

Chapter 11 : Global Environment and Natural Resources



Chapter 11 Global Environment and Natural Resources

11.1 Action to reduce the impact of climate change is a key part of the overall vision of the Core Strategy and its specific objectives for reducing the need to travel, supporting sustainable transport and sustainable design and development. It is recognised that significant climate change is still predicted and measures are proposed to help adapt to this. Policy CS63 provides an overall statement of actions proposed.

CS63 Responses to Climate Change

Policy CS 63

Responses to Climate Change

Action to reduce the city's impact on climate change will include:

- a. giving priority to development in the City Centre and other areas that are well served by sustainable forms of transport; and
- b. promoting higher densities of development in locations that are well served by sustainable forms of transport; and
- c. promoting routes that encourage walking, cycling and the use of public transport; and
- d. designing development to increase energy efficiency and reduce energy consumption and carbon emissions; and
- e. promoting developments that generate renewable energy; and
- f. reducing the volume of waste disposed of in landfill sites and generating energy from waste.

Action to adapt to expected climate change will include:

- g. locating and designing development to eliminate unacceptable flood risk
- h. giving preference to development of previously developed land where this is sustainably located
- i. adopting sustainable drainage systems
- j. encouraging environments that promote biodiversity, including the city's Green Network
- k. designing development to minimise the relative heating of urban areas.

- 11.2** To help reduce the expected impact of development on climate change, appropriate location and density of development are provided for particularly in policies for business and industry (CS3 and CS5), retail and built leisure (CS14, CS15, CS34 and CS39) and housing (CS23 and CS26). Routes for sustainable travel are promoted in policies CS16 and CS54-58. Design to reduce carbon emissions is proposed in policy CS64 and renewable energy promotion is promoted in CS65. Policies CS68 and CS70 promote methods of waste management that reduce the need for landfilling with its associated methane emissions and policy CS69 supports the energy recovery plant at Bernard Road.
- 11.3** To help adapt to expected climate change, policy CS67 provides the broad framework for addressing the increased risk of flooding including a requirement for sustainable drainage systems, whilst the preference for the use of previously developed land in policies CS2 and CS24 will help to avoid or reduce increases in run-off. The penetration of green areas into the City (see policy CS73) will create and safeguard habitats that will support species that are adapting to climate change. Proposals for sustainable design in policy CS64 will help to offset the higher levels of heating experienced in larger urban areas.

CS64 Climate Change, Resources and Sustainable Design of Developments

- 11.4** New development provides an opportunity for reducing energy consumption and enabling more efficient use of energy, both of which are important for reducing carbon emissions and wasteful use of finite natural resources. So, sustainable design of buildings and spaces is an integral part of the vision for transformation and sustainability and respecting of the global environment. It accords with the Regional Spatial Strategy in encouraging better energy and water-efficient buildings (policy YH2). Future proofing of the city against climate change can also contribute to its economic success and foster technologies and jobs through the city's traditional skills and research capacity. Updating of Building Regulations will cover many aspects of sustainable design but planning has a distinctive contribution to make by introducing guidelines in advance of the update to complement the Regulations.

Policy CS 64

Climate Change, Resources and Sustainable Design of Developments

All new buildings and conversions of existing buildings must be designed to reduce emissions of greenhouse gases and function in a changing climate. All developments will be required to:

- a. achieve a high standard of energy efficiency; and
- b. make the best use of solar energy, passive heating and cooling, natural light, and natural ventilation; and
- c. minimise the impact on existing renewable energy installations, and produce renewable energy to compensate for any loss in generation from existing installations as a result of the development.

All new buildings and conversions of existing buildings must be designed to use resources sustainably. This includes, but is not limited to:

- d. minimising water consumption and maximising water re-cycling;
- e. re-using existing buildings and vacant floors wherever possible;
- f. designing buildings flexibly from the outset to allow a wide variety of possible future uses;
- g. using sustainable materials wherever possible and making the most sustainable use of other materials;
- h. minimising waste and promoting recycling, during both construction and occupation.

11.5 It is important that developments are designed to mitigate climate change, and to withstand its effects. This will help to minimise the impact of development on the global environment, and ensure that buildings and spaces endure. Making the best use of the natural features of a site, and designing to take account of factors such as the sun's path can make an important contribution complementing new technologies.

11.6 Sustainable design also includes the sustainable use of resources, which is an important part of conserving materials and natural resources that are likely to become scarcer. This includes considering how existing buildings can be re-used, and how new buildings might be used in different ways in the future. Sustainable materials include those that are degradable, have low embedded energy, are easily renewed, or are recyclable. Further information and guidance can be found in The Building Research Establishment (BRE) Green Guide to Specification.

- 11.7** To satisfy the policy, all new developments of 5 dwellings or over (including apartments) should achieve Code for Sustainable Homes Level 3 (or equivalent) as a minimum, and all non-residential developments over 500 sq m gross internal floorspace should achieve a BREEAM (BRE Environmental Assessment Method) rating of very good (or equivalent) as a minimum. Targets for policy CS65 below may also influence the extent of design measures to be taken. The required standards to be achieved may increase, and the thresholds decrease, as advances in technology enable higher standards of sustainable design.
- 11.8** Green roofs can be used as a sustainable drainage technique, to minimise surface water run-off and therefore help to reduce the risk of flooding. Sustainable drainage techniques are covered by subparagraph (b) in policy CS67.
- 11.9** The policy will mainly be implemented through the development management process. Developers will be required to submit a sustainability statement with a planning application, if the proposed development involves five or more dwellings or over 500 sq m of floorspace. This statement should show how the sustainability standards are to be achieved on the development. Further information and advice on how to design buildings and spaces sustainably will be provided in a Supplementary Planning Document.

CS65 Renewable Energy and Carbon Reduction

- 11.10** Sustainable design will help to reduce energy consumption but this must be complemented by the generation of energy from renewable sources. This might include local generation for a specific development or larger-scale development to supply the Grid. Renewable energy capacity targets for the city for supplying the Grid are set in the Regional Spatial Strategy for 2010 and 2021. The Core Strategy needs to state the scale of provision proposed for planning purposes and identify where the energy might be generated.

Policy CS 65

Renewable Energy and Carbon Reduction

Renewable energy capacity in the city will exceed 12MW by 2010 and 60MW by 2021.

The Smithywood and Hesley Wood areas are potential locations for larger-scale wind generation though not to the exclusion of other sustainable locations.

Where appropriate, developments will be encouraged to connect to the City Centre District Heating Scheme. Shared energy schemes within large developments or between neighbouring developments, new or existing, will also be encouraged.

All significant developments will be required, unless this can be shown not to be feasible and viable, to:

- a. provide a minimum of 10% of their predicted energy needs from decentralised and renewable or low carbon energy; and
- b. Generate further renewable or low carbon energy or incorporate design measures sufficient to reduce the development's overall predicted carbon dioxide emissions by 20%. This would include the decentralised and renewable or low carbon energy required to satisfy (a).

The renewable or low carbon energy technologies must be operational before any new or converted buildings are occupied.

If it can be demonstrated that the required reduction in carbon emissions cannot be met through decentralised renewable or low carbon energy and/or design and specification measures, a contribution towards an off-site carbon reduction scheme may be acceptable.

- 11.11** Large-scale grid-connected renewable energy installations will play an important part in exceeding the capacity targets set in this policy. To help achieve this, the policy indicates currently identified preferred locations for wind generation, although any proposal will be assessed on its individual merits and other locations may be identified in the course of further survey work. Biomass may also become a significant source of energy in the city.
- 11.12** Significant developments applies to both new-build and conversions of 5 or more dwellings (including apartments), or more than 500 sq m gross internal floorspace.
- 11.13** On or near-site generation has the advantages of not requiring transmission (a source of energy loss) and of being less conspicuous. Renewable and low-carbon energy sources are an important way of reducing carbon dioxide emissions. They also help to provide a secure supply of energy to a building or development, and could help to provide more a more affordable supply of energy as fossil fuel prices rise. The requirement for developments to provide 10% of their predicted energy needs from decentralised renewable or low-carbon energy reflects national policy and the Regional Spatial Strategy.

- 11.14** However, achieving the carbon reduction target in the policy through renewable energy may not always be possible, depending on the constraints of a site. Therefore the policy affords flexibility in allowing the same level of carbon dioxide emissions reductions through design (see also policy CS64 above), or a combination of the two. In and around the City Centre, connections to the District Heating Scheme would further reduce the burning of fossil fuels.
- 11.15** The target in subparagraph (b) is expressed in terms of reduced carbon emissions as this enables consistency whichever method is chosen and relates directly to the outcome needed to mitigate climate change. The level proposed is considered feasible with current technology. The current Building Regulations (2006) Target Emission Rate is the emission rate for a notional building compliant with Part L of the Building Regulations in 2002, reduced by 20% for dwellings, and between 23.5% and 28% for other buildings depending on whether air conditioning is proposed. It is expressed in terms of kilograms of carbon dioxide per square metre of floor area. The policy will continue to be applied in the same way when the Building Regulations are updated in the future.
- 11.16** The targets will be achieved through the development management process for large-scale renewable energy installations, and for significant developments required to generate decentralised renewable or low-carbon energy, or to reduce carbon dioxide emissions. The appropriate levels of decentralised renewable or low-carbon energy and reduced carbon emissions will be kept under review in the light of changing science and technology and updates along with more detailed guidance will appear in a Supplementary Planning Document.

CS66 Air Quality

- 11.17** The strategy supports air quality management initiatives in the city. These are now based on an Air Quality Management Area that covers the whole of the main built-up area. Planning decisions may particularly affect air quality where they influence levels of traffic, which is a major source of emissions.

Policy CS 66

Air Quality

Action to protect air quality will be taken in all areas of the city. Further action to improve air quality will be taken across the built-up area, and particularly where residents in road corridors with high levels of traffic are directly exposed to levels of pollution above national targets.

- 11.18** The locations where the most harmful impacts may change over time but where air quality currently fails to meet the national targets have included areas near the motorway at Meadowhall and in parts of the City Centre. But new locations are being identified on major roads and particularly at major road junctions and these may be sensitive as places where people live or shop.

11.19 Protection and improvement of air quality will be achieved particularly through decisions about planning applications for uses that give rise to significant amounts of traffic, through the Air Quality Plan and through successive Local Transport Plans.

CS67 Flood Risk Management

11.20 Flood risk management is one of the most important ways of adapting to the predicted more intensive rainfall as a result of climate change, and is particularly important in Sheffield, in view of the city's topography and experience of flooding in June 2007. National policy requires that sites with a lower probability of flooding are preferred to those with a higher risk and that relative risks are considered through a sequential test. However, it is recognised that exceptions may be necessary in certain circumstances where there are no suitable lower risk sites. In Sheffield, the high probability zones in the Don Valley lie within key regeneration areas and suitable alternative broad locations are not available in the city for many of the business and industry uses that are envisaged there. This means relying more on mitigation measures and applying the exception test than might be appropriate in a less constrained area, a tension that is recognised in the Regional Spatial Strategy (policy ENV1). But, the city's planning policy still has to ensure that the requirement for safety for people and property is paramount and that suitable sites with a lower probability of flooding are always preferred when they can be identified.

Policy CS 67

Flood Risk Management

The extent and impact of flooding will be reduced by:

- a. requiring that all developments significantly limit surface water run-off;
- b. requiring the use of Sustainable Drainage Systems or sustainable drainage techniques on all sites where feasible and practicable;
- c. promoting sustainable drainage management, particularly in rural areas;
- d. not culverting and not building over watercourses wherever practicable;
- e. encouraging the removal of existing culverting;
- f. not increasing and, where possible, reducing the building footprint in areas of developed functional floodplain;
- g. not locating or subdividing properties that would be used for more vulnerable uses in areas of developed functional floodplain;
- h. developing only water-compatible uses in the functional floodplain;
- i. designating areas of the city with high probability of flooding for open space uses where there is no overriding case for development;
- j. developing areas with high probability of flooding only for water-compatible uses unless an overriding case can be made and adequate mitigation measures are proposed;
- k. ensuring any highly vulnerable uses are not located in areas at risk of flooding;
- l. ensuring safe access to and from an area with a low probability of flooding.

Where an overriding case remains for developing in a zone with high probability of flooding, development will be permitted only if:

- m. more vulnerable uses, including housing, would be above ground floor level; and
- n. the lower floor levels of any other development with vulnerable equipment would remain dry in the event of flooding; and
- o. the building would be resilient to flood damage; and
- p. adequate on and off-site flood protection measures would be provided.

Housing in areas with a high probability of flooding will not be permitted before 2016/17.

- 11.21** Surface water must be reduced to 5 litres per second per hectare on all sites over 1 hectare, except on brownfield sites where the developer can prove that there is existing surface water run-off. On such sites, run-off must be reduced by 30%. On sites that are less than 1 hectare or 10 dwellings, surface water run-off must be reduced as far as is feasible by design measures such as permeable paving.
- 11.22** The policy identifies means that are already available for reducing flood risk helping to ensure that developments are sufficiently protected from flooding, while minimising their impact on the rest of the catchment. It also means that the allocation of land for development is carried out using the sequential approach to site selection, and that types of development are appropriate to the level of risk. The most vulnerable types of development, such as fire stations and caravan parks, would be located in the areas at lowest risk of flooding. The following terms included in policy CS67 are defined in PPS25: Development and Flood Risk, Annex D, DEFRA guidance notes FD2320 and FD2321:
- water-compatible uses
 - high probability of flooding
 - functional floodplain
 - less vulnerable uses
 - highly vulnerable uses
 - safe access to and from
- 11.23** Areas at risk of flooding refers to areas of both high and medium probability of flooding, both of which are defined in PPS25: Development and Flood Risk, Annex D. Developed functional floodplain is also called Flood Zone 3a(i), and is defined in the Strategic Flood Risk Assessment (2008) as areas that would have served as functional floodplain if they had not been previously developed. Areas of developed functional floodplain will flood, on average, once in every 20 years. The land around buildings in Zone 3a(i) provides a critical flowpath for water, and/or flood storage areas, and it is very important that this land is retained. Maps of the flood probability areas can be found in the latest version of the Strategic Flood Risk Assessment.
- 11.24** It is necessary to recognise that there may be overriding reasons for allowing development in zones with a high probability of flooding. These reasons will be set out using the Sequential Test and, where necessary, the Exception Test. The second part of the policy proposes a wide range of safeguards to ensure that any development is designed to increase safety for the occupants and minimise damage to the buildings and equipment. These provisions should always be complemented by all possible measures to reduce the extent or impact of flooding. For further guidance on flood resilient design, see Department of Communities and Local Government guidance Improving the Flood Resilience of New Buildings: Flood Resilient Construction (2007).
- 11.25** The final part of the policy indicates that for housing, the overriding case would not be applied during the period to 2016, because there will be ample capacity for housing in the city without resorting to land with high probability of flooding. This could affect some locations in the

City Centre but the precise locations will be identified in updates of the Strategic Flood Risk Assessment, in consultation with the Environment Agency.

- 11.26** The policy will mainly be delivered through the development management process. This will include ensuring developers provide the necessary evidence for the Local Planning Authority to undertake the sequential test in order to locate developments in lower probability areas wherever possible. A site-specific Flood Risk Assessment will be required for all developments over one hectare and for any other developments in Flood Probability Zones with medium or high ratings (zones 2 or 3a), in accordance with national planning policy. The assessment will show the risk to the site in greater detail, and advise on mitigation measures as necessary.

CS68 Waste Development Objectives

- 11.27** Sheffield embraces the overall objective set out in national waste strategy and planning policy of making better use of waste as a resource through reduction and re-use of materials in the first place. However, apart from encouraging home composting and more on-site management of demolition waste, the means of reducing and re-using are largely outside the scope of this strategy. Planning is required to provide for the remaining options. So, where waste is generated the objective is to recover materials or energy to help minimise the volume of waste needing to be landfilled locally. The City Council, in its current Waste Strategy, is committed to its energy-from-waste policy for managing the majority of its municipal (mainly household) waste and the Sheffield Environment Strategy has highlighted the need for improving the household recycling rate.
- 11.28** Table 11.1 below shows the tonnages of municipal and commercial/industrial waste requiring management for the period to 2018 and beyond. The cumulative requirement figures in the first two columns are based on the benchmark tonnages for the City set out in the Regional Spatial Strategy. The figures include disposal capacity needed to manage the bottom ash from the Bernard Road Energy from Waste facility if new plant is not developed to recycle those residues. If a dedicated ash recycling facility is built in the City, or a larger shared facility is built nearby, this would have a corresponding reduction in landfill rates. The third column extrapolates the regional apportionments to the end of the plan period assuming that the forecast trends in waste growth continue locally until that date. The supply side of Table 11.1 is based on a careful assessment of remaining landfill space in the City and the capacity of existing and committed infrastructure for recycling/composting, energy recovery and other treatment facilities.

Table 11.1 Provision for Municipal and Commercial/Industrial Waste (million tonnes)

	Capacity Required and Available to RSS time horizons		Capacity Required and Available for Core Strategy time horizon
	2007-2018	2007-2021	2007-2024
Municipal Waste	3.05	3.84	4.64
Incinerator Bottom Ash	0.60	0.75	0.90
Commercial and Industrial Waste	8.12	10.16	12.20
Total Requirement	11.77	14.75	17.74
Recycling and composting of Municipal Waste	0.85	1.12	1.40
Energy-from-Waste facility	2.60	3.25	3.89
Other treatment facilities for Commercial and Industrial Waste	6.60	8.25	9.90
Capacity at Parkwood Landfill Site	2.74	2.75	2.75
Total Provision	12.79	15.37	17.94
Surplus/shortfall	+1.02	+0.62	+0.20

11.29 The table shows that on all assumptions there will be enough capacity for the two waste streams in the city to satisfy the requirement to provide for ten years from adoption of the Core Strategy. In the event that the requirement were to exceed these predictions then it would be necessary to make contingency arrangements for the period after 2018. As the city has limited opportunities for new landfill development we would address this through the established mechanism of negotiating variations in apportionments with the Yorkshire and Humber Regional Assembly and other South Yorkshire authorities in order to allow some waste from the city to be landfilled outside its boundaries. Spare landfill capacity in the South Yorkshire sub-region has already been identified that can meet needs up to 2021. The available capacity could last longer provided waste is diverted from landfill in line with the Regional Spatial Strategy benchmark figures. Future requirements and capacity changes will be monitored regularly to check the adequacy of capacity within the city.

11.30 The following waste management objectives are an integral part of the city's overall development strategy.

Policy CS 68

Waste Development Objectives

The City's waste will be managed more sustainably by:

- a. encouraging less consumption of raw materials through the reduction and re-use of waste products; and
- b. making the best use of existing landfill capacity and only using the city's Landfill Allowance Trading Scheme allocations when disposing of organic municipal waste; and
- c. restricting consent for additional landfill to those cases where local provision can be justified; and
- d. meeting the national staged targets for recovering value from municipal waste by utilising the existing energy-from-waste plant and developing services and facilities to meet agreed performance targets for recycling or composting household waste; and
- e. permitting a range of additional treatment facilities, mainly in industrial areas, sufficient to meet the regional apportionment for commercial and industrial waste together with requirements for other waste streams where the city is best placed to meet local and wider needs; and
- f. avoiding the unnecessary use of greenfield land when identifying suitable sites/areas and permitting other waste development.

11.31 This approach will be achieved in a way that is consistent with recycling/composting levels set out in the Council's own Waste Strategy, the minimum recovery targets used in the regional apportionments and the city's Landfill Allowance Trading Scheme allocation given by the Government (DEFRA). The relatively low levels of landfill that will result from the city's approach will contribute to the reduction of greenhouse gases, especially methane.

11.32 The main spatial implications for the city are followed up in the two policies below. Further policies, to inform decisions about planning applications, appear in the waste management chapter of the City Policies document.

CS69 Safeguarding Major Waste Facilities

11.33 Two major disposal facilities are capable of handling more than 40% of the anticipated arisings of municipal and commercial/industrial waste in the city and their locations therefore need to be safeguarded for that purpose.

Policy CS 69

Safeguarding Major Waste Facilities

The energy recovery plant at Bernard Road and the landfill site at Parkwood Springs will be retained to meet the city's long-term requirements for waste management.

11.34 Although it is designed primarily to take municipal waste, the Energy Recovery facility is flexible enough to accept some non-municipal waste too. The choice of the location at Bernard Road followed careful consideration of the options, when no superior site could be found that could use the existing district heating network. Despite this and the proposed facilities for recycling and recovery, there will still be a need for landfill in the city to deal with the final disposal of residual material that cannot be recycled or treated further (such as 'bottom ash' from the Energy Recovery Facility). Based on the operator's anticipated infill rates and its current planning consent the existing Parkwood Landfill Site has capacity for the next ten years. The alternative to fully using this would be for the City to rely on adjoining districts being prepared to provide sufficient replacement capacity and this would be decidedly less sustainable. As landfilling capacity is used up, the Parkwood site will be progressively restored as public open space (see policy CS50). The safeguarding of these waste management areas is covered in more detail in the City Policies document.

CS70 Provision for Recycling and Composting

11.35 Other provision for waste management in the city is more local but still significant for achieving the city-wide aim of increasing recycling.

Policy CS 70

Provision for Recycling and Composting

Increased recycling and composting will be enabled by:

- a. supporting the development of a network of small-scale community composting schemes and new technologies for treating mixed organic waste and using green waste composting facilities at Tinsley and on local farms; and
- b. retaining and improving the current network of five major Household Waste Recycling Centres and, in the longer term, building a new facility to serve the south-west area of the city; and
- c. expanding the number of local recycling points, particularly in existing shopping centres, transport interchanges and at education and health facilities.

11.36 The extension of composting will be required to meet Landfill Directive targets and is already the subject of action by the Council's waste contractor. Improvements to the waste recycling centres will be made in order to comply with forthcoming regulations about specific forms of waste. The proposed additional centre in the south-west will be subject to resources and a site being identified to serve the sector between the Manchester Road and the Chesterfield Road corridors. Local recycling points will be secured both through the Council's waste contract and the approval of applications for major developments – this is taken up, alongside other recycling initiatives, in the City Policies document.