> <li>■ Country Parks and LNRs typically in urban fringe locations</li> <li>■ Even spread of SINC sites, primarily outwith urban areas</li> <li>■ Some SWT reserves and wildlife sites in urban locations</li> </ul>	<ul style="list-style-type: none"> <li>■ Three European sites and only 13 SSSIs</li> <li>■ Three LNRs</li> <li>■ Three Country Parks</li> <li>■ 358 SINC sites</li> <li>■ Two RSPB reserves, five SWT reserves</li> <li>■ 22 SWT Wildlife Sites</li> </ul>
Priority Habitats	<ul style="list-style-type: none"> <li>■ Well distributed broadleaved and mixed woodland predominantly on lower and intermediate ground</li> <li>■ Lowland intermediate bogs across North Lanarkshire with predominance in central and eastern area and mainly outwith settlements</li> <li>■ Rivers and streams present throughout</li> <li>■ Floodplain grazing marsh limited to Kelvin valley</li> </ul>	<ul style="list-style-type: none"> <li>■ Approximately 1,700 hectares of broadleaved and mixed woodland (NIWT survey)</li> <li>■ 121 lowland raised bogs, 5 intermediate bogs</li> <li>■ Approximately 1,650 km of rivers, streams and drains</li> <li>■ Limited flood plain grazing</li> </ul>
Other Habitats	<ul style="list-style-type: none"> <li>■ Widespread distribution throughout North Lanarkshire, predominantly in rural areas</li> </ul>	<ul style="list-style-type: none"> <li>■ Approximately 11,600 hectares of woodland (NIWT survey)</li> </ul>
Priority Species	<ul style="list-style-type: none"> <li>■ Species related to priority and other appropriate habitats</li> </ul>	<ul style="list-style-type: none"> <li>■ Abundance varies according to species</li> </ul>



### 5.3 TRENDS IN THE RESOURCE

5.3.1 The assessment of trends has been considered within the same sections as those presented for the ecological baseline in Section 5.2.

#### Designated Sites

5.3.2 In order for a site to become designated a series of criteria require to be met, these criteria vary based on the nature and level of the designation. No data are available on the numbers of designated sites over previous years however the date of designation of the sites can be used as an indication of the increase in such sites over time. This measure however does not allow for sites which may have been un-designated.

5.3.3 Table 5.7 below presents details on the dates of creation of sites and reserves where data have been made available.

**Table 5.7 – Creation of Designated Sites within North Lanarkshire**

Designation	Total Number of Designated Sites								
	1980 - 1989	1990 – 1994	1995 – 1999	2000	2001	2002	2003	2004	2005
Special Area of Conservation (SAC) <sup>1</sup>	0	0	0	1	3	4	4	4	4
Site of Special Scientific Interest (SSSI) <sup>1</sup>	8	9	12	12	12	13	13	13	13
Local Nature Reserve (LNR) <sup>1</sup>	1	2	2	2	2	2	2	2	2
RSPB Reserves <sup>2</sup>	2	2	2	2	2	2	2	2	2
Scottish Wildlife Trust Reserves <sup>3</sup>	0	1	5	5	5	5	5	5	5

Sources: Digital information supplied by <sup>1</sup> Scottish Natural Heritage, <sup>2</sup> RSPB and <sup>3</sup> Scottish Wildlife Trust.

Note: These figures do not show sites which have been un-designated and are based on the submission/declaration/acquired date from the digital data source.

5.3.4 The general increase in the number of reserves represents, in part, an increased awareness in biodiversity issues and threats but also in the identification of ecologically valuable and distinctive sites within North Lanarkshire.

#### Habitats

5.3.5 Historic and current data are available for selected habitats which allow the identification of trends within the ecological baseline. The trends in habitats will also have an influence on the trends of associated species. As identified in Section 5.4 on pressures, the loss of habitat is a major influence on species health.

5.3.6 **Lowland Raised Peat Bogs.** Data are available from the Habitat Action Plan (1999) and bog inventories (released September 1997, survey 1990-1994). No subsequent data are available relating to the extent of bogs within North Lanarkshire to allow the identification of trends. The LBAP does however identify longer term trends in peat bogs, reporting a 94% decrease during the last 200 years.

5.3.7 **Broad Leaved and Mixed Woodland.** Limited detailed data are available on trends specifically with regard to broad leaved and mixed woodland. Trends in overall woodland (all categories) are discussed in more detail within subsequent paragraph on 'Other Habitats' however the Forestry Commission's National Inventory of Woodland and Trees Inventory Report (1999) identifies a likely increase in the regional cover of broad leaved woodland between the 1980 Woodland Census and the 1995 Inventory.

5.3.8 Nationwide, woodland has been in decline since the 1940s. The HAP reports figures for the Strathclyde Region which indicate a significant decrease of 17% in broadleaved woodland between 1940 and 1980 whilst a very large increase in conifer cover has occurred.



5.3.9 **Rivers, Streams and Lochs.** Given the nature of rivers, streams and lochs there is little change in the number and extent of watercourses and waterbodies. Significant and monitored trends are associated with water quality which is discussed within Chapter 5: Aquatic Environment.

5.3.10 Associated with development, engineering features such as culverts, bridges and in-channel engineering works have taken place across North Lanarkshire however these activities are not monitored in any form which would allow trends to be determined.

5.3.11 **Floodplain Grazing Marsh.** As discussed in Section 5.2, no figures are available for the total area of Floodplain Grazing Marsh within North Lanarkshire and therefore no trends can be determined. However, the HAP identifies two designated sites within North Lanarkshire which contain notable Floodplain Grazing Marsh, these being:

- Drumbreck Local Nature Reserve, declared in 1993; and
- Dullatur Marsh SSSI, notified in 1990.

5.3.12 These two sites indicate an increasing acknowledgement of the importance of this habitat which has resulted in the protection and management of these two areas.

5.3.13 **Other Habitats - Woodland.** As discussed in Section 5.2 there are other habitats for which data exist, notably woodlands. There are several sources from where woodland trend data are available however, given the variations in survey methodology and changes in definitions, direct comparison of data has not been undertaken. Interpretation of trends made by the Forestry Commission and Central Scotland Forest Trust have been presented within this section. Although these data are provided on a regional basis rather than specifically for North Lanarkshire, they do provide an indication as to local trends in woodland/forestry.

5.3.14 The Forestry Commission's Inventory Report (1999) for the Strathclyde region compares the 1995 Inventory with the 1980 Census. The Inventory Report notes that the 1980 Census and 1995 Inventory surveys were undertaken by very different sampling methods, in particular this includes a minimum surveyed woodland area of 0.25ha (1980 Census) and 2ha (1995 Inventory). The report presented an increase in woodland across the Strathclyde region of 51.6% although it notes that this should be treated with caution given the differences in sampling methods.

5.3.15 The report provides a division between the increases in woodland area for conifers (approximately 46%) and broadleaves (approximately 73%). Again these increases are for the Strathclyde region and also are subject to the limitations identified above. The report notes that the small woodlands not contained within the 1995 Inventory are expected to contain a high quantity of broadleaves.

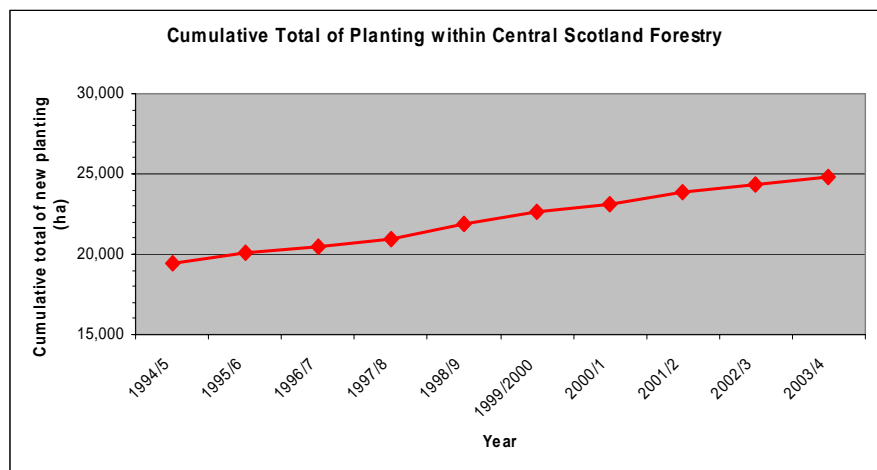
5.3.16 A second source of data on woodland trends is provided by the Central Scotland Forest Trust (CSFT). CSFT's area covers 159,090ha of central Scotland with approximately 16% covered by woodland (2003/04 figures from CSFT's Annual Report and Forest Review). These data, obtained from their annual reports and strategy report, provide trends in woodland cover as well as annual projects/planting.

5.3.17 CSFT's Annual Report and Forest Review 2003-2004 identifies trends in woodland cover within the Central Scotland Forest with an increase of approximately 27.5% between 1994/5 and 2003/4 (See Table 5.8 and Graph 5.1). This figure however is for the Central Scotland Forest as a whole, only part of which is North Lanarkshire. These figures are based on CSFT's collection of planting figures and on a baseline from the Macaulay Land Use Research Institute (MLURI) in 1988 of 17,000 ha. These figures do not take account of woodland loss through development.



**Table 5.8 and Graph 5.1 Trends in Woodland Cover (1994/5 – 2003/4)**

Year	Total Woodland (based on cumulative planting figures)
1994/95	19,427
1995/96	20,049
1996/97	20,503
1997/98	20,942
1998/99	21,866
1999/00	22,679
2000/01	23,158
2001/02	23,846
2002/03	24,351
2003/04	24,770



Source: CSFTs Annual Report 2003/4

5.3.18 CSFT also provide a summary of woodland cover trends on a geographical zone basis for the whole CSFT area, this is identified within Table 5.9. All five zones are present within North Lanarkshire and although the figures do not provide a detailed change in woodland within North Lanarkshire they do provide a change in woodland cover across the Central Scotland area. During this period there has been a relatively high percentage increase in woodland cover on the Central Scotland Plateau (part of which is located in the eastern and southern parts of North Lanarkshire).

**Table 5.9 – Trends in CSFT Woodland Area (1995 – 2003)**

Zone	Total Woodland Cover (ha)	Increase 1995-2003 (ha)	Approximate % Increase 1995-2003 (%)
North West Hills (within North Lanarkshire this occupies land to the north of Cumbernauld running along the Kilsyth Hills)	1,913	237	12%
Lowland Fringe (within North Lanarkshire this occupies land in the western part of the area)	4,085	401	10%
Central Plateau (within North Lanarkshire this occupies land in the eastern and southern parts of the area).	7,993	2,080	26%
South-East Hills (within North Lanarkshire this occupies a small amount of land in the south-eastern part of the area)	7,688	688	9%
Large Towns (within North Lanarkshire this includes Cumbernauld, Airdrie/Coatbridge and Motherwell/Wishaw)	835	62	7%

Sources: CSFT Central Scotland Forest Strategy, 2004

5.3.19 Trend data are provided within CSFT's annual reports (Annual Reports 2002/3 and 2003/4) for projects undertaken including establishment of new woodland and woodland management. The annual reports identify data for North Lanarkshire and these are provided within Table 5.10.





**Table 5.10 – Trends in CSFT Woodland Projects within North Lanarkshire**

Designation	2001/2	2002/3	2003/4
Number of Capital Projects	12	14	8
Total Area of Woodland Established	23.4ha	42.5 ha	12.4ha
Area of Woodland Established on Farms	18.3 ha	40.6 ha	10.0 ha
Area of Woodland Established on Mineral / Landfill Sites	0 ha	0.5 ha	0 ha
Area of Woodland Established on Derelict Land	5.0 ha	3.6 ha	0 ha
Area of native Woodland Established	5.8 ha	6.2 ha	1.3 ha
Area of Woodland brought into Management	3.2 ha	6.9 ha	8.7 ha
Area of Native Woodland brought into Management	3.2 ha	6.9 ha	8.7 ha
Length of Road Corridor Improvements	2.3km	2.0km	2.2km

Sources: CSFT Annual Report 2003/4 and Annual Report 2002/3.

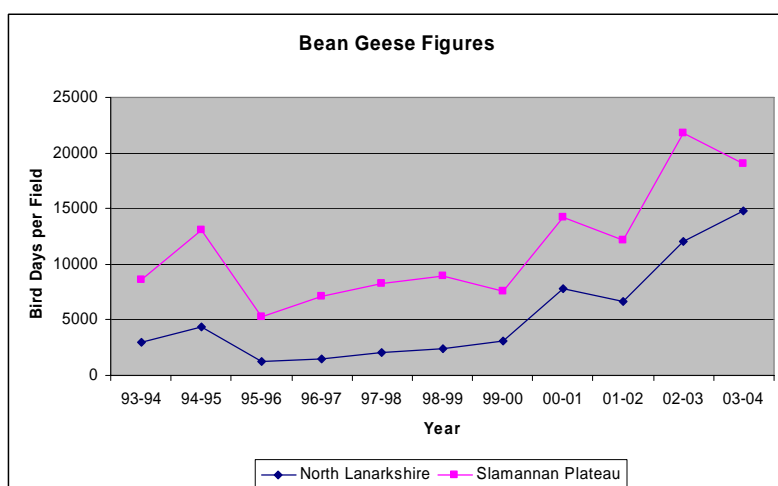
5.3.20 Whilst there are limitations within the trend data presented, they generally demonstrate an increase in woodland cover across Central Scotland. Trends may also be affected by commercial forestry which includes felling strategies that may influence reported woodland cover.

## Species

5.3.21 As detailed in Section 5.2, the information available for species is based on surveys and generally these are for specific locations and not area-wide for North Lanarkshire. One species, Bean Geese, however, can be looked at for numbers and trends as it has a defined area within which it over-winters.

5.3.22 The HAP identifies an increase in bird numbers from 130-150 in the mid-1990s to 189 in 1999/2000. Table 5.11 presents data from the Bean Geese Working Group for the total number of bird field days, these being an indication of the number of days birds visit a given field.

**Graph 5.2 and Table 5.11 Trends in Bean Geese Field Days**



Year	North Lanarkshire	Slamannan Plateau
1993 - 1994	2,987	8,586
1994 - 1995	4,383	13,089
1995 - 1996	1,260	5,221
1996 - 1997	1,476	7,145
1997 - 1998	2,029	8,249
1998 - 1999	2,356	8,899
1999 - 2000	3,097	7,558
2000 - 2001	7,848	14,180
2001 - 2002	6,673	12,114
2002 - 2003	12,083	21,755
2003 - 2004	14,764	18,989
Change between 1993/4 and 2003/4	394%	121%

Source: Bean Geese Working Group Report

5.3.23 The figures presented support the increase in bird numbers identified within the HAP demonstrating a steady increase in the numbers of days Bean Geese have over-wintered on fields within North Lanarkshire and the wider Slamannan Plateau. Figure 5.8 identifies the location of fields used by Bean Geese within North Lanarkshire.

5.3.24 These increases may be associated with changes in monitoring methods and intervals, increased sensitive management of land or general increases in the number of birds migrating to the Slamannan Plateau.



5.3.25 **Fish Stocks.** The Clyde Fisheries Trust does not hold any records on fish stocks within North Lanarkshire's watercourses and therefore there are no data to assess trends. Fish stocks will however be affected, in part, by water quality and flows. Details of trends within water quality are discussed in Section 6.3 although the use of water quality as a guide to fish stock does not take into account other factors affecting stock such as development pressures and over-fishing.

5.3.26 The HAP for Atlantic Salmon has identified that the number of this species using the River Clyde and its tributaries was reduced considerably associated with heavy industry throughout the catchment. Over the last 30 to 40 years however the Atlantic Salmon has reportedly re-colonised parts of the Clyde catchment associated with improvements in water quality and management.

## 5.4 PRESSURES ON THE RESOURCE

5.4.1 Designated sites, habitats and species are affected by a wide range of natural and man-made pressures. These pressures affect different habitats and species differently with effects in the short and long term. Pressures which have been identified on the resource in North Lanarkshire are discussed in this section.

### Designated Sites

5.4.2 Designated sites are afforded a range of protection based on the nature of their designation. Sites are protected from many of the negative pressures affecting other habitats and the various designations aim to promote and enhance the habitats and environments. There are therefore pressures on these sites, and those who maintain them, through the requirements for management and enhancement of the quality of the habitat.

5.4.3 Details of the specific requirements for the designated sites within North Lanarkshire are presented below:

- Special Areas of Conservation (SACs) are areas designated under the European Directive commonly known as the 'Habitats' Directive and form part of the Natura 2000 network of sites.
- Sites of Special Scientific Interest (SSSIs) are nationally designated sites which are the best examples of our natural heritage of wildlife habitats, geological features and landforms. A SSSI is an area that has been notified as being of special interest under the Wildlife and Countryside Act 1981.
- Local Nature Reserves are places with special local natural interest, set up to protect nature, and for people to enjoy and appreciate.
- Country Parks are statutorily declared and managed by local authorities in Scotland under the Countryside (Scotland) Act 1967. They are primarily intended for recreation and leisure opportunities close to population centres and do not necessarily have any nature conservation importance. Nevertheless, many are in areas of semi-natural habitat and so form a valuable network of locations at which informal recreation and the natural environment coexist (Ref: JNCC Website 12/10/05).
- Sites of Importance for Nature Conservation (SINCs) are locally designated sites. SNH identify that SINCs are likely to be reviewed in 2006 and this may strengthen their classification and protection.
- RSPB Reserves do not carry any legislative designation (except where designated by one of the above) but they are managed by the RSPB in line with their policies which includes 'to secure a healthy environment for birds and wildlife'.
- Scottish Wildlife Trust Reserves are sites managed and/or owned by SWT, a charitable organisation. SWT identify that the natural environment is under pressure and the Trust offers practical conservation solutions through habitat management.

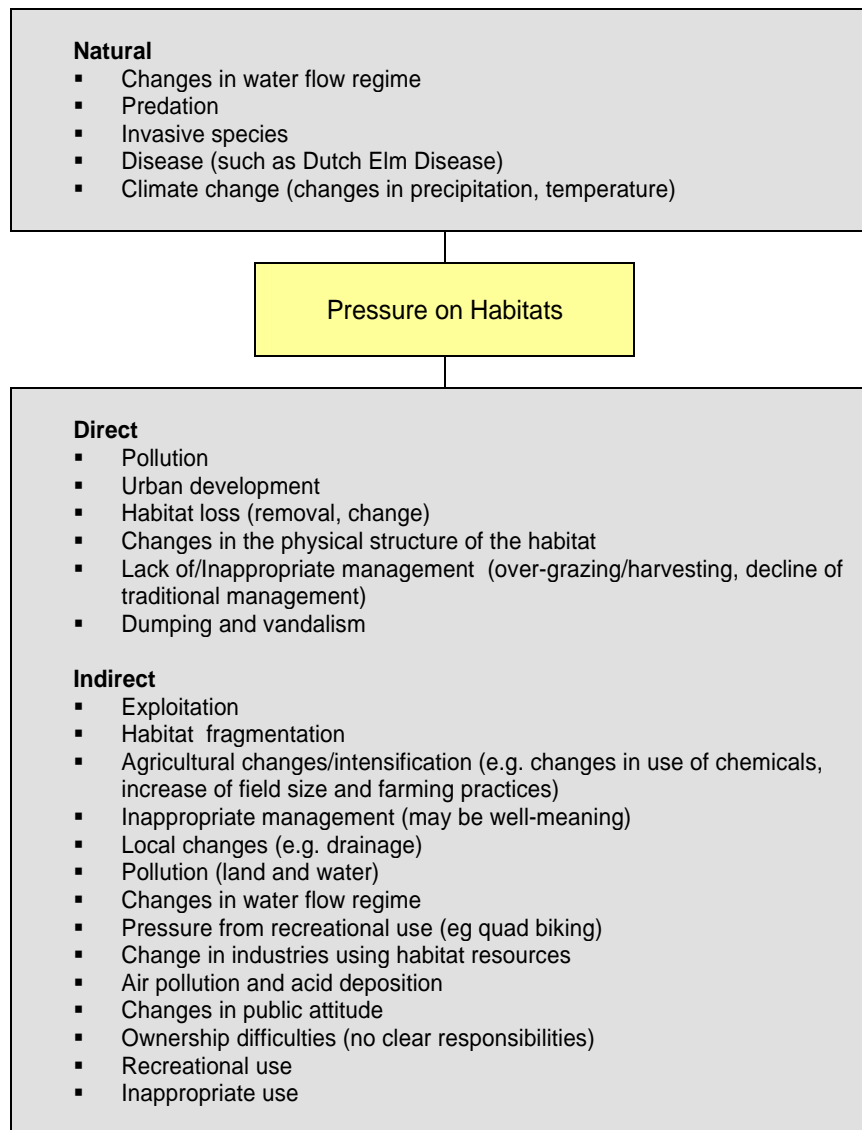


## Habitats

5.4.4 There are a wide range of pressures affecting habitats with some specific to particular habitats and other generic to a range of habitats. The key pressures on habitats come from activities which threaten the direct loss of habitat, such as urban development. Many of these pressures are also applicable to the designated sites identified above.

5.4.5 Box 5.4 presents a summary of the key pressures affecting habitats within North Lanarkshire for both the natural and man-made pressures.

### Box 5.4 Key Pressures Affecting Habitats within North Lanarkshire



Source: North Lanarkshire Council Habitat Action Plans and Stakeholder Workshop

5.4.6 The sensitivity of the habitats to these pressures are, in part, dependent upon the location and nature of the habitat. Development pressures are particularly strong in areas surrounding existing urban development or in close proximity of transport networks. Similarly there is more development pressure on level open farmland sites than steep forested land.



5.4.7 Whilst many of these generic pressures can be applied to various sites, specific pressures can be looked at for particular habitats, and these are discussed below.

- **Woodland.** The HAP notes that Dutch Elm Disease is a factor causing loss or decline of woodland. In addition woodland is specifically vulnerable to agricultural change, development pressure, storm damage and neglect.
- **Rivers and Streams.** The requirements of the Water Framework Directive will have specific (positive) pressures on the aquatic habitat (including the watercourses and riparian habitat). Further discussion of the aquatic environment is presented within Chapter 6: Aquatic Environment.
- **Floodplain Grazing Marshes.** This habitat is particularly susceptible to poor water quality within adjacent burns and rivers. The HAP identifies the main location of this habitat within North Lanarkshire is within the River Kelvin valley. As identified within Chapter 6: Aquatic Environment, the water quality within the River Kelvin is Class B (Fair) or Class C (Poor) along monitored sections of the watercourse (SEPA water quality monitoring data, 2004).

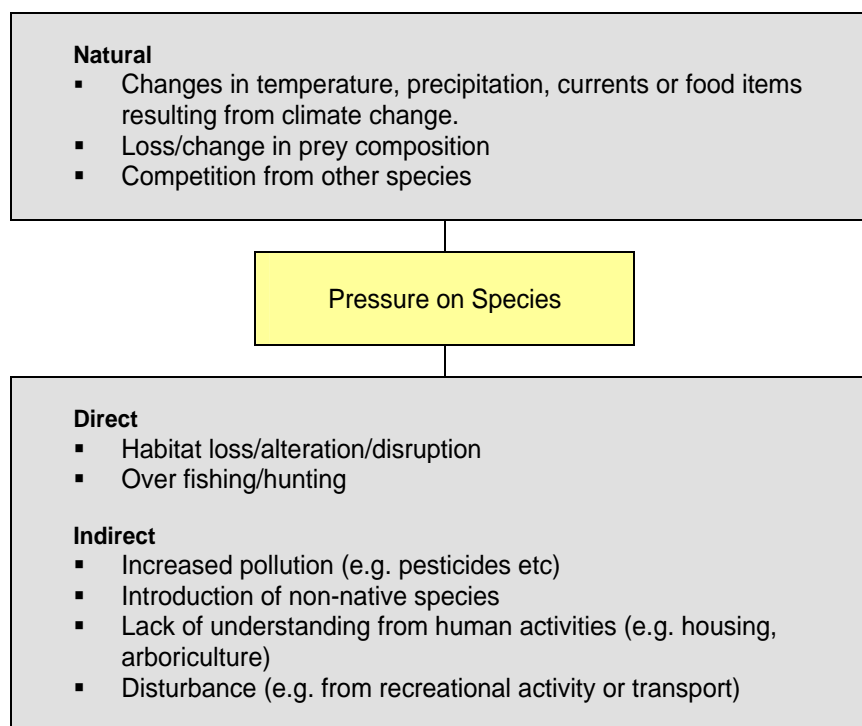
5.4.8 Indirect pressures associated with human activity result in a more widespread effect with activities such as general urbanisation affecting a range of local habitats through the fragmentation of existing habitats, increased pollution and pressures such as disturbance and erosion from recreational uses.

## Species

5.4.9 There are a range of pressures affecting all species within North Lanarkshire. In many cases the pressures affecting one species provide opportunities for another through reduced competition or more favourable habitat for instance.

5.4.10 Box 5.5 presents a summary of key generic pressures affecting species.

### Box 5.5 Key Pressures Affecting Species within North Lanarkshire



Source: Species Action Plans and Stakeholder Workshop





5.4.11 As with the habitats, the sensitivity of the species to these pressures are, in part, dependent upon their location and the nature of the habitat they use. The adaptability of the species to adjust to a changing landscape and environment is an important factor in the sensitivity of the species. Some species which require a specific habitat are particularly vulnerable to pressures on the given habitat whereas other species can adapt and thrive in the changing circumstances.

5.4.12 Indirect pressures associated with activities outside North Lanarkshire may impact on species within North Lanarkshire given the ability of species to move across the Council boundary.

5.4.13 The relevant SAPs identify factors causing loss or decline in species. The key pressures are identified below:

- Atlantic Salmon are affected by increases in water pollution, over-fishing, obstructions to fish movement and influences of non-native species;
- Barn Owls are affected primarily by habitat loss or alteration including damp grassland, wild grassland, edge habitats such as hedgerows and the modernisation of farm buildings as potential nesting sites;
- Bean Geese are affected by loss of peatlands and rough grasslands close to the preferred feeding sites;
- Bluebells are affected primarily by loss of woodland habitat as well as trampling by cattle;
- Daubenton Bats are affected by the reduction in insect prey associated with farming practices, loss of maternity and hibernation roost sites and changes in climate;
- Great Crested Newts are affected by a loss of terrestrial habitat and loss or infilling of breeding ponds;
- Otters are affected by pollution including the acidification of watercourses and habitat loss and disturbance are also factors;
- Pipistrelle Bats are affected by the reduction in insect prey associated with farming practices, loss of maternity and hibernation roost sites and changes in climate. In addition loss of feeding habitats such as wetlands, hedgerows and woodlands affect this species;
- Redshank, Lapwing and Snipe are affected by drainage of wetland habitats, agricultural practices affecting breeding habitats, loss of food source through use of pesticides and woodland planting on agricultural land;
- Small Pearl-bordered Fritillary are primarily affected by loss of breeding habitat from drainage or afforestation, persistent burning of grassland and bogs;
- Swifts are primarily affected by a loss in nest sites through modern building practices;
- Water Vole are affected by river engineering, urbanisation of flood plains, heavy grazing on riparian vegetation, habitat fragmentation and predation from non-native species;
- Willow Tits are affected by a loss of suitable habitat, notably decayed wood. Bad weather at fledging time may also affect Willow Tits.

5.4.14 Many of the pressures affecting habitats also indirectly affect species through the alteration, loss or creation of habitats. Some species are adaptable to change in habitat and are able to colonise new habitats or adjust to changes in their existing habitats, such species include bird and mammal species prevalent within urban areas.

## 5.5 CONDITION OF THE RESOURCE

5.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 5.12 summarises the condition of the ecological resource drawing on the analysis presented in Sections 5.2 to 5.4.



**Table 5.12 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Designated Sites	<ul style="list-style-type: none"> <li>■ Designation indicates presence of important asset</li> <li>■ Network of sites provides an important and protected resource</li> </ul>	<ul style="list-style-type: none"> <li>■ Designation affords protection through policy and legislation</li> <li>■ SINC's have less planning protection than national and European sites (forthcoming SINC review may strengthen protection)</li> </ul>	<ul style="list-style-type: none"> <li>■ Significant contribution due to the status of each site, individually and cumulatively</li> </ul>
Priority Habitats	<ul style="list-style-type: none"> <li>■ Number and area of habitats has generally remained stable or increased in recent years</li> <li>■ Areas and condition of raised bog are likely to have declined</li> </ul>	<ul style="list-style-type: none"> <li>■ LBAP affords protection for priority habitats</li> <li>■ Some habitats are vulnerable to pressures from new development and changes in land management practices</li> </ul>	<ul style="list-style-type: none"> <li>■ Significant – characterises the biodiversity of habitats in North Lanarkshire (and the landscape)</li> <li>■ Also nationally significant (some species in UK BAP)</li> </ul>
Other Habitats	<ul style="list-style-type: none"> <li>■ Woodland habitats have increased substantially</li> <li>■ Blanket bog area has declined in the last 15 years</li> </ul>	<ul style="list-style-type: none"> <li>■ All habitats are vulnerable from various sources of pressure, particularly new development</li> <li>■ More vulnerable than priority habitats and designated areas due to lack of statutory protection</li> </ul>	<ul style="list-style-type: none"> <li>■ Widespread contribution to North Lanarkshire's biodiversity and landscape</li> </ul>
Priority Species	<ul style="list-style-type: none"> <li>■ Variable health according to species</li> </ul>	<ul style="list-style-type: none"> <li>■ All species are vulnerable to decline through habitat loss and disturbance</li> </ul>	<ul style="list-style-type: none"> <li>■ As for Priority Habitats</li> </ul>



## 5.6 KEY ASSETS

5.6.1 Based on the analysis of environmental information within Sections 5.2 to 5.5, the following key ecological assets have been identified along with a discussion of these assets.

**Table 5.13 Key Ecological Assets**

Key Asset	Description
Designated Sites	Designated Sites are not just key assets within North Lanarkshire but also on a wider scale with SACs of European importance and SSSIs of national importance. North Lanarkshire's designated sites are key assets as, by the nature of their designation, they indicate the presence of an important resource such as peat bog habitats.
Priority Habitats	Priority Habitats are key assets within North Lanarkshire as they are locally important habitats requiring action to halt loss and enhance the remaining habitat.
Wildlife Corridors and Links	Wildlife corridors and links are a key asset to North Lanarkshire as they provide an ecological link between different habitats and habitats in different locations to increase the habitat area available to species.
Potential Ecological Importance of Brownfield Sites	As identified within Chapter 4, North Lanarkshire has a large amount of vacant and derelict land and some brownfield sites have potential ecological value. This opportunity is therefore a key asset to North Lanarkshire, both with regard to current value of brownfield land but also with regard to the opportunity for ecological value and enhancement of future redevelopment.
Collective Resource of Priority Species	As a collective resource, the priority species within North Lanarkshire are a key asset as they represent those species whose biodiversity it is most important to maintain and enhance.

5.6.2 The emphasis of the key assets identified above is on the areas of greatest ecological importance and on habitats and species which are in some way threatened and are therefore prioritised in plans and strategies. It could be argued that another key asset is the combined biodiversity significance of all habitats and species in North Lanarkshire since it is this cumulative resource, and the interactions within it, which truly represents the baseline biodiversity asset for the area.

## 5.7 ISSUES FOR RESOURCE MANAGEMENT AND PROTECTION

5.7.1 The features and key assets identified within this Chapter require a differing degree of management and protection based on the nature of the feature/asset, the pressures affecting them and the scarcity of the resource.

5.7.2 Management of habitats is primarily undertaken for specific purposes, such as for agricultural or commercial forestry purposes and therefore management for ecological value may be a secondary aim. Many important habitats lie within designated sites and these are afforded a level of management and protection focussed on the ecological value of the sites for example through landowner agreements in relation to land management practices. A greater level of ecological management can be applied to sites that lie within designated sites, Council ownership or the ownership of other organisations like the RSPB or Central Scotland Forest Trust.

5.7.3 Designated sites and sites within the ownership of the Council or other organisation identified above require a continuation of current practices and policies to emphasise protection of these sites. Protection of habitats is therefore particularly important where priority habitats lie outwith designated sites and where they are more susceptible to the pressures identified earlier in this chapter.



5.7.4 Wildlife corridors were identified as a key asset within North Lanarkshire and these range from larger corridors such as the Forth and Clyde Canal, M8 corridor and the wooded river valley of the South Calder Water through to local hedgerows linking woodland habitats. These corridors play an important role in the ecological resource and it is important that they are managed appropriately. Again management and protection is particularly important to sites outwith designated areas or areas under management of the Council or conservation organisations. Policies exist for the promotion of hedgerows and woodland planting nationally through grant schemes. Development on the urban fringe has a particular pressure on the loss of wildlife corridors and new development should seek to retain existing corridors where practicable.



5.7.5 The protection of habitats can be further promoted through increased ecological awareness and education as to the value of the ecological resources. High quality developments and developments sensitive to their surroundings can be used not only to safeguard existing ecological resources but also to enhance and create new habitats. Such management and protection need not be to the detriment of other factors, the enhancement and creation of habitats such as watercourses may provide an important community resource within new developments and play a role in the landscape and open space value.

5.7.6 Brownfield land is a potential ecological resource which varies in nature from site to site. In some instances such sites provide habitat for rare species and management of these sites needs to ensure that the ecological resource is protected with consideration of the other environmental issues present on site such as contamination and derelict land. There is a significant opportunity within North Lanarkshire for brownfield land and vacant and derelict land (including former landfills and mineral workings) to provide an opportunity for the creation of an ecological resource within its re-use/redevelopment. The redevelopment of such sites with regard to ecological enhancement may provide benefits for other aspects including the landscape and community resources.

5.7.7 Management of the ecological resource is being undertaken within various strategies and plans. Catchment management planning, the local biodiversity action plan and the forthcoming Water Framework Directive all have a role in the management of habitats and species across North Lanarkshire.

## 5.8 DATA GAPS AND LIMITATIONS

5.8.1 Direct comparison of much of the data is limited by the nature of the data and basis of its collection. Woodland data are available from a number of sources and there is some discrepancy between the figures from each source (as discussed within the text in Section 5.3). Whilst direct comparison of areas of woodland is difficult, summaries of trends have been identified by various organisations including the Forestry Commission and the Central Scotland Forest Trust. Any comparison of these data in the future should take account of the bases for the data and the classifications used.

5.8.2 Significant data gaps exist with regard to information on fish stocks within North Lanarkshire's watercourses. The Clyde Fisheries Trust monitor fish stocks across the Clyde Catchment however not within North Lanarkshire. Information on a baseline of fish stock within North Lanarkshire is important in order to establish its health and extent. General improvements in water quality over previous decades is likely to have improved the habitat for fish stock however other pressures such as urban development and river/stream engineering may be having an impact on fish stocks which cannot be determined without reliable baseline data.



## 5.9 REFERENCES

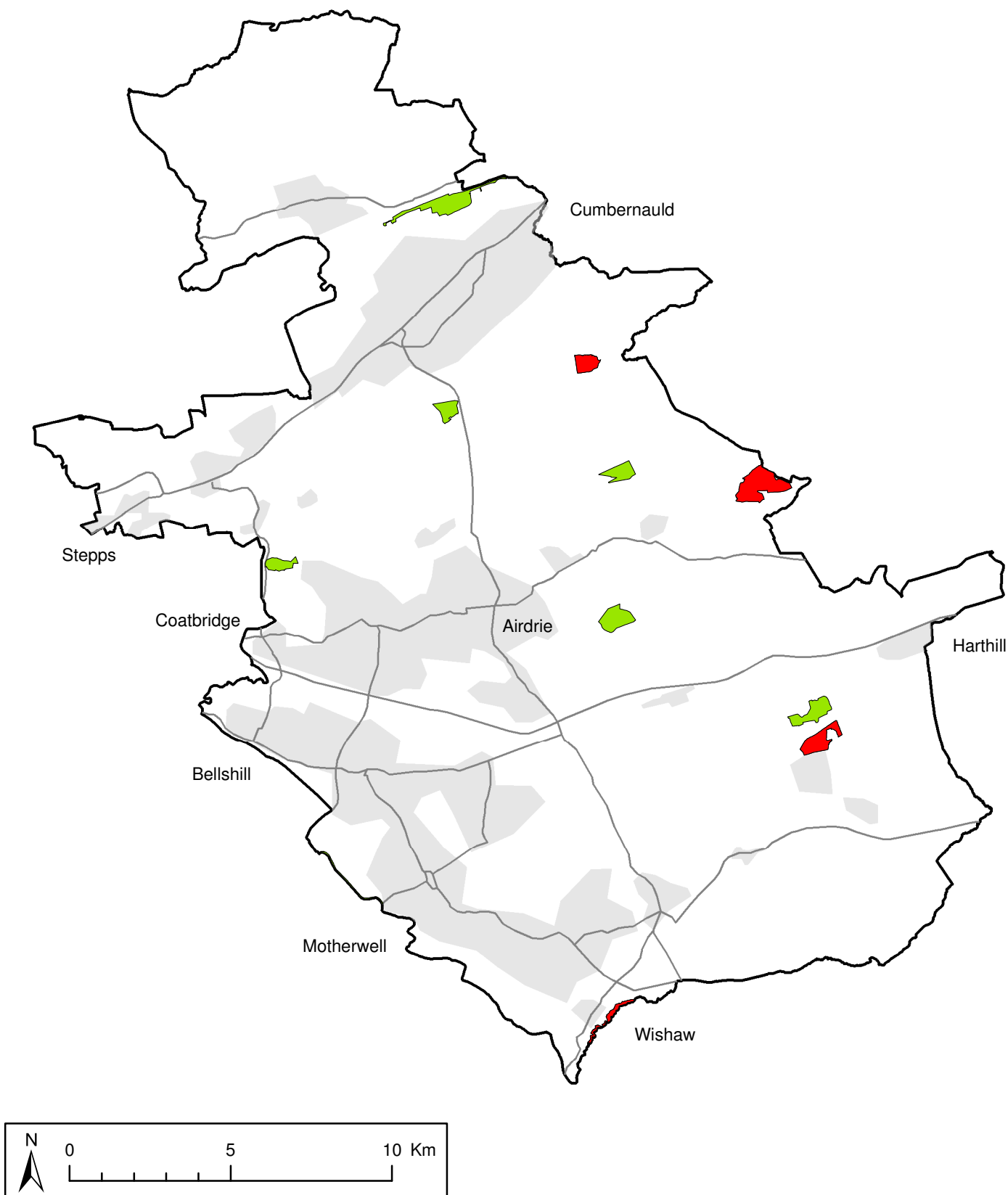
### 5.9.1 The following sources of information were referred to in this chapter:

- Digital GIS data for Special Areas of Conservation (SAC) from SNH, August 2005;
- Digital GIS data for Sites of Special Scientific Interest (SSSI) from SNH, August 2005;
- Digital GIS data for Local Nature Reserve (LNR) from SNH, November 2004;
- Digital GIS data for Country parks from SNH, February 1999;
- Digital GIS data for the Ancient Woodland Inventory from SNH, October 2000;
- Digital GIS data for Lowland Raised Bog Inventory from SNH, September 1997 (based on surveys 1990 – 1994);
- Digital GIS data for Intermediate Bog Inventory from SNH, September 1997 (based on surveys 1990 – 1994);
- Digital GIS data for Blanket Bog Inventory from SNH, September 1997;
- Digital GIS data for Sites of Interest for Nature Conservation (SINCs) from North Lanarkshire Council (provided September 2005);
- Digital GIS data for RSPB Reserves from SNH (2005);
- Digital GIS data for Scottish Wildlife Trust Reserves from SNH (2005);
- Digital GIS data for Scottish Wildlife Trust – Wildlife Sites from SNH (2005);
- Digital GIS data for the National Inventory of Woodland and Trees (Forestry Commission, 2002 based on 1995 data);
- Digital GIS data for Woodland Grant Schemes, Scottish Forestry Grant Schemes and Forestry Plans Approved (Forestry Commission);
- Digital GIS Land Use 2004 data provided by North Lanarkshire Council (survey date 2004);
- *Local Biodiversity Action Plan* (NLC, 1999), *Habitat Action Plans* (1999 – 2002) and *Species Action Plans* (1999 – 2002), prepared by North Lanarkshire Council;
- *National Inventory of Woodland and Trees – Inventory Report*, Forestry Commission, 1999;
- *Annual Report and Forest Review 2003-2004*, Central Scotland Forest Trust, 2004;
- *Annual Report and Forest Review 2002-2003*, Central Scotland Forest Trust, 2003;
- *Central Scotland Forest Strategy*, Central Scotland Forest Trust, 2004;
- *Population and Distribution of Bean Geese in the Slamannan Area*, the Bean Goose Action Group. Annual reports produced from 1993/4 to 2003/4.

## 5.10 MAPS AND PLANS

### 5.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
5.1	Plan of Special Area of Conservation (SAC) and Sites of Special Scientific Interest (SSSI) designated sites
5.2	Plan of Local Nature Reserves (LNRs), RSPB Reserves and Scottish Wildlife Trust (SWT) Reserves and Wildlife Sites
5.3	Plan of Sites of Interest for Nature Conservation (SINCs)
5.4	Plan of Country Parks
5.5	Plan of Raised, Intermediate and Blanket Bogs
5.6	Plan of Ancient and Semi-Natural Woodland
5.7	Plan of the National Inventory of Woodland and Trees
5.8	Plan of Fields used by Bean Geese within North Lanarkshire



## Legend

- Special Areas of Conservation (SAC)
- Biological Sites of Special Scientific Interest (SSSI)

Note: All Special Areas of Conservation are also designated as Sites of Special Scientific Interest

**Figure 5.1**  
Ecology  
SACs and SSSIs

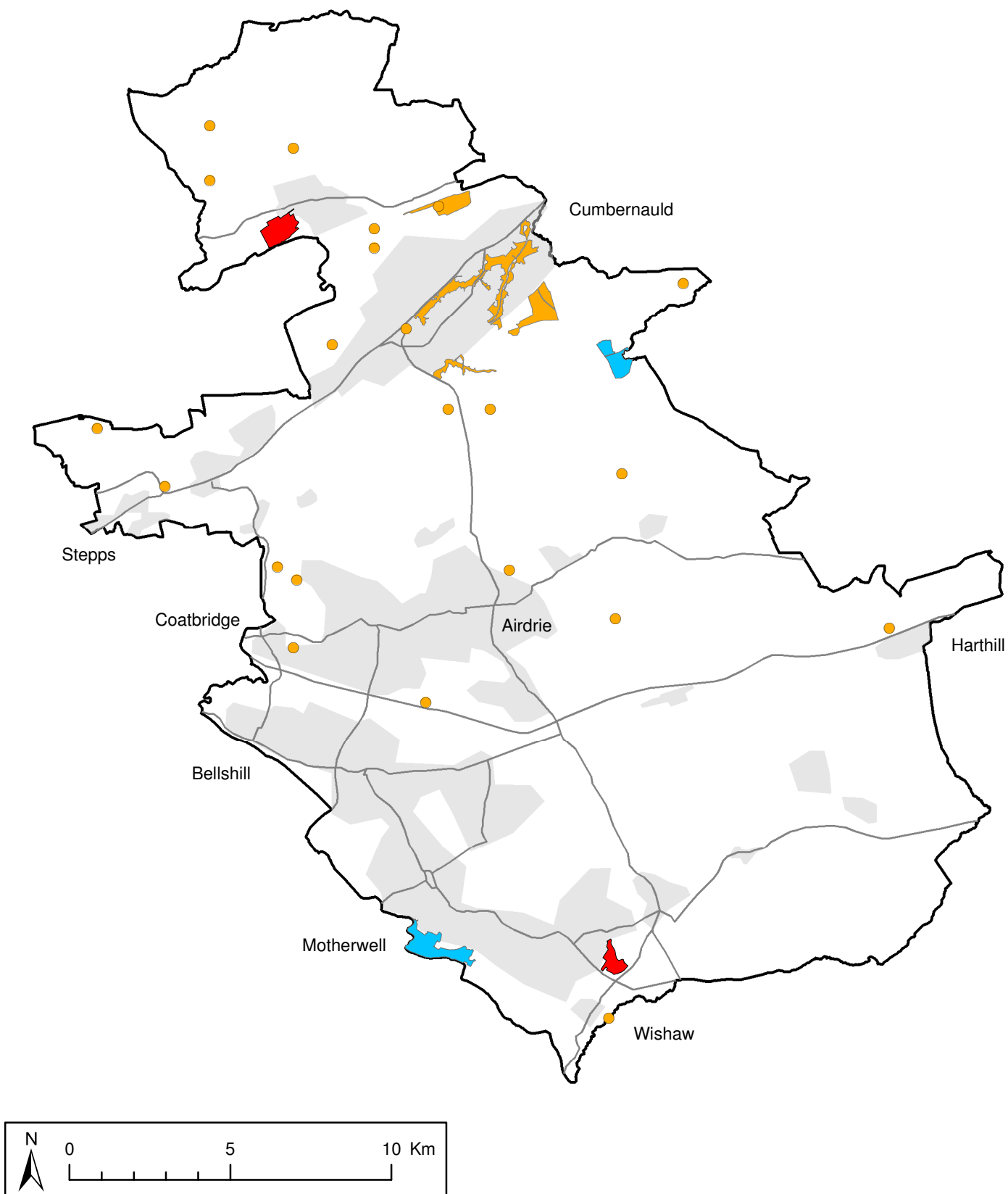
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS





## Legend

- Local Nature Reserves
- RSPB Reserves
- Scottish Wildlife Trust Reserves
- Scottish Wildlife Trust Wildlife Sites

Information provided by North Lanarkshire Council, RSPB Scotland and Scottish Wildlife Trust Respectively

**Figure 5.2**  
Ecology  
LNRs, RSPB & SWT Sites

Scale: 1:170,000

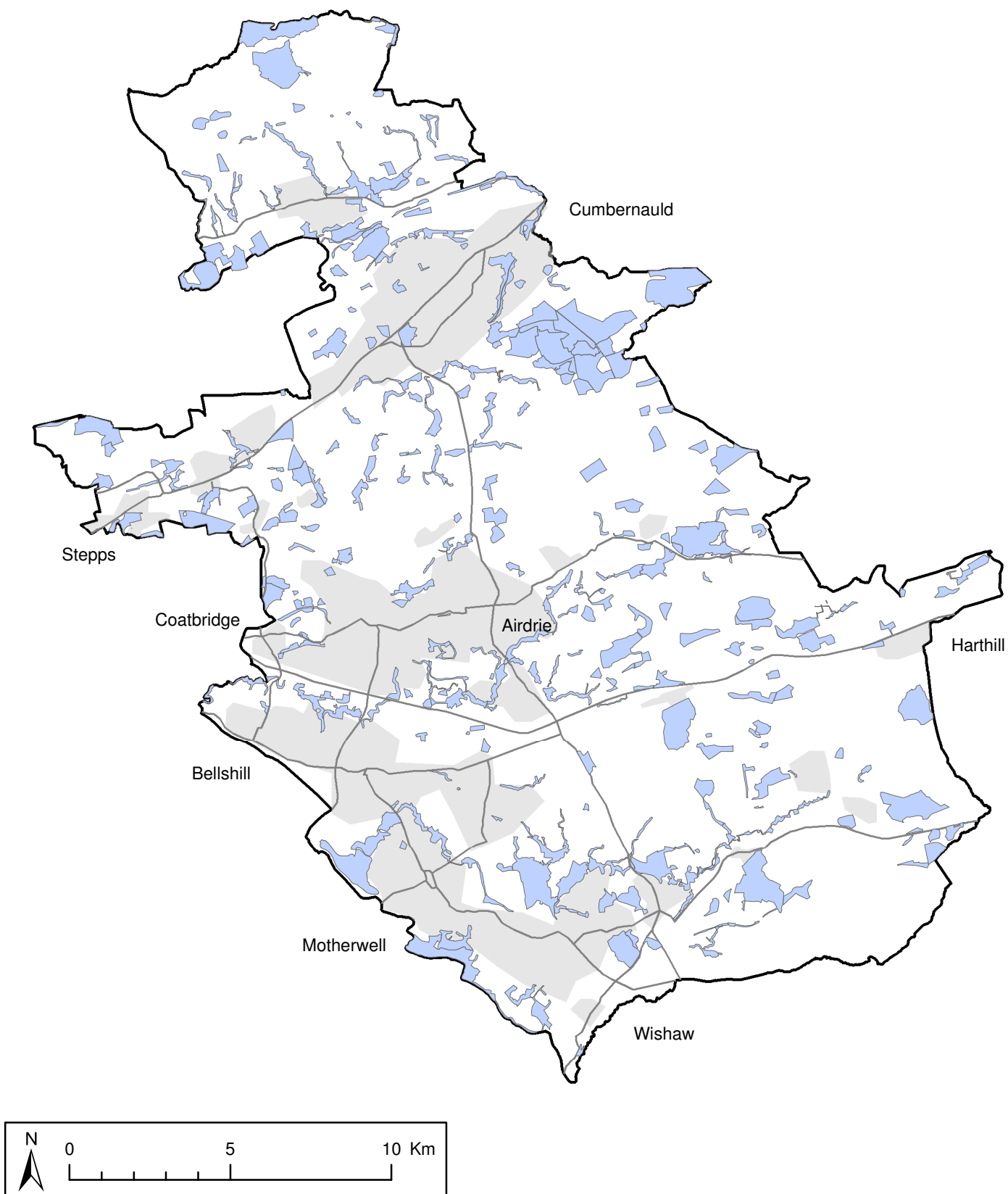
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Date: 01.11.05  
Revision: -  
Drawn by: JS







## Legend

Sites of Interest for Nature Conservation (SINCs)

## Figure 5.3 Ecology SINCs

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS





## Legend

Country Parks

## Figure 5.4 Ecology Country Parks

Scale: 1:170,000

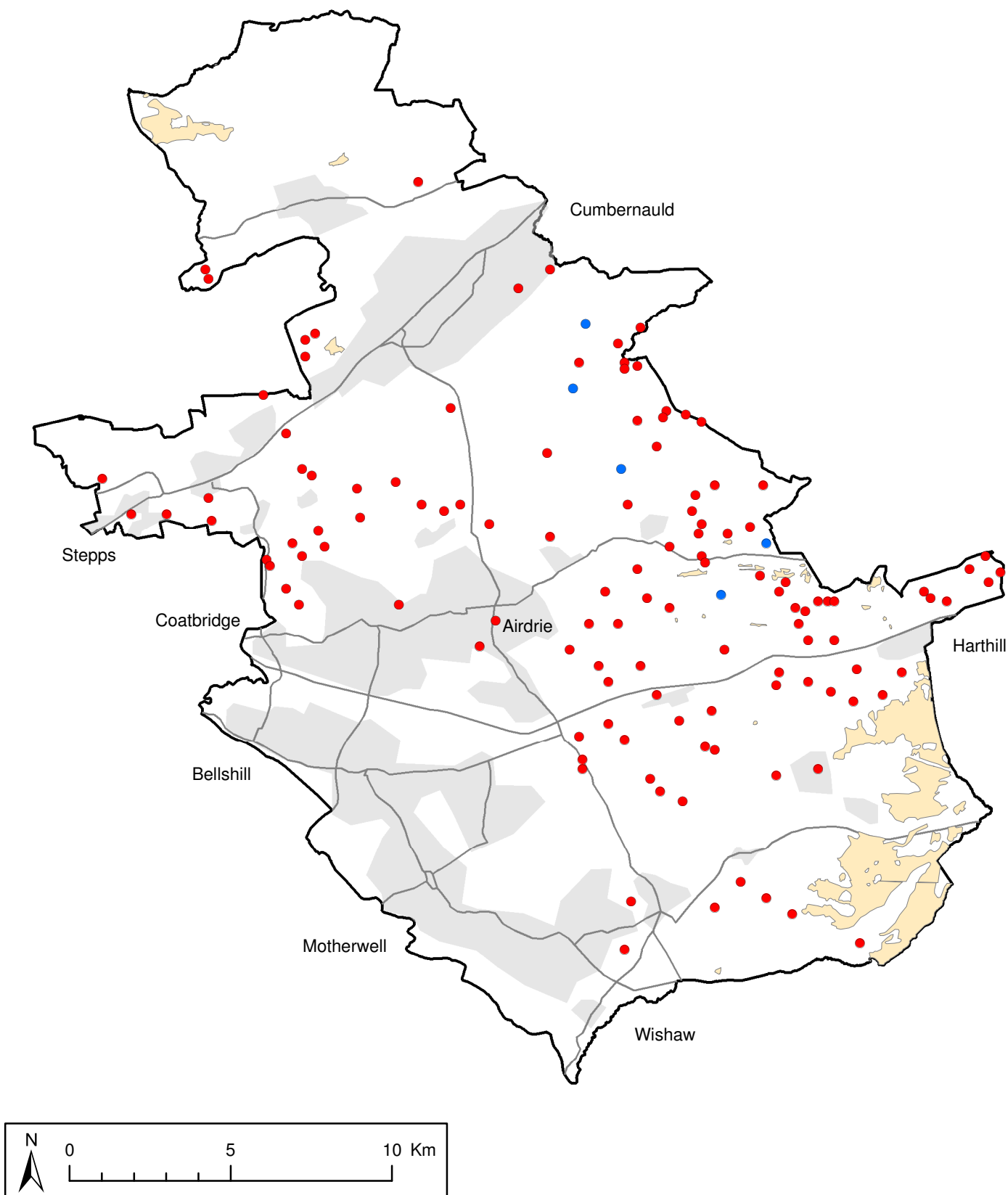
Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS







## Legend

- Lowland Raised Bogs
- Intermediate Bogs
- Blanket Bogs

**Figure 5.5**  
Ecology  
Plan of Peat Bogs

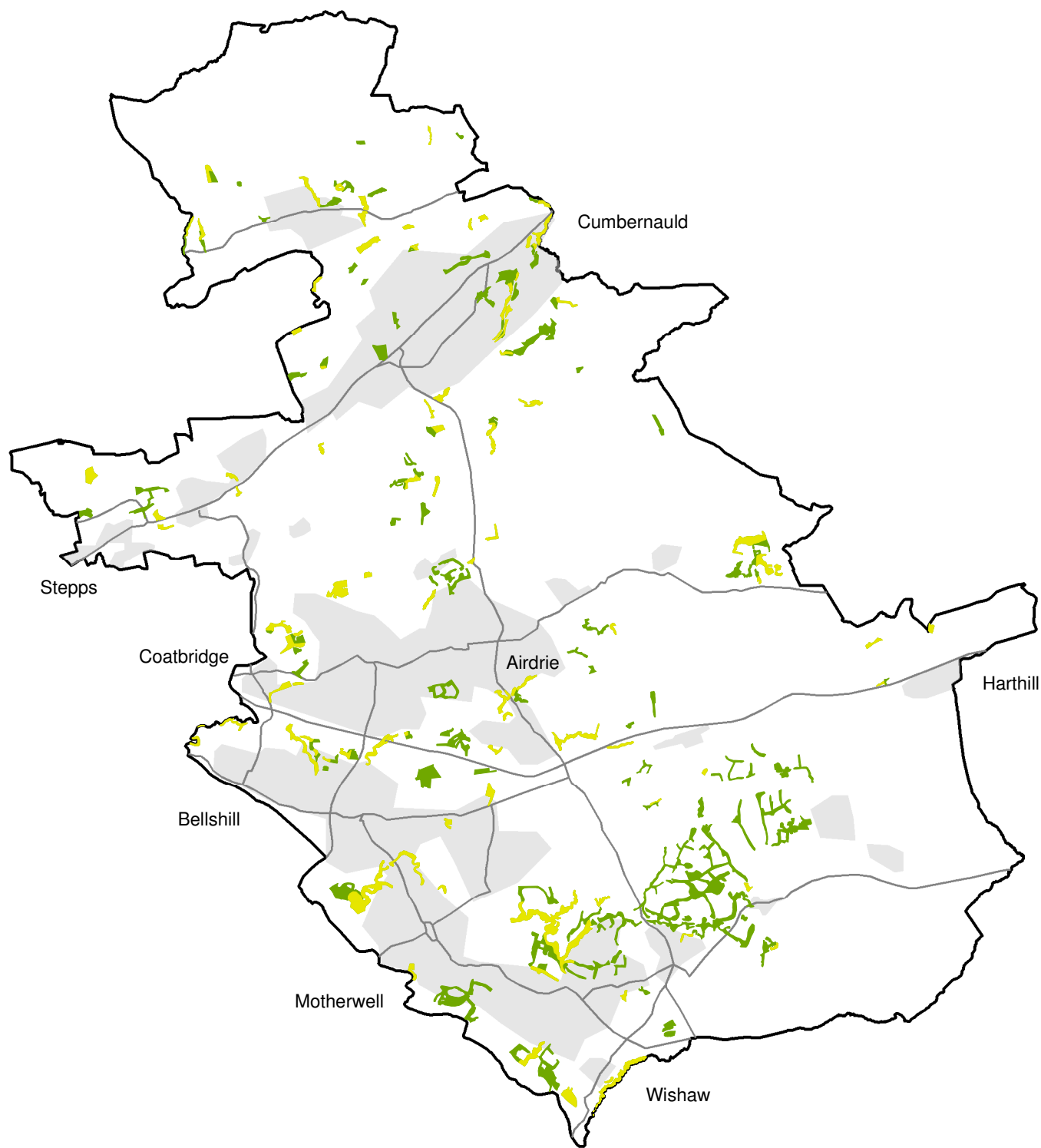
Scale: 1:170,000

Project: 12150841-001 NLC SoER



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## Legend

- Semi-Natural and Ancient Woodland Inventory
- Ancient Woodland Inventory

Note: All areas of Semi-Natural Woodland are also Ancient Woodland

**Figure 5.6**  
Ecology  
Ancient Woodland

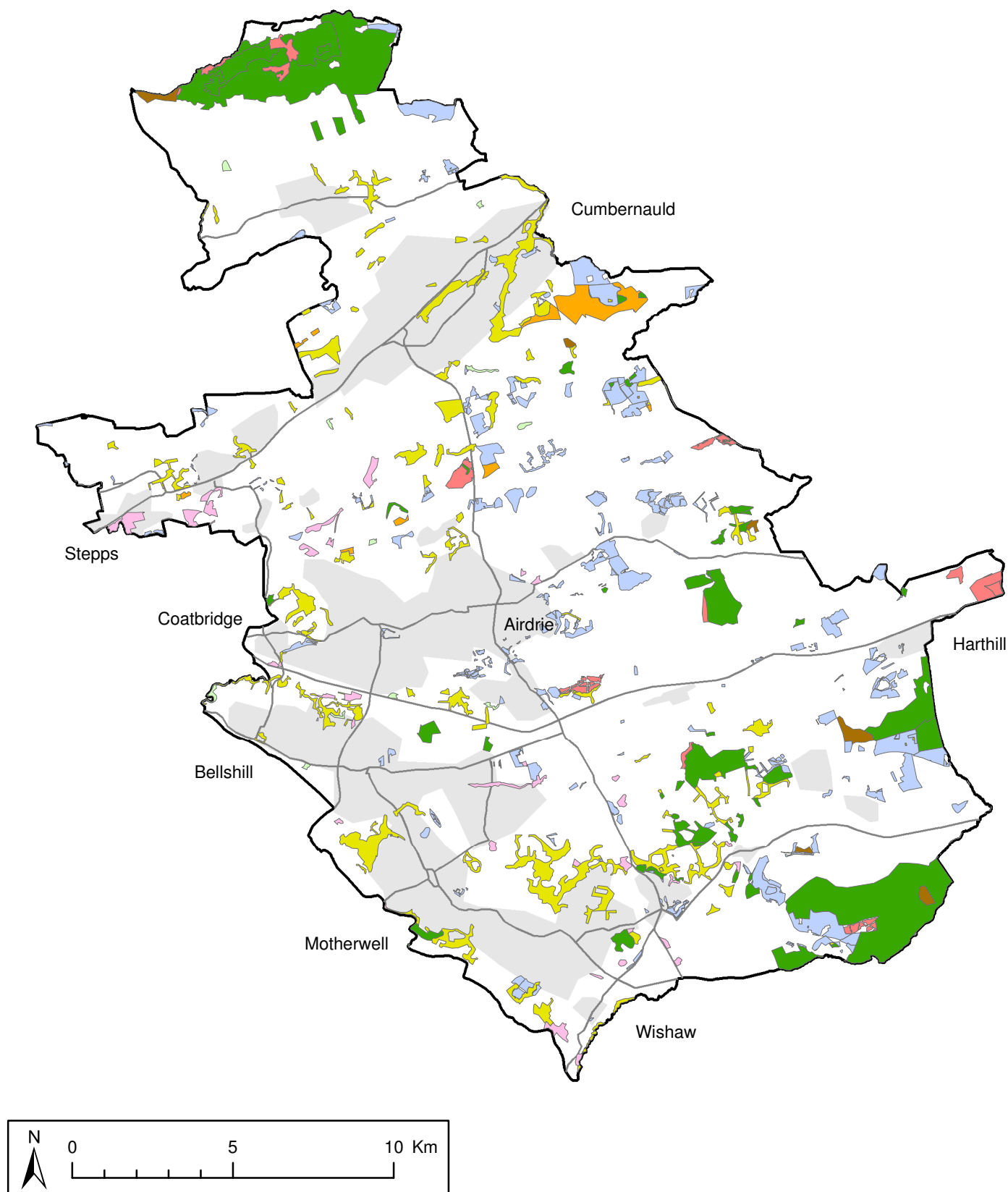
Scale: 1:170,000

Project: 12150841-001 NLC SoER



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## Legend

<span style="display:inline-block; width:15px; height:15px; background-color:darkgreen; border:1px solid black;"></span> Coniferous	<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Felled Ground
<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span> Broadleaved	<span style="display:inline-block; width:15px; height:15px; background-color:brown; border:1px solid black;"></span> Ground Preparation
<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> Mixed	<span style="display:inline-block; width:15px; height:15px; background-color:pink; border:1px solid black;"></span> Undifferentiated Low Scrub
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> Young Trees	<span style="display:inline-block; width:15px; height:15px; background-color:blue; border:1px solid black;"></span> Various

Information provided by the Forestry Commission (1995 Data within 2002 NIWT). © Crown Copyright. All rights reserved [2005]

**Figure 5.7**  
Ecology  
Forestry Commission - NIWT

Scale: 1:170,000

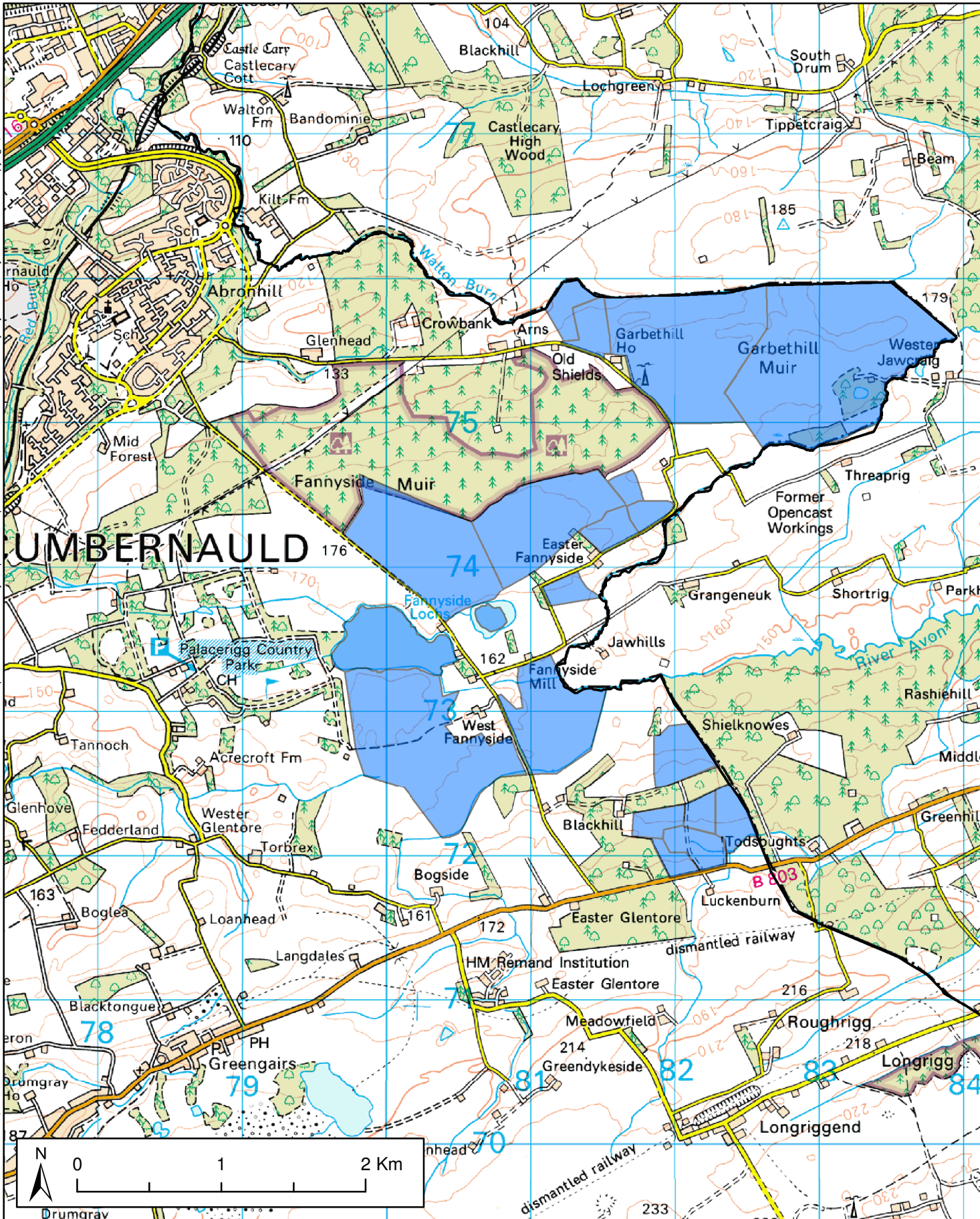
Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS







## Legend

Fields used by Bean Geese

Figure 5.8  
 Ecology  
 Bean Geese Fields

Scale: 1:35,000

Project: 12150841-001 NLC SoER



Date: 08.11.05  
 Revision: -  
 Drawn by: JS





# 6 Aquatic Environment

## 6.1 CONTEXT

6.1.1 North Lanarkshire is situated within the Central Belt of Scotland in the valley between the Campsie and Kilsyth Hills to the north and higher ground to the south with the Central Scotland Plateau in the eastern part of North Lanarkshire. North Lanarkshire lies predominately within the River Clyde catchment with part of the area draining eastwards to the Firth of Forth.

6.1.2 There are a range of aquatic environments within North Lanarkshire including running water (rivers, streams, ditches and drains), standing water (lochs, reservoirs, ponds and canals) and groundwater. North Lanarkshire Council's flooding report (2003) notes that there are approximately 89 rivers and burns, two main canals and 35 lochs and reservoirs. Figure 6.1 shows the key watercourses within North Lanarkshire.

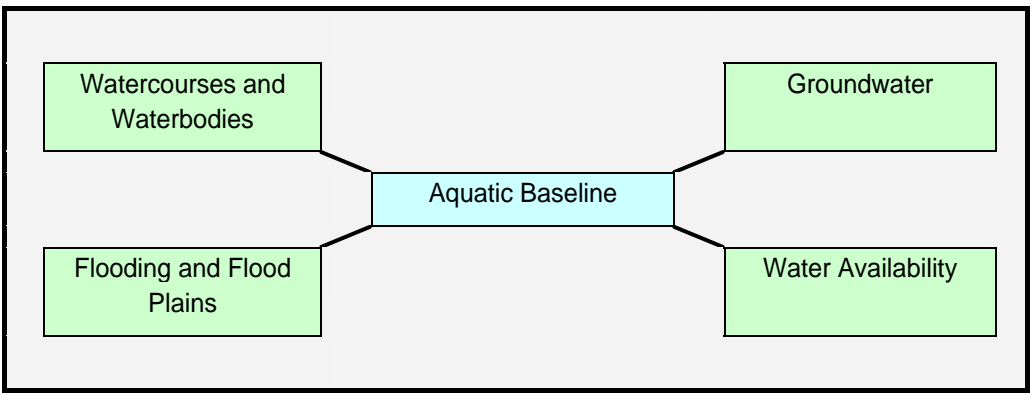


6.1.3 These watercourses and waterbodies provide a resource and habitat for the ecology of North Lanarkshire but have also helped to shape the cultural history of North Lanarkshire through industrial activities and the locations of settlements. Watercourses and bodies contribute to the existing environment in North Lanarkshire through the ecological value and their human value (aesthetically and recreationally). They will continue to be managed in accordance with the principles of river basin management as part of the implementation of the requirements of the Water Framework Directive (see Section 6.7).

## 6.2 BASELINE CHARACTERISTICS

6.2.1 The aquatic baseline of North Lanarkshire comprises a series of components from physical watercourses and waterbodies to areas of floodplain and potable water supply and treatment. For the purpose of the identification of the aquatic baseline this section has been structured into sections according to the four key aquatic baseline features which have been identified. These are summarised in Box 6.1 below.

**Box 6.1 Aquatic Environment Baseline Features**







## Watercourses and Waterbodies

### Water Quantity and Location

6.2.2 A watershed between the River Clyde and the Firth of Forth runs in a north-south direction through the eastern part of North Lanarkshire, broadly from Fannyside Muir (south-east of Cumbernauld) to Springhill (east of Shotts). The key watercourses within North Lanarkshire are identified below, these being fed by numerous tributaries. Figure 6.1 illustrates the main watercourses noted below and the key tributaries.

6.2.3 Within North Lanarkshire there are four principal watercourses flowing west to the River Clyde, these comprise:

- River Kelvin (from Banknock to Kilsyth). This runs through a wide river valley between Kilsyth and Cumbernauld with key tributaries including the Queenzie Burn, Garrel Burn, Banton Burn and Red Burn;
- Luggie Water (from Greengairs to Mollinsburn). This runs from Greengairs west to Mollinsburn with key tributaries including the Moss Water and Shank Burn.
- North Calder Water (from Caldercruix to Bargeddie). Much of this river is within an incised valley with upper reaches draining the higher ground in the east of North Lanarkshire. Key tributaries include the Luggie Burn, Shirrel Burn, Shotts Burn and Browns Burn; and
- South Calder Water (from Shotts to Motherwell). Parts of this river are within an incised valley with culverting at Ravenscraig and upper reaches draining the higher ground around Shotts. Key tributaries include the Tillan Burn and Auchter Water.

5.2.2 In the eastern part of North Lanarkshire there are the headwaters of two principal watercourses that flow east through Falkirk and West Lothian to the Firth of Forth, these comprise:

- River Avon (near Longriggend) with tributaries including the Shielhill Burn and Lucker Burn; and
- River Almond (near Harthill) with tributaries including the Forrestburn Water and How Burn.

6.2.4 Information obtained from the Digital Rivers Network indicates that there are approximately 1,650km of watercourses within North Lanarkshire. The Land Use digital data (2004) identifies 718 locations of standing water occupying an area of approximately 630ha. The majority of the standing water comprises reservoirs found predominately in the higher land to the east and south of North Lanarkshire.

6.2.5 North Lanarkshire Council is a member of the River Almond Catchment Management Plan (a partnership led by West Lothian Council) with the aim to improve overall water quality and to enhance riparian habitats within the Almond catchment.

6.2.6 The Scottish Environment Protection Agency (SEPA) holds information on water flows at various locations on watercourses within North Lanarkshire. Water flows for four gauging stations are presented in Table 6.1, and trends of flows at these four stations are reported within Section 6.3. These locations are presented on Figure 6.2.

**Table 6.1 Water Flows at Selected Monitored Locations**

Gauging Station	Watercourse	NGR	Average annual flow for 2004 (cumecs or m <sup>3</sup> /second)
Auchengeich	Bothlin Burn	267976 671599	0.62
Calderpark	North Calder Water	268080 662479	2.52
Condorrat	Luggie Water	273900 672500	0.96
Forgewood	South Calder Water	275137 658570	2.10

Source: Data provided by SEPA on 29 Sept 2005





## Water Quality

6.2.7 Water quality is monitored throughout the area by the SEPA. Monitoring records are available for selected monitoring stations on the key watercourses within North Lanarkshire and from the results of these SEPA assign water quality classifications for given stretches of watercourse (these normally being between junctions in watercourses or significant point sources affecting watercourse quality).

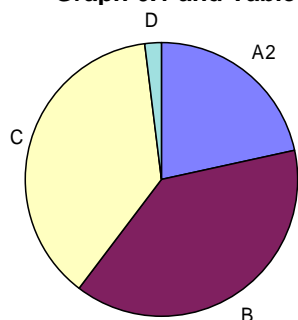
6.2.8 Water quality classifications are derived from a range of monitored chemical, biological and aesthetic parameters and are presented within the following classes:

- Class A1 (Excellent)
- Class A2 (Good)
- Class B (Fair)
- Class C (Poor)
- Class D (Seriously Polluted)

6.2.9 Figure 6.3 summarises the water quality classifications on key watercourses for 2004 from SEPA's interactive water quality map on their website (<http://www.sepa.org.uk/rqc/map.asp>).

6.2.10 SEPA currently provide water quality classifications for 219km of watercourse within North Lanarkshire. The lengths of watercourses within the five water quality classes are shown in Table 6.2.

**Graph 6.1 and Table 6.2 Watercourse Classification in 2004**



**Graph 6.1** Percentage of Monitored Watercourses within Water Quality Classes, 2004

Classification	Length of Watercourses	% of Monitored Watercourses	
		North Lanarkshire	Scotland Average
Class A1 (Excellent)	0 km	0 %	26.8%
Class A2 (Good)	47 km	22 %	37.5%
Class B (Fair)	84 km	39 %	9.3%
Class C (Poor)	83 km	38 %	3%
Class D (Seriously Polluted)	4 km	2 %	0.2%

Source: Data provided by SEPA for Water Quality (1996 – 2004). Scottish Average obtained from SEPA website (30.09.05). Note that 23.2% of the monitored Scottish watercourses are listed as unclassified by SEPA.

6.2.11 The data demonstrate that monitored watercourses within North Lanarkshire are generally of poorer water quality than the Scottish average. However, caution is required in making direct comparisons due to the significant percentage of watercourses which are unclassified.

6.2.12 In addition to the SEPA water quality classification, data are available from SEPA with regard to specific chemical monitoring results at various locations within North Lanarkshire. Selected parameters are presented for the four key watercourses in North Lanarkshire. Data for biological oxygen demand (BOD), Nitrate and pH are presented in Table 6.3. Trends in these parameters at these locations are discussed in Section 6.3. The locations of these four monitoring points are presented in Figure 6.2.

**Table 6.3 Average Annual Levels (2004) of Selected Parameters on Four Key Watercourses**

Watercourse	Location	Grid Reference	Parameters (average over 2004)		
			BOD	Nitrate	pH
Luggie Water	North Myvot Farm	NS 73750 72450	1.5	4.2	8.0
North Calder Water	Bargeddie	NS 70520 63200	2.9	1.4	8.1
River Kelvin	Auchenstarry	NS 71930 76980	1.3	0.8	7.4
South Calder Water	Motherwell	NS 75810 57530	2.2	0.9	8.2

Source: SEPA Data (Provided September 2005)

6.2.13 Given the extensive historical underground coal mine industry within North Lanarkshire and the potential for rising mine water levels associated with cessation of mine water pumping, there is the potential for pollution of surface watercourses through discharge and supply of base flows from such sources.

6.2.14 SEPA and the Coal Authority have prepared an overview report on Scottish minewater treatment schemes and the quality of their receiving water (May 2005). Since the closing of deep coal mines in Scotland, predominately in the 1980s and 1990s and the associated cessation of dewatering operations, groundwater levels in the coalfields have risen. These waters are iron rich associated with the mineral composition of the underlying strata and can seriously pollute receiving waters. SEPA and the Coal Authority have been working to address treatment which can provide an important supplementary source of flow for watercourses.

6.2.15 The overview report does not identify any mine water treatment schemes currently operational in North Lanarkshire and there is no information available on any areas of significant concern within North Lanarkshire however there is the potential for such issues to arise associated with the historic mining activities in North Lanarkshire.

6.2.16 North Lanarkshire Council's 'Report on measures taken, and to be taken, to prevent or mitigate flooding on non-agricultural land in North Lanarkshire, Fourth Public Report, November 2003' presents details of capital schemes undertaken in the two years prior to the report. These include Allanton Mine Water Rebound and Ferruginous Breakout of Water (near Wishaw). This is in response to an on-going problem of rebound of groundwater following the abandonment of pumping from Kingshill Colliery, near Allanton. Whilst some remedial works have been undertaken they have not solved the overall drainage and pollution problems. North Lanarkshire Council and SEPA have improved a reed bed filter system in the former colliery lagoons and continued with ongoing removal of iron deposits from the drainage ditches.

6.2.17 There is a discrepancy between the SEPA / Coal Authority report and North Lanarkshire report with regard to the presence of mine water treatment schemes within North Lanarkshire. This discrepancy may be with regard to different classifications of schemes and schemes being operated by different organisations.

6.2.18 SEPA produces a Scottish Pollutant Release Inventory (SPRI) on its website which is a register of site specific emissions to air and water for a range of pollutants. The emissions are reported annually as a total emission figure for each site. The site currently provides access to data gathered under the requirements of the European Pollutant Emission Register (EPER) for the calendar year 2002 and under SPRI requirements for 2004. Table 6.4 presents the sites on the inventory for releases to water and the associated pollutants in North Lanarkshire.

**Table 6.4 Scottish Pollutant Release Inventory – Water Discharges**

Site	NRG	Year
Shotts Sewage Treatment Works, Scottish Water, Shotts	NS 86606 59169	2004
Auchinlea Landfill Site, North Lanarkshire Council, Wishaw	NS 80996 58990	2002 & 2004
Carbarns Sewage Treatment Works, Scottish Water, Netherton.	NS 77307 53965	2004
Ferrous Metal Processing Facility, Chorus UK Ltd, Motherwell.	NS 75802 56789	2002 & 2004
Mineral oil and gas refinery plant, Calcarb Ltd, Bellshill	NS 73341 60324	2002 & 2004
Milk Treatment Plant, Robert Wiseman and Sons Ltd, Bellshill	NS 73341 60324	2002 & 2004
Hazardous Waste Disposal / Recovery Plant, OSS Group Ltd, Bellshill	NS 70365 62534	2004
Greengairs Landfill Site, Shanks Waste Services then WRG Ltd, Greengairs.	NS 78897 69801	2002 & 2004
Surface Coating of Metal Plant, Highland Colour Coaters Ltd, Cumbernauld	NS 76045 72598	2004
Dunnswood Sewage Treatment Works, Scottish Water, Cumbernauld	NS 78168 77223	2004

Source: SEPA Website – Scottish Pollution Release Inventory (Downloaded 5 October 2005)

6.2.19 The SPRI identifies ten operations within North Lanarkshire which are registered on the 2002 and/or 2004 inventories, these being predominately located in the western and south-western parts of North Lanarkshire with some sites in Cumbernauld.



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## Groundwater Resources / Potential Aquifers

6.2.20 The geology of North Lanarkshire generally comprises moderately permeable Carboniferous rocks, with localised weakly permeable igneous intrusions. The bedrock across much of the area is overlain by a significant thickness of low permeability drift deposits, namely boulder clay till. The moderately permeable Carboniferous rocks underlying most of the North Lanarkshire area do not have a high primary permeability and will not normally contain groundwaters suitable for abstraction, however they can be important for local supplies and providing base flow to rivers. Given the land use history of North Lanarkshire, there is potential for groundwater in some areas to have been deleteriously impacted by historical mining and industry.

6.2.21 Whilst groundwater extractions are not licensed within Scotland, information is held by SEPA on limited groundwater extractions. Information provided by North Lanarkshire Council indicates that there are 21 known abstractions within North Lanarkshire (based on GIS data for abstractions, received 29 August 2005). These were located predominately in the higher ground in the northern part of North Lanarkshire (See Figure 6.4) and are assumed to be primarily used for agricultural purposes.

## Flooding and Floodplains

6.2.22 North Lanarkshire Council's report on flooding (November 2003) notes that flooding can manifest itself in many ways from small pools of surface water on playing fields to widespread inundation of properties from rivers bursting their banks. The report identifies that public perception of flooding is directly related to the flooding and its proximity to their interests and the Council must consider this in its decisions with regard to flood protection and prevention.

6.2.23 This report states that, from the information collected, the majority of North Lanarkshire's flooding problems result from existing sewer flooding or drainage systems being overwhelmed, rather than fluvial flooding from watercourses/bodies. Flooding is discussed with regard to non-agricultural land. The report notes that the projected increase in rainfall from climate change will have an important impact on flood risk. Further discussion on scenarios for climate change in North Lanarkshire is presented in Section 14.5 of this report.

6.2.24 North Lanarkshire Council (Planning and Environment Department) has responsibility for co-ordinating flood recording (since government re-organisation in 1997) and has a three point scale for prioritising flood sites, these being:

- Priority 1 Sites: Recorded flooding which will cause danger to life and limb or internal flooding of property or involving potential risk and liability.
- Priority 2 Sites: Flood regularly but involves no immediate danger to persons or internal flooding of property but may involve costs and disruption.
- Priority 3 Sites: All other recorded flood sites.

6.2.25 It is noted that whilst there have been 409 reported flood sites across North Lanarkshire since 1997 the quality of information is variable and it is debateable whether some of the reported incidents fall within the remit of flood prevention. Some instances are identified to be associated with inadequate land drainage rather than fluvial or sewer flooding.

6.2.26 Data provided in North Lanarkshire Council's report on flooding (November 2003) identify 111 reported flooding events / sites in the two years since the preceding flood report (2001). These are located across North Lanarkshire with a focus on urban areas in Cumbernuld, Moodiesburn, Airdrie, Motherwell and Wishaw. Of these sites, 54 related to a single intense rainstorm (30 May 2003) with reported sites predominately in and around Wishaw, Overtown and Newmains.

6.2.27 Five main reasons for flood risk arising have been identified by North Lanarkshire Council, these are:

- Increased flow rates and volumes to watercourses with restricted capacities;
- Building of structures which restrict flow and on historical flood plains;
- Progressive development in catchments with insufficient drainage pipes to cope with peak flows;
- Insufficient maintenance of culverts, grills, screens and road gullies leading to capacity restrictions at peak flows; and



- Watercourses and gullies becoming obstructed by fly-tipping and overgrown vegetation impeding channel flows during peak flows.

6.2.28 The report identifies that the majority of inland water bodies within North Lanarkshire flow freely and do not give rise to flooding problems. The majority of flooding problems arise due to excessive run-off to a restricted drainage system leading to a system surcharge.

6.2.29 Many of the watercourses in North Lanarkshire are located in incised river valleys in which little or no development has occurred. Such parts of the watercourses are noted to be able to accommodate raised water levels within the flood plains.

6.2.30 The flooding report provides a summary of the nature of seven watercourses within North Lanarkshire and their associate flood events over the two years preceding the report (November 2003).

- River Kelvin. In contrast to the majority of watercourses within North Lanarkshire, the River Kelvin occupies a wide flat valley within which some development has occurred. No flooding of non-agricultural land was reported in the two years preceding the report.
- River Clyde. Forming the boundary of the south-western part of North Lanarkshire, the River Clyde has historically flooded onto its adjoining flood plain land. No flooding of non-agricultural land was reported in the two years preceding the report.
- North Calder Water. Much of the North Calder Water flows within an incised valley with residential development typically away from the flood plain. No flooding of non-agricultural land was reported in the two years preceding the report.
- South Calder Water. Historical flooding has typically occurred at some locations along the South Calder Water, including Ravenscraig and Calder Park. No flooding of non-agricultural land was reported in the two years preceding the report.
- South Burn / Luggie Burn. Problems have been identified from surveys by North Lanarkshire Council associated with culverts within Airdrie and Coatbridge. North Lanarkshire Council note a significant issue associated with debris within these watercourses. No flooding of non-agricultural land was reported directly associated with these two watercourses in the two years preceding the report.
- Luggie Water. Historical flooding has occurred in the western margins of Condorrat and development on this flood plain was declined planning permission. No flooding of non-agricultural land was reported in the two years preceding the report.
- Browns Burn. This watercourse is heavily urbanised and a large amount of the length is culverted with sewer overflows connected into the culverted watercourse. Flooding has occurred in the Craigneuk area however this is considered to be associated with sewers rather than the watercourse culvert.


6.2.31 North Lanarkshire Council attend the flooding sub-group of the Society of Chief Officers of Transportation in Scotland (SCOTS) which has been established to examine the statutory position of local authorities with regard to flooding. The group is in the process of finalising a report providing guidance to developers in respect of flooding issues and development control.

6.2.32 SEPA undertake flood risk predictions and these are provided within digital data sets. Figure 6.5 and Table 6.5 show the predicted areas which would be affected by a 1 in 100 year flood event with the associated depth of flood water. The 1 in 100 year flood event is that which could be expected to occur once every one hundred years, it could however occur any number of times. The predictions undertaken by SEPA are based on mapping at 2,500m<sup>2</sup> squares. This data indicates that 1,113ha of North Lanarkshire is potentially at risk of a 1 in 100 year flood event, generally in areas along the floodplains and land adjacent to watercourses.

**Table 6.5 Area with Predicted Depths of Flood Water**

Depth of Flood Water	Area (ha)
0 – 1m	282
1 – 2m	431
2 – 3m	400

Source: 1 in 100 year flood data, GIS layer provided by North Lanarkshire Council (Provided September 2005)



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6.2.33 The key areas where flooding is predicted as part of the 1 in 100 year flood event are located along the River Kelvin and the River Clyde. Areas of less geographically extensive flooding are present along parts of other watercourses including; the Avon Water, Luggie Burn, North Calder Water, Shirrel Burn, South Calder Water and Auchter Water.

6.2.34 An area predicted to be affected by the 1 in 100 year flood event is also identified within the digital data at the Hillend Reservoir, near Caldercruix (in the east central part of North Lanarkshire). This predicted flood area lies predominately within the boundary of the reservoir with a small part affecting surrounding land.

## **Water Availability**

### Potable Water

6.2.35 Potable water supply and waste water collection and treatment within North Lanarkshire, as for the rest of Scotland, is managed by Scottish Water. Scottish Water sets out on its website its requirements under legislation with regard to the management of water supply and discharge, including:

- Drinking water quality is governed under the Water Supply (Water Quality) (Scotland) Regulations 2001 and Scottish Water must meet the water quality standards set out within these regulations.
- Scottish Water discharges wastewater into the river network under conditions set out by SEPA under the Control of Pollution Act 1974.
- New controls on water abstraction, in-stream engineering works, pollution discharges and river basin planning will be covered within Water Framework Directive.

6.2.36 Scottish Water's Annual Water Resources Report 2002/03 (October 2004) provides information on water supply within North Lanarkshire and details of national trends in demand are presented in Section 6.3. Scottish Water define demand as the total volume of water put into the supply to satisfy the requirements of consumers and it also includes leakages and any other waste which may be incurred.

6.2.37 Scottish Water report that there are currently no water treatment plants located within North Lanarkshire, water supply is therefore from treatment plants in surrounding Council areas. One water supply reservoir which is no longer used was identified as Roughrigg Reservoir (by Easter Dunsyston Farm, south-east of Airdrie). North Lanarkshire is therefore a net importer of water.

6.2.38 Scottish Water identify that there are currently 11 service reservoirs within North Lanarkshire, these being closed reservoirs for storage of treated drinking water.

### Rainfall

6.2.39 Review of data from the Meteorological Office's website of nationwide mapped averages for 1971 to 2000 indicates that the central belt of Scotland experiences a range of rainfall with western parts (west of Glasgow and from the Kilsyth Hills to the north and north-west) experiencing annual rainfall in excess of 1290mm and eastern parts (along the Forth Valley) experiencing between approximately 740 to 4060mm. North Lanarkshire is located in the central part of this area with an annual rainfall of 870mm upwards with the highest levels in the Kilsyth Hills. A summary of the average annual rainfall during this period for parts of North Lanarkshire is presented below. The grouping of rainfall is based on mapped levels:

- 870 – 1060mm per annum. This lower area of annual rainfall occurred in the western part of North Lanarkshire (an area from Coatbridge south to Motherwell) and runs into the central part of North Lanarkshire to a point to the east of Airdrie.
- 1061 – 1290mm per annum. This level of rainfall is predominant over the majority of the remaining North Lanarkshire area with the exception of the northern part of North Lanarkshire from the Kelvin Valley north.
- 1291 – 1690mm per annum. As noted above, higher amounts of annual rainfall are experienced in the northern part of North Lanarkshire to the north of the Kelvin Valley.
- 1691 – 4577mm per annum. A small part of North Lanarkshire experiences rainfall in excess of 1690mm per annum and this is associated with higher ground at the northern boundary of North Lanarkshire within the Kilsyth Hills.





6.2.40 Data for rainfall within North Lanarkshire is recorded by the Meteorological Office through measurement stations at Motherwell and Salsburgh. Total annual rainfall for 2004 at the Motherwell station is 1,056mm. No complete annual rainfall data are available from Salsburgh since 1997 at which time annual rainfall was 1,021mm (compared with 774mm at Motherwell for the same year).

### Summary of Land Use Baseline

6.2.41 Table 6.6 summarises the baseline aquatic environmental resources identified within this section along with their geographical distribution and abundance.

**Table 6.6 Summary of Baseline Distribution**

Resource	Distribution	
	Geographical	Abundance
Waterbodies	<ul style="list-style-type: none"> <li>■ Widespread network of rivers and tributary streams</li> <li>■ Reservoirs and small lochs typically in upland areas but some in lower lying areas</li> </ul>	<ul style="list-style-type: none"> <li>■ Rivers and streams totalling 1,650 kilometres</li> <li>■ 718 locations of standing water occupying an area of approximately 630 hectares</li> </ul>
Groundwaters	<ul style="list-style-type: none"> <li>■ Locally important aquifer which may provide river base flows</li> <li>■ Distributed throughout North Lanarkshire except north of fault in Kilsyth Hills</li> </ul>	<ul style="list-style-type: none"> <li>■ Locally important aquifer – The British Geological Survey identifies the groundwaters to be limited, although they are exploited significantly in the Kilsyth Hills area</li> </ul>
Floodplains	<ul style="list-style-type: none"> <li>■ Limited data on floodplains but valley bottoms of major watercourses provide some buffering, particularly the Kelvin and Clyde valleys</li> <li>■ Flood risk areas identified mainly along River Kelvin, North Calder Water and South Calder Water</li> </ul>	<ul style="list-style-type: none"> <li>■ SEPA flood maps identify approximately 1,100ha potentially at risk from 1:100 year flood events</li> </ul>
Water availability	<ul style="list-style-type: none"> <li>■ Primary source is reservoirs and lochs predominantly in the upland areas</li> </ul>	<ul style="list-style-type: none"> <li>■ There are no Scottish Water supply reservoirs within North Lanarkshire</li> <li>■ North Lanarkshire is a net importer of drinking water.</li> <li>■ North Lanarkshire receives a range of rainfall primarily associated with the varied geography and topography with higher rainfall in the Kilsyth Hill and lower rainfall in the lowland parts of the west of North Lanarkshire.</li> </ul>

## 6.3 TRENDS IN THE RESOURCE

6.3.1 Historical data associated with watercourses and waterbodies that allow the identification of trends has been obtained for certain aquatic environment categories with qualitative data available for others.

### Watercourses and Waterbodies

#### Water Quantity and Locations

6.3.2 There is limited change in the extent and location of the principal watercourses within North Lanarkshire. Modifications to watercourses, such as culverting within urban areas have been undertaken in some locations (notably the South Calder Water at Ravenscraig) however this will rarely alter the stretch lengths significantly.

6.3.3 A greater potential for change exists within smaller drains and burns with limited base flow. Within these watercourses there is a greater potential for the watercourse to 'dry up' associated with natural or man made alterations to the local hydrological conditions or associated with local and regional changes in precipitation. No records however exist to identify the extent of these alterations to watercourses and waterbodies.

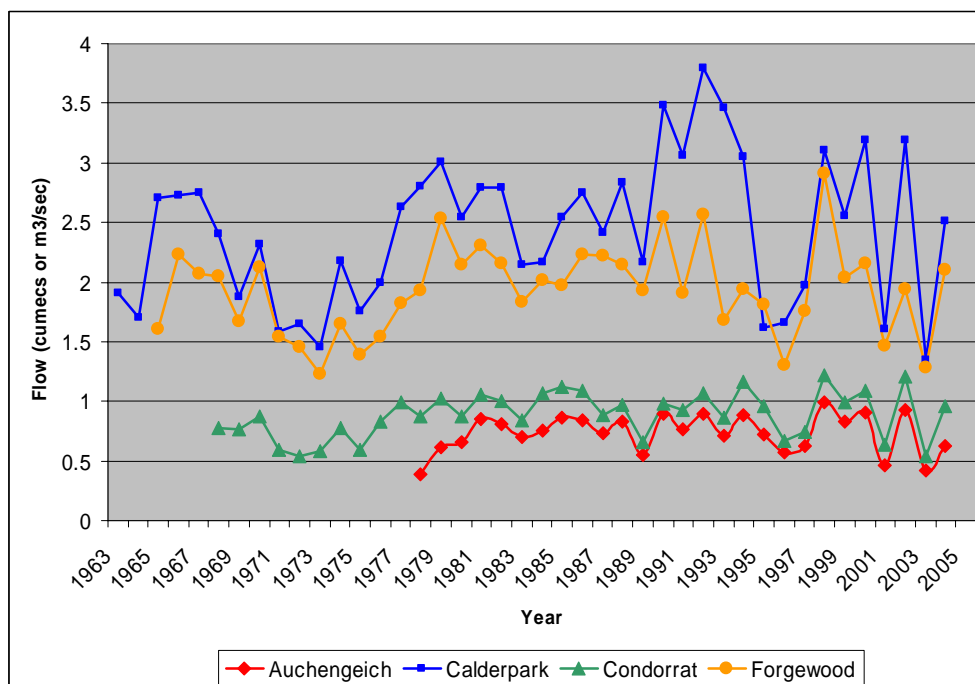
6.3.4 Data available for water quantities at gauging stations on the four key watercourses identify a generally increasing trend in water flows, this increase being greater on the North Calder Water than the other three watercourses presented. These data are presented in Table 6.7 and Graph 6.2.

**Table 6.7 Water Flow at Selected Monitoring Locations**

Year	Auchengeich (Bothlin Burn)	Water Flow (Cumecs or m <sup>3</sup> /second) Calderpark (North Calder Water)	Condorrat (Luggie Water)	Forgewood (South Calder Water)
1963	-	1.91	-	-
1964	-	1.70	-	-
1965	-	2.71	-	1.61
1966	-	2.73	-	2.23
1967	-	2.75	-	2.07
1968	-	2.41	0.77	2.05
1969	-	1.88	0.76	1.67
1970	-	2.32	0.88	2.13
1971	-	1.59	0.59	1.55
1972	-	1.65	0.54	1.45
1973	-	1.46	0.58	1.23
1974	-	2.18	0.78	1.65
1975	-	1.76	0.60	1.39
1976	-	1.99	0.83	1.54
1977	-	2.63	0.99	1.82
1978	0.38	2.81	0.87	1.93
1979	0.61	3.01	1.03	2.53
1980	0.66	2.54	0.88	2.14
1981	0.85	2.79	1.06	2.31
1982	0.80	2.79	1.00	2.16
1983	0.70	2.15	0.84	1.83
1984	0.75	2.17	1.06	2.01
1985	0.86	2.54	1.12	1.97
1986	0.85	2.75	1.09	2.24
1987	0.73	2.41	0.89	2.22
1988	0.83	2.84	0.97	2.15
1989	0.55	2.17	0.66	1.92
1990	0.89	3.48	0.98	2.55
1991	0.77	3.06	0.93	1.91
1992	0.90	3.80	1.07	2.57
1993	0.72	3.46	0.86	1.69
1994	0.89	3.06	1.17	1.94
1995	0.72	1.62	0.96	1.81
1996	0.57	1.66	0.67	1.31
1997	0.62	1.97	0.75	1.76
1998	1.00	3.11	1.22	2.91
1999	0.83	2.56	0.99	2.04
2000	0.90	3.19	1.09	2.16
2001	0.47	1.61	0.64	1.46
2002	0.93	3.19	1.21	1.94
2003	0.42	1.35	0.54	1.28
2004	0.62	2.52	0.96	2.10

Source: SEPA Water Quality Flow Data

**Graph 6.2 Trends in Water Flows**



Note: Names relate to monitoring station locations, see Table 6.7 for relevant rivers

Source: SEPA Water Quality Flow Data

## Water Quality

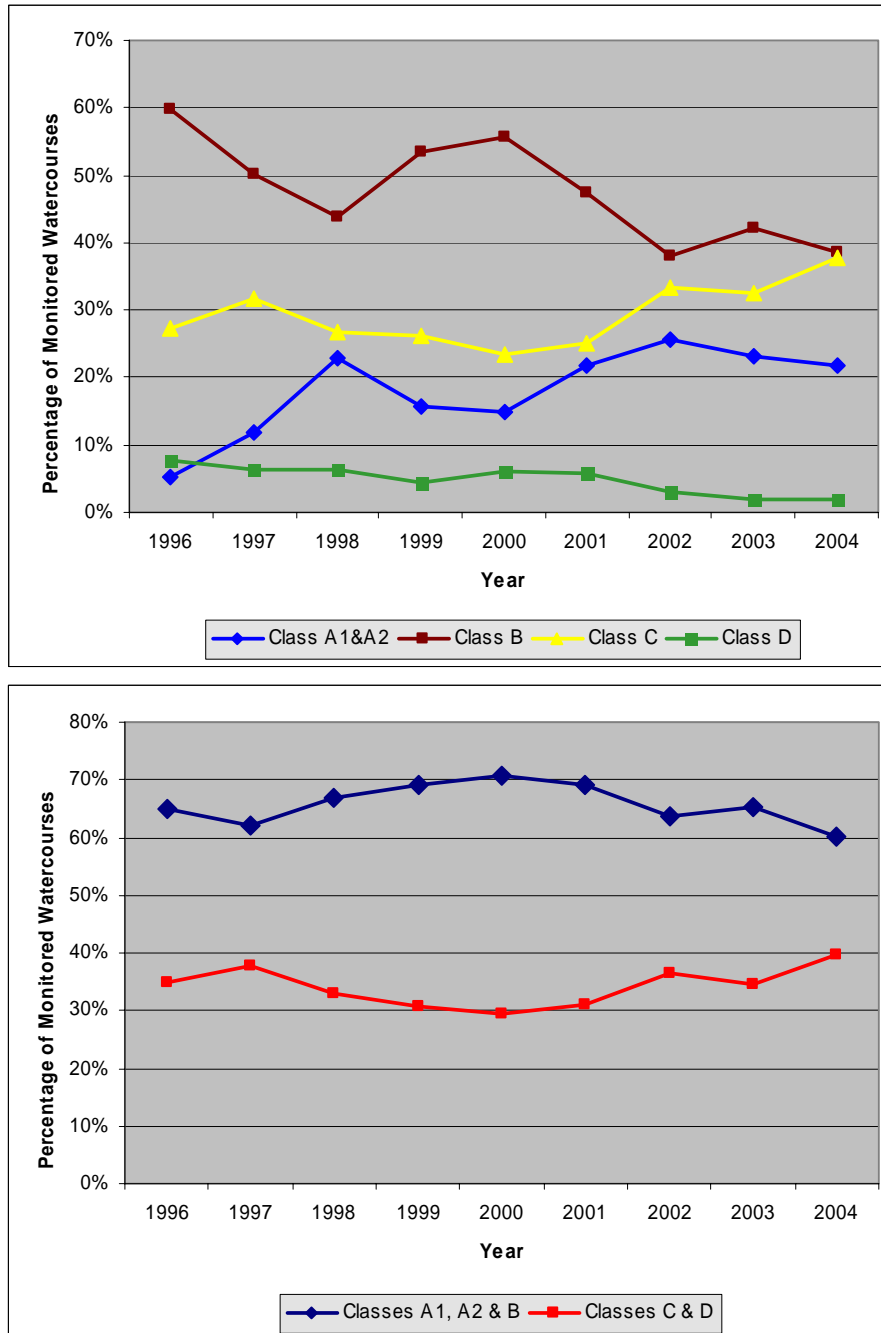
6.3.5 Water quality data held by SEPA are available back to 1996. Table 6.8 below presents the total length of monitored watercourses within each water quality classification between 1996 and 2004. The percentage of each category within the total monitored watercourses is also presented. The data are also presented graphically on Graphs 6.3 and 6.4.

**Table 6.8 Watercourse Classifications 1996 - 2004**

Year	Class A1		Class A2		Class B		Class C		Class D		Total Length
	Km	%	Km	%	Km	%	Km	%	Km	%	
1996	0	0%	7	5%	83	60%	38	27%	10	8%	138
1997	0	0%	16	12%	70	50%	44	32%	9	6%	138
1998	0	0%	32	23%	61	44%	37	27%	9	6%	138
1999	0	0%	25	16%	86	53%	42	26%	7	5%	161
2000	0	0%	27	15%	100	56%	42	23%	11	6%	180
2001	3	2%	38	20%	89	47%	47	25%	11	6%	188
2002	0	0%	48	26%	72	38%	63	33%	6	3%	188
2003	0	0%	48	23%	88	42%	68	33%	4	2%	208
2004	0	0%	47	22%	84	39%	83	38%	4	2%	219

Source: Data on water quality supplied from SEPA on water quality of monitored watercourses

**Graph 6.3 and 6.4 Trends in the Length of Monitored Watercourse by Class**



Source: SEPA Water Quality Monitoring Data (1996 – 2004)

6.3.6 The data presented in Graph 6.3 suggests an increase in the percentage of monitored watercourses classified as Class A1 and A2 (Excellent and Good respectively). There is however a decrease in the percentage of watercourses classified as Class B (Fair) with a corresponding increase in those classified as Class C (Poor).

6.3.7 Graph 6.4 presents the data within two groups, when presented like this the data suggests a generally steady composition of the amount of monitored watercourses which are classified as Class A1, A2 or B (Excellent to Fair).

6.3.8 Various factors may affect the trends in monitored water quality:

- Changes in the actual water quality;
- Changes in analytical and monitoring techniques. Such technological changes may result in more accurate assessment of the monitored parameters;



- **Changes in Classification.** Changes in the interpretation of monitored parameters and the associated five point scale for water quality classification may result in the variation in water quality; and
- **Pollution Sources and Stretch Re-Classification.** Historically, where known point sources have been present, such as a sewage works outlet, then watercourse stretches have been designated either side of such sources. Where such sources have been removed then these two stretches may be merged. Such changes in stretches may result in a variation in water quality given the nature of the stretches.

6.3.9 Identification of water quality at specific monitoring locations on the four key watercourses is presented in Table 6.9 below. This table identifies a decrease in water quality on the River Kelvin with fairly consistent water quality on the remaining three key watercourses. These four monitoring points were selected as locations downstream on the four key watercourses close to the North Lanarkshire Council boundary.

**Table 6.9 Water Quality Trends on Four Key Watercourses**

Watercourse (Location)	1996	1997	1998	1999	2000	2001	2002	2003	2004
River Kelvin (Auchenstarry Br)	A2	A2	A2	A2	B	B	B	C	C
Luggie Water (North Myvot Farm)	B	B	B	A2	B	B	A2	B	B
North Calder Water (Calderpark)	C	C	C	C	B	B	B	C	B
South Calder Water (Foregewood)	B	C	B	B	B	B	C	B	B

Source: SEPA water quality monitoring data, four monitoring points selected from data as locations close to the downstream end of the watercourses.

6.3.10 Comparison of specific monitored parameters from a range of monitoring points can allow the identification of trends in standard parameters such as biological oxygen demand (BOD), nitrates and pH. The trends in these three specific parameters on the four key watercourses are presented in Table 6.10 and Graphs 6.5 to 6.7.

**Table 6.10 Water Pollutant Trends on Four Key Watercourses**

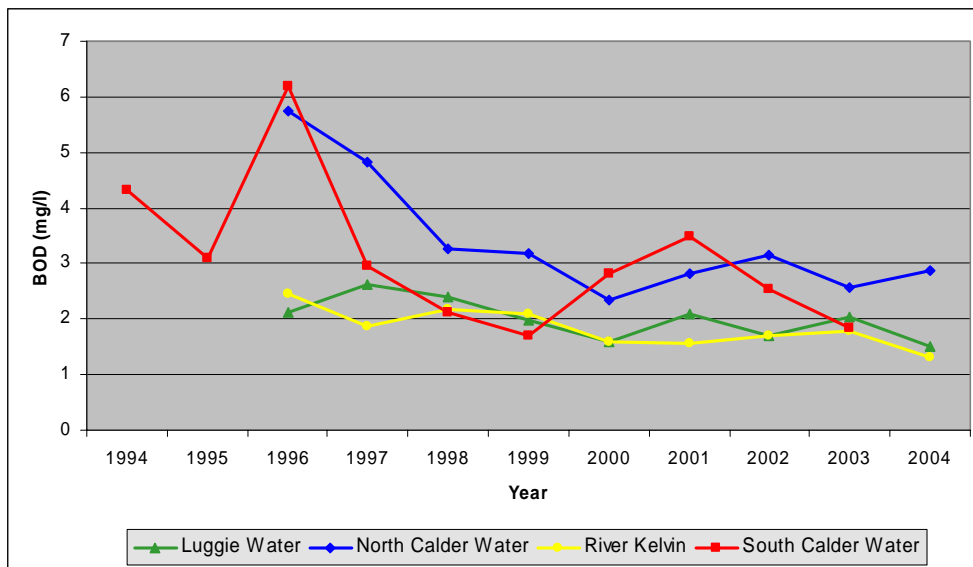
		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>BOD</b>												
Luggie Water	North Myvot Farm	-	-	2.1	2.6	2.4	2.0	1.6	2.1	1.7	2.0	1.5
North Calder Water	Bargeddie	-	-	5.8	4.8	3.3	3.2	2.3	2.8	3.2	2.6	2.9
River Kelvin	Auchenstarry	-	-	2.5	1.9	2.2	2.1	1.6	1.6	1.7	1.8	1.3
South Calder Water	Foregewood	4.3	3.1	6.2	3.0	2.1	1.7	2.8	3.5	2.5	1.9	2.2 <sup>1</sup>
<b>Nitrate</b>												
Luggie Water	North Myvot Farm	-	-	1.8	1.8	1.6	2.0	1.5	3.5	3.2	4.9	4.2
North Calder Water	Bargeddie	-	-	2.4	2.5	2.2	1.3	1.5	1.6	1.4	1.7	1.4
River Kelvin	Auchenstarry	-	-	0.9	0.8	1.0	0.7	0.6	0.6	0.6	0.7	0.8
South Calder Water	Foregewood	1.7	1.7	1.8	1.3	1.7	0.9	1.1	1.2	1.6	1.5	0.9 <sup>1</sup>
<b>pH</b>												
Luggie Water	North Myvot Farm	-	-	7.6	8.0	7.5	7.4	8.0	8.0	7.8	8.0	8.0
North Calder Water	Bargeddie	-	-	7.8	7.9	7.8	7.4	8.2	8.1	7.9	8.2	8.1
River Kelvin	Auchenstarry	-	-	7.3	7.3	6.9	6.6	7.3	6.5	7.4	7.5	7.4
South Calder Water	Foregewood	8.1	8.2	8.1	8.3	8.2	8.6	8.1	8.1	8.1	8.1	8.2 <sup>1</sup>

Source: SEPA Data. Note 1: Data for 2004 from South Calder Water is based on results from the Motherwell monitoring station.





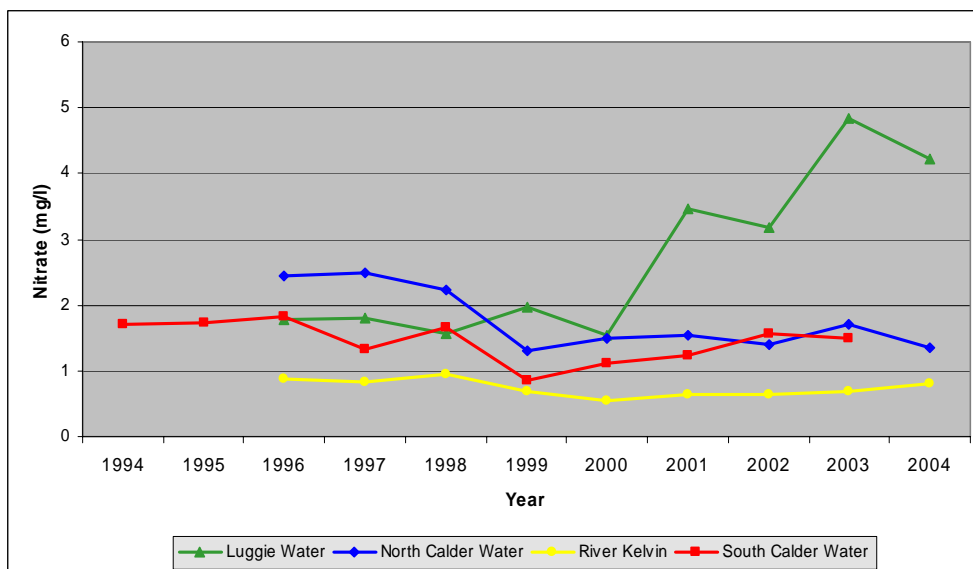
**Graph 6.5 Average Annual BOD Levels**



Source: Monitoring data provided by SEPA

6.3.11 Graph 6.5 demonstrates a general decrease in average annual Biological Oxygen Demand over the monitored period, particularly for the North and South Calder Waters. Levels within the smaller watercourses are generally lower than the larger rivers like the North and South Calder Waters.

**Graph 6.6 Average Annual Nitrate Levels**

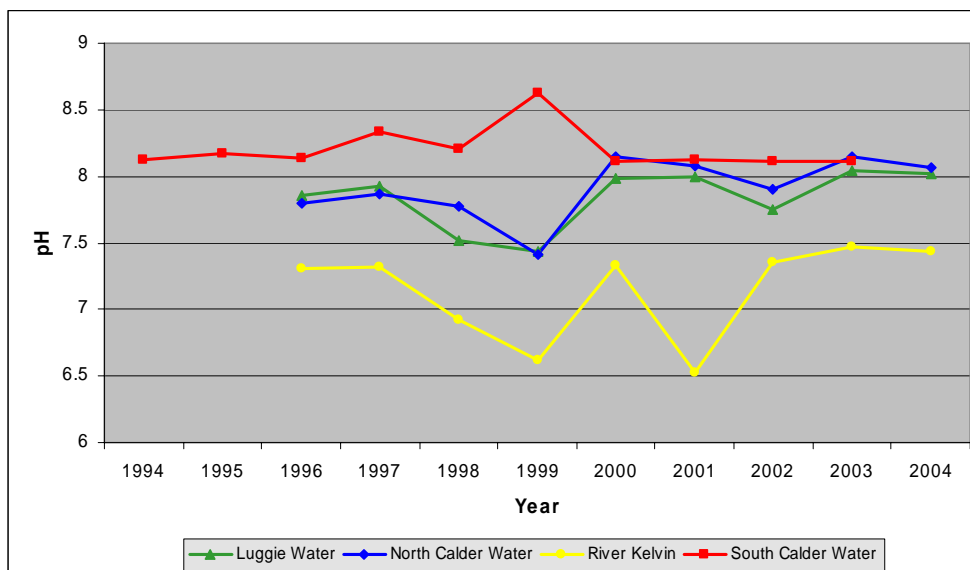


Source: Monitoring data provided by SEPA

6.3.12 Graph 6.6 presents the levels of nitrate at the four monitoring locations. These have remained generally level with a slight decrease in all rivers around 1997/98. However, average nitrate levels at the Luggie Water monitoring location have increased significantly since 2000. The cause for this increase is unknown but may be related to factors such as new point source discharges, urban combined sewer overflows or changes in agriculture land practices resulting in a change in diffuse pollution.



**Graph 6.7 Average Annual pH Levels**



Source: Monitoring data provided by SEPA

6.3.13 Graph 6.7 presents the trends in pH levels at the four monitoring locations, these show a generally level trend although there were fluctuations at all four locations during 1999.

6.3.14 The trends observed within these data may be the result of a number of factors such as changes in land use within the river catchments including agricultural and urban areas, associated with new/removed point sources or associated with changes in monitoring/analysis techniques.

## **Flooding and Floodplains**

6.3.15 As was discussed in Section 6.2, data exist for reported flood events, trends however in reported events do not provide trends in actual flood events and may be associated with factors such as increased awareness of reporting procedures or increased development of flood plain areas.

6.3.16 The flooding of watercourses, and the prediction of the areas affected by the 1 in 100 year flood, occur generally within the low lying areas of river valley floors. These locations are generally level areas of flood plain, the natural location for the flooding of watercourses during periods of high flow. Where urban development has encroached on this area then there is likely to be an increased risk of flooding subject to any flood prevention measures.

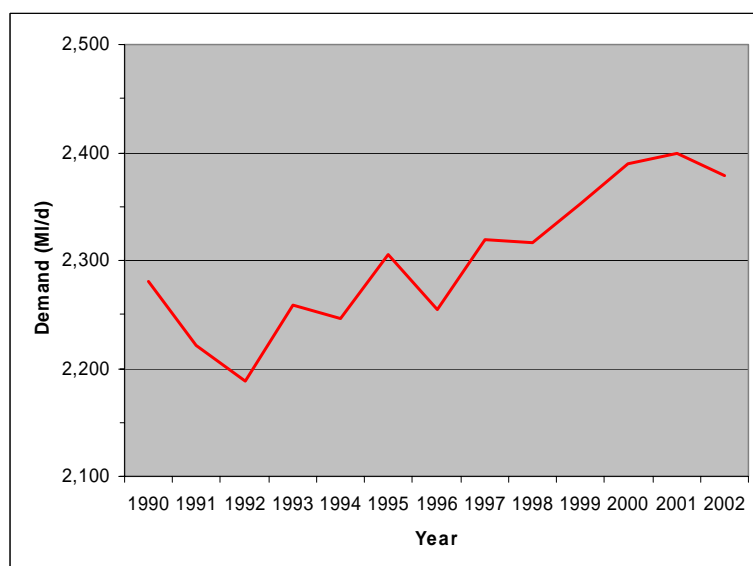
6.3.17 North Lanarkshire Council's report on flooding (2003) notes that the majority of the flooding incidents within North Lanarkshire are associated with drainage issues including flooding associated with capacity and maintenance of culverts and urban drainage systems. Increases in the number and extent of developments may therefore result in an increase in the potential for drainage related flooding issues.

## **Water Availability**

### Potable Supplies

6.3.18 Figures are presented within Scottish Water's Annual Water Resources Report for 2002/03 (October 2004). Table 6.11 (and Graph 6.8) present the figures for Scottish demand between 1990 and 2002. Whilst these figures are for national demand as a whole, they indicate a general increase of 4.3% in potable demand over the twelve year period which is expected to be applicable to North Lanarkshire.

**Table 6.11 and Graph 6.8 Total Potable Water Demand in Scotland (1990 – 2002)**



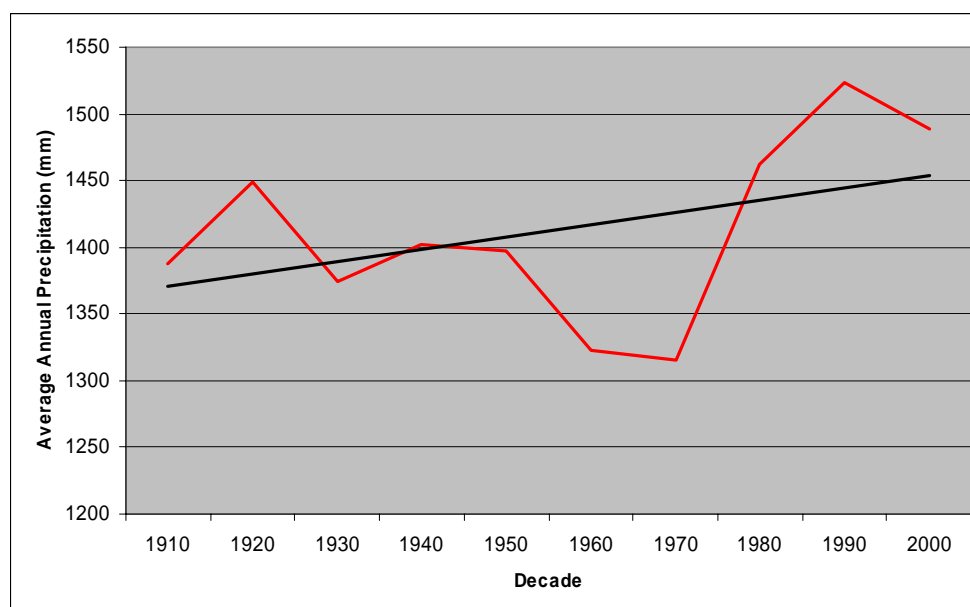
Year	Total Potable Demand (ML/d)
1990	2,281
1991	2,222
1992	2,188
1993	2,258
1994	2,246
1995	2,306
1996	2,255
1997	2,320
1998	2,317
1999	2,353
2000	2,390
2001	2,399
2002	2,378
Increase 1990 to 2002	4.3%

Source: Annual Water Resources Report 2002/03, Scottish Water (October 2004)

## Rainfall

6.3.19 The Scottish Executive's Key Scottish Environment Statistics publication (2005) provides trend data in average annual precipitation between 1914 and 2004. Graph 6.9 presents these data and the associated trendline and demonstrates an increase in average annual precipitation in recent decades.

**Graph 6.9 Average Annual Precipitation (1914 – 2004)**

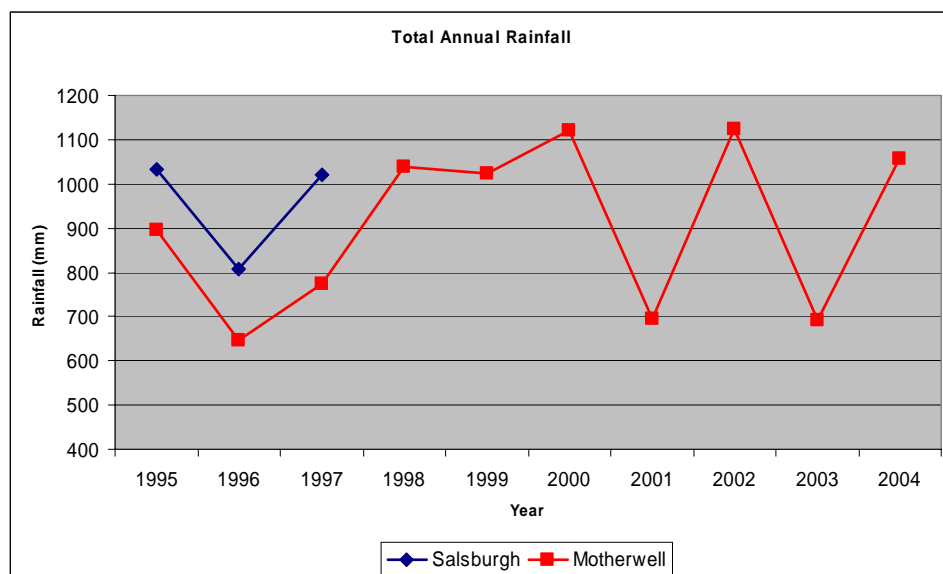


Note, graph includes a linear trendline for data

Source: Key Scottish Environment Statistics, Scottish Executive, 2005.

6.3.20 Whilst Graph 6.9 above provides long-term trend data for Scotland as a whole, data obtained from the Met Office for the weather monitoring stations at Motherwell and Salsburgh provide detailed precipitation records for North Lanarkshire for the last ten years. These data are presented in Table 6.12 and Graph 6.10. The figures show a general increasing trend in rainfall although levels have fluctuated during the monitoring period. This trend however should be considered in the light of the long-term trends identified for the Scottish average above.

**Graph 6.10 and Table 6.12 Total Annual Rainfall at Motherwell and Salsburgh**



Year	Annual Rainfall Totals (mm)	
	Motherwell	Salsburgh
1995	896.5	1033.2
1996	646.2	808.1
1997	773.5	1021.3
1998	1038.3	-
1999	1022.6	-
2000	1121.1	-
2001	694.3	-
2002	1123.1	-
2003	691.5	-
2004	1056.0	-

Note: Monthly totals for monitoring at Salsburgh incomplete for years 1998 to 2004, therefore no total annual rainfall figures are available.

Source: Met Office Data (supplied October 2005)

6.3.21 The data demonstrate a gradually increasing trend in total annual rainfall at the Motherwell monitoring station. Whilst complete data are limited for the Salsburgh monitoring station, comparison between the two stations for 1995 – 1997 indicates a similar pattern in total rainfall with levels at Salsburgh being approximately 100 – 200mm higher than Motherwell. This additional rainfall at Salsburgh is associated with the different geographical and topographical location of Salsburgh on the central Scotland plateau.

## 6.4 PRESSURES ON THE RESOURCE

6.4.1 There are a wide variety of pressures affecting watercourses and waterbodies, their quality, quantity and hydrological state within North Lanarkshire. These pressures affect a variety of the aspects of the aquatic environment, including:

- Water quality and quantity;
- Ecological habitat; and
- Recreational resources.

6.4.2 The pressures have been discussed within two distinct categories, these being Human and Natural pressures.

6.4.3 **Human Pressures.** The human use of the aquatic environment and its riparian and flood plain habitats for urban development, recreation, extraction and discharges, places pressure on the aquatic environment. Urban development can influence the aquatic environment in several ways, these being:

- Increased Run-off. The increased hard surface cover of urban areas results in increased run-off due to the reduced extent of infiltration into the ground. The effect is to increase the quantity of water entering the receiving watercourses and waterbodies and for this water to drain to these watercourses quicker than would naturally occur. These effects have the result of altering the natural hydrological regime and water flows and may result in watercourses prone to 'flash flooding' where following rainfall the water levels rise higher and quicker than under natural circumstances.
- Increased Pollutants. Water from urban areas collected through managed drainage networks and free drainage which passes to watercourses has the potential to affect the chemical, biological and aesthetic composition of the recipient watercourses / water bodies. Pollutants such as fuel oils from vehicles may potentially enter the aquatic environment and put pressure on the associated habitats. Pollutants are also discharged directly to watercourses (under licence) from various industrial activities and wastewater treatment operations.



- Loss of Flood Plain. Watercourses naturally flood adjoining flood plain land during periods of higher flow levels. Development of such land results in the loss of the watercourse's natural ability to distribute excess water from the channel to the adjoining land. Such pressure on the aquatic environment can result in continued flooding of these areas with resultant human impact or where flood protection measures have been implemented to re-distribute the excess water up and/or down-stream.
- In Stream Obstructions. Urban development often involves the manipulation of watercourses / waterbodies involving bridging, culverting and diverting. Such activities, depending upon their design and the nature of the watercourse, may result in hydrological pressures such as alterations to channel flows and drainage capacities. Fly-tipping and debris within channels may also increase flood risk potential.
- New developments, and the re-development of existing areas has the potential to enhance the aquatic environment. New developments may use existing watercourses and waterbodies within their design to provide a landscape and community feature. In such instances there are opportunities to enhance these locations.

6.4.4 Changes of land use within the catchments have the potential to place pressure on the aquatic environment. Activities such as agriculture and forestry have a role in the hydrological cycle including affecting the amount of water entering watercourses and waterbodies from the land and also affecting the speed with which it enters the aquatic network.

6.4.5 Many of the watercourses within North Lanarkshire are used for recreational purposes such as angling or water sports (eg Strathclyde Loch). Associated with these activities there is a pressure on the aquatic resource through pollution although, given the nature of the activities, such pressures are likely to be limited. Recreational development, when well planned and managed, can provide an opportunity for water quality to be improved and riparian habitats to be enhanced.

6.4.6 Increases in demand for potable water, as identified nationally by Scottish Water, will place a pressure on the availability and supply of such waters. This increased demand nationally can be seen within North Lanarkshire through the increases in household numbers: North Lanarkshire Council predict the future growth in households to be 9% between 2002 and 2016 (Ref. Data from North Lanarkshire Council Website, September 2005).

6.4.7 Historically, mine water (water that has ingressed into former mine workings) has been pumped out of former mine workings. Where pumping has ceased then mine water levels may rise resulting in mine water discharges into surface watercourses, both directly and indirectly. Associated contaminants such as iron may result in degraded water quality. Within North Lanarkshire there are limited minewater treatment schemes, the potential therefore exists for further such schemes to contribute to reducing potential minewater pollution of watercourses and groundwaters.

6.4.8 Industrial and commercial activities may contribute to human pressures on the aquatic environment. Such activities may use watercourse / waterbodies as a resource.

- Reduction in Flow Levels. Where water is used as a resource, such as for industrial operations or for public water supply, then the extent of the use will affect the quantities of the resource.
- Discharges. There are two distinct types of discharge; point source and diffuse. Point sources, such as industrial activities and sewage/waste water discharges made into the aquatic environment may result in a pressure to the aquatic environment through chemical, biological and physical alterations to the water. Diffuse discharges, such as fertilisers from farmland may also exert similar pressures on the aquatic environment however such quantities and effects are harder to monitor than point source discharges.
- Treatment Capacity. Associated with the increase in households and likely increases in demand within North Lanarkshire there is the potential for an increase in waste water. This may result in pressure on the waste water treatment facilities and capacities and the amount of treated water discharged to watercourses.

6.4.9 **Naturally**, changes in precipitation may result in a pressure on the aquatic environment. Trends in figures suggest a general increase in rainfall over the last century. This will have a resultant effect on increasing flow levels within watercourses. Another factor of precipitation is the pattern, where changes in the temporal distribution of precipitation have an effect on the hydrological regime. For example, increases in periods of heavy rainfall result in increased 'flash floods' within watercourses whereby water levels rise to high levels over shorter periods of time. This places a pressure on the aquatic environment through the ecology, physical structure and flood plains.

## 6.5 CONDITION OF THE RESOURCE

6.5.1 The assessment as to the condition of the resource has been made based on its distribution, trends and pressures. This has identified indications as to the health and vulnerability of the resource and also as to its distinctiveness within North Lanarkshire. Table 6.13 summarises the condition of the ecological resource drawing on the analysis presented in Sections 6.2 to 6.4.

**Table 6.13 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Waterbodies	<ul style="list-style-type: none"> <li>■ River water quality predominantly in classes B (Fair) and C (poor) with slight overall deterioration in recent years</li> <li>■ River water quantity (flow) has increased slowly over last 40 years</li> </ul>	<ul style="list-style-type: none"> <li>■ Several watercourses run through urban areas for long distances making them susceptible to hydrological change, alteration and pollutant discharges. Any new developments resulting in such changes would be subject to regulation</li> <li>■ Potential for rising minewaters to affect river and stillwater quality</li> </ul>	<ul style="list-style-type: none"> <li>■ River valleys form core topographical and landscape features</li> <li>■ Contribute to settlement patterns</li> <li>■ Locally distinctive in landscape</li> </ul>
Groundwaters	<ul style="list-style-type: none"> <li>■ No data, although minewater could represent a pollution source</li> </ul>	<ul style="list-style-type: none"> <li>■ BGS define as moderately vulnerable groundwater</li> </ul>	<ul style="list-style-type: none"> <li>■ Limited but river recharge function may contribute to river levels</li> </ul>
Floodplains	<ul style="list-style-type: none"> <li>■ Limited resource, also with ecological significance in Kelvin Valley</li> </ul>	<ul style="list-style-type: none"> <li>■ Vulnerable to development pressure and changes in land use within catchments upstream</li> </ul>	<ul style="list-style-type: none"> <li>■ River Kelvin plains locally distinctive</li> <li>■ Other areas less distinctive (smaller plains)</li> </ul>
Water Availability	<ul style="list-style-type: none"> <li>■ Rainfall supply currently plentiful</li> </ul>	<ul style="list-style-type: none"> <li>■ Vulnerable to increasing demand from population and commerce</li> </ul>	<ul style="list-style-type: none"> <li>■ N/A</li> </ul>



## 6.6 KEY ASSETS

6.6.1 Based on the analysis of environmental information within Sections 6.2 to 6.5, the following key aquatic environment assets have been identified.

**Table 6.14 Key Aquatic Environment Assets**

Key Asset	Description
Watercourses, their catchments and riparian zones	<p>Watercourses and their catchments and riparian zones are key assets to North Lanarkshire as they are the key feature of the aquatic environment. In addition to their function supporting the aquatic environment, rivers and streams play key roles in the ecology, landscape and communities of North Lanarkshire. The catchments of watercourses also contribute to the key asset through their provision of a base flow for watercourses. The interactions of the watercourses with other environmental topics in North Lanarkshire is discussed in more detail within Chapter 14: Cumulative Assets.</p> <p>SNH report that the LBAP group will be concentrating on watercourses in the near future.</p>
Stillwater Resources	<p>Still waters are key assets to North Lanarkshire in a similar way to rivers and streams. Waterbodies such as lochs, reservoirs and canals also contribute to the ecological, landscape and community functions in North Lanarkshire.</p>
Undeveloped Floodplains	<p>Floodplains are a limited feature within North Lanarkshire given the nature of the river valleys being predominately upland and incised. Floodplains do however exist in a traditional form along the Kelvin Valley and on a smaller scale along other watercourses of North Lanarkshire. Floodplains are important features in the hydrological regime of watercourses, have ecological significance, and play a role in flood protection through natural areas of inundation during periods of high flow.</p>
Rainfall	<p>Rainfall is a key asset to North Lanarkshire, the topography and climate resulting in a relatively high rainfall. Rainfall is a key input to the base flow of watercourses and also provides a source of water availability to the many reservoirs within North Lanarkshire.</p>


## 6.7 ISSUES FOR RESOURCE MANAGEMENT & PROTECTION

6.7.1 The key assets identified in Section 6.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key aquatic assets within North Lanarkshire.

6.7.2 There are already measures in place for the management and protection of watercourses within North Lanarkshire. The Scottish Environment Protection Agency (SEPA) is responsible for the monitoring of water quality and regulation of discharges into watercourses. Such regulation and management should ensure that the quality of water within watercourses is maintained and improved. Water quality is an important part of the status and health of watercourses.

6.7.3 There are also measures in place to manage and protect the physical structure of watercourses. Guidelines produced by SEPA provide details on various activities associated with new developments such as construction practices to avoid pollution and reduce impacts on the hydrological flow (such as with bridging rather than culverting).

6.7.4 There are currently emerging river basin management plans (RBMPs) which will provide details on the management and protection of watercourses. The European Legislation, Water Framework Directive, became law in



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Scotland in 2003 through the Water Environment and Water Services (Scotland) Act 2003. This establishes a legal framework for protection, improvement and sustainable use of waters. This legislation aims to:

- Prevent deterioration and enhance status of aquatic ecosystems, including groundwater;
- Promote sustainable water use;
- Reduce pollution; and
- Contribute to the mitigation of floods and droughts.

6.7.5 The Scottish Environment Protection Agency (SEPA) is organising its work on the Directive under a number of key work areas, these including:

- Regulatory Regimes. These are required to control activities not previously regulated in Scotland and will cover areas like abstractions, engineering works and point source discharges.
- River Basin Characterisation. The requirement for improvement action will be determined through the identification of those watercourses/bodies failing the environmental objectives of the Directive and the economic characterisation (linking economic activity with environmental impacts).
- A new Monitoring and Classification system will cover all surface water and groundwater bodies based on a new ecological classification system (supported by physico-chemistry, hydrology and morphology measurements).
- River Basin Management Planning. Each 'River Basin District' will have a River Basin Management Plan (RBMP) which will set out, among other things, environmental objectives for all water bodies.

6.7.6 Whilst groundwater is not identified as a key asset in North Lanarkshire, it is a resource/asset which at some point in the future could be extensively exploited. Groundwater in North Lanarkshire is believed to be limited however it has the potential to be locally extensive. As such the management and protection of the groundwater reserve requires consideration. Groundwater may be locally degraded associated with historical industrial activity such as mining and therefore management may need to address the groundwater quality issue.

6.7.7 There is a pressure on the aquatic environment associated with new developments, however, new developments have the potential to enhance and improve the aquatic environment. Measures to enhance the aquatic environment in new development not only offer an opportunity to the aquatic environment but also provide additional benefits to the ecology, landscape within the development and also the local community.

- Sustainable urban drainage systems (SUDS) should be employed within new developments and this principle is made within North Lanarkshire Council's flood strategy. Whilst SUDS are not a flood defence they can play an important role in mitigating the risk of flooding through a range of drainage designs which can attenuate the rate of run-off from developments and provide natural treatment for pollutants.
- New developments should avoid the culverting of watercourses where practicable and, where possible, reverse former culverts through the re-creation of open watercourses. Many of the reported flooding incidents in North Lanarkshire are as a result of drainage issues including blocked culverts and channels. Management of the watercourses to ensure that they do not become blocked through rubbish, siltation or in-stream obstructions is important in ensuring that the hydrological flow is maintained and that additional flood risk is not created.
- Buffer areas may be appropriate around watercourses and waterbodies as one method of protection from the encroachment of development.
- Management of the undeveloped floodplains is important to ensure the natural flood management resources is maintained and where possible enhanced. The loss of natural floodplains may result in increased flood risk up and downstream.

6.7.8 The recreational use of watercourses and waterbodies requires managing to ensure that such activities do not have a detrimental effect on the aquatic environment. This includes degradation of water quality, loss of natural channel form and changes and degradation of the riparian habitat.

6.7.9 Various strategies exist for the management and protection of the aquatic environment. It is important that these strategies continue in their roles. These include:

- North Lanarkshire Council's flood strategy, which provides an approach to dealing with the flood risk present in North Lanarkshire.
- Scottish Planning Policy SSP7: Planning and Flooding (February 2004), which sets out planning policy with regard to flooding. The report identifies that new development should not take place if it would be at significant risk of flooding or would materially increase the probability of flooding elsewhere. The storage capacity of functional flood plains should be safeguarded and works to elevate the level of a site should not lead to a loss of flood water storage capacity. Drainage should be a material consideration and the means of draining a new site should be assessed.

6.7.10 Although data suggest that rainfall is generally increasing, management of the potable water resource is important. Management of water conservation and efficiency is required to ensure that the demand for potable water does not exceed the available potable water supply, and that resources including water and energy are used sustainably. Measures such as greywater management, education and initiatives will contribute to this objective.

## 6.8 DATA GAPS AND LIMITATIONS

6.8.1 There are potential limitations in the comparison of trend data for the classification water quality stretches associated with changing analytical techniques, addition/removal of pollution sources and the re-classification of stretches.

6.8.2 A discrepancy was identified within data on mine water treatment within North Lanarkshire with the SEPA/Coal Authority report not identifying any mine water treatments works and North Lanarkshire Council's flood report noting works near Allanton. This discrepancy may be due to factors such as the dates of reporting, the definition of mine water treatments or the operator of the mine water treatment.

6.8.3 Records are held by North Lanarkshire Council for flood events however these are associated with non-agricultural land. There is a limitation with this data in that it only includes reported flooding events which are generally associated with locations such as roads or residential properties. The data do not include agricultural and lesser developed areas where flooding may occur but which is not reported.

## 6.9 REFERENCES

6.9.1 The following sources of information were referred to in this chapter:

- Digital GIS data for River Networks (Provided by North Lanarkshire Council, September 2005);
- Digital GIS data for 1 in 100 year flood events (Provided by North Lanarkshire Council, September 2005);
- Water Quality Data for monitored watercourse within North Lanarkshire, 1996 – 2004 (Provided by SEPA September 2005);
- Water Quantity Data for monitored watercourses within North Lanarkshire (Provided by SEPA September 2005);
- *Report on measures taken, and to be taken, to prevent or mitigate flooding on non-agricultural land in North Lanarkshire*, North Lanarkshire Council, November 2003;
- *Scottish Planning Policy SSP7: Planning and Flooding*, Scottish Executive, February 2004;
- *An overview of Scottish minewater treatment schemes and the quality of their receiving waters*, Scottish Environment Protection Agency and the Coal Authority, May 2005;
- *Annual Water Resource Report 2002/03*, Scottish Water, October 2004;
- *Key Scottish Environment Statistics 2005*, Scottish Executive, 2005;
- Average Annual Rainfall (1971 – 2000), Met Office Website – <http://www.met-office.gov.uk/climate/uk/averages/19712000/mapped.html> ;
- Pollutant Release Inventory, SEPA Website - <http://www.sepa.org.uk/spri/index.htm>; and
- Interactive Water Quality Map, SEPA Website - <http://www.sepa.org.uk/rqc/map.asp>.



6.10 MAPS AND PLANS

6.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
6.1	Key Watercourses within North Lanarkshire
6.2	Plan of Water Quantity & Quality Monitoring Locations
6.3	Plan of Water Classification on Key Watercourses (2004)
6.4	Plan of Abstractions
6.5	Plan of 1 in 100 year Flood Risk Areas



## Legend

— Key Watercourses

Figure 6.1  
Aquatic Environment  
Key Watercourses

Scale: 1:170,004

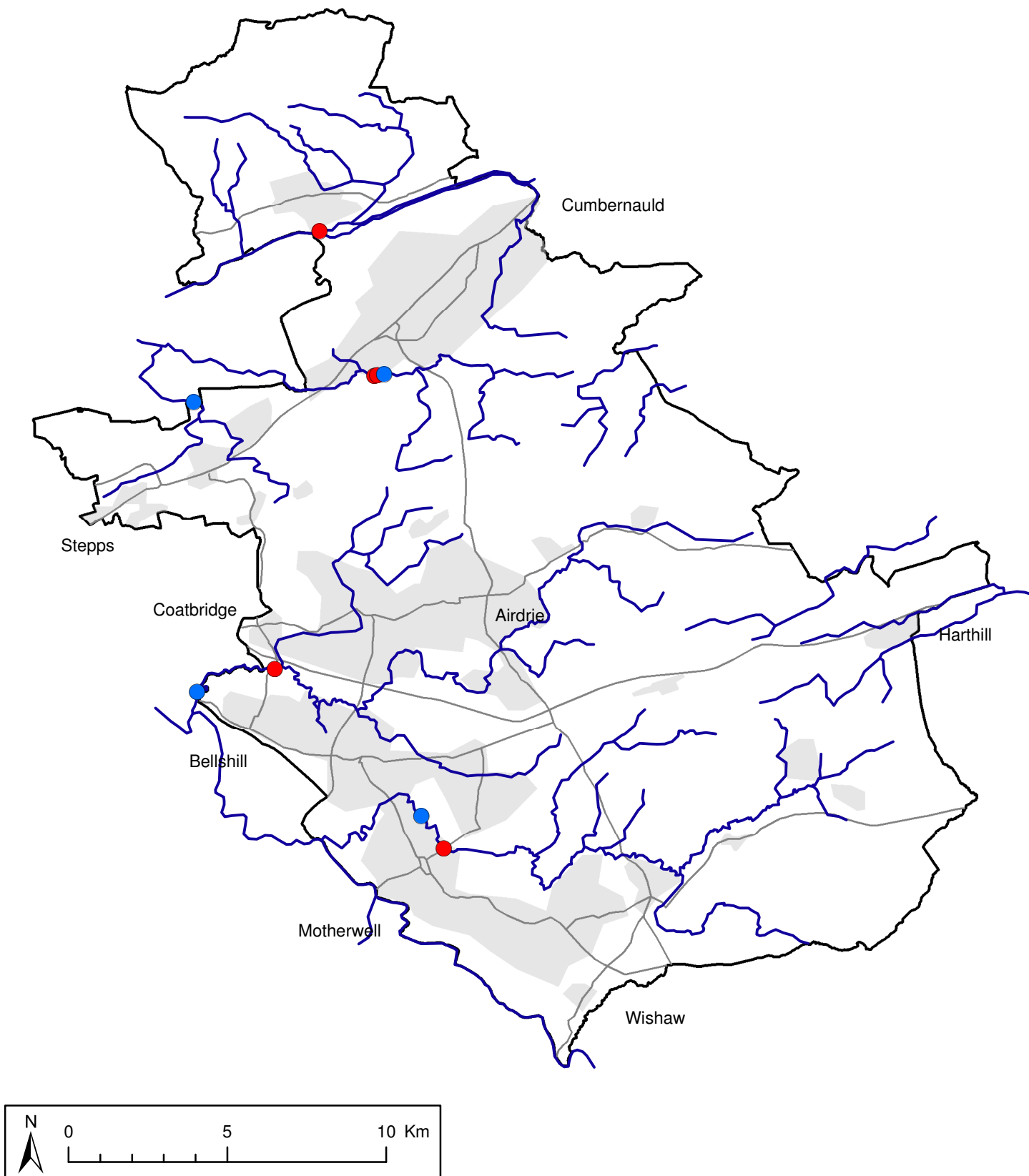
Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS







## Legend

- Water Flow Monitoring Locations
- Water Quality Parameter Monitoring Locations

**Figure 6.2**  
Aquatic Environment  
Selected Monitoring Points

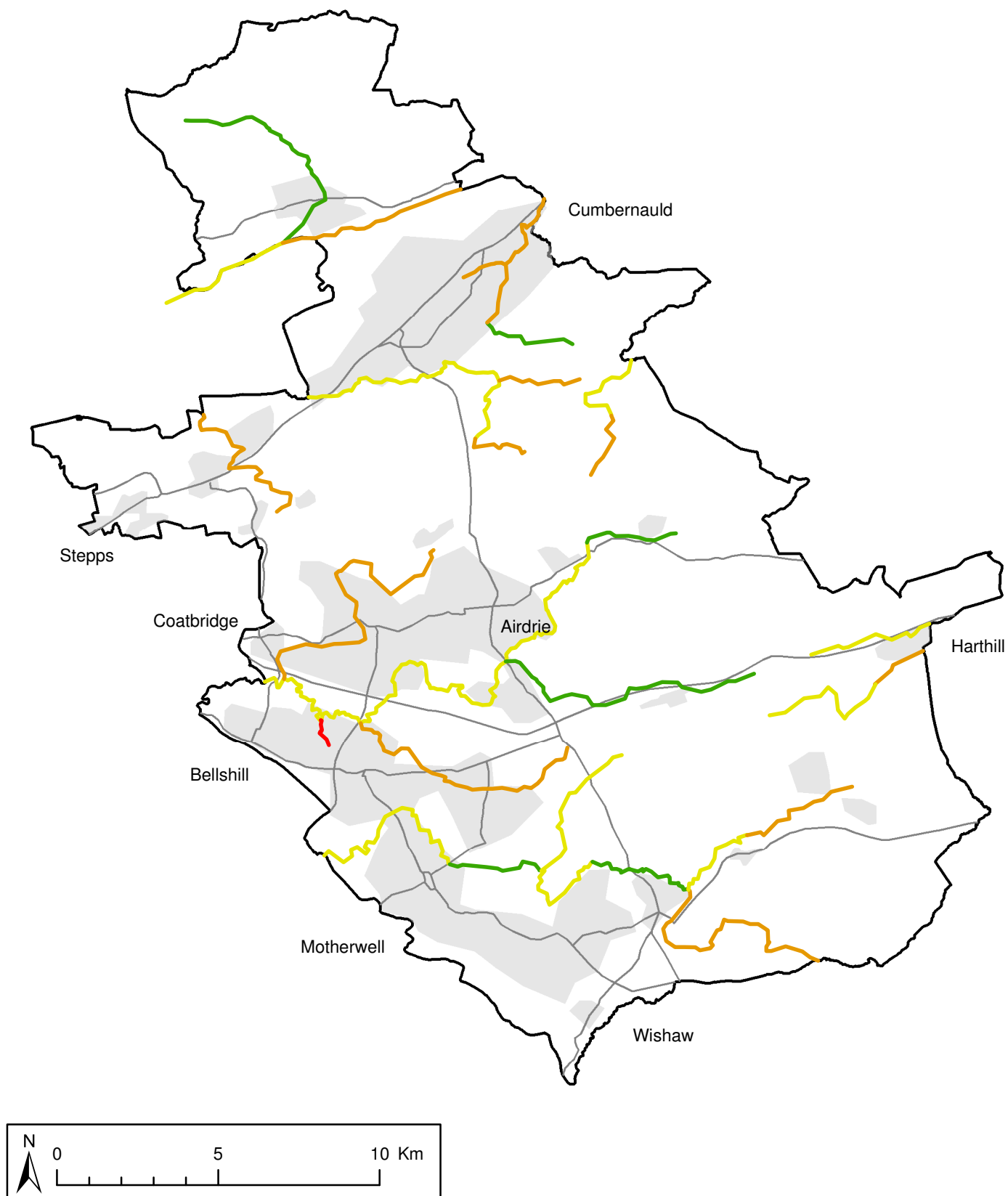
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS





## Legend

- Class A2 (Good)
- Class B (Fair)
- Class C (Poor)
- Class D (Polluted)

Water Quality is shown for the key watercourses within North Lanarkshire

## Figure 6.3 Aquatic Environment Water Quality

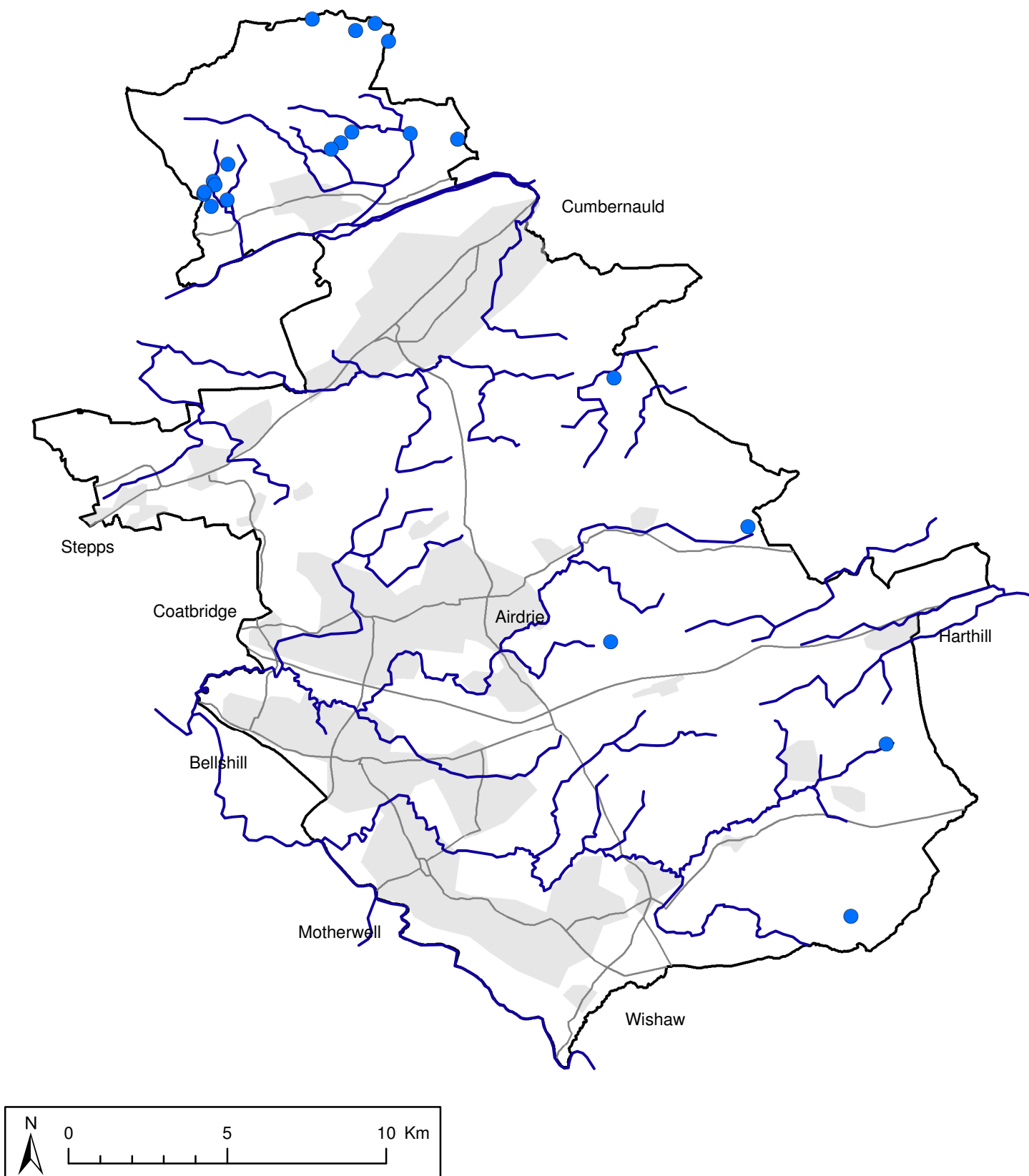
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS





## Legend

- Location of Known Abstraction

**Figure 6.4**  
**Aquatic Environment**  
**Abstractions**

Scale: 1:170,000

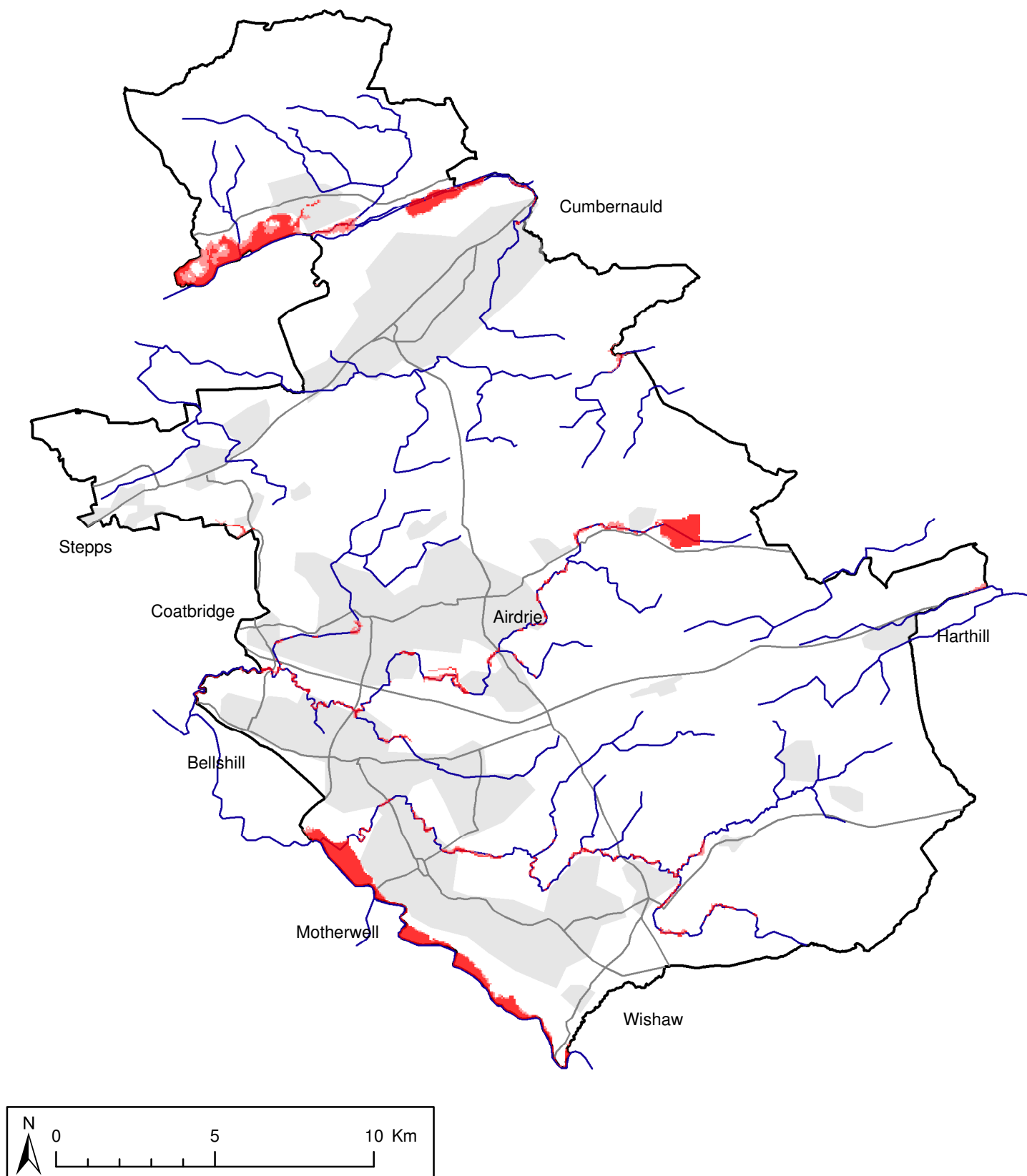
Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS







## Legend

Areas at risk from a 1 in 100 year flood event

- To a depth of less than 1m
- To a depth of greater than 1m

**Figure 6.5**  
Aquatic Environment  
1 in 100 Year Flood Risk

Scale: 1:170,004

Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS





## 7 Geology and Soils

### 7.1 CONTEXT

7.1.1 North Lanarkshire is situated within the Central Belt of Scotland, to the south of the Southern Highland Fault, and is underlain predominately by Carboniferous age sedimentary bedrock comprising cyclic sequences of sandstones, mudstones, limestones, seatearths and coals. Localised igneous intrusions are present in the south-eastern and northern parts.

7.1.2 The bedrock is overlain, in the majority of North Lanarkshire, by glacial till (generally stiff sandy clays) with peat in upland areas and alluvial sands and gravels in river valleys. These give rise to predominantly poorly drained soils with limited capability for arable agriculture although better drained soils are present in parts of North Lanarkshire capable of arable farmland.

7.1.3 Extensive industrial and mining activity within North Lanarkshire has resulted in numerous potentially contaminated and minerally unstable sites with assessment, investigation and restoration of these sites underway.

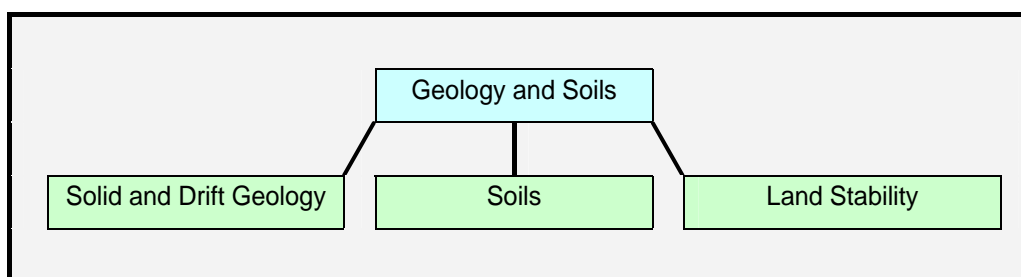


### 7.2 BASELINE CHARACTERISTICS

7.2.1 The bedrock geology of North Lanarkshire has historically provided a key resource in the industrial development of the area. Extensive coal reserves have been worked in parts of North Lanarkshire both underground and at the surface.

7.2.2 The baseline of North Lanarkshire can be characterised within three sections; Geology, Soils and Land Stability.

#### Box 7.1 Geology and Soils Environment Baseline Features



#### Solid and Drift Geology

7.2.3 The geology within North Lanarkshire comprises two components:

- Drift Geology. This is defined as the unconsolidated sediments at or near the earth's surface (overlying the bedrock formations) of Quaternary age or more recent.
- Solid Geology (Bedrock). This is defined as the solid rock exposed at the surface of the earth or overlain by unconsolidated material, weathered rock, or soil.

7.2.4 The **Drift Geology** of North Lanarkshire is summarised in Figure 7.1. The main drift geology categories are discussed below.

- The predominant drift cover across North Lanarkshire comprises glacial till. This material can generally be characterised as stiff to hard sandy clay with cobbles and boulders, laid down by an ice sheet up to 1km thick, during the most recent ice age. The ice sheet is understood to have moved generally eastwards across the area, based on the shape and orientation of drumlins and the presence of glacial striae (markings from debris within the base of the glacier). This boulder clay till is typically weakly permeable and not expected to contain any significant groundwater.
- Near Baillieston, the till is known to be underlain by laminated muds of the Broomhill Formation, of glaciolacustrine origin. These deposits are generally softer and more permeable than the boulder clay till. There are also localised buried meltwater channels beneath the till, cut into the bedrock and filled with sand and gravel.
- East and south of Kilsyth, permeable sand and gravel meltwater deposits overlie the boulder clay till.
- South-west of Kilsyth and around Bellshill are glacio-lacustrine clays and silts, deposited in one or more glacial lakes, collectively referred to as Lake Clydesdale.
- In upland areas across North Lanarkshire, formerly occupied by lakes and ponds following deglaciation, the boulder clay till is overlain by peat deposits, of the Clippens Peat Formation. North-east of Airdrie, east of Cumbernauld and on the Kilsyth Hills, there are extensive peat deposits which have not been cultivated or removed by man.
- Current river and stream valleys are characteristically underlain by alluvial deposits, comprising relatively permeable sands, gravels, clays and silt. Such materials have been deposited by relatively fast flowing waters during and after deglaciation, and are generally underlain by till.
- In certain localised areas, such as on steep-sided slopes, bedrock occurs at or near to the surface.

7.2.5 The **Solid Geology** (bedrock) of North Lanarkshire is summarised within Figure 7.2. The main solid geology categories are discussed below.

- Most of the area is underlain by sedimentary rocks of the Productive Coal Measures (Carboniferous Age), comprising cyclic sequences of sandstones, siltstones, mudstones, coals and seatrocks.
- A number of economically workable coal seams are present within these formations, and coal has been extensively worked in many areas of North Lanarkshire, by opencast and underground methods. The main economic coal seams in this area include the Ell, Pyotshaw, Main, Splint, Ladygrange, Drumgray, Shotts Furnace, Diamond and Crow seams.
- The Carboniferous strata across North Lanarkshire generally dip gently to the south-west, apart from the far eastern area where the strata dip to the north-east, forming the eastern arm of a large anticlinal fold.
- Underlying the productive coal measures across much of the North Lanarkshire area, and found at the surface in the north-western and south-eastern areas, are rocks of the Passage Group (Millstone Grit), comprising similar rock types to the coal measures, but with fewer economic coals and more predominant sandstone.
- Beneath the Passage Group, found at the surface in the north-western and far south-eastern parts of North Lanarkshire, are rocks of the Upper Limestone Group and the Limestone Coal Formation, comprising cyclic sequences of sandstones, siltstones, mudstones, marine limestones, coals and seatrocks. The main economic limestone seams found in this area are the Castlecary, Calmy, Orchard and Index seams.
- In the far north-western part of the North Lanarkshire area are basaltic igneous rocks, of similar age to the adjacent sedimentary formations and separated from them by a north-easterly trending fault. These extrusive rocks tend to be iron- and magnesium-rich and of low permeability. They were formed by the crystallisation of molten rock blown or poured out onto the earth's surface.



- Additional localised areas of igneous rock are present across much of the area, but occurring at the surface most often in the east-central part of North Lanarkshire. These comprise intrusive quartz dolerite rocks of Permo-Carboniferous age. These rocks were formed by the intrusion and crystallisation of molten rock into the surrounding sedimentary formations, generally into cracks or fissures and therefore forming thin, planar features.

7.2.6 There are two key designation types associated with geological features, these are Sites of Special Scientific Interest (SSSIs) and Regionally Important Geological Sites (RIGS). At present there are only two geological SSSIs within North Lanarkshire (see Figures 7.3 and 7.4), these are:

- Corrie Burn. The designation extends along several sections of the Corrie Burn and tributaries to the north-west of Queenzieburn (west of Kilsyth). This site is designated for the stream and quarry exposures which provide a complete Lower Carboniferous rock sequence including fossil remains; and
- Mollinsburn Road Cutting along the A80 at Mollinsburn (south-west of Cumbernauld). The designation at Mollinsburn is for the presence of the exposure of part of the Lenzie to Torphichen dyke.

7.2.7 RIGS are non-statutory sites designated by locally developed criteria and are currently the most important places for geology and geomorphology outside statutorily protected land such as SSSIs. There are currently no RIGS within North Lanarkshire.

7.2.8 The geology of North Lanarkshire provides a range of natural resources that are and have been mined and worked. This includes reserves of coal along with deposits of gravels. There are various quarrying activities underway across North Lanarkshire. The digital land use data (2004) identifies an area of 1,814ha occupied by mineral workings / quarries although this does not specify which sites are active.

## Soil Resources

7.2.9 SNH identifies soils as 'representing a dynamic interface between physical, biological and hydrological systems. Soils are an integral part of the landscape, reflecting not only natural processes from which they have been formed, but also the influences of human activities, present and past'.

### Soil Quality

7.2.10 The Macaulay Institute for Soil Research produces soil survey maps for Scotland. Sheets 23 and 31 cover North Lanarkshire (1983 and 1976 respectively). There is a wide variety of soils across North Lanarkshire, the range reflecting the diversity of the geology, topography and landscape of the region. Information is presented below for the three broad zones of soils. In summary, the majority of soils within North Lanarkshire are imperfectly or poorly drained although localised areas of better draining soils are present.

7.2.11 *Northern North Lanarkshire*, an area to the north of the Kelvin valley occupying the uplands of the Kilsyth Hills. This area is occupied by a patchwork of different soils comprising:

- in the northern part of this area, a range of soils from very poorly to freely draining soils, these comprise peaty soils, brown forest soils and gleys;
- in the central part of this area, extensive blanket peat (hill peat and/or flush peat); and
- in the southern section, soils are generally imperfectly and poorly drained gleys.

7.2.12 *Western North Lanarkshire*, an area in the west of North Lanarkshire bounded by a line from Cumbernauld in the north, through Airdrie to Wishaw in the south. This area comprises predominantly imperfectly and poorly drained gleys. In addition there are small areas of other soils, these being primarily:

- along some river valleys there are alluvial soils comprising imperfectly drained clayey soils; and
- pockets of basin and valley peat including raised moss and low moor stages.

7.2.13 *Eastern North Lanarkshire*, an area from Cumbernauld in the north running south to Shotts and the North Lanarkshire southern boundary. This area comprises predominantly poorly drained gleys with areas and pockets of other soils, these include primarily:



- areas of peat with both basin and valley peat (located in the northern part of this area, to the north of Greengairs) and blanket peat on the higher ground to the south of Greengairs. These areas of peat become more extensive in the southern half of this area;
- areas of poorly to very poorly draining peaty gleys, these being located throughout the area in locations near to peat;
- imperfectly and poorly draining alluvial soils are present throughout the area associated with river valleys; and
- there are pockets of freely draining humus soils and brown forest soils throughout this area.

### Soil Capability

7.2.14 The Macaulay Institute for Soil Research produce land capability for agriculture maps for Scotland, Sheets 64 and 65 cover North Lanarkshire (1986). These maps identify descriptions of the soils with regard to supporting a range of agricultural crops. Table 7.1 presents the seven broad categories used within the description of the land capability. The table identifies Classes 3, 4, 5 and 6 which are subdivided into two or three sub-classes providing a detailed division in the land capability. Land within Classes 1, 2 and 3<sub>1</sub> is defined as prime agricultural land and represents the land with the greatest agricultural production potential.



**Table 7.1 Land Capability for Agriculture Classes**

Class	Land Capable of ...	Suitability
1	Producing a very wide range crops	Land Suited to Arable Cropping
2	Producing a wide range crops	
3 <sub>1</sub> and 3 <sub>2</sub>	Producing a moderate range of crops	
4 <sub>1</sub> and 4 <sub>2</sub>	Producing a narrow range of crops	
5 <sub>1</sub> , 5 <sub>2</sub> and 5 <sub>3</sub>	Use as improved grassland	Land Suited to Improved Grassland and Rough Grazings
6 <sub>1</sub> , 6 <sub>2</sub> and 6 <sub>3</sub>	Use only as rough grazing	
7	Very limited agricultural value	

Source: Land Capability for Agriculture Maps, MacAulay Institute (1986)

7.2.15 Within North Lanarkshire there are soils capable of supporting both arable crops and grassland/grazing. These areas generally follow the geographical / topographical setting of the land and the capability for soils is discussed within the following broad areas.

7.2.16 *The northern part of North Lanarkshire.* On the higher ground to the north of the Kelvin Valley, is characterised by Class 4 and 5 soils with pastoral land on the higher ground.

7.2.17 *The Kelvin Valley and the lower land in the west of North Lanarkshire* (west of a line from Cumbernauld south to Airdrie and Wishaw). These areas are characterised by predominantly Class 3<sub>2</sub> soils with pockets of poorer soils (Classes 4 and 5). Within this part of North Lanarkshire there are small areas of better quality land which is classed as prime agricultural land (including Classes 2 and 3<sub>1</sub>), these include in locations such as:

- land along the Kelvin Valley, to the north-east of Cumbernauld and south-east of Kilsyth;
- small pockets of land to the south of Cumbernauld by Luggiebank and west of Greengairs;
- small pockets of land by Wester Auchinloch (north of Stepps);
- an area of land to the west of Coatbridge;
- a small pocket to the east of Wishaw by Murdostoun Castle; and
- land along the Clyde Valley to the south of Wishaw with Class 2 soils along the valley bottom.





7.2.17 *Higher plateau land* in the east and south of North Lanarkshire. These areas are characterised by poorer quality soils with regard to land capability for agriculture, typically these include Classes 4 and 5 with small pockets of better quality arable land (Classes 3<sub>1</sub> and 3<sub>2</sub>) around Harthill.

#### Contaminated Soil / Land

7.2.18 Across North Lanarkshire there is the potential for contamination associated with historic and current industrial activity. The Contaminated Land (Scotland) Regulations (2000) provided Local Authorities with duties to identify contaminated land and bring about its remediation. In October 2001 North Lanarkshire Council published its Contaminated Land Inspection Strategy and an update bulletin was issued in 2004. North Lanarkshire Council has various responsibilities which include:

- Inspection of the Council area to identify contaminated land;
- To determine whether a particular site meets the statutory definition of contaminated land;
- To establish responsibilities for remediation of the land;
- To ensure that appropriate remediation takes place; and
- To keep a public register detailing the regulatory action which they have taken under the new regime.



7.2.19 The Contaminated Land Strategy bulletin confirms that North Lanarkshire Council produced a prioritised list of sub-areas in March 2002. At the time of the report, over 2,341 locations had been subject to reconnaissance.

7.2.20 As part of their responsibilities, North Lanarkshire Council Environmental Health Department holds digital data relating to potentially contaminative activities. These data include a range of activities which are summarised in Box 7.2.

#### **Box 7.2 Key Potentially Contaminated Land Activities**

<b>Waste &amp; Resources</b> Landfill Sites, Filled/Made Ground Quarrying and Mining Gas Works & Electricity Production	<b>Manufacturing and Warehousing</b> Factories and Engineering Works Depots and warehouses
<b>Commercial and Services</b> Fuel Supply and Vehicle Repair Sewage Works	<b>Infrastructure</b> Railway Lines Pipelines

7.2.21 Waste disposal and management of existing landfill sites is discussed further in Chapter 7: Waste and Resources. Closed landfill sites however constitute a key component of the potentially contaminated land within North Lanarkshire. North Lanarkshire Council Environmental Health Department noted that there are 57 closed landfill sites within North Lanarkshire of which they monitor approximately 30. These are presented graphically in Figure 8.1.

7.2.22 Within the closed landfills, waste which has been deposited begins to break down resulting in the creation of carbon dioxide and methane gases which can cause suffocation and explosion respectively. In addition contamination can leach out of these sites into the surrounding environment. The nature and extent of these landfill sites' impacts on the local environment are based on the nature of the materials deposited and the time elapsed.

7.2.23 Potentially contaminated ground is located across North Lanarkshire, predominately associated with urban areas and key transport routes and also with the historical industrial development of the region.



## Land Stability

7.2.24 The legacy of former underground mining across the Central Belt of Scotland has created issues for ground stability in some areas. Underground mining, predominantly coal, has taken place across much of North Lanarkshire. Key areas include:

- The south-western part of North Lanarkshire (from Greengairs in the north, to Coatbridge and Airdrie and south to Motherwell and Wishaw);
- The south-eastern part around Shotts and Harthill; and
- In the north along the River Kelvin valley around Kilsyth.

7.2.25 Ground stability issues are present in these locations associated with a range of factors including subsidence at and in the vicinity of mine shafts / pits and air shafts and associated with underground workings, generally at shallow depth. In addition, where quarries have been excavated and infilled, there are potential stability issues associated with the settlement of infill materials.

7.2.26 Underground mine workings in some localised areas of North Lanarkshire are known to have been treated by grouting, to allow development of residential, commercial and industrial properties in recent years. However, no area-wide database detailing any such treatment is available. Where development is proposed within areas subject to historical shallow mining, intrusive investigations and/or remedial works are likely to be required.

## Summary of Geology and Soils Baseline

7.2.27 Table 7.2 summarises the baseline geology and soils resources identified within this section along with their geographical distribution and abundance.

**Table 7.2 Summary of Baseline Distribution**

Resource	Distribution	
	Geographical	Abundance
Solid and Drift Geology (including designated sites)	<ul style="list-style-type: none"> <li>■ Solid geology is predominantly sedimentary rocks with igneous rocks in northern area</li> <li>■ Drift geology is predominantly glacial till/clay, with peat in uplands and alluvium in river valleys</li> <li>■ Geological SSSIs are located at Corrie Burn and Mollinsburn Road Cutting</li> </ul>	
Soil Resources	<ul style="list-style-type: none"> <li>■ Soils types are predominantly gleys with areas of brown forest soils, peaty soils and areas of peat</li> <li>■ Poorer draining soils are predominant across the majority of North Lanarkshire with scattered pockets of better draining soil throughout</li> <li>■ Soils on higher ground capable of sustaining pastoral agriculture; soils on lower ground generally capable of producing a narrow to moderate range of crops</li> <li>■ Some areas of potentially contaminated land associated with historical industrial activity. Contamination is most likely around settlements, areas of former and current industry and transportation routes</li> </ul>	
Land Stability	<ul style="list-style-type: none"> <li>■ Widespread historical mining in North Lanarkshire with the exception of areas around Kilsyth Hills, south of Cumbernauld and parts of the eastern area</li> </ul>	<ul style="list-style-type: none"> <li>■ Extensive areas of historical mining activity and potential for associated instability</li> </ul>

## 7.3 TRENDS IN THE RESOURCE

7.3.1 There are not predicted to be any significant, area-wide trends affecting the geological resources. In development areas, localised cut and fill operations may result in minor changes to the character of the drift geology, however this is not considered to represent a significant trend in terms of the wider area or resource.



7.3.2 Trends can be considered for some of the areas discussed in Section 6.2, including designated sites, soils and potentially contaminated land.

### Geological Designations

7.3.3 The two geological designations were notified in 1986 (Corrie Burn) and 1988 (Mollinsburn Road Cutting). Any further increases in the number of geologically designated sites are likely to be associated either with the identification and assessment of further existing sites and/or the creation of new sites through development works (such as new road cuttings exposing geological features or rock faces).

7.3.4 There is the potential for the proposed M80 upgrade to impact upon the Mollinsburn SSSI. The proposed works however may result in the creation of further exposures.

### Soils

7.3.5 Whilst no figures exist on trends in soils within North Lanarkshire, qualitative trends can be identified. Such trends relate to soil quantity and quality.

7.3.6 Development works such as residential estates and road projects can result in the loss of soils through off-site removal and re-distribution of soils. Increases in development are likely therefore to have led to an increase in soils affected in such a way. Soil quality is similarly likely to be affected by increases in development through alterations to soil properties (such as compaction).

#### Prime Agricultural Land

7.3.7 No detailed information is available on trends in soil quality however trends in the areas of North Lanarkshire occupied by Prime Agricultural Land (PAL) can be obtained through comparison of land capability for agriculture map data (which is based on 1981 Ordnance Survey base mapping) and current Ordnance Survey maps. This exercise has identified a number of locations of PAL throughout North Lanarkshire which have been developed for residential or industrial use since the 1981 map was prepared. These comprise:

- Two locations of PAL to the east and south of Cumbernauld Airport;
- Two small pockets by Auchinbea (north-western part of Craighalbert);
- A pocket of PAL to the north of Bargeddie (west of Coatbridge);
- A small patch of PAL by Netherton, in the south-western part of Wishaw; and
- Areas of PAL around Overton.

7.3.7 These trends indicate that development has been permitted in recent years on areas of PAL which has reduced the abundance of the resource.

#### Contaminated Soils / Land

7.3.8 The majority of potentially contaminated land within North Lanarkshire is associated with historical activities. Current industrial activities are monitored by various bodies / agencies and resultant contamination should be controlled and mitigated where occurring. Trends in contaminated land are therefore likely to have increased throughout the 20<sup>th</sup> Century, however the total area of potentially contaminated land should now continue to decline slowly as sites are investigated and remediated, for example to make way for development on brownfield sites and in response to the new legislation requiring identification and remediation of contaminated land.

### Land Instability

7.3.9 Similar to contaminated land, mineral instability is associated primarily with historical activities. The trend in the extent of areas which may be considered unstable for development should therefore be a declining one as sites are investigated and remediated for development, in particular for significant development proposals such as the Ravenscraig site near Motherwell.



## 7.4 PRESSURES ON THE RESOURCE

7.4.1 The pressures on the geology and soils environment are primarily associated with development pressures such as residential and infrastructure developments.

7.4.2 Designated sites are protected by legislation and therefore there are requirements on those responsible for these sites to maintain and enhance them. The location of the two SSSI designations are such that they are unlikely to be favourable for large scale development however local development pressures such as farmland improvements and road widening/infrastructure may place result in a development pressure.

7.4.3 Soils are particularly subject to development pressures through their loss, re-distribution and the alteration of their properties. Prime Agricultural Land (PAL), which is present in small pockets at locations within the Kelvin Valley and western part of North Lanarkshire, is particularly sensitive to such pressures since it is a limited resource in North Lanarkshire.

7.4.4 Soils resources such as peat (which also have ecological importance – see Chapter 5) are also vulnerable to pressure associated with land development, drainage and land management practices. Developments such as wind farms place pressure on peat reserves particularly in upland areas. Other developments such as quarrying and opencast mining have the potential to result in pressure on peat reserves, in addition to other soils, through the requirement for the removal of overburden prior to excavation.

7.4.5 The costs of land remediation and aesthetic issues associated with development of potentially contaminated land may result in pressure to develop alternative greenfield sites in preference to contaminated sites. Conversely, current legislation and planning encourages the development of brownfield sites and associated financial and planning incentives may act as a pressure to develop (and remediate) such areas.

## 7.5 CONDITION OF THE RESOURCE

7.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 7.3 summarises the condition of the geological and soils resource drawing on the analysis presented in Sections 7.2 to 7.4

**Table 7.3 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Solid and Drift Geology (including designated sites)	<ul style="list-style-type: none"> <li>Geological resources provide important functions for soils and groundwater protection</li> </ul>	<ul style="list-style-type: none"> <li>No particular vulnerability to solid and drift geology</li> <li>SSSIs afforded protection from development</li> </ul>	<ul style="list-style-type: none"> <li>Significant as geology affects soil types</li> <li>Exploitation of minerals has influenced the landscape</li> </ul>
Soil Resources	<ul style="list-style-type: none"> <li>Agricultural capability of soils is generally low, and soils typically poor draining</li> <li>Health affected in areas by land contamination</li> </ul>	<ul style="list-style-type: none"> <li>Soils locally vulnerable to development pressures and changes in land management practices</li> </ul>	<ul style="list-style-type: none"> <li>Important in shaping vegetation and habitats and therefore landscape character</li> </ul>
Land Stability	<ul style="list-style-type: none"> <li>Extensive areas subject to former mining activity and therefore potentially unstable, which can influence development</li> <li>Degree of land stability influenced by nature and extent of former workings</li> </ul>	<ul style="list-style-type: none"> <li>Unstable land is vulnerable to collapse or subsidence, and geotechnical problems may result in development being encouraged in other locations</li> </ul>	<ul style="list-style-type: none"> <li>No specific contribution though areas of former mining can locally influence the nature of the landscape (eg spoil heaps and workings near Shottsburn)</li> </ul>



## 7.6 KEY ASSETS

7.6.1 Based on the analysis of environmental information within Sections 7.2 to 7.5, the following key geological and soil assets have been identified.

**Table 7.4 Key Geological and Soil Assets**

Key Asset	Description
Geological Sites of Special Scientific Interest	Geological Sites of Special Scientific Interest are a key asset within North Lanarkshire as, by the nature of their designation, they have a national geological value and importance. The two SSSIs in North Lanarkshire are recognised for containing accessible and visible geological strata.
Peat Reserves	Peat reserves are a key asset to North Lanarkshire, particularly given the extent of decline in peat resources both within North Lanarkshire and across Scotland. The remaining peat resources are therefore important both as a vulnerable soil resource but also for their ecological value and impact they have on the North Lanarkshire landscape, particularly within upland areas.
Aggregate Resources	Aggregate resources are key assets to North Lanarkshire and such resources are exploited through quarrying which is undertaken in several locations in North Lanarkshire.
Soils with Importance for Agriculture and Ecology	Soils with Importance for Agriculture and Ecology are an important asset within North Lanarkshire, in particular areas of prime agricultural land.

## 7.7 ISSUES FOR RESOURCE MANAGEMENT AND PROTECTION

7.7.1 The key assets identified in Section 7.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key geological assets within North Lanarkshire.

7.7.2 Designated sites require management and protection to ensure that the geological strata are protected and enhanced. The nature of the designation affords the site a level of protection.

7.7.3 Soils are managed in accordance with land uses and land management practices. Agricultural soils for example are managed by the farm units occupying them, management forms an intrinsic part of the farming process as this supports the crops or pasture.

7.7.4 Best practice on construction sites is required to minimise the amount of soil taken from site for disposal and to protect soils during storage, for example to prevent compaction and erosion.

7.7.5 Peat is identified in particular as a key soil resource asset in North Lanarkshire. Peat is afforded a range of measures for management and protection for its ecological value. Peat needs to be protected as a key soil resource, particularly in areas which are not designated for ecological value.

7.7.6 The aggregate resource of North Lanarkshire requires management to ensure that quarries and workings are undertaken sensitively to the surrounding environment. There are potential impacts on other parts of the North Lanarkshire environment through inappropriate excavation such as on the landscape, ecology and communities. As discussed within Chapter 4: Land Use, mineral workings offer the opportunity upon closure or cessation of excavation for environmental enhancement and improvement.



7.8 DATA GAPS AND LIMITATIONS

7.8.1 There are no significant data gaps or limitations within the Geology and Soils Environment of North Lanarkshire although some limitations exist, in particular there is a lack of definitive information on contaminated land. In future, more specific information should become available on contaminated sites as a result of requirements for Local Authorities to identify and remediate contaminated sites under Part IIA of the Environmental Protection Act.

7.9 REFERENCES

7.9.1 The following sources of information were referred to in this chapter:

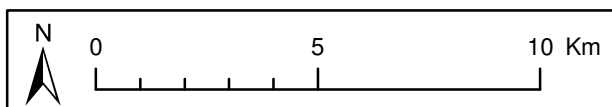
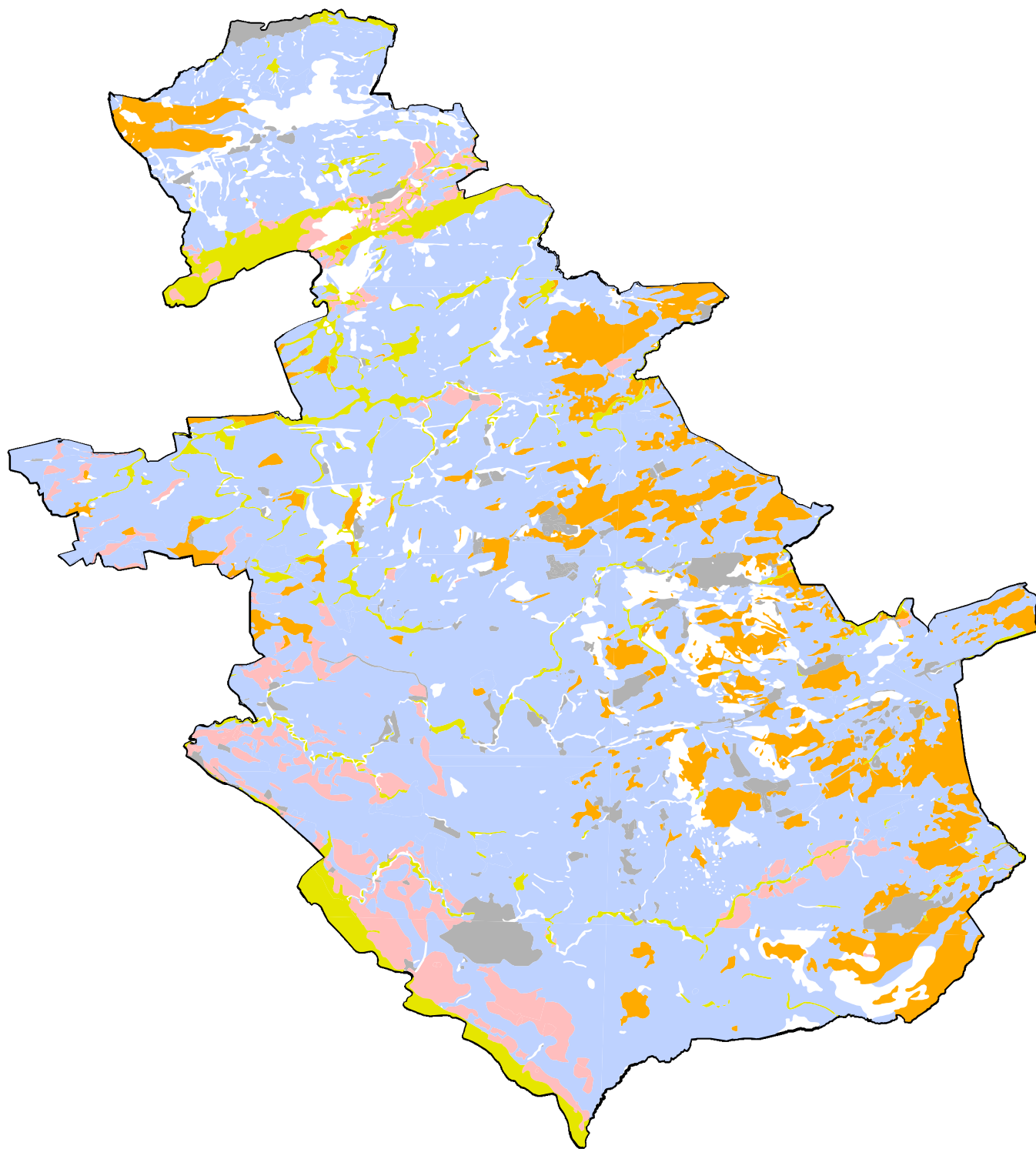
- Digital GIS data for drift geology (Provided by North Lanarkshire Council, August 2005);
- Digital GIS data for solid geology (Provided by North Lanarkshire Council, August 2005);
- Digital GIS data for potentially contaminated sites (Provided by North Lanarkshire Council, August 2005);
- British Geological Survey 1:50,000 geological map sheet 31 Airdrie, Solid (1969) and Drift (1992) editions.
- Soil Survey Maps, Sheets 23 and 31, MacAulay Soil Research Institute (1983 and 1976 respectively);
- Land Capability for Agriculture Maps, Sheet 64 and 65, MacAulay Soil Research Institute, 1986
- *Inspection Strategy for the Identification of Contaminated Land, Update Bulletin 2004*, North Lanarkshire Council, November 2004.
- *Economic Regeneration Framework report*, North Lanarkshire Council (2004).

7.10 MAPS AND PLANS

7.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
7.1	Drift Geology
7.2	Solid Geology
7.3	Geological Sites of Special Scientific Interest (SSSIs)





## Legend

	Alluvium		Peat
	Glacial Till		Unknown
	Glacio-Fluvial Deposits		No or Limited Drift Deposits

**Figure 7.1**  
**Geology & Soils**  
**Drift Geology**

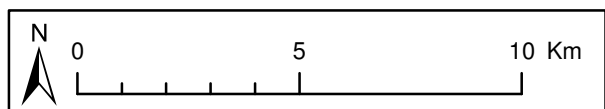
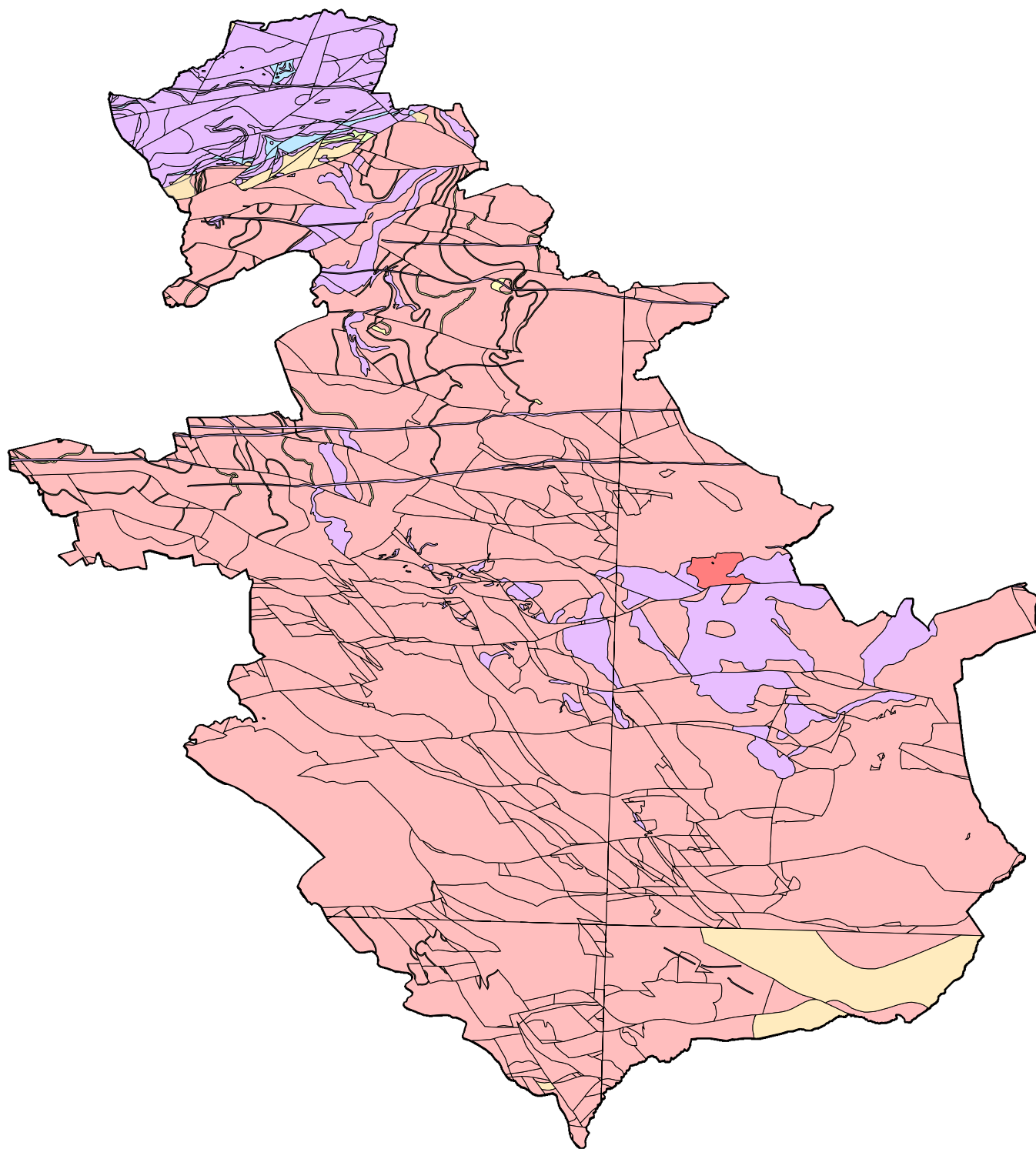
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS





## Legend

### Sedimentary Rocks

- Undivided Sedimentary Rocks
- Undifferentiated Sedimentary
- Mudstone
- Sandstone
- Limestone

### Igneous Rocks

- Basalt
- Tuff / Agglomerate
- Felsite

**Figure 7.2**  
**Geology and Soils**  
**Solid Geology**

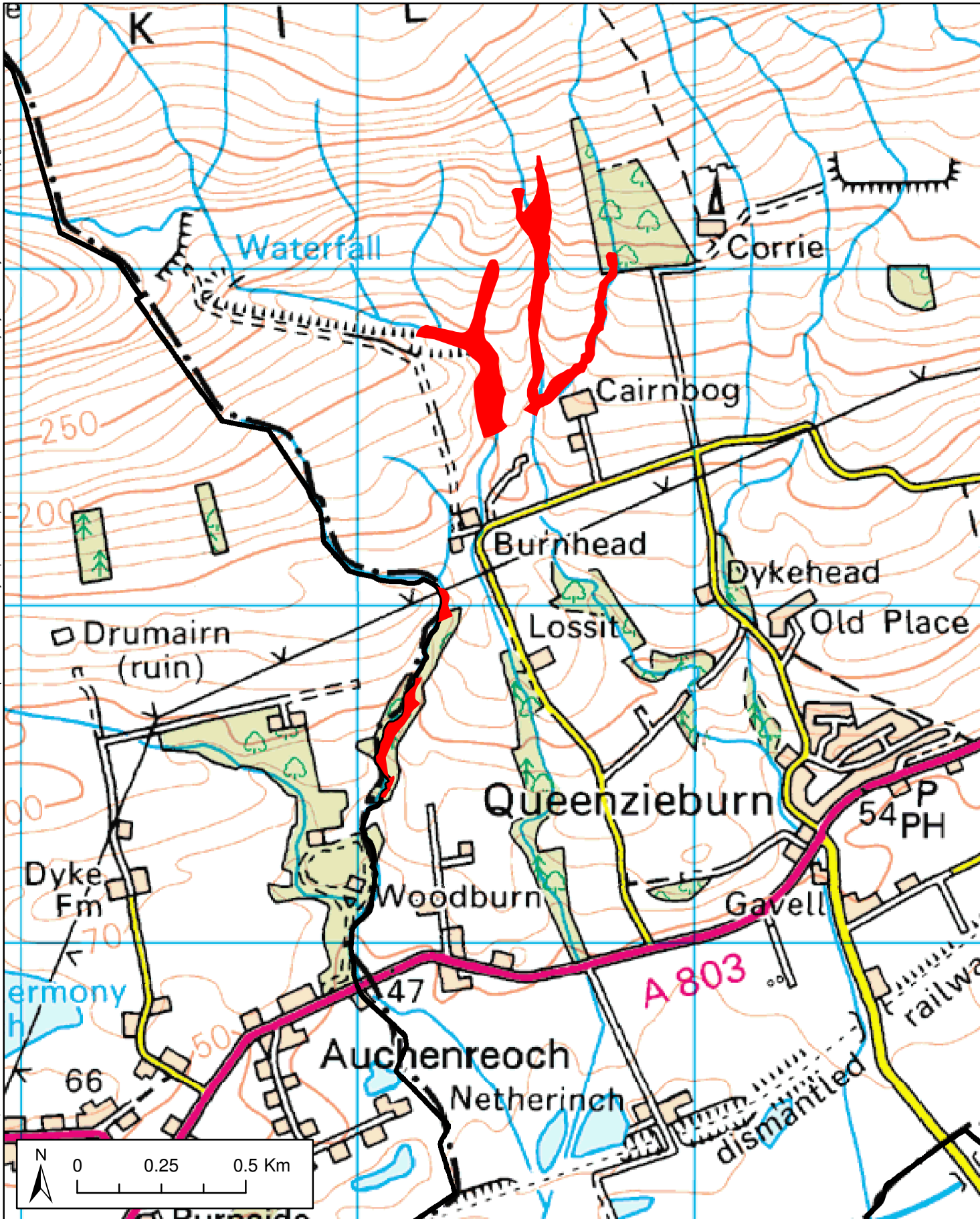
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS





## Legend

■ Corrie Burn Geological Site of Special Scientific Interest

Figure 7.3a  
Geology and Soils  
Corrie Burn Geological SSSI

Scale: 1:15,000

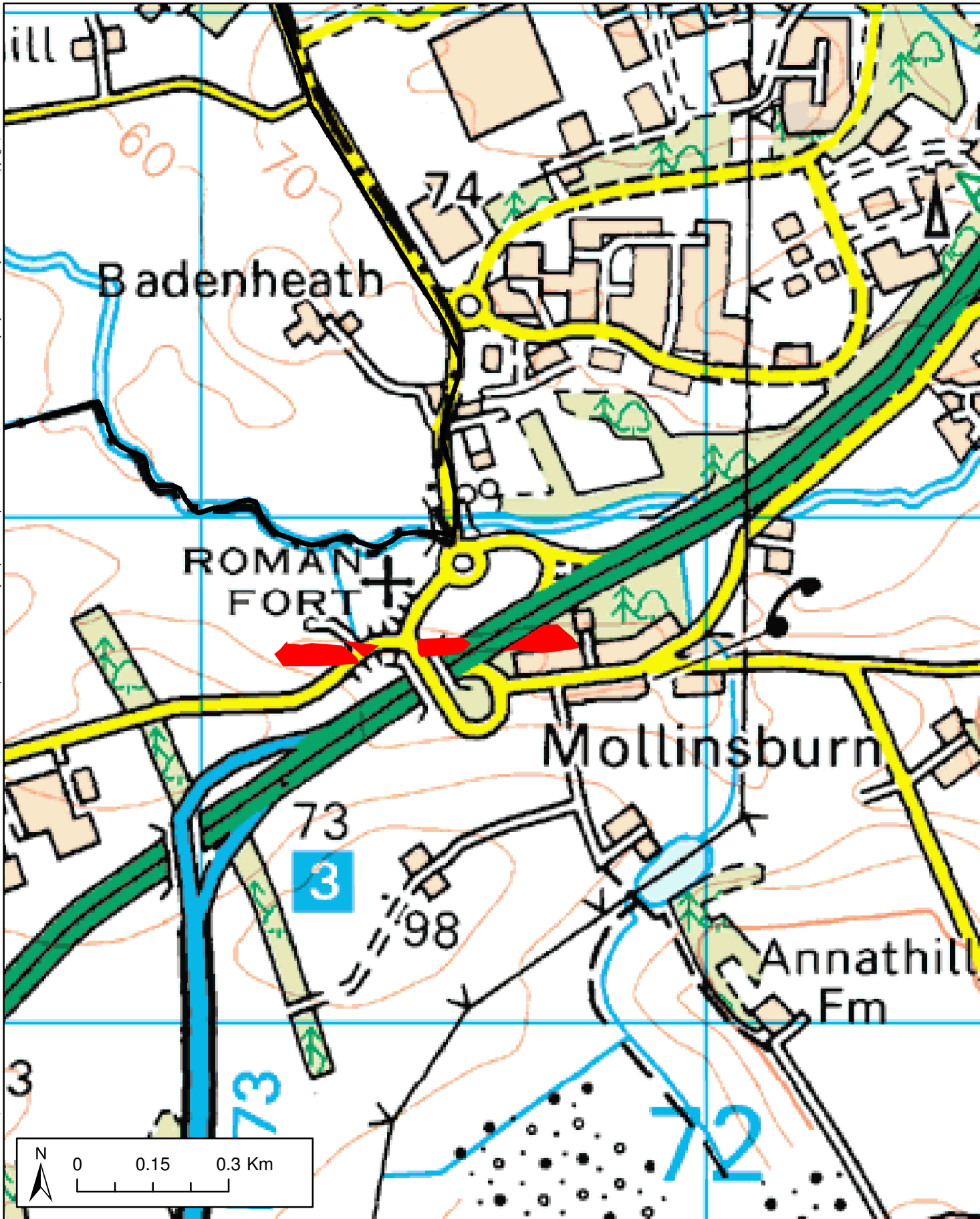
Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS







## Legend

Mollinsburn Geological Site of Special Scientific Interest

Figure 7.3b  
Geology and Soils  
Mollinsburn Geological SSSI

Scale: 1:10,000

Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
Drawn by: JS





## 8 Waste and Resources

### 8.1 CONTEXT

8.1.1 Waste is an increasingly important issue both legislatively, politically and practically. Historically waste has been landfilled within North Lanarkshire however levels of recycling and composting are increasing which is now diverting waste away from landfills.

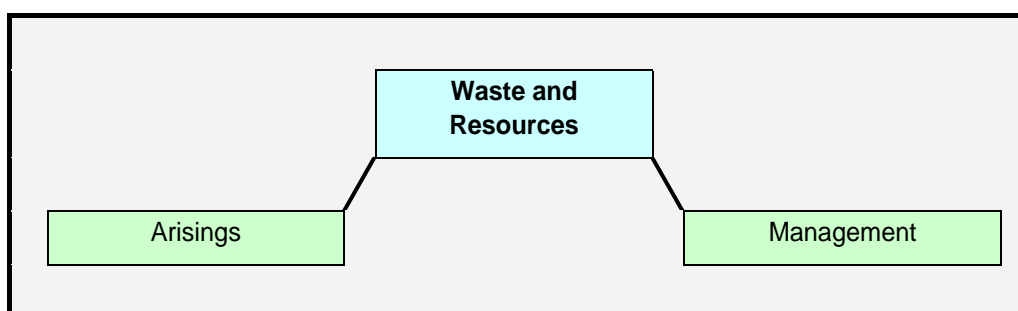
8.1.2 There is already a network of waste management facilities within North Lanarkshire including two municipal landfill sites, 70 recycling points and an extensive kerbside recycling scheme. These facilities, along with the waste awareness issues and strategies across North Lanarkshire and Scotland as a whole are promoting the waste hierarchy.

8.1.3 Changes are occurring within the waste environment of North Lanarkshire and there are a number of opportunities for improving levels of waste reduction, reuse, recycling and promoting environmental technologies and industries.

### 8.2 BASELINE CHARACTERISTICS

8.2.1 The waste resource within North Lanarkshire is discussed within this chapter from the perspective of waste production / arisings and waste management.

#### Box 8.1 Waste Baseline Features



#### Waste Arisings

8.2.2 The waste baseline is discussed in two categories within this report:

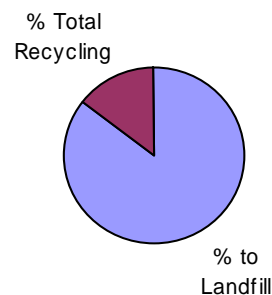
- Municipal Solid Waste (MSW), defined within the Glasgow and Clyde Valley Area Waste Plan (AWP) as household waste and any other waste under the control of Local Authorities or their agents acting on their behalf. A significant component of MSW is biodegradable municipal waste (BMW); and
- Non-Municipal Wastes which includes special wastes.

8.2.3 In line with the AWP, this report focuses primarily on MSW given the more complete data available, the development of Best Practicable Environmental Options (BPEO) and in line with the information available within various documents issued by Audit Scotland and SEPA. The AWP notes that the development of BPEOs for non-municipal waste is complex and that significant data gaps exist.

## Municipal Solid Waste (MSW)

8.2.4 Data on waste arisings and disposal have been obtained from two principal sources; the Audit Scotland report on Performance Indicators 2003/4 (Issued February 2005) and SEPA's Waste Data Digest for 2003/4 (Issued July 2005). There are differences in the data obtained from these two sources associated with the way in which the data are reported.

8.2.5 The Audit Scotland report on Local Authority Performance Indicators for 2003/04 (Issued February 2005), and based on data provided by the Local Authorities, identifies that North Lanarkshire Council collected 200,000 tonnes of household, commercial and industrial waste. As presented in Graph 8.1, right, of this total waste 14.7% was recycled with the remaining 85.3% disposed of to landfill. This compares to a Scottish recycling rate of 12.3%.



**Graph 8.1** Destination of Household, Commercial and Industrial Waste, 2003/4

8.2.6 SEPA's Waste Data Digest reports the total controlled waste arisings for North Lanarkshire as 195,337 tonnes with 11.9% recycled and composted (2003/4). This compares to a Scottish average of 12.1% for the same period.

8.2.7 There is a discrepancy in data obtained from the Audit Scotland report and SEPA Waste Data Digest. SEPA noted within their waste data digest 2003/4 that they have been working with Audit Scotland to obtain consistency in the reporting of local authority recycling rates with comparable rates for the Scottish average recycling rate. There is however a difference in the recycling rates reported for North Lanarkshire. These discrepancies may be the result of differences in the way waste material is reported, for instance the waste arisings presented are based on the following:

- Audit Scotland reports arisings as household, commercial and industrial waste.
- SEPA reports the quantities of controlled waste collected by, or on behalf of North Lanarkshire Council. SEPA defines controlled waste as "Household, industrial and commercial waste or any such wastes that require a waste management licence for treatment, transfer or disposal (as defined by Environmental Protection Act 1990, Section 75)"

8.2.8 The waste digest report includes further details for the source of controlled waste, these are presented in Table 8.1 below.

**Table 8.1 Controlled Waste Arisings 2003/4 (Tonnes)**

Waste	North Lanarkshire	Scotland
Collected for Disposal From:		
Households	114,387 (59%)	2,015,578 (61%)
Civic Amenity Site	25,189 (13%)	359,875 (11%)
Commercial	26,382 (14%)	452,428 (14%)
Industrial	0 (0%)	29,987 (1%)
Other Non- Household	5,038 (3%)	62,473 (2%)
Collected for Recycling & Composting From		
Household	22,139 (11%)	330,396 (10%)
Non-Household	2,202 (1%)	66,284 (2%)
Total	195,337 (100%)	3,317,051 (100%)
Household Waste per Household	1.17 Tonnes	1.14 Tonnes

Note: Figures within this table are for controlled waste.

Source: SEPA Waste Data Digests 2003/4 (Issued 2005)

8.2.9 Data provided in Audit Scotland's Report (2003/4) identifies the costs for refuse collection and disposal. These are presented in Table 8.2 below.

**Table 8.2 Refuse Collection and Disposal Costs per Property**

Activity	North Lanarkshire	Scotland
Refuse Collection	£51.59	£52.59
Refuse Disposal	£37.92	£58.43

Source: Data from Audit Scotland Report for 2003/4

### Recycling and Recovery

8.2.10 SEPA's Waste Data Digest report identifies a breakdown of waste recycled by material. This is summarised in Table 8.3 below.

**Table 8.3 Waste Recycled by Material 2003/4**

Waste (tonnes)	North Lanarkshire	Scotland
Glass	973	46,669
Paper	2,180	66,016
Card	925	11,729
Mixed Paper & Card	10	13,661
Steel Cans	0	410
Aluminium Cans	0	326
Mixed Cans	21	867
Plastic	0	627
Textiles	235	5,558
Oils	201	870
Scrap Metal	954	29,007
White Good / WEEE	536	10,873
Batteries	54	1,140
Co-Mingled Materials	3,438	29,290
Wood	0	13,755
Residua from Incineration	0	10,709
Soil / Rubble	0	32,070
Bulky Household Items	4,839	9,597
Fridges / Freezers	0	1,566
Tyres	0	399
Gas Cyclinders	0	170
Book / Yellow Pages	0	76
Others	0	684
Total	14,366	286,069
End of Life Vehicles	1,174	12,626

Source: SEPA Waste Data Digests 2003/4 (Issued 2005)

8.2.11 There is a difference between the data for recycling presented in Table 8.1 and 8.3. Table 8.1 presents the amount of material collected for recycling (24,341 tonnes) and Table 8.3 presents the amount of waste recycled (14,366 tonnes). The reason for this difference may relate to not all collected material being recycled in North Lanarkshire.

8.2.12 The sources of materials recycled are presented within SEPA's data digest and these are summarised in Table 8.4 below.

**Table 8.4 Waste Recycled by Source 2003/4**

Source	North Lanarkshire	Scotland
Household	13,338 (93%)	248,119 (87%)
Commercial	1,028 (7%)	37,690 (13%)
Industrial	0	209 (<1%)
Other Non-Household	0	39 (<1%)
Total	14,366	286,057

Note: Figures presented are tonnes with (%) figures the percentage of total recycled.

Source: SEPA Waste Data Digests 2003/4 (Issued 2005)

### Non-Municipal Wastes

8.2.13 In addition to MSWs there are a range of other, non-municipal wastes. As discussed earlier in this section, limited information is held on such wastes. SEPA's waste data digest identifies that "non-municipal waste covers a broad spectrum of waste types generated by individual producers, ranging from sole traders and small commercial businesses to large industrial complexes". The waste data digest notes that gathering data on non-municipal waste arisings in Scotland is difficult as there is currently no requirement for organisations to report non-municipal waste to SEPA. A summary is however presented below of some of the key non-municipal waste categories.

#### *Construction and Demolition Waste*

8.2.14 The AWP reports 2,665,000 tonnes of construction and demolition waste were produced within the Glasgow and Clyde Valley AWP area in 2000. Of this, 147,000 tonnes (5.5%) was collected by the Local Authorities and the remainder by private sector waste management companies. The majority of this waste is handled by demolition contractors. A summary of the disposal routes for construction and demolition waste is presented in Table 8.5 below.

**Table 8.5 Construction and Demolition Waste Disposal (2000)**

Disposal Route	Tonnage	% Contribution	
		AWP Area	Scotland
Recovery	1,032,000	38.7%	36.8%
Disposal	988,000	37.1%	41.6%
Exempt	645,000	24.2%	21.7%
Total	2,665,000	-	-

Note: Figures based on the Glasgow and Clyde Valley Area Waste Plan area

Source: Glasgow and Clyde Valley Area Waste Plan, 2003

8.2.15 Recovery options for construction and demolition waste may include recovery for aggregate use and re-use in development and building projects eg for engineering fill purposes.

#### *Waste Tyres*

8.2.16 The AWP identifies that waste tyres have been considered under a Priority Waste Stream Project undertaken by SEPA. The predictive model estimated waste tyre arisings in 1999 of 9,440 tonnes for the Glasgow and Clyde Valley AWP area. The AWP reports that in Scotland only 13% of waste tyres are re-used.

#### *End of Life Vehicles*

8.2.17 SEPA has undertaken a Priority Waste Stream Project for end of life vehicles. The total quantity estimated within the AWP area was 49,498 vehicles in 1999 (equating to approximately 48,508 tonnes). SEPA's Waste Data Digest reports identify specific figures for North Lanarkshire, in 2003/4 this was 1,174 tonnes.





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### *Industrial Waste*

8.2.18 The AWP reports that within the AWP area industrial waste accounted for 325,000 tonnes (1998 figures). The AWP reported that this figure is likely however to be an underestimate. Within this total amount, 141,000 tonnes (43%) is reported to be collected by Local Authorities and the remaining 184,000 tonnes (57%) collected by private waste management companies.

### *Special Waste*

8.2.19 Special waste is defined within the AWP as waste which is included in the EC Hazardous Waste List and exhibits one of the 14 hazardous properties specified therein. The AWP identifies the Scotland-wide figures for special waste for 1998, these are:

- Liquid: 28,879 tonnes;
- Asbestos: 13,474 tonnes; and
- Other 868,725 tonnes
- A total of 911,078 tonnes.

8.2.20 SEPA's waste data digest (2003/4) identifies that in 2003 approximately 490,000 tonnes of special waste were consigned within Scotland and 76,400 tonnes were exported to England and Wales. No data are available on levels within North Lanarkshire specifically.

## **Facilities**

### Landfills and Waste Management Facilities

8.2.21 Operational Landfill Facilities. The Glasgow and Clyde Valley Area Waste Plan (AWP) (March 2003) identifies that there are 24 landfill sites in the AWP area, of these five major sites are noted to have significant void space remaining, two of which are located in North Lanarkshire (see Figure 8.1). The details on these two landfills are based on 2001 data referenced within the AWP:

- Auchinlea, Bellside, Clelland. Accepting waste from North Lanarkshire. This is identified as being operated by North Lanarkshire Council with annual tonnage of 95,000 tonnes. North Lanarkshire Council's waste strategy (2002) notes that at the rate of infilling (current to the report) there was eight years remaining capacity; and
- Greengairs, by Greengairs, north-east of Airdrie. Accepting waste from North Lanarkshire along with neighbouring Councils (East Dunbartonshire, East Renfrewshire, South Lanarkshire, Renfrewshire and West Lothian Councils). This is identified as being operated by Shanks Waste Service with an annual tonnage of 330,000 tonnes (85,000 tonnes from North Lanarkshire and 245,000 tonnes from other Councils).

8.2.22 The figures presented above indicate that North Lanarkshire is a net importer of waste from surrounding local authorities.

8.2.23 North Lanarkshire Council Environmental Services currently report that there are 57 closed landfills within North Lanarkshire of which they monitor approximately 30, the locations of these are presented in Figure 8.1. It is also reported that two of these have recently closed, these being Dalmacoulter (near Airdrie) which closed in 2000 and Kilgarth which was formerly operated by Glasgow City Council.

8.2.24 SEPAs Waste Digest Report 5 (2003) identifies those sites within North Lanarkshire which hold a waste management licence. This includes:

- Eight Landfill Sites;
  - Auchinlea Landfill, Clelland (operated by North Lanarkshire Council)
  - Carbars STW, Netherton, Wishaw (operated by West of Scotland Water);
  - Coltness Factory, Newmains, Wishaw (operated by Tarmac Northern Ltd);
  - Greengairs, Airdrie (operated by Shanks);



- Hartloup Hill, Wattston, Airdrie (operated by Shanks Waste Services)
- Kilgarth Landfill Site, Garthill Road, Coatbridge (operated by Glasgow City Council)
- Medrox Quarry, Glenboig (operated by W H Malcolm);
- Omoa Works, Newarthill, Motherwell (operated by W Forest & Son)
- Secure Containment Facility, Motherwell (operated by British Steel)
- Three Treatment Plants;
  - Carbars WWTW, Carbars Road, Netherton, Wishaw (Operated by Scottish Water)
  - Langmuir Way, Bargeddie (operated by Enviroscot Ltd)
  - Rear of Cairnhill Cottage, Sykeside Road, Airdrie (operated by ASAP Contracts Ltd)
- Seven Post Closure Landfill Sites.
  - Avenuehead Farm, Muirhead (operated by W H Malcolm)
  - Bandenheath Park Farm, Cumbernauld Road, Annathill (operated by Norwest Holst Construction Ltd)
  - Cardowan Cottage, Stepps (operated by Peter Moretti)
  - Colzium Quarry, Kilsyth (operated by George Beattie & Sons)
  - Dalmacoulter Quarry, Stirling Road, Airdrie (operated by North Lanarkshire Council)
  - Greenhead Moss, Waterloo (operated by Paterson of Greenoakhill Ltd)
  - Hope Park, Croy (operated by North Lanarkshire Council)

8.2.25 The operational landfill sites identified within the waste data digest include landfills which are privately owned and operated.

8.2.26 Digital data provided by North Lanarkshire Council identifies seven civic amenity sites within North Lanarkshire and 18 waste management licences for waste transfer facilities. The location of these sites is shown on Figure 8.2 and Table 8.6 lists the information available on waste transfer facilities.

**Table 8.6 Waste Transfer Facilities in North Lanarkshire**

Name	Licence Holder
<b>Civic Amenity Sites</b>	
Auchinlea Civic Amenity Site, Cleland (two waste management licences)	North Lanarkshire Council
Bellshill Civic Amenity Site, Reema Road, Bellshill (two waste management licences)	North Lanarkshire Council
Dalmacoulter Civic Amenity Site, Airdrie	North Lanarkshire Council
Motherwell Civic Amenity Site, Meadowhead Road, Motherwell (two waste management licences)	North Lanarkshire Council
Souterhouse Civic Amenity Site, Coatbridge (two waste management licences)	North Lanarkshire Council
Wardpark Civic Amenity Site, Cumbernauld (two waste management licences)	North Lanarkshire Council
Wishaw Civic Amenity Site, Bellhaven Road, Wishaw (two waste management licences)	North Lanarkshire Council
<b>Other Sites</b>	
Block 30 Organon, Airdrie	Organon Laboratories Ltd
Clydesdale Works, Motherwell	Shanks and Mc Ewan Ltd
Hollandhurst Road, Coatbridge	Mac William Contracts Ltd
Phillip Murray Road, Bellshill	North Lanarkshire Council
Unit 103, Block 11 Howden Avenue, Motherwell	Metfab Engineering (Scotland) Ltd

Source: Digital waste on waste transfer sites provided by North Lanarkshire Council

## Recycling Centres / Facilities

8.2.27 Within North Lanarkshire there are a range of facilities to allow public recycling of household waste, this includes collection / bring sites and kerbside recycling. Table 8.7 below identifies the facilities currently available and Figure 8.3 presents the locations of these facilities.

**Table 8.7 Recycling Facilities**

Facility	Number	Notes
Civic Amenity <sup>1</sup>	7	See Table 8.6
Local Recycling Facilities <sup>2</sup>	70	Breakdown of materials collected below
Glass	67	
Cans	32	
Engine Oil	7	
Car Batteries	7	
Textiles	24	
Books	5	
Paper	16	
Cardboard	5	
Household Collections <sup>3</sup>		
Paper (Blue Bins)	119,000 properties	
Garden Waste (Brown Bins)	119,000 properties	
Glass Bins	12,000 properties	

Sources: Information provided by North Lanarkshire Council including <sup>1</sup> Digital data on civic amenity facilities,

<sup>2</sup> List of recycling collection points and <sup>3</sup> Information provided by A MacKenzie, 28/09/05 for 2005/6

8.2.28 The figures presented in Table 8.7 indicate that the majority of properties within North Lanarkshire currently have some form of kerbside recycling. SEPA's waste data digest 2003/4 identifies that approximately 57% of North Lanarkshire's households were offered kerbside recycling compared to a Scottish average for the same period of 47%.

8.2.29 North Lanarkshire Council's Waste Strategy (2002) identifies that they operate a recycling centre at Auchinlea which sorts and bales cardboard material collected from commercial premises in the southern part of North Lanarkshire. This is then transported to a mill in Aberdeen. In 2001/02 approximately 850 tonnes was sent to Aberdeen. This recycling centre also sorts and bales beverage cans collected from recycling banks around North Lanarkshire.

8.2.30 Energy production is undertaken at some of the landfill sites within North Lanarkshire, further details of energy production from waste is discussed within Chapter 9: Energy.

8.2.31 Cooking oil is currently recycled at a new plant at Newarthill, near Motherwell, operated by Argent Energy. This plant is reportedly capable of producing 50 million litres per annum of bio-fuel.

## Summary of Waste Baseline

8.2.32 Table 8.8 summarises the baseline waste and resources identified within this section along with their geographical distribution and abundance.

**Table 8.8 Summary of Baseline Information**

Resource	Distribution
Waste Arisings and Flows	<ul style="list-style-type: none"> <li>■ Distribution related to point of waste arisings throughout North Lanarkshire, domestic and commercial</li> <li>■ 200,000 tonnes of household, commercial and industrial waste arisings in 2003/2004. Of this, 14.7% was recycled</li> <li>■ 70% of waste collected by North Lanarkshire Council originates from households</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>■ There are nine licensed landfill sites including two operational landfills which receive municipal solid waste (one receiving waste from neighbouring local authorities)</li> <li>■ There are 70 bring recycling facilities dispersed across North Lanarkshire</li> <li>■ There are 7 civic amenity sites operated by North Lanarkshire Council within the principal towns</li> <li>■ There are 12 waste transfer stations (including the civic amenity sites)</li> <li>■ Kerbside recycling is being undertaken at 119,000 properties (for paper and garden waste) and at 12,000 properties for glass</li> </ul>

## 8.3 TRENDS IN THE RESOURCE

### Waste Arisings

8.3.1 Audit Scotland and SEPA prepare annual reports detailing the quantities of waste produced. The trends from these two sources in total waste within North Lanarkshire and Scotland are presented within Table 8.9.

**Table 8.9 Household, Commercial and Industrial Waste**

	North Lanarkshire				Scotland			
	2000/1	2001/2	2002/3	2003/4	2000/1	2001/2	2002/3	2003/4
Total Waste – (tonnes) Audit Scotland	-	-	192,000	200,000	-		3,209,000	3,299,000
Total Waste – (tonnes) SEPA's Waste Data Digest	191,357	183,410	208,706	195,337	3,211,430	3,266,697	3,345,458	3,317,051

Sources:  
*Environmental and Regulatory Services, Performance Indicators 2002/3 and 2003/4 (February 2004 and 2005 respectively)*  
 SEPA Waste Data Digests 2, 3, 4 and 5 (2002, 2002, 2003 and 2004 respectively)

8.3.2 The figures presented show a general increase in the quantities of total waste arising however, as discussed in Section 8.2, there are some discrepancies in figures between the two sources and as data are available for only a four year period it is difficult to draw significant conclusions on trends.

8.3.3 SEPA's Waste Data Digest provides a breakdown for the sources of waste arisings, and these trend figures are presented in Table 8.10.

**Table 8.10 Trends in Waste Arisings from Different Sources**

Designation	North Lanarkshire				Scotland			
	2000/1	2001/2	2002/3	2003/4	2001/1	2001/2	2002/3	2003/4
Number of Households (000s)	-	137,663	139,053	137,663	-	2,340,457	2,350,248	2,364,156
Total Waste (Tonnes)	191,357	183,410	208,706	195,337	3,211,430	3,266,697	3,345,458	3,317,051
Waste Collected for Disposal from:								
Household	-	135,968	153,503	114,387	-	2,120,791	2,094,872	2,015,578
Civic Amenity Site	-	0	0	25,189	-	351,632	381,868	359,875
Commercial	-	28,328	36,604	26,382	-	472,012	494,830	452,428
Industrial	-	0	0	0	-	77,116	77,164	29,987
Other Non-Household	-	14,750	0	5,038	-	69,663	30,130	62,473
Waste Collected for Recycling from:								
Household	-	4,364	12,533	22,139	-	148,788	206,166	330,396
Non-Household	-	0	1,066	2,202	-	26,695	60,428	66,284
Household Waste Produced per Household (tonnes)	-	-	1.23	1.17	-	-	1.14	1.14

Sources: SEPA's Waste Data Digest 3 (2001/2), 4 (2002/3) and 5 (2003/4), issued 2002, 2003 and 2004 respectively

8.3.4 Table 8.11 below presents the trends in refuse collection and disposal costs. The variation in these figures are subject to a range of factors including increased recycling rates in addition to external factors such as operational costs and landfilling costs.

**Table 8.11 Refuse Collection and Disposal Costs per Property**

Designation	Gross Cost of Refuse Collection		Gross Cost of Refuse Disposal	
	North Lanarkshire	Scotland	North Lanarkshire	Scotland
1999/2000	47.37	45.23	-	-
2000/1	46.80	45.63	31.36	44.63
2001/2	49.11	46.94	41.06	49.53
2002/3	52.07	50.43	52.52	55.22
2003/4	51.59	52.59	37.92	58.43

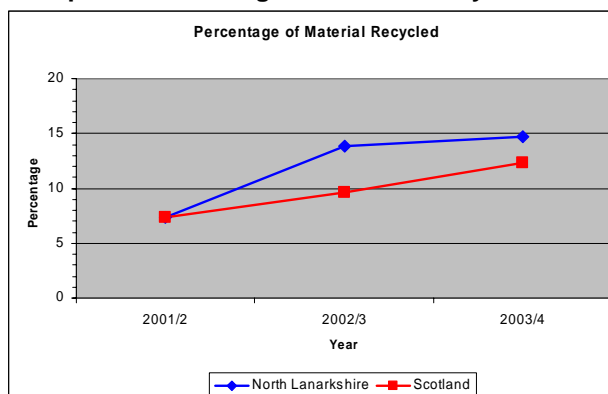
**Sources:**

*Environmental and Regulatory Services, Performance Indicators 2003/4, February 2005, Audit Scotland*

### Recycling and Recovery

8.3.5 Figures obtained from the Audit Scotland reports and SEPA Waste Data Digests are summarised in Table 8.12 below. These demonstrate an increase in the percentage of materials being recycled in the last three years. This is displayed in Graph 8.2.

**Graph 8.2 Percentage of Material Recycled**



**Sources:**

*Environmental and Regulatory Services, Performance Indicators 2002/3 and 2003/4 (February 2004 and 2005 respectively)*

**Table 8.12 Summary of Trends in Recycling (2001/2 to 2003/4)**

	North Lanarkshire			Scotland		
	2001/2	2002/3	2003/4	2001/2	2002/3	2003/4
Audit Scotland Reports						
Total Waste (tonnes)		192,000	200,000		3,209,000	3,299,000
% to Landfill		86.2	85.3		87.7	85.3
% Total Recycling	7.3	13.8	14.7	7.4	9.6	12.3
% Recovery of Heat, Power and other Energy Sources		N/a	N/a		2.5	2.3
SEPA Waste Data Digest Reports						
Total Waste (tonnes)		208,706	194,163		3,345,458	3,304,428
% to Landfill			88.1			87.9
% Total Recycling		6.04	7.4		5.94	8.7
% Total Composted		0.48	4.5		2.03	3.4

Sources:  
*Environmental and Regulatory Services, Performance Indicators 2002/3 and 2003/4 (February 2004 and 2005 respectively)*  
 SEPA Waste Data Digests 2, 3, 4 and 5 (2002, 2002, 2003 and 2004 respectively)

8.3.6 These Audit Scotland figures are supported by those in SEPA's Waste Data Digest reports which demonstrate an increase in the percentage of material being recycled. As mentioned in Section 8.2 there are discrepancies between the two sources of data based upon the nature of the waste reported.

8.3.7 Recycling rates of household waste presented within North Lanarkshire Council's Waste Strategy (2002) are presented within Table 8.13.

8.3.8 The Waste Strategy notes the reason for the decline in recycling rates as being associated with an alteration to the way Audit Scotland required information to be reported. This included that the amounts of recycled material from household and commercial waste be reported separately. Quantities of waste, such as cardboard, therefore had to be removed from the household figures and included within the commercial figure.

8.3.9 There is a discrepancy between the recycling data presented in Tables 8.12 and 8.13. The data obtained from the Audit Scotland report for 2001/2 indicates a recycling rate of 7.3% whereas the recycling rate for the preceding year presented within Table 8.13 is only 1.3%. This increase in the recycling rate between 2000/1 and 2001/2 may be associated with increased recycling or factors associated with differences in the material being reported.

8.3.10 Information on recycling rates have been provided in 2005 by North Lanarkshire Council. This includes the number of properties with kerbside recycling and the associated tonnage collected, and is presented in Table 8.14.

**Table 8.13 Recycling Rates of Household Waste**

Financial Year	Amount of Household Waste Recycled (tonnes)	Annual Performance Indicator
1996/97	2,281	1.9
1997/98	2,390	2.0
1998/99	2,169	2.2
1999/2000	2,592	1.8
2000/01	1,784	1.3

Source: North Lanarkshire Council Waste Strategy, 2002

**Table 8.14 Kerbside Recycling (2003/4 – 2005/6)**

Materials	2003/4	2004/5	2005/6
Paper (Blue Bins)	52,000 (2,298)	52,000 (4,007)	119,000
Garden Waste (Brown Bins)	15,000 (1,032)	33,000 (3,580)	119,000
Garden Waste (Bio Bags)	6,000 (235)	6,000 (48)	-
Glass	12,000 (158)	12,000 (315)	12,000
Twin Box Mxd Materials (MRF) <sup>1</sup>	27,000 (1,059)	27,000 (1,057)	-

Notes: <sup>1</sup> Twin Box Mxd Materials was a trial scheme operated by BTCV on behalf of North Lanarkshire Council whereby household were issued with two bags for collection of paper, glass, cans and textiles. The trial did not however meet the requirement of value for money in relation to tonnage and funding ceased from April 2005.

Sources: Information provided by North Lanarkshire Council, 28/09/05.

Figures for the number of properties were obtained from the relevant SEPA Waste Data Digest.



8.3.11 In addition, information was provided relating to recycling from other sources, these are detailed in Table 8.15 below. These figures demonstrate an increase material recycled from a range of other non-kerbside sources.

**Table 8.15 Recycling from Non-Kerbside Sites (2003/4 – 2005/6)**

Materials	2003/4	2004/5
MRF from Domestic Bings <sup>1</sup>	2,378 tonnes	2,777 tonnes
Bring Sites (including civic amenity sites) <sup>2</sup>	4,594 tonnes	8,182 tonnes
Other Recycling from Partners <sup>3</sup>	11,867 tonnes	20,978 tonnes

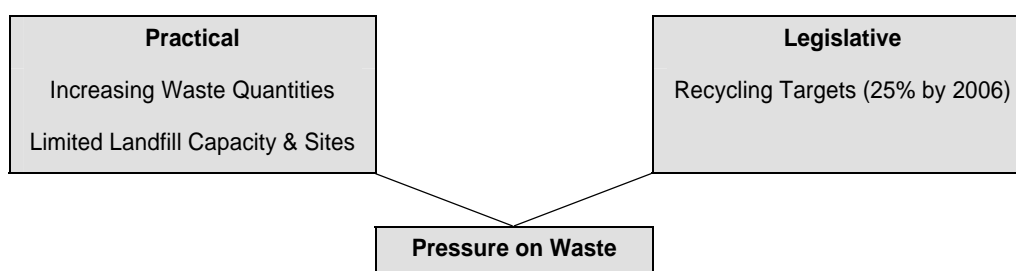
Notes: <sup>1</sup> This relates to a contract for a specified tonnage to a small materials recycling facility. <sup>2</sup> Bring sites are public sites with a variety of recycling banks in car parks etc. <sup>3</sup> These are partnerships with collectors of waste who collect items on behalf of the Council or from internal sections of the Council including house clearances, road sweeping and grounds maintenance.

Sources: Information provided by North Lanarkshire Council, 28/09/05.

## 8.4 PRESSURES ON THE RESOURCE

8.4.1 There are two main factors resulting in pressures on waste and waste management. As presented in Box 8.2, these include practical factors relating to waste arisings and flows and legislative requirements for waste management.

### Box 8.2 Pressures on Waste



### Practical Pressures

8.4.2 There has been a steady increase in the quantities of Municipal Solid Waste (MSW) being generated within North Lanarkshire. At present there are two landfill sites which receive MSW however, although the Glasgow and Clyde Valley Area Waste Plan (AWP) identifies that there is a significant void remaining at these two sites, capacity within these is finite. The requirement for alternative sites will act as a pressure on waste and its management.

8.4.3 Table 8.16 presents the predicted decreases in population within the AWP area and specifically for North Lanarkshire. These figures are reported to be based on the Glasgow and Clyde Valley Joint Structure Plan (July 2000). These figures indicate that North Lanarkshire's population accounts for approximately 18% of the Glasgow and Clyde Valley area and its households for approximately 17% of the Glasgow and Clyde Valley AWP area. Whilst the predictions indicate a decreasing population up to 2011 there is a predicted increase in the number of households. This predicted increase in households may place additional pressures on the waste management in North Lanarkshire including upward pressure on arisings of MSW.



**Table 8.16 Predicted Population and Household Increases**

Area	1996	2006	2011	Increase over Period
<b>Population</b>				
North Lanarkshire	325,940	325,752	323,680	– 0.7%
Glasgow & Clyde Valley Structure Plan Area	1,810,069	1,786,169	1,768,721	– 2.3%
<b>Households</b>				
North Lanarkshire	127,059	139,775	145,485	14.5%
Glasgow & Clyde Valley Waste Plan Area	748,260	800,688	828,202	10.7%

Sources: AWP 2003

8.4.4 The AWP predicts an increase in MSW of 2% per annum (1998 to 2010) and of 1% from 2010 to 2020.

8.4.5 The increased recycling rates that are being identified within North Lanarkshire and that are required by legislative targets will act to offset the pressure on waste disposal from increased levels of MSW through diversion away from landfill. They will in turn place pressure on waste management facilities including recycling and recovery facilities and collection networks.

8.4.6 Increasing consumerism and wealth may result in pressure on waste management and disposal as increased items are produced and disposed within North Lanarkshire and Scotland as a whole.

8.4.7 Available space and its location for waste management facilities is a pressure in North Lanarkshire. Whilst North Lanarkshire has a considerable quantity of brownfield and vacant and derelict land there are community pressures on waste management facilities through negative perception. Education and awareness may assist in reducing opposition to such facilities and new recycling and recovery techniques may provide 'cleaner' waste management facilities.

#### Legislative Pressures

8.4.8 The Scottish Executive has set targets for Councils to achieve by 2006, including:

- The reduction in landfilling of biodegradable waste to 1.5million tonnes; and
- Increasing the amount of waste collected by Local Authorities which is recycled or composted to 25%.

8.4.9 There is a legislative requirement for the reduction in waste going to landfill through the European Commission (EC) Landfill Directive (July 2002) which requires an incremental diversion of biodegradable municipal solid waste from landfill. The target years are set within the Directive and require a reduction to 75%, 50% and 35% by 2010, 2013 and 2020 respectively (compared to the quantity of BMW landfilled in 1995).

8.4.10 In addition to the Landfill Directive there is a range of other European legislative drivers including those covering: electrical equipment, end of life vehicles, batteries and hazardous waste.

8.4.11 Data are provided within the Glasgow and Clyde Valley AWP for the best practicable environmental options for the treatment of waste by 2010, and this is summarised within Table 8.17. The AWP identifies that by 2020 it is intended that the reliance on landfill disposal (96% in 1988) can be reduced to 25%. This equates to approximately 650,000 tonnes of biodegradable waste being diverted from landfill across the waste strategy area (assuming a 2% growth until 2010 and 1% thereafter).

**Table 8.17 Waste Treatment (Best Practicable Environmental Option)**

Treatment	1998 Percentage of Waste	2010 Percentage of Waste
Composting	0.2	8 (95,000 tonnes)
Recycling	3.8	28 (350,000 tonnes)
Landfill	96	64 (792,000 tonnes)

Note: The AWP identifies a growth in MSW arisings for 2010 of 2% per annum from 1998).

Source: Glasgow and Clyde Valley Area Waste Plan, 2003

8.4.12 The AWP identifies the requirement under PAN63 and NPPG10 for Local Authorities to provide policies for suitable waste disposal and management/treatment facilities. The increased target for recovery and recycling will require an increase in the waste management facilities and there will be a pressure to identify suitable sites. Whilst the AWP identifies that Auchinlea and Greengairs still have significant void space remaining, future pressures on landfill capacity may result in pressure to identify and develop suitable new landfill sites.

8.4.13 The AWP identifies that the planning policy needs to reflect the land use and policy requirements of the AWP and ensure that necessary waste management facilities are planned for positively through the planning system.

## 8.5 CONDITION OF THE RESOURCE

8.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 8.18 summarises the condition of the resource drawing on the analysis presented in Sections 8.2 to 8.4.

**Table 8.18 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Status	Drivers and Pressures	
Waste Arisings and Flows	<ul style="list-style-type: none"> <li>■ Total waste arisings in North Lanarkshire have risen in recent years</li> <li>■ The AWP predicts an increase in MSW of 2% pa (1998-2010) and 1% pa (2010-2020)</li> <li>■ Rates of recycling have increased</li> <li>■ The AWP predicts a 28% recycling rate by 2010 for Glasgow &amp; Clyde Valley</li> </ul>	<ul style="list-style-type: none"> <li>■ North Lanarkshire is a net importer of waste which is disposed of in landfills</li> <li>■ Predicted increases in households puts upward pressure on waste arisings</li> <li>■ Legislation will drive increased diversion of BMW from landfill and increased recovery and recycling rates</li> </ul>	<ul style="list-style-type: none"> <li>■ Closure of landfills presents opportunities to regenerate sites and provide attractive environments for community and ecological benefits</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>■ No data on trends in waste management facilities</li> </ul>	<ul style="list-style-type: none"> <li>■ Legislative targets of 25% recycling by 2006 generates pressure for new facilities and systems</li> </ul>	<ul style="list-style-type: none"> <li>■ New facilities may have localised effects on the landscape</li> </ul>

## 8.6 KEY ASSETS

8.6.1 Based on the analysis of environmental information within Sections 8.2 to 8.5, the following key waste assets have been identified.

**Table 8.19 Key Waste Assets**

Key Asset	Description
Opportunity for Greater Waste Reduction, Recycling and Recovery	The opportunity for greater waste reduction, recycling and recovery in North Lanarkshire is a key asset. The recycling rate in North Lanarkshire is currently largely the same as the Scottish average, there is however a considerable potential for this figure to be increased and to meet the national and European legislative targets.
Opportunities for Environmental Technologies / Industries	There are opportunities for environmental technologies and industries within North Lanarkshire. Such industries, associated with waste recovery and reduction, could potentially be a key asset to North Lanarkshire. There are already technologies in place such as Argent Energy's bio-fuel plant at Newarthill near Motherwell.
Facilities in North Lanarkshire meeting a Regional need for Recycling or Management	The opportunity for waste/resource recycling or management facilities within North Lanarkshire to meet the regional need is a key asset. Landfill sites within North Lanarkshire already support the waste disposal requirements of surrounding Councils. There is the potential for new, cleaner environmental technologies and industries to support regional recycling given the central location of North Lanarkshire, its existing communication links both to the west and east and the amount of brownfield land.
Landfill Void / Capacity	Landfill Capacity is an asset to North Lanarkshire, since even with increased recycling and recovery rates, landfill capacity will be required for those materials which cannot be recovered or recycled. Such capacity provides North Lanarkshire with the security for waste disposal.

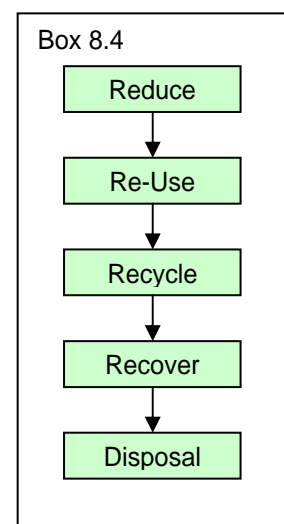
## 8.7 ISSUES FOR RESOURCE MANAGEMENT & PROTECTION


8.7.1 The key assets identified in Section 8.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key waste assets within North Lanarkshire.

8.7.2 The management of waste within North Lanarkshire requires both the practical, legislative and cultural aspects to be addressed. The management of waste in North Lanarkshire requires a co-ordinated approach with many issues needing to be considered nationally and within Area Waste Plan areas. Decisions on management and facilities therefore require to be considered with regard to the wider waste planning region.

8.7.3 The opportunities for greater waste reduction, recycling and recovery are driven largely by legislative pressures at a European and national level. Adequate facilities will be required to ensure that such reduction and recycling is facilitated both within the household, commercial and industrial sectors. Increasing recycling facilities, both the number of sites and range of materials, will contribute to this however the waste culture also needs to be addressed through waste awareness measures and initiatives.

8.7.4 A cultural shift is required with an increase in the information available to individuals on the disposal of waste and how the individual can reduce the amount of waste produced. This includes the promotion of the waste hierarchy (as in Box 8.4) which is a key aspect in the waste awareness. North Lanarkshire Council's Waste Strategy report (2002) identifies that such awareness programmes need to be run in partnership with other organisations to disseminate the information.





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8.7.5 Some measures for waste reduction need to be managed at a higher, national level. Measures such as packaging regulations and other producer responsibility legislation will have a considerable impact on the reduction of waste produced at source in the next 10 years. North Lanarkshire Council's Waste Strategy (2002) identifies that in order to achieve sustainable solutions to waste management the general perception of waste held by all waste producers must be altered and that the success of the strategy relies upon sustainable and integrated solutions. Other national measures such as the Scottish Waste Awareness Group (SWAG) and the Eco-Schools project, one component of which is waste, contribute to waste awareness at a national and regional level.

8.7.6 Much of the material collected for recycling is currently transported out of Scotland for recycling. There is a potential opportunity associated with the development of a recycling industry within North Lanarkshire to treat wastes on a local basis and possibly provide a regional waste recovery and recycling resource. Initiatives, incentives and active marketing may contribute to attracting and/or developing such industries within North Lanarkshire. Existing chip fat and tallow recycling / processing for bio-fuel is being undertaken at a new facility in Motherwell. Management and appropriate development of some vacant and derelict and brownfield land within North Lanarkshire may facilitate these potential industries in locating to North Lanarkshire. Sites need to be safeguarded for the location of such recycling facilities (including mixed recycling facilities and processing plants) in the Local Plan.

8.7.7 New developments can also play a key role in the promotion and facilitation of waste reduction and recycling. Provision of adequate space for recycling facilities will assist in creating a greater accessibility to these.

8.7.8 The management of landfill capacity within North Lanarkshire is undertaken by the specific operators. The Glasgow and Clyde Valley AWP managed the strategic landfill capacity, and whilst the two landfills within North Lanarkshire are identified as having a significant void capacity remaining this is a finite resource. Landfill capacity within North Lanarkshire will therefore need to be managed in conjunction with the AWP area to ensure that there is sufficient capacity and where required new and appropriate sites are identified.

## 8.8 DATA GAPS AND LIMITATIONS

8.8.1 Much of the information provided within the waste baseline relates to Municipal Solid Waste (MSW). The Scottish Environment Protection Agency (SEPA) note in their waste data digest that limited information is available on non-MSW wastes. Whilst a picture can therefore be obtained of the state of the MSW waste within North Lanarkshire and the associated trends, it is difficult to assess the state and trends of other wastes such as industrial and special wastes.

8.8.2 Similarly there is limited information on the management of non-MSW wastes within North Lanarkshire or the wider area.

8.8.3 Review of waste data, primarily from the Audit Scotland reports and SEPA's waste data digest, identifies discrepancies between quantities of materials arising and those recycled. Such discrepancies can be attributed to differences in the methods of reporting data and the data used within the figures, and these are described in Section 8.2. North Lanarkshire Council report that their waste arisings and recycling rates are provided to Audit Scotland.



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## 8.9 REFERENCES

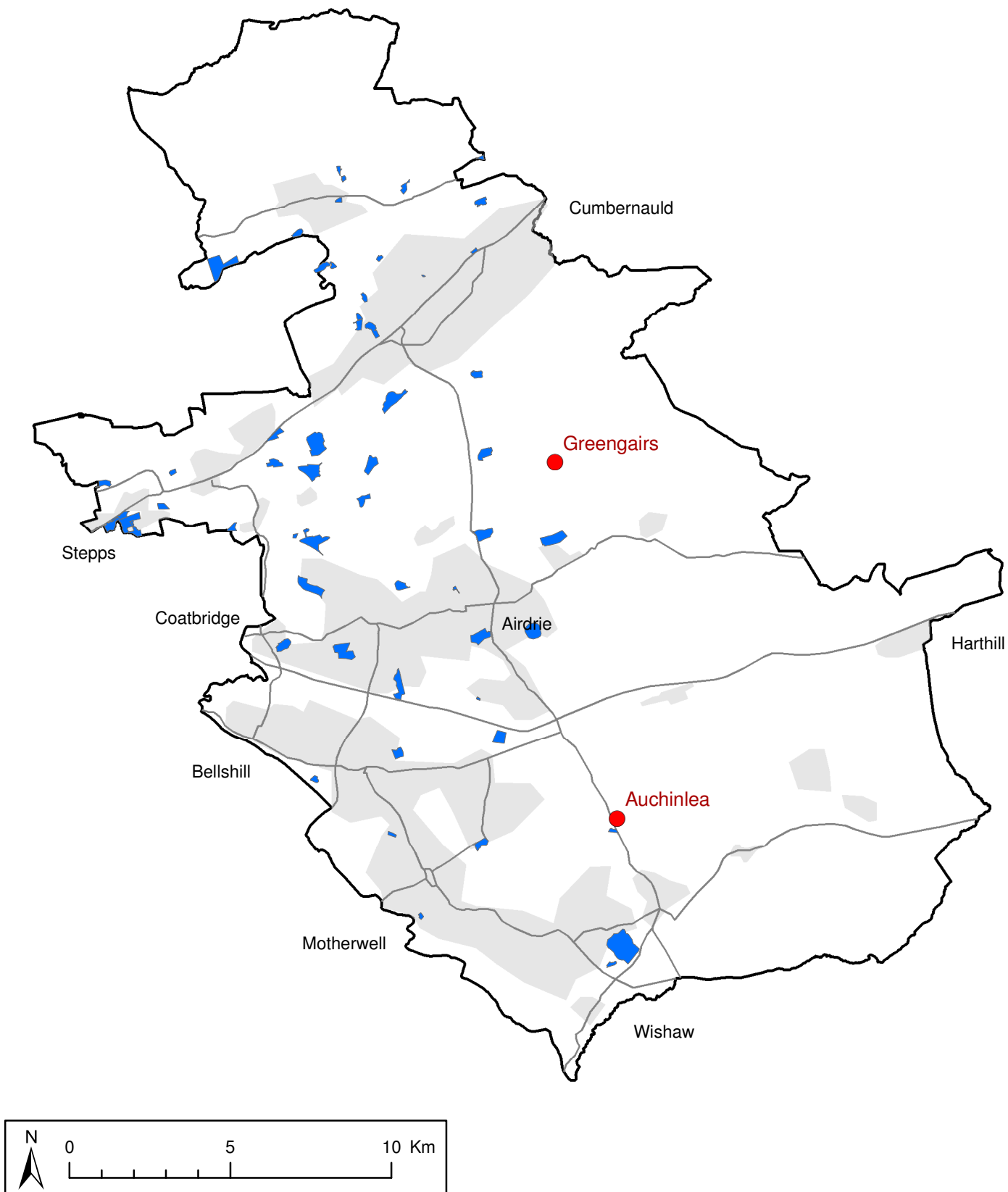
8.9.1 The following sources of information were referred to in this chapter:

- Digital GIS layer for former landfills, provided by North Lanarkshire Council, October 2005;
- Digital GIS layer of waste management facilities within North Lanarkshire, September 2005;
- *Glasgow and Clyde Valley Area Waste Plan*, Scottish Executive, Waste Action Scotland and SEPA, March 2003;
- *Waste Strategy*, North Lanarkshire Council, June 2002;
- *Waste Digest 5 – 2003/04 Data*. Scottish Environment Protection Agency, 2004;
- *Waste Digest 4 – 2002/03 Data*. Scottish Environment Protection Agency, 2003;
- *Waste Digest 3 – 2001/02 Data*. Scottish Environment Protection Agency, 2002;
- *Waste Digest 2 – 2000/01 Data*. Scottish Environment Protection Agency, 2002;
- *Waste Digest 1 – 1997/98 Data*. Scottish Environment Protection Agency, 2001;
- *Environmental and Regulatory Services, Performance Indicators 2003/4*. Audit Scotland, February 2005; and
- *Environmental and Regulatory Services, Performance Indicators 2002/3*. Audit Scotland, February 2004.

## 8.10 MAPS AND PLANS

8.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
8.1	Plan of the location of former landfill sites and current municipal landfills (Greengairs + Auchinlea)
8.2	Plan of civic amenity sites and waste management facilities
8.3	Plan of recycling facilities (this being civic amenity sites and bring sites)



## Legend

- Operational Municipal Landfill Sites
- Former Landfill Sites

**Figure 8.1**  
**Waste & Resources**  
**Landfill Sites**

Scale: 1:170,000

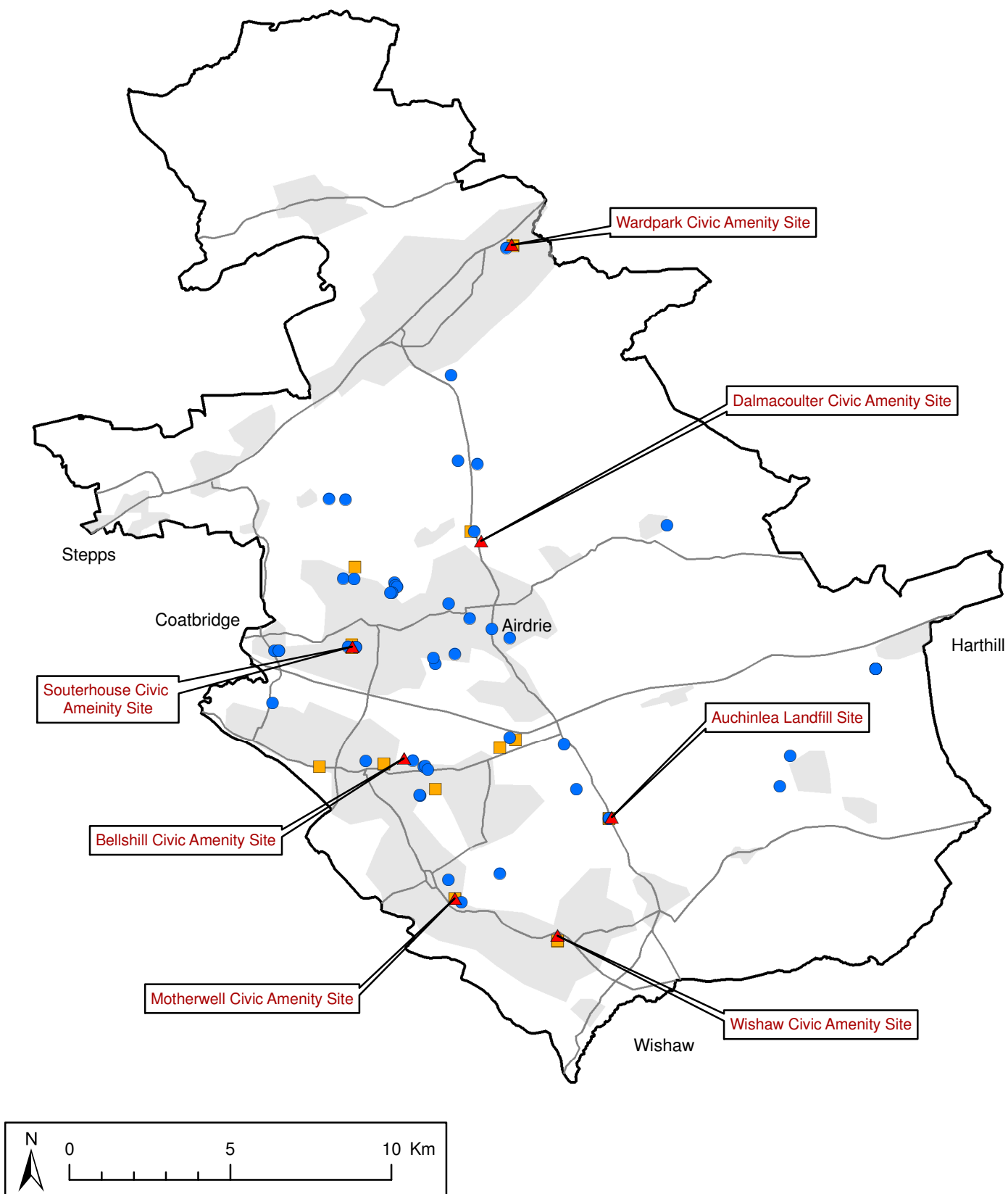
Project: 12150841-001 NLC SoER



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Revision: -  
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## Legend

- waste transfer
- waste treatment
- ▲ civic amenity sites

## Figure 8.2 Waste & Resources Waste Facilities

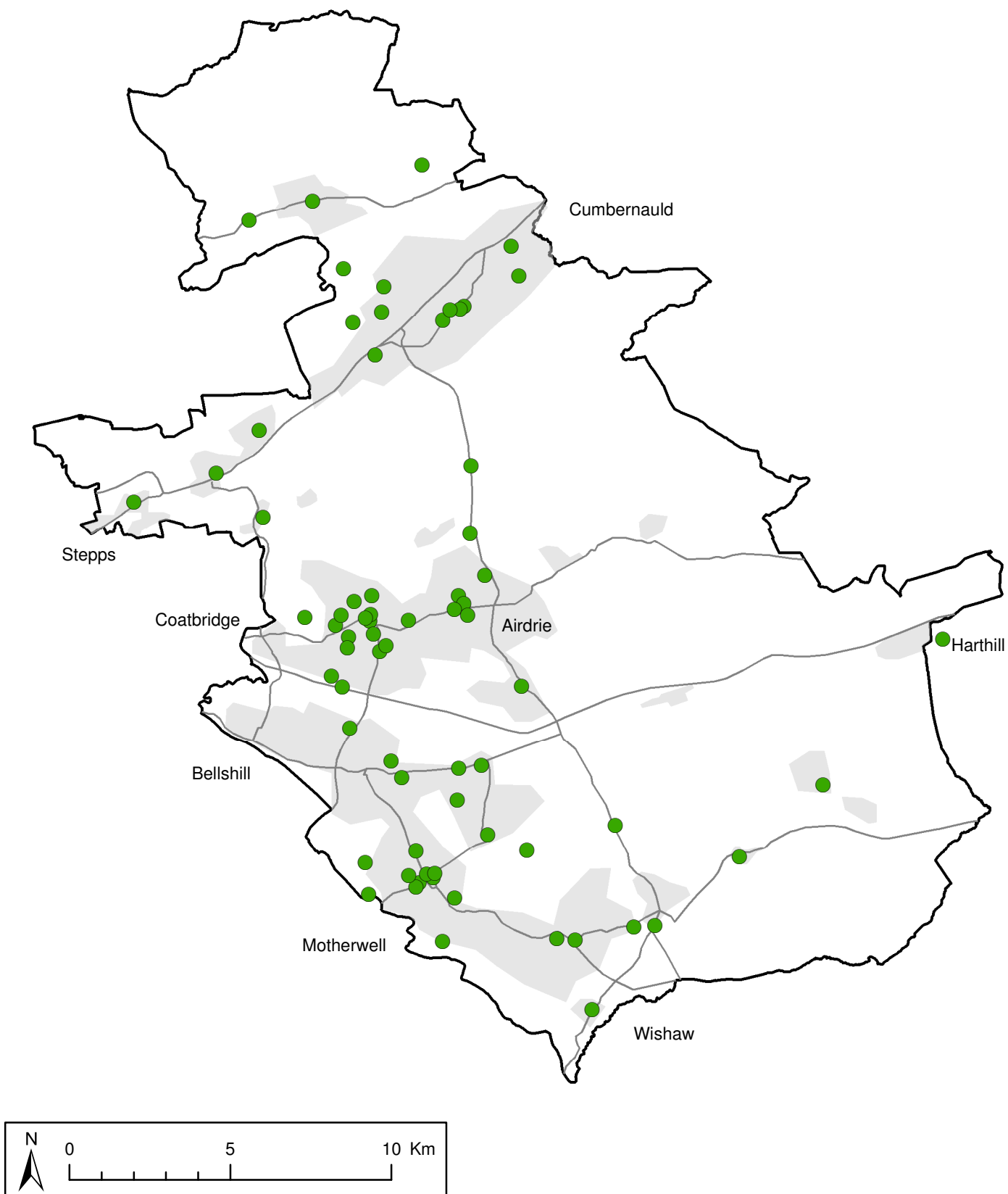
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## Legend

- Community Recycling Facilities

**Figure 8.3**  
**Waste & Resources**  
**Recycling Facilities**

Scale: 1:170,000

Project: 12150841-001 NLC SoER



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## 9 Energy

### 9.1 CONTEXT

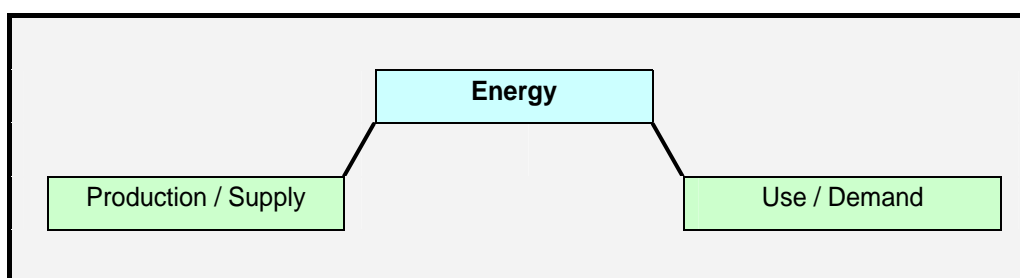
9.1.1 North Lanarkshire currently imports the majority of its energy demand for the area. A small amount of energy is produced within North Lanarkshire through wind turbines, generation from landfill gas and biomass heat generation.

9.1.2 There are a number of opportunities for North Lanarkshire with regard to the promotion of energy efficiency and renewable energy production. In particular, the predicted growth in households above the Scottish average provides the opportunity for increased energy efficiency measures within new developments. Parts of North Lanarkshire have been identified as having the potential for wind generation projects and there is a growing potential for biomass energy generation as demonstrated by a coppice project currently being trialled.

### 9.2 BASELINE CHARACTERISTICS

9.2.1 The energy resource within North Lanarkshire is discussed within this chapter from the perspective of energy production and supply and from energy usage and demand.

#### Box 9.1 Energy Baseline Features



#### Energy Production and Supply

9.2.2 There are currently no major energy generation projects within North Lanarkshire. However, North Lanarkshire Council have identified a range of small scale energy production projects including:

- Energy production facilities and landfill sites producing energy from landfill gas.
- One existing wind farm near Forth (part of the wind farm development lies within North Lanarkshire).
- One small wind farm currently under construction at Greendykes Side Farm, Longriggends. This development will comprise two wind turbines.
- Five applications are currently at the planning stage for wind farm developments in the Salsburgh to Harthill area. All of these developments are under 20 turbines in size.
- Biofuel generation is reportedly being considered by CSFT and Scottish Gas / Coal through coppice woodland.
- There is a plant recycling chip fat and tarrow for bio-diesel in Motherwell, this has been discussed in Chapter 8: Waste and Resources.

9.2.3 The majority of energy supply therefore is obtained from generation plants outwith North Lanarkshire.

9.2.4 There is a potential for wind energy resources across the higher ground of the region and North Lanarkshire Council has identified areas which potentially have sufficient wind resource, for wind energy production. This area covers the upland areas in the southern and eastern parts of North Lanarkshire (see Figure 9.1), and extends to approximately 3,240ha (approximately 7% of the North Lanarkshire area).

9.2.5 Lanarkshire Biomass is a public sector partnership created to develop a commercial biomass project based upon burning wood chips to create heat to a cluster of public buildings in North Lanarkshire. The partners are North Lanarkshire Council, Central Scotland Forest Trust, Scottish Natural Heritage, Scottish Enterprise and Forward Scotland.

9.2.6 North Lanarkshire Council is currently examining the feasibility of bio-fuel supply for new boilers at various commercial and community building locations, including:

- Colzium House, Kilsyth;
- Palacerigg Country Park Visitor Centre, Cumbernauld;
- Drumpellier Country Park Nurseries, Coatbridge;
- Taylor High School, Holytown;
- Calderhead High School, Shotts; and
- Central Scotland Countryside Trust, Shotts.

9.2.7 These biomass boilers would use wood chip harvested from coppice woodland within North Lanarkshire and other nearby areas of the central belt of Scotland.

9.2.8 Energy supply networks exist across North Lanarkshire with a range of electricity transmission lines and gas mains supplying the majority of urban North Lanarkshire. Villages such as Greengairs, Upperton, Longriggend, Salsburgh and Hareshaw however do not have mains gas supply.

## Energy Use and Demand

9.2.9 Energy is discussed within this report as one of North Lanarkshire's resources. North Lanarkshire Council is currently undertaking an Ecological Footprint assessment and has identified the requirement to obtain information on the total energy usage within North Lanarkshire. Whilst these details are not obtainable from energy suppliers, North Lanarkshire Council maintains records of its energy usage. Details of current Council energy usage (2003/4) are presented in Table 9.1.

9.2.10 North Lanarkshire Council is a partner in 'Scotland's Global Footprint', this partnership also comprises WWF Scotland, Aberdeen and

Aberdeenshire Councils. Scotland's Global Footprint identifies that "every individual, every household, every business and, ultimately, every country consumes resources. The footprint measures the amount of resources we use compared with what is available in the world. This tells us what kind of mark we are leaving on the planet" (Ref. Scotland's Global Footprint Project website, 18.10.05)

9.2.11 The ecological footprint of North Lanarkshire and Scotland is presented in Table 9.2. These figures indicate that North Lanarkshire's ecological footprint is lower per capita than that of Scotland. Details of the categories are presented in the subsequent

**Table 9.1 Energy Usage within North Lanarkshire Council and Housing Stock (2003/4)**

Item / Activity	Amount of Energy
Energy Usage within Housing Stock (122,867 Units)	3,049,202,805 kWh
Energy Usage within North Lanarkshire Council (All Departments)	
Electricity	73,579 MWh
Natural Gas	158,521 MWh
Oil	13,395 MWh
Coal	2,694 MWh
Total	248,189 MWh

Source: North Lanarkshire Council energy use figures (supplied 10 October 2005)

**Table 9.2 Total Ecological Footprint (excluding aviation)**

Category	North Lanarkshire (gha/cap)	Scotland (gha/cap)
Food and Drink	1.06	1.11
Energy	0.86	1.02
Travel	0.50	0.56
Housing	0.16	0.15
Consumables	0.69	0.73
Services	0.22	0.23
Holidays	0.10	0.10
Capital Investment and Other	0.75	0.75
Government	0.41	0.41
Total (excluding Aviation)	4.73	5.06

Source: Ecological Footprint Information supplied by North Lanarkshire Council (10 October 2005)





paragraphs. The Footprint is measured in a standardised area unit, the "global hectare" (gha), and is usually expressed as global hectares per person - or per capita - to permit comparisons between countries or regions (gha/cap).

9.2.12 The ecological footprint assessment considers a range of factors, including the ecological footprint associated with:

- Food and Drink: Food consumed by households and at restaurants/takeaways;
- Travel: All the energy consumed in the process of commuting to work, shop, etc;
- Residential Energy: The direct energy a household uses for heat, hot water, lightening and electrical appliances;
- Consumables: The energy and materials used to produce all products bought by consumers, from appliances to newspapers;
- Capital Investments: The energy and materials required to build and maintain productive infrastructure such as the machinery or dwellings used by a business;
- Holiday Activities: The energy and services used while a household is travelling to/from and on a holiday;
- Housing: The energy and materials required to build and maintain housing infrastructure;
- Government Services: The energy and materials needed for central and local government to operate (this has been divided amongst all citizens); and
- Services: All energy and materials needed to provide daily services ranging from social protection to entertainment.

9.2.13 The Ecological Footprint identifies that energy use within North Lanarkshire is below the Scottish average for the amount of resources used.

## Summary of Energy Baseline

9.2.14 Table 9.3 summarises the baseline energy resources identified within this section along with their geographical distribution and abundance.

**Table 9.3 Summary of Baseline Distribution**

Resource	Distribution
Energy Use and Demand	<ul style="list-style-type: none"> <li>■ North Lanarkshire Council's Ecological Footprint Assessment has identified the need to obtain data on total energy use in North Lanarkshire</li> <li>■ Energy usage within Council housing stock is 3 million megawatt hours per year</li> </ul>
Energy Production and Supply	<ul style="list-style-type: none"> <li>■ There are no large energy generating stations in North Lanarkshire</li> <li>■ Some energy generation is developed from landfill gas at Greengairs and Auchinlea Landfill sites</li> <li>■ There is part of one operational wind farm in the south of North Lanarkshire, two turbines under construction near Greengairs and five wind farms within the planning process in the area between Salsburgh and Harthill</li> <li>■ There is potential for further development of renewable energy sources, in particular wind power generation</li> </ul>

### 9.3 TRENDS IN THE RESOURCE

9.3.1 No trend data are available for energy production and supply although the number of renewable energy generation projects, namely wind farms, is increasing with one operational site, one under construction and five sites within the planning process.

9.3.2 Data provided by North Lanarkshire Council for energy production within Council departments was provided for the years 1999/2000 to 2003/2004. These trends are shown in Table 9.4.

**Table 9.4 Trends in Energy Usage within North Lanarkshire Council Departments**

Item / Activity	1999/00	2000/01	2001/02	2002/03	2003/04
Energy Usage within North Lanarkshire Council (All Departments)					
Electricity	74,587	71,064	69,353	71,841	73,579 MWh
Natural Gas	154,574	155,082	150,740	153,260	158,521 MWh
Oil	35,797	7,922	0	0	13,395 MWh
Coal	0	0	0	0	2,694 MWh
Total	264,958	234,068	220,093	225,101	248,189 MWh

Source: North Lanarkshire Council energy use figures (supplied 10 October 2005)

9.3.3 Whilst these figures do not present trends in overall demand and usage within North Lanarkshire they do demonstrate a net decrease in energy usage over the five years within one sector in North Lanarkshire.

9.3.4 Although no figures are available on domestic energy use, figures are available on the trends and predicted growth in households within North Lanarkshire. These are presented within Section 13.2 and demonstrate a general increase in households with a predicted growth from 2002 to 2016 of 9%.

### 9.4 PRESSURES ON THE RESOURCE

9.4.1 The pressures on energy supply come primarily for the increasing demand associated with increasing developments and increased demand within existing households and developments.

9.4.2 North Lanarkshire is primarily dependent upon energy supply from outside the area, it is therefore subject to regional and national energy supply issues such as energy shortages. The reliance of energy supply from outside of North Lanarkshire is also affected by the supply network. Some areas of North Lanarkshire, particularly upland areas, are subject to energy isolation through, for example, overhead line disruption during storms.

9.4.3 There will be pressures within North Lanarkshire on the supply of energy from renewable sources which are required to contribute to Scottish national targets for renewable energy. North Lanarkshire Council is already developing renewable energy production facilities in one form of renewable energy, wind generation. These targets for renewable energy and associated incentives through the Scottish Renewables Obligation (SRO) are predicted to increase the pressure for development of facilities such as windfarms in the region which will also affect other environmental aspects such as ecology and landscape.

9.4.4 Energy efficiency programmes, both nationally and locally will have a pressure to increase energy efficiency and therefore a reduction in demand, depending upon the success of the programmes and associated national measures such as changes to the Building Regulations. Energy generation from fossil fuel sources makes a significant contribution to national emissions of greenhouse gases and the associated climate change. Climate change is discussed further within Chapter 14: Cumulative Assets.

## 9.5 CONDITION OF THE RESOURCE

9.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 9.5 summarises the condition of the energy resource drawing on the analysis presented in Sections 9.2 to 9.4.

**Table 9.5 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Status	Drivers and Pressures	
Energy Use and Demand	<ul style="list-style-type: none"> <li>No specific trend data available on energy use and demand</li> </ul>	<ul style="list-style-type: none"> <li>Increasing number of households in future will affect demand for energy</li> <li>Energy efficiency strategy and other initiatives</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Energy Production and Supply	<ul style="list-style-type: none"> <li>No specific trend data available on energy production, which is limited in North Lanarkshire</li> </ul>	<ul style="list-style-type: none"> <li>Contribution to national renewable energy targets</li> <li>Stormproofing of energy distribution assets may be required to combat climate change</li> </ul>	<ul style="list-style-type: none"> <li>None presently though windfarms could affect landscape character</li> </ul>

## 9.6 KEY ASSETS

9.6.1 Based on the analysis of environmental information within Sections 9.2 to 9.5, the following key energy assets have been identified.

**Table 9.6 Key Energy Assets**

Key Asset	Description
Opportunity to Increase Domestic and Commercial Energy Efficiency	There is an opportunity to increase domestic and commercial energy efficiency within North Lanarkshire. Although no figures are available on existing energy efficiency there is a large opportunity to improve energy efficiency both within existing properties and within new developments. The opportunity for improved energy efficiency should form part of the aim of creating quality developments.
Renewable Resources (Wind, Biomass, Solar and Geothermal)	Renewable resources within North Lanarkshire are a key asset. Wind is currently being harnessed for power generation at one location with a small number in the construction and planning process. Biomass projects are underway for heating in several Council owned buildings. Other renewable resources such as solar power and geothermal energy are yet to be harnessed on a large scale.
Other Resources (Landfill gas and coal gas)	Other resources such as landfill gas, coal and coal gas are key assets to North Lanarkshire as energy resources. The harnessing of landfill gas has the additional benefit using a waste disposal by-product as a resource.



## 9.7 ISSUES FOR RESOURCE MANAGEMENT AND PROTECTION

9.7.1 The key assets identified in Section 9.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key energy assets within North Lanarkshire.

9.7.2 Energy management requires a combination of improvements in energy efficiency and increased supply from renewable sources. Energy efficiency and the provision of renewable energy supply need to be addressed at the national and local level in order to influence the way in which energy is supplied and used.

9.7.3 There is an opportunity within North Lanarkshire to increase energy efficiency, this includes both reducing total usage and measures to improve efficiency of use. Increased awareness of energy usage and efficiency is an important aspect in increasing levels of efficiency both through awareness of lifestyle changes, practical steps, new infrastructure and grants for energy efficiency. There are a range of initiatives and awareness programmes that can be developed and implemented to encourage energy efficiency and renewables production.

9.7.4 Control and management of the energy efficiency of new developments is particularly important. The incorporation of energy efficiency into new developments provides a good opportunity to increase the number of properties that are 'energy efficient'. Development needs to be encouraged to meet recognised energy efficiency standards such as BREEAM.

9.7.5 There are a range of opportunities for energy production within North Lanarkshire. Whilst promoting renewable energy sources it is important that new developments, such as wind turbines, are managed with consideration of the wider environment, notably with regard to areas such as ecology and landscape. New energy production schemes would provide other benefits to North Lanarkshire through potential associated environmental enhancements, treatment of brownfield and derelict land and the creation of jobs.

9.7.6 Policy is also needed to encourage renewable energy production on an individual / micro scale through product awareness, advice and grants, such as for roof mounted solar panels for water heating. As with the opportunity for energy efficiency, policy needs to take account of the promotion and/or requirement for such options within new developments.

## 9.8 DATA GAPS AND LIMITATIONS

9.8.1 A major data gap identified within the energy baseline for North Lanarkshire is for data relating to energy consumption. Energy suppliers hold details of the amounts of energy (electricity and gas primarily) used by properties within North Lanarkshire however they are commercially restricted by the energy supply utilities. Such figures would allow a detailed analysis of the trends in energy consumption and the effects of any schemes to promote energy efficiency and/or reduction of use.

9.8.2 Data were provided by North Lanarkshire Council for energy consumption within its own departments and housing stock. These data are limited in the coverage of North Lanarkshire, however they do provide trends in energy usage in one specific set of properties which could be used as a baseline for measuring progress in introducing energy efficiency measures in any programmes for housing refurbishment or renewal.

## 9.9 REFERENCES

9.9.1 The following sources of information were referred to in this chapter:


- Energy use data by Council Departments, provided by North Lanarkshire Council, October 2005;
- Ecological footprint results for North Lanarkshire Council and Scotland. Provided by North Lanarkshire Council, October 2005;
- Scotland's Global Footprint Project website, <http://www.scotlandsfootprint.org/> (Downloaded October 2005); and
- Presentation on the Lanarkshire Biomass Project, Scottish Enterprise Forest Industries, 2004.

## 9.10 MAPS AND PLANS

9.10.1 Figure 9.1, following, presents a plan showing areas with sufficient wind resources for wind energy production.



#### Legend

 Areas with a Sufficient Wind Resource for Wind Energy Production

**Figure 9.1**  
Energy  
Wind Energy Potential

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 12.12.05  
Revision: -  
Drawn by: JS





## 10 Landscape

### 10.1 CONTEXT

10.1.1 North Lanarkshire's landscape is characterised by its diverse range of land uses and cover and is dominated by features such as the Kilsyth Hills in the north and the high ground in the eastern and southern parts of the area.

10.1.2 Some areas within North Lanarkshire have been designated for their landscape value and importance such as along the Clyde Valley near Wishaw and in the Kilsyth Hills. In addition to these designated areas, the diversity of the different landscapes of North Lanarkshire is a key feature in North Lanarkshire.

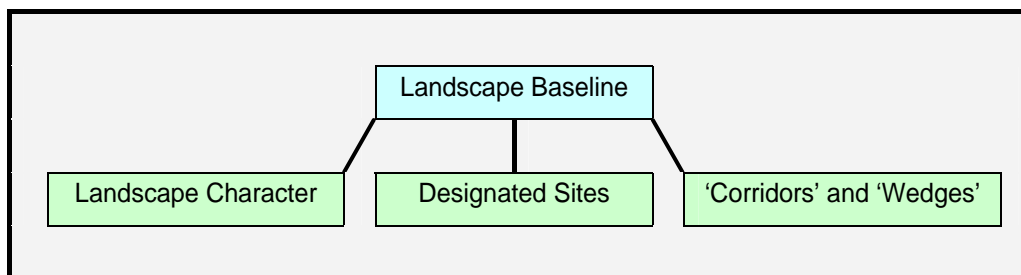
10.1.3 Opportunities exist within North Lanarkshire for enhancement of the local landscape, notably with regard to the urban fringe, and quality developments and renovation should contribute to this. Townscape has been discussed in this report within Chapter 13: Communities with regard to the quality of the built environment.



### 10.2 BASELINE CHARACTERISTICS

10.2.1 The landscape of North Lanarkshire is discussed within this chapter by looking at the landscape character, designated landscape sites including 'corridors' and 'wedges'.

#### Box 10.1 Landscape Baseline Features



#### Landscape Character

##### Topography

10.2.2 North Lanarkshire is located within the Central Scotland valley with lower lying valleys along the western part of North Lanarkshire and along the River Kelvin valley in the north. Figure 10.1 illustrates the topography of North Lanarkshire and Table 10.1 presents the distribution of the altitude of the land.

**Table 10.1 Topography of North Lanarkshire**

Altitude	Approximate Area (ha)	Percentage of North Lanarkshire Area
< 100m AOD	14,440	31%
100 – 200m AOD	18,260	39%
200 – 300m AOD	9,640	20%
300 – 400m AOD	4,260	9%
400m + AOD	620	1%

Source: Ordnance Survey 1:50,000 scale maps.



## Landscape Character Areas

10.2.3 Within North Lanarkshire there is a mosaic of different landscapes which reflect topographical features, vegetation and land uses. Information on landscape types has been obtained from the Landscape Character Assessment (1998), and the key elements are summarised in Table 10.2 (and presented in Figure 10.2). This presents the eight key landscape character areas (LCAs) as identified by Scottish Natural Heritage (SNH) along with two additional peripheral landscape types.

**Table 10.2 Key Landscapes within North Lanarkshire**

Landscape Character Areas	Area (ha)	Percentage of North Lanarkshire Area
<b>North Lanarkshire Key Landscapes</b>		
Rugged Moorland Hills	3,659	8%
Broad Valley Lowland	1,552	3%
Plateau Farmland	9,496	20%
Plateau Moorlands	13,874	29%
Rolling Farmland	2,837	6%
Incised River Valleys	2,205	5%
Broad Urban Valley	7,784	17%
Fragmented Farmlands	4,337	9%
<i>Sub-Total</i>	<i>45,744</i>	<i>97%</i>
<b>North Lanarkshire Periphery Landscapes</b>		
Lowland Landscapes & Upland Fringes	912	2%
Inland Lochs & Islands	557	1%
<i>Sub-Total</i>	<i>1,469</i>	<i>3%</i>

Source. Landscape Character Assessment (LCA) digital data, SNH, 1998

10.2.4 The distribution of these landscape categories broadly follows the topography of North Lanarkshire:

- Rugged moorland is located in the upland areas of the Kilsyth Hills;
- Plateau Moorland and Plateau Farmland is located on the higher ground of the Central Scotland Plateau in the central, eastern and southern parts of North Lanarkshire.
- Broad Valley Lowland, Rolling Farmland and Fragmented Farmland landscapes are present along the lower valleys associated with the River Kelvin and catchment streams of the River Clyde;
- Urban landscapes are focussed around the main settlements of Cumbernauld, Coatbridge/Airdrie and Motherwell/Wishaw;
- The additional landscapes, including lowland landscapes and upland fringes are located around the north-eastern periphery of North Lanarkshire and are more typically associated with the landscapes of adjoining Council areas; and
- Inland lochs and island landscapes are focussed around the large water bodies such as Strathclyde Loch in the south-west and Hillend Reservoir in the east.

## Landscape Designations

10.2.5 Scottish Natural Heritage identifies two local landscape designations within North Lanarkshire (see Figure 10.3), these being:

- Part of the Kilsyth Hills area is designated as a Regional Scenic Area in the Kilsyth Local Plan; and
- An Area of Great Landscape Value (AGLV) within the south-western part of North Lanarkshire along the Clyde Valley.

10.2.6 Significant historic gardens and designed landscapes have been identified by Scottish Natural Heritage and Historic Scotland for their natural heritage and cultural importance. The Joint Nature Conservation Committee (JNCC) notes that inclusion in the Inventory of Historic Gardens and Landscapes in Scotland confers a measure of statutory



planning control in relation to the sites concerned and their setting through the Town and Country Planning (General Development Procedure) (Scotland) Order 1992 (GDPO) and SDD Circular No 6/1992.

10.2.7 Within North Lanarkshire there are two such designated sites, these identified below. SNH noted that there are a few sites which are now on the interim list and may be included in the next publication although there is no confirmed date for this.

- Dalzell House, south of Motherwell (approximately 89ha); and
- Allanton, by Allanton, east of Wishaw (approximately 126ha).

## Wedges and Corridors

10.2.8 The Structure Plan team at North Lanarkshire Council have identified a series of 'corridors' and 'wedges' which are areas within the Green Belt where development would have a 'more significant impact'. These locations predominantly occupy the open ground between towns and villages within the Kelvin Valley and in the western part of North Lanarkshire around the settlements of Coatbridge, Airdrie, Bellshill, Motherwell and Wishaw. Figure 10.4 shows the extent of these wedges and corridors within North Lanarkshire. North Lanarkshire Council identify some limitations in the scale at which these layers were digitised and therefore their geographical accuracy, e.g. in relation to defined settlement boundaries and the green belt.

10.2.9 Within North Lanarkshire wedges and corridors occupy the following area:

- Wedges. Approximately 4,726ha.
- Corridors. Approximately 7,620ha.
- Total Area Covered. Approximately 12,346ha (approximately 26% of North Lanarkshire).

10.2.10 Important (non-designated) landscapes are also present which contribute to the local landscape importance of the region, and these include woodland, farmland and open spaces particularly in the urban fringe area.

## Summary of Landscape Baseline

10.2.11 Table 10.3 summarises the baseline landscape resources identified within this section along with their geographical distribution and abundance.

**Table 10.3 Summary of Baseline Distribution**

Feature	Distribution	
	Geographical	Abundance
Landscape Character Areas	<ul style="list-style-type: none"> <li>■ Diversity of landscape types identified across North Lanarkshire, closely related to topography, vegetation, land use and settlement pattern</li> <li>■ Topography ranges from less than 100m above sea level, in the west to over 400m in the Kilsyth Hills and 200-300m across the central Scotland plateau in the east</li> </ul>	<ul style="list-style-type: none"> <li>■ Eight key landscape character areas (LCAs) identified by Scottish Natural Heritage</li> </ul>
Designated Landscapes	<ul style="list-style-type: none"> <li>■ Regional Scenic Area in Kilsyth Hills and Area of Great Landscape Value in Clyde Valley</li> <li>■ Two Designed Landscapes at Dalzell House (Motherell) and Allanton (Wishaw)</li> </ul>	<ul style="list-style-type: none"> <li>■ As per geographical description</li> </ul>
Wedges and Corridors	<ul style="list-style-type: none"> <li>■ Concentrated on west side of North Lanarkshire</li> <li>■ Follow routes of transport and urban fringes/settlements</li> </ul>	<ul style="list-style-type: none"> <li>■ Designated wedges and corridors cover an area of approximately 12,350 hectares</li> </ul>



### 10.3 TRENDS IN THE RESOURCE

10.3.1 There are no specific trends identified for landscape character areas or types. Trends in designated sites are subject to the identification and review of sites for their suitability for designation and no information has been identified on the sites designated in North Lanarkshire.

### 10.4 PRESSURES ON THE RESOURCE

10.4.1 There are a range of positive and negative pressures affecting the landscape of North Lanarkshire. These pressures are present both at the area wide scale down to the local landscape scale.

10.4.2 Predominately pressure on the landscape comes from development, in particular insensitive development to the local and wider landscape or development with particularly wide-scale visual effects (eg windfarms). This may be associated with the direct impact of the development on the immediate landscape and also the impact of developments on adjoining landscapes. The landscape may also be under pressure from cumulative fragmentation: whilst individual developments may not result in a significant detrimental effect on the landscape the combined effect of development may result in significant fragmentation of the landscape.

10.4.3 There may be a pressure on designated sites through direct development within them or through development adjacent to designated areas through an effect on their setting. The levels of protection afforded by the various designations will provide a pressure to maintain and enhance the landscape of the site, and the extent of this will be subject to the nature and extent of the designation and its prominence in development control decisions.

10.4.4 Given the nature of wedges and corridors and their location they are particularly vulnerable to development pressure around the urban fringe as a result of applications for development such as housing in areas where community infrastructure and transport linkages make development most attractive.

### 10.5 CONDITION OF THE RESOURCE

10.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 10.4 summarises the condition of the landscape resource drawing on the analysis presented in Sections 10.2 to 10.4.

**Table 10.4 Summary of Resource Condition**

Feature	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Landscape Character Areas	<ul style="list-style-type: none"> <li>No specific trends in condition of LCAs identified</li> </ul>	<ul style="list-style-type: none"> <li>Open areas such as plateaux more vulnerable to development (increased visibility)</li> </ul>	<ul style="list-style-type: none"> <li>Distinctiveness comes from topography and vegetation rather than LCA specifically</li> </ul>
Designated Landscapes	<ul style="list-style-type: none"> <li>Vulnerable to inappropriate development, and adjoining developments with visual and landscape effects eg windfarms</li> <li>Important wilderness quality of Kilsyth Hills</li> </ul>	<ul style="list-style-type: none"> <li>Pressures from designations for management, protection and enhancement</li> <li>Development adjacent to designated areas may have effects on the setting</li> </ul>	<ul style="list-style-type: none"> <li>Contribution to quality of landscape in parts of North Lanarkshire and their protection and enjoyment</li> </ul>
Wedges and Corridors	<ul style="list-style-type: none"> <li>Located in areas of mixed land uses, visual clutter etc</li> </ul>	<ul style="list-style-type: none"> <li>Located in areas where development pressures are likely to be significant</li> </ul>	<ul style="list-style-type: none"> <li>Could contribute if they improve urban fringe landscape and prevent coalescence of settlements</li> </ul>



## 10.6 KEY ASSETS

10.6.1 Based on the analysis of environmental information within Sections 10.2 to 10.5, the following key landscape assets have been identified.

**Table 10.5 Key Landscape Assets**

Key Asset	Description
Designated Landscape and Setting	Designated landscapes and their setting are key assets to North Lanarkshire. There are two historic gardens and designed landscapes and as their designation suggests these have a landscape importance as well as roles within the cultural heritage of North Lanarkshire. There are also two wider landscape designations (an Area of Great Landscape Value and a Regional Scenic Area), these are areas with characteristic and important landscapes along the Clyde Valley and Kilsyth Hills respectively.
Diversity of Landscape Character Types	The diversity of the landscapes within North Lanarkshire is a key asset, the geography and topography of North Lanarkshire has resulted in a wide and diverse range of landscapes from the upland areas of the Kilsyth Hills, to the incised river valleys and urban areas in the west and the plateau moorland in the east.
Accessible Locations which are Representative of Landscape Character Areas	Accessible locations which are representative of Landscape Character Areas (LCAs) are key assets within North Lanarkshire. This asset ties in closely with the communities aspect of the North Lanarkshire environment and is important as they provide areas which are accessible to the community to experience characteristic areas of the North Lanarkshire landscape.
Opportunity to Combine Landscape with Public Access, Recreation and Conservation	The opportunity to combine landscape with public access, recreation and conservation is a key asset in North Lanarkshire. Given the range of landscapes within North Lanarkshire there are a number of different landscapes in the vicinity of the majority of urban areas. The opportunities exist therefore to enhance the landscape setting of open areas with regard to public access, recreation and conservation.

## 10.7 ISSUES FOR RESOURCE MANAGEMENT AND PROTECTION

10.7.1 The key assets identified in Section 10.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key landscape assets within North Lanarkshire.

10.7.2 The main pressure on the landscape is associated with inappropriate development, this affecting both the local and wider landscape within North Lanarkshire. The management of the land uses within North Lanarkshire plays an important role in the management of the landscape. Farming and forestry form a significant proportion of the land cover of North Lanarkshire and changes in these needs to be considered in terms of their effects on the landscape.

10.7.3 There is the opportunity with new developments to protect and enhance the local landscape through quality and sensitive design and location of developments. This is both with regard to the setting of the development within the wider development and also locally with regard to the landscape within and adjoining the development.





10.7.4 There is some degradation in the landscape of the urban fringe and wider landscape through previous development and the legacy of historical activities such as vacant and derelict land (see Chapter 4: Land Use). In particular management of the urban fringe landscape and its setting in the wider landscape is important and quality new developments can contribute to enhancing this aspect of the landscape.

10.7.5 Access has been identified as a component of the key landscape assets with regard to access to location characteristic of the landscape of North Lanarkshire. Management of public access to open areas is discussed further within Chapter 13: Communities, and it needs to consider issues of public access to the wider landscape.

## 10.8 DATA GAPS AND LIMITATIONS

10.8.1 There are no significant data gaps or limitations.

## 10.9 REFERENCES

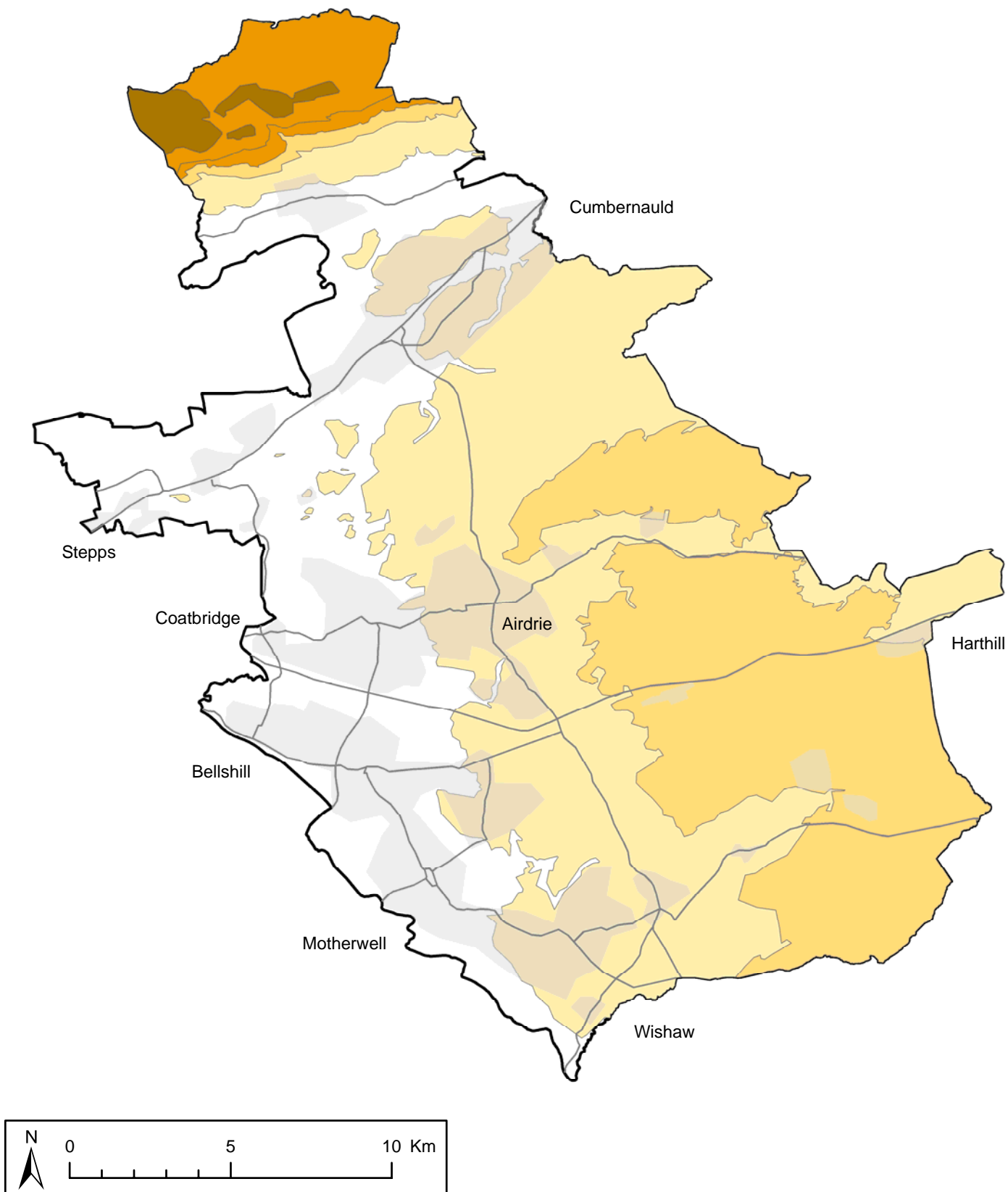
10.9.1 The following sources of information have been referred to in this chapter:

- Digital Landscape Character Assessment layer (1998), released January 1999, provided by Scottish Natural Heritage;
- Digital Ordnance Survey 1:50,000 scale maps, provided by North Lanarkshire Council, August 2005;
- GIS layers on corridors provided by North Lanarkshire Council 29/08/2005;
- GIS layers on wedges provided by North Lanarkshire Council 29/08/2005; and
- GIS Data on historic gardens and designed landscapes (November 2004), provided by SNH.






## 10.10 MAPS AND PLANS

10.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
10.1	Plan of the Topography in North Lanarkshire
10.2	Plan of the Landscape Character Areas
10.3	Plan of Landscape Designations
10.4	Plan of Wedges and Corridors



### Legend

-  0 - 100m AOD
-  100 - 200m AOD
-  200 - 300m AOD
-  300 - 400m AOD
-  Over 400m AOD

**Figure 10.1**  
**Landscape & Visual**  
**Topography**

Scale: 1:170,000

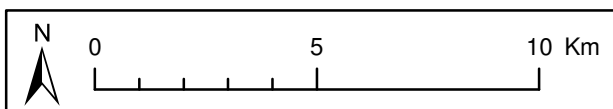
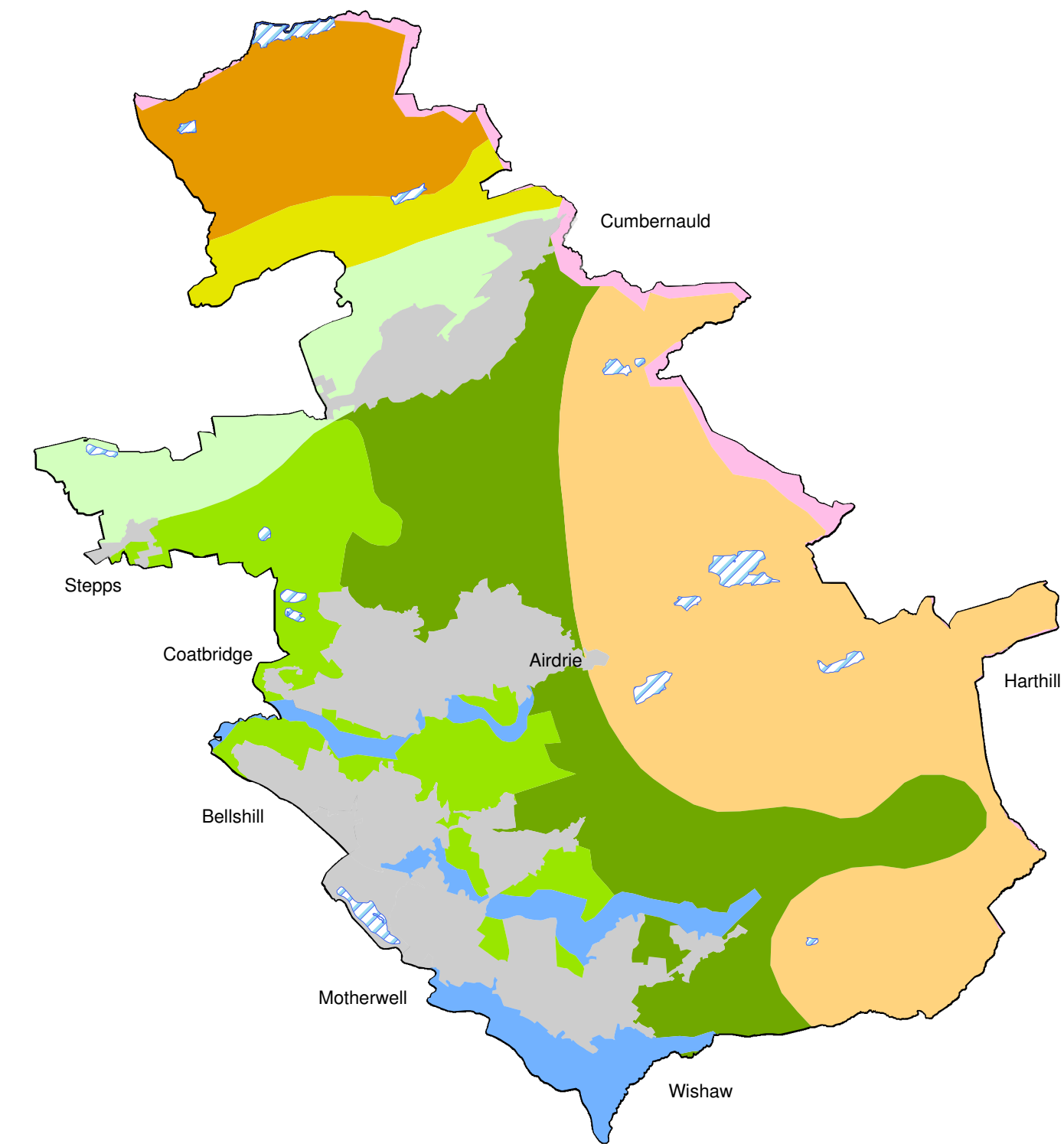
Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS







## Legend

- |                       |                                   |
|-----------------------|-----------------------------------|
| Rugged Moorland Hills | Incised River Valleys             |
| Broad Valley Lowland  | Broad Urban Valley                |
| Plateau Farmland      | Fragmented Farmlands              |
| Plateau Moorlands     | Lowland Landscapes/Upland Fringes |
| Rolling Farmland      | Inland Lochs and Islands          |

Information from Scottish Natural Heritage (Issued 1999)

**Figure 10.2**  
Landscape  
Landscape Character Areas

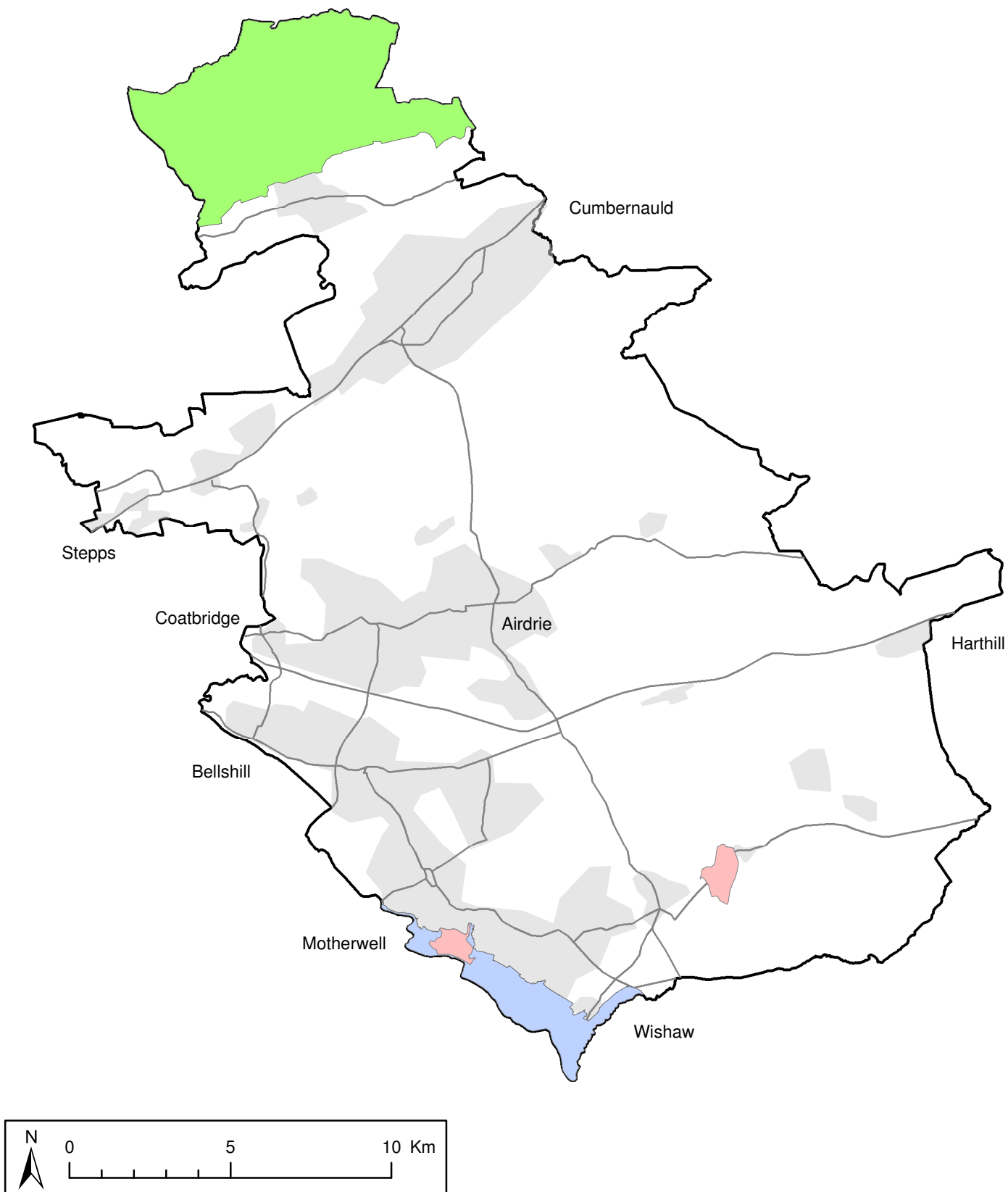
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 01.11.05  
Revision: -  
Drawn by: JS





## Legend

- Regional Scenic Area
- Area of Great Landscape Value (AGLV)
- Historic Gardens and Designed Landscapes (HGDL)

**Figure 10.3**  
Landscape  
Landscape Designations

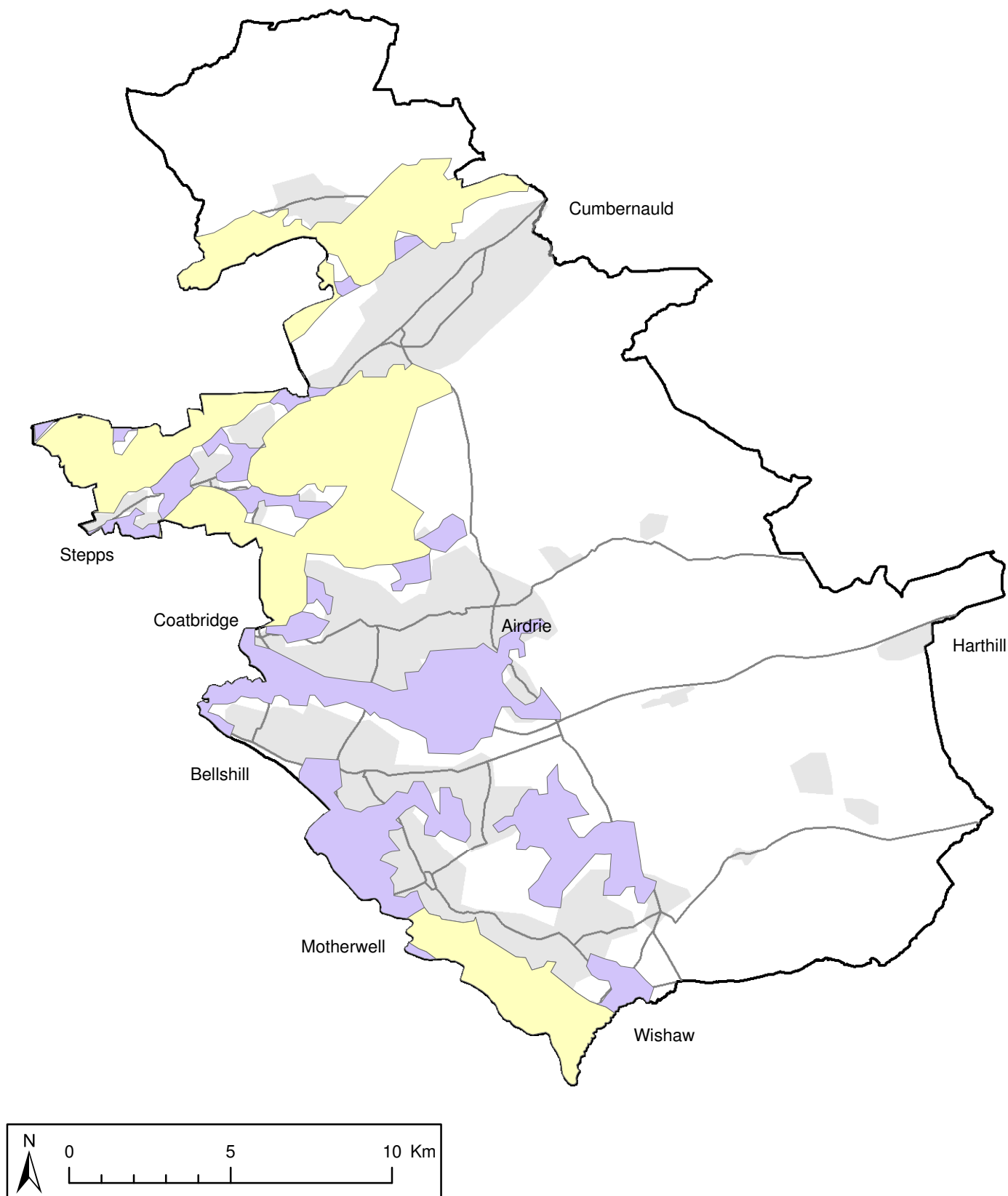
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS





#### Legend

- 'Wedges'
- 'Corridors'

Note: North Lanarkshire Council identify some limitations in the scale at which these layers were digitised and therefore their geographical accuracy, e.g. in relation to defined settlement boundaries and the green belt.

Information from North Lanarkshire Council (provided September 2005).

**Figure 10.4**  
Landscape  
'Wedges' and 'Corridors'

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 12.12.05  
Revision: -  
Drawn by: JS





# 11 Cultural Heritage

## 11.1 CONTEXT

11.1.1 There has been a long history of settlement in North Lanarkshire associated with the geography and topography of the area within the Central Belt of Scotland which has left a considerable historical and archaeological resource in the region. North Lanarkshire has supported an extensive industrial development and evidence of this heritage remains today.



11.1.2 This history has resulted in a wide range of cultural heritage sites from Roman sites, such as the Antonine Wall to more recent sites such as the Forth and Clyde Canal and industrial remains of collieries and factories.

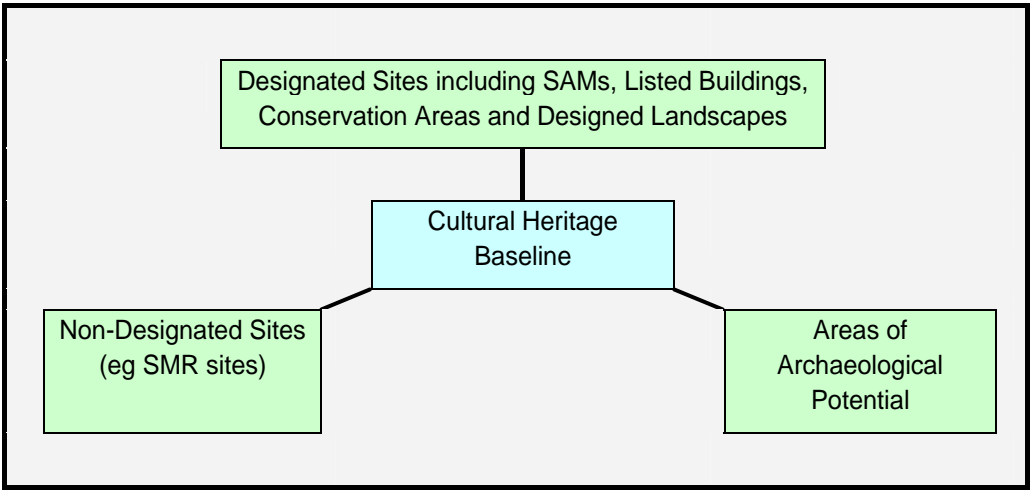
## 11.2 BASELINE CHARACTERISTICS

11.2.1 The extent of cultural heritage sites within North Lanarkshire can be obtained from a range of sources including designated sites such as Listed Buildings and Scheduled Ancient Monuments (SAMs) through to sites associated with specific archaeological finds and recorded by the regional archaeologist.

11.2.2 This information has been used to provide a baseline of cultural heritage and archaeology within North Lanarkshire. It should be noted that some data only provide a baseline in relation to locations where surveys have been undertaken, hence more finds and sites are likely to be present in the landscape which are currently unknown. The spatial variation of the archaeological resource is in part due to the location of historical human activities and settlement patterns and this resource has typically been recorded in areas around the preferred development locations of today.

11.2.3 The cultural heritage and archaeology of North Lanarkshire is discussed within this chapter through designated sites, non-designated sites and areas of archaeological potential as presented in Box 11.1.

**Box 11.1 Cultural Heritage Baseline Features**





## Designated Sites.

11.2.4 There are four types of designation for cultural heritage sites and properties within North Lanarkshire. Figures 11.1 and 11.2 and Table 11.1 present a summary of these sites.

**Table 11.1 Designated Cultural Heritage Sites**

Designation	Numbers	Area (ha)
Scheduled Ancient Monuments (SAMs)	26	181ha
Listed Buildings:		
Category A	12	-
Category B	203	-
Category C(S)	174	-
Historic Gardens and Designed Landscapes	2	214ha
Conservation Areas	7	186ha

Source: Historic Scotland GIS Data (2005)

11.2.5 There are 26 Scheduled Ancient Monuments (SAMs) within North Lanarkshire although some of these relate to different sections of the same feature (notably the Antonine Wall). These sites cover a total area of approximately 183ha (with sites ranging in size from <1ha to approximately 46ha). These SAMs include features from a range of periods including:

- Cairns and hut circles;
- Mottes, castles, forts and roads;
- The Forth and Clyde Canal;
- The Antonine Wall; and
- Industrial heritage such as collieries/pits and a foundry.

11.2.6 There are 389 listed buildings within North Lanarkshire, 12 of which are Category A listed buildings. Historic Scotland define the three categories of listed building as follows:

- Category A: Buildings of national or international importance, either architectural or historic, or fine little-altered examples of some particular period, style or building type.
- Category B: Buildings of regional or more than local importance, or major examples of some particular period, style or building type which may have been altered.
- Category C(S): Buildings of local importance, lesser examples of any period, style or building type, as originally constructed or altered; and simple, traditional buildings which group well with others in categories A and B or are part of a planned group such as an estate or an industrial complex.

11.2.7 Conservation Area designations are areas of special architectural or historic interest designated for protection and enhancement by the Local Planning Authority. The designation covers not just the buildings within the area but also include the historic layout of its roads and paths, the characteristics of buildings and paving materials, the green areas and trees, and the public and private spaces. There are seven such designations within North Lanarkshire, these are:

- Hamilton Road, Motherwell (approximately 23ha), designated 1993;
- Kilsyth (approximately 8ha), designated 1974 and amended 1984;
- Dullatur, Cumbernauld (approximately 5ha), designated 1974;
- Cumbernauld Village, Cumbernauld (approximately 12ha), designated 1993;
- Drumgelloch, Airdrie (approximately 29ha), designated 1975;
- Victoria and Town Centre, Airdrie (approximately 52ha), designated 1975 and amended 1979 and 1980; and
- Blairhill and Dunbeath, Coatbridge (approximately 59ha), designated 1979.



11.2.8 Historic Gardens and Designed Landscapes are also discussed within Chapter 10: Landscape however, in addition to their landscape asset they have cultural heritage significance. There are two such designated areas within North Lanarkshire at Dalzell House (Motherwell) and Allanton (east of Wishaw).

11.2.9 The Buildings at Risk Register for Scotland highlights properties of architectural or historic merit throughout the country that are considered to be at risk or under threat and is maintained by the Scottish Civic Trust on behalf of Historic Scotland.

11.2.10 The Buildings at Risk Register website notes that a building at risk is usually a listed building, or an unlisted building within a conservation area, that meets one or several of a number of criteria although other criteria may be considered when assessing a building for inclusion in the Register. The criteria are:

- Vacant with no identified new use;
- Suffering from neglect and/or poor maintenance;
- Suffering from structural problems;
- Fire damaged;
- Unsecured;
- Open to the elements; and/or
- Threatened with demolition.

11.2.11 Table 11.2 below presents the 18 properties noted to be at risk and the one property under restoration within North Lanarkshire.

**Table 11.2 Buildings at Risk within North Lanarkshire**

	Listed Building	Condition	Risk
<b>Properties at Risk</b>			
44-48 Main Street, Kilsyth	Unlisted	Good	High
36 Baronhill, The Village, Cumbernauld	Unlisted	Fair	High
72 Stirling Street, Airdrie	Unlisted	Fair	Low
17-21 Main Street, The Village, Cumbernauld	C (S)	Ruinous	High
Coia's Central Café (Former)	C (S)	Poor	High
Coatbridge Baths and Clinic (Former)	Unlisted	Fair	High
Cambusnethan Priory	A	Ruinous	Critical
Auchengray House	C (S)	Ruinous	High
Craigmarloch Stables	Unlisted	Ruinous	Low
Darngavel Farmhouse and Steading	Unlisted	Ruinous	High
Dundyvan Church (Former)	B	Fair	High
Dundyvan Manse (Former)	B	Poor	High
Rochsoles Stables	B	Fair	Low
Old Coatbridge High School Janitor's Lodge	C (S)	Poor	High
Hartwood Hospital	B	Fair	High
Fannyside Mill	B	Poor	Low
Shottsburn Church	Unlisted	Poor	High
Wellwynd Church of Scotland (Former)	C (S)	Fair	Moderate
<b>Properties under Restoration</b>			
Sir John Wilson Town Hall (Former), Airdrie	B	Good	Minimal

Source: Buildings at Risk Register website (<http://www.buildingsatrisk.org.uk>), 10/10/05

11.2.12 The Building at Risk Register's definitions of the categories of 'condition' and 'risk' are presented in Table 11.3.

**Table 11.3 Descriptions of Condition and Risk Categories**

Category	Description
<b>Condition</b>	
Ruinous	The building is a roofless shell. Little of the original fabric remains other than the external walls.
Very Poor	The building is either extensively fire damaged, partially collapsed, or is suffering from major structural problems. It may be totally or partially roofless, but retains a little more fabric than just the external walls. Very little of the interior remains.
Poor	The building has been vacant for a number of years and does not appear to be maintained. Most of the external fabric remains, but there are obvious signs of deterioration such as slipped slates, vegetation growth, broken windows, vandalism, or blocked rainwater goods.
Fair	The building is only recently vacant but there is no identified new use. Although previously well maintained, it now requires minor repairs. There are some signs of neglect.
Good	The building fabric is generally sound, and its overall condition does not necessarily place it at risk. However, it is under threat of demolition, or its future sustained use is in doubt.
<b>Risk</b>	
Critical	The building is threatened with demolition, and a real or perceived conservation deficit now makes rescue unlikely. It is suffering from an acute structural problem that could lead to full or partial collapse, and there is an immediate threat of further deterioration. It is an A-listed property in poor or very poor condition or a B-listed property in very poor condition.
High	There is no immediate danger of collapse but condition is such that unless urgent remedial works are carried out the building will sharply deteriorate.
Moderate	The building is in fair condition but is deteriorating. There are concerns that the building could suffer further decay leading to more serious problems.
Low	The building is in fair or good condition, but there is a risk of slow decay. There is no identified new use for the building. Although there is a possibility of rescue, the condition of the building still gives cause for concern.
Minimal	The building is vacant but in good condition. A rescue package has been agreed, though not yet implemented.

Source: Buildings at Risk Register website (<http://www.buildingsatrisk.org.uk>), 10/10/05

11.2.13 As the list in Table 11.2 shows, there are eleven listed buildings within North Lanarkshire that are on the buildings at risk register ranging from low risk to critical. There is one listed building on the buildings at risk register within North Lanarkshire which is currently under restoration.

### Non-Statutory Archaeological Sites

11.2.14 The West of Scotland Archaeological Service (WoSAS) is the advisor to North Lanarkshire Council on cultural heritage and archaeology. WoSAS maintains a Sites and Monuments Record (SMR), the details of which for North Lanarkshire are presented below.

11.2.15 The SMR comprises a series of points for the centre point of archaeological and cultural heritage sites which are not designated as SAMs or Listed Buildings but which are recognised as having archaeological significance. This dataset identifies 1,613 sites in North Lanarkshire.

11.2.16 Figure 11.3 presents the location of sites on the SMR, which are evenly distributed across North Lanarkshire. Additional data provided by WoSAS included:

- Information on pre-historic flint and stone finds (7 locations by Coatbridge and Airdrie); and
- A survey of ruinous buildings undertaken by the Royal Commission on Ancient and Historic Monuments Scotland (RCAHMS).

11.2.17 WoSAS also identified four linear archaeological features within North Lanarkshire, these include:

- The Forth and Clyde Canal;
- Antonine Wall; and
- Two Roman Roads (one running by Motherwell and Wishaw and one to the south of Wishaw).



## Areas of Archaeological Potential

11.2.18 Across North Lanarkshire there is the potential for previously undiscovered archaeological remains to be present. These sites will generally only become known in the event that works encounter them (both development works and dedicated archaeological investigations).

11.2.19 By their definition the extent and distribution of these sites are unknown however certain localised areas can contain a higher potential for remains. These may include sheltered locations, river valleys and historic settlement areas which are representative of locations where historic settlement patterns and industrial activity would be most likely and therefore could yield important archaeological remains and artefacts.

## Summary of Cultural Heritage Baseline

11.2.20 Table 11.4 summarises the baseline cultural heritage resources identified within this section along with their geographical distribution and abundance.

**Table 11.4 Summary of Baseline Distribution**

Resource	Distribution	
	Geographical	Abundance
Designated Cultural Heritage Sites	<ul style="list-style-type: none"> <li>Widespread distribution of sites across North Lanarkshire</li> <li>Relatively few Scheduled Ancient Monuments (SAMs) and Category A Listed Buildings</li> <li>Listed buildings predominantly in the urban areas</li> </ul>	<ul style="list-style-type: none"> <li>26 SAMs covering 181 hectares</li> <li>215 Category A and B listed buildings</li> <li>11 Listed buildings on the Buildings at Risk Register (and one currently under restoration)</li> <li>2 Historic Gardens &amp; Designed Landscapes</li> <li>7 Conservation Areas</li> </ul>
Non designated sites (known and unknown)	<ul style="list-style-type: none"> <li>Widespread distribution of sites on the Sites and Monuments Register (SMR)</li> <li>Potential sites will only become known following surveys eg due to development applications</li> </ul>	<ul style="list-style-type: none"> <li>1,613 sites on SMR</li> <li>7 unlisted buildings included on the Buildings at Risk Register</li> </ul>

## 11.3 TRENDS IN THE RESOURCE

11.3.1 Whilst it is unlikely that the total number of archaeological sites will have increased significantly in recent years, there will have been an increase in the number of sites identified and investigated. Whilst no data are held on trends in the identification of sites, the number of developments in North Lanarkshire has increased and many of these will have undertaken archaeological investigations which will have contributed to the collective understanding and record of the resource through the SMR and associated archival information.

11.3.2 Data on the increase of the number of listed buildings within North Lanarkshire is presented in Table 11.5 below. These figures provide an indication as to the increase in designated sites however they do not take into account any sites that may have been de-designated.

**Table 11.5 Trends in the Total Number of Listed Buildings.**

Category	1970s	1980s	1990 - 1994	1995 – 2000	2001 - 2005
A	8	9	11	11	12
B	82	113	150	159	203
C	29	37	56	63	174
Total	119	159	217	233	389

Source: Digital data on listed building supplied by Historic Scotland (2005)



11.3.3 Such increases in the number of listed buildings may also demonstrate an increased awareness of cultural heritage and local and regional interest in the cultural heritage of North Lanarkshire.

#### 11.4 PRESSURES ON THE RESOURCE

11.4.1 As with many of the other environmental topics discussed in this State of the Environment Report, the pressures on archaeology come primarily from development which would result in damage to or loss of sites of cultural heritage significance. As development continues within North Lanarkshire there is a likelihood that new archaeology and cultural heritage sites will be discovered although a proportion of these will simply be recorded (and/or excavated) prior to their loss.

11.4.2 In addition there are other pressures affecting recent cultural heritage sites such as former industrial works where, pressures such as aesthetics and contamination for example affect the potential for re-use of buildings and regeneration of sites. Discussions and consultation during the drafting of this report have identified that there is a significant potential for better exploitation and interpretation of the extensive industrial heritage associated with North Lanarkshire's past during the industrial revolution.

#### 11.5 CONDITION OF THE RESOURCE

11.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 11.6 summarises the condition of the cultural heritage resource drawing on the analysis presented in Sections 11.2 to 11.4.

**Table 11.6 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Health	Vulnerability	
Designated Cultural Heritage Sites	<ul style="list-style-type: none"> <li>■ Designation indicates presence of important asset</li> <li>■ Network of sites provides an important and protected resource</li> </ul>	<ul style="list-style-type: none"> <li>■ Designation affords protection through policy and legislation</li> <li>■ Category C Listed Buildings more vulnerable as they have non-statutory protection</li> <li>■ Some buildings vulnerable to physical decline and on Buildings at Risk Register (including listed buildings)</li> </ul>	<ul style="list-style-type: none"> <li>■ Antonine Wall and Forth &amp; Clyde canal have regional distinctiveness</li> <li>■ Other sites are contributors to local distinctiveness</li> <li>■ Category C Listed Buildings important for townscape due to limited number of A and B designations</li> </ul>
Non designated sites (known & unknown)	<ul style="list-style-type: none"> <li>■ Network of sites provides an important and protected resource</li> </ul>	<ul style="list-style-type: none"> <li>■ Unknown sites particularly vulnerable to changes in land use, small scale development, agricultural practices etc</li> </ul>	<ul style="list-style-type: none"> <li>■ Local contribution collectively</li> </ul>



## 11.6 KEY ASSETS

11.6.1 Based on the analysis of environmental information within Sections 11.2 to 11.5, the following key cultural heritage assets have been identified.

**Table 11.7 Key Cultural Heritage Assets**

Key Asset	Description
Designated Cultural Heritage Sites (including SAMs, Category A and B Listed Buildings, Conservation Areas and Designed Landscapes).	Designated cultural heritage sites are key assets in North Lanarkshire. Sites designated as Scheduled Ancient Monuments, Categories A and B Listed Buildings, Conservation Areas and Designed Landscapes are of cultural heritage importance and demonstrate the archaeological and cultural heritage of North Lanarkshire. Many of these sites also have a national and regional importance as well as an importance to North Lanarkshire's local townscapes and areas. These designated sites also play an important role in the landscape and communities of North Lanarkshire through their contribution to townscape, cultural tradition and their potential for education/interpretation.
Unrealised/Unknown Archaeological Potential	Although the nature and extent of this asset is unknown at present, the potential for archaeological remains and sites to be present within North Lanarkshire is a key asset. Known archaeological sites within North Lanarkshire suggest the potential for further sites from a range of historical periods.

## 11.7 ISSUES FOR RESOURCE MANAGEMENT AND PROTECTION

11.7.1 The key assets identified in Section 11.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key cultural heritage assets within North Lanarkshire.

11.7.2 The level of management and protection of designated sites is governed primarily by the nature of the designation. Ownership of sites also play a role in their management and protection with many of the more significant sites owned or managed by archaeological or other bodies/organisations.

11.7.3 Management of these sites also need to take into consideration the sites' benefits with regard to landscape setting and also their contribution to the community through educational benefit and in some instances, such as the Forth and Clyde Canal, their recreational asset. There is an opportunity in North Lanarkshire to promote the wider interpretation of the area's industrial history and contribution to the development of Scotland in the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> Centuries. Good examples of this are the assets present at the Sumerlee Heritage Centre and the associated North Calder Heritage Trail.



11.7.4 New development, and redevelopment of cultural heritage buildings and sites, needs to take into account the cultural heritage resource. In many instances development may allow cultural heritage sites to be protected and enhanced and incorporation of such would provide other benefits to the developments through the landscape and community aspects. Development should be managed through liaison with relevant bodies, local historical societies and the community and where practicable promote awareness and education of the sites.

11.7.5 Although direct management of unrealised / unknown archaeology is difficult, the precautionary approach generally adopted should be promoted (eg through planning policy) to ensure that development does not inadvertently impact on these unrealised archaeological resources.



## 11.8 DATA GAPS AND LIMITATIONS

11.8.1 A key limitation to the information on cultural heritage and archaeological sites is that identified sites are only representative of known sites. There is a potential within North Lanarkshire for unrealised archaeology from a range of periods however the nature and extent of this is not known.

## 11.9 REFERENCES

11.9.1 The following sources of information have been referred to in this chapter:

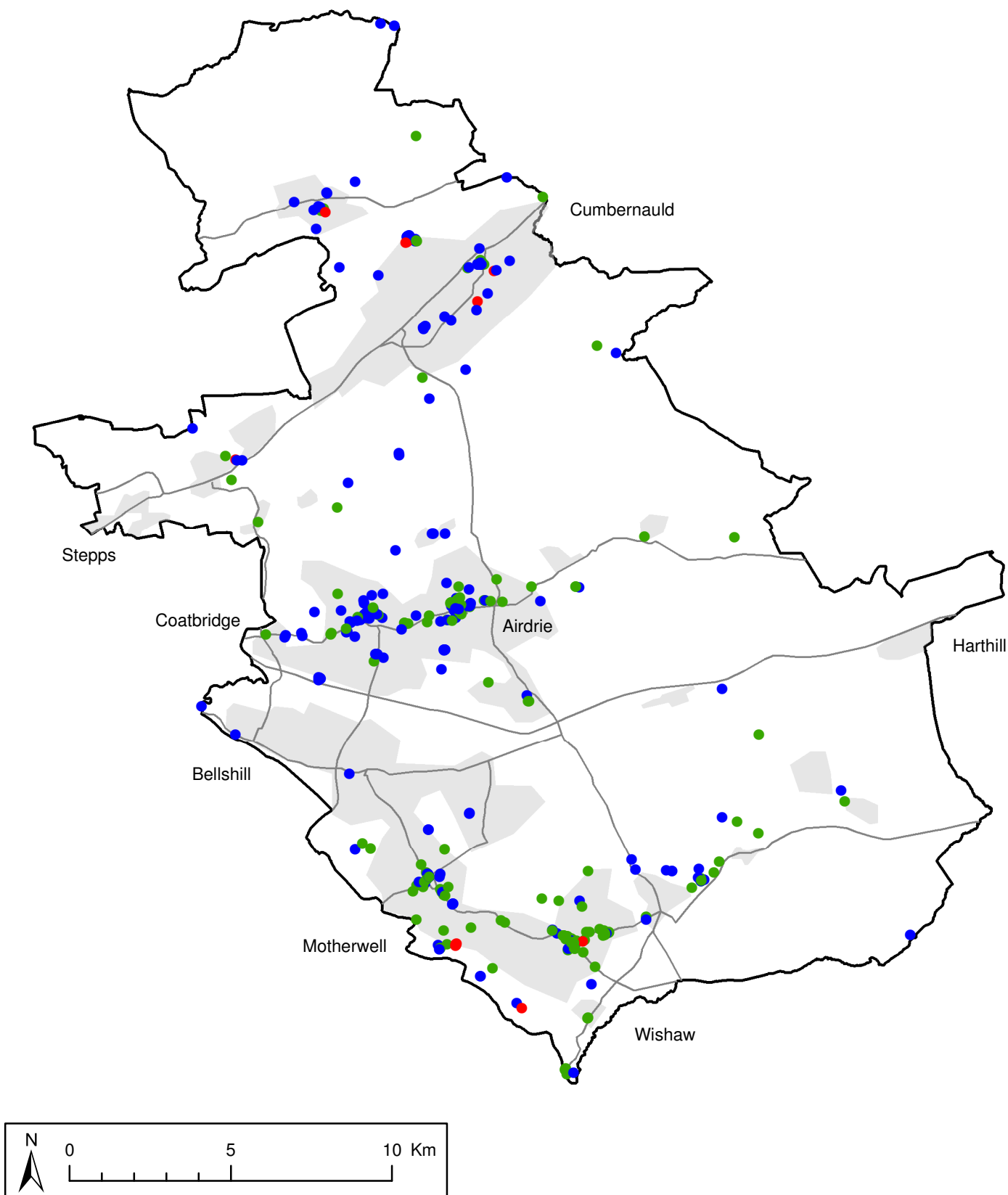
- Digital data for listed buildings, provided by Historic Scotland, September 2005;
- Digital data for Scheduled Ancient Monuments, provided by Historic Scotland, September 2005;
- Digital data for Conservation Areas provided by North Lanarkshire Council in August 2005;
- Digital data for Historic Gardens and Designed Landscapes (November 2004), provided by Scottish Natural Heritage in September 2005;
- Digital data for points and areas on the Sites and Monuments Record (SMR), provided by West of Scotland Archaeological Service (WoSAS), September 2005;
- Digital data on linear cultural heritage features, provided by West of Scotland Archaeological Service (WoSAS), September 2005;
- Digital data on pre-historic flint and stone finds, provided by West of Scotland Archaeological Service (WoSAS), 8 September 2005; and
- Buildings at Risk Register website (<http://www.buildingsatrisk.org.uk>), Accessed October 2005.

## 11.10 MAPS AND PLANS

11.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
11.1	Plan of Listed Buildings
11.2	Plan of Scheduled Ancient Monuments (SAMs), Conservation Areas and Historic Gardens and Designed Landscapes (HGDLs)
11.3	Plan of points on the Sites and Monuments Record (SMR)





## Legend

- 'A' Listed Buildings
- 'B' Listed Buildings
- 'C(S)' Listed Buildings

**Figure 11.1**  
Cultural Heritage  
Listed Buildings

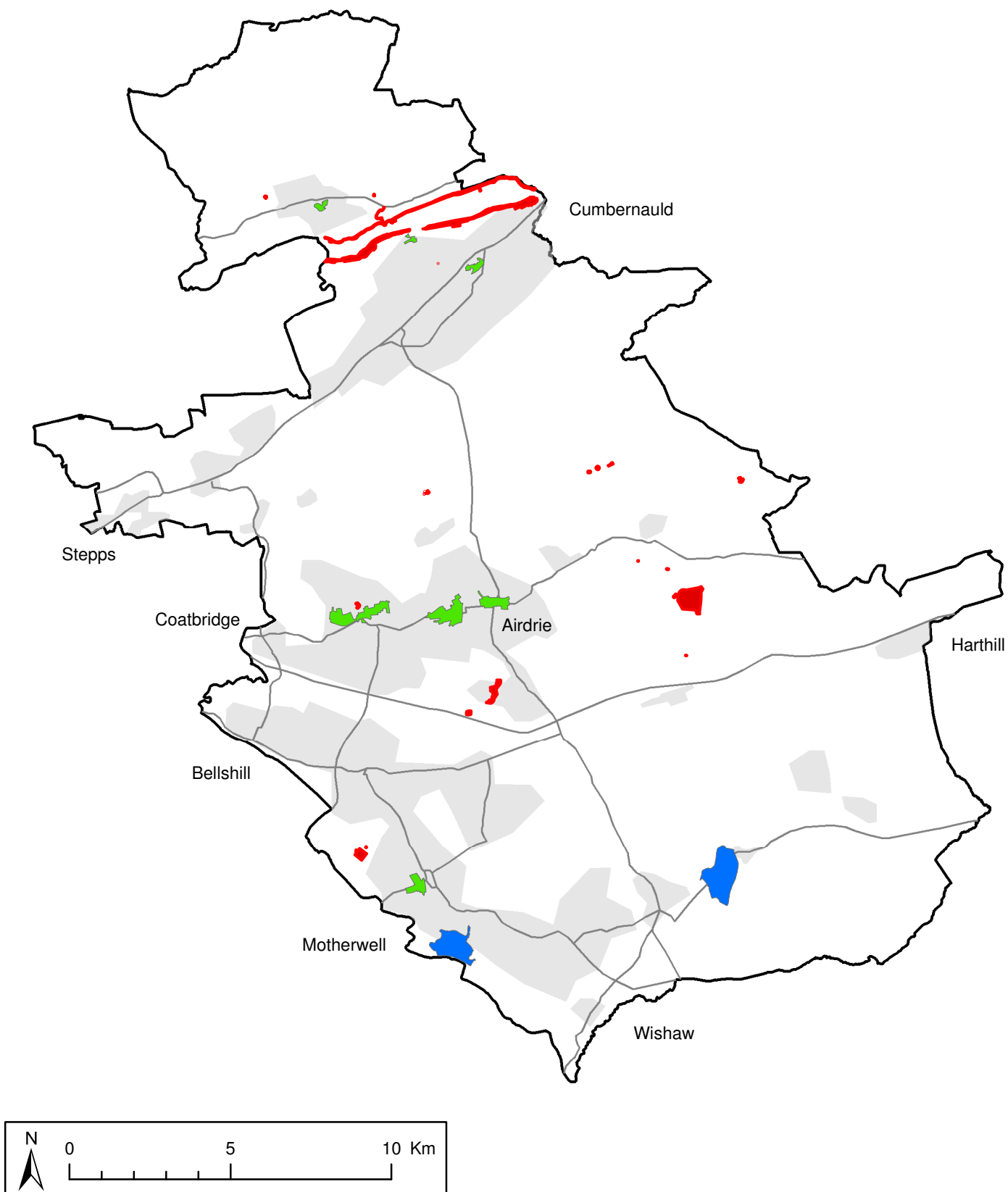
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS





## Legend

- Scheduled Ancient Monuments (SAMs)
- Conservation Areas
- Historic Gardens and Designed Landscapes (HGDL)

**Figure 11.2**  
**Cultural Heritage**  
**Designated Sites**

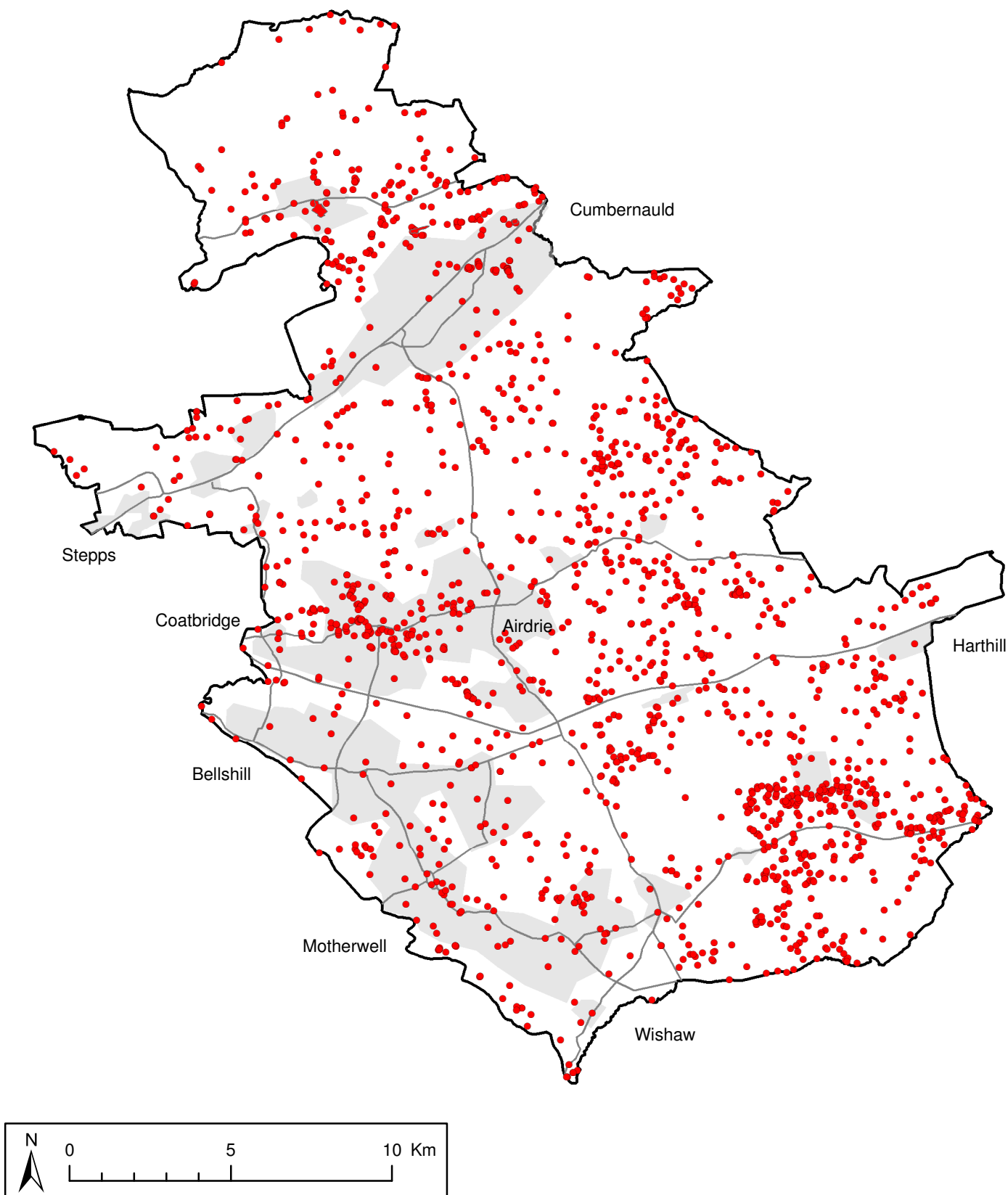
Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS





## Legend

- Points on the Sites and Monuments Records (SMR)
- Areas on the Sites and Monuments Records (SMR)

Figure 11.3  
Cultural Heritage  
Sites of the SMR

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS





## 12 Air Quality and Noise

### 12.1 CONTEXT

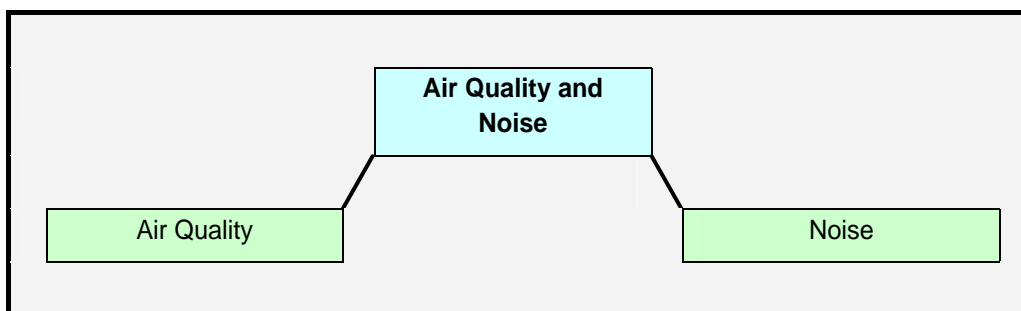
12.1.1 The air quality varies across North Lanarkshire with predicted background concentrations of the key air pollutants highest in the urban areas and key transport routes. Road traffic emissions play an important role in the air quality and North Lanarkshire Council have identified three areas as Air Quality Management Areas where further monitoring and action is required, these being parts of Airdrie, Chapelhall and Motherwell.

12.1.2 Noise can be defined as unwanted sound and within North Lanarkshire there are key sources including road traffic and construction sites. Tranquil locations do exist within North Lanarkshire and these can be characterised by more rural location.

### 12.2 BASELINE CHARACTERISTICS

12.2.1 The air quality and noise baseline of North Lanarkshire is discussed within this chapter by looking at the air quality, sources and receptors, climate and noise.

#### Box 12.1 Air Quality and Noise Baseline Features



#### Air Quality

12.2.2 The air quality section is sub-divided into the following sections:

- Background to Air Pollutants;
- Air Quality Levels;
- Air quality Management Areas;
- Greenhouse Gases;
- Sources and Receptors; and
- Climate.

#### Background

12.2.3 The National Air Quality Archive website (<http://www.airquality.co.uk>) identifies descriptions of the key air quality parameters monitored within North Lanarkshire, these are presented below:

- Nitrogen Dioxide (NO<sub>2</sub>). Nitrogen dioxide is the product of nitrogen oxide combining with oxygen. Nitrogen oxides (a reference to both nitrogen oxide and nitrogen dioxide) are formed during high temperature combustion processes from the oxidation of nitrogen. The principal source of nitrogen oxides is road traffic, which is responsible for approximately half of emissions in Europe. Levels of nitrogen oxides are therefore greatest in urban areas where traffic is heaviest. Other important sources are power stations, heating plants and industrial processes.





- **Particulate Matter (PM<sub>10</sub>).** Airborne particulate matter varies widely in its physical and chemical composition, source and particle size. PM<sub>10</sub> particles (the fraction of particulates in air of very small size (<10 µm)) are of major current concern, as they are small enough to penetrate deep into the lungs and so potentially pose significant health risks. Larger particles meanwhile, are not readily inhaled, and are removed relatively efficiently from the air. The principal source of airborne PM<sub>10</sub> matter in urban areas is road traffic emissions, particularly from diesel vehicles.
- **Sulphur Dioxide (SO<sub>2</sub>).** Sulphur dioxide is an acidic gas which combines with water vapour in the atmosphere to produce acid rain. Both wet and dry deposition have been implicated in the damage and destruction of vegetation and in the degradation of soils, building materials and watercourses. SO<sub>2</sub> in ambient air can also affect human health, particularly in those suffering from asthma and chronic lung diseases. The principal source of this gas is power stations burning fossil fuels which contain sulphur.
- **Carbon Monoxide (CO).** Carbon monoxide (CO) is a toxic gas which is emitted into the atmosphere as a result of combustion processes, and is also formed by the oxidation of hydrocarbons and other organic compounds. In urban areas, CO is produced almost entirely (90%) from road traffic emissions. It survives in the atmosphere for a period of approximately one month but is eventually oxidised to carbon dioxide (CO<sub>2</sub>).
- **Lead.** Particulate lead in air results from activities such as fossil fuel combustion, metal processing industries and waste incineration. Its single largest industrial use world-wide is in the manufacture of batteries.

#### Air Quality Levels

12.2.4 Air Quality is currently monitored by North Lanarkshire Council for a range of parameters through fixed and mobile monitoring equipment (Table 12.1). Details of air quality monitoring are provided within North Lanarkshire Council's *Local Air Quality Management – Progress Report* (April 2005). Information on current National Air Quality Standards (NAQs) is presented within Section 12.3. Details of the parameters monitored within North Lanarkshire are presented below along with the number of current locations and types of meter.

**Table 12.1 Monitored Parameters and Locations (2004)**

Parameter	Number of Monitoring Locations / Meters	Type
Nitrogen Dioxide (NO <sub>2</sub> )	37 locations	Passive Diffusion Tubes – Fixed Location
	5 meters	Real Time Monitoring – Mobile Location
Particulate Matter (PM <sub>10</sub> )	4	Automatic Monitoring Stations – Mobile Locations
Sulphur Dioxide (SO <sub>2</sub> )	3	Active Samples – Bubblers – Fixed Location
	2	Automatic Monitoring Stations – Mobile Location
	1	Automatic Monitoring Stations – Fixed Locations
Carbon Monoxide (CO)	1	Automatic Monitoring Station
Lead (and Heavy Metals)	1	National Network Batch Site

Source: Local Air Quality Management Progress Report, March 2005

12.2.5 Benzene and 1,3 Butadiene are currently not monitored within North Lanarkshire however monitoring is undertaken in Glasgow by Glasgow City Council.

12.2.6 Details of the current monitored levels of air quality parameters within North Lanarkshire are discussed in the following paragraphs.

12.2.7 **Nitrogen Dioxide.** Information on predicted background concentrations for nitrogen dioxide in 2005 is provided by the Air Quality Archive website based on 2001 estimates. The figures are based on 1km grid square basis. The majority of the upland areas of North Lanarkshire (in the northern, eastern and southern part) have predicted background concentrations of less than 20µg/m<sup>3</sup> with higher concentrations in the lowland areas, notably within urban areas. Predicted background concentrations within North Lanarkshire range from 10.5 to 39.5µg/m<sup>3</sup>.

12.2.8 These predictions demonstrate background levels, they do not allow for the identification of specific 'hotspots' of elevated air quality pollutants such as particular road sources or industries.

12.2.9 Nitrogen Dioxide levels are monitored at 37 passive diffusion tube locations and using five real time monitors. Data for passive diffusion tubes are presented in Table 12.2 with the monitoring locations shown in Figure 12.1. Passive diffusion tubes are located in four different settings, these being background, kerbside, roadside and other (motorway).

**Table 12.2 Recorded Levels of Nitrogen Dioxide (2004)**

Location	Annual Mean NO <sub>2</sub> Concentration (ug/m <sup>3</sup> )	National Grid Reference	
<b>Background</b>			
Airdrie 1, Hallcraig St.	26	276459	665572
Airdrie 3, Springwells Cresc.	20	277162	665650
Emily Drive, Motherwell	15	275437	655696
Kethers lane, Motherwell	17	273986	656985
Camp Street, Motherwell	19	275654	656342
Mobile 1, QA	25	288051	663975
Mobile 1, QA	23	288051	663975
Mobile 1, QA	25	288051	663975
<b>Kerbside</b>			
Coatbridge 1, Bank St.	37	272947	665037
Auchenkilns, Cumbernauld	56	274164	674130
Southfield Road, Cumbernauld	30	274439	674609
Lauchope Street, Chapelhall	39	278178	663111
Civic Centre, Motherwell	38	275820	656208
Craigneuk Road, Carfin	18	277244	658415
Coatbridge 3, Hozier Street	26	273516	663978
<b>Roadside</b>			
Coatbridge 2, Whifflet Court	29	273655	664003
Health Centre, Motherwell	21	275681	656447
Coursington Road, Motherwell	18	276178	657344
Tinkers Lane, Motherwell	29	274305	656466
Castlehill Road, Overtown	23	280109	652898
Coatbridge, Bank Street II	45	272887	664991
Delburn St Motherwell, R30	25	275981	656111
Merry St, Motherwell, R31	40	275116	657021
Main St, Chapelhall, R32	32	278105	663174
Main St, Chapelhall, R33	35	278119	663075
<b>Other (Motorway)</b>			
Showcase Cinema Carpark (formerly Braehead Farm, R4)	40	270929	663464
Shawhead, R9	37	273830	662676
Orchard Farm A8 East, R11	32	274803	662448
Salsburgh R14	21	282949	662905
Salsburgh R15	24	283850	663082
46 Howburn Road, R22	21	289832	664560
Braehead Farm, Bargeddie W, R5	38	273330	662713
New Edinburgh Road, Uddingston, R27	40	269161	661429
Alpine Grove, Uddingston, R28	26	269683	661249
Fallside Road, Uddingston, R29	32	270847	659998
Ravenscraig	20	276868	657027
Shawhead RBT, Coatbridge, R34	41	273432	662965

Source: Local Air Quality Management Progress Report, March 2005 and Grid References provided by North Lanarkshire Council Environmental Health.



12.2.10 The Progress Report identifies that six of these locations recorded exceedences in the NAQS annual mean objective, these were:

- Auchenkilns roundabout, Cumbernauld (56 $\mu\text{g}/\text{m}^3$ );
- Showcase Cinema Carpark, R4 (formerly Braehead Farm), (40  $\mu\text{g}/\text{m}^3$ );
- New Edinburgh Road, Uddingston, R27 (40  $\mu\text{g}/\text{m}^3$ );
- Bank Street II, Coatbridge (45  $\mu\text{g}/\text{m}^3$ );
- Shawhead roundabout, Coatbridge, R34 (41  $\mu\text{g}/\text{m}^3$ ); and
- Merry Street, Motherwell, R31 (40  $\mu\text{g}/\text{m}^3$ ).

12.2.11 In addition the progress report identifies high concentrations at Lauchope Street, Chapelhall and the Civic Centre, Motherwell. Both these sites have been identified in the Detailed Assessment by North Lanarkshire Council as requiring further monitoring.

12.2.12 The progress report identifies that air quality at all of these locations is strongly influenced by road traffic emissions.

12.2.13 There are five real time monitors within North Lanarkshire, these are chemiluminescence analysers fitted with dual reaction chambers, which are suitable for measuring real-time NO<sub>2</sub> concentrations. The progress report identifies that monitoring locations were selected based on the conclusions of the Detailed Assessment (2004). During 2004, the meters were located at sites for six month periods with the exception of Harthill where monitoring was undertaken for the whole year. Data for the seven sites where monitoring was undertaken are presented in Table 12.3.

**Table 12.3 Real Time Nitrogen Dioxide Monitoring Results**

Monitoring Site	Location Type	Period of Operation	Period Data Capture Rate (%)	Monitoring period annual mean concentration ( $\mu\text{g}/\text{m}^3$ )	Maximum 1-hour mean concentration over monitoring period ( $\mu\text{g}/\text{m}^3$ )
Calder Court, Coatbridge	Urban Background	Jan – Jun	97	26	129
Kirk o' Shotts	Roadside (M8)	Jan – May	81	21	96
Harthill	Roadside (M8) + Industrial	Jan – Dec	94	23	146
Motherwell Civic Centre	Roadside	Jul – Dec	93	23	100
Chapelhall	Roadside	Nov – Dec	76	34	109
Wishaw	Roadside	Jun – Dec	92	25	92
Motherwell Cross	Roadside	Jun – Dec	81	39	174

Source: Local Air Quality Management Progress Report, March 2005

12.2.14 The Progress Report identifies that with the exception of the Motherwell Cross site, the measured concentrations at each of the automatic stations are substantially below the NAQS annual mean and hourly mean objectives. No hourly concentrations exceeded 200 $\mu\text{g}/\text{m}^3$  at any of the sites.

12.2.15 **Particulate Matter (PM<sub>10</sub>).** Information on predicted background concentrations for particulate matter in 2004 is provided by the Air Quality Archive website based on 2001 estimates. The figures are based on 1km grid square basis. Lower levels of background particulate matter were predicted in upland areas as with nitrogen dioxide. Predicted background concentrations in North Lanarkshire range from 13.7 to 19.1  $\mu\text{g}/\text{m}^3$ .

12.2.16 These predictions demonstrate background levels, they do not allow for the identification of specific 'hotspots' of elevated air quality pollutants such as particular or road sources industries.

12.2.17 PM<sub>10</sub> monitoring was undertaken at four mobile monitors and during 2004 monitoring was undertaken at six locations as identified in Table 12.4. These locations reportedly focused on road junctions at which Air Quality Management Areas (AQMA) are proposed (see subsequent section on AQMA).

**Table 12.4 PM<sub>10</sub> Monitoring Results (2004)**

Monitoring Site	Location Type	Period of Operation	Period Data Capture Rate (%)	Annual Mean Concentration (µg/m <sup>3</sup> )	Maximum 24-hour Mean Concentration (µg/m <sup>3</sup> )	98 <sup>th</sup> % of 24-hr Mean Exceedences (µg/m <sup>3</sup> )
Calder Court, Coatbridge	Urban Background	Jan - Jun	96	19	45	36
Kirk o' Shotts	Roadside (M8)	Jan - May	84	13	37	27
Harthill	Roadside (M8) + Industrial	Jan - Dec	91	19	86	48
Motherwell Civic Centre	Roadside	Jul - Dec	92	15	53	39
Chapelhall	Roadside	Nov - Dec	100	9	35	32
Motherwell Cross	Roadside	Jun - Dec	82	13	37	27

Source: Local Air Quality Management Progress Report, March 2005

12.2.18 The Progress Report notes that exceedences of the 2010 PM<sub>10</sub> annual objective were recorded at Calder Court, Coatbridge and at Harthill. No exceedences of the 24 hour mean objective were reported.

12.2.19 **Sulphur Dioxide (SO<sub>2</sub>).** Information on estimated background concentrations for sulphur dioxide in 2001 is provided by the Air Quality Archive website, presented on a 1km grid square basis. Lower levels of background sulphur dioxide levels were estimated in upland areas in the northern and southern parts of North Lanarkshire. The highest levels of background sulphur dioxide levels are estimated to be in the urban areas including Cumbernauld, the Coatbridge to Airdrie corridor and around Holytown and Eurocentral. Predicted background concentrations in North Lanarkshire range from 1.2 to 9.1 µg/m<sup>3</sup>.

12.2.20 These predictions demonstrate background levels, they do not allow for the identification of specific 'hotspots' of elevated air quality pollutants such as particular industries.

12.2.21 Sulphur dioxide is monitored at three locations by 'Active Sampler Monitoring' and at three automatic monitoring stations. The results for the active sampler monitoring for 2004 is presented in Table 12.5.

**Table 12.5 Sulphur Dioxide Concentrations (2004)**

Location	Maximum 24-hour Mean Concentrations (ug/m <sup>3</sup> )	99.7 <sup>th</sup> %ile of 1-hour means (ug/m <sup>3</sup> )	99.9 <sup>th</sup> %ile of 15 minute means (ug/m <sup>3</sup> )
Muirhead	47	64	89
Kirkwood, Coatbridge	49	67	93
Main Street, Coatbridge	50	68	95

Source: Local Air Quality Management Progress Report, March 2005

12.2.22 Automatic monitoring is undertaken through the use of three automatic monitoring stations (one stationary and two mobile). The results from these three meters are presented in Table 12.6.

**Table 12.6 SO<sub>2</sub> Concentrations (2004)**

Location	99.17 <sup>th</sup> %ile of 24-hour Mean Concentrations (ug/m <sup>3</sup> )	99.79 <sup>th</sup> %ile of 1-hour mean concentrations (ug/m <sup>3</sup> )	99.9 <sup>th</sup> %ile of 15 minute means (ug/m <sup>3</sup> )
Bron Way, Cumbernauld (urban background site)	14	40	45
Harthill	8	20	57
Motherwell Civic Centre	14	40	35

Source: Local Air Quality Management Progress Report, March 2005

12.2.23 The Progress Report identifies that monitored concentrations for SO<sub>2</sub> at all sites are low and considerably below the objective standards.

12.2.24 The progress report notes that **Carbon Monoxide** monitoring is undertaken within North Lanarkshire at one location at Harthill with a maximum 8 hour mean concentration in 2004 of 0.7mg/m<sup>3</sup>.

12.2.25 The Progress Report notes that the monitored concentrations are significantly below the Air Quality Objective of 10mg/m<sup>3</sup>.

12.2.26 **Lead and Heavy Metals** monitoring is undertaken within North Lanarkshire at one location at Motherwell Civic Centre, Table 12.7 presents the monitoring results.

**Table 12.7 Heavy Metal Monitoring Concentrations, Motherwell Civic Centre (2004)**

Parameter	Annual Mean Lead-in-Air Concentration (ug/m <sup>3</sup> )	Annual Average Concentrations (ng/m <sup>3</sup> )
Lead	0.012	-
Arsenic	-	0.63
Cadmium	-	0.1
Chromium	-	2.1
Copper	-	6.9
Iron	-	244.3
Mercury	-	0.1
Manganese	-	4.1
Nickel	-	0.7
Platinum	-	<0.01
Vanadium	-	1.1
Zinc	-	20.0

Source: Local Air Quality Management Progress Report, March 2005

12.2.27 The Progress Report identifies that the annual mean lead-in-air concentrations measured at Motherwell Civic Centre are significantly below the NAQS.

12.2.28 The Updating and Screening Assessment report states that the first round Review and Assessment of air quality within North Lanarkshire concluded that it was unlikely that there would be an exceedence of air quality objectives for **Benzene** and **1,3 Butadiene**. This conclusion was accepted by the Scottish Executive.

#### Air Quality Management Areas (AQMAs)

12.2.29 **Air Quality Management Areas** are designated by the local authority in areas where it considers the statutory NAQS air quality objectives are unlikely to be met within the defined timescales for the objectives. There are currently no AQMAs within North Lanarkshire however North Lanarkshire Council has proposed three AQMAs which are identified below.

- AQMA1 – Chapelhall. Located in the centre of Chapelhall, predominantly along the A73 (Main Street / Bellside Road). This AQMA occupies an area of approximately 4.1ha.
- AQMA2 – Coatbridge. Running from the centre of Coatbridge south to the junction with the A8, this AQMA is located predominately along the A725 (Whifflet Street / North Road) and occupies an area of approximately 8.5ha.
- AQMA3 – Motherwell. Located in the central and south-eastern parts of Motherwell, this AQMA is located predominately along the A721 and town ring road and occupies an area of approximately 58.2ha.

12.2.30 North Lanarkshire Council report that these AQMAs will be declared by the end of 2005. Figures 12.2 to 12.4 present the proposed boundaries of the AQMAs.

#### Greenhouse Gases

12.2.31 Greenhouse gases are gases in the atmosphere which absorb infra-red radiation / energy and contribute to climate change. The National Environment Technology Centre (NETCEN) has produced a report (Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990 – 2002) on behalf of the Department for Environment, Food and Rural Affairs (DEFRA). This report identifies levels of Greenhouse Gas emissions within Scotland.



12.2.32 The inventory reports on the six main greenhouse gases, these being:

- Carbon dioxide (CO<sub>2</sub>);
- Methane (CH<sub>4</sub>);
- Nitrous oxide (N<sub>2</sub>O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs);
- Sulphur hexafluoride (SF<sub>6</sub>).

12.2.33 The inventory report identifies that in 2002 Scottish greenhouse gas emissions accounted for approximately 11% of the United Kingdom emissions. No breakdown is provided for emissions within Scotland although the significance of North Lanarkshire to Scottish emissions can be assessed through review of the key factors affecting emissions, which include:

- Energy Production. North Lanarkshire does not have any major energy production facilities.
- Transport. North Lanarkshire has an extensive road network with key national and commuter transport routes.
- Land Use. Land use is identified as a factor in greenhouse gas emissions and North Lanarkshire contributes through a number of 'sink' locations such as peat bogs.

12.2.34 The inventory identifies that there is a high degree of uncertainty in the Scottish CO<sub>2</sub> inventory which reflects the large contribution made by land use change and forestry. Further detailed discussion of climate change and the role of greenhouse gases in climate change is presented in Chapter 14: Cumulative Effects, Section 14.5.

12.2.35 North Lanarkshire Council provided information on the amount of carbon dioxide produced by Council departments in (2003/4), which is summarised in Table 12.8 below. Whilst these figures provide a level of emission from only one part of North Lanarkshire the figures will allow comparison of trends in Section 12.3.

**Table 12.8 Carbon Dioxide Produced by North Lanarkshire Council Departments**

	Tonnes of CO <sub>2</sub> Produced
Electricity	31,697
Natural Gas	30,129
Oil	3,349
Coal	808
Water	35
Total	66,018
CO <sub>2</sub> PI (based on total floor area of 797,997m <sup>2</sup> )	83 kg/m <sup>2</sup> /pa

**Source: Information on carbon dioxide production from North Lanarkshire Council**

### Sources and Receptors

12.2.36 There are a range of emissions sources that contribute to local air quality within North Lanarkshire. In summary these include:

- Vehicle Emissions;
- Other Transport Emissions (such as railways, rail depots and airports);
- Domestic Fuel Burning;
- Industrial Activities (including quarries etc); and
- Regional, National and Global Sources (including nearby conurbations such as Glasgow).



12.2.37 The contribution from traffic sources is generally considered to be the most significant and data exists within North Lanarkshire for traffic figures on the main road network. A summary of the average daily traffic flow figures for a range of roads is presented in Table 12.9. These figures are based on traffic monitoring data undertaken by the Scottish Executive (see Figure 12.5 for monitoring locations). The average daily two-way flow figures are based on available data. As daily monitoring data is not necessarily complete, the number of days for which the data are based on within 2005 is also presented.

**Table 12.9 Traffic Flow Figures within North Lanarkshire (2005)**

Road	Location Description	Average Daily Flow	Number of Days
<b>Motorways</b>			
M8	1 mile west of Junction 5	54,738	247
M73	South of Baillieston	40,455	192
M74	At Uddingston	75,194	191
M80	Between Junctions 2 and 3	55,695	231
<b>A-Roads</b>			
A73	At Dalmacoulter	16,260	231
A80	At Moodiesburn	48,360	249
	East of Auchinkilns Roundabout	55,307	161
	East of M73 Junction	69,595	213
A725	At Orbiston	41,579	234
A8011	Cumbernauld Central Way	23,510	229
<b>B-Roads</b>			
B802	Croy to Auchinstarry	9,335	230
B816	Castlecary Road	7,680	229

Source: Scottish Executive Traffic Flow Data provided 23/09/05

12.2.38 Whilst traffic flow figures can provide an indication of the extent of, and trends in, a major source of air pollutants, other factors affect the levels of air pollutants such as:

- Meteorology;
- Improved vehicle and fuel design; and
- Traffic patterns and congestion.

12.2.39 Receptors within North Lanarkshire primarily comprise residential properties both within urban areas and with rural settings. There are some key areas within North Lanarkshire where principal road transport routes pass in close proximity to urban receptors, these include:

- A80 through Cumbernauld, Moodiesburn and Muirhead;
- A8 through Coatbridge and Chapelhall;
- M8 near Harthill;
- A725 through Bellshill; and
- M74 by Motherwell and Tannochside.

12.2.40 Other well-trafficked roads pass through the majority of urban areas which are focussed in the western and northern parts of North Lanarkshire.

12.2.41 Within North Lanarkshire there are other transport sources of air pollutants, these include a railway network with both passenger and freight transport including various rail depots such as Mossend near Motherwell. There are potential air transport sources from Cumbernauld airport and regionally from Edinburgh and Glasgow airports.

12.2.42 Quarrying and industrial activities across North Lanarkshire are noted as potential sources of air pollution, particularly with regard to particulates. Air emissions from industry are monitored and regulated by SEPA and therefore emissions should be within guidelines. SEPA's Scottish Pollutant Release Inventory (SPRI) on its website is a register of site specific emissions to air and water for a range of pollutants. The site currently provides access to data gathered under the requirements of the European Pollutant Emission Register (EPER) for the calendar year 2002 and under SPRI requirements for 2004. A summary of the activities with emissions to air is presented below:





- Brick works, one site;
- Food production, two sites;
- Landfill sites, three sites;
- Metal and coating works, four sites;
- Oil / chemical works and refineries, three sites;
- Oil recovery plant, one site;
- Sewage treatment works, three sites; and
- Timber processing plant, one site.

12.2.43 Air quality within North Lanarkshire may be affected by regional air quality including sources such as the Glasgow conurbation which is up prevailing wind from North Lanarkshire.

#### Wind Speed and Direction

12.2.44 North Lanarkshire is located within the Central Belt of Scotland and lies between the west coast, which experiences generally higher levels of wind, and the east coast which is generally subject to lower wind levels. Scotland, as with the United Kingdom as a whole, receives a predominantly westerly wind.

12.2.45 North Lanarkshire Council provided summary wind speed data for North Lanarkshire (See Figure 12.6). This is based on average wind speeds on a 1km square grid basis. The results identify higher average wind speeds on the higher ground in the northern and eastern parts of North Lanarkshire with the lowest wind speeds in the lowland areas of the Kelvin Valley and the south-western part of North Lanarkshire.

### **Noise**

12.2.46 Noise can be defined as unwanted sound. The perception of sound as noise can be influenced by properties of the noise such as repetition, level / volume, timing and nature of background sound. This noise can be associated with a range of sources such as traffic, aircraft, construction sites and residential occupiers.

12.2.47 Statutory noise nuisance is covered under legislation and North Lanarkshire Council can serve abatement notices under the Environment Protection Act 1990.

12.2.48 Figures are held for reported noise complaints however they are limited in that they cover only reported incidents. Data provided on the Scottish Executive website for Environmental Statistics (<http://www.scotland.gov.uk/stats/envonline>) note that there were 507 reported noise complaints made to North Lanarkshire Council in 2003/4.

12.2.49 The sources for noise are similar to that for air quality. A summary of the main noise sources are presented below. As identified above though, noise is subjective and therefore the level at which these sources create noise, as opposed to sound, will vary based on a range of factors.

- Road Traffic;
- Aircraft;
- Construction Sites;
- Noise from Industry and Utilities; and
- Neighbours and Urban.

12.2.50 There is a lack of data on environmental noise sources such as traffic and for background noise. No data are available for North Lanarkshire with regard to tranquil areas.



## Summary of Air Quality and Noise Baseline

12.2.51 Table 12.10 summarises the baseline air quality, climate and noise resources identified within this section along with their geographical distribution and abundance.

**Table 12.10 Summary of Baseline Distribution**

Resource	Distribution
Air quality	<ul style="list-style-type: none"> <li>There is a network of monitoring sites for the following pollutants in North Lanarkshire: Nitrogen dioxide (NO<sub>2</sub>), particulates (PM<sub>10</sub>), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), lead and heavy metals</li> <li>Diffusion tube monitoring data in 2004 for NO<sub>2</sub> identified six sites with exceedences of the annual mean air quality objective. Each of these sites is heavily influenced by road traffic</li> <li>Real time monitoring of NO<sub>2</sub> in 2004 was undertaken at seven locations. With the exception of one site (Motherwell Cross) annual mean and hourly mean levels were substantially below the air quality objectives for NO<sub>2</sub></li> <li>Real time monitoring of PM<sub>10</sub> in 2004 was undertaken at six locations. The levels recorded met the current annual air quality objective but at two sites the proposed objective for 2010 was just exceeded (Coatbridge and Harthill)</li> <li>Predicted background concentrations of NO<sub>2</sub> and PM<sub>10</sub> in North Lanarkshire are all within current air quality objective levels</li> <li>Monitored levels of all other pollutants were well within relevant air quality objectives</li> <li>Air Quality Management Areas are proposed to be declared by North Lanarkshire Council before the end of 2005 in three locations, these being: Airdrie, Chapelhall and Motherwell</li> </ul>
Noise	<ul style="list-style-type: none"> <li>Limited data are available on background noise levels in North Lanarkshire</li> <li>In 2003/4 there were 507 noise complaints reported to North Lanarkshire Council's Environmental Health service</li> </ul>

## 12.3 TRENDS IN THE RESOURCE

### Air Quality

#### Air Quality Levels

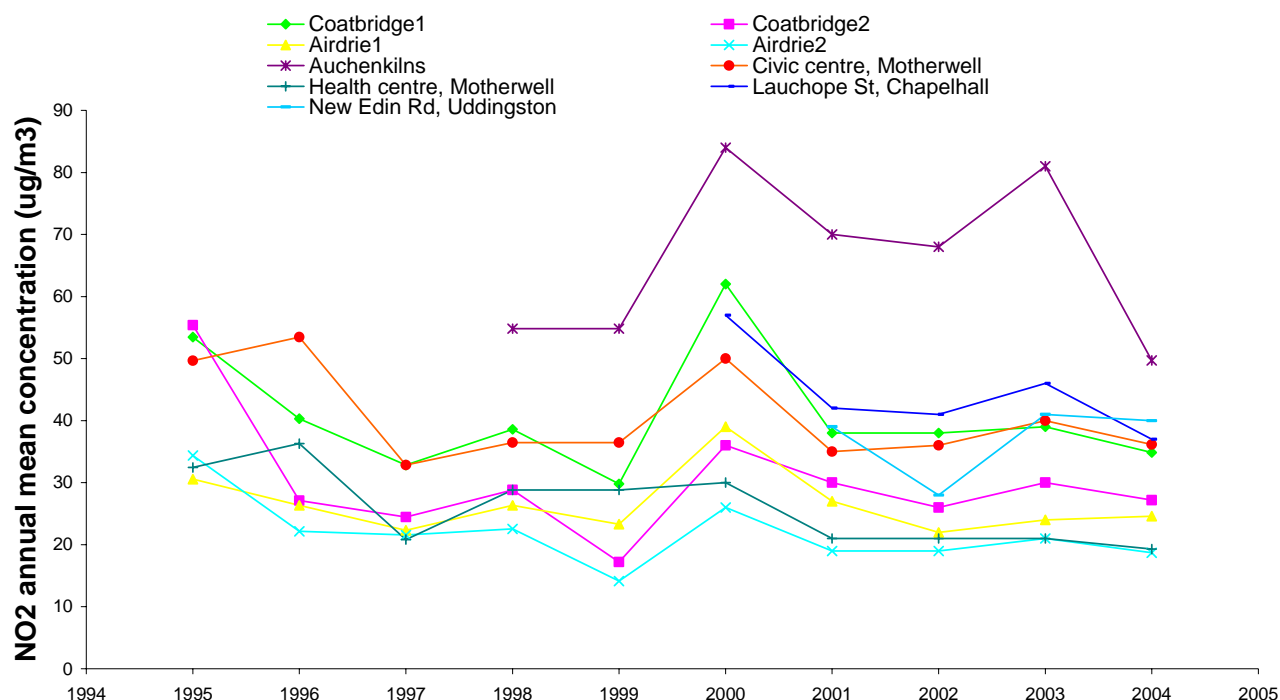
12.3.1 Trends in air quality monitoring data are available from North Lanarkshire Council and are presented in the following paragraphs for nitrogen dioxide, particulate matter, carbon monoxide and heavy metals. Overall, the Progress Report notes that monitored pollutant concentrations during 2004 were generally lower than concentrations in 2003.

12.3.2 **Nitrogen Dioxide.** Data on predicted background levels of nitrogen dioxide have been made by the National Air Quality Information Archive for 2005 and 2010 based on estimates of background levels in 2001. Predictions are based on 1km grid squares and these are presented graphically in Figures 12.7 to 12.9. From these plans it can be seen that there is a predicted decrease in the area of North Lanarkshire experiencing higher levels of NO<sub>2</sub> with higher concentrations focussed on the west of North Lanarkshire.

12.3.3 As discussed in Section 12.2, these predictions demonstrate background levels, they do not allow for the identification of specific 'hotspots' of elevated air quality pollutants such as junctions.

12.3.4 The extent of trend data for nitrogen dioxide is subject to the consistent monitoring at various locations. Passive diffusion tube monitoring locations are created and discontinued resulting in incomplete trends for some locations. A summary graph is presented in the Progress Report for nitrogen dioxide monitoring data at nine locations for the period 1995 to 2004, this is presented in Graph 12.1.

Graph 12.1 Trend in Monitored NO<sub>2</sub> Concentrations



Source: Progress Report (2005)

12.3.5 The Progress Report notes that the trend is difficult to determine and changes in concentrations may be attributable to changes in laboratory techniques (in 2000) and meteorological conditions. The report concludes that annual mean concentrations of NO<sub>2</sub> were generally lower in 2004 than 2003.

12.3.6 **Particulate Matter.** Data on predicted background levels of particulate matter have been made by the National Air Quality Information Archive for 2004 and 2010 based on estimates of background levels in 2001. Predictions are based on 1km grid squares and these are presented graphically in Figures 12.10 to 12.12. From these plans it can be seen that there is a predicted decrease in the area of North Lanarkshire experiencing higher levels of Particulate Matter with higher concentrations focussed on the west of North Lanarkshire. These predictions demonstrate background levels, they do not allow for the identification of specific 'hotspots' of elevated air quality pollutants such as junctions

12.3.7 Trends in particulate matter are presented within the Progress Report for 2000 to 2004, these are summarised in Table 12.11 below.

Table 12.11 Trends in Levels of Particulate Matter (2000 – 2004)

Parameter	2000	2001	2002	2003	2004
Maximum 24 hour Mean Concentration (ug/m <sup>3</sup> ). The number of exceedences of the 24-hr mean objective are given in brackets for 2000 – 2003.					
Calder Court	18 (5)	17 (5)	16 (2)	20 (6)	19
Croy	14 (0)	27 (25)	20 (6)	18 (5)	
Motherwell Civic Centre	14 (0)	19 (6)			13
Stepps	23 (0)				
Auchenkilns	15 (0)				
Greengairs	24 (0)	24 (1)			
Kirk o'Shotts			16 (1)	25 (5)	15
Harthill			19 (0)	21 (14)	19
Chapelhall					9
Motherwell Cross					13

Source: Local Air Quality Management Progress Report, March 2005



12.3.8 The Local Air Quality Management Progress Report identifies that the monitoring data for Croy and Greengairs indicate potential exceedence of the NAQS annual mean objective in 2010.

12.3.9 The Progress Report notes a decline in PM<sub>10</sub> concentrations between 2003 and 2004 although results could not directly be compared. In 2003 all locations registered exceedences of the 2010 annual mean objectives however in 2004 this was only two of the six locations where monitoring took place.

12.3.10 The Detailed Assessment concludes that exceedences of the annual mean objective for PM<sub>10</sub> would occur in 2010 at four locations/junctions, these being:

- Junction of A723 Hamilton Rd. and A721 West Hamilton St./Muir St., Motherwell (Motherwell Cross);
- Junction of A721 Windmillhill St. and B754 Airbles Rd., Motherwell (Civic Centre);
- Junction of A725 Whifflett St. and B753 Calder St./School St., Coatbridge (Whifflett);
- Junction of A73 and B799 Main Street, Chapelhall (Chapelhall).

12.3.11 In addition the Detailed Assessment concluded that it was likely that the annual average concentration would exceed 18ug/m<sup>3</sup> in Salsburgh during 2010.

12.3.12 **Sulphur Dioxide** has been monitored at three locations within North Lanarkshire between 2000 and 2004, the data are presented in Table 12.12.

**Table 12.12 Trends in Levels of Sulphur Dioxide (2000 – 2004)**

	2000	2001	2002	2003	2004
<b>Muirhead</b>					
Maximum 24hour Mean Concentration (µg/m <sup>3</sup> )	46	128	126	55	47
99.7 <sup>th</sup> %ile of 1-hour Means (µg/m <sup>3</sup> )	63	175	172	75	64
99.9 <sup>th</sup> %ile of 15-minute Means (µg/m <sup>3</sup> )	87	243	239	104	89
<b>Coatbridge Kirkwood</b>					
Maximum 24hour Mean Concentration (µg/m <sup>3</sup> )	50	60	47	54	49
99.7 <sup>th</sup> %ile of 1-hour Means (µg/m <sup>3</sup> )	68	82	64	74	67
99.9 <sup>th</sup> %ile of 15-minute Means (µg/m <sup>3</sup> )	95	114	89	102	93
<b>Coatbridge Main Street</b>					
Maximum 24hour Mean Concentration (µg/m <sup>3</sup> )	105	61	57	57	50
99.7 <sup>th</sup> %ile of 1-hour Means (µg/m <sup>3</sup> )	144	84	78	78	68
99.9 <sup>th</sup> %ile of 15-minute Means (µg/m <sup>3</sup> )	199	116	108	108	95

Source: Local Air Quality Management Progress Report, March 2005

12.3.13 The Progress Report notes that measured SO<sub>2</sub> concentrations were lower in 2004 than 2003 and this continues the general declining trend of SO<sub>2</sub> concentrations since 2001.

12.3.14 It is reported that exceedences of the National Air Quality Standard (NAQS) are unlikely in the areas where monitoring is undertaken given these are typically urban areas with no industrial emitters and a low number of houses burning solid fuel.

12.3.15 No data are presented within the Progress Report for historical **Carbon Monoxide** monitoring data to allow the identification of trends, however, levels identified are below NAQS objectives.

12.3.16 **Lead and Heavy Metal** monitoring has been undertaken at Motherwell Civic Centre for a number of years, data for the period from 2000 to 2004 is presented in Table 12.13. The Progress Report notes that the annual mean lead-in-air concentrations measured at Motherwell have been significantly below the NAQS objective level between 2002 and 2004.



**Table 12.13 Trends in Concentrations of Heavy Metals (2000 – 2004)**

Annual average concentrations (ng/m <sup>3</sup> )	2000	2001	2002	2003	2004
Lead	-	-	0.012	0.010	0.012
Arsenic	-	-	-	0.8	0.63
Cadmium	0.3	0.5	0.4	0.2	0.1
Chromium	7.0	17.0	5.2	2.6	2.1
Copper	6.8	16.0	7.0	8.8	6.9
Iron	304.0	533.0	223.6	229.8	244.3
Mercury	-	-	-	0.0	0.1
Manganese	6.1	9.7	4.1	4.3	4.1
Nickel	3.0	2.6	1.3	0.9	0.7
Platinum	-	-	-	<0.01	<0.01
Vanadium	1.3	2.1	1.2	1.6	1.1
Zinc	12.0	35.0	15.1	16.3	20.0

Note: Figures for Lead are annual mean lead-in-air concentrations (ug/m<sup>3</sup>) and for remaining parameters are annual average concentrations (ng/m<sup>3</sup>)

Source: Local Air Quality Management Progress Report, March 2005

## Greenhouse Gases

12.3.17 Information provided within the Department of Environment, Food and Rural Affairs (DEFRA) Inventory of Greenhouse Gases provides a summary of the key trends in emissions that have occurred between 1990 and 2002 for the key main greenhouse gases (Table 12.14). Overall there has been a decrease in greenhouse gas emissions across the United Kingdom with the majority of greenhouse gas emissions decreasing within Scotland. No figures are presented on emissions within different areas of Scotland.

**Table 12.14 Trends in Greenhouse Gas Emissions**

Greenhouse Gas	UK Trend (1990 – 2002)	Scotland Trend (1990 – 2002)	Reasons
Carbon Dioxide	Decrease of 8.7%	Decrease of 3.2%	Developments in power generation and reductions in CO <sub>2</sub> emissions from industry.
Methane	Decrease of 42.7%	Decrease of 29.5%	Significant reductions in methane emissions from waste disposal and coal mining
Nitrous Oxide	Decrease of 39.6%	Decrease of 14.7%	Reduction in emissions and installation of abatement at an acid plant – this off-sets the increase from the transport sector associated with increased use of three-way catalytic convertors.
HFCs	Decrease of 8.4%	Cannot be Calculated	Large reduction in emissions following abatement at an HCFC plant however there is a rising trend in emissions from sources such as losses from refrigeration and air conditioning equipment and emissions from industrial aerosols.
PFCs	Decrease of 72.5%	Decrease of 27.1%	Improved control measures in aluminium production and a reduction in aluminium production capacity.
SF <sub>6</sub>	Increase of 47.3%	Increase of 163.9%	Increased magnesium production and a greater use of SF <sub>6</sub> in various industries.

Source: Greenhouse gas inventories for England, Scotland, Wales and Northern Ireland; 1990 – 2002, DEFRA, October 2004

12.3.18 As identified within the baseline section, North Lanarkshire Council has provided data on the quantities of carbon dioxide produced by the Council Departments, this trend information is summarised within Table 12.15. Again as discussed within Section 12.2 although these figures do not provide trends for carbon dioxide production across North Lanarkshire they do offer trends for North Lanarkshire Council.

**Table 12.15 Trends in carbon dioxide production by North Lanarkshire Council**

Tonnes of CO <sub>2</sub> Produced within North Lanarkshire Council (All Departments)					
	1999/2000	2000/01	2001/02	2002/03	2003/04
Electricity	36,734	31,090	29,822	30,892	31,639
Natural Gas	29,369	29,466	28,641	29,119	30,119
Oil	8,949	1,981	0	0	3,349
Coal	0	0	0	0	808
Water	4	14	22	44	35
Total	75,056	62,550	58,484	60,055	65,950

Source: Information provided by North Lanarkshire Council (10 October 2005)

### Sources and Receptors

12.3.19 Traffic flow monitoring undertaken by the Scottish Executive is available at selected locations from 2000. Table 12.16 presents trend data in traffic flows for the locations identified within Section 12.2. The trends for motorways, A-roads and B-roads are presented graphically in Graphs 12.2 to 12.4 respectively.

**Table 12.16 Traffic Flow Figures within North Lanarkshire (2005)**

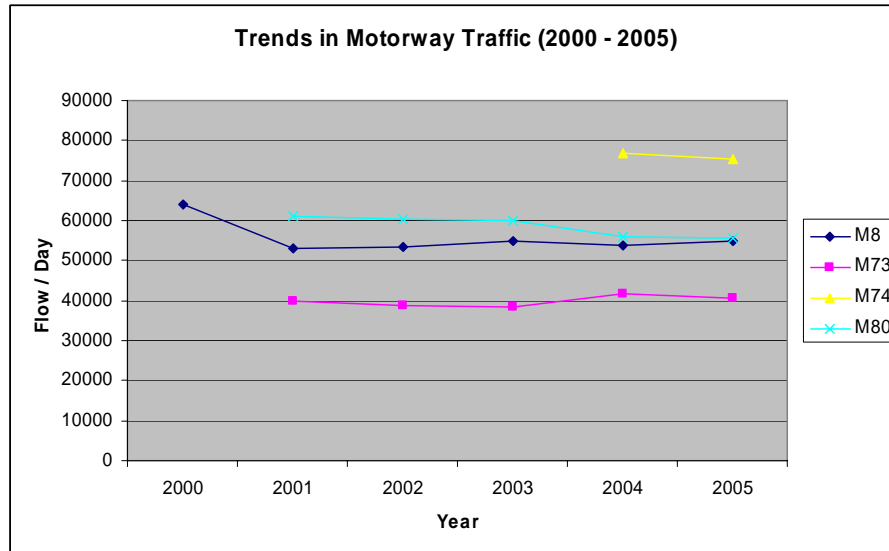
Road	Location Description	2000	2001	2002	2003	2004	2005
<b>Motorways</b>							
M8	1 mile west of Junction 5	64203 (365)	53043 (360)	53411 (363)	54970 (340)	53763 (363)	54738 (247)
M73	South of Baillieston		39701 (242)	38802 (71)	38346 (223)	41642 (147)	40455 (192)
M74	At Uddingston					76776 (332)	75194 (191)
M80	Between Junctions 2 and 3		61120 (112)	60419 (239)	60151 (231)	56150 (357)	55695 (231)
<b>A-Roads</b>							
A73	At Dalmacoulter				15868 (301)	15742 (304)	16260 (231)
A80	At Moodiesburn				49258 (299)	48434 (366)	48360 (249)
	East of Auchinkilns Roundabout				56473 (68)	56844 (354)	55307 (161)
	East of M73 Junction				70511 (77)	69873 (312)	69595 (213)
A725	At Orbiston				38435 (92)	40350 (337)	41579 (234)
A8011	Cumbernauld Central Way				19946 (209)	23876 (128)	23510 (229)
<b>B-Roads</b>							
B802	Between Croy and Auchinstarry Bridge				8812 (310)	8999 (365)	9335 (230)
B816	Castle Cary Road				6922 (309)	7802 (365)	7680 (229)

Note: Figures are two way average annual daily flows based on available data. The number of days on which the data is average is presented in brackets.

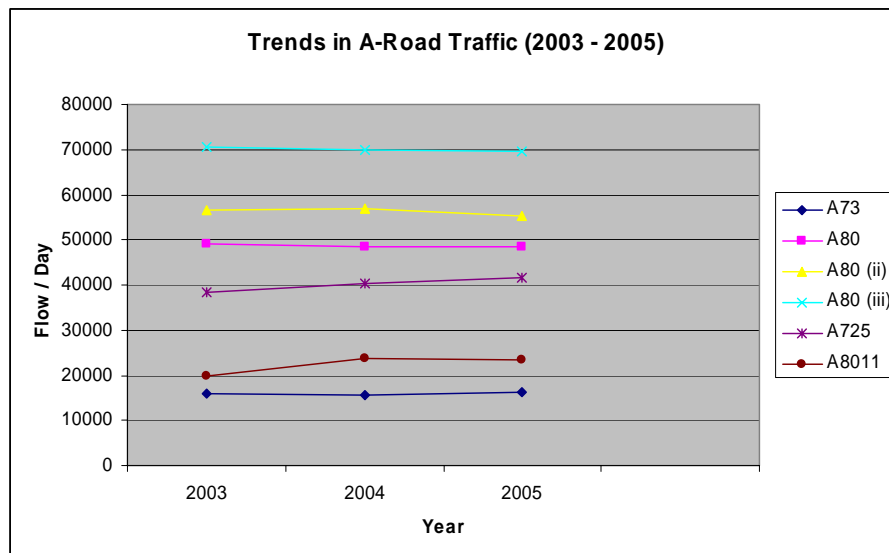
Source: Scottish Executive Traffic Flow Data provided 23/09/05



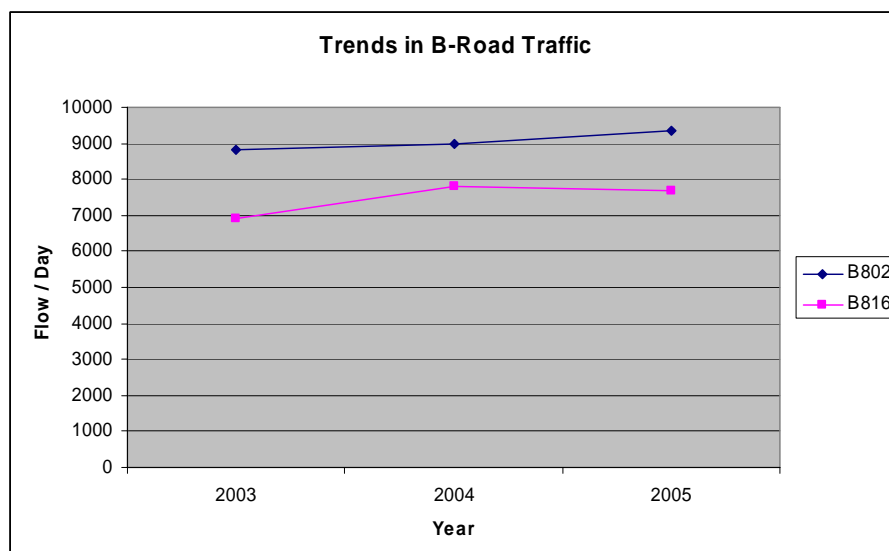
**Graph 12.2 Trends in Motorway Traffic in North Lanarkshire (2000 – 2005)**



**Graph 12.3 Trends in A-Road Traffic in North Lanarkshire (2003 – 2005)**



**Graph 12.4 Trends in B-Road Traffic in North Lanarkshire (2003 – 2005)**







12.3.20 The data within the table and figures demonstrates that traffic flow figures have remained largely consistent over the period of monitoring.

## Noise

12.3.21 The Scottish Executive reports that Scottish Local Authorities report that a rising number of complaints are about neighbour noise and mediation services report that around 50% of neighbour mediation cases are about noise disturbance (Reference Scottish Executive Website - <http://www.scotland.gov.uk/Topics/Environment/Pollution/Noise-Nuisance/16871/8360>)

12.3.22 Table 12.17 below presents the trends in formal noise complaints received by North Lanarkshire Council between 1996/97 and 2003/04.

**Table 12.17 Trends in Noise Complaints Received by North Lanarkshire Council**

Year	Number of Formal Complaints	Complaints Resulting in Formal Action
1996/97	232	-
1997/98	406	1
1998/99	377	2
1999/2000	473	12
2000/01	431	0
2001/02	288	-
2002/03	225	-
2003/04	507	-

Source: Scottish Executive Website, Environmental Statistics (<http://www.scotland.gov.uk/stats/envonline>)

12.3.23 The figures presented in Table 12.17 do not identify any noticeable trend in the number of noise complaints received by North Lanarkshire Council, although the largest number of complaints were made in the last annual monitoring period for 2003/4.

## 12.4 PRESSURES ON THE RESOURCE

12.4.1 The two key pressures on air quality within North Lanarkshire are associated with the changes in the sources of emissions and with regard to legislative requirements.

12.4.2 **Change in the Source.** A key impact on levels of air quality within North Lanarkshire is associated with a change in the source such as increases in traffic numbers, particularly on key roads such as the A8 and A80. Factors such as meteorological conditions may act to increase/decrease levels of air quality through physical effects such as wind dispersion.

12.4.3 Many developments within North Lanarkshire are focussed around the road network with residential developments being located near motorway junctions such as around peripheral housing areas for Airdrie. Such developments may result in increased vehicle usage which in turn places a pressure on the air quality.

12.4.4 **Legislative Pressures.** As discussed in Section 12.2, there are legislative requirements for local air quality, specifically the National Air Quality Objectives (NAQS) which are to be achieved over a number of dates. A key pressure on the air quality of North Lanarkshire will therefore be compliance with these objectives.

12.4.5 North Lanarkshire Council is currently in the process of reviewing its requirements for further air quality monitoring and is intending to declare three Air Quality Management Areas by the end of 2005. Such monitoring and reviews should ensure the identification of the key areas where air pollution is an issue and the identification of measures to address air quality problems in these areas.

12.4.6 Local Authorities are required under legislation to review and assess air quality within their areas and to assess compliance with standards and objectives. Table 12.18 below identifies the NAQS objective levels for a range of parameters as identified in the regulations.



**Table 12.18 Objectives in the Air Quality Regulations 2000 and (Amendment) Regulations 2002 for the purposes of Local Air Quality Management.**

Pollutant	Objective		Date to be Achieved By
	Concentration	Measured As	
Benzene	16.25µg/m <sup>3</sup> (5ppb)	Running annual mean	31 December 2003
	3.25 µg/m <sup>3</sup> (1ppb)	Annual mean	31 December 2010
1,3-Butadiene	2.25µg/m <sup>3</sup> (1ppb)	Running annual mean	31 December 2003
Carbon monoxide (CO)	10mg/m <sup>3</sup> (10ppm)	Running 8 hour mean	31 December 2003
Lead	0.5µg/m <sup>3</sup>	Annual mean	31 December 2004
	0.25µg/m <sup>3</sup>	Annual mean	31 December 2008
Nitrogen dioxide (NO <sub>2</sub> )	200µg/m <sup>3</sup> (105ppb) not to be exceeded more than 18 times per year <sup>1</sup>	1 hour mean	31 December 2005
	40µg/m <sup>3</sup> (21ppb)	Annual mean	31 December 2005
Particles (PM <sub>10</sub> )	50µg/m <sup>3</sup> not to be exceeded more than 35 times per year <sup>2</sup>	24 hour mean	31 December 2004
	40µg/m <sup>3</sup>	Annual mean	31 December 2004
	50µg/m <sup>3</sup> not to be exceeded more than 7 times per year <sup>3</sup>	24 hour mean	31 December 2010
	18µg/m <sup>3</sup>	Annual mean	31 December 2010
Sulphur dioxide (SO <sub>2</sub> )	50µg/m <sup>3</sup> (132ppb) not to be exceeded more than 24 times a year <sup>4</sup>	1 hour mean	31 December 2004
	125µg/m <sup>3</sup> (47ppb) not to be exceeded more than 3 times a year <sup>5</sup>	24 hour mean	31 December 2004
	266µg/m <sup>3</sup> (100ppb) not to be exceeded more than 35 times a year <sup>6</sup>	15 minute mean	31 December 2005

<sup>1</sup> corresponds to the 99.79<sup>th</sup> percentile concentration of hourly mean concentrations

<sup>2</sup> corresponds to the 90.4<sup>th</sup> percentile concentration of 24-hour mean concentrations

<sup>3</sup> corresponds to the 98<sup>th</sup> percentile concentration of 24-hour mean concentrations

<sup>4</sup> corresponds to the 99.7<sup>th</sup> percentile concentration of 1-hour mean concentrations

<sup>5</sup> corresponds to the 99<sup>th</sup> percentile concentration of 24-hour mean concentrations

<sup>6</sup> corresponds to the 99.9<sup>th</sup> percentile concentration of 15-minute mean concentrations

Source: Local Air Quality Management Progress Report, March 2005

12.4.7 With regard to greenhouse gases, the United Kingdom has a legally binding target to reduce emissions of the six key greenhouse gases by 12.5% relative to 1990 levels over the period 2008 to 2012. The United Kingdom has set a domestic goal to cut carbon dioxide emissions by 20% below 1990 levels by 2010 (Ref. Environment Agency Website, 18/10/05, <http://www.environment-agency.gov.uk/yourenv/432430/432434/432446/435321>).

12.4.8 There are pressures on the noise environment within North Lanarkshire through changes in sources such as traffic as well as noise associated with new developments, particularly where these occur in rural and/or tranquil locations.



## 12.5 CONDITION OF THE RESOURCE

12.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 12.19 summarises the condition of the resource drawing on the analysis presented in Sections 12.2 to 12.4.

**Table 12.19 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Status	Drivers and Pressures	
Air Quality	<ul style="list-style-type: none"> <li>Monitoring data show a slight decrease in concentrations of NO<sub>2</sub> in recent years although long term trend is unclear</li> <li>No clear trends in monitored PM<sub>10</sub> levels</li> <li>Other air pollutant concentrations have declined</li> <li>Declaration of AQMAs suggests air quality issues in three key locations</li> </ul>	<ul style="list-style-type: none"> <li>Road traffic is the key source of local air pollution in North Lanarkshire and traffic levels continue to increase on some routes</li> <li>Air quality objectives and AQMAs will exert a policy pressure to address air pollution hotspots</li> </ul>	<ul style="list-style-type: none"> <li>Improved air quality in urban and roadside locations would enhance the attractiveness of the North Lanarkshire environment</li> </ul>
Noise	<ul style="list-style-type: none"> <li>Limited North Lanarkshire wide information makes status difficult to define</li> <li>No identifiable trends observed in noise complaints</li> </ul>	<ul style="list-style-type: none"> <li>European legislation on noise mapping will improve level of information on background noise levels</li> <li>No specific data on tranquility</li> </ul>	<ul style="list-style-type: none"> <li>Rural areas are generally characterised by low background noise and offer tranquil locations</li> </ul>

## 12.6 KEY ASSETS

12.6.1 Based on the analysis of environmental information within Sections 12.2 to 12.5, the following key air quality and noise assets have been identified along with a discussion of these assets.

**Table 12.20 Key Air Quality and Noise Assets**

Key Asset	Description
Clean Air	Clean air, and the opportunity for improved air quality, is a key asset to North Lanarkshire. Many parts of North Lanarkshire have 'clean air', these being predominately in the less developed areas in the north and east of the area. The trends show improving background air quality across North Lanarkshire although the opportunity exists, particularly within urban areas affected by road traffic, for further improvements in air quality which would benefit local communities.
Quiet and Tranquil Areas	As with clean air, quiet and tranquil areas within North Lanarkshire are key assets. Many parts of North Lanarkshire are quiet with regard to background sound levels. Areas such as along transport corridors and in and around urban areas experience higher background noise levels although where sound becomes noise is a subjective response.



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## 12.7 ISSUES FOR RESOURCE MANAGEMENT & PROTECTION

12.7.1 The key assets identified in Section 12.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key air quality and noise assets within North Lanarkshire.

### Clean Air

12.7.2 North Lanarkshire Council currently monitors and regulates the air quality within North Lanarkshire, and the Scottish Environment Protection Agency is responsible for regulating industrial emissions. As one of the key sources of air pollution within North Lanarkshire, the management of traffic is an important factor in managing and improving the air quality. Future predicted improvements in vehicle technologies offer potential to reduce emissions of local air pollutants, however these need to be balanced against the predicted growth in traffic volumes.

12.7.3 The location of new developments needs to take account of traffic generation, as many new developments are located for their access to the road network including along the A8 / M8 and A80 corridors. There is the opportunity for new developments to assist in the development of public transport usage and reduce car usage through careful land use planning to reduce the demand and requirement for travel, particularly by private vehicles. Local plan policies should ensure that new developments are designed with regard to sustainable transport and public transport options.

12.7.4 The data within this report suggests a general increase in the quality of North Lanarkshire's background air quality, however locations of specific concern are identified particularly within urban town centres. Local plan policy may need to consider the management of town centres with regard to their air quality.

### Noise

12.7.5 Noise sources within North Lanarkshire are similar to those for air quality, where transport (road transport in particular) is a major contributor to background noise. Given noise is subjective to the individual, its management needs to take into account its level, type, frequency and location. As with clean air, any reduction in levels of road traffic may contribute to a reduction in background noise levels or at least the contribution from non-natural sources.

12.7.6 Management needs to ensure that noise is addressed within new developments. Mitigation measures such as 'quiet' road surfaces and noise screens / barriers can contribute to reducing noise levels at given receptors as part of the design of development. In addition, land use planning should consider how the accessibility of quiet or tranquil areas can be enhanced for local communities.

## 12.8 DATA GAPS AND LIMITATIONS

12.8.1 There is generally a lack of information on background noise levels, and no wide-scale background noise monitoring has been undertaken. Noise monitoring appears to be undertaken only for specific projects or areas of concern (eg in response to complaints or as part of environmental impact assessment studies for new developments and roads). This data gap should be partly remedied in future as Councils implement the Environmental Noise Directive which will require the mapping of background noise levels on an area wide basis.



## 12.9 REFERENCES

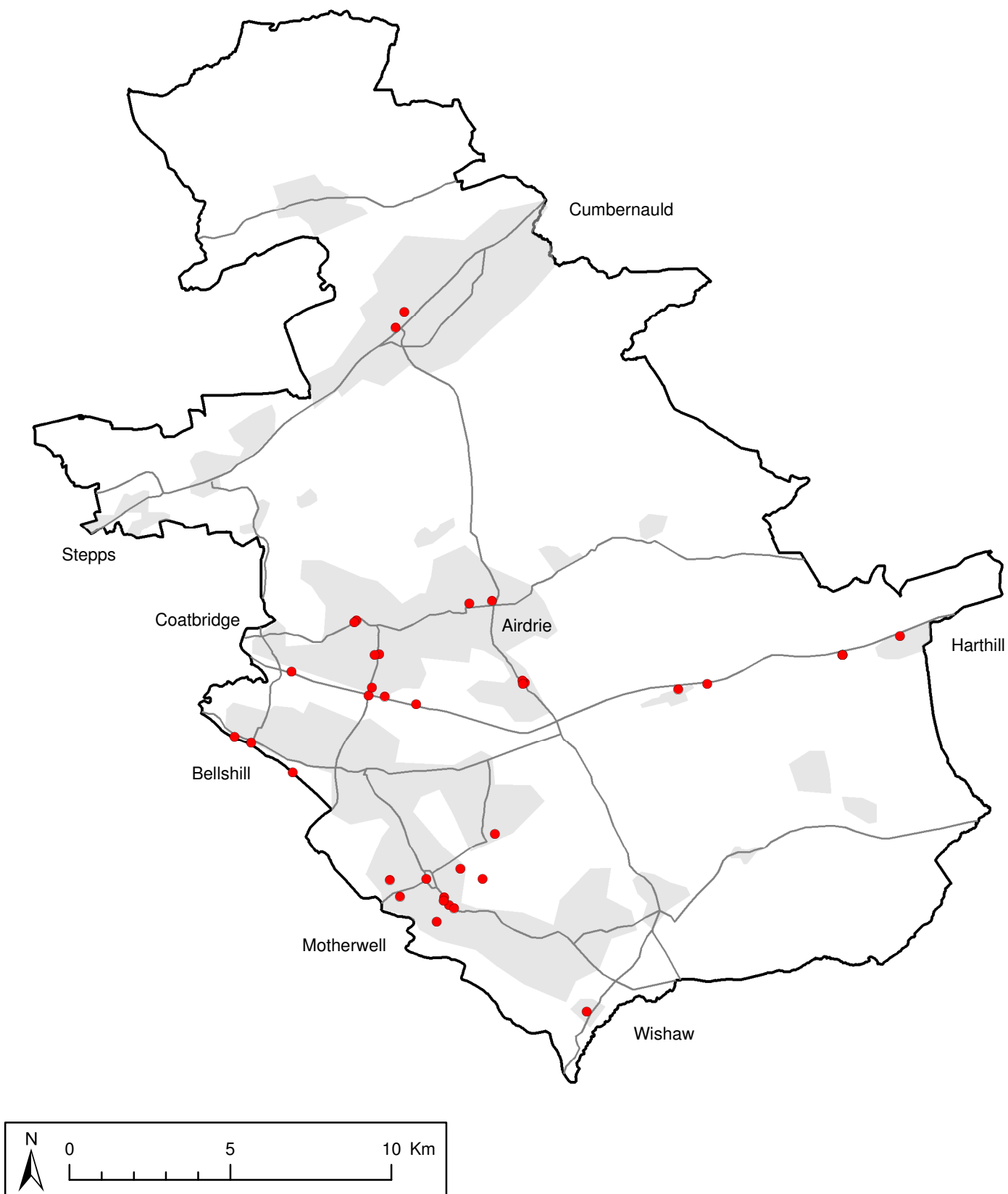
12.9.1 The following sources of information have been referred to in this chapter:

- GIS average wind speed data, provided by North Lanarkshire in August 2005;
- *Local Air Quality Management – Updating and Screening Assessment for North Lanarkshire Council*, BMT Cordah, May 2003;
- *Local Air Quality Management – Detailed Assessment for North Lanarkshire Council*, BMT Cordah, May 2004;
- *Local Air Quality Management – Progress Report for North Lanarkshire Council - DRAFT*, BMT Cordah, April 2005;
- *Greenhouse gas inventories for England, Scotland, Wales and Northern Ireland; 1990 – 2002*, DEFRA, October 2004;
- Map data provided by North Lanarkshire Council with regard to the proposed Air Quality Management Areas, provided October 2005;
- Traffic Flow Figures for Trunk Roads in North Lanarkshire, provided by Scottish Executive, September 2005;
- Noise Complaint Data, provided on the Scottish Executive website for Environmental Statistics (<http://www.scotland.gov.uk/stats/envonline>), accessed September 2005; and
- Background concentration maps, <http://www.airquality.co.uk/archive/laqm/tools.php?tool=background>.

## 12.10 MAPS AND PLANS

12.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
12.1	NO <sub>2</sub> Monitoring Locations
12.2	AQMA1 Chapelhall
12.3	AQMA2 Coatbridge
12.4	AQMA3 Motherwell
12.5	Scottish Executive Traffic Flow Monitoring Locations
12.6	Average Wind Speed
12.7	NO <sub>2</sub> Background Predictions 2002
12.8	NO <sub>2</sub> Background Predictions 2005
12.9	NO <sub>2</sub> Background Predictions 2010
12.10	PM <sub>10</sub> Background Predictions 2002
12.11	PM <sub>10</sub> Background Predictions 2004
12.12	PM <sub>10</sub> Background Predictions 2010



## Legend

- Nitrogen Dioxide Monitoring Locations

**Figure 12.1**  
Air Quality and Noise  
NO<sub>2</sub> Monitoring Locations

Scale: 1:170,000

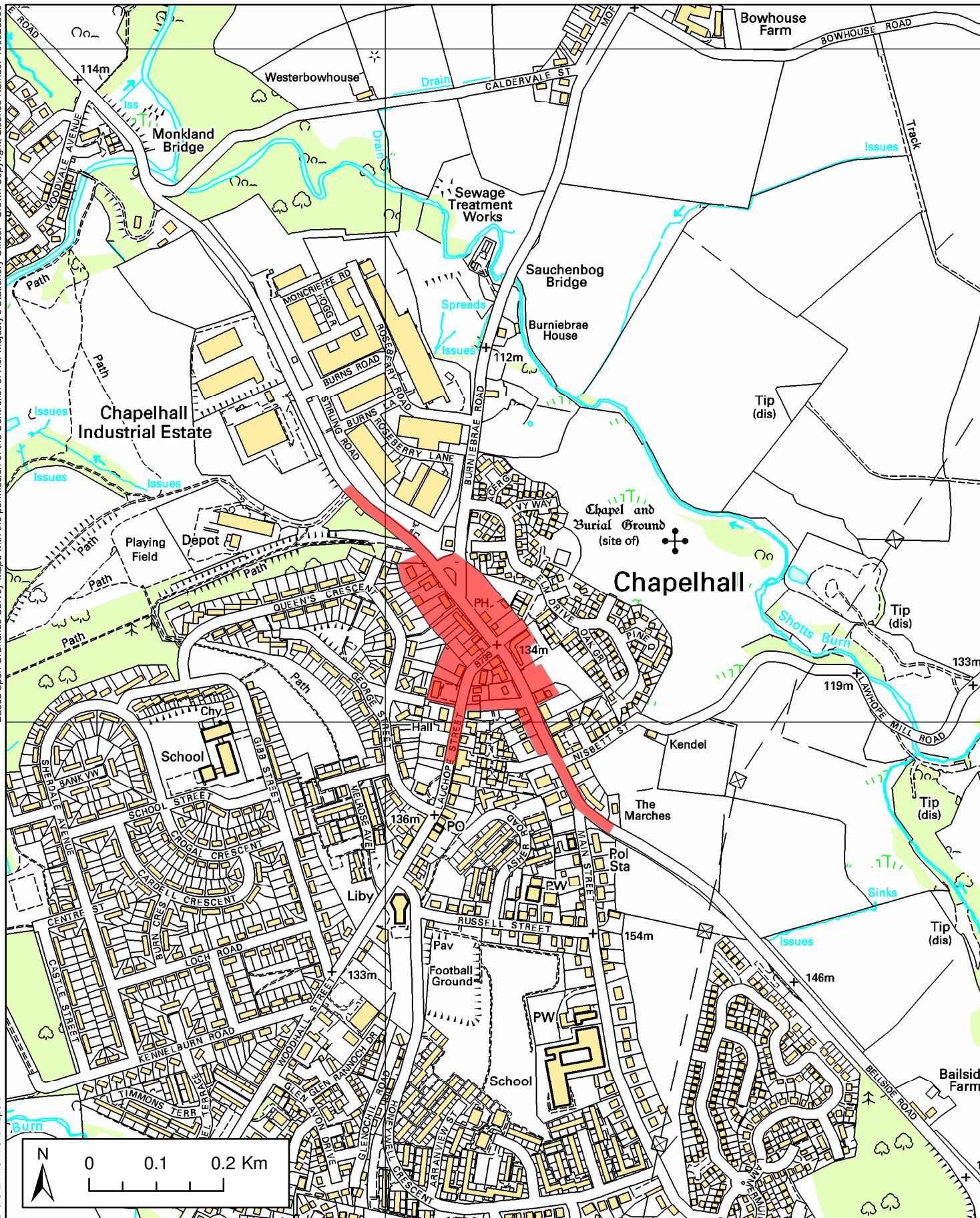
Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS







## Legend

Chapelhall Air Quality Management Area

Figure 12.2  
Air Quality and Noise  
Chapelhall AQMA

Scale: 1:7,500

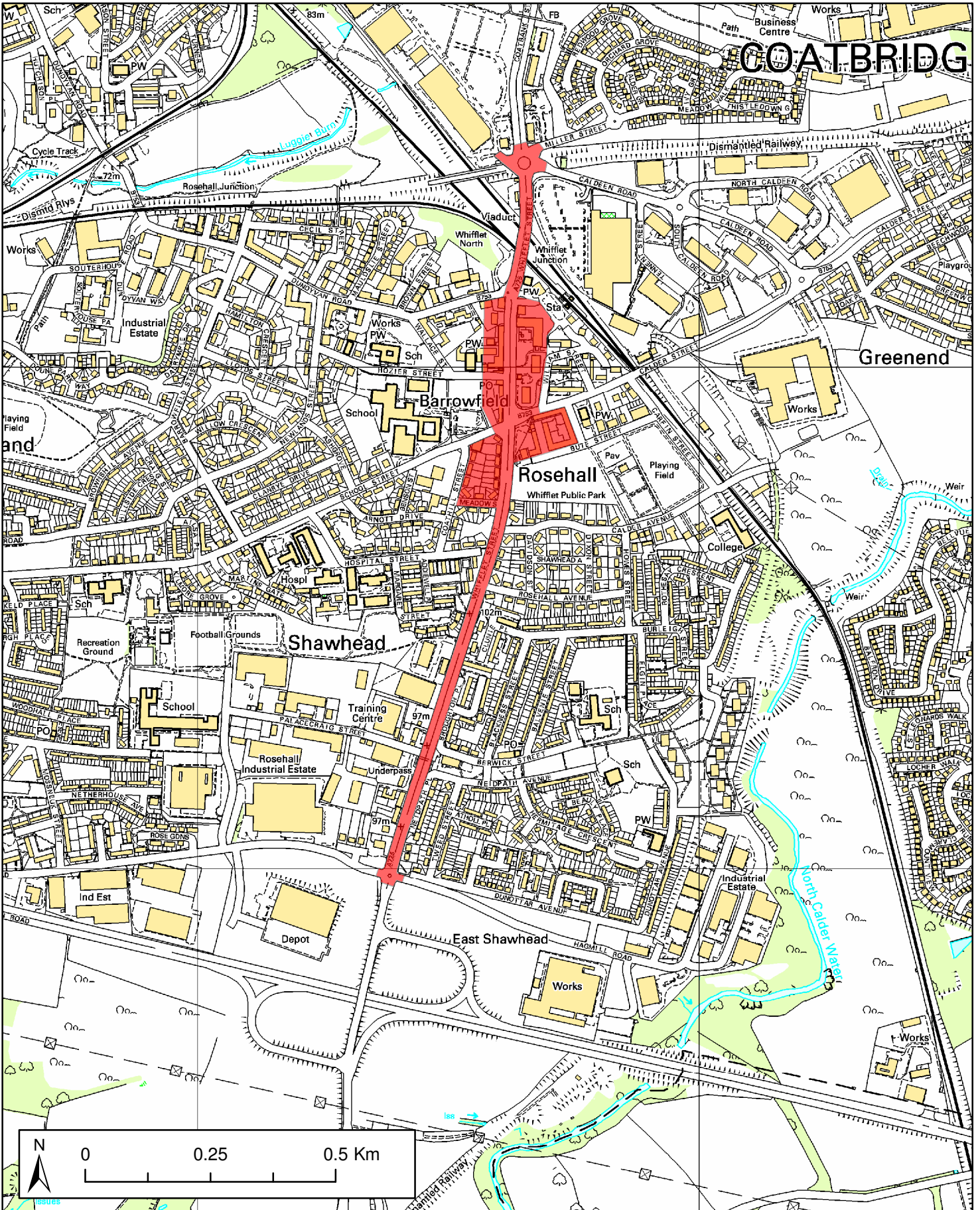
Project: 12150841-001 NLC SoER



Date: 08.11.05  
Revision: -  
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## Legend

Coatbridge Air Quality Management Area

**Figure 12.3**  
Air Quality and Noise  
Coatbridge AQMA

Scale: 1:10,000

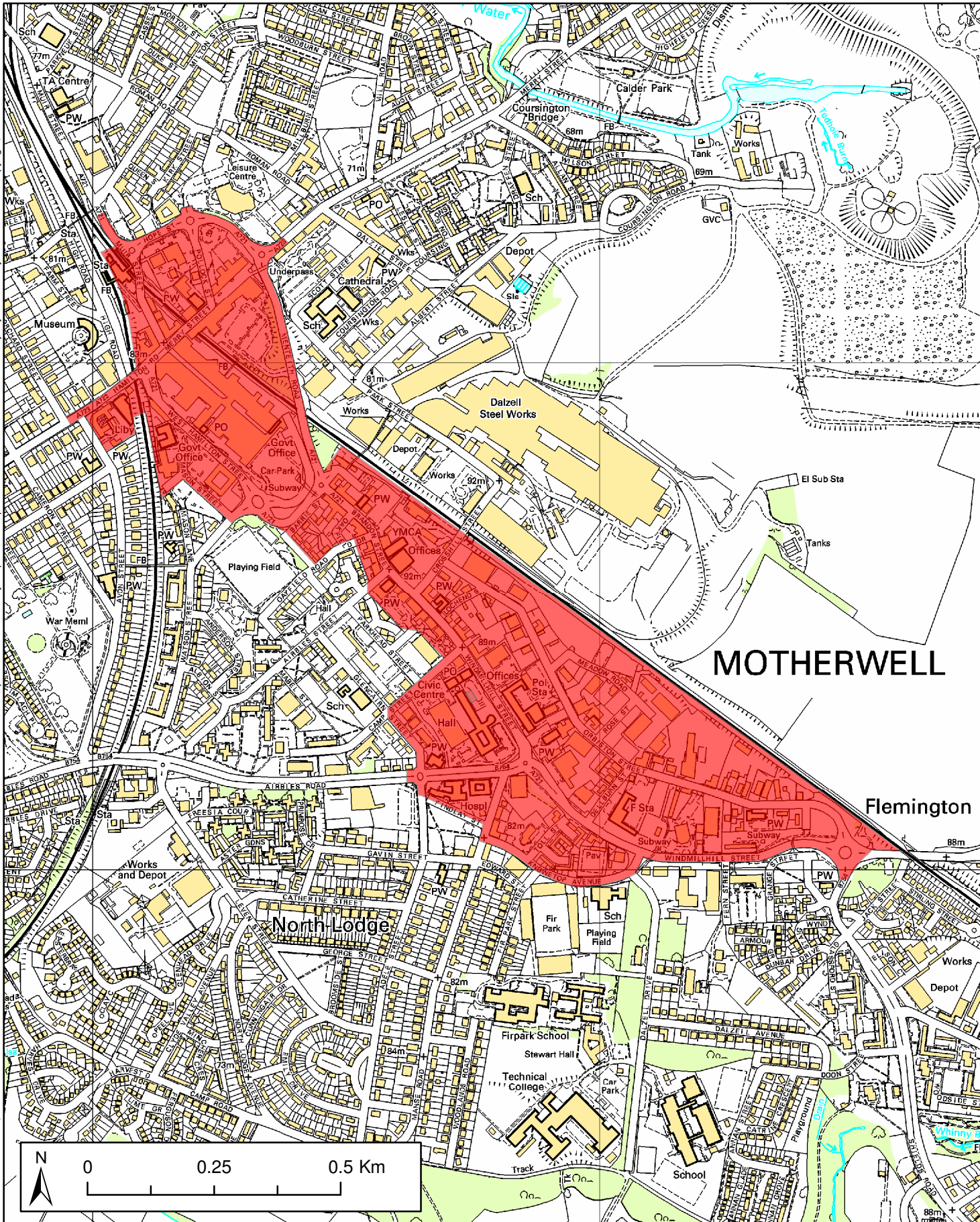
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Drawn by: JS







## Legend

Motherwell Air Quality Management Area

**Figure 12.4**  
Air Quality and Noise  
Motherwell AQMA

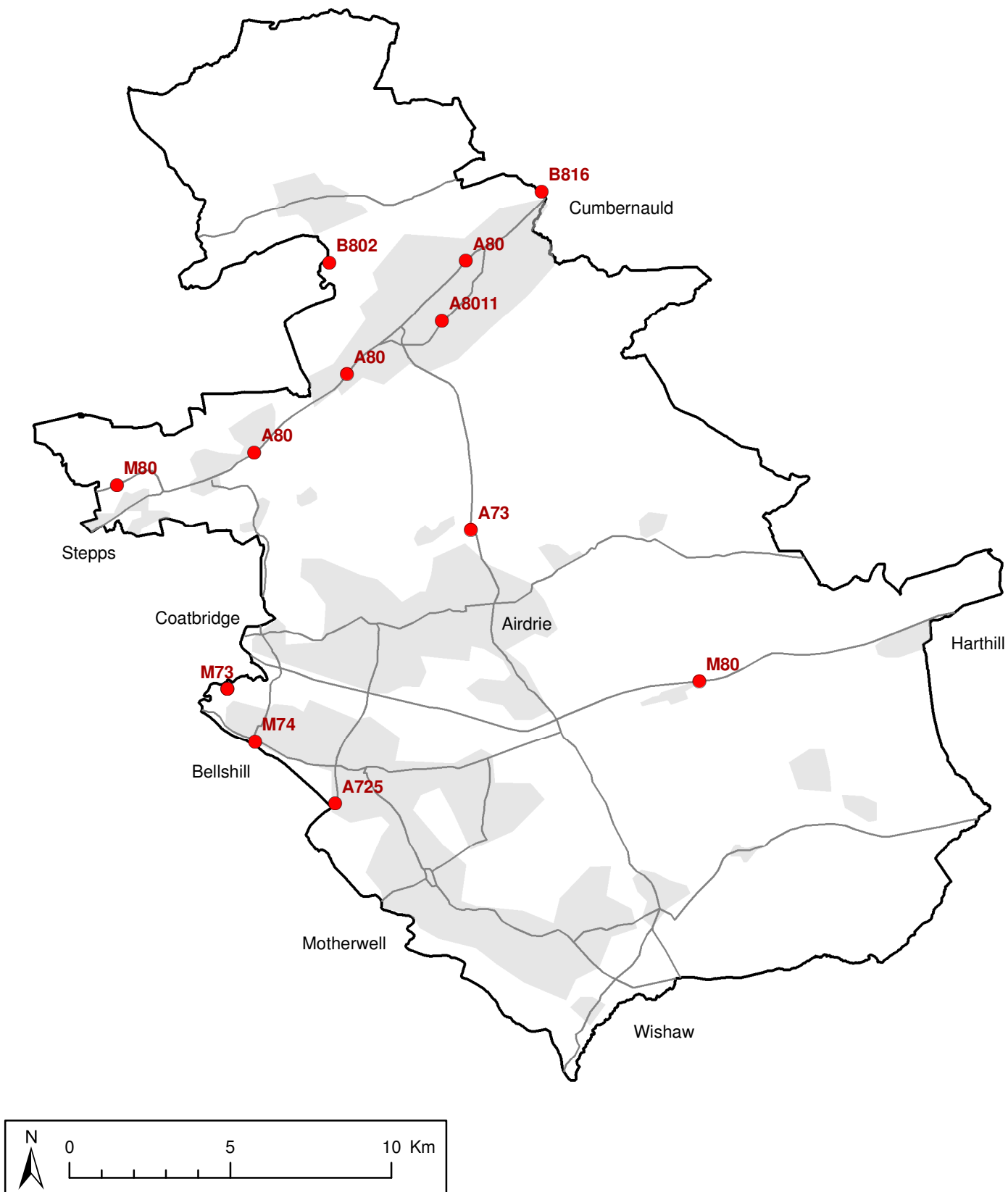
Scale: 1:10,000

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## Legend

- Scottish Executive Traffic Monitoring Locations (with Road Number)

**Figure 12.5**  
Air Quality and Noise  
Traffic Monitoring Locations

Scale: 1:170,000

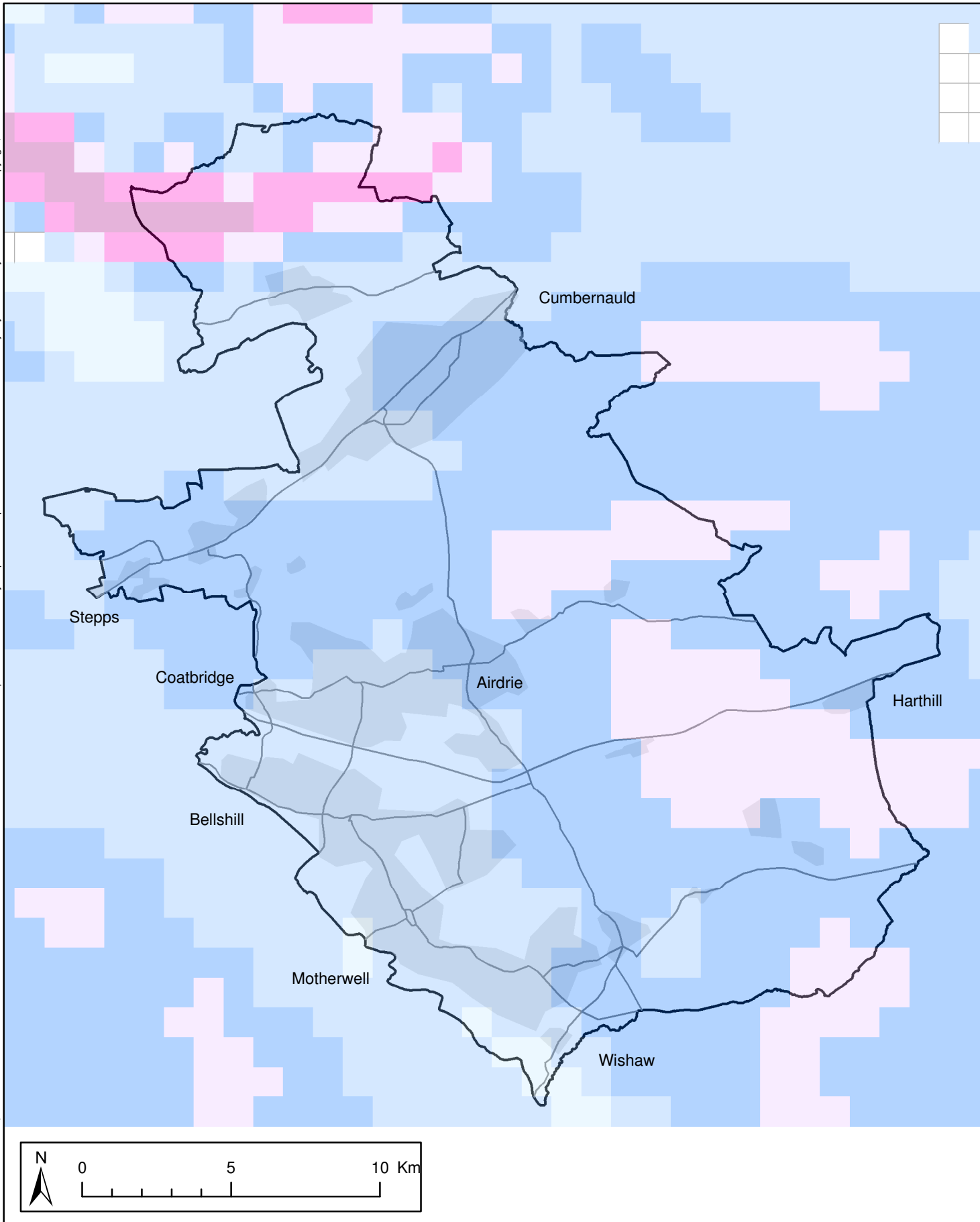
Project: 12150841-001 NLC SoER










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Drawn by: JS







#### Legend

	0.0 - 5.0 m/s		8.1 - 9.0 m/s
	5.1 - 6.0 m/s		9.1 - 10.0 m/s
	6.1 - 7.0 m/s		10.1 - 15.0 m/s
	7.1 - 8.0 m/s		

Information from North Lanarkshire Council (provided September 2005).

**Figure 12.6**  
Air Quality and Noise  
Average Wind Speed

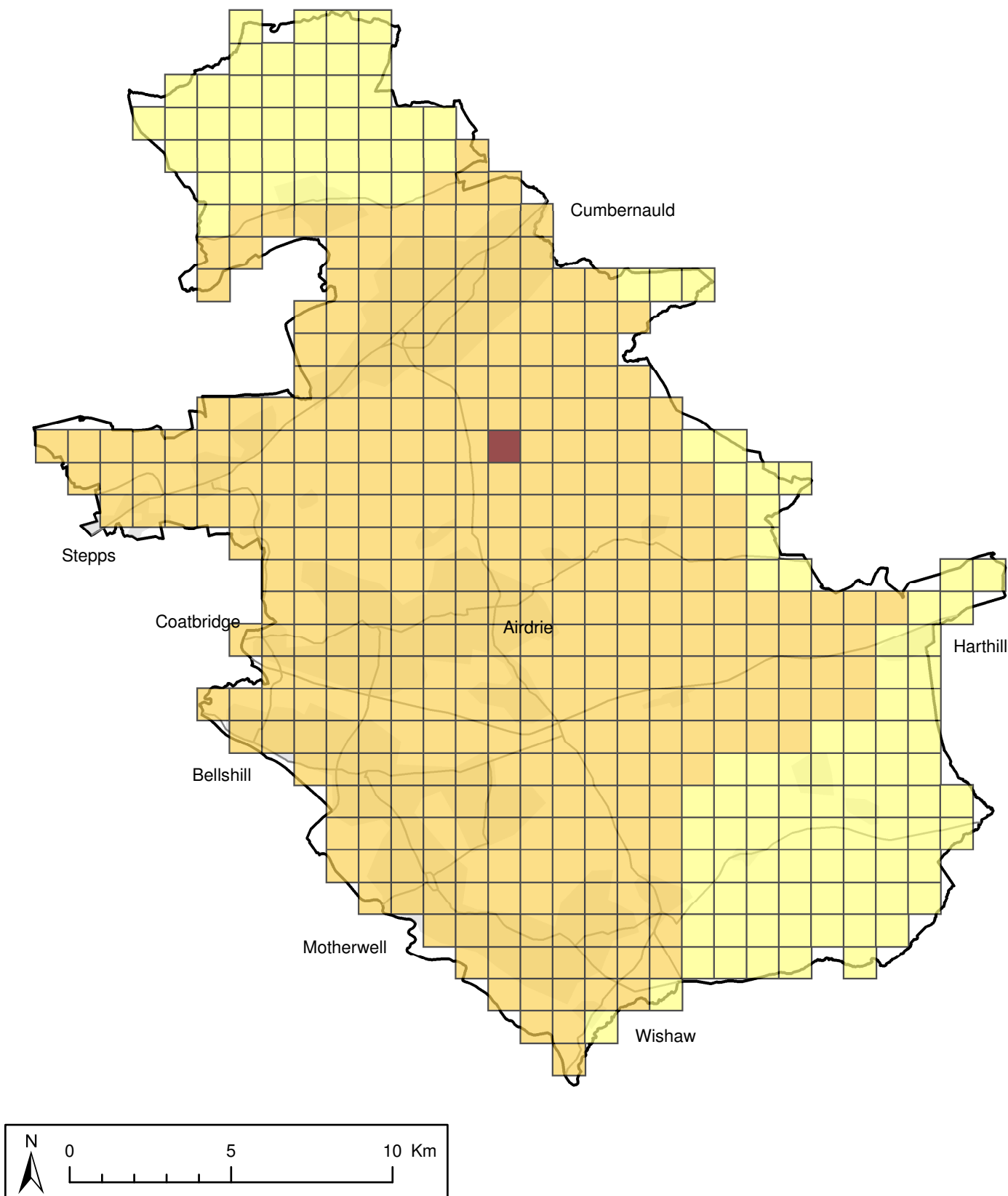
Scale: 1:170,000

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## Legend

- < 20 ug/m<sup>3</sup>
- 20 - 40 ug/m<sup>3</sup>
- 40 - 60 ug/m<sup>3</sup>
- 60 - 80 ug/m<sup>3</sup>
- 80 + ug/m<sup>3</sup>

Information obtained from the Air Quality Archive (<http://www.airquality.co.uk/archive>), downloaded September 2005

**Figure 12.7**  
Air Quality and Noise  
NO<sub>2</sub> Background - 2001

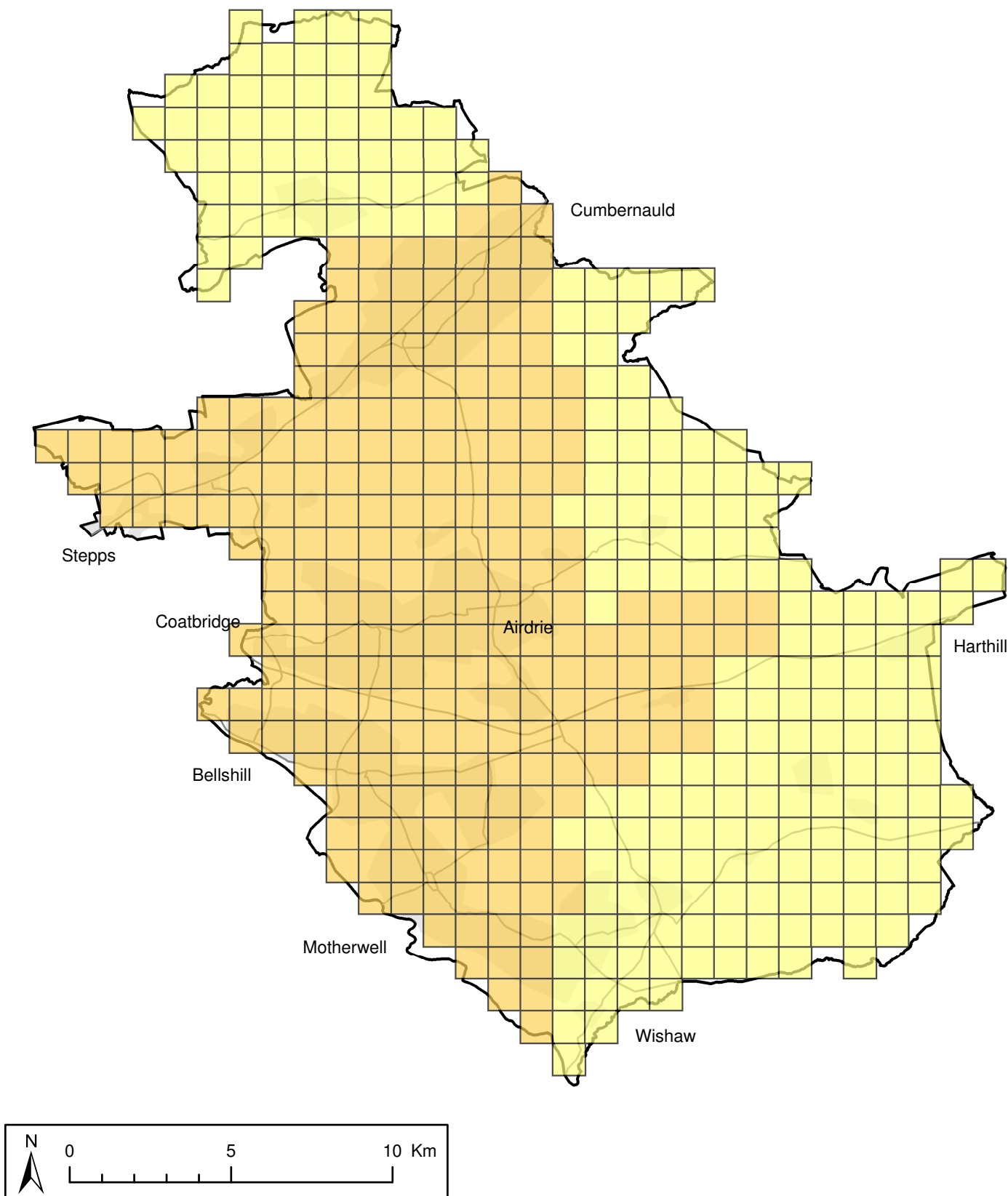
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Project: 12150841-001 NLC SoER

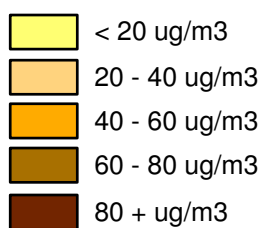


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### Legend



Information obtained from the Air Quality Archive (<http://www.airquality.co.uk/archive>), downloaded September 2005

**Figure 12.8**  
Air Quality and Noise  
NO<sub>2</sub> Background - 2005

Scale: 1:170,000

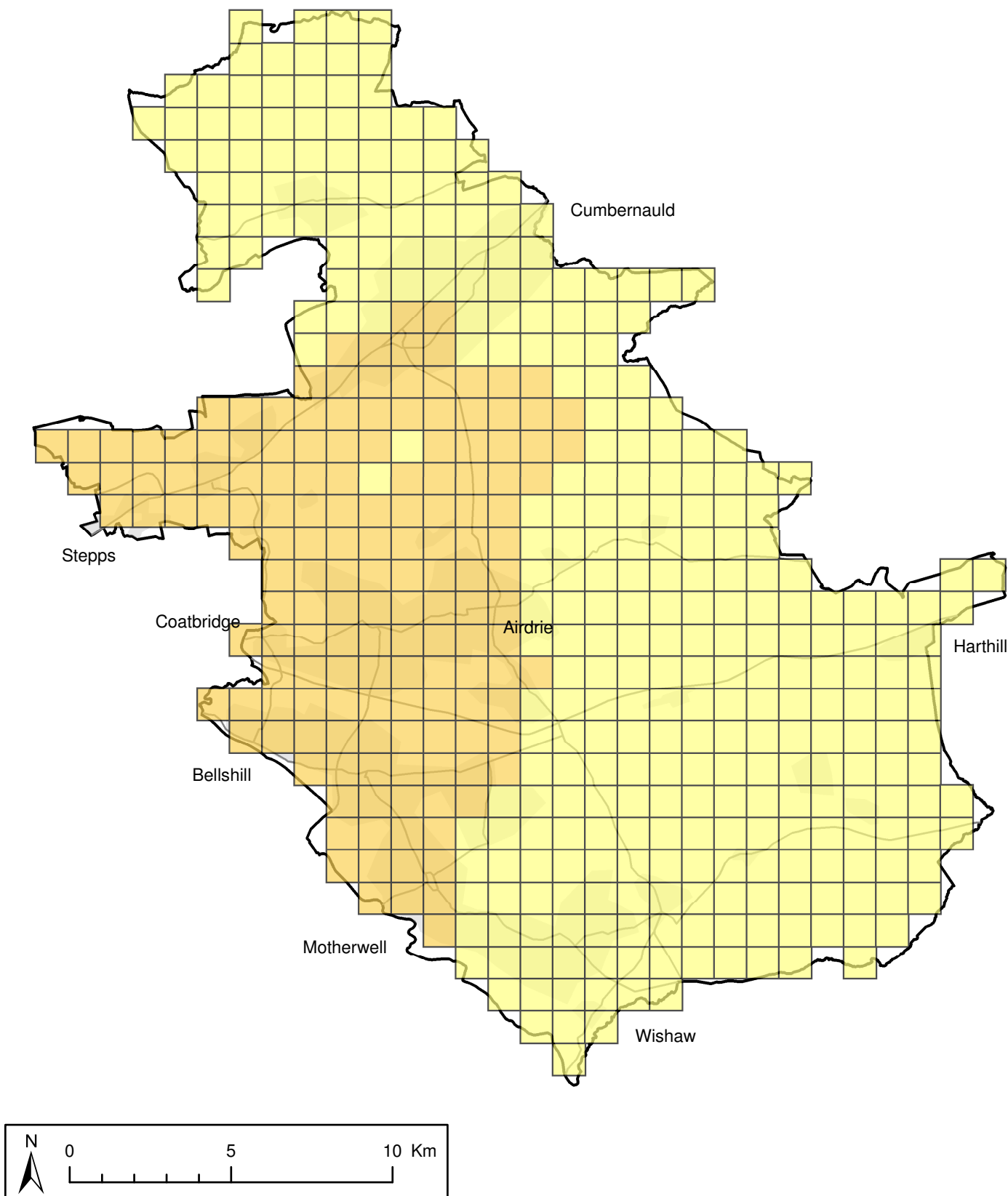
Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS







## Legend

- < 20 ug/m<sup>3</sup>
- 20 - 40 ug/m<sup>3</sup>
- 40 - 60 ug/m<sup>3</sup>
- 60 - 80 ug/m<sup>3</sup>
- 80 + ug/m<sup>3</sup>

Information obtained from the Air Quality Archive (<http://www.airquality.co.uk/archive>), downloaded September 2005

**Figure 12.9**  
Air Quality and Noise  
NO<sub>2</sub> Background - 2010

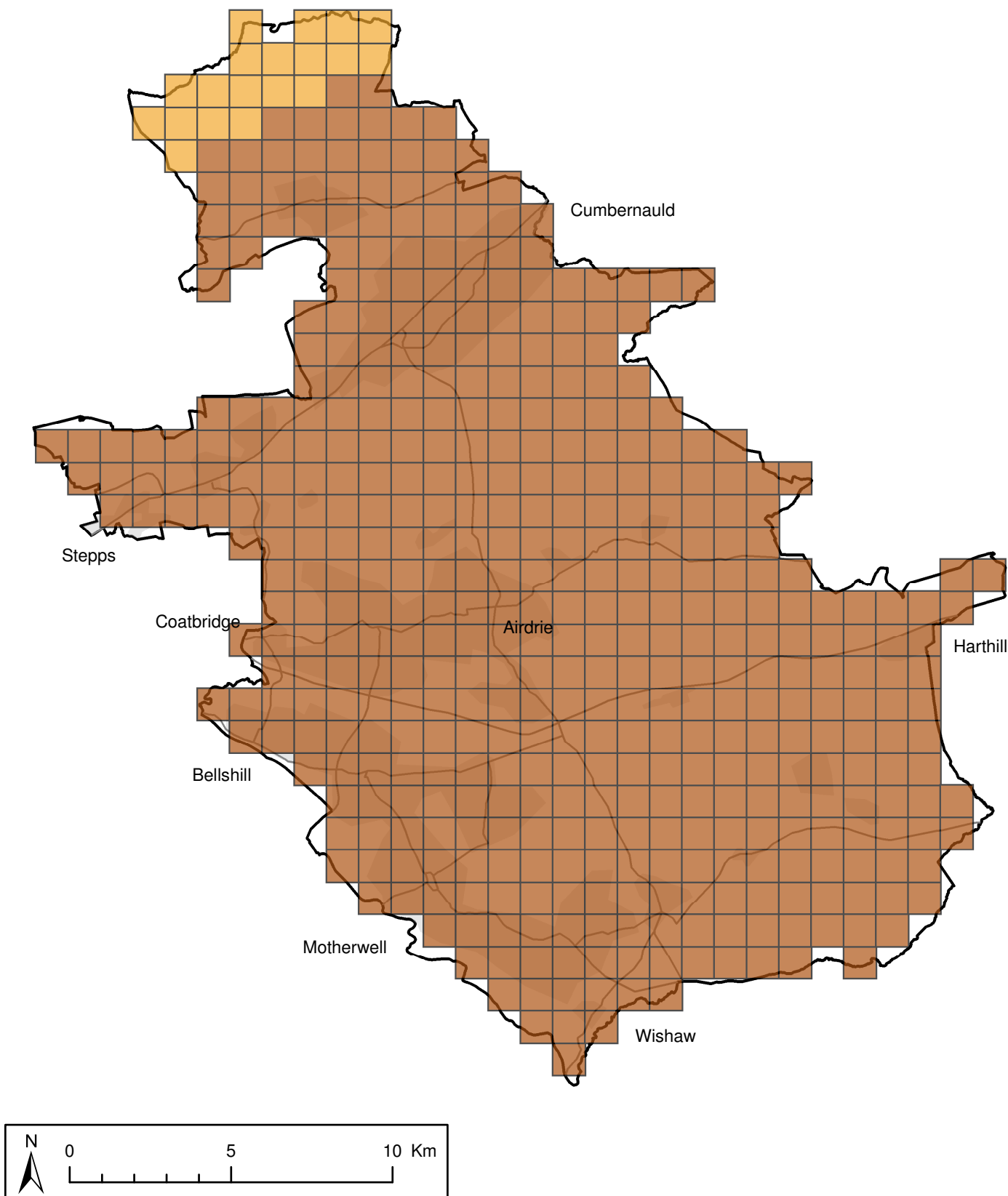
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Project: 12150841-001 NLC SoER

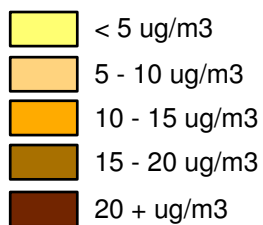


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### Legend



Information obtained from the Air Quality Archive (<http://www.airquality.co.uk/archive>), downloaded September 2005

**Figure 12.10**  
Air Quality and Noise  
PM10 Background - 2001

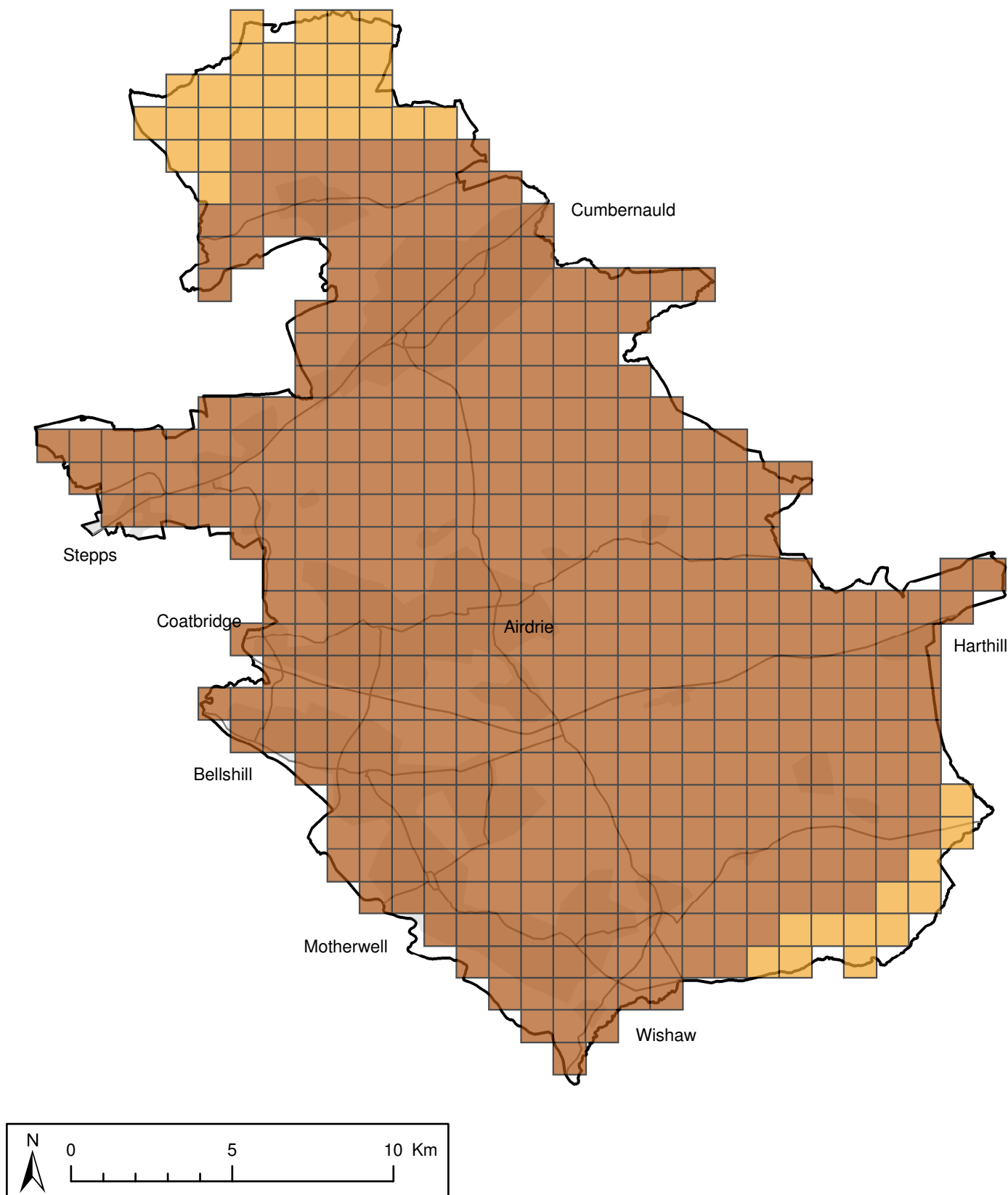
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Project: 12150841-001 NLC SoER

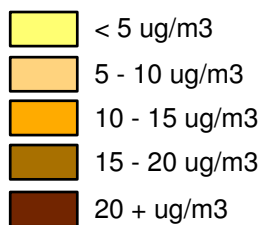


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### Legend



Information obtained from the Air Quality Archive (<http://www.airquality.co.uk/archive>), downloaded September 2005

**Figure 12.11**  
Air Quality and Noise  
PM10 Background - 2004

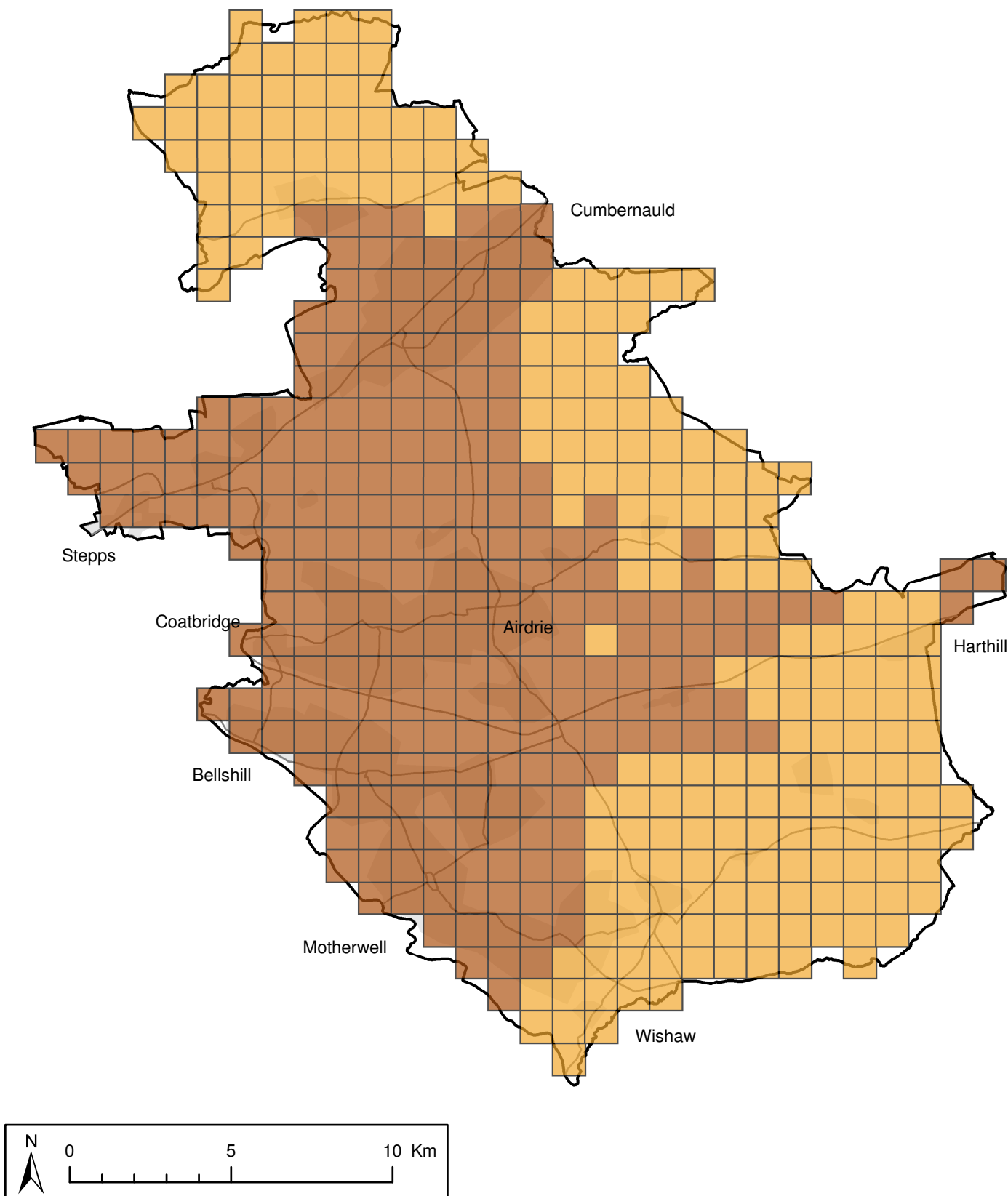
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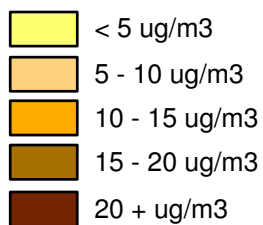


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### Legend



Information obtained from the Air Quality Archive (<http://www.airquality.co.uk/archive>), downloaded September 2005

**Figure 12.12**  
Air Quality and Noise  
PM10 Background - 2010

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
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# 13 Communities

## 13.1 CONTEXT

13.1.1 The population distribution of North Lanarkshire has been shaped to a large extent by the industrial heritage of the area, primarily coal and steel, which has helped to dictate the settlement pattern and distribution of communities. In recent years a number of key indicators of the population dynamics, health and the built environment have been below the Scottish average.

13.1.2 North Lanarkshire has a declining and ageing population, but is subject to a ongoing and predicted growth in the number of households in the areas which is in excess of the Scottish average. North Lanarkshire has a number of opportunities associated with the supply of land and geographical location to improve the built environment through the demand for new development.



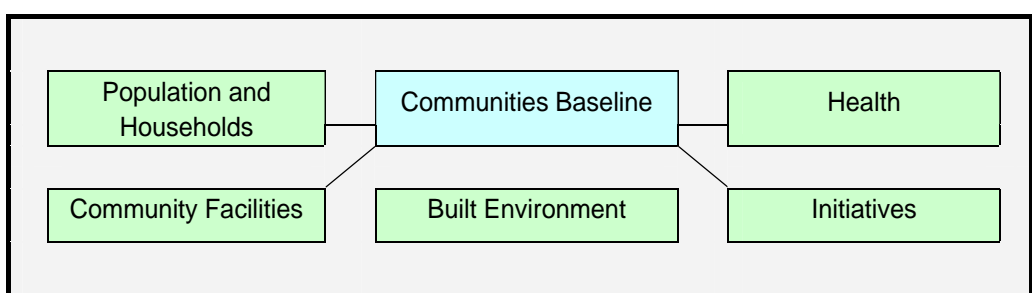
13.1.3 There exists a range of community facilities across North Lanarkshire including natural open space facilities, footpaths and cycle paths such as the Forth and Clyde Canal towpath and the National Cycle Network, three Country Parks and a mixture of urban open space and built facilities. Accessibility is an important factor for the value of these resources to their local communities and many of the parks and paths are located in close proximity to key urban areas of North Lanarkshire.

## 13.2 BASELINE CHARACTERISTICS

13.2.1 The baseline of the communities topic within North Lanarkshire can be divided in four key areas which are discussed within this chapter, these are presented in Box 13.1.

13.2.2 The built environment of North Lanarkshire is a baseline feature which is relevant to a number of chapters within this report but which has specific relevance to the communities chapter. It is discussed within the four identified features in this chapter identified in Box 13.1.

**Box 13.1 Communities Baseline Features**





## Population and Households

### Population

13.2.3 The primary source of data for population and households comes from the 2001 Census. This section looks at the population with regard to demographics and composition of the population, focussing on the following:

- Population numbers;
- Population density;
- Cultural diversity;
- Employment; and
- Car ownership.

13.2.4 North Lanarkshire Council's Headline Results from the 2001 Census identify that in April 2001 there was a population in North Lanarkshire of 321,100 (6% of the Scottish Population). This is the fourth largest population of any local authority in Scotland.

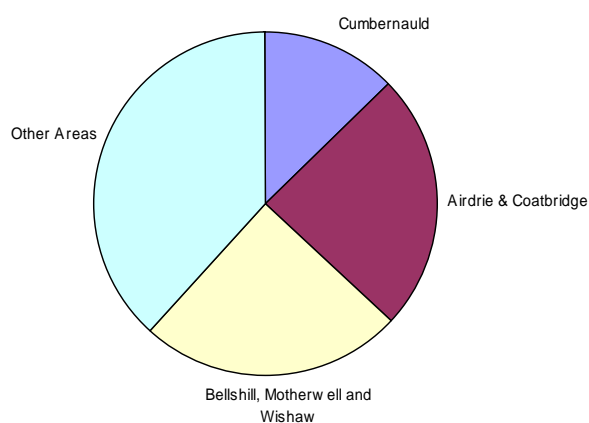
13.2.5 Population density within North Lanarkshire varies from less than one person per hectare in the area east of Airdrie to Salsburgh and up to 51 persons per hectare in the Bellshill area. The highest population densities are located in the main settlements of Cumbernauld, Airdrie/Coatbridge and Motherwell/Wishaw. Population density is presented graphically in Figure 13.1. The average population density across North Lanarkshire is approximately 6.8 persons per hectare although there is a considerable geographical distribution, this compares with the Scottish average of 0.65persons/ha (as presented on the General Register Office for Scotland's website).

13.2.6 Table 13.1 presents the population within the main settlements in North Lanarkshire and this is presented graphically in Graph 13.1.

**Table 13.1 and Graph 13.1 Population within key North Lanarkshire Settlements**

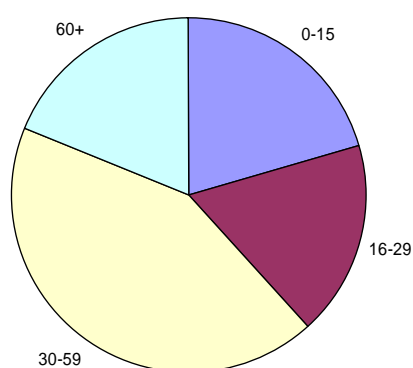
Town	Population	% of North Lanarkshire Population
Airdrie	36,326	11.3
Bellshill	20,705	6.5
Coatbridge	41,170	12.8
Cumbernauld	49,664	15.5
Harthill	3,575	1.1
Kilsyth	9,816	3.1
Motherwell	30,311	9.4
Stepps	4,802	1.5
Wishaw	28,565	8.9
North Lanarkshire	321,067	-

Source: Census 2001 Results, SCROL Website.



13.2.7 The 2001 Census data identifies that there is a relatively young population when compared to the Scottish average. The average age in North Lanarkshire is reported within the Headline Results to be 37.5 years, the second youngest Council average within Scotland, figures of the age profile are presented in Graph 13.2 and Table 13.2.

**Graph 13.2 and Table 13.2 Population by Age Group**



Age Group	% of North Lanarkshire Population	% of Scottish Population
0 – 4 years	6.03	5.47
5 – 15 years	14.40	13.73
16 – 29 years	18.02	17.46
30 – 44 years	23.74	22.97
45 – 59 years	18.84	19.29
60 – 74 years	13.32	13.98
Over 74 years	5.64	7.09

Source: Census 2001 Results, SCROL Website.

13.2.8 Figures for the cultural diversity of North Lanarkshire's population identify that just over 4,000 people consider themselves to be of non-white ethnic background representing 1.3% of the population (compared to 2% for the Scottish average).

13.2.9 The Headline Results provide information on the occupations of the population within North Lanarkshire. These figures demonstrate that the North Lanarkshire population has fewer people in the higher classified jobs than the Scottish average with more people in the lower classified jobs. Table 13.3 presents the figures for North Lanarkshire and the Scottish averages.

**Table 13.3 Employment of Population**

National Statistics Socio-Economic Classification (NS-SEC)	North Lanarkshire		Scotland
	Number	%	%
All People aged 16-74	237,357	100.0%	100.0%
1. Higher managerial and professional occupations	10,384	4.4%	6.8%
2. Lower managerial and professional occupations	37,586	15.8%	17.3%
3. Intermediate occupations	23,665	10.0%	9.4%
4. Small employers and own account workers	9,995	4.2%	5.7%
5. Lower supervisory and technical occupations	18,848	7.9%	7.4%
6. Semi-routine occupations	31,421	13.2%	12.6%
7. Routine occupations	29,668	12.5%	10.4%
8. Never worked and long-term unemployed	11,393	4.8%	4.2%
Not Classified	64,397	27.1%	26.2%

Source: 2001 Census - Headline Result for North Lanarkshire

13.2.10 The 2001 Census identifies that 6.84% of households within North Lanarkshire have no persons in employment (compared with 5.25% for the Scottish average).

13.2.11 The North Lanarkshire Community Plan 2004 – 2008 produced by North Lanarkshire Partnership presents information on the economic performance of North Lanarkshire in comparison to the Scottish average. Table 13.4 presents relevant information.

**Table 13.4 Economic Performance of North Lanarkshire in 2004**

	North Lanarkshire	Scotland
Employment Rate	68%	73%
Economic Activity Rate	74%	78.5%
Unemployment Rate	4.4%	2.8%
Number of People Claiming Income Support per 1,000	123	103
Incapacity Benefit per 1,000	95	60
Gross Domestic Product per Head	£9,600	£12,100
Percentage of People without Qualifications	25.4%	16.8%

Source: North Lanarkshire Community Plan 2004 - 2008, North Lanarkshire Partnership

13.2.12 North Lanarkshire's Economic Regeneration Framework report identifies labour market issues with higher unemployment and health related activity rates than the national average. Whilst this is identified as a North Lanarkshire wide problem some areas are particularly notable, with a number of wards experiencing economic inactivity levels in excess of 40%. Employment within North Lanarkshire is noted to be sensitive to global pressures and changes associated with the high number of foreign owned companies and branch plants.

13.2.13 The Economic Regeneration Framework identifies that local communities have borne the brunt of industrial change, large scale redundancies during the 1990s have resulted in high levels of unemployment, low skills and multiple deprivation. Poor health is another aspect of this deprivation with the report identifying correlation between areas of poor health and those where unemployment and poverty are concentrated.

13.2.14 Data on car ownership are presented within the Headline Results, which identifies from the 2001 Census that a relatively high number of people travel to work by car in North Lanarkshire and average levels of car ownership per household are comparable to the national level. Relevant information on travel and car ownership is presented in Table 13.5.

**Table 13.5 Travel to Work and Car Ownership**

	North Lanarkshire	Scotland
Travel to Work		
By Car (as driver)	71.3%	64.4%
Train or Bus	16.2%	15.2%
Other	8.9%	14.7%
Mainly at Home	3.6%	5.7%
Car Ownership		
Average Number of Cars per Household	0.89	0.93
Percentage of Households without a Car/Van	37%	34%
Percentage of Households with two or more Cars/Vans	21%	22%

Source: 2001 Census - Headline Result for North Lanarkshire and 2001 Census  
Data – obtained from SCROL website (October 2005)

## Households

13.2.15 Data on households (composition and ownership) are presented within this section with the following discussed:

- Household Numbers;
- Tenure; and
- Local Authority Households and Composition.

13.2.16 The 2001 Census results identify that there were 132,619 households within North Lanarkshire. The Headline Results note that at the time of the 2001 Census the average number of people per household in North Lanarkshire was 2.40 (this is compared to the Scottish average of 2.27).

13.2.17 Tenure of properties was identified within the 2001 Census and Table 13.6 identifies the breakdown of ownership.

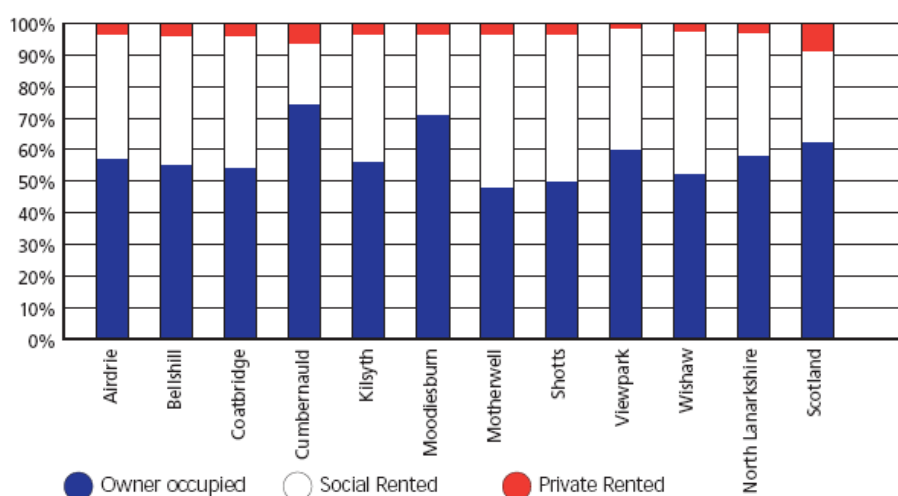


**Table 13.6 Property Tenure (2001)**

	North Lanarkshire	Scotland
Total Number of Households	132,619	2,192,246
% Privately Owned	58.2%	62.6%
% Rented from Council	31.9%	21.6%
% Rented from other Social Landlord	4.1%	5.6%
% Privately Rented (furnished and unfurnished)	2.1%	6.7%
% Living Rent Free	3.7%	3.6%

Source: 2001 Census Data – obtained from SCROL website (October 2005)

13.2.18 Information provided within the Local Housing Strategy presents a geographical distribution in the type of property tenure. This is presented within Graph 13.3.



Source: Local Housing Strategy 2004 – 2009, North Lanarkshire Council

13.2.19 Data from the Scottish Executive Statistical Bulletin, Housing Trends in Scotland: Quarter ending 31 March 2005, identifies information on the number of properties on the Council tax register and Local Authority dwellings. This information is summarised within Table 13.7.

**Table 13.7 Property Type Data (September 2004)**

	North Lanarkshire	Scotland
Number of Dwellings on Council Tax Register	140,864	2,378,603
Number of Local Authority Dwellings	41,317	378,450
% Local Authority Properties of Total on Council Tax Register	30%	16%

Source: Scottish Executive Statistical Bulletin, Housing Trends in Scotland: Quarter ending 31 March 2005 (August 2005)

13.2.20 North Lanarkshire Council's housing stock accounts for almost a third of the total housing stock, a level approximately double that of the Scottish average.

13.2.21 The Scottish Executive Statistical Bulletin also provides information on the composition of Local Authority housing stock. Table 13.8 provides a summary of the composition of Local Authority housing stock within North Lanarkshire and Scotland as a whole. The type and age of Council housing stock within North Lanarkshire is broadly in line with that of Scotland with a predominance of properties constructed within the 1945 to 1982 period and an equal mix of houses and flats.

**Table 13.8 Local Authority Housing Composition**

	North Lanarkshire		Scotland	
	Number	% of Total	Number	% of Total
Total Dwellings (as of 31 March 2005)	41,145	-	373,554	-
Dwelling Type				
House	18,148	44	165,954	44
High Rise Flat	4,313	11	23,406	6
Other Flat	18,684	45	184,194	49
Year of Construction				
Pre-1919	3,591	9	9,921	3
1919-1944	7,784	19	82,167	22
1945-1964	13,008	32	136,031	36
1965-1982	15,354	37	123,060	33
Post-1982	1,408	3	14,063	4

Source: Scottish Executive Statistical Bulletin, Housing Trends in Scotland: Quarter ending 31 March 2005  
(August 2005)

13.2.22 The Headline results identify, based on the 2001 Census, a figure for over-crowding and under-occupancy. Within North Lanarkshire around 14% of households are living in overcrowded conditions (compared to around 12% for the Scottish average). Overcrowding being defined as households with fewer rooms than they strictly need. Figures for under-occupancy identify that approximately 57% of households within North Lanarkshire are under-occupied, this being that they have more rooms than they strictly need (compared to 62% nationally).

13.2.23 Information on the taxation of households within North Lanarkshire was obtained from the Scottish Neighbourhood Statistics website (<http://www.sns.gov.uk>). Table 13.9 presents a summary of the percentage of properties within various Council Tax Bands (based on 2004 data).

**Table 13.9 Council Tax Bands for Dwellings in North Lanarkshire**

	North Lanarkshire	Scotland
Percentage of Dwellings in:		
Council Tax Band A (2004)	38.88	24.21
Council Tax Bands B to E (2004)	56.42	64.73
Council Tax Bands F to H (2004)	4.7	11.06

Information from Scottish Neighbourhood Statistics website  
(<http://www.sns.gov.uk/browser/browseResults.asp#Economic%20Activity%20and%20Benefits>)

13.2.24 The Scottish House Condition Survey 2002 produced by the Scottish Executive and Communities Scotland identifies a range of information on the condition of the North Lanarkshire's housing stock. In 2002, the Scottish House Condition Survey highlighted that 89% of all dwellings in North Lanarkshire required some form of repair (this compares to a Scottish average of 80%). Of these, 32% of repairs are classed as urgent repairs required. These figures are supported by the North Lanarkshire Council Local Housing Strategy 2004 – 2009.

13.2.25 The survey also identifies that rising or penetrating damp is an issue at 8% of North Lanarkshire houses (compared to Scottish average of 6%). Condensation in any room is identified as an issue at 11% of North Lanarkshire's houses (compared to the Scottish average of 11%).

13.2.26 The Local Housing Strategy identifies that in 2002, 10% of all households in North Lanarkshire spent in excess of 10% of their income on fuel. The 2002 Scottish House Condition Survey reported that 47% of dwellings in North Lanarkshire met the National Home Energy Rating (NHER) of 7. The National Home Energy Rating (NHER) is an energy rating scheme (<http://www.nher.co.uk>) used within the fuel poverty report. It takes account of the local environment and the effects this has on the building's energy rating. It also takes into account the heating of space and water as well as cooking, lights and appliances. The NHER scale ranges from '0' (Poor) to '10' (Excellent).

13.2.27 The Local Housing Strategy identifies that North Lanarkshire Council's housing stock is generally in good condition. North Lanarkshire Council currently spends in excess of £97 million per annum on the management and maintenance of its housing stock. The report identifies that the Council will invest an average of £39 million per annum over the period of the strategy in upgrading its stock in line with the stock condition survey findings.





13.2.28 The Scottish Executive and Communities Scotland's Fuel Poverty in Scotland report (2004) notes that fuel poverty refers to a situation where a household is unable to heat its home at a reasonable cost. There are a number of detailed definitions that have been used by different administrations and at different times. Fuel poverty is based on a theoretical calculation of how much it would cost to heat a dwelling, not how much the household actually spends.

13.2.29 The two detailed definitions for fuel poverty used within the Fuel Poverty in Scotland report are presented below:

- Based on the Scottish Fuel Poverty Survey (Scottish Executive, 2002) fuel poverty is defined where a household spends more than 10% of its income (before housing costs) on all household fuel use. This does not include an adjustment for under-occupancy nor for a separate heating regime for households with at least one child under the age of five.
- The Scottish House Condition Survey 1996 Fuel Poverty Follow-up Report defines fuel poverty as householders which need to spend more than 10% of their income on fuel (after tax income of the head of the household).

13.2.30 The Scottish Fuel Poverty Survey identifies the percentage of properties within these two definitions of fuel poverty, these are summarised for North Lanarkshire and Scotland in Table 13.10. The data indicate that incidence of fuel poverty in North Lanarkshire is, on average, lower than the national average.

**Table 13.10 Fuel Poverty Data**

	North Lanarkshire	Scotland
Fuel Poor (1996 Definition)	7%	9%
Fuel Poor (2002 Definition)	10%	13%

Source: Fuel Poverty in Scotland, Scottish Executive and Communities Scotland, 2004

## Health

13.2.31 Information on the health of the population has been obtained from a range of sources including the 2001 Census and information produced by the various Health Bodies/Organisations. The following health indicators are discussed within this section:

- Census health information;
- Community health plan data; and
- Child morbidity.

13.2.32 There are limitations with health statistics obtained from all sources based on the scope and nature of the surveys. Care should be taken with the use of all statistics for the identification of future trends to ensure that comparisons are made with like for like data or, where this is not possible, allowance should be made for limiting factors.

13.2.33 The 2001 Census questioned respondents on their perceived level of health. Table 13.11 identifies the responses for North Lanarkshire and Scotland. The figures for North Lanarkshire are broadly in line with the Scottish average with a higher percentage of responses identifying health as 'not good' or 'fairly good'. These responses are for perceived health and therefore subject to various factors such as actual health and quality of surrounds.

13.2.34 Community Health Profiles have been compiled across Scotland by NHS Health Scotland in collaboration with the Information and Statistics Division (ISD) of NHS Scotland and Communities Scotland. These profiles cover indicators under a range of health outcomes and health determinants. 66 Community Health Profiles have been prepared based on a number of post code areas (these being on average 5,000 persons), for each of these data sheets are provided for a range of indicators. North Lanarkshire is covered by nine Community Health Profile areas with four being located fully within

**Table 13.11 Perceived Health and Limiting Illness**

	North Lanarkshire	Scotland
Total Resident Population	321,067	5,062,011
Perceived Health		
% Good Health	64.4%	67.9%
% Fairly Good	22.9%	21.9%
% Not Good	12.7%	10.2%
Limiting Long Term Illness		
% with Limiting Long Term Illness	23.1%	20.3%

Source: 2001 Census Data – obtained from SCROL website

North Lanarkshire (see Figure 13.2). Data within this report have been obtained from the following Community Health Profile Areas and respective post code areas:

- Airdrie and Coatbridge: Ten post code areas, all within North Lanarkshire.
- Cumbernauld: Eight post code areas, all within North Lanarkshire.
- Eastern Glasgow: Twenty post code areas, with five within North Lanarkshire.
- Forth Valley: Twenty post code areas, with part of three areas within North Lanarkshire (these data have not been used given the limited area within North Lanarkshire).
- Hamilton: Twelve post code areas, with part of two areas within North Lanarkshire (these data have not been used given the limited area within North Lanarkshire).
- Motherwell: Nine post code areas, all within North Lanarkshire.
- Strathkelvin: Twelve post code areas, with three areas within North Lanarkshire.
- West Lothian: Twenty postcode areas, with part of two areas within North Lanarkshire (these data have not been used given the limited area within North Lanarkshire).
- Wishaw: Seven post code areas, all within North Lanarkshire.

13.2.35 The post code areas predominately follow the Council boundary although in a few cases such areas cross the North Lanarkshire Boundary. Where these areas lie predominately outwith North Lanarkshire the data have not been used given the limitations on its application to North Lanarkshire. The total area where data have not been used for this reason accounts for 7% of North Lanarkshire and is located predominately in rural eastern areas.

13.2.36 The summary of the data for the post code areas within North Lanarkshire is presented in Table 13.12. This shows the sum of figures across the post code areas and a range and average for the percentages. Figures 13.3 to 13.16 show the geographical distribution of the data with the white areas on the plans indicating where no data were obtained due to the post code boundaries discussed above.

**Table 13.12 Community Health Profile Data**

	Unit	North Lanarkshire Total <sup>1</sup>	Airdrie & Coatbridge <sup>2</sup>	Cumbernauld <sup>2</sup>	Motherwell <sup>2</sup>	Wishaw <sup>2</sup>	Scotland
<b>Population Demographics</b>							
Population 0-15 yrs <sup>2001</sup>	No.	71,950					
	%		20.5%	21.0%	20.3%	19.9%	19.2%
Population 16 - 64 yrs <sup>2001</sup>	No.	231,468					
	%		65.4%	67.4%	65.2%	64.7%	64.9%
Population 64+ yrs <sup>2001</sup>	No.	48,513					
	%		14.1%	11.6%	14.4%	15.4%	15.9%
Minority Ethnic Groups <sup>2001</sup>	No.						
	%		1.0%	1.5%	1.4%	1.2%	2.0%
Life Expectancy – Males <sup>1998/2002</sup>	Years		71.3	73.7	71.7	71.0	73.3
Life Expectancy – Females <sup>1998/2002</sup>	Years		77.4	78.5	77.3	76.8	78.7
Migration – Inward <sup>2003</sup>	No.	17,740					
Migration – Outward <sup>2003</sup>	No.	18,220					
<b>Health and Function</b>							
Adults unable to work due to illness/disability <sup>2000</sup>	No.	33330					
	%		17.3%	11.6%	15.4%	17.3%	10.6%
Self-assessed health (not good) <sup>2001</sup>	No.	44033					
	%		13.7%	10.8%	12.6%	13.5%	10.2%



	Unit	North Lanarkshire Total <sup>1</sup>	Airdrie & Coatbridge <sup>2</sup>	Cumbernauld <sup>2</sup>	Motherwell <sup>2</sup>	Wishaw <sup>2</sup>	Scotland
<b>Behaviour</b>							
Travel to Work/Study by foot/bike/PT <sup>2001</sup>	No.	87182					
	%		40.5%	41.0%	41.8%	41.5%	44.7%
Pre-School Overweight & Obese Children <sup>5 2001</sup>			21.0%	24.2%	24.6%	19.3%	21.3%
<b>Social Environment</b>							
Social Grade AB <sup>3 2001</sup>	No.						
	%		12.9%	18.0%	14.0%	12.6%	19.0%
Social Grade E <sup>3 2001</sup>	No.						
	%		27.9%	20.3%	27.8%	29.6%	22.4%
<b>Economy</b>							
Household without a Car <sup>2001</sup>	No.	51740					
	%		38.4%	31.9%	39.5%	37.1%	34.2%
<b>Physical Environment</b>							
Vacant Dwellings <sup>2001</sup>	No.	3494					
	%		2.4%	2.5%	2.3%	3.1%	3.8%
Household within 5mins of GP <sup>2001</sup>	%		90.1%	92.7%	99.9%	88.8%	88.6%
Household within 5mins of Dentist <sup>2001</sup>	%		92.7%	81.6%	99.9%	78.1%	82.2%
Household within 30mins of hospital <sup>2001</sup>	%		100%	100%	100%	100%	97.6%
<b>Morbidity and Mortality</b>							
Deaths – Cancer <sup>4 2000/02</sup>	# (average annual)	1000					
	# per 100,000		191.4	166.9	184.0	188.7	166.2
Deaths - Heart Disease <sup>4 2000/02</sup>	# (average annual)	998					
	# per 100,000		184.5	154.7	179.8	173.5	145.0
Infant Mortality (5 year Total) <sup>5 1999/2002</sup>	Crude rate per 1,000 live births		5.1	5.9	3.5	5.4	5.3

Notes:

The date of the data associated with the health indicators is presented in superscript after each item.

1. Data is the sum of total numbers within the all post code areas used. Covers 97% of North Lanarkshire area.
2. Data is from the summary datasheets for each of the four community profiles that lie fully within North Lanarkshire (covering 86% of North Lanarkshire area).
3. Social Grade A & B = higher and intermediate managerial/administrative/professional occupations. Grade E = state benefit/unemployed/lowest grade workers.
4. Average annual numbers and rates, age-standardised rate per 100,000 population.
5. This data is presented at the community level rather than post code level.

Source: Community Health Profiles

13.2.37 The Figures prepared with the Community Health Profile Data allow the identification of geographical trends in the data. A short discussion of the items covered within Table 13.10 is given below. All percentages referred to on a geographical basis are based on the percentage figures for the post code areas, there are potential limitations to the data in that some data may now be superseded and percentage figures may be based on limited numbers and therefore skewed by outliers.

- **Age Distribution.** The age distribution figures identify a higher proportion of the population within the 15 and under age range within the urban areas in the northern and western parts of North Lanarkshire. These data are reportedly sourced from the 2001 Census.
- **Life Expectancy.** The life expectancy of the North Lanarkshire population is generally below the Scottish average with the highest expectancy in post code areas in the northern and north-western parts of North Lanarkshire. These data are reportedly sourced from the 1998 General Register Office for Scotland (GRO(S)) 2001 Census.



- Figures for total inward and outward migration identify a net outward migration of 480 persons (for the year assessed). These data are reportedly sourced from the 2001 Census.
- Adults unable to work due to illness. The majority of North Lanarkshire is above the Scottish average with regard to the percentage of the adult population unable to work due to illness; this is primarily within central and southern parts of North Lanarkshire. These data are reportedly sourced from the Department for Work and Pensions (2000).
- Pre-School Overweight and Obese Children. Figures for North Lanarkshire are around the Scottish average with some areas greater and some below. These data are reportedly sourced from the Information and Statistics Division of NHS Scotland and the Pre-School Child Health Surveillance Programme.
- Self-assessed health as 'not good'. North Lanarkshire is generally below the Scottish average on the percentage of people identifying their health as 'not good' in the 2001 Census. Geographical distribution identifies the highest percentage responses in central and southern parts of North Lanarkshire. These data are reportedly sourced from the 2001 Census.
- Travel to work by foot/bike/public transport. North Lanarkshire is generally slightly under the Scottish average with areas in the west, south-east and north of the area with the highest percentage of people travelling to work by foot, bike and public transport. These data are reportedly sourced from the 2001 Census.

There is some discrepancy with figures presented for travel to work. Data presented in Table 13.5 identifies approximately 70% of the North Lanarkshire population travel to their place of work by car whilst data within the Table 13.12 identifies approximately 40% of the population travel to their place of work or study by foot, bike or public transport. The discrepancy is likely to be associated with the way in which the data were collected by questionnaire nature of the 2001 Census.

- Households without a car. The percentage of households without a car varies across the post code areas ranging from 7.3% to 53%, the highest percentages being in the western and northern parts of the North Lanarkshire. This compares with the Scottish average of 34.2%. These data are reportedly sourced from the 2001 Census.
- Vacant Dwellings. The percentage of vacant dwellings in the majority of North Lanarkshire are below the Scottish average with higher percentages in some post code areas in the central and southern parts of North Lanarkshire. These data are reportedly sourced from the 2001 Census.
- Households within 5 minutes of a GP. The majority of urban areas have 95% or over of households within 5 minutes drive of a GP with the percentages decreasing in rural areas with a minimum of 46%. This compares with a Scottish average of 88.6%. These data are reportedly sourced from the 2001 Scottish Neighbourhood Statistics.
- Households within 5 minutes of a dentist. The percentage of households within 5 minutes of a dentist follows a similar pattern to that of GPs with a minimum of 29%. This compares with a Scottish average of 82.2%. These data are reportedly sourced from the 2001 Scottish Neighbourhood Statistics.
- All postcode areas have 100% of households within 30 minutes of a hospital, this compares to a Scottish average of 97.6%. These data are reportedly sourced from the 2001 Scottish Neighbourhood Statistics.
- Deaths – Cancer. Deaths from cancer are generally above the Scottish average with the highest rates in the western and south-central parts of North Lanarkshire, the highest levels being in two post code areas; along the M73 near Gartcosh and around Bellshill. These data are reportedly sourced from the GRO(S) for 2000 and 2002.
- Deaths – Heart Disease. Deaths from heart disease are generally above the Scottish average of with the highest rates in the western and central parts of North Lanarkshire in post code areas around Muirhead, Coatbridge, Motherwell, Airdrie and east to Caldercruix. These data are reportedly sourced from the GRO(S) for 2000 and 2002.

- **Infant Mortality.** Levels of infant mortality are generally around the Scottish average. Figures are lower than the Scottish average within the Motherwell community health profile area. These data are reportedly sourced from the GRO(S) for 1999 and 2002.

13.2.38 Further information on the health of the population in North Lanarkshire was obtained from the Scottish Neighbourhood Statistics website (<http://www.sns.gov.uk>). A summary of key information from the report for North Lanarkshire is presented in Table 13.13. These figures indicate there is an above Scottish average for the percentage of the population prescribed drugs for anxiety, depression or psychosis (2002) and an above average level of hospital admissions for coronary heart disease (2003).

**Table 13.13 Health Information from Scottish Neighbourhood Statistics**

	North Lanarkshire	Scotland
Percentage vaccinated against MMR by 24months of age	88.0%	87.1%
Estimated Percentage of Population Prescribed drugs for anxiety, depression or psychosis (2002)	7.79%	7.52%
Hospital Admissions with a diagnosis of Coronary Heart Disease (both sexes, aged 15-64), rate per 100,000 of population (2003)	577	452

Information from Scottish Neighbourhood Statistics website  
(<http://www.sns.gov.uk/browser/browseResults.asp#Economic%20Activity%20and%20Benefits>)

13.2.39 Data provided on still births by North Lanarkshire Council identifies that across North Lanarkshire there were 30 still births in 2003.

## Community Facilities

13.2.40 There are a wide range of community facilities within North Lanarkshire.

13.2.41 **Walking and Cycling Facilities.** In 2004 North Lanarkshire Council produced a Walking and Cycling Strategy; this report identifies the problems and opportunities for walking and cycling within North Lanarkshire.

13.2.42 Within North Lanarkshire there are a series of long distance routes (Clyde walkway, National Cycle Network 75 and Forth and Clyde Canal), a number of key access areas (Clyde Valley, North and South Calder Valleys, three country parks and various reserves/woodland). There are also community path networks (notably around Kilsyth and Cumbernauld and parts of Motherwell and Wishaw).

13.2.43 The strategy identifies the existing walking and cycling network, this includes:

- National Cycle Network 75 from Glasgow to Edinburgh, running east-west through North Lanarkshire from near Uddingston to near Hillend Reservoir.
- North Calder Heritage Trail. This runs from Summerlee Heritage Park (Coatbridge) and follows the route of the Monklands Canal and joins NCN75 to the east of Airdrie.
- South Airdrie Path Network. This includes a series of shorter paths.
- Clyde Valley Walkway. Forty mile trail following the River Clyde from Glasgow to New Lanark, seven miles of which is within North Lanarkshire in close proximity to the urban area of Motherwell (Strathclyde Country Park to Dalzell Estate).
- Glasgow to Cumbernauld Cycle Commuter Route. This route starts on the south-west side of Cumbernauld and follows local roads to Muirhead, a footpath along the A80 and on-road cycle lanes from Stepps.
- Strathkelvin Railway Walkway. This route links the West Highland Way and runs from Moodiesburn.
- Forth and Clyde Canal. The adjoining towpath/footpath runs through North Lanarkshire from Auchinstarry Bridge in the west to Castlecary in the east.





- Harthill Walks. Two public rights of way to the south of Harthill.
- Airdrie to Bartletts Cycle Route. Implemented by a developer this links two sites with the potential for north-south links along the line of the A73.
- Kilsyth Paths. Various routes around Kilsyth.

13.2.44 There are various Country Parks and Town Parks with walking and cycling routes. Five on-road un-signed routes have been identified in the north and east of North Lanarkshire to link rural communities.

13.2.45 The Walking and Cycling strategy also identifies areas of weakness within North Lanarkshire including a lack of routes in some parts (e.g. North Airdrie) and routes being lost to development.

13.2.46 North Lanarkshire Council's Open Space Strategy (August 2004) provides details on the nature and extent of open space within North Lanarkshire (Table 13.14). The strategy defines open space as ranging from roadside verges to Country Parks. The strategy notes that this highlights that open spaces are multi-functional and fulfil a number of valuable roles including recreational use, ecological habitat, landscape values and spaces for community events.

**Table 13.14 Open Space Information**

	Number	Area (ha)
Parkland	-	970
Total Area Maintained by North Lanarkshire	-	3,722
Town Parks	6	-
Amenity Open Spaces	1,070	-
Formal Pitches	263	-
Pitches – Kick About Areas	86	-
Play Spaces	281	-
Country Parks	3	1,176

Source: North Lanarkshire Council Open Space Strategy, 2004

13.2.47 Urban Parks. North Lanarkshire Council has adopted a method of urban park development, this involves the establishment of working partnerships between local communities and the Council enabling park improvements. Within North Lanarkshire there are 43 urban parks identified, these are listed in Table 13.15 for the north area (Airdrie, Chryston, Coatbridge, Cumbernauld, Kilsyth, Muirhead and Stepps) and for the south area (Motherwell, Harthill, Shotts, Viewpark and Wishaw).

**Table 13.15 Urban Parks within North Lanarkshire**

North Area		South Area	
Park Name	Location	Park Name	Location
Auchinstarry Quarry	Auchinstarry, Kilsyth	Ailsa Crescent Park	Ailsa Crescent, North Motherwell
Bogside Park	Bogside Road, Kilsyth	Allanton Public Park	Redmire Crescent, Allanton, Wishaw
Burngreen Park	Burngreen, Kilsyth	Belhaven Park	Dryburgh Road, Wishaw
Craiglinn Park/St Maurices Pond	North Road, Condorrat, Cumbernauld	Birkenshaw Park	Second Street, Birkenshaw, Viewpark
Cumbernauld House Park	Cumbernauld House, Cumbernauld	Brandy Park	Tulloch Road, Springhill, Shotts
Lanrig Park	Lanrig Road, Muirhead, Chryston	Calder Park	Wilson Street, Motherwell
Moor Park	Cumbernauld Road, Muirhead	Cambusnethan Memorial Park	Cambusnethan Street, Cambusnethan, Wishaw
Stepps Park	Belnheim Avenue, Stepps	Chapelknowe Park	Chapelknowe Road, Carfin, Motherwell
Centenary Park	Centenary Avenue, Airdrie	Duchess of Hamilton Park	Avon Street, Motherwell
Central Park	Kirkness Street, Airdrie	Eastfield Public Park	Covenanter Road, Eastfield, Harthill
Dunbeth Park	Kildonan Street, Coatbridge	George Street Park	George Street, Motherwell
Katherine Park	Forrest Street, Clarkston, Airdrie	Harthill Public Park	West Main Street, Harthill
Langloan Park	Kirkwood Street, Coatbridge	Hawthorne Park	Bonkle Road, Newmains, Wishaw
Mavisbank Park	Wester Mavisbank Avenue, Airdrie	Holytown Memorial Park	Bo'ness Road, Holytown, Motherwell
Rosehall Park	Old Monkland Road, Coatbridge	Jerviston Street Park	Jerviston Street, New Stevenston, Motherwell
West End Park	Alexander Street, Airdrie	Kether Street Park	Hamilton Road, Motherwell
West End Park	Bank Street, Coatbridge	King George V Park, Mossend	Adamson Street, Mossend, Bellshill
Wheatholm Park	Wheatholm Street, Airdrie	Legbrannock Urban Fringe Park	Shirrel Road, Holytown, Motherwell
Whifflet Park	Calder Avenue, Coatbridge	Morningside Park	Morningside Road, Newmains
		Newarthill Park	Mosshall Street, Newarthill, Motherwell
		Newmains Public Park	Main Street, Newmains, Wishaw
		Orbiston Park	Liberty Road, Bellshill
		Overtown Park	Overtown Road, Overtown, Wishaw
		Stewarton Street Park	Greenhead Road, Wishaw

Source: North Lanarkshire Council's Website, October 2005



13.2.48 Six of the urban parks have been identified by North Lanarkshire Council as being town parks. North Lanarkshire Council has designated one urban park per key settlement with the aim of improving the parks through community partnerships to provide a resource for the whole community. The town parks are presented in Figure 13.17 and include:

- Centenary/West End Park, Airdrie
- West End Park, Coatbridge
- Cumbernauld House Park, Cumbernauld
- Burngreen Park, Kilsyth
- Duchess of Hamilton Park, Motherwell
- Belhaven Park, Wishaw

13.2.49 Information is provided on North Lanarkshire Council's website for the three country parks within North Lanarkshire, these are:

- Strathclyde Country Park. This comprises mature woodland, rough wetlands and neat open parkland. The Country Park is one of Scotland's main centres for outdoor recreation (both on the water and land). There are extensive footpaths and nature trails through the woodland, wetlands and parkland.
- Palacerigg Country Park. This is set in the hills near Cumbernauld and comprises extensive native woodland and shrubs. There is a 10km network of nature trails and footpaths.
- Drumpellier Country Park. This comprises natural lochs, heathland, woodland and grassland with the Monklands Canal towards the southern perimeter. There is a network of accessible paths across the park.

13.2.50 The strategy identifies the benefits of open spaces for regeneration, health and well-being, employment and life-long learning.

13.2.51 **Built Facilities.** There are a wide range of built community facilities within North Lanarkshire; digital data provided by North Lanarkshire Council identifies key facilities including those listed below. Generally these are distributed across the North Lanarkshire area with the majority of facilities focussed on urban areas. The location of these facilities is shown on Figure 13.17.

- Four Arts and Craft Facilities. Located within Airdrie and Wishaw;
- 91 Community Centres and Halls. Located across North Lanarkshire with a focus on towns and villages;
- 21 Community Education Centres. Located within urban areas across North Lanarkshire;
- 24 Libraries. Located within urban areas across North Lanarkshire. In addition there is a mobile library network serving many parts of the North Lanarkshire;
- Five Museums and Heritage Sites. Located within the larger urban areas across North Lanarkshire;
- 21 Sports Facilities. Located throughout North Lanarkshire within urban areas.

13.2.52 There is a variety of health facilities within North Lanarkshire with the Scottish Health Statistics (provided by the NHS) identifying that in 2003 there were 198 general practitioners within North Lanarkshire.

13.2.53 Town centres and high streets are a key part of local communities and contribute to the identity of settlements. The locations are often the focus for services and leisure as well as for employment. The Economic Regeneration Framework report notes that the overall vibrancy and attractiveness of this areas hinges on the sustainability of the town centres and the services they offer. The report also notes that the quality of such areas is on the decline and there is a lack of identity, and a need for quality retailing in a quality environment.







13.2.54 An important part of the facilities within North Lanarkshire is their accessibility for the population. Much of the cycle and footpath network is located at and in close proximity to urban areas. Community facilities, such as community centres, are generally located within communities ensuring their ease of access. Other facilities, particularly those associated with the open space resources such as some long distance paths and some country parks, are located at a distance from the main concentration of population within urban areas.

### Initiatives and Strategies

13.2.55 North Lanarkshire Council has a variety of community initiatives and strategies in place both at a local and regional/national level. These initiatives have a varying importance in influencing the nature and extent of community facilities, population and health. A summary of key initiatives identified within North Lanarkshire are identified in Box 13.2 below under the three broad categories in this communities chapter. Many of these initiatives have interactions with the other categories and some have been identified as covering all three.

**Box 13.2 Key Initiatives within North Lanarkshire**

Population & Households	Health	Facilities
Regeneration Areas (former Social Inclusion Partnerships).  Economic Regeneration Framework  Housing Grants  Warm Deal	Healthy Living	Walking and Cycling Strategy  Open Space Strategy
Eco-Schools  Volunteer Strategy		

13.2.56 Population based initiatives, notably the regeneration areas, identify areas within North Lanarkshire, including vacant and derelict land, that are suitable for regeneration. Regeneration may include residential and commercial/industrial uses. Digital data on regeneration areas provided by North Lanarkshire Council identifies that there is approximately 6,300ha of land within these areas.

13.2.57 North Lanarkshire Council's Local Housing Strategy 2004 – 2009 identifies two grants to assist in household improvements, these being:

- Housing Association Grants to fund the building or rehabilitation of housing for rent or low cost home ownership initiatives.
- Grants for Owner Occupation are used to encourage owner occupation in areas where subsidy is required to make developments viable.

13.2.58 The Local Housing Strategy identifies a community energy partnership / warm deal where North Lanarkshire Council (with South Lanarkshire Council, Transco and Scottish Power) has established a community energy partnership to co-ordinate and target available resources to help eradicate fuel poverty.

13.2.59 North Lanarkshire's Economic Regeneration Framework report (2004) identifies their formal response to the Scottish Executive's national agenda for regeneration and renewal. North Lanarkshire Council's aim is to narrow the gap between deprived neighbourhoods and the rest of North Lanarkshire, thus ensuring no-one is disadvantaged by where they live. The report notes that North Lanarkshire Council is clearly focused on improving access to Council services, making efficient use of scarce resources and using public sector intervention where it can clearly make a difference.



13.2.60 Land renewal programmes and Enterprise Zone status are identified by the report to have gone some way to tackling the problem of derelict and contaminated land within North Lanarkshire. Such land can contribute to reversing the deterioration in the image of North Lanarkshire and also the local environment. Despite a reported reduction in the amount of vacant and derelict land over previous years, there is a greater amount of such land within North Lanarkshire compared to the Scottish average and new areas are being identified with the further decline in manufacturing.



13.2.61 Health initiatives are generally present at a regional and national scale. The Health Education Board for Scotland (HEBS), part of the NHS Scotland, provides information and initiatives on a wide range of health related issues.

13.2.62 Council strategies, supported by the national equivalents such as the Walking Strategy for Scotland and National Cycling Strategy, aim to promote access to and use of a range of facilities. Such facilities are also tied in with health initiatives encouraging exercise and use of such facilities.

13.2.63 North Lanarkshire Council's Voluntary Sector Strategy Action Plan 2004 – 2006 identifies that there are around 16,000 voluntary organisations operating in North Lanarkshire. The desire of the strategy is to ensure that the conditions exist for the local voluntary sectors to thrive. The action plan notes that the Voluntary Sector Strategy forms part of the series of strategies that come together under the realm of the North Lanarkshire Community Plan with other strategies focusing on inclusion, learning, children and young people, housing among others.

13.2.64 The Action Plan 2004 reports six overall outcomes including ensuring that the voluntary sector is appropriately involved in consultations along with ensuring the sustainability, support, promotion and capacity of the sector.

13.2.65 The Eco School award is a Europe-wide project designed to encourage whole school action for the environment. The Eco-School topics include Litter, Energy, Water, Waste Management, Healthy Living, Transport and School Grounds. In North Lanarkshire there are currently 50 schools registered on the scheme and to date eleven have achieved the highest award, their Green Flag, and more are in the process of assessment.

13.2.66 North Lanarkshire Council's Waste Strategy (2002) identifies that in 2000 the Scottish Executive provided North Lanarkshire Council, along with other Local Authorities, with funding for recycling initiatives, these were invested in the following initiatives:

- Home composters. North Lanarkshire Council purchased home composters and sold them to the public at cost;
- Community Re-Paint Recycling. This project collects unwanted containers of paint through its paint recycling banks and redistributes the paint, on request, to community groups etc for reuse;
- CFC Recovery Equipment. The civic amenity sites were equipped with CFC recovery equipment to removed the CFC gases from domestic refrigerators and freezers; and
- Blue Recycling Bin Kerbside Pilot. A pilot of 5,800 households were provided with blue bins for collection of a range of material for recycling. This scheme has now been rolled out across the majority of North Lanarkshire as can be seen from figures in Chapter 8: Waste and Resources.

13.2.67 Public awareness and initiatives for waste reduction and recycling are necessary to increase the amount of waste diverted from landfill.



## Summary of Communities Baseline

13.2.68 Table 13.16 summarises the baseline communities resources identified within this section along with their geographical distribution and abundance.

**Table 13.16 Summary of Baseline Distribution**

Resource	Distribution
Population and Households	<ul style="list-style-type: none"> <li>Population of North Lanarkshire is 321,100 or 6% of the Scottish population (2001 Census)</li> <li>20% of the population is under 15 years old, 66% is between 16 and 64 years old and 14% is over 65 years old</li> <li>Approximately 16% of North Lanarkshire's population lives in Cumbernauld, 24% in Airdrie and Coatbridge and 25% in Bellshill, Motherwell and Wishaw.</li> <li>There are 132,619 households in North Lanarkshire (2001 Census). 58% of these households are owner occupied, 38% rented (of which 36% from public sector/social landlord and 2% from the private sector) and 4% are rent-free</li> <li>Approximately 90% of households in North Lanarkshire require some form of repairs and 8% have an issue with rising or penetrating damp</li> </ul>
Health	<ul style="list-style-type: none"> <li>In terms of perceived health, 13% described their health as 'not good', 23% as 'fairly good', 64% as 'good' (2001 Census question responses)</li> <li>23% of the population have a limiting long term illness, and approximately 33,000 people are unable to work due to illness/disability</li> <li>In terms of key health statistics, people in North Lanarkshire generally have poorer health than the Scottish average</li> </ul>
Community Facilities	<ul style="list-style-type: none"> <li>There is an extensive network of walking and cycling routes, however not all areas of population are equally well provided</li> <li>North Lanarkshire Council maintains a total area of amenity and open space of approximately 3,700 hectares. This includes parks, recreation grounds and play areas</li> <li>There are 91 community centres and halls located across North Lanarkshire, with a focus on towns and villages</li> </ul>
Initiatives	<ul style="list-style-type: none"> <li>There is approximately 6,300ha of Regeneration Areas within North Lanarkshire</li> <li>There are a number of other national, regional and local initiatives influencing populations, households, health and community facilities</li> </ul>

## 13.3 TRENDS IN THE RESOURCE

13.3.1 Information on the trends is presented with regard to population and households, health and initiatives.

### Population and Households

#### Population

13.3.2 Data on North Lanarkshire's population identifies a decrease in population between the 1991 and 2001 Censuses of approximately 2%. This compares with a reduction in the Scottish population over the same period of approximately 0.5%. The population and population change figures are presented in Table 13.17 below.

**Table 13.17 Population and Population Change Figures (1991 to 2001)**

	North Lanarkshire	Scotland
<b>Estimated Population 1991</b>	<b>326,900</b>	<b>5,083,330</b>
Data for 1991 to 2001		
Births	40,610	595,362
Deaths	35,978	601,707
Natural Change	4,632	-6,345
Migration and Other Changes	-10,352	-12,785
<b>Estimated Population 2001</b>	<b>321,180</b>	<b>5,064,200</b>
Change (#)	-5,720	-19,130
Change (%)	-1.7%	-0.4%

Source: Components of Population Change Data supplied by North Lanarkshire Council 19/09/05

13.3.3 The population changes figures identify that despite an increase in the number of births over deaths between 1991 and 2001 the total population of North Lanarkshire has decreased through high levels of outward migration.

13.3.4 The Headline Results report that, as in other areas, the population of North Lanarkshire is ageing with a significant fall in the number of children and young adults during the 1990s (the number of young adults falling by nearly 20%). This was accompanied by an increase in the number of older adults with an increase of 12% in adults over 75 years of age and 25% increase in those over 85 years of age.

13.3.5 The Economic Regeneration Strategy confirms that North Lanarkshire's population is ageing although it still retains a relatively high proportion of young people compared to the Scottish average. The report identifies the need to minimise out-migration of working age people and the retention of skilled labour.

13.3.6 Ethnic composition of the North Lanarkshire population shows an increase in the number of people who consider themselves to be of non-white ethnic background from around 2,600 in 1991 to around 4,000 in 2001 (0.8% to 1.3% of the North Lanarkshire population).

13.3.7 Car ownership within North Lanarkshire has increased between the Census of 1991 and of 2001 from 0.68 cars per household in 1991 to 0.89 in 2001. Figures for the number of properties without a car or van have decreased from 47% to 37% (1991 to 2001). Figures for households with two or more cars or vans has increased from 13% to 21% (1991 to 2001).

#### Households

13.3.8 The Headline Results identify that in 2001 there were approximately 132,600 households, an increase of almost 10% since 1991 (exact 2001 Census figure 132,619). This increase in households with a decreasing population is reflected in the change in persons per household which decreased from 2.66 in 1991 to 2.40 in 2001 (compared to the Scottish average of 2.27 persons per household in 2001).

13.3.9 Data from North Lanarkshire Council predicts an increase in the total number of households of 9% over the period 2002 to 2016; this compares with an increase over the similar period for Scotland of 7%. Table 13.18 below presents these predicted figures. These data are supported by the Local Housing Strategy 2004 – 2009 with identifies a predicted increase in households over the duration of the strategy of approximately 3.2%.

13.3.10 Increases in households will be those associated with small and large developments. For example the Local Housing Strategy identifies that approximately 3,000 new houses will be built within the Ravenscriag redevelopment.

**Table 13.18 Predicted Increases in the Number of Households**

Year	North Lanarkshire	Scotland
2002	133,910	2,216,780
2003	134,540	2,225,380
2004	135,370	2,236,830
2005	136,260	2,248,580
2006	137,140	2,260,710
2007	138,000	2,272,390
2008	138,860	2,283,970
2009	139,670	2,295,660
2010	140,610	2,308,810
2011	141,460	2,321,660
2012	142,330	2,334,580
2013	143,180	2,347,290
2014	143,980	2,358,750
2015	144,760	2,370,130
2016	145,500	2,381,090

Source: North Lanarkshire Council Website, Facts and Figures (October 2005)



13.3.11 Trends in property tenure are identified within the Local Housing Strategy. Between 1991 and 2001 the level of owner occupation in North Lanarkshire increased from 39% to 58%, this is reported to be attributable to extensive levels of private sector new build developments. Council-owned stock has reduced significantly since 1991 through some demolition but predominately through tenant purchase.

13.3.12 The Local Housing Strategy identifies the investment and predicted investment in various resources over the period 2001/2 to 2008/9. This is summarised within Table 13.19.

**Table 13.19 North Lanarkshire Council Investment in Housing**

	2001/2	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9
Capital Programme for Council Housing Stock (£m)	22.7	24.2	23.8	38.8	40.5	39.8	39.7	35.7

Source: Local Housing Strategy 2004 - 2009

13.3.13 The Economic Regeneration Framework report supports the figures showing a shift in tenure patterns in recent years towards owner occupation. The report notes the role of housing within community regeneration and the need for affordable housing.

## Health

13.3.14 There are limited data available on trends in health. The information on the health of North Lanarkshire presented within Section 13.2 was obtained from the newly created Community Health Profiles. Difficulties may arise in comparison with historic data through differences in the way statistics and data are collated and reported.

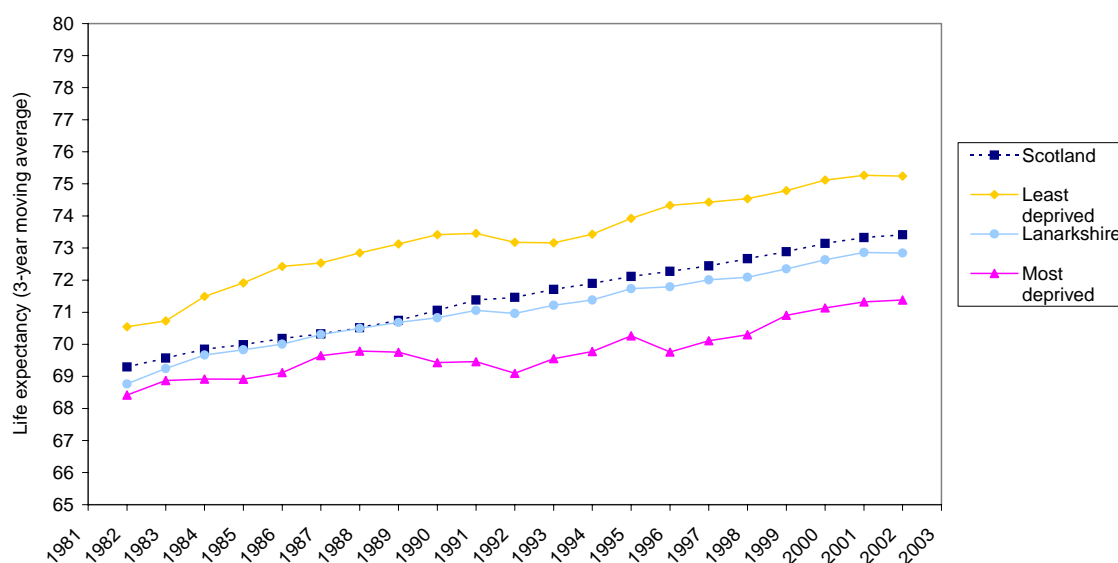
13.3.15 Trends in health have been identified across the NHS Lanarkshire area (North and South Lanarkshire) within the NHS report on Health Inequality Trends in Lanarkshire, 1981 – 2003 (Issued February 2005). The report summarises that inequalities in health between Lanarkshire and Scotland have shown little change since 1981. The trends over this period have been predominately fluctuations rather than sustained reduction in inequalities.

13.3.16 The calculations undertaken by NHS Lanarkshire within the following sections look at four data, these being:

- Figures for Scotland;
- Figures for Lanarkshire;
- Most Deprived Population Quintile (i.e. fifth);
- Least Deprived Population Quintile (i.e. fifth).

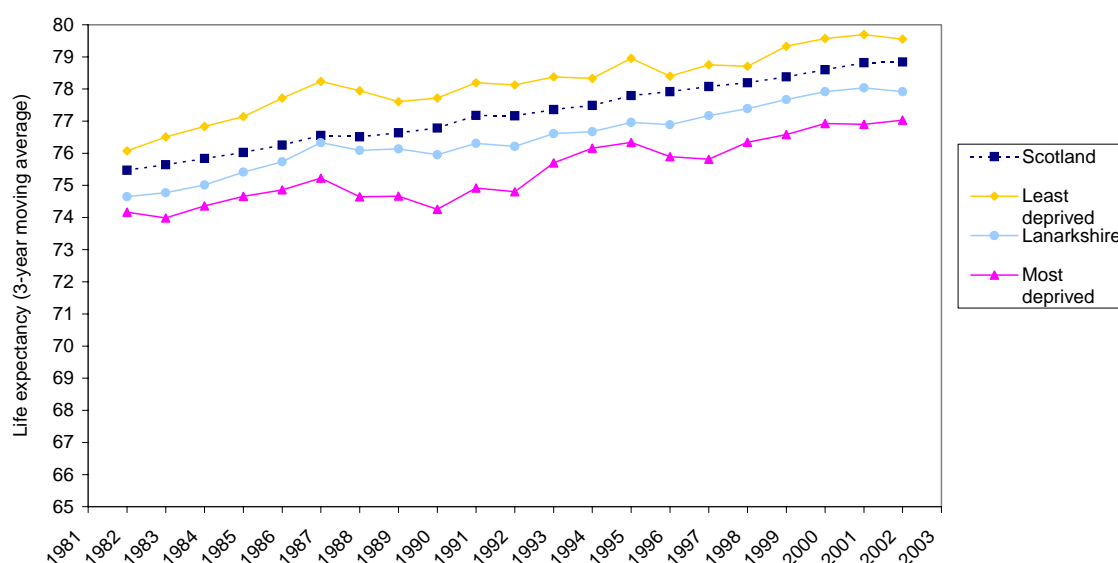
13.3.17 The report identifies that life expectancy for males and females has increased over the period within Lanarkshire although at a slower rate than the Scottish average. The gap between the most and least deprived within Lanarkshire has widened for males up to 1996 / 1998 however has subsequently remained steady. With female life expectancy, the inequalities were widest in the mid-1980s to the early 1990s when they narrow and since the mid-1990s have remained largely unchanged. Graphs 13.4 and 13.5 present the life expectancy for males and females respectively for the four data categories identified above.

**Graph 13.4 Male Life Expectancy**



Source: Health Inequality Trends in Lanarkshire, 1981 – 2003, NHS Lanarkshire, February 2005.

**Graph 13.5 Female Life Expectancy**

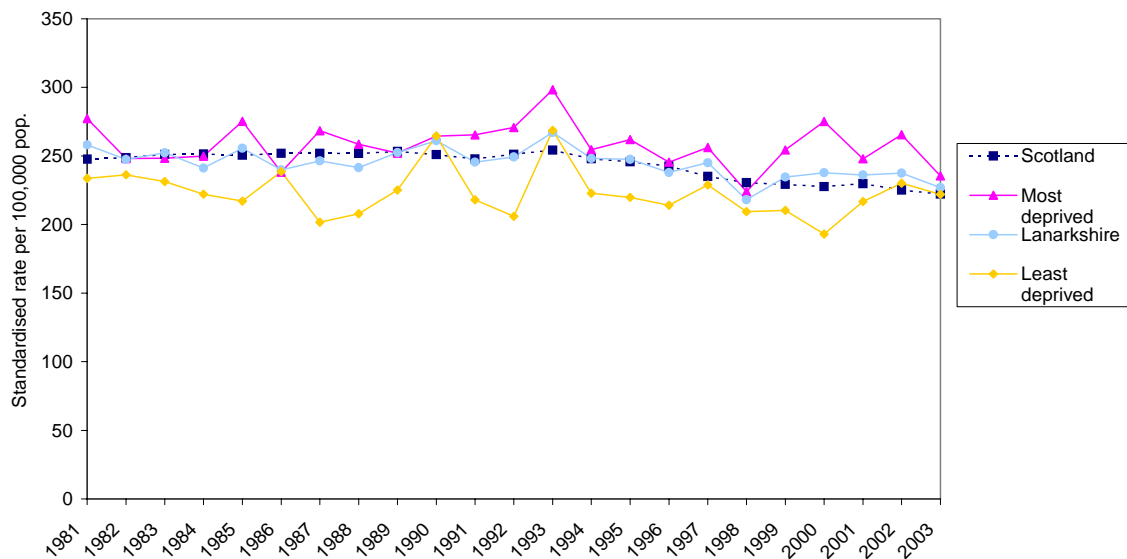


Source: Health Inequality Trends in Lanarkshire, 1981 – 2003, NHS Lanarkshire, February 2005.

13.3.18 The report identifies a steady decrease in death rates from cancer in the last decade before which the trend was for little change. The death rates for Lanarkshire are generally slightly above the Scottish average. There is no trend identified within the deprivation quintiles. Graph 13.6 presents the trends in death rates from cancer in Lanarkshire.



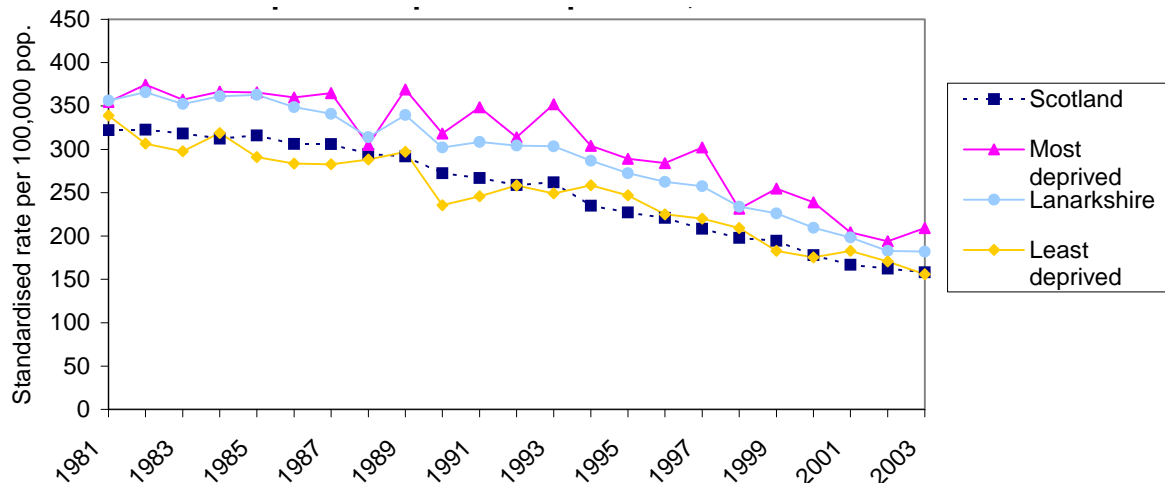
**Graph 13.6 Deaths from Cancer (excluding Non-Melanoma Skin Cancer)**



Source: Health Inequality Trends in Lanarkshire, 1981 – 2003, NHS Lanarkshire, February 2005.

13.3.19 The report identifies that death rates from coronary heart disease have decreased steadily over the past two decades both within Lanarkshire and Scotland. The levels within Lanarkshire have remained above the Scottish average. Graph 13.7 presents the trends in coronary heart disease.

**Graph 13.7 Deaths from Coronary Heart Disease**



Source: Health Inequality Trends in Lanarkshire, 1981 – 2003, NHS Lanarkshire, February 2005.

13.3.20 The report identifies that the prevalence of excessive weight is rising for both men and woman within the 16 – 64 age group both in Lanarkshire and Scotland. The inequalities for obesity within males are reported to have nearly vanished however they have increased slightly for women.

13.3.21 Trends in the numbers of still births within North Lanarkshire were provided by North Lanarkshire Council, and these figures are presented in Table 13.20. No significant trend is present within the data however a geographical difference can be seen with fewer still births in some registration districts such as Chryston and Kilsyth.





**Table 13.20 Still Births within North Lanarkshire**

Registration District	1996	1997	1998	1999	2000	2001	2002	2003
Airdrie	7	1	3	6	2	4	0	8
Bellshill	7	13	9	5	5	2	1	9
Coatbridge	1	7	2	4	0	3	2	1
Chryston	0	1	0	0	0	0	0	2
Cumbernauld	1	1	4	1	2	5	3	4
Kilsyth	0	0	0	0	0	1	0	0
Motherwell	5	5	5	3	6	9	8	6
Shotts	1	0	2	0	1	0	1	0
North Lanarkshire	22	28	25	19	16	24	15	30

Source: Trends in Still Births Information provided by North Lanarkshire Council 19/09/05.

13.3.22 North Lanarkshire Council has a local action plan for suicide (2003). Information provided by North Lanarkshire Council identifies that suicide rates are lower within Lanarkshire than the rest of Scotland. Motherwell Local Health Care Co-operative area consistently reports the highest rates of suicide for males between 1993 and 2002 and Cumbernauld for females. The lowest rates for both sexes is within the Coatbridge area.

13.3.23 North Lanarkshire Council notes that other than an overall increase there does not seem to be a particular trend. Suicide rates are noted to fluctuate quite considerably.

## Facilities

13.3.24 Limited data are available within North Lanarkshire on trends in facilities. Information within relevant strategies suggests an increase in facilities over time through the creation of facilities such as path networks and dedicated parks.

13.3.25 Data were obtained from the Scottish Health Statistics website for the number of general practitioners within North Lanarkshire (October 2003). These are presented in Table 13.21.

**Table 13.21 Trends in Number of GPs**

Year	Number of General Practitioners
1995	179
1996	182
1997	191
1998	195
1999	195
2000	193
2001	196
2002	193
2003	198

Source: Scottish Health Statistics website  
([www.isdscotland.org](http://www.isdscotland.org)), report on 2002/3 issued 2004.

## 13.4 PRESSURES ON THE RESOURCE

13.4.1 Pressures on the population of North Lanarkshire will be affected by local and regional trends in demographics, economic opportunities, health awareness, lifestyles and the desirability of areas as places to live and work. North Lanarkshire's decreasing and ageing population will act as a pressure on the population demographics and on the local economy, for example in terms of providing a sustainable tax base. During the workshop, the opportunity to increase immigration to North Lanarkshire was identified, for example through alignment with national initiatives such as the First Minister's "Fresh Talent" proposals to attract economically active people back to Scotland. This is supported by Structure Plan and Local Plan policy which seeks to reverse previous population decline in the future.

13.4.2 The Community Plan notes that decreasing population of working age and growing numbers of people in the 50+ age group will present a further challenge to addressing rates of unemployment than in other parts of Scotland. Relatively low educational qualifications limit access by many people to better paid and higher skilled jobs.

13.4.3 As presented within Section 13.3, there is an increasing number of properties within North Lanarkshire and this is predicted to continue growing. There is a pressure on housing through increased demand (both from within North Lanarkshire and also from housing requirements from surrounding areas for commuting etc), as average household size decreases.

13.4.4 The Local Housing Strategy 2004 – 2009 identifies that there is a pressure in terms of demand for social rented accommodation within North Lanarkshire with a ratio of 3:1 of applicants to allocations. Whilst it is reported that there is not an overall shortage of rented accommodation





across North Lanarkshire, in some specific areas there is a shortage such as the Cumbernauld and Moodiesburn area. There is also a low demand for social rented housing within areas such as Airdrie, Bellshill, Coatbridge, Shotts and Wishaw.

13.4.5 The Community Plan also identifies that energy efficiency within housing is often poor and fuel poverty affects many people's living conditions.

13.4.6 The location and nature of new developments (residential and employment) plays a role in the pressures on population dynamics. Increased developments aimed at commuters for areas outside North Lanarkshire may encourage immigration to North Lanarkshire and result in an increased percentage of the population in employment. Such development does not however assist in the provision of employment opportunities for the existing North Lanarkshire population.

13.4.7 There are a range of positive pressures / opportunities within North Lanarkshire through the national and regional emphasis on promoting good health. Improvements in housing conditions and access to recreational facilities may provide opportunities for improvement in health.

13.4.8 Community facilities are subject to pressures from over and under use. The ageing population within North Lanarkshire will place an increased pressure on specific community facilities such as health care. The viability of community facilities may be under pressure through under use, such facilities may include village halls or footpaths. There may also be pressures on community facilities through the centralisation and decentralisation of facilities and services.

13.4.9 Development places a pressure on community facilities through the requirement for open developable land, which includes public open space used for recreation. There is a requirement to protect important areas of community open space and recreational land from inappropriate development to ensure that communities maintain access to open spaces which can provide benefits for health and wellbeing.

13.4.10 Initiatives are subject to high level drivers such as national policies and funding constraints and are also subject to success rates. Initiatives range from local to regional/national scale and the majority are a response to other pressures and trends at a higher level.

## 13.5 CONDITION OF THE RESOURCE

13.5.1 The assessment of the condition of the resource has been made based its distribution, trends and pressures. This has allowed for an analysis the health and vulnerability of the resource and its distinctiveness within North Lanarkshire. Table 13.22 summarises the condition of the community resource drawing on the analysis presented in Sections 13.2 to 13.4.

**Table 13.22 Summary of Resource Condition**

Resource	Condition		Distinctiveness to North Lanarkshire
	Status	Vulnerability	
Population and Households	<ul style="list-style-type: none"> <li>Population in North Lanarkshire is declining (2% reduction between 1991 and 2001) with a net outward migration of 10,000 people over this period</li> <li>The population is ageing with a 12% increase in the number of people over 75 between 1991 and 2001</li> <li>There has been an increase of 10% in the number of households between 1991 and 2001. An increase of 9% is predicted for 2002 to 2016. Persons per household fell from 2.66 to 2.4 over this period</li> </ul>	<ul style="list-style-type: none"> <li>Population migration accounts for twice the demographic change from births and deaths</li> <li>Increases in households will drive a demand for development land, affecting other environmental and community resources</li> </ul>	<ul style="list-style-type: none"> <li>Ageing population is characteristic of wider Scottish demographic change</li> <li>Declining population may have wider social and economic consequences</li> </ul>



Resource	Condition		Distinctiveness to North Lanarkshire
	Status	Vulnerability	
Health	<ul style="list-style-type: none"> <li>■ Limited data on health trends are available</li> <li>■ Life expectancy is increasing in North Lanarkshire but at a slower rate than the Scottish average</li> <li>■ Deaths from cancer have remained steady over the past two decades</li> <li>■ Deaths from heart disease have decreased steadily but are still above the Scottish average</li> </ul>	<ul style="list-style-type: none"> <li>■ Potential for health initiatives to improve health of population</li> <li>■ Linkage with quality of built environment, housing and open space</li> </ul>	<ul style="list-style-type: none"> <li>■ Health currently below Scottish average</li> <li>■ Inward investors may look at health of workforce in location decisions</li> <li>■ Wasted resource and negative perception</li> </ul>
Community Facilities	<ul style="list-style-type: none"> <li>■ Limited data on trends in community facility provision, although development is a threat to some areas of open space on the edge of settlements</li> </ul>	<ul style="list-style-type: none"> <li>■ Ageing population may increase demand for certain facilities</li> <li>■ Dual use of facilities may offer opportunity for long term viability</li> </ul>	<ul style="list-style-type: none"> <li>■ Some distinctive features eg National Cycle Network Route 75, Forth &amp; Clyde Canal towpath</li> </ul>
Initiatives	<ul style="list-style-type: none"> <li>■ Initiatives relevant to each of preceding features on population, housing and communities</li> <li>■ Funding and resourcing is a key constraint</li> </ul>		<ul style="list-style-type: none"> <li>■ Address specific problems which detract from distinctiveness</li> </ul>

## 13.6 KEY ASSETS

13.6.1 Based on the analysis of environmental information within Sections 13.2 to 13.5, the following key community assets have been identified.

**Table 13.23 Key Communities Assets**

Key Asset	Description
Opportunity for Improved Health across the Population	There is a key opportunity for improved health across the population of North Lanarkshire as health is generally poorer than for the Scottish average.
Opportunity to Generate a More Balanced Population Profile	North Lanarkshire has an ageing population and there is the opportunity to generate a more balanced population profile through the creation of opportunities for the working age population to reduce out-migration, and potentially through increased immigration.
All Facilities are Key Assets in their Community	North Lanarkshire has a wide range of community facilities in the form of public open space, paths and built facilities. These facilities are key assets to North Lanarkshire, in particular all facilities are key assets to the communities there serve and they represent a collective asset which can benefit and characterise communities.
Key Features such as the National Cycle Network and Forth and Clyde Canal	There is a series of key path networks within North Lanarkshire which are key assets both to the local communities and regionally. These features include the long distance footpaths/cycle paths such as the National Cycle Network 75, Clyde Valley footpath and Forth and Clyde Canal towpath.



Key Asset	Description
Partnerships which Manage and Deliver Initiatives	There is a variety of partnerships within North Lanarkshire which contribute to the management and delivery of initiatives. These are key assets to North Lanarkshire through their contribution to the aims and objectives of the variety of initiatives and the benefits delivered to the communities in the region.
Opportunity to Improve the Quality of the Built Environment	There is a key opportunity within North Lanarkshire to improve the quality of the built environment. There are issues of quality within the built environment of town centres and the urban fringe in particular. This opportunity may provide benefits to the health and well being of North Lanarkshire's population, contribute to an improved perception of North Lanarkshire and facilitate the improvement of community facilities.
Opportunity to Broaden the Range and Improve the Quality of Housing Available	The number of households within North Lanarkshire is increasing at a rate above the Scottish average. There is therefore key opportunity within North Lanarkshire to ensure that the quality and range of housing is improved. Such improvements may have benefits on the townscape, urban fringe and population health and well-being and therefore link to the asset above on "opportunity to improve the quality of the built environment".

### 13.7 ISSUES FOR RESOURCE MANAGEMENT & PROTECTION

13.7.1 The key assets identified in Section 13.6 require a differing degree of management and protection based on the nature of the asset, the pressures affecting them and the scarcity of the resource. The following paragraphs discuss the issues of management and protection of the key community assets within North Lanarkshire.

13.7.2 The population of North Lanarkshire is decreasing at a greater rate than the Scottish average and the population is ageing. Management is needed to promote and facilitate in-migration of a younger population to contribute to a balanced population. Measures to achieve this may be through the promotion and facilitation of jobs and services, measures to improve the built environment and therefore the perception of North Lanarkshire, and initiatives to encourage inward migration and discourage outward migration.

13.7.3 With a poorer health than the Scottish average, measures are needed to promote and facilitate improved health across North Lanarkshire through increasing awareness and education, partnerships and initiatives and providing facilities to enable healthy living. Many of these initiatives will need to continue to be promoted from the national level by the Scottish Executive Health Department, HEBS and the NHS

13.7.4 Where community facilities are underused then these are subject to viability pressures; the identification of opportunities for dual use may assist in the viability of these facilities along with the community awareness and education of their availability, access and benefits. Accessibility to facilities is an important consideration and new facilities should consider access issues as well as engaging the communities to identify requirements and issues as part of the planning of new facilities.

13.7.5 Initiatives and strategies have an opportunity to contribute to the environment of local communities. These require continued funding and partnerships to make sure their delivery is maintained and promoted, and they require management to ensure their aims and objectives are not conflicting.

13.7.6 New developments provide the opportunity to improve the built environment and provide community facilities. This may include measures such as quality designs to improve the townscape and landscape setting of the urban and urban fringe areas. New developments can also contribute to improving and creating community facilities such as open space, footpaths and built facilities such as community halls and sports centres. Many new housing developments are focussed on providing settlements near to transport infrastructure which encourage occupancy by people travelling to work by car, often to





locations outside of North Lanarkshire. Opportunities exist to manage these developments to promote community aspects, plan a mix of housing types, plan sustainable transport services and routes and ensure a quality and appropriate townscape / landscape building which enhances local and regional community identity.

### 13.8 DATA GAPS AND LIMITATIONS

13.8.1 Data gaps and limitations exist within the information on the health of North Lanarkshire's population. Current data have been compiled within the Community Health Profiles however no extensive trend data have been produced. Figures on health are often reported on a wider scale, for instance for NHS Lanarkshire which covers North and South Lanarkshire in combination. Further details on the limitations of the community health profile data are presented within Section 13.2.

13.8.2 Figures provided for the health data may be limited in the baseline numbers used, particularly where these are small percentages which may be skewed relative to the surrounding levels. This is a particular issue for rural areas where population levels are low.

13.8.3 There are limitations with health statistics obtained from all sources based on the scope and nature of the surveys. Care should be taken with the use of all statistics for the identification of future trends to ensure that comparisons are made with like for like data or, where this is not possible, allowance should be made for limiting factors.

### 13.9 REFERENCES

13.9.1 The following sources of information have been referred to in this chapter:

- GIS Data on Community Facilities, provided by North Lanarkshire Council in August 2005;
- *Statistical Bulletin (Housing Services) – Housing Trends in Scotland: Quarter ending 31 March 2005*, Scottish Executive, August 2005;
- *Community Health Profile – Wishaw*, Health Scotland, 2004;
- *Community Health Profile – Airdrie and Coatbridge*, Health Scotland, 2004;
- *Community Health Profile – Cumbernauld*, Health Scotland, 2004;
- *Community Health Profile – Motherwell*, Health Scotland, 2004;
- *Community Health Profile – Strathkelvin*, Health Scotland, 2004;
- *Community Health Profile – Eastern Glasgow*, Health Scotland, 2004;
- *Walking and Cycling Strategy*, North Lanarkshire Council;
- *Open Space Strategy*, North Lanarkshire Council, August 2004;
- *Economic Regeneration Framework 2004 – 2010*, North Lanarkshire Council, 2004;
- *North Lanarkshire Community Plan 2004 – 2008*, North Lanarkshire Partnership;
- *Local Housing Strategy 2004 – 2009*, North Lanarkshire Council, 2004;
- *Scottish House Condition Survey 2002*, Scottish Executive and Communities Scotland, 2002;
- *Fuel Poverty in Scotland*, Scottish Executive and Communities Scotland, April 2004;
- *Health Inequality Trends in Lanarkshire, 1981 – 2003*, NHS Lanarkshire, 21 February 2005;
- *Voluntary Sector Strategy Action Plan, 2004 – 2006*, North Lanarkshire Council, 2004;
- *Waste Strategy*, North Lanarkshire Council, 2002;
- *Census 2001 Headline Results*, North Lanarkshire Council, 2003;
- Scottish Census Results On-Line (SCROL) website, <http://www.scrol.gov.uk>, accessed September 2005; and
- Scottish Neighbourhood Statistics website, <http://www.sns.gov.uk>, accessed September 2005.

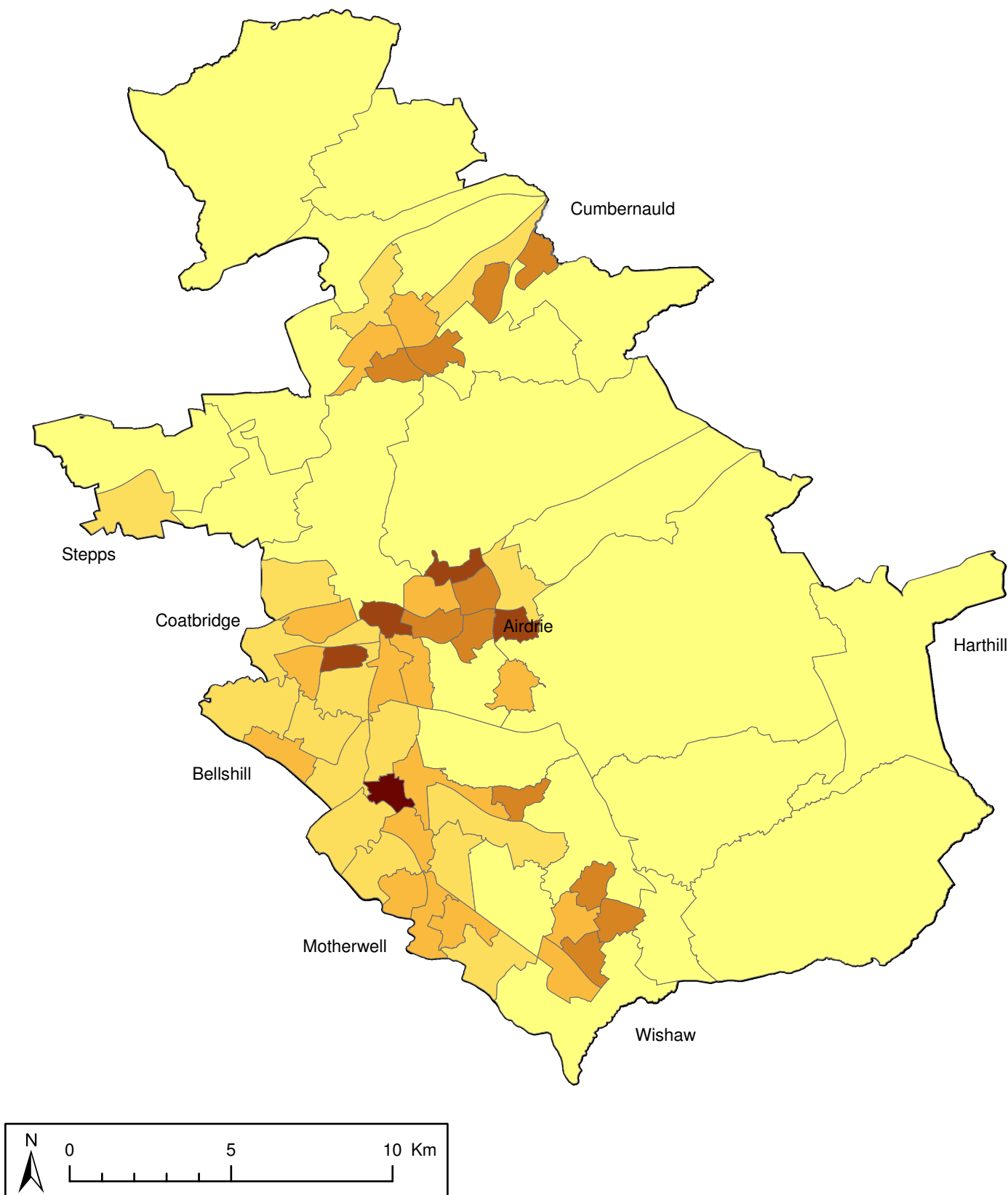


## 13.10 MAPS AND PLANS

13.10.1 Maps and plans supporting the information contained within this Chapter are summarised below and are included on the following pages.

Figure Number	Title
13.1	Plan of Population density
13.2	Plan of Community Health Profile Areas
13.3	Plan of Distribution of Population (0 – 15 years)
13.4	Plan of Distribution of Population (16 – 64 years)
13.5	Plan of Distribution of Population (over 65 years)
13.6	Plan of Life Expectancy – Males
13.7	Plan of Life Expectancy – Females
13.8	Plan of the percentage of adults unable to work due to illness
13.9	Plan of the percentage of Census 2001 respondents with self-assessed health as 'Not Good'
13.10	Plan of the percentage of people who travel to work/study by foot/bike
13.11	Plan of the percentage of households with a car
13.12	Plan of the percentage of vacant dwellings
13.13	Plan of the percentage of households within 5 minutes of a GP
13.14	Plan of the percentage of households within 5 minutes of a dentist
13.15	Plan of the rate of cancer deaths (per 100,000 of the population)
13.16	Plan of the rate of heart disease deaths (per 100,000 of the population)
13.17	Plan of Community Facilities





## Legend



Information based on Census 2001 population data and ward area provided by North Lanarkshire Council (September 2005)

**Figure 13.1**  
**Communities**  
**Population Density**

Scale: 1:170,000

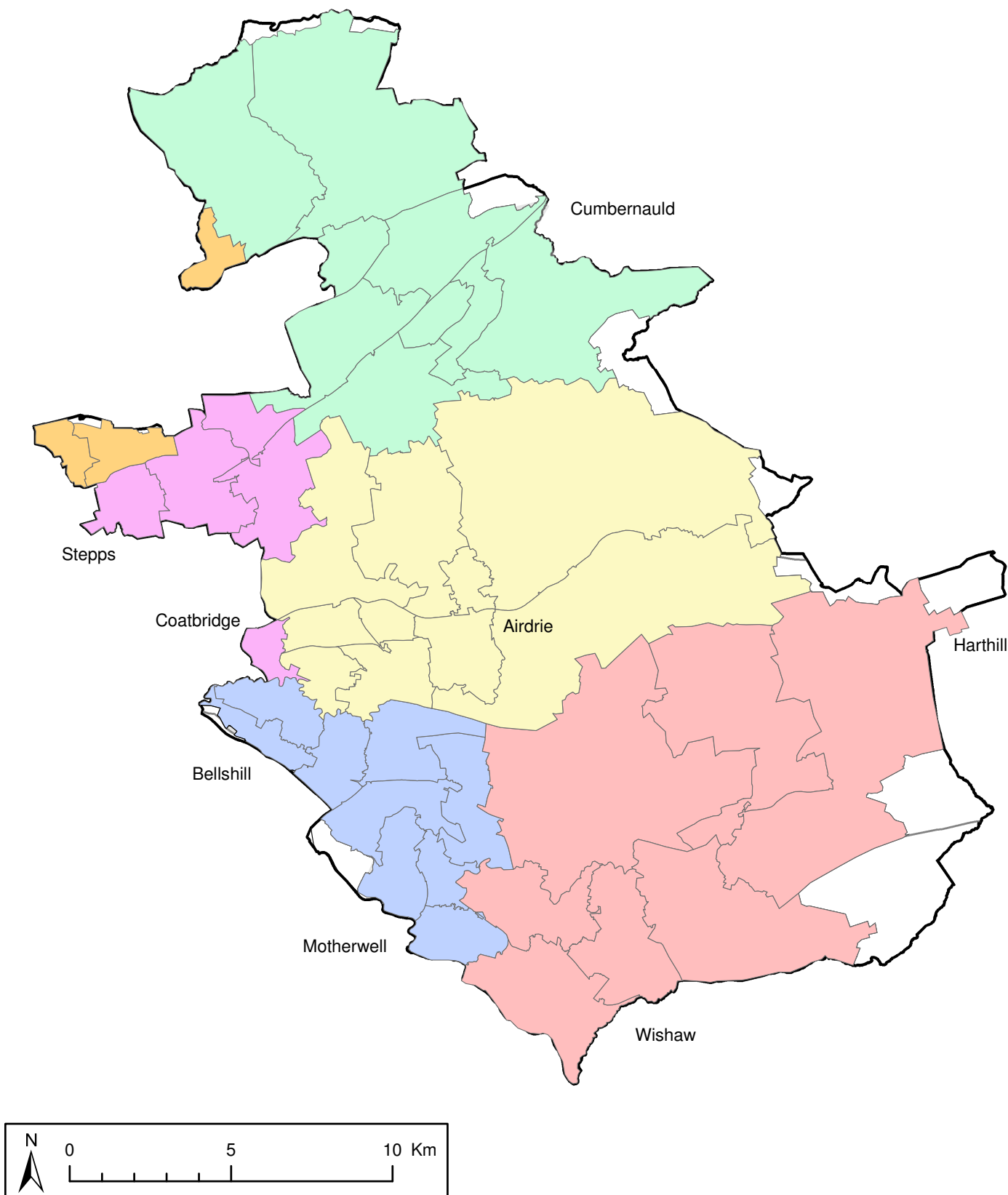
Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS







## Legend

<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> Airdrie	<span style="display:inline-block; width:15px; height:15px; background-color:magenta; border:1px solid black;"></span> Eastern Glasgow
<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span> Cumbernauld	<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Strathkelvin
<span style="display:inline-block; width:15px; height:15px; background-color:blue; border:1px solid black;"></span> Motherwell	<span style="display:inline-block; width:15px; height:15px; background-color:white; border:1px solid black;"></span> Profile Areas Not Used
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> Wishaw	

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

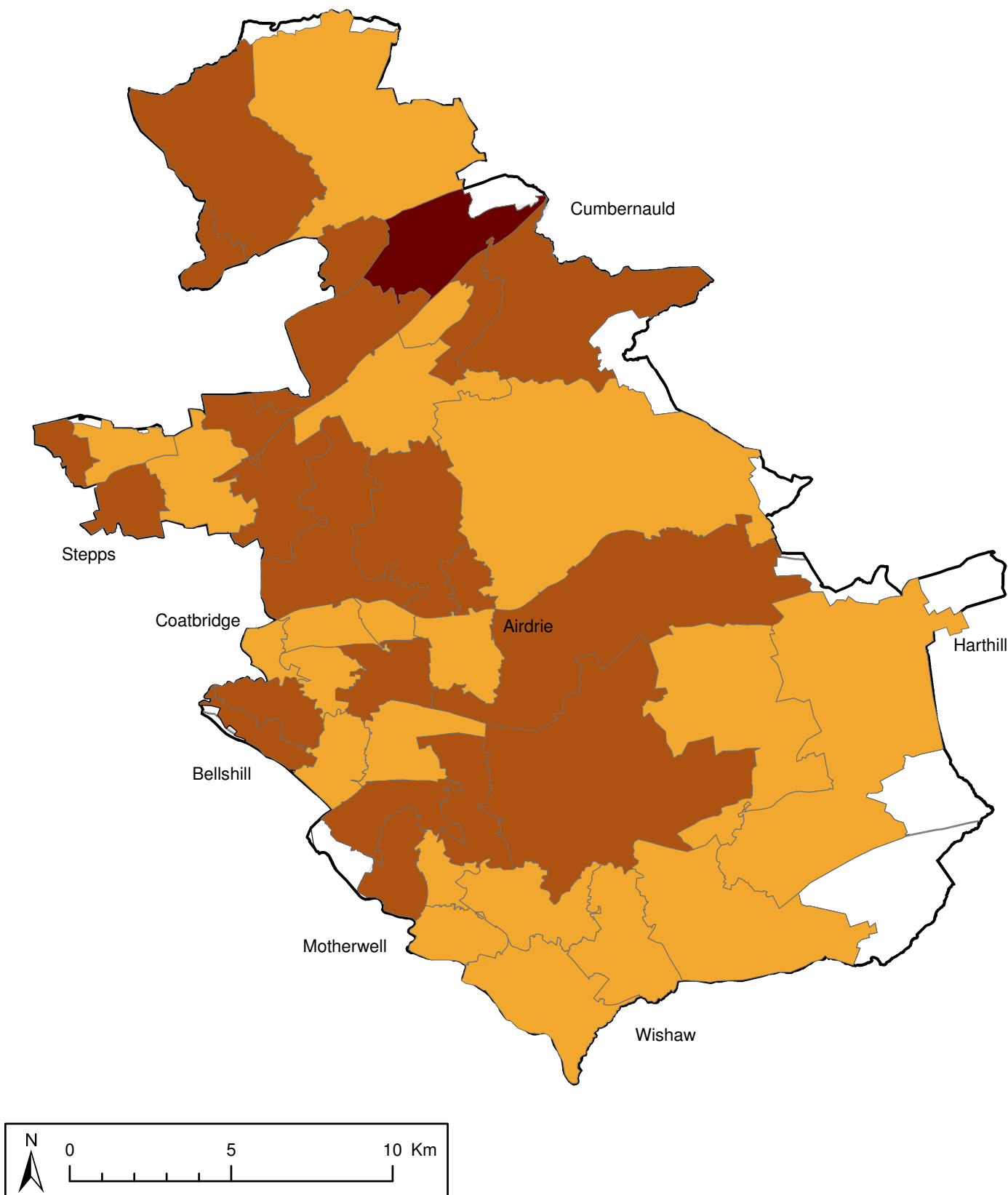
## Figure 13.2 Communities Health Profile Areas

Scale: 1:170,000  
Project: 12150841-001 NLC SoER



Date: 07.11.05  
Revision: -  
Drawn by: JS





## Legend

- No Data
- 0 - 15%
- 15 - 20%
- 20 - 25%
- 25 - 30%

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.3**  
Communities  
% of Population (0-15yrs)

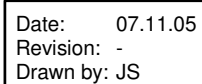
Scale: 1:170,000

Project: 12150841-001 NLC SoER



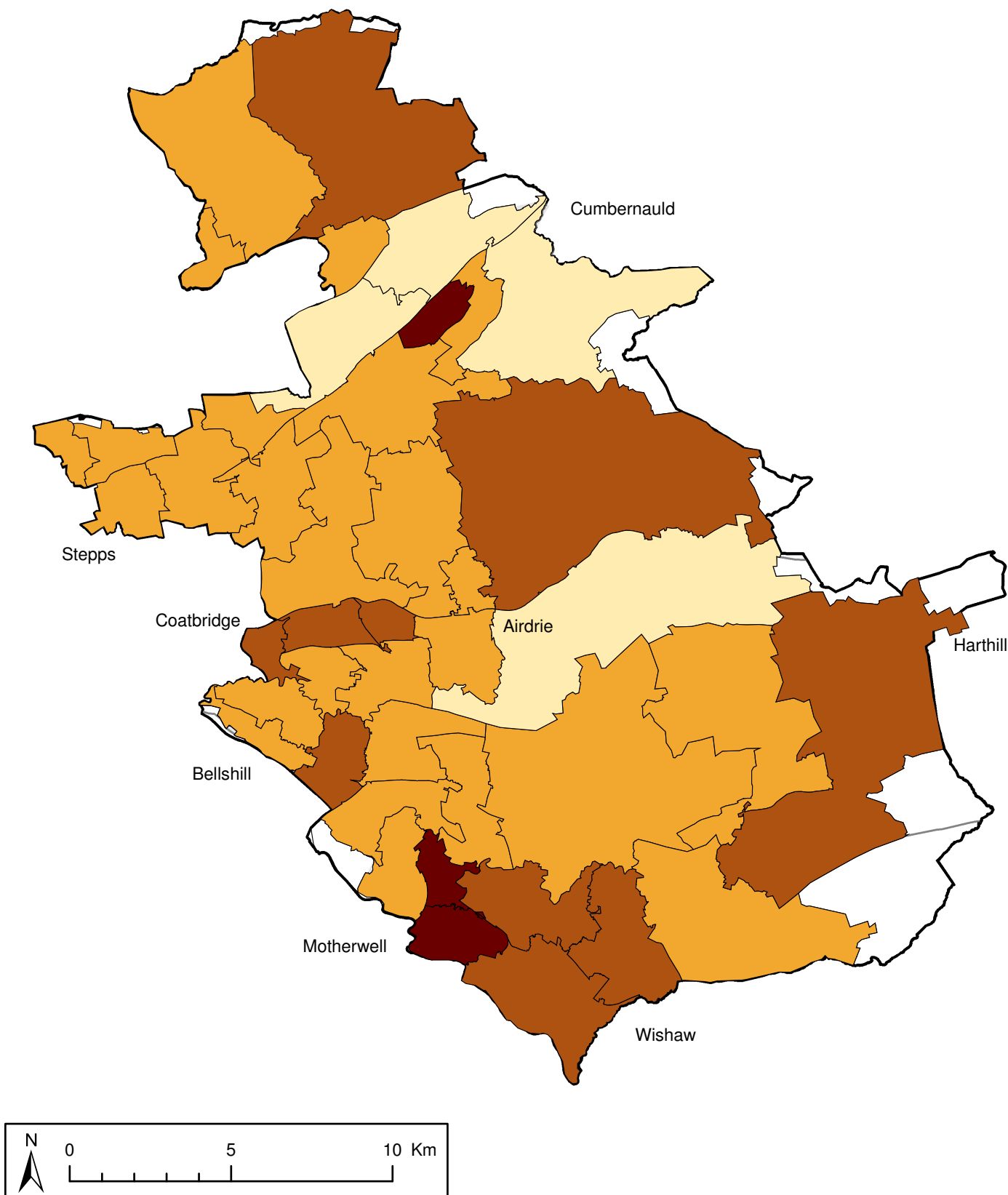
Date: 07.11.05  
Revision: -  
Drawn by: JS











## Legend

- No Data
- 0 - 10%
- 10 - 15%
- 15 - 20%
- 20 - 25%

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.5**  
Communities  
% of Population (64+yrs)

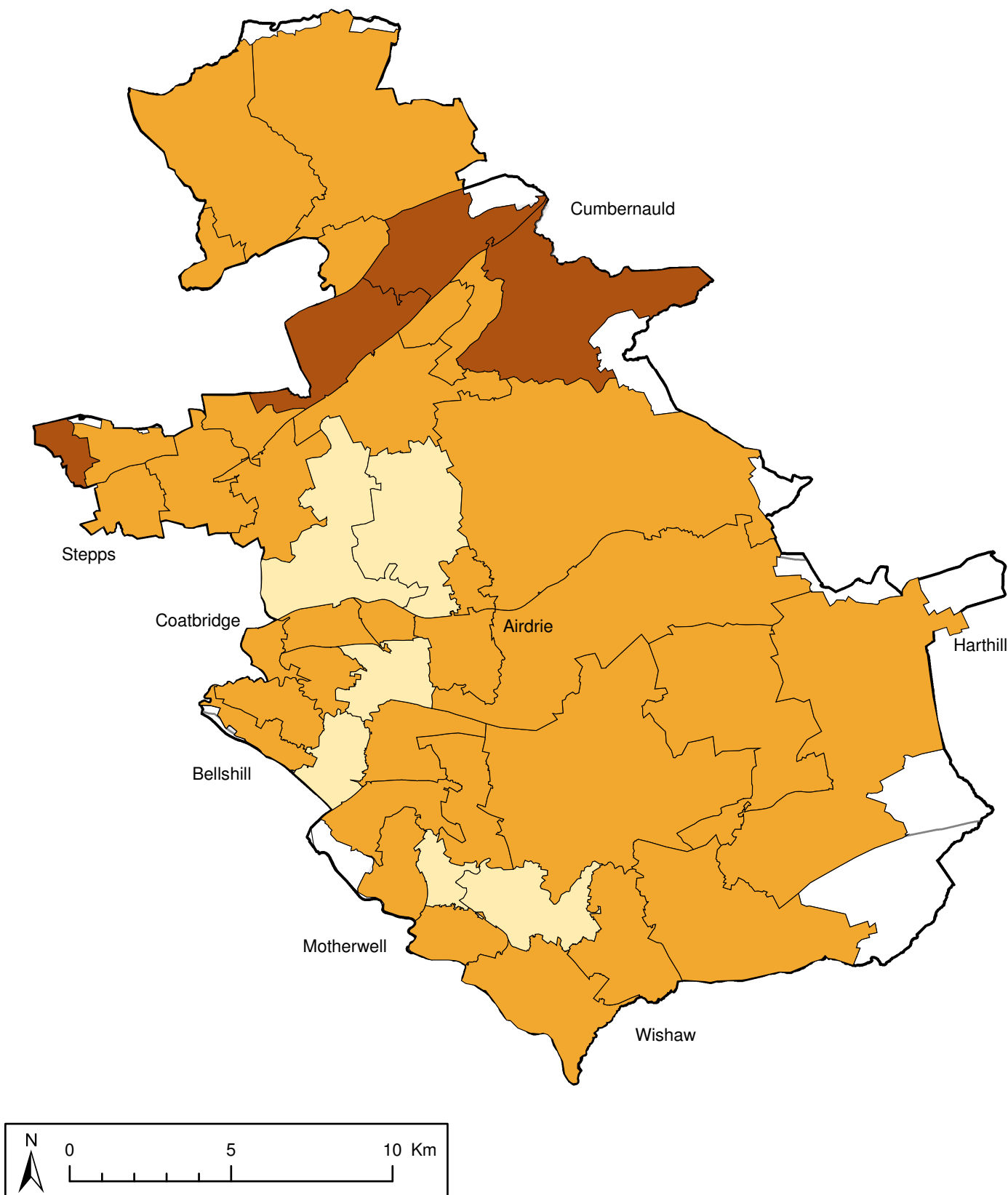
Scale: 1:170,000

Project: 12150841-001 NLC SoER



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Revision: -  
Drawn by: JS





## Legend

- No Data
- 65 - 70 years
- 70 - 75 years
- 75 - 80 years
- 80 - 85 years

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.6**  
Communities  
Life Expectancy - Males

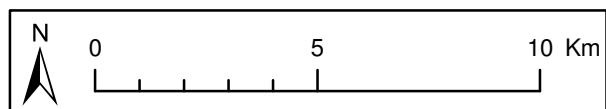
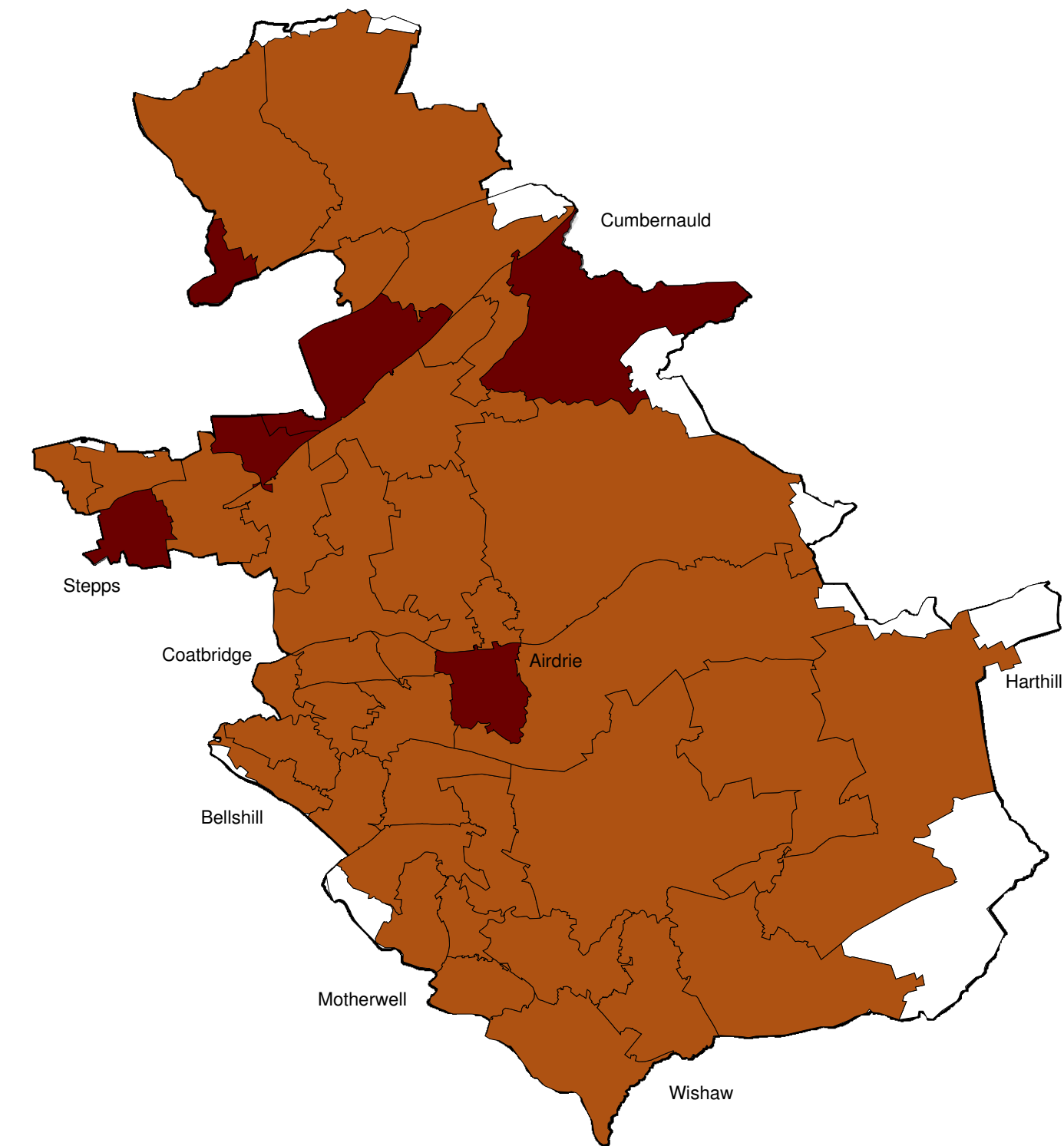
Scale: 1:170,000

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#### Legend

- No Data
- 65 - 70 years
- 70 - 75 years
- 75 - 80 years
- 80 - 85 years

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland Website).

**Figure 13.7**  
Communities  
Life Expectancy - Females

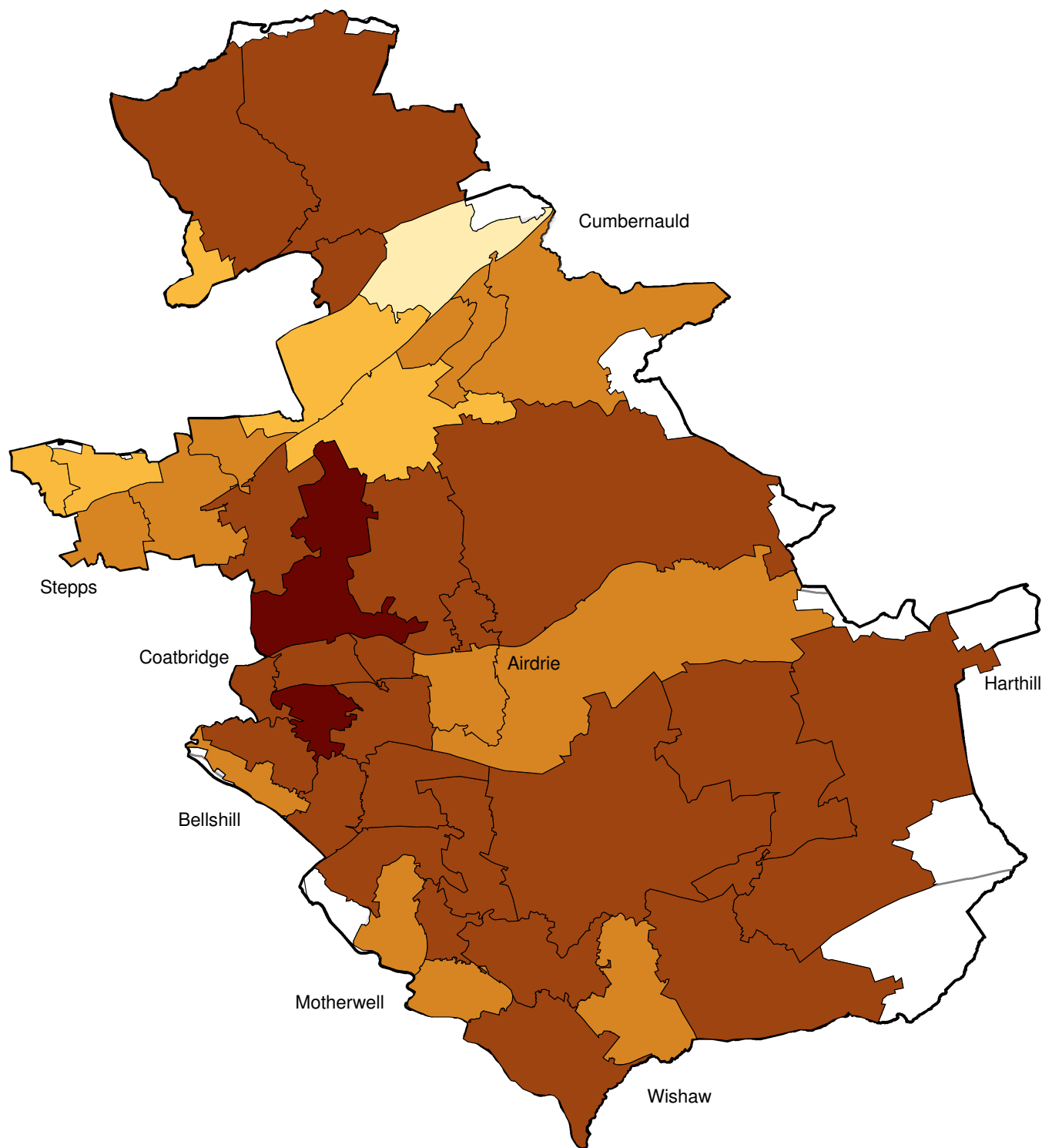
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Project: 12150841-001 NLC SoER

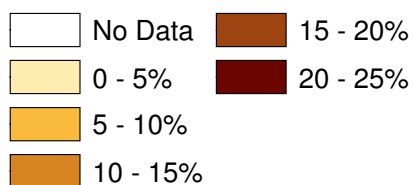


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## Legend



Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.8**  
Communities  
% Adults unable to Work

Scale: 1:170,000

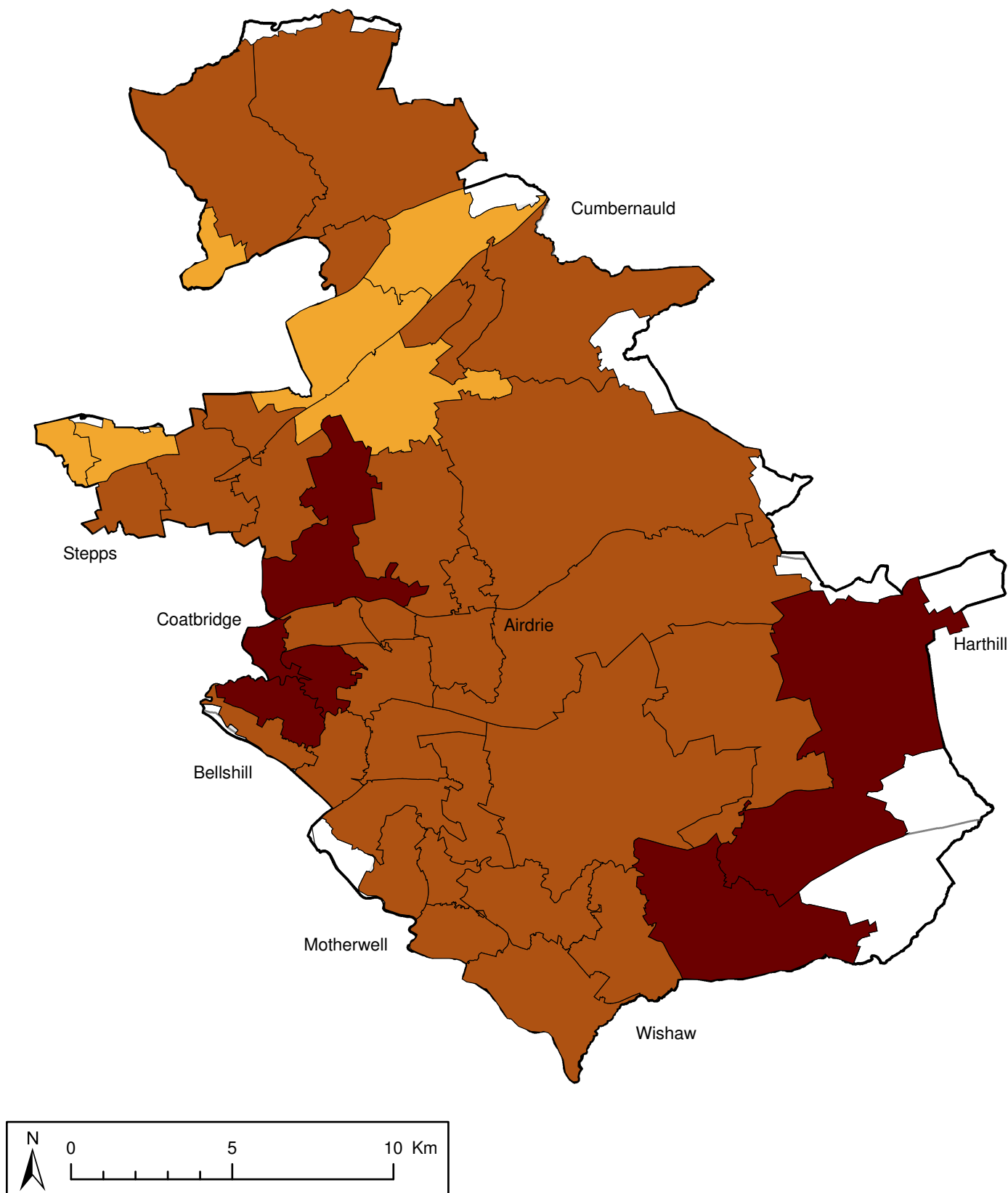
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## Legend

- No Data
- 0 - 5%
- 5 - 10%
- 10 - 15%
- 15 - 20%

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.9**  
**Communities**  
**% Health Not Good**

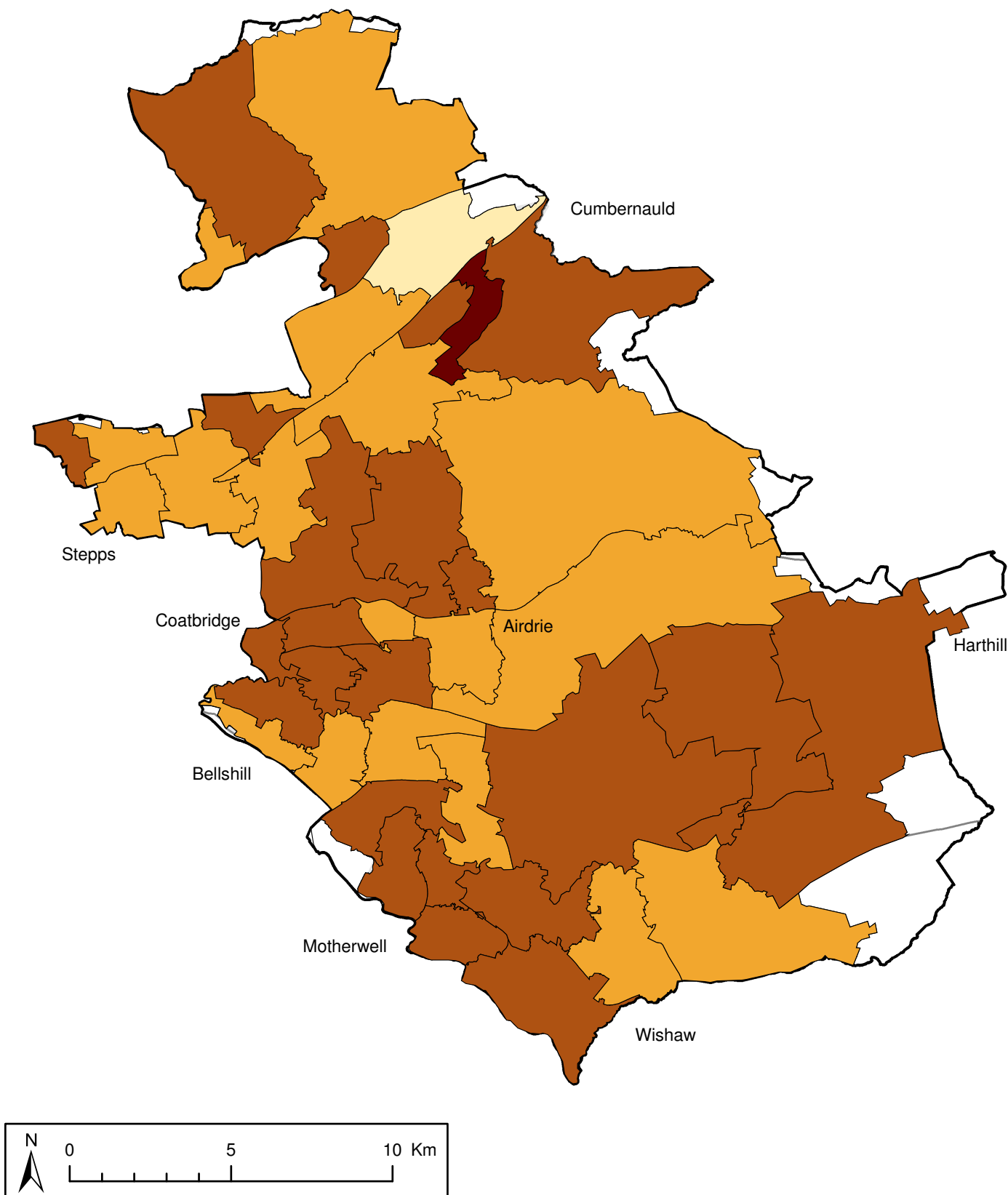
Scale: 1:170,000

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## Legend

- No Data
- 0 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

## Figure 13.10 Communities Sustainable Transport Use

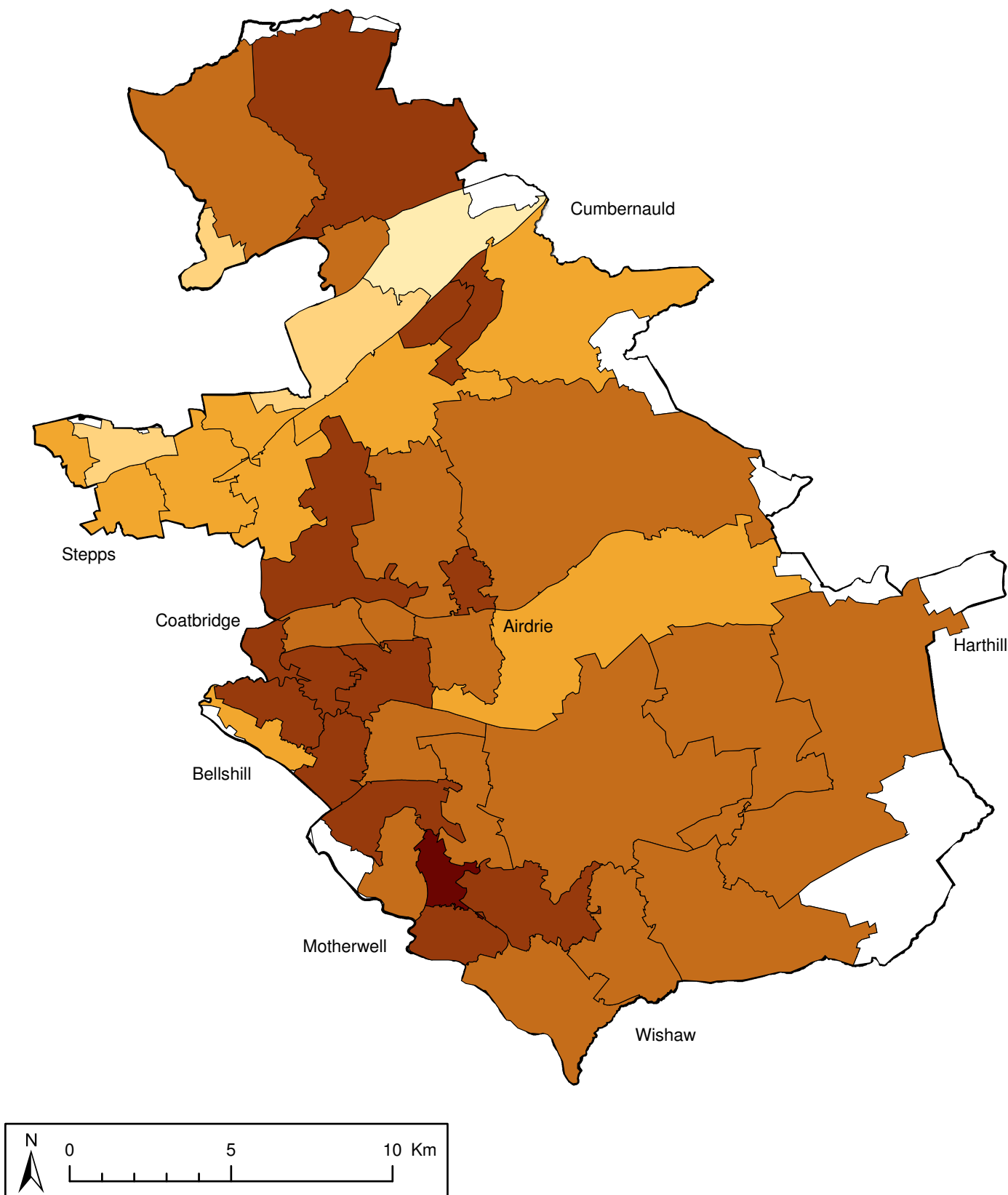
Scale: 1:170,000

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








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## Legend

	No Data		30 - 40%
	0 - 10%		40 - 50%
	10 - 20%		50 - 60%
	20 - 30%		

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.11**  
Communities  
% Households with no Car

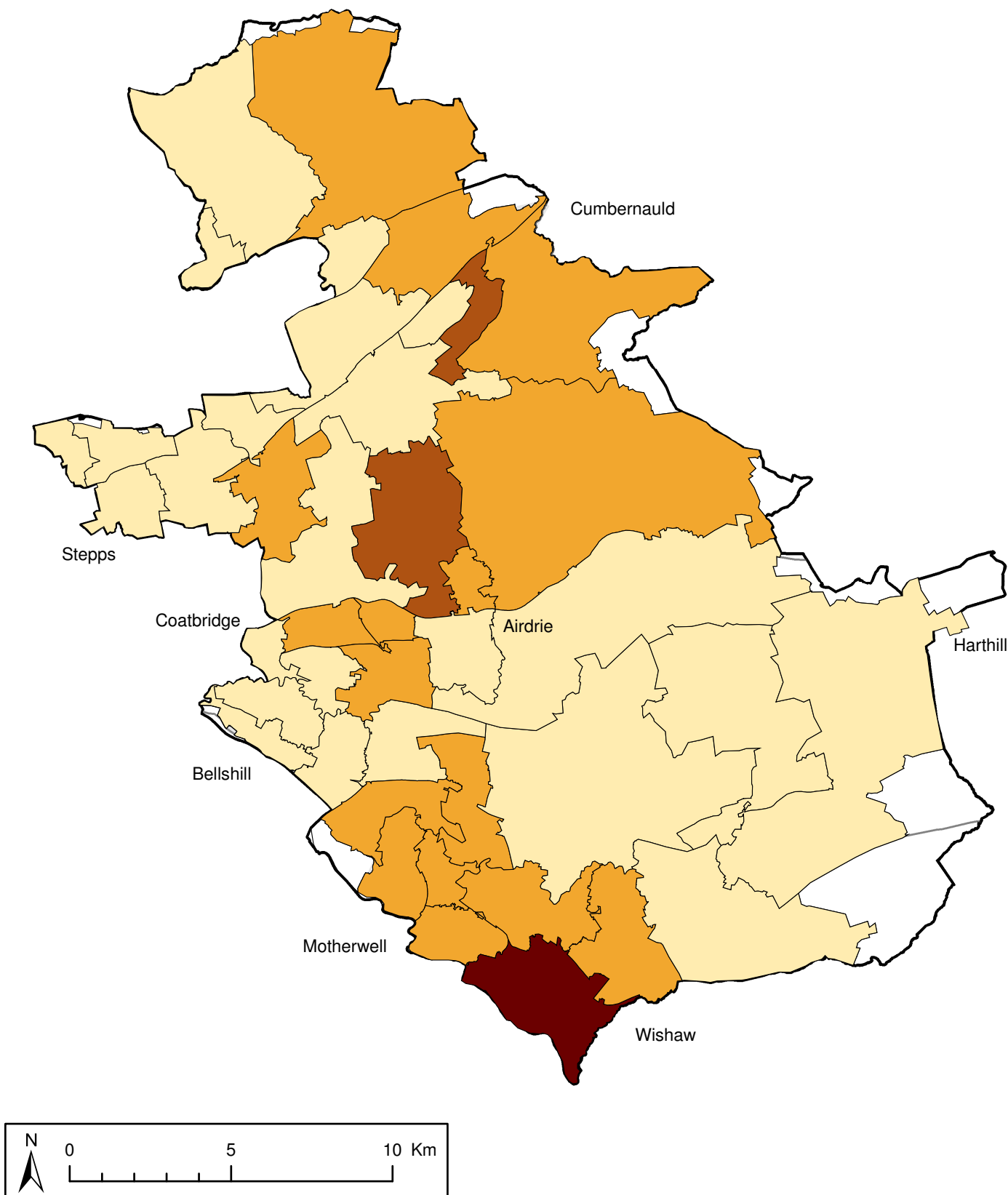
Scale: 1:170,000

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## Legend

- No Data
- 0 - 2%
- 2 - 4%
- 4 - 6%
- 6 - 8%

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.12**  
**Communities**  
**% Vacant Properties**

Scale: 1:170,000

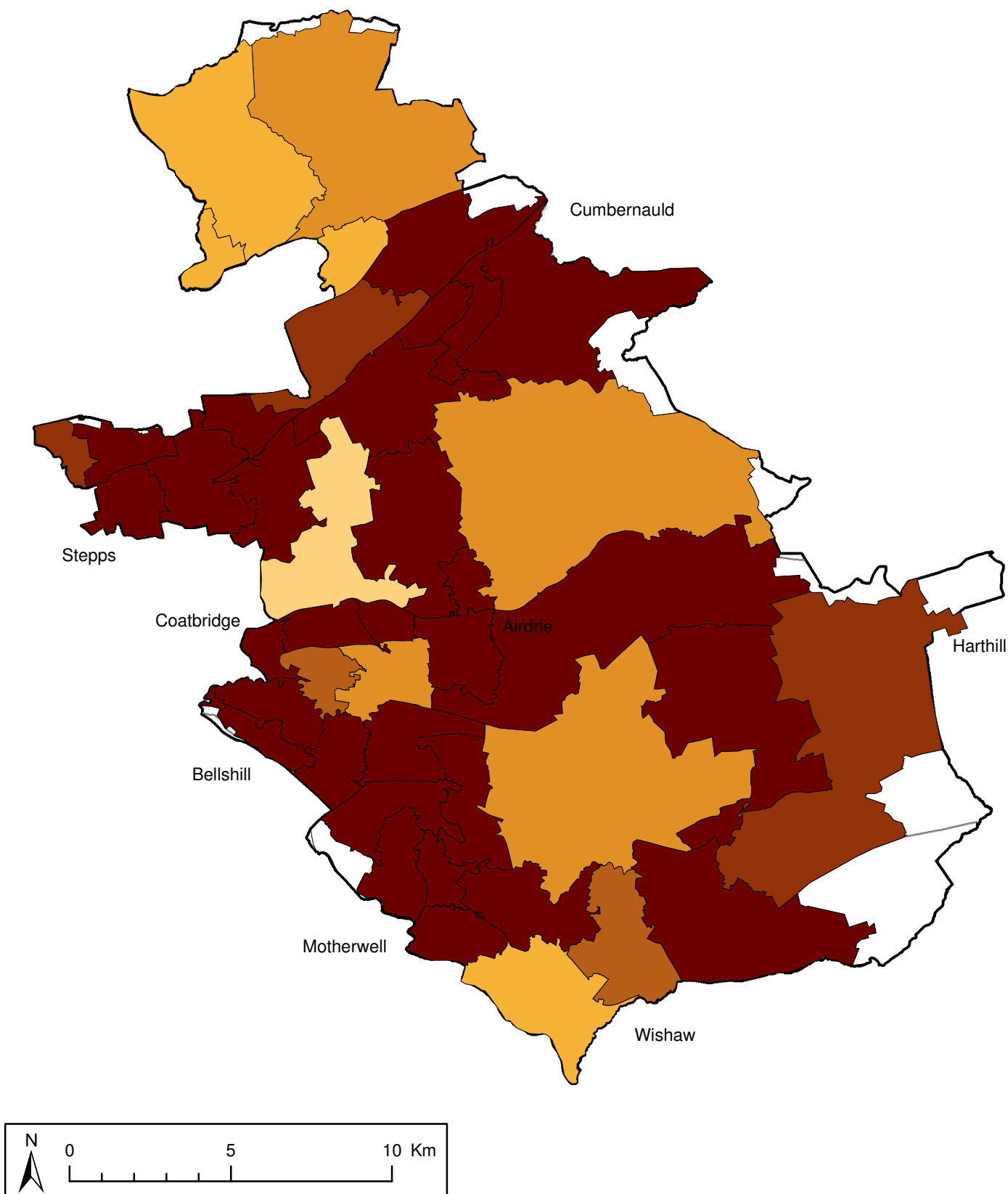
Project: 12150841-001 NLC SoER











Date: 07.11.05  
Revision: -  
Drawn by: JS







## Legend

	No Data		85 - 90%
	0 - 40%		90 - 95%
	40 - 60%		95 - 100%
	60 - 80%		
	80 - 85%		

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.13**  
Communities  
Households w/in 5mins of GP

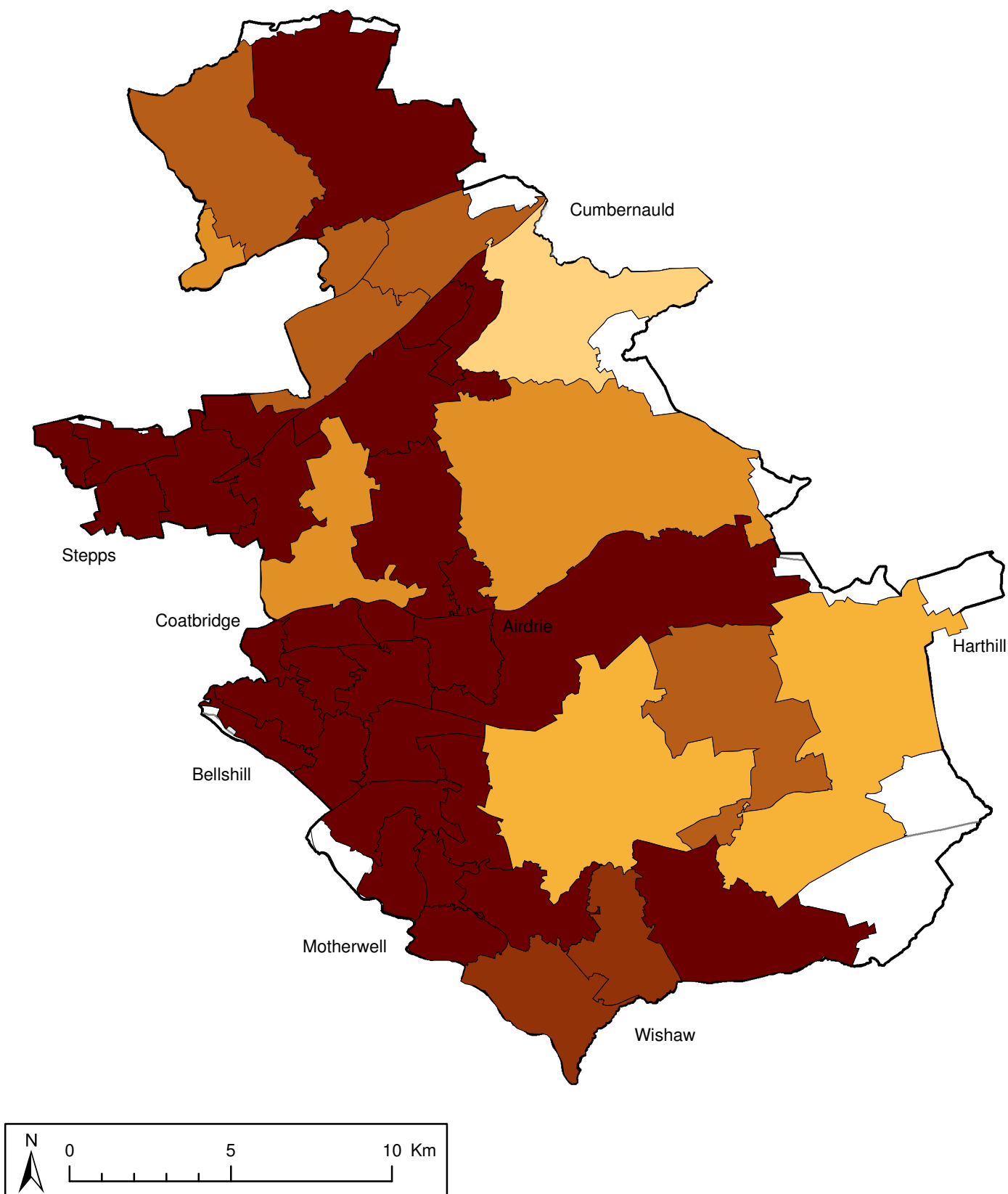
Scale: 1:170,000

Project: 12150841-001 NLC SoER











Date: 08.11.05  
Revision: -  
Drawn by: JS





## Legend

	No Data		70 - 80%
	0 - 20%		80 - 90%
	20 - 40%		90 - 100%
	40 - 60%		
	60 - 70%		

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.14**  
Communities  
Households-5mins of Dentist

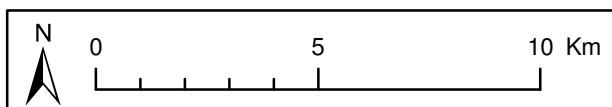
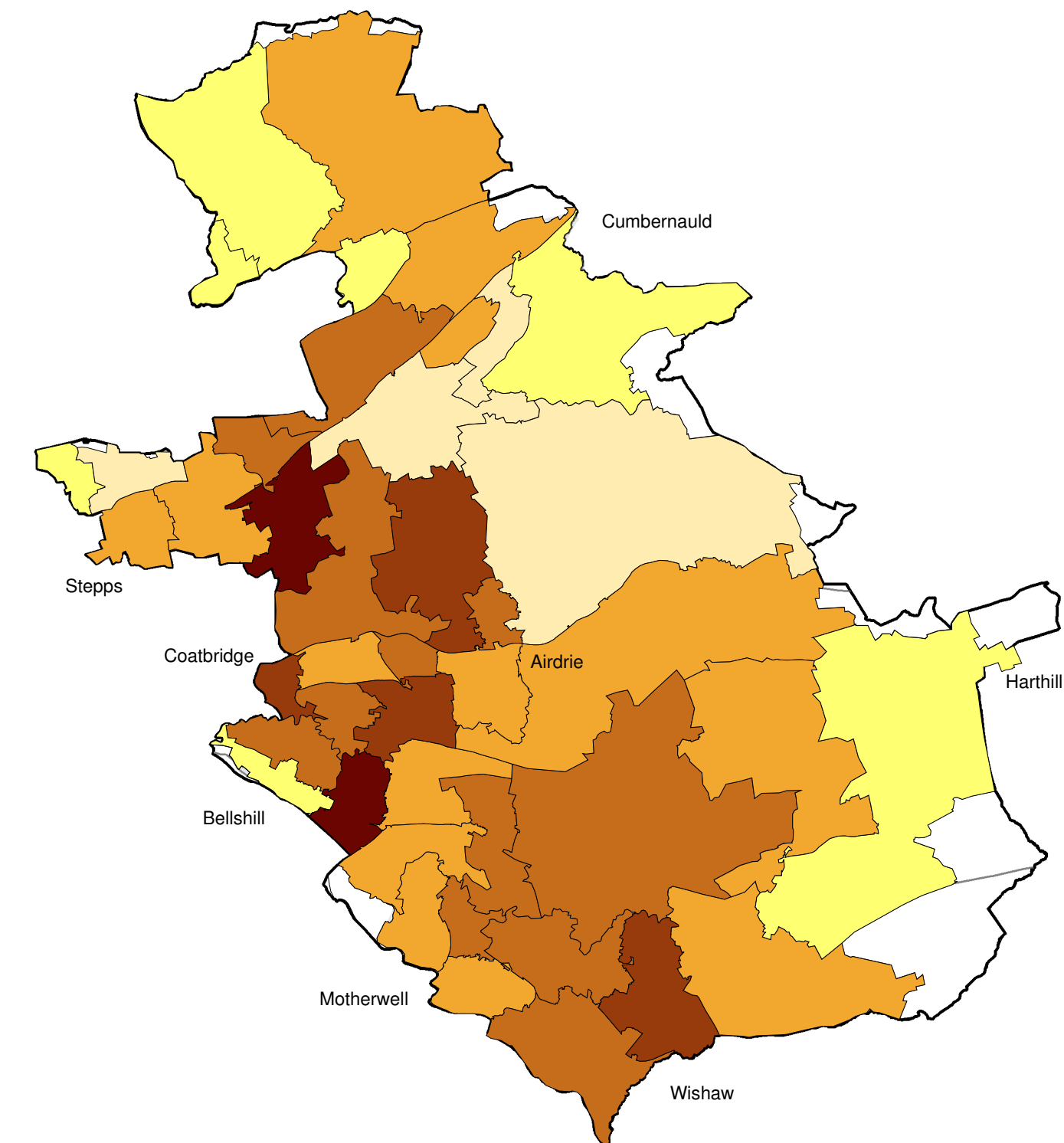
Scale: 1:170,000

Project: 12150841-001 NLC SoER



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## Legend

No Data	190 - 210
130 - 150	210 - 230
150 - 170	230 - 250
170 - 190	

Units are Cancer Deaths per 100,000 population

**Figure 13.15**  
**Communities**  
**Cancer Deaths**

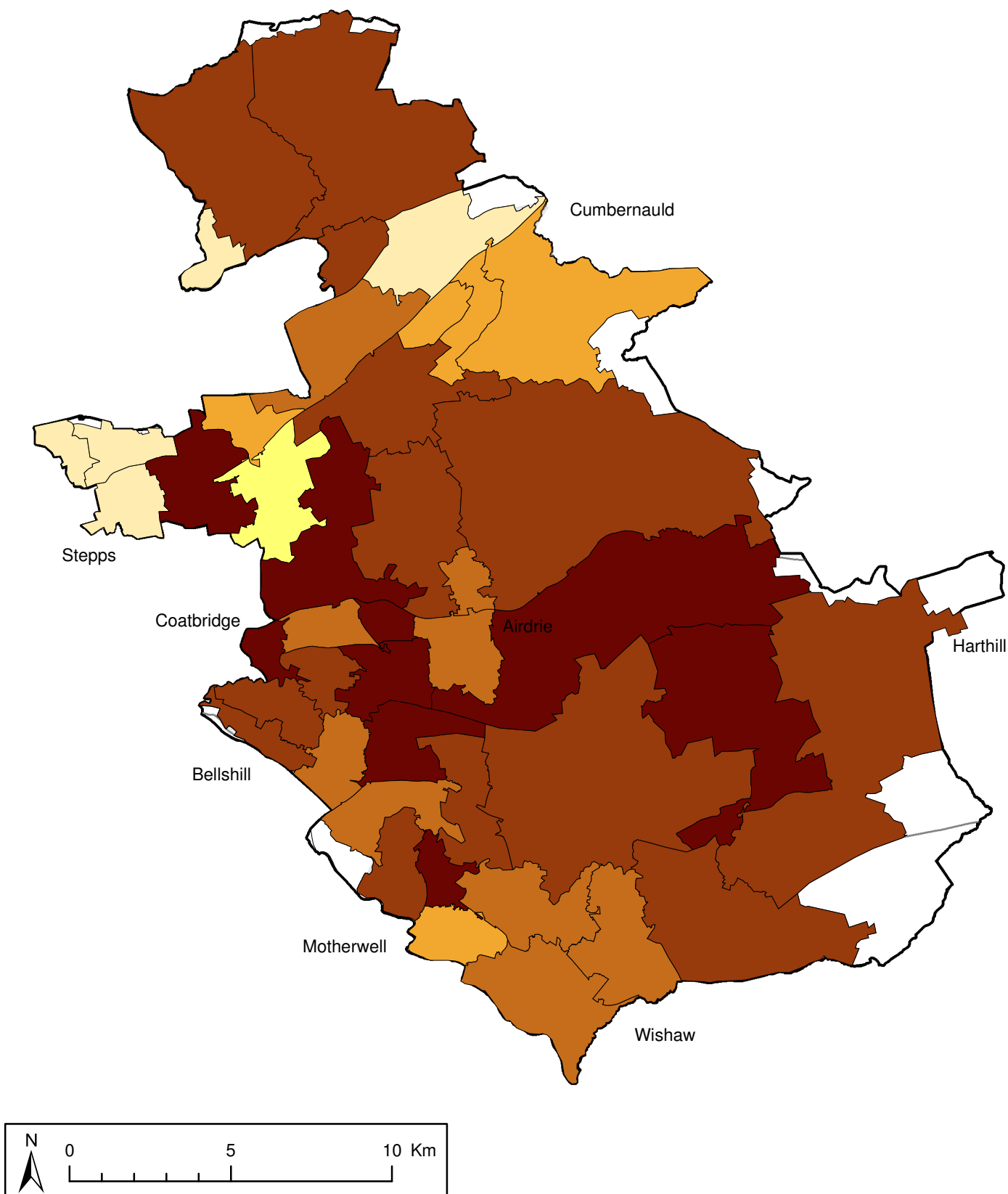
Scale: 1:170,000

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## Legend

Units are Deaths from Heart Disease per 100,000 population

No Data	150 - 175
75 - 100	175 - 200
100 - 125	200 - 225
125 - 150	

Information based on Community Health Profiles 2004 (Obtained from NHS Health Scotland website)

**Figure 13.16**  
**Communities**  
**Deaths from Heart Disease**

Scale: 1:170,000

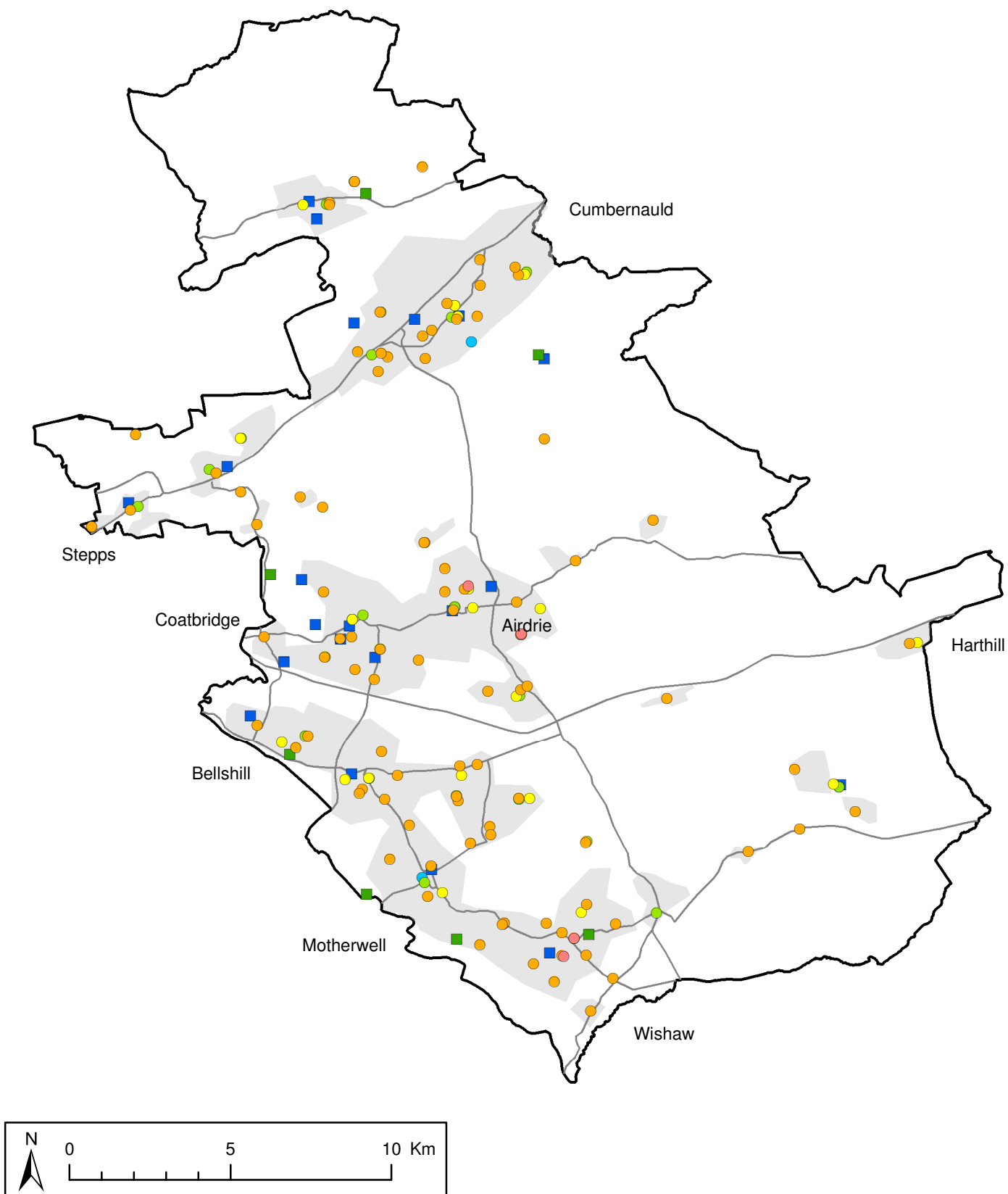
Project: 12150841-001 NLC SoER



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## Legend

- |                               |                                      |
|-------------------------------|--------------------------------------|
| ● Arts and Crafts Facilities  | ■ Parks                              |
| ● Community Centres & Halls   | ■ Sports Facilities                  |
| ● Community Education Centres | ■ Waste Disposal & Recycling Centres |
| ● Libraries                   |                                      |
| ● Museums and Heritage        |                                      |

Information from North Lanarkshire Council (provided August 2005)

**Figure 13.17**  
**Communities**  
**Community Facilities**

Scale: 1:170,000

Project: 12150841-001 NLC SoER



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Revision: -  
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## 14 Cumulative Assets

### 14.1 INTRODUCTION

14.1.1 This section presents a short discussion of the wider significance of the various environmental features and assets which have effectively been reported on in previous chapters as single assets. The natural environment involves a complex series of inter-relationships between physical, chemical and biological processes. The diversity and significance of the environmental baseline resource in any region is therefore influenced by cumulative and overlapping effects.

14.1.2 In this section the cumulative and interactive nature of the baseline environment in North Lanarkshire has been assessed at a strategic level in two ways:

- Firstly, through identification of geographically specific areas where the presence of two or more important environmental assets confers particular environmental significance to that area (Section 14.2); and
- Secondly, through consideration of key environmental assets which perform multiple functions in relation to the natural and environmental resource and therefore have cumulative importance (Section 14.3).

14.1.3 The last section of this chapter (Section 14.4) addresses the phenomena of climate change which is influenced by cumulative environmental effects and which has implications for a range of environmental assets.

### 14.2 GEOGRAPHIC ASSETS

14.2.1 Analysis of the geographic information on the environmental baseline which has been gathered for this project highlights a number of locations in North Lanarkshire which have particular significance as environmental assets. These areas, which may be considered as “special places” in North Lanarkshire, are discussed below, together with the contributing assets which are considered to give rise to cumulative environmental significance of the baseline resource.

14.2.2 Keys assets are cumulative in many places across North Lanarkshire, these combining a range of environmental assets such as ecologically designated sites, areas of public access and landscape assets to name but a few. Five key geographical assets have been identified where the number and variety of assets combine to provide areas of cumulative environmental significance. These are summarised in Table 14.1 below and detailed in the subsequent paragraphs.

14.2.3 In addition to broad areas designated or acknowledged to be of environmental importance, there are a number of specific features in North Lanarkshire which have cumulative importance as a result of the interaction or synergy between different environmental characteristics or qualities. These are addressed in Section 14.3.

**Table 14.1 Key Geographical Assets and Environmental Components**

	Land Use	Ecology	Aquatic Environment	Geology and Soils	Landscape	Communities
Kilsyth Hills and Kelvin Valley		✓	✓	✓	✓	✓
Palacerigg and Drumpellier Country Parks		✓				✓
Clyde Valley		✓	✓	✓	✓	✓
North and South Calder Waters		✓	✓		✓	✓
Regeneration Opportunity	✓					✓



### Kilsyth Hills and Kelvin Valley

14.2.4 The Kilsyth Hills form part of the Campsie Fells running from Kilearn in the west to Denny and Stirling in the east, part of this hill range are located within North Lanarkshire. The Kelvin valley runs through the northern part of North Lanarkshire and forms the southern boundary of the Kilsyth Hills. These two areas contain a number of key environmental assets including:

- Numerous designated Sites of Importance for Nature Conservation, which include the Carron Valley Forest, Corrie Wood, Garrel Burn Glen and Birkenhead Moorland;
- Important ecological habitats which are present including blanket bogs and ancient woodland. There is also a Site of Special Scientific Interest (SSSI) designated for its geological interest in the western part of the hills along the Corrie Burn;
- The Kilsyth Hills, which form the catchment of the upper reaches of the River Kelvin and are important in maintaining the river base flow. These hills receive relatively high levels of rainfall which is fed into the River Kelvin through the numerous burns. The area also contains two main stillwaters, the Birkenburn Reservoir and Banton Loch;
- The Kilsyth Hills play an important role in the landscape of North Lanarkshire, they are designated a Regional Scenic Area and form one of the distinctive upland landscape character types of the area. Their topography and location create a prominent boundary feature to North Lanarkshire and offer landscape benefits both from and to the relatively open land to the south; and
- As a community resource the Kilsyth Hills provide a resource to the local communities along their southern edge such as Kilsyth and Queenzieburn, and also the wider population of North Lanarkshire. There are footpaths and roads across the Kilsyth Hills which provide access to the countryside for varying abilities and community groups.



### Palacerigg and Drumpellier Country Parks

14.2.5 These two country parks, located to the south-east of Cumbernauld and west of Coatbridge respectively, are particular locations where key environmental assets combine geographically. These locations are important because of the combination of a range of environmental assets which are present. These comprise:

- Palacerigg Country Park contains a range of ecologically designated sites including Sites of Importance to Nature Conservation and Scottish Wildlife Trust woodland reserves. Close to the Country Park there is also a Special Area of Conservation (SAC) and SSSI for West Fannyside Moss. This site also contains a range of important habitats including ancient woodland.
- Drumpellier Country Park also contains a number of ecologically designated sites including Sites of Importance to Nature Conservation and the Woodend Loch SSSI.

14.2.6 As a community assets, the country parks are key resources providing access, opportunities for informal recreation and means of raising awareness and education to the habitats they contain through interpretation. The network of paths allow open community access to both the ecological and landscape resource but also providing a recreational facility. In particular these two country parks provide accessible open space to the communities of Cumbernauld and Coatbridge which are located within 2km of these urban areas, as well as to the wider population.

### Clyde Valley

14.2.7 Part of the Clyde Valley runs through the south-western part of North Lanarkshire from Dalserf in the south to Strathclyde Loch where it turns west through Hamilton. The open parts of this valley contain a variety of environmental and community assets which combine to create special asset.

- Ecologically there are a number of designated sites including Garrion Gill SAC and SSSI, several SINC's (Cambusnethan Woods and Dalzell Park) and Barons Haugh RSPB reserve and SINC. There are also a number of locations of ancient woodland.
- Strathclyde Country Park is located in the northern part of this area focussed around Strathclyde Loch. This country park contains areas of mature woodland, rough wetlands and neat open parkland. It



provides not only an ecological resource but is also an important community resource with recreational and health and well-being functions within 2km of Motherwell town centre.

- This area also plays a role in the aquatic environment containing reaches of the River Clyde, standing water such as Strathclyde Loch and Barons Haugh and undeveloped floodplains. These are key assets to the aquatic environment of North Lanarkshire which also contribute to the significance of the Clyde Valley.
- The Clyde Valley is designated as an Area of Great Landscape Value (AGLV) with the area characterised by the river valley with floodplain valley base and land rising relatively steeply to the east towards the developments of Motherwell and Wishaw. The Historic Garden and Designed Landscape of Dalzell House in the central part of this area provides a cultural heritage resource as well as community asset with the house and gardens.
- The Clyde Valley also contains some of the better quality soils within North Lanarkshire with a relatively large amount of prime agricultural land associated with the location of the area in the valley bottom of the River Clyde.
- As a community asset the Clyde Valley is important given its accessibility, through a network of paths including the Clyde Walkway and a number of roads. This area is also accessible to the adjacent communities of Motherwell and Wishaw located to the east. This accessibility provides the community with a recreational and health resource allowing access to a number of the other community assets. In particular the Strathclyde Country Park provides a focus for community facilities.

#### North and South Calder Waters

14.2.8 Parts of the North and South Calder Waters run through deep / incised river valleys. This includes the North Calder Water between Aitkenhead (south of Bargeddie) and Craigneuk (eastern side of Airdrie) and the South Calder Water between Strathclyde Loch and Newmains. These locations are also significant as a cumulative resource for the following reasons:

- Extensive areas of ancient woodland are located along the river valleys, much of which is designated as Sites of Importance to Nature Conservation. These locations also provide extensive aquatic environments of rivers and riparian habitat.
- These valleys are key features of the North Lanarkshire and local landscape. These two incised valleys have created natural divisions between urban areas of Coatbridge / Airdrie, Bellshill and Motherwell which contributes to maintaining distinction between the urban areas in this part of North Lanarkshire as well as being distinctive landscape types in their own right.
- As a community resource these two valleys provide a variety of accessible routes including footpaths and roads through, and across the areas. These wooded valleys provide a recreational and landscape benefit, especially to the communities either side.

#### Regeneration Opportunity from Eurocentral to Wishaw

14.2.9 The extensive area running from Eurocentral (to the north of Holytown) south to Ravenscraig (near Wishaw) is characterised by areas of residential and industrial development and a large proportion of vacant and derelict land associated with former industry. This area provides a key geographical opportunity for quality development and environmental enhancement of the existing natural and built environment. This area is also well positioned with regard to the transport network with rail and road connection to North Lanarkshire and the wider central Scotland area, and is located close to a number of the key settlements in North Lanarkshire. Regeneration proposals such as the ones at Ravenscraig which falls within this area provide a major opportunity for wider environmental and community regeneration and enhancement.



## 14.3 LINKED ASSETS

14.3.1 In line with the 'Quality of Life Capital' approach developed by other agencies in the UK, linkages can be identified between the individual aspects (or topics) of the environment which cumulatively can enhance the significance of particular resources. These linkages are discussed in the following paragraphs with specific reference to their cumulative significance for the environmental baseline in North Lanarkshire.

14.3.2 The potential synergies between environmental topics have been identified through a matrix based approach in which the relationships between each of the ten key environmental topics discussed in Chapters 4 to 13 of this report have been assessed. For each pair of environmental topics, the project team considered the various environmental assets which have been identified from the analysis of the environmental baseline and identified those assets and features which have associations or synergies, and which therefore take on greater significance in terms of their environmental capital. The key linkages identified are presented in Table 14.2 and further discussion of the synergies is presented in the following paragraphs.

**Table 14.2 Key Synergies between Topics**

	Ecology	Aquatic Environment	Energy	Landscape	Communities
Ecology			Woodland and coppice	Mix of habitats	Woodland
Aquatic Environment	Waterbodies and Riparian Habitat Floodplains			Waterbodies and Riparian Habitat	Waterbodies and Riparian Habitat Floodplains
Geology and Soils	Peat reserves	Peat reserves		Peat reserves	
Landscape	Accessible locations/ opportunities				Accessible locations/ opportunities
Cultural Heritage	Canals	Canals		Designed Landscapes Listed Buildings and Conservation Areas	All cultural heritage assets including canals
Air Quality and Noise	Clean air Tranquil areas				Clean air Tranquil areas

14.3.3 The following sections describe the linkages and synergies identified for each of the key assets identified in Table 14.1. The cumulative significance of the asset is discussed in generic terms and particular locations in North Lanarkshire which are representative of these cumulative assets have been identified.

### Natural Habitats


14.3.4 Natural habitats have an ecological value and importance. In particular there are four priority habitats within North Lanarkshire that have particular ecological significance. Habitats also play an important role in the health and abundance of species and therefore wider biodiversity.

14.3.5 The mix of habitats within North Lanarkshire also has significance with regard to the landscape. The presence of farmland, raised and blanket peat bog, woodland and river valleys, among others, is a key feature within the landscape and helps define North Lanarkshire's landscape. In particular the mix between urban areas and natural habitats has an important impact on the landscape with areas of mixed woodland helping to soften the urban fringe.

### Woodland

14.3.6 Woodland habitat has an important ecological value, as discussed above. Ancient and semi natural woodland has a particular ecological value as it contains a broader range of species than commercial plantations.

14.3.7 The potential for woodland (other than ancient woodland) within North Lanarkshire to be used as an energy resource is currently being assessed by North Lanarkshire Council. It is aimed that coppice woodland will provide a



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bio-fuel of wood chips for heating within selected Council owned properties such as the Drumpellier and Palacerigg Country Parks and a number of schools.

14.3.8 Woodland and forestry within North Lanarkshire also forms a key feature in the landscape. This includes in the upland areas in the northern and eastern parts of North Lanarkshire, and the mosaic of smaller woods which are a key feature within the urban and urban fringe landscapes of lower lying areas.

14.3.9 Woodlands and forests are an important community facility for access to open space, health and wellbeing. The extent of access to woodlands and forests varies, however there are many locations where public access is provided and actively facilitated. The Country Parks in North Lanarkshire are particular locations where extensive woodland has public access through networks of footpaths. The Central Scotland Forest Trust is also working to increase the woodland cover of North Lanarkshire and public access is a key objective for all woodlands.

14.3.10 Woodlands play an important role world-wide as a carbon sink. Trees have a capacity to absorb carbon dioxide, the major greenhouse gas. With over 20% of North Lanarkshire occupied by woodland, and the trends suggesting that this is increasing, there is a substantial area of land which acts as a carbon sink. More discussion of the implications of carbon sinks on climate change is discussed in Section 14.4.

#### Waterbodies and Riparian Habitat

14.3.11 Waterbodies, comprising running water within streams and rivers and also standing water within lochs and reservoirs, are a key feature and asset of the aquatic environment. As part of this is the habitat alongside these watercourses and waterbodies, referred to as riparian habitat.

14.3.12 Waterbodies have specific ecological habitats, notably with regard to the ecological value of the watercourse itself, the riparian habitat and adjoining floodplain grazing. These habitats are classified as priority habitats by North Lanarkshire Council and they provide wildlife corridors throughout North Lanarkshire.

14.3.13 Waterbodies are also a feature of the landscape. On the local scale, waterbodies are distinctive landscape features with open areas of standing or flowing water and wooded stream and river valleys are particular examples. On the area wide scale, waterbodies have helped shape the landscape and create the distinct incised river valleys of the North and South Calder Waters.

14.3.14 Waterbodies are also important community assets through their provision of open space and recreational resources and their interaction with the built environment, forming both divides between urban areas and the centre of towns. Stillwaters such as Strathclyde Loch are used extensively for recreation, footpaths are present along a number of stretches of rivers such as along the North Calder Water by Calderbank, Airdrie. Rivers, burns and their valleys act to create divisions between urban areas such as the South Calder Water between Bellshill and Motherwell. There are a limited number of locations where rivers and streams form features within the centre of towns such as Kilsyth, where presently the condition of this feature is generally in poor condition and/or extensively engineered.

#### Floodplains

14.3.15 Floodplains are a key asset within the aquatic environment because of their flood storage role. Floodplains are also an ecological resource, providing a habitat which supports a range of species. Floodplain grazing marshes are identified by North Lanarkshire Council as a priority habitat, and these are predominately located along the Kelvin Valley.

14.3.16 Floodplains play a role within the built environment through their ability to alleviate flooding. Although there is limited development within the main floodplain areas along the Kelvin Valley and the narrower flood plains of the other watercourses, floodplains act as an 'overspill' for the watercourses reducing the potential for flooding on other stretches of the watercourses.

#### Peat resources

14.3.17 Resources of peat are a key feature of the geology and soils within North Lanarkshire. Peat is a key factor in the nature of many soils across North Lanarkshire with peat, peaty gleys and peat soils. Peat resources play a role as a carbon sink and disturbance of resources may result in atmospheric release (see Section 14.4).

14.3.18 Peat resources, within raised, intermediate and blanket peat bogs, are a key ecological asset in North Lanarkshire. Peat bogs are identified as a priority habitat and many are designated sites. Peat bogs have historically declined in area and the remaining areas of peat bog now represent the remnants of former widespread coverage.





14.3.19 Peat resources, within bogs, are of hydrological importance through their role in water storage and release. Many of the peat bogs within North Lanarkshire lie in the upper reaches of rivers and streams and contribute to the base flow for these watercourses.

14.3.20 Within North Lanarkshire, the peat bogs, particularly the larger extents on the central Scotland plateau, provide a distinct landscape feature. The vegetation and character of such areas contributes to the open setting of the plateau moorland in the eastern and south-eastern parts of North Lanarkshire.

#### Accessible Locations

14.3.21 Accessible locations which are typical of the landscape character are a key asset to the landscape value of North Lanarkshire. Areas such as those along the footpaths of the North Calder Water by Calderbank, Airdrie are accessible locations for the incised river valleys and the network of footpaths and minor roads in the Kilsyth Hills provide access to the rugged moorland hill landscape character.

14.3.22 Such locations may also have an ecological importance through the nature of their habitat and/or species supported. Accessible locations such as those in the North Calder Water valley have an ecological value and potential through conservation of the existing habitats and species and the opportunity for enhancement through improved and new access.

14.3.23 Accessible areas are an important community asset for their provision of open space and the opportunities for health and well-being. Such locations are typically in or around urban areas with the footpaths of the North Calder Water by Airdrie and the upland of the Kilsyth Hills to the north of Kilsyth.

#### Canals

14.3.24 There are two canals within North Lanarkshire; the Forth and Clyde Canal (along the Kelvin Valley) and the Monkland Canal (Coatbridge). These canals, in particular the Forth and Clyde Canal, are important cultural heritage assets and the Forth and Clyde Canal is a scheduled ancient monument.

14.3.25 The two canals are features of the ecological and aquatic environments. The Forth and Clyde Canal in particular provides a specific habitat and wildlife corridor which is managed by British Waterways.

14.3.26 The Forth and Clyde Canal is a notable feature within the landscape of the Kelvin Valley with parts elevated by banking above the surrounding land.



14.3.27 The canals are also important community resources through their roles as accessible open space and for their recreation, health and wellbeing role. Footpaths along both canals are managed and the Forth and Clyde Canal forms part of the millennium link between Glasgow and Edinburgh.

#### Cultural Heritage Sites

14.3.28 All designated cultural heritage resources, including listed buildings and conservation areas, are key assets of the cultural heritage of North Lanarkshire. This includes archaeological features from roman periods through to recent industrial heritage.

14.3.29 These cultural heritage resources are important features of the landscape and townscape. In urban areas, listed buildings and other buildings of historical or architectural importance in Conservation areas and listed buildings provide important features within the townscapes of North Lanarkshire and designed landscapes in particular have significance for the landscape resource.

14.3.30 Listed buildings and other cultural heritage sites are significant features of the community resource providing opportunities for interpretation and education and, in the case of the canals, the Antonine Wall and historic gardens and designed landscapes, they are an open space and recreational resource.

#### Clean Air

14.3.31 Clean air has been identified as a key asset of the air quality within North Lanarkshire. Trends and predictions indicate a general improvement in air quality in North Lanarkshire, this being driven primarily by legislative requirements as well as predicted reductions in emissions from road vehicles in future.



14.3.32 Clean air plays an important role in the condition of the ecological resource. Certain habitats and species are more vulnerable to the quality of the air such as woodland and plants.

14.3.33 Clean air is also an important resource for communities with its benefits for health and improved amenity of, in particular, urban areas.

#### Tranquil areas

14.3.34 Tranquil areas have been identified as a key asset for the noise environment of North Lanarkshire. Whilst there are no specific data on the identification of tranquil areas, some parts of North Lanarkshire generally have a higher level of tranquillity such as the upland areas where there are few roads or industrial activities. Such areas include the Kilsyth Hills and open areas on the plateau land in the eastern and south-eastern parts of North Lanarkshire.

14.3.35 Tranquil areas also have ecological significance. Certain species, particularly mammals, will favour tranquil areas through the lower levels of disturbance. Tranquil areas are also an important asset to the community through the recreational, health and amenity resource they provide.

### 14.4 CLIMATE CHANGE

14.4.1 Climate change is a cross-cutting issue for the environment which affects, and is affected by, a range of different environmental features and assets. Whilst these issues have been identified throughout this report, Table 14.3 below identifies the range of synergies which link climate change causes and effects with the baseline environment in North Lanarkshire.

**Table 14.3 Climate Change Issues**

Topic	Climate Change Synergy
Land Use	<ul style="list-style-type: none"> <li>■ Changes in land management and agricultural practices can give rise to release of stored carbon in soils and vegetation although effects are not predicted to be significant in North Lanarkshire where pastoral activities predominate</li> <li>■ The potential for increased flooding from changes in precipitation may be exacerbated by new developments which incorporate areas of impermeable hardstanding (eg car parks, roads, roofs)</li> <li>■ Other material assets such as electricity supply infrastructure may require strengthening against increased severity of storms</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>■ Key semi-natural and natural habitats such as peat bogs, blanket bogs, heaths and woodlands perform an important carbon sink role and these habitats are well represented in North Lanarkshire</li> <li>■ Important habitats and species may be affected by changing climatic conditions, for example changes in the condition and extent of upland habitats such as heaths and heather moorland</li> </ul>
Aquatic Environment	<ul style="list-style-type: none"> <li>■ Rainfall supply may be affected by changes in meteorological patterns with wetter winters and drier summers</li> <li>■ Flooding frequency is likely to increase with rainfall and protection of natural floodplains will be important, together with good maintenance of urban drainage systems</li> <li>■ Increased rainfall may promote greater erosion, scour, and turbulence in watercourses with attendant effects on water quality and fisheries</li> </ul>



Topic	Climate Change Synergy
Geology and soils	<ul style="list-style-type: none"> <li>■ Peat resources, particularly raised bogs and blanket bog form important carbon storage reserves</li> <li>■ Soils in North Lanarkshire, as in the rest of Scotland are carbon rich and changes in forestry and agricultural practices can lead to increased emissions of carbon</li> <li>■ Increased rainfall may exacerbate soil erosion, waterlogging of soil, and possibly loss of agricultural productivity</li> </ul>
Waste	<ul style="list-style-type: none"> <li>■ Methane emissions from existing and closed landfills have significant global warming potential and require management (29% of methane emissions in Scotland are from waste facilities)</li> </ul>
Energy	<ul style="list-style-type: none"> <li>■ Renewable energy sources offer an opportunity replace fossil fuel based power supplies with low carbon technologies</li> </ul>
Air Quality	<ul style="list-style-type: none"> <li>■ Carbon dioxide (CO<sub>2</sub>) is emitted from existing sources such as road transport and energy use</li> </ul>
Communities	<ul style="list-style-type: none"> <li>■ Increased maintenance burden for recreational and community facilities due to damage caused by increased flooding and increased storm severity</li> </ul>

14.4.2 The causes of climate change are thought to arise from the release of greenhouse gases, principally carbon dioxide (CO<sub>2</sub>), largely from anthropogenic activities involving the combustion of fossil fuels, but also from changes in land management practices and from agriculture.

14.4.3 The effects of climate change, like the causes, are not fully understood, however it seems likely that in future years weather patterns will change with warmer winters, cooler summers and increased frequency and severity of storms. Whilst the causes of climate change, and the relative contributions to it from areas such as North Lanarkshire vary enormously, the effects of changing weather are a global phenomenon which do not recognise regional boundaries.

14.4.4 In Chapter 12 of this report, it has been identified that no comprehensive data currently exist for greenhouse gas emissions in North Lanarkshire. Whilst some trend data on rainfall patterns have been collated for this report (see Section 6.3), these do not give an accurate indication of how climate change in west central Scotland is likely to change in future. The principal source of information on the predicted effects of climate change in Scotland are from the UK Climate Impacts Programme (UKCIP). In 2002 the UKCIP developed a series of four climate change scenarios for the UK, based on low emissions, high emissions and two intermediate emissions scenarios. The findings of this work suggest that climate change in west Central Scotland is predicted to be less pronounced than in other parts of the UK, although changes will occur. The key findings of the predictions for the area in which North Lanarkshire is located are summarised for three selected emissions scenarios in Table 14.4.

**Table 14.4 Climate Change Predictions in West Central Scotland**

	Forecast Period	Low Emissions Scenario	Medium Low Emissions Scenario	High Emissions Scenario
Annual Mean Temperature Change (Increase)	2020s	N/A	0.5 to 1.0 °C	0.5 to 1.0 °C
	2050s	N/A	1.0 to 1.5 °C	1.5 to 2.0 °C
	2080s	N/A	1.5 to 2.0 °C	3 to 3.5 °C
Percentage change in winter precipitation (increase)*	2020s	Within natural variations	Within natural variations	Natural variation
	2050s			15 to 20%
	2080s	0 to 10%	0 to 10%	20 to 25%
Percentage change on summer precipitation (decrease)*	2020s	0 to 10%	0 to 10%	0 to 10%
	2050s	10 to 20%	10 to 20%	20 to 30%
	2080s	20 to 30%	20 to 30%	40% +
Changes in wind speeds	2020s	Possible slight reduction (<3%) in Summer wind speeds for all scenarios in the 2020s and 2050s		
	2050s			
	2080s	Slight (<3%) increase in Spring, slight decrease in Summer. Slight increases throughout the year under high emissions scenario		
Change in average length of growing season (increase)	2050s	30 days	30 days	40 days
	2080s	40 days	50 days	80 days

\*Note: Overall annual changes in precipitation are not predicted to change significantly from current levels

Source: UKCIP. All data are subject to confidence levels used by UKCIP in the forecasting process.

14.4.5 The predictions indicate that under the low and medium to low emissions scenarios, relatively small changes in climate are predicted for the three future year periods modelled in the North Lanarkshire area, although the final statistic on changes in average length of growing season does indicate a general warming of the climate. More significant changes in the climatic indicators listed in the table are predicted under the high emissions scenario notably through divergences in the distribution of rainfall in the winter and summer seasons.

14.4.6 Whilst these scenarios provide an indication of the ranges of climate change which may occur in future, they cannot predict the indirect effect of climate change on local environmental features and assets. Such effects will include the extent to which flooding will constrain development or the way in which vegetation, habitats and species evolve in response to changes in rainfall and temperature and the consequent effect of these changes on biodiversity and environmental capital. These changes will depend upon the extent of climate change in a local context but have the potential to alter the landscape across North Lanarkshire. The predicted increases in the average length of the growing season indicate the potential for increased agricultural and horticultural productivity.

14.4.7 Dealing with climate change, in North Lanarkshire and further afield will require concerted action to reduce greenhouse gas emissions in line with national and international agreements and targets which are beyond the scope of this North Lanarkshire specific report. Clearly local development plans will need to support such wider initiatives in terms of their policies and the development control decisions they influence, for example by reducing the need to use private transport through allocation of business and housing land uses close to corridors and nodes well served by public transport.

14.4.8 Development plans and other strategies will also need to take into account the requirement to plan for adaptation to the effects of climate change. Whilst North Lanarkshire does not have a coastline, and is not therefore directly affected by predicted increases in future sea level rise, future development will need to be constructed to increasingly stringent standards to avoid the worst effects of storms and increased incidence of adverse weather events on structures. It is also likely that greater investment in flood prevention and management systems will be needed, together with effective partnership working across the relevant agencies to protect people, buildings and other material assets from the adverse effects of climate change.

14.4.9 Action to reduce greenhouse gas emissions can also be taken at the local level and through local initiatives and partnerships. Whilst energy generation is generally a national (and reserved) issue, energy efficiency and management of demand for power can be addressed locally through strategies, initiatives and building designs. These include the Local Housing Strategy which includes targets for increased energy efficiency of all houses in North Lanarkshire in the next 5 years and continuing the work of the Council's Energy Unit through its energy awareness training schemes and work with the public and private sector in managing and reducing energy. Nationally co-ordinated incentives for energy efficiency are also promoted through organisations such as the Energy



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Saving Trust and the Scottish Energy Efficiency Office, and local authorities are now required to report on plans for improvements to domestic energy efficiency under the Home Energy Conservation Act (HECA).

14.4.10 The role of woodlands, peatlands and other habitats in North Lanarkshire in sequestering carbon should be protected and promoted. Appropriate woodland planting can contribute to increasing the area's carbon sink and protection of peat resources from development or land management practices which affect their integrity should be ensured. Opportunities for exploitation of biomass in North Lanarkshire are also being developed by a number of partner organisations through the Lanarkshire Biomass Project which will develop heat to a number of public buildings in the area (see Chapter 9). These projects have significant potential for the further development of biomass as a renewable source of heating and power in the area and a means of reducing carbon emissions.

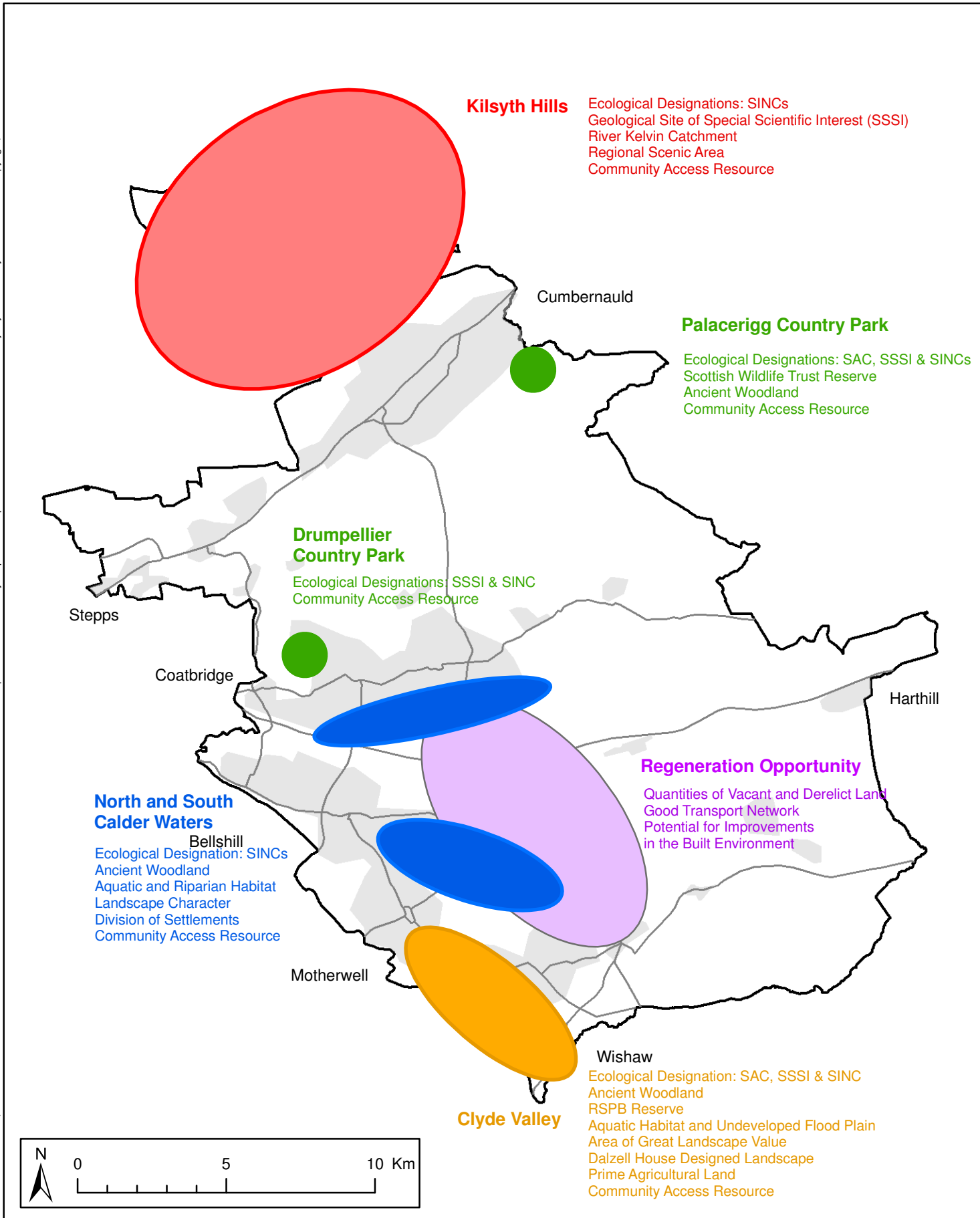
## 14.5 REFERENCES

14.5.1 The following sources of information have been referred to in the preparation of this chapter:

- United Kingdom Climate Impacts Programme (UKCIP) [www.ukcip.org.uk](http://www.ukcip.org.uk).
- Scottish Executive (2004) Scottish Climate Change Programme.

## 14.6 MAPS AND PLANS

14.6.1 Figure 14.1 presents the plan of geographical assets.



## Legend



**Areas of Geographical Cumulative Assets**

Associated Key Environmental Assets

**Figure 14.1**  
**Cumulative Assets**  
**Geographical Assets**

Scale: 1:170,000

Project: 12150841-001 NLC SoER



Date: 11.11.05  
Revision: -  
Drawn by: JS





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## 15 Key Issues for North Lanarkshire's Environment

### 15.1 INTRODUCTION

15.1.1 Whilst this report has identified ten discrete topics within the 'environmental baseline' of North Lanarkshire, many synergies and overlaps exist between the environmental resources and importantly, the role that the 'Community' plays within all aspects of the environment.

15.1.2 Through a process of collation and analysis of existing environmental baseline data and trends, and through the discussion of pressures and opportunities on the environmental resources, the report has identified a range of key environmental assets for North Lanarkshire within each topic.

15.1.3 Chapter 14 has discussed further the cumulative aspect of assets within North Lanarkshire through both geographical overlap and synergies within the topics.

15.1.4 This final chapter of the State of the Environment Report brings together the key issues for the environment, its protection, exploitation and management which have been identified from the analysis presented in the previous chapters. The commentary is based on a qualitative review of issues from the baseline report and from discussions held with the client steering group and stakeholders in North Lanarkshire.

### 15.2 SUMMARY OF KEY ISSUES

15.2.1 The key assets for each topic and the cumulative assets have been summarised in Table 15.1 below. These assets comprise physical aspects of the environment as well as key opportunities which can be considered as key assets to North Lanarkshire.

15.2.2 The table also provides a summary of the key issues and opportunities associated with each topic. This summary draws on the 'Summary of Resource Condition' tables and sections on 'Issues for Resource Management and Protection' which are presented within each of the previous chapters of this report. It also reflects some of the issues raised during the workshop and team discussions which may be difficult to define as tangible environmental assets but which are clearly important issues for the environment and its use and enjoyment in North Lanarkshire.



**Table 15.1 Summary of Key Assets, Issues and Opportunities**

Topic	Assets	Issues	Opportunities
Land Use	<ul style="list-style-type: none"> <li>■ Potential Recreational and Ecological Resource of restored landfill and minerals sites</li> <li>■ Brownfield Land Regeneration Potential</li> <li>■ Brownfield Land Gateway Sites</li> <li>■ Green Belt</li> <li>■ Publicly Accessible Open Space</li> <li>■ Woodland</li> <li>■ Productive Agricultural Land</li> <li>■ Potential for Physical Enhancement of Communities</li> </ul>	<ul style="list-style-type: none"> <li>■ Some land uses are sensitive and vulnerable to development pressures (e.g. those near settlements and transport corridors)</li> <li>■ Mix of developments has created a lack of identity in some towns and urban fringe locations</li> <li>■ The Green Belt helps to maintain settlement boundaries and protect open space, particularly that which is immediately accessible to communities</li> <li>■ There has been a decrease in vacant and derelict land.</li> <li>■ Restoration of mineral workings and landfill sites will need to be pursued</li> </ul>	<ul style="list-style-type: none"> <li>■ Green Belt policy needs to be flexible, high quality developments may contribute to / enhance the Green Belt and environment</li> <li>■ Management of mineral workings and landfills needs to ensure impacts on environment minimised and suitable restoration measures are in place</li> <li>■ Development should be managed so as not to compromise land use viability (e.g. agricultural productivity) or opportunities for conservation, landscape, recreation or community facilities</li> <li>■ Controls needed to ensure developments on vacant and derelict land / brownfield land, are of quality design and build and appropriate to location</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>■ Designated sites</li> <li>■ Priority Habitats in North Lanarkshire</li> <li>■ Wildlife Corridors and Links</li> <li>■ Potential Ecological Importance of Brownfield Sites</li> <li>■ Collective Resource of Priority Species</li> </ul>	<ul style="list-style-type: none"> <li>■ There is an increasing network of European, national and locally designated sites which require protection and management</li> <li>■ Extent of priority habitats has remained steady or increased over recent years</li> <li>■ Habitats and species are vulnerable from development pressures through direct and indirect impacts</li> <li>■ Relatively little is known about aquatic ecology and fish populations in North Lanarkshire's rivers</li> </ul>	<ul style="list-style-type: none"> <li>■ Protection of priority habitats particularly important where they are outwith designated sites</li> <li>■ Protect and enhance wildlife corridors particularly within and around new developments</li> <li>■ Consideration of ecological improvements and enhancement within new developments and the associated benefits for habitats, landscape and communities</li> <li>■ Wildlife corridors offer potential as green spaces linking communities to open areas</li> </ul>

Topic	Assets	Issues	Opportunities
Aquatic Environment	<ul style="list-style-type: none"> <li>■ Rainfall</li> <li>■ Watercourses, their catchments and riparian zones</li> <li>■ Stillwater resources</li> <li>■ Undeveloped floodplains</li> </ul>	<ul style="list-style-type: none"> <li>■ Significant stretches of watercourse have been classified as having poor water quality</li> <li>■ Undeveloped flood plains are vulnerable to development and there are associated flooding issues</li> <li>■ Urban drainage problems have been identified as a key source of localised flooding</li> <li>■ Rising mine waters may be contributing to pollution of watercourses and/or groundwaters</li> </ul>	<ul style="list-style-type: none"> <li>■ Promotion of best practice in watercourse engineering such as bridging rather than culverting of watercourses for new roads and development</li> <li>■ Promotion of enhancement of watercourses, particularly in urban areas and the re-creation of natural channels from culverted stretches</li> <li>■ Promotion of other measures such as sustainable urban drainage systems (SUDS) and buffer zones</li> <li>■ Management and protection of undeveloped floodplains</li> <li>■ Promotion of water efficiency measures such as grey water recycling and low water appliances in new developments and campaigns to reduce water usage</li> </ul>
Geology and Soils	<ul style="list-style-type: none"> <li>■ Geological SSSIs</li> <li>■ Peat Reserves</li> <li>■ Aggregate Resources</li> <li>■ Soils with importance for agriculture and ecology</li> </ul>	<ul style="list-style-type: none"> <li>■ Soils are vulnerable to development pressures and land management practices (such as agriculture and forestry)</li> <li>■ Issues of contaminated land and land stability across North Lanarkshire</li> </ul>	<ul style="list-style-type: none"> <li>■ Promotion of best practice on construction sites to protect soils</li> <li>■ Protection of peat resources as a key habitat, carbon sink and characteristic landscape</li> <li>■ Management of the exploitation of aggregate resources, balanced with promotion of re-use and recycling of construction materials</li> <li>■ Remediation of formerly contaminated sites offers environmental and development benefits</li> </ul>

Topic	Assets	Issues	Opportunities
Waste and Resources	<ul style="list-style-type: none"> <li>■ Opportunities for greater waste reduction, recycling and recovery</li> <li>■ Opportunities for environmental technologies and industries</li> <li>■ Facilities in North Lanarkshire meeting a regional need for waste recycling and management</li> <li>■ Landfill void/capacity</li> </ul>	<ul style="list-style-type: none"> <li>■ An increasing quantity of municipal waste is being produced with an increase in the percentage recycled</li> <li>■ Predicted increase in the number of households may sustain the trend in increased MSW arisings</li> <li>■ European and national targets for diversion of waste from landfill will drive waste management development</li> <li>■ Importation of waste from neighbouring local authorities</li> </ul>	<ul style="list-style-type: none"> <li>■ Promotion of the waste hierarchy and the cultural change of the perception of waste</li> <li>■ Promotion of recycling facilities within new developments</li> <li>■ Management will require the practical, legislative and cultural aspects of waste to be addressed</li> <li>■ Promotion of other initiatives such as the Scottish Waste Awareness Group and Eco-Schools projects</li> <li>■ Identification and facilitation of waste management technologies within North Lanarkshire as a potential growth sector in the economy (e.g. biofuels)</li> <li>■ Continued management of landfill capacity with regard to the area and local waste plans and legislative targets</li> </ul>
Energy	<ul style="list-style-type: none"> <li>■ Opportunity to increase domestic and commercial energy efficiency</li> <li>■ Renewable energy resources (including wind, biomass, solar and geothermal)</li> <li>■ Other energy resources (including landfill gas, coal gas)</li> </ul>	<ul style="list-style-type: none"> <li>■ Increasing number of households will affect future energy demand making energy efficiency particularly important</li> <li>■ Increasing number of renewable energy generation projects likely within North Lanarkshire in the next 5-10 years</li> </ul>	<ul style="list-style-type: none"> <li>■ Promotion and facilitation of energy efficiency measures including within new development design</li> <li>■ Promotion and management of renewable energy generation within North Lanarkshire at micro and macro scales</li> </ul>
Landscape	<ul style="list-style-type: none"> <li>■ Designated landscape and setting</li> <li>■ Accessible locations which are representative of LCA</li> <li>■ Diversity of landscape character types</li> <li>■ Opportunity to combine landscape with public access, recreation and conservation</li> </ul>	<ul style="list-style-type: none"> <li>■ Local and area wide landscapes are vulnerable to inappropriate development</li> <li>■ Open upland areas particularly sensitive to development</li> <li>■ Urban and urban fringe landscape / townscape are of poor quality in some areas and there is a need to stimulate economies of town centres to help in enhancing the quality and vibrancy of the built environment and townscape</li> </ul>	<ul style="list-style-type: none"> <li>■ There is the opportunity to protect and enhance local and area wide landscapes through quality and sensitive design and location of new developments</li> <li>■ It is important to plan and manage the urban fringe landscape and its setting within the wider landscape</li> <li>■ Management of land uses such as agriculture and forestry have an important role in the management of the landscape</li> </ul>

Topic	Assets	Issues	Opportunities
Cultural Heritage	<ul style="list-style-type: none"> <li>■ Scheduled Ancient Monuments, Category A and B Listed Buildings, Conservation Areas, Designed Landscapes</li> <li>■ Unrealised/unknown archaeology</li> </ul>	<ul style="list-style-type: none"> <li>■ Network of protected sites through designated status</li> <li>■ Some sites nationally important (eg Forth and Clyde Canal, Antonine Wall) and their interpretation and focus as 'destinations' could be developed (sensitively)</li> <li>■ Sites are vulnerable to direct and indirect development pressures, this particularly relevant for designated sites of 'lower level'</li> <li>■ Cultural heritage sites play an important role in the townscape</li> </ul>	<ul style="list-style-type: none"> <li>■ Management of cultural heritage resources can provide assets to the landscape and community (educational and recreational) resources of North Lanarkshire</li> <li>■ New developments need to take into account the cultural heritage resource and may allow protection and enhancement of the resource</li> <li>■ Continued promotion of the precautionary approach to unrealised / unknown archaeology</li> <li>■ Interpretation of North Lanarkshire's industrial heritage</li> </ul>
Air Quality and Noise	<ul style="list-style-type: none"> <li>■ Clean air</li> <li>■ Quiet/tranquil locations</li> </ul>	<ul style="list-style-type: none"> <li>■ Air quality generally within national guidelines however levels of nitrogen dioxide are above these levels in several locations</li> <li>■ North Lanarkshire Council has proposed three Air Quality Management Areas where measures will be needed to meet air quality objectives</li> <li>■ In North Lanarkshire road traffic is the primary cause of air quality issues</li> <li>■ Background noise, whilst not monitored, varies across North Lanarkshire with higher levels in urban areas. Noise by definition though is unwanted sound and is subjective</li> <li>■ Tranquil areas need to be enhanced and encouraged so that all citizens have good access to locations with low background noise</li> </ul>	<ul style="list-style-type: none"> <li>■ Continued monitoring and management by North Lanarkshire Council</li> <li>■ Consideration of new development with regard to sustainable transport and reducing the dependence upon private car use</li> <li>■ Planning and management of town centres needs to take into consideration road traffic with regard to the air quality and built environment quality</li> <li>■ Provision of high quality and safe cycle and footpaths both within existing developments, between settlements and in new developments to encourage a reduction in private car use</li> <li>■ Promotion of best practice and good design for new developments (both construction and operation) to reduce contribution to background noise levels</li> </ul>

Topic	Assets	Issues	Opportunities
Communities	<ul style="list-style-type: none"> <li>■ Opportunity for improved health across the population</li> <li>■ Opportunity to generate a more balanced population profile</li> <li>■ All facilities are key assets in their community</li> <li>■ Key features such as National Cycle Network and Forth and Clyde Canal</li> <li>■ Partnerships which manage and deliver initiatives</li> <li>■ Opportunity to improve the quality of the built environment</li> <li>■ Opportunity to broaden the range, and improve the quality, of housing available</li> </ul>	<ul style="list-style-type: none"> <li>■ North Lanarkshire has a declining and ageing population. There is a net out-migration of population and a need to increase the economically active proportion of the population living and working in North Lanarkshire</li> <li>■ The number of households within North Lanarkshire is predicted to increase above the Scottish average, this will place a pressure on land for new developments</li> <li>■ Population health and well-being is linked to the quality of the built environment, housing and open space</li> <li>■ Provision of and access to community resources and facilities is an issue in areas</li> <li>■ Facilities subject to viability, vandalism and quality considerations</li> </ul>	<ul style="list-style-type: none"> <li>■ There is a need to promote in-migration of a younger population through measures such as creation of jobs, improvement of the built environment, provision of housing and improvement of the perception of the area</li> <li>■ Improved health needs to be addressed through measures such as access to health facilities and open recreational space and initiatives</li> <li>■ Promotion of high quality design and construction of new developments will contribute to improvements in the built environment, creation and enhancement of community facilities such as parkland and footpaths and a mix of housing to reduce social segregation</li> </ul>
Cumulative Assets: Geographical Assets	<p>These are cumulative assets because of the accumulation of several environmental assets within a given geographical area.</p> <ul style="list-style-type: none"> <li>■ Kilsyth Hills (Ecological, geological, aquatic, landscape and community assets)</li> <li>■ Palacerigg and Drumpellier Country Parks (Ecological, landscape and community assets)</li> <li>■ North and South Calder Waters (Ecological, aquatic, landscape and community assets)</li> <li>■ Clyde Valley (Ecological, aquatic, landscape, cultural heritage, agricultural and community assets)</li> <li>■ Regeneration Opportunity in the area from Eurocentral to Wishaw (east of Motherwell)</li> </ul>	<ul style="list-style-type: none"> <li>■ The increased presence of environmental assets at geographically specific sites provides areas which can be identified as 'special' or particularly significant because of their cumulative environmental character</li> <li>■ Cumulative assets need particular and sensitive management to ensure that the variously contributing factors to their importance are managed and enhanced</li> <li>■ Areas around communities may be equally important in terms of the cumulative asset they represent for local people through open space, recreational opportunity, landscape and the access they afford people to nature</li> </ul>	<ul style="list-style-type: none"> <li>■ Many of the sites with geographical cumulative assets are afforded protection through designated status, such as ecological, landscape or community designations</li> <li>■ Continued enhancement of these areas for their relevant environmental assets can be combined to provide valuable recreational, health and educational community assets</li> </ul>

Topic	Assets	Issues	Opportunities
Cumulative Assets: Synergies	<p>There are key cumulative assets by nature of their benefits to different environmental topics</p> <ul style="list-style-type: none"> <li>■ Natural Habitats</li> <li>■ Woodland</li> <li>■ Waterbodies and Riparian Habitats</li> <li>■ Floodplain</li> <li>■ Peat Resources</li> <li>■ Accessible Locations</li> <li>■ Canals</li> <li>■ Cultural Heritage Sites</li> <li>■ Clean Air</li> <li>■ Tranquil Areas</li> </ul>	<ul style="list-style-type: none"> <li>■ These cumulative assets are vulnerable to a range of pressures affecting all or some of their environmental components</li> <li>■ Designation affords protection to parts of some of these assets, and these areas need to be actively managed and promoted</li> </ul>	<ul style="list-style-type: none"> <li>■ These locations offer opportunities as additional 'special places' for the residents and visitors to North Lanarkshire</li> </ul>

### 15.3 CHALLENGES FOR NORTH LANARKSHIRE

15.3.1 There are a range of challenges facing North Lanarkshire with regard to the environmental baseline and its condition and potential for the future in terms of their contribution to sustainable development in the area. The key challenges are outlined below.

#### 15.3.2 New Development

- New developments place a pressure on land use and environmental resources through their requirement for land take and their interactions with the existing town and rural settings and land use disposition. Inappropriate development can lead to degradation of environmental aspects such as the ecology and landscape, there can also be impacts on the quality of the built environment, and promotion of increased private car travel.
- The challenge with new development is to promote and facilitate high quality design and built development located in appropriate locations. New development provides an opportunity to protect, enhance and create environmental resources such as ecological habitats, waterbodies, landscape character and value and community resources through open space, footpaths and built facilities. Following such an approach also adds value to the development through the creation of a more attractive environment for future users. New development can also be used to demonstrate and pilot the adoption of more sustainable methods of building design, construction materials use and lower resource use through the life of the buildings.

#### 15.3.3 Improvements to the Built Environment

- Many parts of the built environment of North Lanarkshire are degraded both within town centres, suburban areas and the urban fringe. A poor quality built environment has impacts on a range of aspects of the environment including landscape / townscape, health and well-being and population demographics through the perception of the area.
- The challenge with the built environment is to plan for, and create a high quality environment with attraction of development to appropriate sites, and achieving a balanced mix of housing, transport and other land uses.



#### 15.3.4 Distinctiveness of Settlements

- New developments on the urban fringe and in inter-settlement areas result in a gradual growth in, and coalescence of, settlements. There is a risk that such growth may cause existing settlements to merge which has occurred to some extent in parts of Coatbridge and Airdrie.
- There is a challenge to ensure that the physical distinctiveness between settlements is maintained and supporting the distinctiveness between those already merged. In some cases maintaining the geographical distinctiveness is facilitated through the presence of physical barriers such as the M8/A8 corridor or incised river valleys. Careful control of land use and developments can ensure that inter-settlement open space is not absorbed into growing settlements and instead is protected and enhanced given its important role in landscape, recreation and ecological functions.

#### 15.3.5 Sustainability and Regeneration

- The sustainability of design, operation and management of the built and natural environment is important for the long term protection and enhancement of the environment in North Lanarkshire and a sustainable approach needs to be adopted across plans and strategies in different sectors and at a range of levels.
- The challenge facing North Lanarkshire, and elsewhere, is to ensure that the concept of sustainability underlies all aspects of the environment. Improving the energy efficiency and waste management of new developments sustainable design of new developments with regard to location, drainage and layout can contribute to reducing their environmental impact on North Lanarkshire's environment.

Equally, however, the social and economic dimensions of sustainability need to be considered, such as education and awareness raising so that North Lanarkshire's people understand and support sustainability, and so that an economic base can be provided for the area which will attract a growing vibrant and economically active community.

- Geographical analysis identified a key opportunity for regeneration in the Airdrie to Motherwell area associated, in part, with established transport infrastructure. Improved North-South transport and communications links will be an important element in realising the benefits of the regeneration proposals in this area, and across North Lanarkshire. These benefits may include more sustainable patterns of settlement and better access by non-motorised modes of transport to areas of employment.



#### 15.3.6 The Natural and Cultural Environment

- This report has shown that North Lanarkshire has a diverse and important natural and cultural environment with varied landscapes, habitats and areas of open space. It will be important that the significance of these features is maintained and enhanced, through continued management by various agencies, but also through developing the potential they have in increased awareness of the natural environment through education and interpretation.
- Making these locations accessible to the people of North Lanarkshire is also important in terms of sustainable development of communities, so that the benefits of the countryside in terms of health, wellbeing and understanding of the natural environment can be experienced by a broad cross section of the community.

### 15.4 THE FUTURE FOR NORTH LANARKSHIRE'S ENVIRONMENT

15.4.1 New plans and strategies produced by North Lanarkshire Council and at higher regional and national levels are now subject to a Strategic Environmental Assessment (SEA). This is to ensure that the plans made, and the developments which subsequently follow, take into account the environmental dimension in the decision making process at an early stage.

15.4.2 The new Council-wide Local Plan will be able to contribute to the protection, enhancement and creation of the environmental resources and assets within North Lanarkshire in a variety of ways. SEA of this plan, which draws upon the environmental baseline and analysis presented in this report will help to achieve the aspirations for a sustainable future. The findings of this report suggest that the vision for this future will be one where the environment is afforded due recognition in North Lanarkshire, and where its role in complementing the wider aspects of sustainability in terms of community development and socio-economic diversity can be understood and achieved.









## Appendix A Breakdown of Topics

Within the sections of this report, some data received from consultees have been manipulated in order to provide either summary data and/or simplified data. This appendix provides details on the breakdown / categorisation used within this manipulation to ensure that any future interpretation of data is based on similar breakdowns / categorisations.

### Land Use

Land Use 2004 data, supplied by North Lanarkshire Council.

Land Use Category	Land Use
Agriculture	1.1 – 1.5, 3.1 & 11.6
Forestry / Woodland	2.1 – 2.4, 2.6 & 2.7
Scrub / Heath / Moor	2.5, 3.2, 3.3 & 3.4
Standing and Running Water and Bog	4.1 – 4.6
Inland Rock	5.1
Minerals and Waste (Quarries and Landfills)	6.1 & 6.2
Urban (Predominately Residential)	9.1 & 9.2
Urban (Predominately Industry/Commercial)	7.1, 8.2-8.5, 11.1-11.5, 12.1 – 12.3 & 13
Outdoor Recreational Land & Open Space	7.2 & 7.3
Un Categorised	88.1 – 88.3 & 99

### Ecology

National Inventory of Woodland and Trees (NIWT) data, 2002, supplied by Forestry Commission.

Forest / Woodland Type	Feature Code Category
Conifer Woodland	70 and 85
Mixed Woodland	9 and 79
Broadleaved Woodland	76
Young Woodland	7 and 68
Undifferentiated Low Scrub	82
Felled Woodland	84
Ground Preparation	83
Various	11



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## Appendix B Data Gaps and Limitations

This appendix summarises the range of data issues identified in the State of the Environment Report.

### Overall Issues

Data issues have been highlighted and explained in Section 3.3 of this report. In summary, the key issues are:

- Age and currency of data, particularly where different data sets being used for comparison;
- Data collection and surveying processes, which in some cases makes comparison of data sets impossible such as differing definitions and methodologies used for forestry data by different organisations; and
- Issues of scale, where some data sets are prepared at regional and national level and which do not allow for interrogation at the North Lanarkshire level.

Examples of these issues, and other specific data gaps and limitations are summarised on a topic-specific basis in the following sections.

### Land Use

The majority of data were sourced from a 2004 survey of land uses undertaken by North Lanarkshire Council. Future surveys, if undertaken on the same basis as the 2004 survey, will provide an indication of trends and changes in land uses and settlement patterns. This would help to address the particular gap identified for trends in urban land cover.

### Ecology

Ecological data were obtained from a number of sources which, due to the differences in the age and approach to the surveys undertaken, gave rise to difficulties in comparison of data. Discrepancies in woodland data categorisation gave rise to particular problems for the analysis. Data gaps were identified specifically in relation to freshwater fish populations in North Lanarkshire's watercourses.

### Aquatic Environment

A limitation in flooding data was identified in that North Lanarkshire Council keep records of flooding associated with non-agricultural land. These data relate to reported flooding events generally associated with properties and roads and therefore do not provide a comprehensive baseline of information on all flooding across the area. As the potential effects of climate change, which include increased flooding, are felt in future it may be appropriate for collaboration between the authorities with responsibilities in relation to flooding to address this gap.

### Geology and Soils

No specific data issues were identified. No specific data were identified on contaminated land as this is being identified by North Lanarkshire Council under Part IIA of the Environmental Protection Act.

### Waste and Resources

Limited data are available on non-Municipal Solid Wastes in North Lanarkshire, which is acknowledged by SEPA. The review also identified some discrepancies between the data sets examined (principally the Audit Scotland reports and SEPA's waste data digest) in relation to waste arisings and levels of recycling. These appear to be due to differences in the methods of reporting the data.



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## Energy

Data on energy consumption in North Lanarkshire (and elsewhere) are held by the energy utilities and are commercially confidential. This makes monitoring of energy consumption (and energy efficiency measures) in domestic and business premises very difficult.

## Landscape

No significant data gaps or limitations were identified.

## Cultural Heritage

Data on designated and currently known archaeological sites are available and have been used in this report. However, little information was available on areas where there is greater potential for currently unknown cultural heritage resources.

## Air Quality and Noise

Data on area-wide noise levels are very limited and there is currently no comprehensive noise monitoring programme in North Lanarkshire or any information on quiet/tranquil areas. This may well be addressed as the Environmental Noise Directive is implemented into Scottish law.

## Communities

Many of the health indicators referenced in the report have been drawn from the reports prepared by the NHS for Lanarkshire, which often did not allow for North Lanarkshire specific interpretation due to the reporting of aggregated data.