

Draft Resources and Waste Strategy for Leicestershire **2022-2050**

Environmental Report



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CONSULTATION DRAFT

Non-Technical Summary

Introduction

This is the non-technical summary of the draft Environmental Report that documents the Strategic Environmental Assessment (SEA) for Leicestershire Waste Partnership's¹ review of the joint Leicestershire Resources and Waste Strategy (LR&WS, or 'the Strategy')². The Strategy review provides the objectives, policies, actions and pledges to be delivered relating to Local Authority Collected Waste (LACW) management.

This SEA involves a review of key central and local Government plans and strategies that have the potential to influence the management of waste, as a basis for considering the appropriateness of the Strategy. The assessment also considers the local environmental, social, and economic context of Leicestershire insofar as that is relevant to the waste management services and their impacts. This is described as the 'Baseline' within the Strategic Environmental Assessment (SEA).

The key parts of the draft Strategy are assessed against a wide range of (mostly environmental) criteria, known as SEA sustainability objectives, to ensure an appropriate Strategy is developed. All of these aspects have been subject to consultation and this draft Environmental Report represents the public consultation stage of the SEA process.

Descriptions of Waste Streams Referred to in this Document

Household Waste

Household waste includes household collection rounds ('bin' waste), other household collections such as bulky waste collections, waste from services such as litter collections, waste from Household Waste Recycling Centres (HWRCs) and wastes separately collected for recycling or composting through bring/drop off schemes and kerbside schemes.

Local Authority Collected Waste

Local Authority Collected Waste (LACW) is that which comes under the possession or control of the local authority and includes household waste and other wastes collected by a waste collection authority or its agents, such as municipal parks and gardens waste, potentially some commercial or industrial waste, and waste resulting from the clearance of fly-tipped materials. This should not be confused with the broader term 'Municipal Waste' which also includes wastes of a similar composition which may be collected by commercial operators.

The focus of this part of the consultation is the method by which the Strategy has been assessed in terms of its impact on the environment.

¹ The Leicestershire Waste Partnership consists of Leicestershire County Council and the seven District and Borough Councils of Leicestershire. It does not include Leicester City Council which is a Unitary Authority and has its own Strategy and manages both collection and management / disposal of waste and recycling from its area.

² Previously referred to as the Leicestershire Municipal Waste Management Strategy (LMWMS)

The consultation takes place alongside the draft Strategy consultation exercise which allows interested parties to voice their opinions on the proposed Strategy.

Methodology

The SEA process adopted for the review of the Strategy is illustrated in the timeline below. A workshop was undertaken early in the process in order to identify key local issues and ensure that the SEA Scoping Report and Environmental Report are as accurate and balanced as possible. The workshop was attended by officers from the council. The chart below illustrates this process.

Internal Consultation and Workshops	June 2021 Workshops involving councillors and officers from Leicestershire County Council and the seven district and borough councils, were held to help inform and develop the strategy objectives.
Scoping Report	July 2021 The Scoping Report was issued to the statutory consultees in July 2021, including details of the environmental baseline, proposed strategy objectives, SEA sustainability objectives, strategy options and any relevant plans or programmes.
Scoping Consultation Responses	September 2021 Scoping opinions were received from Natural England, Historic England, and the Environment Agency. Responses were considered and incorporated as appropriate into the Environmental Report. Further details in Appendix D and E.
Draft Environmental Report	November 2021 This draft Environmental Report is issued in November 2021. The report has been informed by the consultation process to date and includes independent testing and impact assessment of the Strategy objectives and approach, and potential alternatives, against the SEA sustainability objectives. The report also considers mitigation of any potential adverse effects and identifies monitoring criteria to observe any environmental impacts.
Environmental Report Consultation	January 2022 A 12-week public consultation period for members of the public, and stakeholders, to review and comment on the proposed Strategy and SEA draft Environmental Report (this document).
Environmental Report	Summer 2022 Following feedback from the public and consultees the Environmental Report will be finalised and published with the final LR&WS.

The Context of this Strategic Environmental Assessment

All central and local Government plans and strategies that can have a significant effect on the environment are required to be assessed regarding how they contribute to sustainable development. This is usually done by means of an SEA. The requirements for an SEA are defined in the 'Environmental Assessment of Plans and Programmes (SEA) Regulations 2004'³.

The UK Government's Sustainable Development Strategy⁴ states that:

'The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.'

An early stage of an SEA is to scope out the key 'sustainability' issues relevant to a plan or strategy and the particular area in which that plan, or strategy is due to be implemented. This was contained in the Scoping Report of the SEA. These aspects have been subject to consultation with statutory consultees.

Key aspects of the Scoping Report, and subsequently this draft Environmental Report, have been informed by two workshops which were held in June 2021 and November 2021. The workshops involved local authority officers covering topics such as climate change, biodiversity and waste management, and were designed to raise awareness and seek views on:

- Draft LR&WS / Strategy aims & objectives, options and assessment criteria
- Sustainability issues for Leicestershire from a review of the baseline
- Key influencing Programmes & Plans
- Sustainability Objectives
- Proposed mitigation of options
- Monitoring

This Environmental Report is for wider (public) consultation and includes the following aspects:

- Baseline Position (Chapter 2)
- Key Sustainability Issues and Interrelationships (Chapter 3)
- Draft Sustainability Objectives and Criteria (Chapter 4)
- Draft Strategy Aims & Objectives (Chapter 5)
- Strategy Waste Management Options (Chapter 6)
- SEA Conclusions and Mitigation (Chapter 7)
- Monitoring (Chapter 8)
- Consultation Process (Chapter 9)

³ SI 2004 No. 1633

⁴ 'Securing the Future: The UK Government Sustainable Development Strategy', HM Government, March 2005

Sustainability Issues

As part of developing the SEA for the review of the Strategy it is important to consider the local environmental, social, and economic circumstances, known as the 'baseline'. An assessment of the baseline position for Leicestershire has been carried out as part of the SEA. From this exercise, the key sustainability issues identified for the Strategy review include climate change, local environmental quality, air quality, economic development, biodiversity and transport, amongst others. All have been assessed as part of the appraisal.

It is also important to take account of interrelationships between issues of climate change and natural resources. Products that we consume and then discard, end up as a waste stream that needs to be managed / disposed of, whilst also using up potentially scarce natural resources (energy and materials) in their production. The waste services that are provided could have impacts in terms of climate change, air quality and employment / economic development and these are tested through the SEA.

Key sustainability issues identified from the baseline assessment are:

- Mitigating climate change by reducing the carbon impact of resources and wastes management.
- Adapting to climate change, e.g. potential weather related and flooding issues
- Effective waste management through the application of the waste hierarchy⁵
- Changing waste streams (after Covid-19) and as part of lifestyle changes and Government policy
- Landfill diversion
- Reducing fly-tipping and litter
- Reducing local air pollution
- Supporting the circular economy (reducing / avoiding resource use in the economy/extending the life of materials already in use for as long as possible)⁶
- Providing services for a growing (and aging) population
- Addressing environmental impacts including harm to human health and natural environment
- Managing the impact of food waste and garden waste

⁵ The waste hierarchy is to firstly seek to reduce waste arising, then to repair / reuse waste that does occur, followed by recycling materials, then to recover energy from residual wastes (after waste prevention, reuse and recycling), and finally to dispose of to landfill.

⁶ As defined by the [European Commission](#), a circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimising the generation of waste. The fewer products we discard, the less materials we extract, the better for our environment. This process starts at the very beginning of a product's lifecycle: smart product design and production processes can help save resources, avoid inefficient waste management and create new business opportunities.

SEA Sustainability Objectives

Sustainability issues are used to inform the SEA Sustainability Objectives, by which the strategy options for delivery are assessed. The SEA Sustainability Objectives have been derived from:

- Review of Programmes and Plans – this gives rise to the identification of key themes
- The Baseline review & sustainability issues for Leicestershire
- The Environmental Assessment of Programmes & Plans Regulations for England (2004)
- Consultation with officers and councillors
- The Scoping Report Consultation undertaken as part of this SEA process, during which the wording of the objectives was refined in response to comments

The Sustainability Objectives applied in this Assessment are:-

Sustainability Objectives for draft Leicestershire Resource & Waste Strategy	
1. To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	
2. To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	
3. To reduce resource use	
4. To divert waste away from landfill	
5. To maintain and enhance good air quality for all	
6. To promote sustainable economic growth and employment	
7. To protect and enhance the quality of water and soils	
8. To protect and increase biodiversity, flora and fauna	
9. To protect and enhance the landscape and geodiversity of Leicestershire	
10. To protect the significance of heritage assets of archaeological, cultural and historic value	

The Sustainability Objectives are used to assess the alternative options for delivery of the Strategy. These are distinct from the Strategy Vision and Objectives which set the direction for the services over the period of the Strategy.

Strategy Vision and Objectives

The proposed vision and strategic objectives of the (Resources and Waste) Strategy were informed by a review of key strategy and policy across Leicestershire. They were also part of the SEA Scoping Report consultation issued in Summer 2021.

The draft Vision is as follows:

To work towards a circular economy and contribute to achieving net zero carbon by 2050 in Leicestershire. This means fully embracing the waste hierarchy by preventing waste and keeping resources in circulation for as long as possible, through reuse, repair and recycling, to realise their maximum value whilst minimising environmental impacts.

The draft Strategy objectives to deliver this vision are as follows, grouped into themes:

Proposed LR&WS objectives
Deliver services in accordance with circular economy principles
Objective 1: Manage materials in accordance with circular economy principles, except where costs are prohibitive, or where the environmental consequences can be demonstrated to be negative.
Objective 2: As local authorities, set an example by preventing, reducing, reusing, recycling and composting our own waste and use our buying power to positively encourage sustainable resource use.
Reduce the climate change / carbon impact of waste services in Leicestershire
Objective 3: Reduce carbon emissions from Leicestershire's waste management services.
Deliver services that are financially sustainable and equitable across the Partnership
Objective 4: Consider the whole life financial, social and environmental impact, and deliver quality services designed to allow flexibility, innovation and improvement.
Objective 5: Promote the economic and employment opportunities of sustainable waste management where this is consistent with circular economy principles. Consider local / regional supply chain and markets for recycle and other secondary raw materials.
Delivery of high quality waste services for residents of Leicestershire
Objective 6: Work together to adapt and deliver coordinated services and infrastructure for waste services with lower environmental impacts.
Objective 7: Aim to reduce and manage residual waste within the County where this is consistent with the proximity principle and to manage all other waste at the nearest appropriate facility by the most appropriate method or technology.
Work in partnership with local communities across Leicestershire
Objective 8: Work with the community and businesses to raise awareness about environmental matters (including climate change, energy and resource management) and increase participation in waste prevention, reuse and recycling initiatives and link to national campaigns.

Objective 9: Lobby and work with others, in pursuit of the Partnership’s vision of sustainable waste and resource management.

The Strategy also includes a number of pledges setting out specific actions to support and achieve these objectives.

Strategy Options for Delivery

A number of options were produced as mechanisms to deliver elements of the Strategy Objectives. These were discussed in workshops with councillors and officers from Leicestershire County Council and the seven district and borough councils, and through consultation with external stakeholders. The following represents the options considered important for detailed consideration as part of the Strategy development. They are listed and briefly described in the order of the waste hierarchy⁷.

Option	Description
Baseline	Current service – please see Table 7 for more detail
Option 1: Waste minimisation	Focus on waste awareness / education / waste reduction / recycling and prevention initiatives
Option 2: Reuse and repair	Focus on facilitating or promoting reuse / repair activities across Leicestershire
Option 3: Revised Baseline with Consistent Collection measures, EPR & DRS	As Baseline ⁸ kerbside collection service, except: <ul style="list-style-type: none"> Recycling collection consistent with materials indicated in national consistent collections consultation (e.g. plastic film, cartons etc.) where not currently collected) ‘Free’ garden waste collection Separate weekly food waste collection New national measures (extended producer responsibility, EPR, and a deposit return scheme, DRS), come into effect as set out in the national consultation Also, this option only, includes batteries, textiles, small waste electrical and electronic equipment (WEEE) collections
Option 4: Retained charged garden	As Option 3, except: <ul style="list-style-type: none"> Garden waste collection is retained as a charged service for all Councils that currently operate a subscription service
Option 5A: Restricted residual waste	As Option 3, except: Residual waste collected fortnightly in 140L wheeled bins
Option 5B: Restricted residual waste	As Option 3, except:

⁷ The waste hierarchy, as set out by the Waste Framework Directive (Directive 2008/98/EC), ranks waste management options according to what is best for the environment. It’s first priority is to prevent waste from generating in the first place, and when waste is created, gives first priority to reuse, then recycling, then recovery, and finally disposal (i.e. landfill).

⁸ Commingled for all district and borough councils, except NWL (kerbside sort)

Option	Description
	<ul style="list-style-type: none"> Residual waste collected three-weekly in 240L/180L wheeled bins
Option 6: Twin stream recycling, fibre out (paper and card)	As Option 3, except: <ul style="list-style-type: none"> Fortnightly twin stream collection of dry recycling: paper and card in one box; plastics, glass and cans together in a wheeled bin
Option 7: Kerbside sort	As Option 3, except: <ul style="list-style-type: none"> Fortnightly kerbside sort collection of dry recycling (collecting recyclables in different boxes and bags and collection crew sort them into different compartments on a specialist recycling vehicle)
Option 8: Three-stream recycling	As Option 3, except <ul style="list-style-type: none"> Fortnightly three-stream collection of dry recycling: paper and card in box 1, glass in box 2, plastic and cans in box 3. These are collected in two different vehicles.

Assessment of Options

The various strategic options have been assessed against the SEA Sustainability Objectives and analysed according to an impact/effect appraisal scale. The nature of impacts will vary between the options being considered and not all measures will be relevant in each case. Impacts on the environment can vary from those that have a direct impact to those exhibiting indirect, cumulative, or one-off, temporary, permanent, and short/medium/long term impacts and these are summarised in accompanying assessments within the report.

Scope of the Assessment

The geographical scope of the assessment is limited to Leicestershire however some environmental impacts (e.g. global warming impacts) will clearly exhibit impacts wider than the area covered by the Strategy, and these are measured where practicable. The Strategy considers a number of options for dealing with waste management in the future, through on-going service changes, potential behaviour change and infrastructure.

SEA Conclusions and Mitigations

The following points are the key conclusions and mitigation issues arising from this SEA of the draft Strategy. The Strategy seeks to improve on the baseline situation through improved resource management and continued movement of waste management practices in Leicestershire up the waste hierarchy. This is consistent with good practice in the area of resource and waste management.

The Strategic Environmental Assessment (as documented in this draft Environmental Report) identifies a number of areas to be considered in the draft Strategy and its implementation. These are described as 'mitigations' as they aim to reduce or avoid potential negative impacts of the Strategy and improve on any potential positive impacts. Specific points arising from the assessment are:

- To deliver campaigns and communications activity that will engender strong and sustained participation in waste minimisation, reuse or recycling systems.
- To focus communications and resource / waste services on preventing, reusing or recycling waste streams with the highest environmental impact (or best environmental savings). Examples include food waste, metals, textiles and waste electrical equipment.
- The waste hierarchy is a useful guide in terms of the preferred approach to reduce environmental impacts (i.e. prevent waste in the first instance, then reusing 'usable' items or packaging, recycling other material resources and recovering energy, with landfill as the least desirable option).
- Providing a dedicated food waste collection significantly increases the recycling performance of the Partnership. The best food waste treatment option, in carbon terms, is to send the waste to Anaerobic Digestion facilities with efficient energy recovery. The energy is classified as renewable and is low carbon.
- Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. There is the potential to offer compost back to households for domestic horticulture and raise awareness of the benefits of the garden waste service.
- Establishing good communications around effective separation of organics, will improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will help to reduce contamination of digestate and consequent impacts on land and soil.
- Whilst some residual waste is inevitable, seek to minimise this and reduce the amount sent to landfill as far as practicable.
- Where residual waste is sent to Energy from Waste (EfW) facilities, higher efficiency plants should be used where available and a pro-active approach (for reasons of reducing climate change impacts) taken for the removal of plastics from the residual waste. The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred when this technology becomes available.
- The carbon impact of Strategy actions should be measured and considered holistically to ensure that the service contributes effectively towards net zero carbon targets and climate emergencies of respective partners.
- To reduce emissions to air from vehicle movements, particularly in areas where there are local pollution hotspots (e.g. Air Quality Management Areas) alternative fuels should be considered for collection and transport of waste.

- Where infrastructure is required under the Strategy activities, reusing existing buildings or infrastructure should be considered, to maximise the use of existing resources and reduce additional environmental burdens. Appropriate planning and regulatory practice must be observed, including (where applicable) Best Available Techniques (BAT), Biodiversity Net Gain requirements and good practice in terms of facility design for visual amenity and operations management for local amenity (noise, odour etc.).
- The Partnership has a role in supporting the circular economy by enabling collection systems that can readily extract usable resources from waste and helping facilitate or signpost to other circular economy initiatives (such as waste prevention, remanufacture, repair, reuse and prevention activity).
- The Partnership can support upskilling for aspects like repair and refurbishment activities to support a circular economy.
- The Partnership can lead by example to manage its consumption and management of resources and waste to reduce environmental impacts and support behaviour change.
- By promoting linkages between waste / resource management activities and other environmental impacts (e.g. biodiversity), the Strategy can exhibit broader environmental benefits.

These elements should be applied in the Strategy and its implementation in order to reduce negative impacts and enhance positive impacts, as identified by this Strategic Environmental Assessment.

Consultation

This draft report is available for consultation, the details of which are included in Section 9.

Abbreviations / Acronyms

AD	Anaerobic Digestion
AQMA	Air Quality Management Area
BEIS	Department for Business, Energy & Industrial Strategy
BAP	Biodiversity Action Plan
CH₄	Methane
CHP	Combined Heat and Power
CO₂	Carbon dioxide
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EU ETS	EU Emission Trading System
GHG	Greenhouse Gases
GWP	Global Warming Potential
HPA	Health Protection Agency
IoD	Indices of deprivation
HWRC	Household Waste Recycling Centre
LACW	Local Authority Collected Waste
LATS	Landfill Allowance Trading Scheme
MBT	Mechanical Biological Treatment
MHCLG	Ministry of Housing, Communities and Local Government
MRF	Materials Recovery Facility
MWMS	Municipal Waste Management Strategy
NO_x	Nitrous Oxides
NO₂	Nitrogen Dioxide
PO₄	Phosphates
RDF	Refuse Derived Fuel
SEA	Strategic Environmental Assessment
SO₂	Sulphur Dioxide
SPA's	Special Protection Area's
SPZ's	Source Protection Zones
SSSI	Site of Special Scientific Interest
WEEE	Waste Electrical and Electronic Equipment
WRAP	Waste and Resources Action Programme
WRATE	Waste and Resources Assessment Tool for the Environment

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CONSULTATION DRAFT

1 Introduction

Leicestershire Waste Partnership (LWP) are reviewing their Waste Management Strategy and waste collection arrangements. The first Leicestershire Municipal Waste Management Strategy (now known as the Leicestershire Resources and Waste Strategy, hereto referred to as the 'Strategy' or 'LR&WS') was created in 2002, and this was reviewed in 2006 to cover the period up to 2020, a further update also took place in 2011. The Strategy review will establish objectives, policies, actions and pledges relating to waste management up to 2050. It should be noted that this strategy sets policies for waste management for the LWP but does not identify sites and is distinct from the planning process documents (e.g. Waste Local Plans).

All central and local government plans and strategies that can have a significant effect on the environment can be assessed regarding how they contribute to Sustainable Development.

The UK Government's Sustainable Development Strategy states that:

'The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.'

An assessment of how the strategy and new collection arrangements meet the aims of sustainable development can be delivered through an approach known as Strategic Environmental Assessment (SEA). This is a statutory process for this as defined in the 'Environmental Assessment of Plans and Programmes (SEA) Regulations 2004'⁹. In this case the SEA will provide an analysis of the revised LR&WS and the options for delivery of the strategy, considered against agreed sustainability objectives and criteria.

The first stage of the SEA process is to scope out the key 'sustainability' issues relevant to a plan or strategy and appropriate to the particular geographical area in which that plan, or strategy is due to be implemented. This scoping exercise is recorded in a scoping report as part of the SEA process (this document). The identified sustainability aspects are subject to consultation from statutory consultees and other parties where appropriate.

This Draft Environmental Plan is for wider consultation to statutory bodies and interested parties, and includes the following material:

- Baseline Position (Chapter 2)
- Key Sustainability Issues and Interrelationships (Chapter 3)
- SEA Sustainability Criteria and Objectives (Chapter 4)
- Strategy Aims & Objectives (Chapter 5)
- Strategy Waste Management Options (Chapter 6)
- SEA Conclusions of Appraisal & Mitigations (Chapter 7)

⁹ SI 2004 No. 1633

- Monitoring (Chapter 8)
- Consultation Process (Chapter 9)
- Review of relevant plans and programmes (Appendix A)
- Options Assessment Matrix (Appendix B)
- Indicator and measurements used for SEA objective scoring (Appendix C)
- Responses from Statutory Consultees (Appendix D)
- Responses to Statutory Consultees (Appendix E)

The Consultees are invited to comment on any or all of these aspects.

CONSULTATION DRAFT

2 Baseline Position

To ensure that the SEA addresses the potential environmental effects of the LR&WS it is important to consider the local environmental baseline.

An assessment of the baseline position for Leicestershire has been carried out as part of the scoping phase of the SEA. This report summarises this baseline position and identifies a number of key sustainability issues in the context of the waste management service in Leicestershire.

The baseline position has been assessed in terms of the key topic areas set out in the SEA guidance¹⁰ and provides the relevant environmental, social, and economic context for the SEA Scoping Report.

2.1 Climate Change

Waste management activities can generate significant quantities of carbon dioxide and methane¹¹, which are both greenhouse gases. Materials within the household waste stream such as kitchen waste, garden waste and paper contain carbon based organic matter. The treatment and disposal of these wastes has an impact on the emission of greenhouse gases. When biodegradable materials are broken down in the presence of air, carbon dioxide is released. Methane is produced when the biodegradable material is broken down in the absence of air. The absence of air at landfill sites causes methane to be generated as waste breaks down. Methane is at least 28¹² times more potent than carbon dioxide as a greenhouse gas measured by global warming potential over a 100-year timeframe. Releasing 1 kg of Methane (CH₄) is equivalent to releasing at least 28 kgs of Carbon Dioxide (CO₂). At an international level, CH₄ concentrations were stable for approximately one decade from the late 1990's, however since 2007 concentrations have progressively increased.¹³

Similarly, our consumption and management of plastics has a direct impact on the emission of greenhouse gases. As plastics are fossil-derived, there is a 'cradle to grave' burden associated with plastics, from the initial extraction of oil to manufacture products through to the final disposal method. Conservation of resources through minimisation, reuse and recycling are key to reducing emissions associated with recycling. For example, in terms of carbon benefit, removing plastic films from a residual waste stream for recycling can have a substantial carbon benefit where it is diverted away from an Energy from Waste facility (avoiding incineration of fossil-derived products).

Extreme weather events will impact on the operation of waste management facilities, notably landfill and composting, for example in high winds. This could also be a factor to consider when considering containers for kerbside collections. It is evident from overseas practice in warmer climates, that waste and recycling collection is more frequent, and often at earlier times, in particular for putrescible waste streams.

¹⁰ 'A Practical Guide to the Strategic Environmental Assessment Directive (Practical guidance on applying European Directive 2001/42/EC "on the assessment of the effects of certain plans and progress on the environment")', Office of the Deputy Prime Minister, September 2005

¹¹ Waste incineration processes can also generate Nitrous Oxide (N₂O), also a greenhouse gas.

¹² US EPA. The IPCC Working Group 5th Assessment (2013) models an impact 34 times that of CO₂ over a 100 year timeframe

¹³ IPCC, 2014, Climate Change 2014 Synthesis Report (on-line). Contribution of Working Groups I,II,III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

In 1990 waste management accounted for 8.3% of UK greenhouse gas emissions, by 2019 this figure had reduced to 4%¹⁴. In 2019, 1.5% of waste management greenhouse gas emissions were attributable to incineration; 13.9% to wastewater handling; 6.2% to organic waste treatment, 3.7% to mechanical biological treatment; and 75% to landfill.

In 2019/2020, 8.5% of all local authority collected waste in England was sent to landfill, an improvement on the 10.8% recorded in 2018/2019¹⁵. Since 1990 total greenhouse gas emissions in the waste sector have decreased by 69%¹⁶. This is primarily due to reductions in emissions from landfilled waste driven by a combination of factors including improvements in the standards of landfilling, changes in the composition of waste going to landfill (i.e. reducing the amount of biodegradable waste), increased diversion from landfill through recycling and energy from waste and an increase in the amount of landfill gas being used for energy. The reduction in emissions from the waste sector is responsible for 57% of the total decrease in methane emissions in the UK since 1990. In 2018, methane emissions from waste management accounted for 37% of all UK methane emissions.

Transport accounted for 28% of total UK greenhouse gas emissions in 2018. Although there are climate change impacts associated with transport of waste, these are relatively small in comparison to the impacts from the landfilling of waste described above¹⁷. Reducing the amount of biodegradable waste landfilled and increasing recycling and composting activity are two prime methods of reducing greenhouse gas (GHG) emissions. Others include carbon capture and storage from point sources (e.g. waste incineration¹⁸) and reducing the amount of plastics waste sent to combustion processes.

The Department for Business, Energy & Industrial Strategy (BEIS) publish local authority estimates of carbon dioxide emissions. The data is sourced from the UK National Atmospheric Emissions Inventory and BEIS's National Statistics of energy consumption for local authority areas. Total carbon dioxide emissions data for the seven district and borough councils of Leicestershire are provided in

¹⁴ Department for Business, Energy & Industrial Strategy (BEIS), 2019, [www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957687/2019_Final_emissions_statistics_one_page_summary.pdf) and https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957687/2019_Final_emissions_statistics_one_page_summary.pdf

¹⁵ Department for Environment Food and Rural Affairs, 2019, Statistics on waste managed by local authorities in England in 2018/19. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918853/201819_Stats_Notice_FINAL_accessible.pdf

¹⁶ National Atmospheric Emissions Inventory (NAEI) (2020) (on-line), Overview of greenhouse gases, <http://naei.beis.gov.uk/overview/ghg-overview> (accessed by public user, June 2021)

¹⁷ As part of this strategy, a carbon assessment has been undertaken on a suite of waste collection services. This identifies the GWP in carbon terms, for waste collection, transportation, treatment and disposal. In the baseline scenario, waste transport accounted for c.13% of the waste management carbon emissions produced by the County. However, through recycling activities, this impact is offset.

¹⁸ This is still an emerging technology for waste treatment processes, and its viability is subject to questions of economics and finding a suitable reservoir / storage environment, proximal to any facility.

Table 1 along with carbon dioxide per capita emissions. Information for England and Leicestershire has also been provided for context.

Table 1: Total CO2 emissions estimates (ktonnes) for England, Leicestershire and the seven district/borough councils of Leicestershire, and total CO2 tonnes per capita for the seven district/borough councils of Leicestershire for 2006-2019.

	Total CO ₂ emissions (ktonnes)													
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
England	432,659	423,047	411,805	372,231	384,734	353,070	371,060	361,945	329,795	319,320	300,445	290,233	286,989	276,090
Leicestershire	5,944	5,762	5,606	5,141	5,328	4,852	5,027	5,016	4,694	4,610	4,493	4,334	4,319	4,176
Blaby	806	782	767	709	740	685	711	715	664	651	636	627	612	588
Charnwood	1,222	1,196	1,175	1,062	1,111	987	1,012	1,015	944	917	893	857	846	809
Harborough	808	790	773	721	741	683	707	707	669	645	631	607	596	575
Hinckley and Bosworth	924	874	840	746	783	714	757	743	702	691	676	650	637	611
Melton	427	415	419	389	400	354	384	382	349	338	320	299	299	289
North West Leicestershire	1,465	1,422	1,349	1,262	1,294	1,197	1,206	1,216	1,160	1,167	1,147	1,113	1,148	1,130
Oadby and Wigston	291	282	283	253	258	231	250	238	208	201	191	181	182	174
	Per capita emissions													
Blaby	8.7	8.4	8.2	7.6	7.9	7.3	7.5	7.5	6.9	6.7	6.5	6.3	6.1	5.8
Charnwood	7.8	7.5	7.3	6.5	6.8	6.0	6.0	6.0	5.5	5.2	5.0	4.7	4.6	4.4
Harborough	9.9	9.6	9.3	8.6	8.7	8.0	8.2	8.1	7.6	7.2	7.0	6.6	6.4	6.1
Hinckley and Bosworth	9.0	8.5	8.1	7.1	7.5	6.8	7.1	7.0	6.5	6.4	6.1	5.8	5.7	5.4
Melton	8.8	8.4	8.5	7.9	8.0	7.0	7.6	7.5	6.8	6.6	6.3	5.9	5.8	5.6
North West Leicestershire	16.2	15.5	14.6	13.6	13.9	12.8	12.8	12.8	12.1	12.0	11.7	11.1	11.2	10.9
Oadby and Wigston	5.2	5.0	5.0	4.6	4.7	4.1	4.5	4.2	3.7	3.6	3.4	3.2	3.2	3.1
Source: Local Authority CO ₂ emissions estimates 2005-2019 (kt CO ₂) – Full dataset, Gov.uk ¹⁹														

Note that the emissions data do not include aviation, shipping, and military transport emissions as there is no obvious basis for allocating these emissions to local areas.

¹⁹ BEIS: UK local authority and regional carbon dioxide emissions national statistics: 2005 and 2019 <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019>

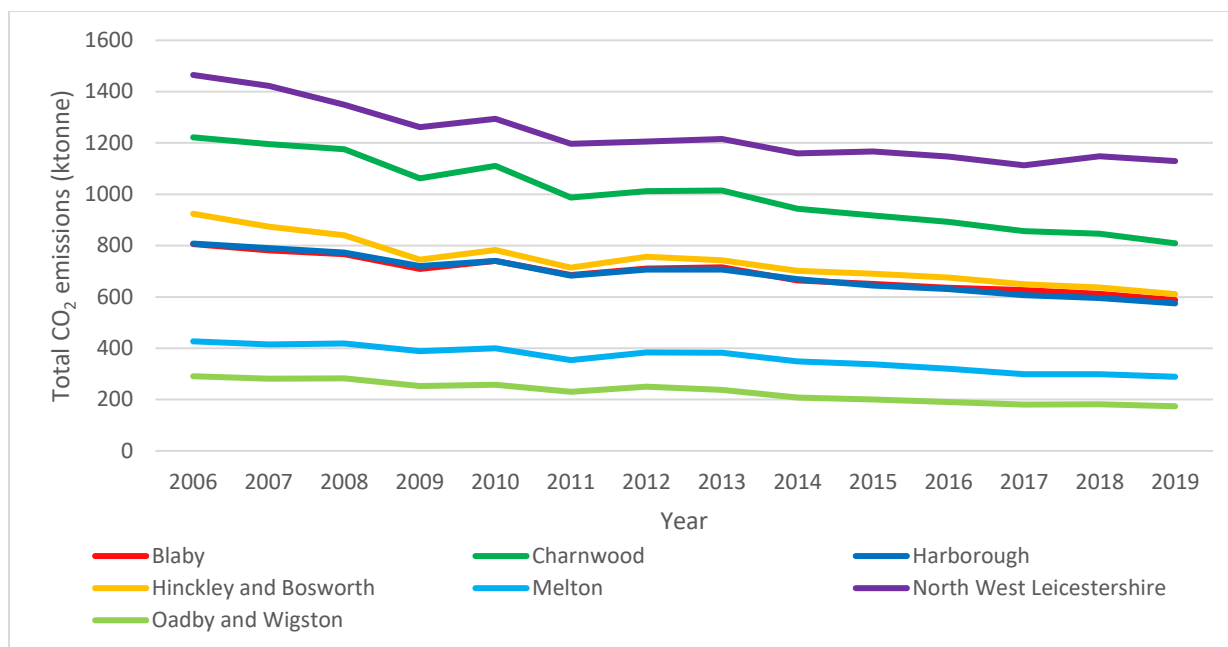


Figure 1: Total CO₂ emissions (ktonne) for each of the seven district/borough councils in Leicestershire between 2006 and 2019

The main drivers for more recent reduction in UK emissions is a change in the electricity energy mix, with an increase in the proportion of renewables, a decrease in the use of coal and a reduction in industrial activities. Estimates show there has been a similar steady, and ongoing reduction in the total emissions from Leicestershire since 2006, as seen in Figure 1.

Alongside the full dataset, BEIS also published a subset which represents carbon dioxide emissions within the scope of influence of local authorities. The full dataset includes all the emissions that occur within the boundaries of each local authority; however, the dataset of emissions within the scope of local authorities excludes emissions that local authorities do not have direct influence over. The emissions that are removed from the full dataset are:

- Motorways – all emissions from the “Transport (motorways)” sector;
- EU Emissions Trading System (EU ETS) sites – these emissions have been removed from the “Large industrial installations” sector, with the exception of energy suppliers (e.g. power stations), whose emissions are indirectly included via the end-user estimates for electricity use. Note that not all the emissions from the “Large Industrial Installations” sector are produced by EU ETS installations, hence there are emissions remaining from the sector in the subset.
- Diesel railways – all emissions from the “Diesel Railways” sector;
- Land Use, Land Use Change, and Forestry – all emissions belonging to the “LULUCF Net Emissions” sector.

Local Authority CO₂ emissions estimates within the scope of influence of Local Authorities from 2006-2019 are presented in

Table 2 below.

Table 2: Total CO₂ emissions estimates (ktonnes) within the scope of Local Authorities for England, Leicestershire and the seven district/borough councils of Leicestershire, and total CO₂ tonnes per capita for the seven district/borough councils of Leicestershire for 2006-2019

	Total CO ₂ emissions (ktonnes)													
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
England	358,751	349,388	343,512	312,815	328,805	298,458	314,115	305,285	275,001	264,802	250,980	241,266	239,715	229,917
Leicestershire ²⁰	4,996	4,838	4,751	4,339	4,500	4,056	4,239	4,212	3,875	3,814	3,677	3,509	3,518	3,375
Blaby	550	540	538	489	513	471	500	495	446	431	411	389	386	367
Charnwood	1,138	1,114	1,097	987	1,035	911	937	942	866	853	827	791	783	745
Harborough	603	590	595	548	572	518	545	537	499	481	464	441	440	426
Hinckley and Bosworth	772	719	696	620	649	581	627	614	566	556	535	514	508	485
Melton	422	412	416	387	399	354	385	384	351	342	324	305	305	293
North West Leicestershire	1,222	1,184	1,127	1,057	1,076	990	997	1,003	942	951	925	890	916	886
Oadby and Wigston	290	280	282	252	257	230	248	236	207	200	190	180	181	174
	Per capita emissions													
Blaby	6.0	5.8	5.8	5.2	5.5	5.0	5.3	5.2	4.7	4.5	4.2	3.9	3.8	3.6
Charnwood	7.2	7.0	6.8	6.1	6.3	5.5	5.6	5.5	5.0	4.9	4.7	4.4	4.3	4.0
Harborough	7.4	7.1	7.1	6.5	6.7	6.0	6.3	6.1	5.7	5.4	5.1	4.8	4.8	4.5
Hinckley and Bosworth	7.5	7.0	6.7	5.9	6.2	5.5	5.9	5.8	5.3	5.1	4.9	4.6	4.5	4.3
Melton	8.7	8.4	8.4	7.8	8.0	7.0	7.6	7.6	6.9	6.7	6.4	6.0	6.0	5.7
North West Leicestershire	13.5	12.9	12.2	11.4	11.6	10.6	10.6	10.6	9.8	9.8	9.4	8.9	9.0	8.6
Oadby and Wigston	5.1	5.0	5.0	4.5	4.7	4.1	4.4	4.2	3.7	3.6	3.4	3.2	3.2	3.0
Source: Local Authority CO ₂ emissions estimates 2005-2019 (kt CO ₂) – Full dataset, Gov.uk ²¹														

²⁰ This is the sum of the constituent District / Borough emissions data

²¹ BEIS: UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2019 (2020) <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019>

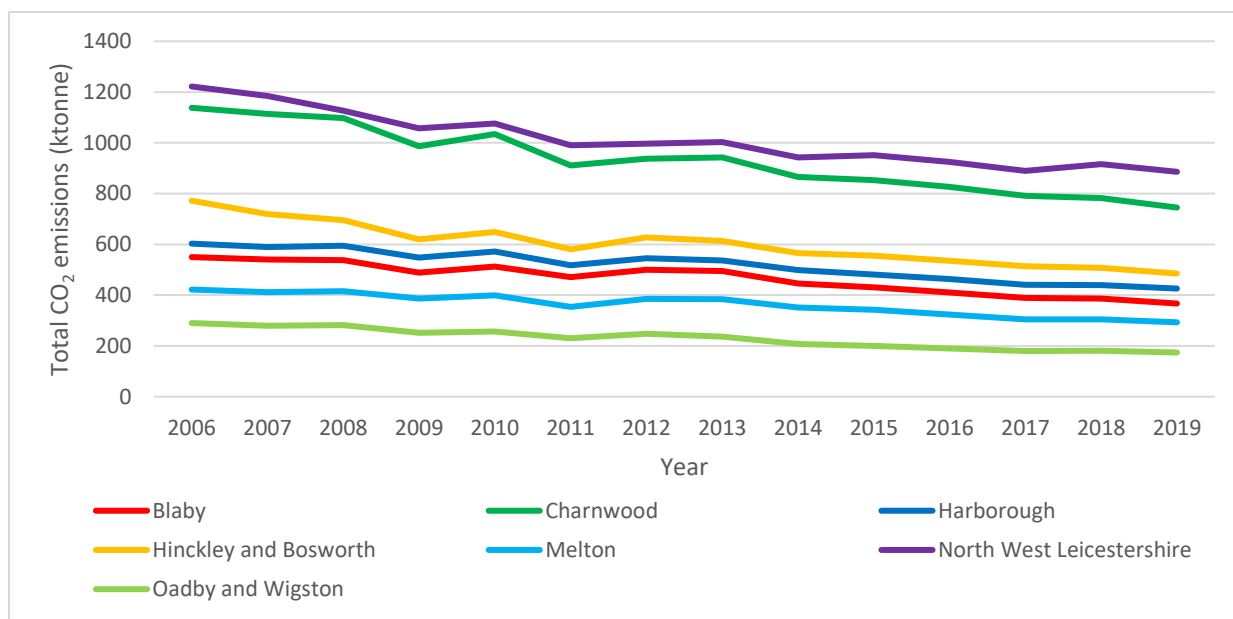


Figure 2: Total CO₂ emissions estimates (ktonne) within the scope of influence of Local Authorities for England, for each of the seven district/borough councils in Leicestershire between 2006 and 2019.

The total CO₂ emissions within the scope of influence of Leicestershire local authorities has decreased steadily between 2006 and 2019, in line with similar reductions seen for England as outlined in

Table 2.

In 2019, Leicestershire County Council (LCC or 'The County Council') declared a climate emergency and have pledged to achieve carbon neutrality for its own operations by 2030 and across Leicestershire by 2045. Within their 2018-2030 Environment Strategy, they outlined a range of commitments in support of both their climate emergency declaration and government targets. These commitments are as follows:

- A 64% reduction in greenhouse gas emissions from LCC operations by 2025 (compared to 2016-2017 baseline levels).
- A 100% reduction in greenhouse gas emissions (net carbon neutral) from LCC operations by 2030.
- Continuous improvement in reducing the number of climate change risks with a high-risk score (15 or more).
- 100% reduction in greenhouse gas emissions (net carbon neutral) for Leicestershire by 2050. Note, since the publication of their Environment Strategy in 2018, Leicestershire County Council have brought this target forward so that their aim is to reach net zero carbon across the County by 2045²².

In addition to the Leicestershire County Council declaring a climate emergency, a number of the district and borough councils have also taken this step. Those include Harborough District Council, Hinckley and Bosworth Borough Council, Melton Borough Council and North West Leicestershire District Council, who all declared a climate emergency between June and July 2019 whilst Blaby District Council have a Climate Change Strategy setting out its ambitions to make the Council carbon neutral by 2030 and the district by 2050.

Four of the seven district and borough councils have declared a climate emergency; however it is clear that alternative climate commitments have been made by all. Each have either developed, or are in the process of developing, climate change / environment strategies.

2.2 Waste Management

Understanding the current waste arisings, trends, sources and flows in Leicestershire is a key part of the LR&WS and important to this SEA process. The following sub-chapter summarises the key services provided by the Councils.

2.2.1 Overview of Waste Arisings and Management

A summary of the total Local Authority Collected Waste (LACW) arisings for all Leicestershire district and borough councils are shown in Figure 3, this covers five years' worth of available data. LACW includes household waste and other wastes collected by or on behalf of the waste collections authorities (including trade waste, fly-tipped waste etc.). The graph shows that collected waste in all seven of the district and borough councils has remained relatively stable with mostly minor fluctuations. The most notable fluctuations are an increase of 2,359 tonnes of waste collected in Charnwood from 2015/2016 to 2016/2017, followed by an 1,828 tonne decrease the following year, and a decrease in collected

²² <https://www.leicestershire.gov.uk/news/leicestershire-makes-ambitious-net-zero-pledge> (Accessed June 2021)

waste by 2,332 tonnes in Harborough District between 2015/2016 and 2016/2017. In both cases a charged garden waste collection was introduced over this period most likely contributing to the fall in arisings.

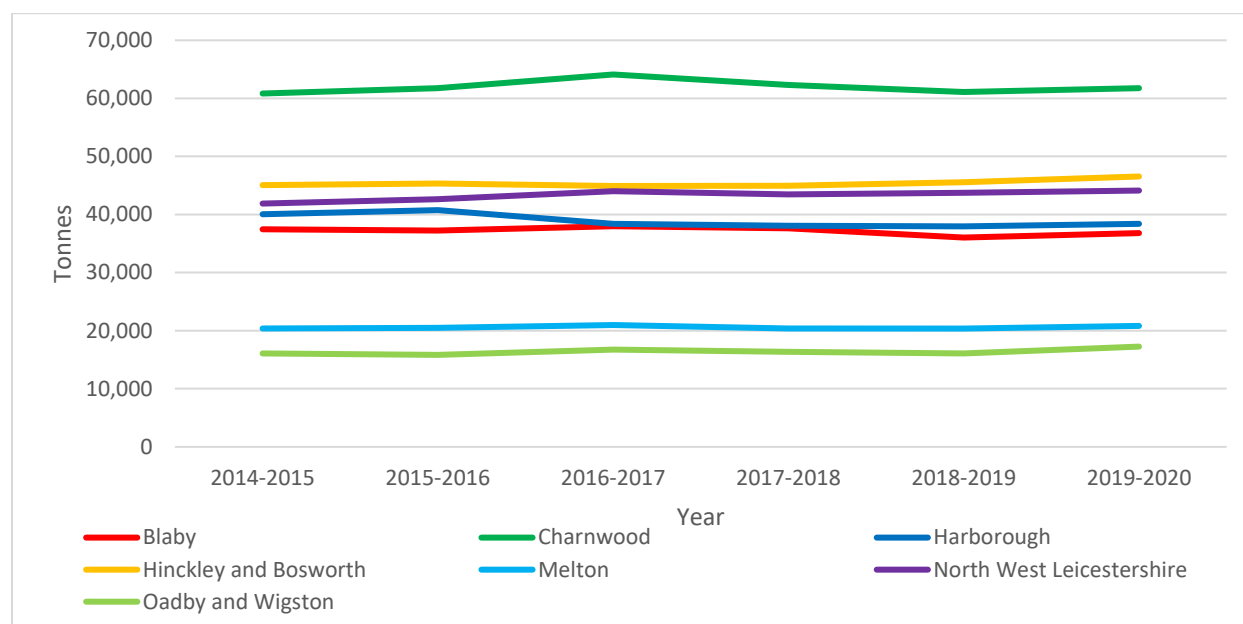


Figure 3: Total Authority collected waste for the seven district/borough councils within Leicestershire, 2014/2015-2019/2020 (tonnes).

Table 3: Total Authority collected waste for the seven district/boroughs within Leicestershire, 2014/2015-2019/2020²³ (tonnes).

District	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Blaby	37,469	37,240	37,986	37,602	36,040	36,812
Charnwood	60,834	61,755	64,114	62,286	61,092	61,770
Harborough	40,050	40,757	38,425	38,083	37,964	38,380
Hinckley and Bosworth	45,080	45,335	44,920	44,982	45,548	46,551
Melton	20,398	20,478	20,974	20,409	20,371	20,819
North West Leicestershire	41,888	42,656	44,022	43,460	43,725	44,128
Oadby and Wigston	16,113	15,838	16,729	16,362	16,113	17,261

When observing general trends within this data, Blaby and Harborough have reported decreased quantities of waste collected in 2019/2020 compared to 2014/2015. All other authorities have reported increased quantities of collected waste.

The total amount of LACW classed as household waste arisings, are illustrated in Table 4.

²³ Source: Defra. Local Authority Collected Waste 2019/20

Table 4: Household collected waste for the seven district/boroughs within Leicestershire, 2014/2015-2019/2020 (tonnes).

District	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Blaby	36,676	36,189	37,053	36,743	34,912	35,563
Charnwood	60,346	61,261	63,349	61,444	60,251	60,679
Harborough	36,510	36,857	34,468	34,106	34,051	34,457
Hinckley and Bosworth	43,241	43,417	42,594	42,589	42,665	44,206
Melton	20,134	20,313	20,737	20,186	20,198	20,643
North West Leicestershire	39,506	40,351	41,739	41,131	41,457	41,553
Oadby and Wigston	16,109	15,748	16,724	16,356	16,050	17,199

The management routes for LACW for the seven district and borough councils within Leicestershire is summarised in Figure 4 and are presented as tonnages with a percentage breakdown in Table 5. This shows how Leicestershire County Council, the Waste Disposal Authority (WDA) for these district and borough councils, disposes of the waste.

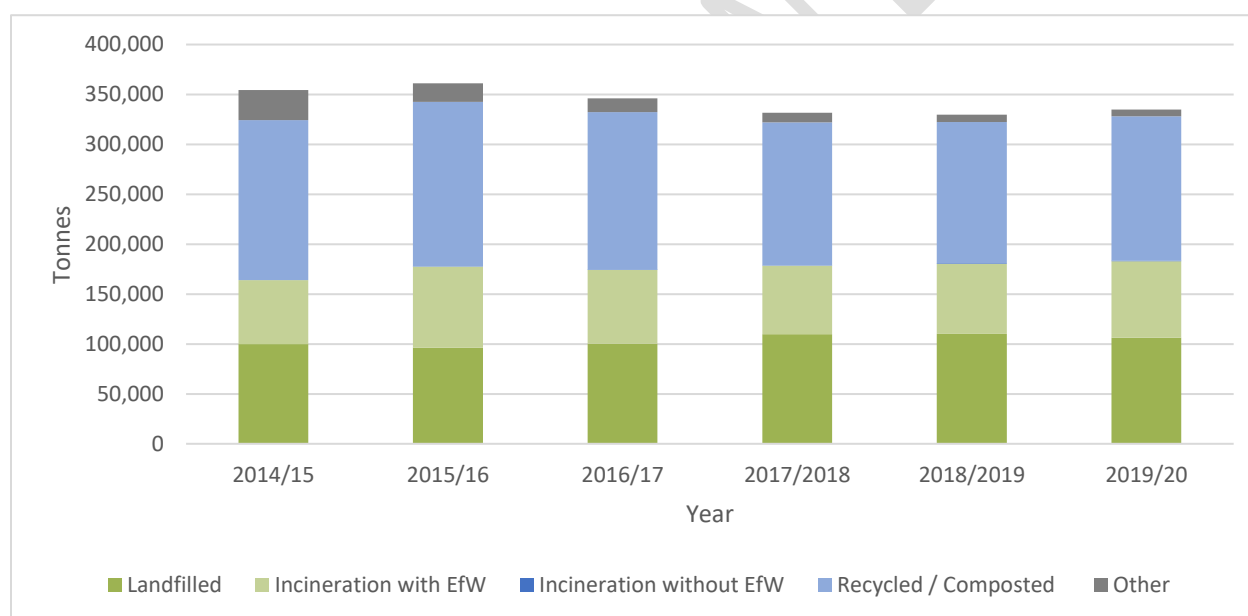


Figure 4: Management of LACW (tonnes) by Leicestershire County Council, 2014/2015 – 2019/2020

Table 5: Management of LACW (tonnes) by Leicestershire County Council, 2014/2015 – 2019/2020

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	England Average (2019/20)
Landfilled	99,676	96,487	100,029	109,864	110,163	106,333	17,782
	28.2%	26.7%	28.9%	33.1%	33.4%	31.8%	8.5%
Incineration with EfW	63,866	80,866	74,125	68,614	70,308	76,559	93,839
	18%	22.4%	21.4%	20.7%	21.3%	22.9%	44.8%
	0	354	186	378	422	546	1,513

Incineration without EfW	0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.7%
Recycled / Composted	160,550	164,700	157,954	143,036	141,519	144,602	89,747
	45.3%	45.6%	45.6%	43.1%	43%	43.2%	42.8%
Other	29,929	18,854	13,830	9,856	7,287	6,858	6,691
	8.5%	5.2%	4.0%	3.0%	2.2%	2.0%	3.2%
Total	354,021	361,261	346,123	331,748	329,699	334,898	209,572
Notes:							
1. Other includes waste treated/disposed through other unspecified treatment processes as well as process and moisture loss.							
2. Total Local Authority collected waste managed may not match total Local Authority collected waste collected as reported in Table 5 due to stockpiling of waste between reporting periods.							
3. Inputs to intermediate plants e.g. MBT, Residual MRFs, RDF and other plants prior to treatment and disposal and included in the final treatment and disposal figures.							
Source: Department for Environment, Food & Rural Affairs							

Waste management can potentially provide different forms of energy (gas, heat, electricity) if needed to support changing energy demands. This could include conversion of biogas from Anaerobic Digestion facilities to electricity, or energy recovery from EfW facilities to generate electricity, which can feed into the National Grid; provide heat or power to local networks, or to nearby communities or industrial users (district heat networks).

2.2.2 Recycling and Composting Performance

For 2019/20, the combined recycling and composting activity of household waste in Leicestershire is 45.5%, short of the UK's target to recycle 50% of household waste by 2020. The average for England within the same period was 43.8%, meaning that Leicestershire are slightly above the average. However it must be noted that Leicestershire's performance is significantly lower than in the early 2010's when rates of over 55% were being reached. This reduction will have been a factor of many things including reclassification of street sweeping and wood waste, stopping them from being composted, implementation of charged garden waste services, 'light weighting' trends on packaging mass and the closure of a Mechanical Biological Treatment (MBT) plant which allowed a proportion of recyclables to be extracted from residual waste prior to disposal. A full summary of recycling rates is demonstrated below in Table 6, alongside average figures for England.

Table 6: Household waste recycling rates between 2010/11 and 2019/20

	Household waste recycling (%)									
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Blaby	45.7%	51.3%	49.9%	50.6%	48.8%	49.1%	47.9%	42.4%	42.0%	42.3%
Charnwood	46.1%	49.0%	48.7%	49.1%	48.4%	48.4%	48.4%	45.5%	44.9%	43.7%
Harborough	58.1%	61.6%	56.7%	57.3%	57.5%	57.5%	53.6%	47.3%	45.7%	47.3%
Hinckley and Bosworth	50.6%	53.9%	55.5%	56.1%	52.7%	51.6%	49.4%	43.9%	42.2%	43.9%
Melton	50.3%	49.9%	44.7%	46.6%	46.6%	47.6%	47.7%	46.0%	44.0%	44.7%
North West Leicestershire	45.7%	46.1%	46.5%	46.4%	46.6%	46.5%	46.7%	45.9%	45.0%	46.3%

Oadby and Wigston	45.3%	51.1%	52.7%	50.3%	48.8%	48.6%	48.3%	45.1%	43.4%	44.3%
Leicestershire County Council	54.0%	56.2%	55.5%	53.0%	50.5%	49.7%	49.7%	45.8%	45.3%	45.5%
England average	41.5%	43.0%	43.2%	43.5%	43.7%	43.0%	43.7%	43.2%	43.5%	43.8%

Leicestershire County Council and the district and borough councils have attempted to increase recycling rates by decreasing contamination through the use of campaigns, with their most recent being 'Don't let your recycling go to waste!' which was launched in August 2018. In the previous year, 5,500 tonnes of recyclable material were rejected due to contamination and therefore, this campaign aimed to give clear advice to residents about what can and cannot be recycled.

2.2.3 Residual Waste and Recycling Collections

All seven district and borough councils within Leicestershire are waste collection authorities, responsible for collecting waste from households, while Leicestershire County Council is the waste disposal authority, responsible for disposing of the collected waste. A summary of the services for each district and borough councils is shown in Table 7. Note that at present there are no separate district wide food waste collection services (North West Leicestershire are trialling food waste collections from 4,000 households)²⁴, however following consultations on Defra's Resources and Waste Strategy, all local authorities are likely to be required to introduce this and make further changes to collection systems.

Table 7: Current residual waste and recycling collection services

Local Authority	Waste Stream	Households served	Container	Collection frequency	Operator	Operational days /wk	Other info
Blaby	Residual	42,168	140L / 240L WHB	Fortnightly	In-house	5	MRF contract from 01/06/18
	Recycling (comingled)					5	
	Garden					5	
Charnwood	Residual	76,629	180L WHB	Fortnightly	Serco	4	MRF contract from 12/05/18
	Recycling (comingled)		240L WHB			4	
	Garden		240L WHB			5	
Harborough	Residual	40,110	180L WHB	Fortnightly	FCC	4	MRF contract from 01/04/18
	Recycling (comingled)		240L WHB			4	
	Garden		240L WHB			4	
Hinckley and Bosworth	Residual	50,310	240L WHB	Fortnightly	In-house	5	MRF contract from 01/04/18
	Recycling (comingled)		240L WHB			5	
	Garden		140L / 240L WHB			5	

²⁴ Excepting a food waste collection trial underway in North West Leicestershire

Local Authority	Waste Stream	Households served	Container	Collection frequency	Operator	Operational days /wk	Other info
Melton	Residual	23,560	240L WHB	Fortnightly	Biffa	5	MRF contract from 01/10/18
	Recycling (comingled)					5	
	Garden					5	
North West Leicestershire	Residual	47,332	180L/240L WHB	Fortnightly	In-house	4	
	Recycling (multi-stream)		2 boxes and 2 bags			4	
	Garden		240L WHB			4	
Oadby and Wigston	Residual	23,350	140L WHB	Weekly	In-house	5	MRF contract from 01/04/18
	Recycling (comingled)		240L WHB	Weekly		5	
	Garden		240L WHB	Fortnightly		5	

Dry Recycling Management

All district and borough councils within Leicestershire, with the exception of North West Leicestershire, offer a 'commingled' recycling service. This means multiple material types are collected together, mixed within a collection vehicle and subsequently sorted at a Materials Recycling Facility (MRF). Dry recycling from these six authorities is processed at an MRF. The recycle from North West Leicestershire is collected via a 'kerbside sort' system, where individual material types are sorted by collection crew into different compartments on a specialist vehicle, and there is no requirement for an MRF. This latter approach delivers higher quality recycling in general because the materials are separated at source and included in different compartments on the collection vehicles, enabling 'cleaner' material separation. The current destinations for materials collected for recycling in the MRF, as well as arrangements for dry recycling from North West Leicestershire, are summarised below in Table 8.

Table 8: Material destinations

WCA	Waste Stream	Intermediate Facility	Final Destination (May 2021) ²⁵
Blaby, Charnwood, Harborough, Hinckley and Bosworth, Melton, Oadby and Wigston ²⁶	Mixed papers	MRF	Multiple destinations (India/UK/France/Netherlands/Germany)
	Cardboard		Turkey
	Glass		UK
	Steel		Multiple destinations, UK
	Aluminium		Thailand
	PET bottles and trays		Multiple destinations, UK
	HDPE natural		Multiple destinations, UK
	Mixed plastics		Multiple destinations, UK/Belgium

²⁵ Information on the final destination for materials sorted at the MRF is reported to WasteDataFlow (WDF) on a quarterly basis, available here: <https://www.wastedataflow.org/>. Where a final destination is clear this has been provided, however there is a wide variety of destinations for plastic and metal streams processed at the MRF. Information correct as of May 2021.

²⁶ <http://www.lesswaste.org.uk/recycle/what-happens-to-your-kerbside-recycling/>

	LDPE/Mixed films		Multiple destinations, UK
	Post-sort residue		Multiple destinations, UK
North West Leicestershire ²⁷	Plastics	NW Leicestershire Depot	Multiple destinations, UK
	Aluminium		Multiple destinations, UK
	Glass		Multiple destinations, UK
	Steel		Multiple destinations, UK
	Cardboard		Multiple destinations, UK
	Paper		Multiple destinations, UK

Garden Waste Management

All district and borough councils within Leicestershire provide a charged garden waste collection, with the exception of North West Leicestershire who offer this collection free of charge²⁸. A full summary of the charges per district are illustrated in Table 9.

²⁷ Note. NWLDC award recyclables to reprocessor using two monthly fixed contracts.
https://www.nwleics.gov.uk/pages/recycling_information

²⁸ NWLDC offer additional garden bins at a charge of £45

Table 9: Garden waste service and annual costs for each district/borough council (2021/22)

WCA	Bin size	Annual cost
Blaby	140L WHB	£25.60
	240L WHB	£37.90
Charnwood	240L WHB	£40 - £45 (dependent on payment method)
Harborough	240L WHB	£55
Hinckley and Bosworth	140L or 240L WHB	£30
Melton	240L WHB	£70.92 or £5.91 monthly
North West Leicestershire	240L WHB	No charge
Oadby and Wigston	240L or 2 x 140L WHB	£50

Residual Waste Management

Residual waste collected through the household waste services are treated at a variety of waste treatment and disposal facilities, including Energy from Waste plants and landfill. A full summary of residual waste tonnages can be seen in Table 10.

Table 10: Local Authority Collected Waste for all seven WCAs in Leicestershire, 2014/15-2019/20. Household - waste not sent for recycling (tonnes)²⁹

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Blaby	18,764	18,438	19,295	21,165	20,255	20,508
Charnwood	31,119	31,614	32,706	33,495	33,198	34,168
Harborough	15,519	15,673	15,998	17,981	18,477	18,170
Hinckley and Bosworth	20,434	21,013	21,574	23,913	24,655	24,787
Melton	10,754	10,643	10,840	10,901	11,303	11,417
North West Leicestershire	21,111	21,596	22,230	22,272	22,791	22,328
Oadby and Wigston	8,242	8,099	8,654	8,977	9,092	9,580

Landfill

Table 11: Management of all local authority collected waste (LACW), comparison to region, and England average (2019/20)³⁰

% of total	Landfill	Incineration ³¹	Recycled / composted	Other ³²
Leicestershire County Council ³³	31.8%	23.0%	43.2%	2.0%
East Midlands	14.9%	39.2%	44%	1.9%
England average	8.5%	45.5%	42.8%	3.2%

²⁹ Source: Department for Environment, Food & Rural Affairs, Local Authority Collected Waste Statistics

³⁰ Source: Defra MSW Statistics & Waste Data Flow PI reports. Accessed June 2021.

³¹ Incineration includes incineration with energy recovery / without energy recovery. This includes incinerator bottom ash (IBA) and metals from IBA.

³² includes waste treated/disposed of through other unspecified methods as well as process and moisture loss.

³³ Source: Waste Data Flow. PI reports accessed June 2021

Table 11 illustrates the management of all Local Authority Collected Waste (LACW) by Leicestershire County Council, in comparison to the East Midlands at a regional level, and England at a national level. Statistics from Defra show that Leicestershire County Council have a LACW recycling rate broadly consistent with figures from East Midlands and England. The percentage of LACW sent to landfill in 2019/20 is higher than both the regional and national average, at 31.8%

Note. LACW recycling is separate from the 'household recycling rate' for Leicestershire County Council which for 2019/20 was 45.5%. LACW management includes the waste consisting of all 'waste from households', street sweepings, municipal parks and garden waste, beach cleansing waste and waste resulting from the clearance of fly-tipped materials plus some commercial and/or industrial waste. LACW figures for Leicestershire County Council have been used to allow comparison against regional and national data.

Nationally waste sent for incineration has increased from 3.8% in 2018/19 to 45.5% in 2019/20. Conversely the amount of waste sent to landfill has decreased to 8.5%, down from 21.3% in 2018/19.³⁴

2.2.4 Trade Waste Services

In addition to operating a household waste collection service, some of the local authorities also provide a trade waste collection service for businesses / commercial customers in their Council area. The available collection services provided are included in Table 12 below.

Table 12: Leicestershire WCA trade waste services

WCA	Is trade waste collected?	How is it collected?	Which materials are collected?
Blaby	Yes	Range of container sizes (charges vary depending on this).	Mixed recycling and general waste
Charnwood	Yes	Wheeled bins (1,100L, 660L or 240L)	
Harborough	Yes	Wheeled bins (1,280L, 1,100L, 770L, 360L or 240L) and refuse sacks	Mixed recycling and general waste
Hinckley and Bosworth	Yes	Wheeled bins (1,100L, 660L or 240L)	Mixed recycling and general waste
Melton	No		
North West Leicestershire	Yes	Range of container sizes	Refuse and recycling collections
Oadby and Wigston	No		

Businesses can also take some types of business and commercial waste to the Whetstone Transfer Station, which is located next to Whetstone Household Waste Recycling Centre, see below. Businesses and commercial organisations can apply for a trade waste account with Leicestershire County Council

³⁴ Source: Defra (2021) Statistics on waste managed by local authorities in England in 2019/20.

and dispose of waste via the weighbridge. The charge for disposal varies based on the type of waste disposed. Pricing information is updated regularly via Leicestershire County Council's website.³⁵

2.2.5 Household Waste Recycling Centres (HWRCs)

There are fourteen HWRCs (formerly known as Recycling & Household Waste Sites, RHWS) across the Leicestershire area where residents can take household waste to be reused, recycled, or disposed of. Permits are available for vans, pick-ups and cars with trailers, and any vehicle bringing asbestos, chemicals or liquid paint. The HWRC's are operated by Leicestershire County Council, their location in relation to the seven district and borough councils is shown in Table 13.

Table 13: HWRCs across Leicestershire³⁶

Local Authority Location	Site	Address
Blaby	Whetstone Household Waste Recycling Centre	Enderby Road, Whetstone, LE8 6JL
Charnwood	Mountsorrel Household Waste Recycling Centre	20 Granite Way, Mountsorrel, LE12 7TZ
	Shepshed Household Waste Recycling Centre	Hathern Road, Shepshed, LE12 9RP
	Loughborough Household Waste Recycling Centre	Railway Terrace, Loughborough, LE11 1HW
Harborough	Market Harborough Household Waste Recycling Centre	Riverside, Market Harborough, LE16 7PT
	Kibworth Household Waste Recycling Centre	Kibworth, LE8 0EX
	Lutterworth Household Waste Recycling Centre	Moorbarns Lane, Lutterworth, LE17 4QJ
Hinckley and Bosworth	Barwell Household Waste Recycling Centre	Stapleton Lane, Barwell, LE9 8HE
Melton	Somerby Household Waste Recycling Centre	Knossington Road, Somerby, LE14 2QP
	Melton Mowbray Household Waste Recycling Centre	Lake Terrace, Melton Mowbray, LE13 0BZ
	Bottesford Household Waste Recycling Centre	Normanton Lane, Bottesford, NG13 0EL
North West Leicestershire	Lount Household Waste Recycling Centre	Nottingham Road, Lount, LE65 1SD
	Coalville Household Waste Recycling Centre	Linden Way, Coalville, LE67 3LA
Oadby and Wigston	Oadby Household Waste Recycling Centre	Wigston Road, Oadby, LE2 5JE

³⁵ Source: Where you can take business or commercial waste | Leicestershire County Council

³⁶ <https://www.leicestershire.gov.uk/environment-and-planning/waste-and-recycling/find-a-recycling-and-household-waste-site>

Just over 58,000 tonnes of waste were collected across the 14 RHWS' during 2019/20. A breakdown of the tonnages by waste category is provided in **Error! Reference source not found..** Household mixed waste, green waste and wood are the three most significant arisings, respectively.

Table 14: Total HWRC tonnage (2019/20)

Waste Category	Tonnage	Waste Category	Tonnage
Asbestos	47	Other Materials	94
Batteries - Car	74	Paper	747
Batteries - Household	18	Plasterboard	287
Bicycles	51	Plastics	71
Bric-a-brac	249	Rubble	2,719
Cardboard	2,421	Textiles	691
Gas Bottles	21	WEEE - CRT	317
Glass	271	WEEE tubes	6
Green	13,241	WEEE Fridge	832
Household mixed (black bag)	15,465	WEEE Large	785
Metals - Ferrous	3,752	WEEE Small	1,778
Metals - Non-Ferrous	14	Wood	13,952
Oil - Cooking	11		
Oil - Mineral	105		
Total			58,151

2.2.6 Other Services

Bulky waste collection services are provided on a district-by-district basis, details of the services and associated charges are included in Table 15.

Table 15: Bulky waste collection services available in the districts of Leicestershire

WCA	Is a bulky waste service provided?	What is the cost of this service?
Blaby ³⁷	Yes	1-2 large items: £22.30 3-4 large items: £30.80 5-6 large items: £42.50
Charnwood ³⁸	Yes	£20 charge per three items
Harborough ³⁹	Yes	£35.04 for up to three items
Hinckley and Bosworth ⁴⁰	Yes	1-3 items: £20 4-5 items: £33
Melton ⁴¹	Yes	1 item: £19.60 2-5 items: £32.60 5+ items: £32.60 + £11.70 for each additional item 1 white good collection: £26.70

³⁷ <https://www.blaby.gov.uk/waste-and-recycling/special-collections/order-bulky-item-collection/>. Accessed April 2021.

³⁸ https://www.charnwood.gov.uk/pages/special_collections . Accessed April 2021.

³⁹ https://www.harborough.gov.uk/info/20007/bins_and_recycling/29/large_waste_items_for_collection. Accessed April 2021.

⁴⁰ <https://www.hinckley-bosworth.gov.uk/largeitem>. Accessed April 2021.

⁴¹ http://www.melton.gov.uk/info/200084/bins_recycling_and_rubbish/47/dispose_of_a_large_or_bulky_item. Accessed April 2021.

WCA	Is a bulky waste service provided?	What is the cost of this service?
North West Leicestershire ⁴²	Yes	1-3 items: £26 4-6 items: £5 per additional item
Oadby and Wigston ⁴³	Yes	£22 for one item and £4.10 for each additional item

2.2.7 Voluntary Group Activity

The Leicestershire Waste Partnership are responsible for running the 'Less Waste' website, which offers advice to residents about waste prevention and recycling⁴⁴. Volunteering opportunities can also be accessed via this website where Environment Action Volunteers, who can get involved in range of activities, including establishing community events focusing on topics related to waste, the environment and sustainability and supporting community fridges, are advertised.

All of the district and borough councils support community action groups and volunteers with provisions for litter picking with strong community engagement over recent years. Funding has been provided by Leicestershire County Council to support this. The main task group is 'South Leicestershire Wombles' however there are equivalent groups across each district or borough.

2.2.8 Concluding Comments

The waste management service in Leicestershire currently performs above the national average in recycling terms which has strong carbon benefits, however recycling has exhibited a significant decline in recycling rates since 2014/15. This reduction will have been a factor of many things including reclassification of street sweeping and wood waste, stopping them from being composted, implementation of charged garden waste services, 'light weighting' trends reducing packaging weight and the closure of a MBT plant which allowed a proportion of recyclables to be extracted prior to disposal.

The County Council (2019/20) landfills a significantly higher proportion of municipal waste than the national average and this has detrimental carbon impacts.

There are a variety of changes that are likely to impact on the service over the coming 3 – 7 years as a result of major national policy changes governing collection, funding and management of wastes. The changes for Leicestershire would be anticipated to include: the introduction of weekly food waste collections; potential re-introduction of free garden waste collections (where a charge is in place); the collection of additional dry recycling streams (e.g. plastic film for one Council); and the implementation of deposit return scheme on single use drinks containers and extended producer responsibility on all packaging goods.

⁴²https://www.nwleics.gov.uk/pages/bulky_waste#:~:text=To%20arrange%20a%20collection%20of,you%20will%20be%20leaving%20them. Accessed April 2021.

⁴³ https://www.oadby-wigston.gov.uk/pages/bulky_waste_collection. Accessed April 2021.

⁴⁴

2.3 Health and Communities

2.3.1 Human Health

Much work has been undertaken to consider the impacts of waste management facilities and practices on human health and to date no specific links have been proven. Reports by Defra and WRAP have concluded that present day practices for managing municipal waste in the UK have at most a minor effect on human health and the environment when compared to everyday activities⁴⁵. The Health Protection Agency (HPA) has also reviewed research on the linkages between emissions from municipal waste incinerators and effects on health and provides advice to government, stakeholders, and the public⁴⁶. These reports considered alternate weekly collections and various waste disposal and treatment operations. The report concluded that whilst it cannot be ruled out, adverse health effects from well-regulated incinerators are likely to be very small, if detectable, for those living close-by.

Between 2012 and 2014, the average life expectancy in England was 79.6 for males and 83.2 for females. According to data published by the Office for National Statistics for this same period, the average life expectancy for the seven district and borough councils within Leicestershire was 80.4 for males and 84.0 for females, a full breakdown can be observed in Table 16. Therefore, on average the seven district and borough councils of Leicestershire have a life expectancy above the average for England.

Table 16: Life expectancies for males and females within the seven district and boroughs of Leicestershire (2012-2014)⁴⁷

	Blaby	Charnwood	Harborough	Hinckley and Bosworth	Melton	North West Leicestershire	Oadby and Wigston	Average
Male	80.6	80.6	80.8	80.4	80.9	79.2	80.6	80.4
Female	84.7	83.4	84.5	84.7	83.4	83.3	84.5	84.0

When analysing the available data for the life expectancies of men within these district and borough councils, it is evident that all district and boroughs either achieve the life expectancy age for England or above. This is with the exception of North West Leicestershire who have an average life expectancy of 79.2 years for males. For females, more district and boroughs fail to meet or exceed the national average life expectancy of 84.0 years. The districts and boroughs achieving or exceeding this include Blaby, Harborough, Hinckley and Bosworth, and Oadby and Wigston, while Charnwood, Melton and North West Leicestershire all fall below the national average.

⁴⁵ 'Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes', DEFRA, May 2004;

'Health Impact Assessment of Alternate Week Waste Collections of Biodegradable Waste', DEFRA, March 2007;

'Scoping Study of Potential Health Effects of Fortnightly Residual Waste Collection and Related Changes to Domestic Waste Systems', WRAP, July 2009

⁴⁶ 'The Impact on Health of Emissions to Air from Municipal Waste Incinerators', Health Protection Agency (HPA), 2009

⁴⁷ Office for National Statistics (2012-2014).

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/datasets/lifeexpectancyatbirthandage65bylocalareasinenglandandwalesreferencetable1>

Table 17: Population describing themselves as having a limiting long-term illness (2011).⁴⁸

Area	Population	Percentage of population living with a long-term health problem or disability (limited a lot)	Percentage of population living with a long-term health problem or disability (limited a little)
England	53,012,456	4,405,394	4,947,192
		8.31%	9.33%
Blaby	93,915	6,464	8,334
		6.88%	8.87%
Charnwood	166,100	11,143	14,726
		6.7%	8.87%
Harborough	85,382	5,048	7,376
		5.91%	8.64%
Hinckley and Bosworth	105,078	7,845	9,987
		7.47%	9.50%
Melton	50,376	3,165	4,684
		6.28%	9.30%
North West Leicestershire	93,468	7,837	9,093
		8.38%	9.73%
Oadby and Wigston	56,170	4,309	5,412
		7.67%	9.64%

As illustrated in Table 17, less than one tenth of residents in the seven district and borough councils of Leicestershire describe themselves as having a limiting long-term illness; these rates mirror statistics for England as a whole.

The health and safety of the public and waste operators is an important consideration in all waste management operations and is a standard consideration in all day-to-day operations. The potential health effects of waste management facilities are considered at a site-specific level through the planning and permitting processes.

Some health impacts could be derived from air emissions associated with the transport of waste as part of the collection and disposal system. This will be considered in the SEA assessment as part of air quality considerations.

The impact of the current Covid-19 pandemic may require medium or long-term changes to the service, in particular for vulnerable residents. Assisted collections and good practice health and safety measures may be enhanced while such risks exist, for example, from those who are advised or wish to shield.

2.4 Population and Households

The number of people living in the Leicestershire area, combined with the number of persons in each household, will have an impact on the amount of waste produced in Leicestershire and therefore requiring management.

⁴⁸ Office for National Statistics (2011).
<https://www.nomisweb.co.uk/census/2011/qs303ew>

Based on Office of National Statistics (ONS) classifications, districts within Leicestershire vary between being 'Mainly Rural' to 'Urban with City and Town', a full summary is provided in Table 18⁴⁹.

Table 18: Summary of rural / urban classifications for the seven district and boroughs of Leicestershire (2011)

	ONS Classification	Urban %	Rural %
Blaby	Urban with city and town	80%	20%
Charnwood	Urban with city and town	86%	14%
Harborough	Mainly rural	6%	94%
Hinckley and Bosworth	Largely rural	49%	51%
Melton	Mainly rural	0%	100%
North West Leicestershire	Largely rural	42%	58%
Oadby and Wigston	Urban with city and town	-	-

Table 19 provides population estimates from the 2018-based ONS Subnational Population Projects for Local Authorities in England. Looking ahead, the anticipated population growth rate for all district and borough councils within Leicestershire is relatively high and above the projected national average, with the exception of Melton which has a growth rate of 2.72%, below the expected national average of 5.07%.

Table 19: ONS population estimates

	Population (Mid-year 2019) ⁵⁰	Population estimates (2018 based) ⁵¹				Change 2022-2035	% Change 2022- 2035
		2022	2025	2030	2035		
England	56,286,961	57,282,105	58,060,235	59,181,798	60,183,914	2,901,809	5.07%
Blaby	101,526	106,810	110,934	116,779	121,801	14,991	14.04%
Charnwood	185,851	191,635	197,771	207,655	215,256	23,621	12.33%
Harborough	93,807	96,758	99,706	104,016	107,931	11,173	11.55%
Hinckley and Bosworth	113,136	117,611	121,248	126,825	131,933	14,322	12.18%
Melton	51,209	51,497	51,827	52,352	52,898	1,401	2.72%
North West Leicestershire	103,611	109,075	113,874	121,257	127,864	18,789	17.23%
Oadby and Wigston	57,015	57,529	58,351	59,708	60,564	3,035	5.28%

⁴⁹ Source:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/591466/Local_Authority_Districts_ranked_by_rural_and_rural-related_populations_with_Rural_Urban_Classification.pdf

⁵⁰ Office for National Statistics (2020). Source:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

⁵¹ Office for National Statistics (2020). Source:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based/relateddata>

2.4.1 Population demographics

The number of people aged 65 and over is predicted to increase by 40% by 2035. This change means that 1 in 4.5 of the population will be aged 65 and over by 2035, rather than the current 1 in 5.7. This could have implications for waste management services in a variety of respects. This might include increased demands for assisted collections⁵². There may be enhanced issues regarding vulnerability as highlighted by the current Covid-19 pandemic and noted previously. It may also change the composition of the waste, for example a potential reduced nappy waste.

Just under 200,000 new homes are set to be built in the City and County of Leicestershire by 2050⁵³. Population growth for the majority of districts and boroughs within Leicestershire is projected to be much higher than the average growth estimated for England. Therefore, it will be greatly important for planning guidance to be provided for developments so that sufficient space is provided for recycling within new homes and externally for the storage of containers for recycling and refuse.

An increase in population and households could lead to an increase in local authority collected waste (LACW) and may lead to a potential change in the composition of waste, i.e. changing demographic of population can lead to an increase/decrease in Absorbent Hygiene Products⁵⁴ (AHP).

There are three universities within Leicestershire – University of Leicester, De Montfort University and Loughborough University. The latter of the three is located in Charnwood, the only one to be within the Leicestershire County area. This means that high quantities of student populations are typically present here. Although the University of Leicester and De Montfort University are not located within any of the District areas, those which are located close to Leicester City, such as Oadby and Wigston, also see an increase in student populations. This transient population can add some challenges in communications and effective use of waste-related services, which can have a direct impact on the recycling performance of the area. Additionally, it can pose issues during clear-out of student households at the end of term time, such as increases in bulky waste etc.

Table 20: Ethnicity across Leicestershire, Census 2011

	Asian	Black	Mixed	White	Other
East Midlands	6.5%	1.8%	1.9%	89.3%	0.6%
Blaby	6.1%	0.96%	1.6%	90.99%	0.36%
Charnwood	9.72%	0.80%	1.55%	87.37%	0.57%
Harborough	3%	0.38%	1.14%	95.24%	0.24
Hinckley and Bosworth	2.14%	0.25%	0.98%	96.47%	0.17%
Melton	1.03%	0.19%	0.82%	97.9%	0.06%
North West Leicestershire	1.15%	0.22%	0.94%	97.56%	0.13%
Oadby and Wigston	22.29%	1.19%	2.09%	73.01%	1.41%

⁵² Where the collection crew collect bins from the property and return them to the property (rather than a kerbside collection) due to the inability of the householder to move the container/s.

⁵³ Source: <https://www.leicestershire.gov.uk/news/council-plans-for-growth-in-population-and-economy>

⁵⁴ AHP refers to nappies, feminine hygiene products, incontinence pads.

Table 20 shows the ethnicities of the Leicestershire districts and boroughs, in comparison to the average for the East Midlands, as recorded in the 2011 census.

However, it is important to note that ethnic identity does not provide a clear indication of the assistance required to engage in Local Authority service, such as waste management. For example, many ethnic minority residents will have been born in the UK or lived in the UK for a number of years. For example, the 2011 Census shows that a higher proportion of the population reports a British national identity than reported White British ethnic identity. The 2011 Census therefore provides some information around English language proficiency.

According to the 2011 Census, of those that reported a main language other than English, 1.3% of the population in East Midlands cannot speak English 'well', and 0.3% cannot speak English.

An Equality and Human Rights Impact Assessment (EHRIA) will be undertaken as part of the LR&WS review. An EHRIA aims to identify whether a new policy, procedure or service (in this instance the LR&WS) may have any adverse equality and human rights implications. The assessment ensures that any impact (positive or negative) on different groups or protected characteristics within a community are identified, any barriers that might have a detrimental impact on any communities or groups are also considered and ensure that these are mitigated against or avoided. The EHRIA will be used to consider the impact or likely impact of the Strategy in relation to all areas of equality, diversity and human rights, as outlined in Leicestershire County Council's Equality Strategy.

Potential barriers around accessing waste management services can be mitigated against through translation services, providing communications in different formats (e.g. braille, audio or large print), encouragement through community engagement and ensuring appropriate accessibility provisions for any services and events.

2.5 Local Environment Quality

The quality of a local environment can be measured via a variety of parameters, ranging from the amount of waste fly-tipped, to the air quality measured across the district (see section 2.5.4). This section considers the implications of waste on the local environment; the cause and effect that natural systems play on the local environment and how human activity can exacerbate environmental issues.

2.5.1 Fly-Tipping

Approximately 1 million (1,072,000) incidents of fly-tipping were dealt with in England in 2018/19. This was an increase of 8% from 2017/18 (998,000 incidents). 62% of the fly tips involved household waste, an increase of 2% from the previous year and the most common locations of fly tipping was on highways (pavements or roads). The cost of clearance to Local Authorities in England for 2018/19 was estimated at £12.9 million for large fly-tipping incidents, an increase from £12.2 million in 2017/18⁵⁵.

⁵⁵ Defra (2019) Fly-tipping statistics for England. There may be more than one enforcement action associated with one incident.

Table 21: Number of reported fly tipping incidents and actions taken across the seven district and boroughs of Leicestershire⁵⁶.

District	Year	No. Incidents reported	No. Enforcement Actions reported
Blaby	2016/17	531	466 (87.8%)
	2017/18	588	460 (78.2%)
	2018/19	689	556 (80.7%)
	2019/20	676	586 (86.7%)
Charnwood	2016/17	603	1047 (173.6%)
	2017/18	673	1061 (157.7%)
	2018/19	852	1334 (156.6%)
	2019/20	924	1476 (159.7%)
Harborough	2016/17	653	381 (58.3%)
	2017/18	608	518 (85.2%)
	2018/19	728	534 (73.4%)
	2019/20	484	539 (111.4%)
Hinckley and Bosworth	2016/17	754	841 (111.5%)
	2017/18	731	312 (42.7%)
	2018/19	844	427 (50.6%)
	2019/20	791	879 (111.1%)
Melton	2016/17	387	29 (4.9%)
	2017/18	410	24 (5.9%)
	2018/19	382	12 (3.1%)
	2019/20	343	5 (1.5%)
North West Leicestershire	2016/17	884	767 (85.6%)
	2017/18	731	838 (114.6%)
	2018/19	716	773 (108.0%)
	2019/20	695	739 (106.3%)
Oadby and Wigston	2016/17	17	15 (88.2%)
	2017/18	8	7 (87.5%)
	2018/19	17	17 (100%)
	2019/20	4	3 (75%)

Table 21 shows the number of reported fly-tipping incidents and actions across the seven district and borough councils of Leicestershire. Some districts, such as Blaby, Charnwood, Harborough and Hinckley and Bosworth have seen an increase in fly-tipping incidents since 2016/17 while others such as Melton, North West Leicestershire and Oadby and Wigston have experienced a reduction. Oadby and Wigston

⁵⁶ <https://www.gov.uk/government/statistical-data-sets/env24-fly-tipping-incidents-and-actions-taken-in-england>

reported the same level of fly tipping incidents in 2016/17 as they did in 2018/19, despite a stated reduction in 2017/18.

According to Keep Britain Tidy's Litter in England survey⁵⁷ (2017-2018), smoking-related litter was the most commonly found type of litter (79% of sites), followed secondly by confectionery packaging (60% of sites) and alcoholic drinks related sites (52% of sites). One aspect of the national Resources and Waste Strategy proposes the introduction of a Deposit Return Scheme (DRS) for England, Wales, and Northern Ireland. As well as the aim to boost the quantity and quality of key recyclables, a DRS also aims to reduce the amount of littering. Litter affects how clean an area is and can impact people's willingness to drop litter. Therefore, based on the theory that a DRS could reduce the number of drinks containers in particular, it may also have a positive impact on materials littered outside of the scope of a DRS.

Service restrictions brought about by the Covid-19 pandemic and the social distancing / lockdown restrictions created the opportunity for increases in fly-tipping. It is important that services and enforcement are appropriately delivered to manage unintended negative environmental consequences such as fly-tipping in abnormal operating circumstances.

2.5.2 Water

River Quality

The River Soar is the principal river of Leicestershire with a length of over 24 miles and is a large tributary of the River Trent. The source of the river is between Hinckley and Lutterworth, Leicestershire, and it flows north through Leicester where it is joined by the Grand Union Canal.

As observed in Figure 5, the majority of the County area is within the catchment area of the River Soar. However, Northern areas of the County, including parts of North West Leicestershire and Melton, are within the Lower Trent and Erewash Catchment, while large areas of Leicestershire are in the Great Ouse and Great Ouse catchment to the west. In the South, a large proportion of the Leicestershire District falls into either the Leicestershire Avon or Welland and Nene catchment areas, with small areas of Eastern Melton falling into the Witham, Steeping Great Eau and Long Eau catchment.

⁵⁷ <https://www.gov.uk/government/publications/litter-and-littering-in-england-data-dashboard/litter-and-littering-in-england-2017-to-2018>

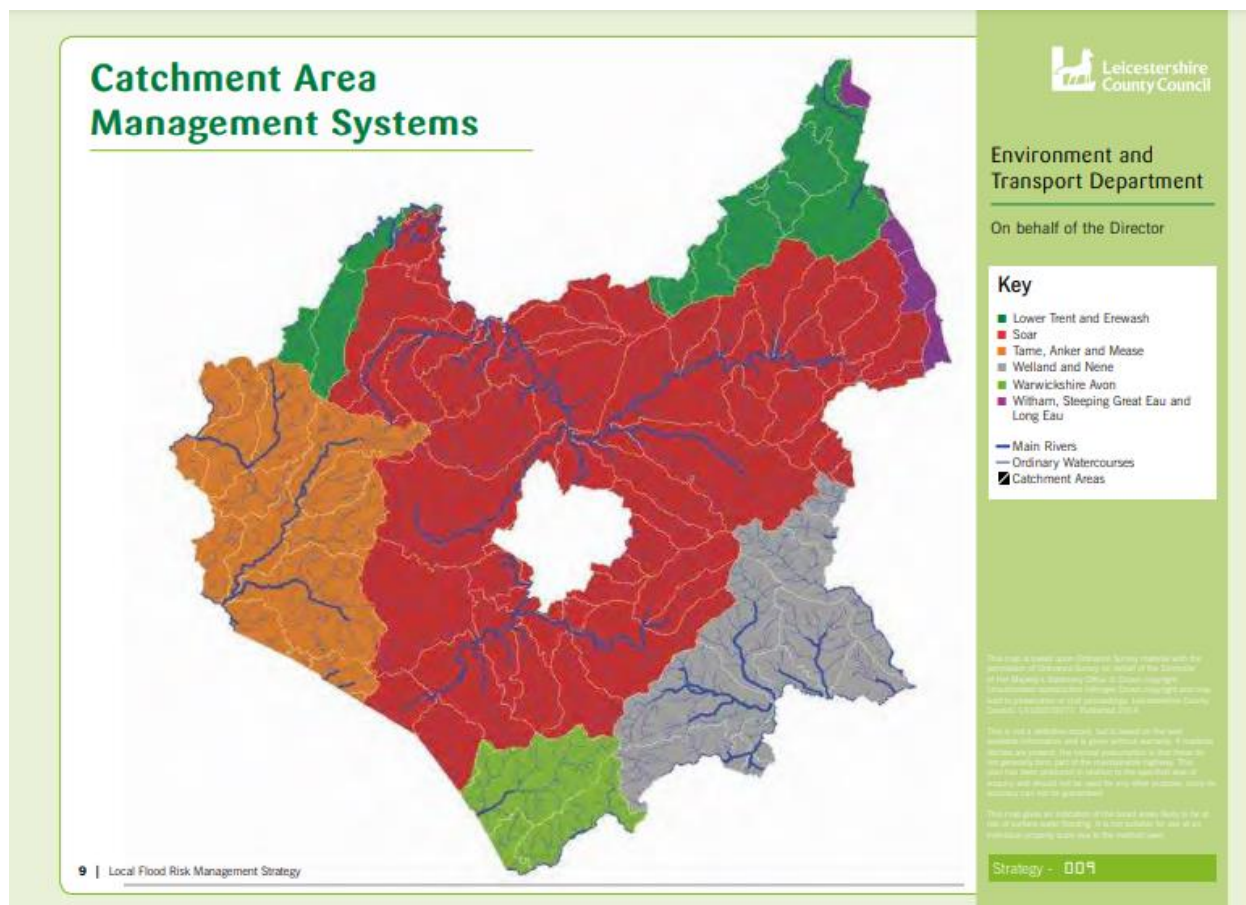


Figure 5: Catchment areas within Leicestershire⁵⁸

At a national level, river water quality has not greatly improved in recent years, demonstrating a lack of progress towards the target of 100% healthy waters by 2027⁵⁹. In 2020, just 14% of rivers met the criteria for 'good ecological status', which shows no improvement from the data published in 2016⁶⁰. A range of pollutants, including sewage discharge, chemicals and agriculture, were suggested to be having this damaging impact on river quality.

In terms of the River Soar itself, soil erosion is causing blocked pipes and culverts which makes the river more susceptible to flooding, while also diminishing water quality. These sediments carry particle pollutants which catalyse the process of eutrophication and decrease the quality of the river's waters further. Overall, 87% of the water bodies within the Soar catchment area failing to achieve good ecological status⁶¹.

The Water Framework Directive (WFD) was adopted and enacted in 2000 to provide a legislative framework for the protection of rivers, lake, transitional waste (e.g. estuarine), coastal waste and

⁵⁸ Local Flood Risk Management Strategy, Appendix 5 (2014). Leicestershire County Council.

⁵⁹ <https://www.wcl.org.uk/not-one-river-in-england-in-good-health.asp>

⁶⁰ <https://deframedia.blog.gov.uk/2020/09/18/latest-water-classifications-results-published/> (Accessed June 2021)

⁶¹ WaterLIFE (n.d.) River Soar – Fact sheet.

groundwater across the UK. This directive has been transposed into English and Welsh Law through The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

Flood Risk

As Lead Local Flood Authority, Leicestershire County Council coordinate the management of local flood risk, which includes surface water flooding, ordinary watercourse flooding and groundwater flooding. A Local Flood Risk Management Strategy was developed in 2015. This aspect links to climate change (section 2.1) in terms of adaptation to the effects of climate change, due to increased precipitation and extreme weather events. Flooding events may also entail a significant clean-up effort, generating waste (from silt deposits, water damage etc).

As part of the Local Flood Risk Management Strategy, 40 areas were identified as a 'Priority Settlement', meaning that more than 100 properties were shown to be at risk of Surface Water Flooding. As part of this, an Action Plan was developed where a number of actions are listed for each of the seven objectives. A number of mitigation measures are outlined within this which include improving channel capacity through de-culverting and providing property level protection to those identified as being at risk. The 5 settlements with the highest number of properties at risk are shown in Table 22 below.

Table 22: 5 settlements within Leicestershire with the most properties at risk for a 1 in 100 surface water flood⁶²

Settlement	1 in 100 Surface Water Flood Risk: Number of properties at risk
Loughborough	2,743
Blaby, Narborough & Whetstone	1,702
Market Harborough	2,310
Wigston	1,849
Hinckley and Burbage	1,496

Flood risk from all sources needs to be considered when planning for new developments or facilities. This includes flood risk from rivers or the sea, for which there are three different flood zones:

- Flood zone 1: Less than 0.1% chance of flooding in any year from rivers or sea
- Flood zone 2: 0.1% to 1% chance of flooding from rivers in any year, or 0.1% to 0.5% chance of flooding from the sea in any year
- Flood zone 3: 1% or greater chance of flooding from rivers, or 0.5% or greater chance of flooding from the sea

Figure 6 below outlines the different flood zones which are present within Leicestershire.

⁶² Local Flood Risk Management Strategy (2015). Leicestershire County Council.

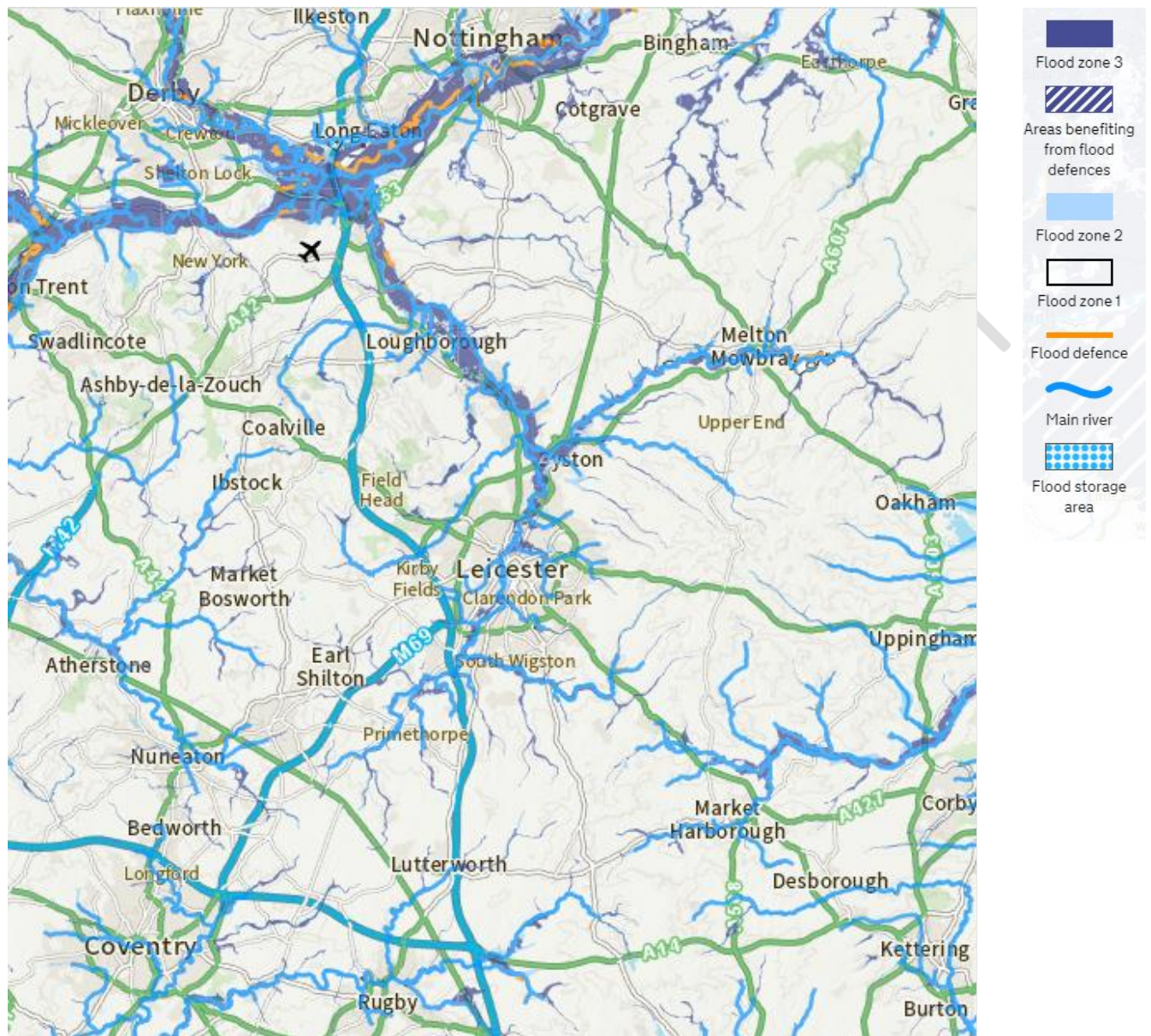


Figure 6: Flood zone map of Leicestershire⁶³

Waste management facilities have the potential to contribute to, and intensify, the consequences experienced during a flood event. Therefore, it is of great importance that when the location of new facilities are being decided, that the National Planning Policy Framework (NPPF) is considered throughout. This is discussed further in Chapter 3, where key sustainability issues are outlined.

This aspect also links to climate change (section 2.1) in terms of adaptation to the effects of climate change.

⁶³ <https://flood-map-for-planning.service.gov.uk/>

Groundwater

There are small scale, Zone 1 and Zone 2 Groundwater Source Protection Zones (SPZs) across Leicestershire, which are designed to protect the groundwater supplies. SPZs are monitored by the EA under the Groundwater Protection Policy. According to Leicestershire County Council's Local Flood Risk Management Strategy (2015), it was concluded that Leicestershire is at low risk of groundwater flooding, due to the majority of the County being sited on strata. However, as visible in Figure 7, there are some areas which were highlighted as being vulnerable. These include small areas of North West Leicestershire and Melton which were classified as having a very high vulnerability, as well as large areas of Harborough and small areas of Charnwood and Melton which were identified as having a moderate vulnerability. Again, this aspect also links to climate change (section 2.1) in terms of adaptation to the effects of climate change, due to increased precipitation and extreme weather events and potential for raised groundwater levels as a consequence of these effects.

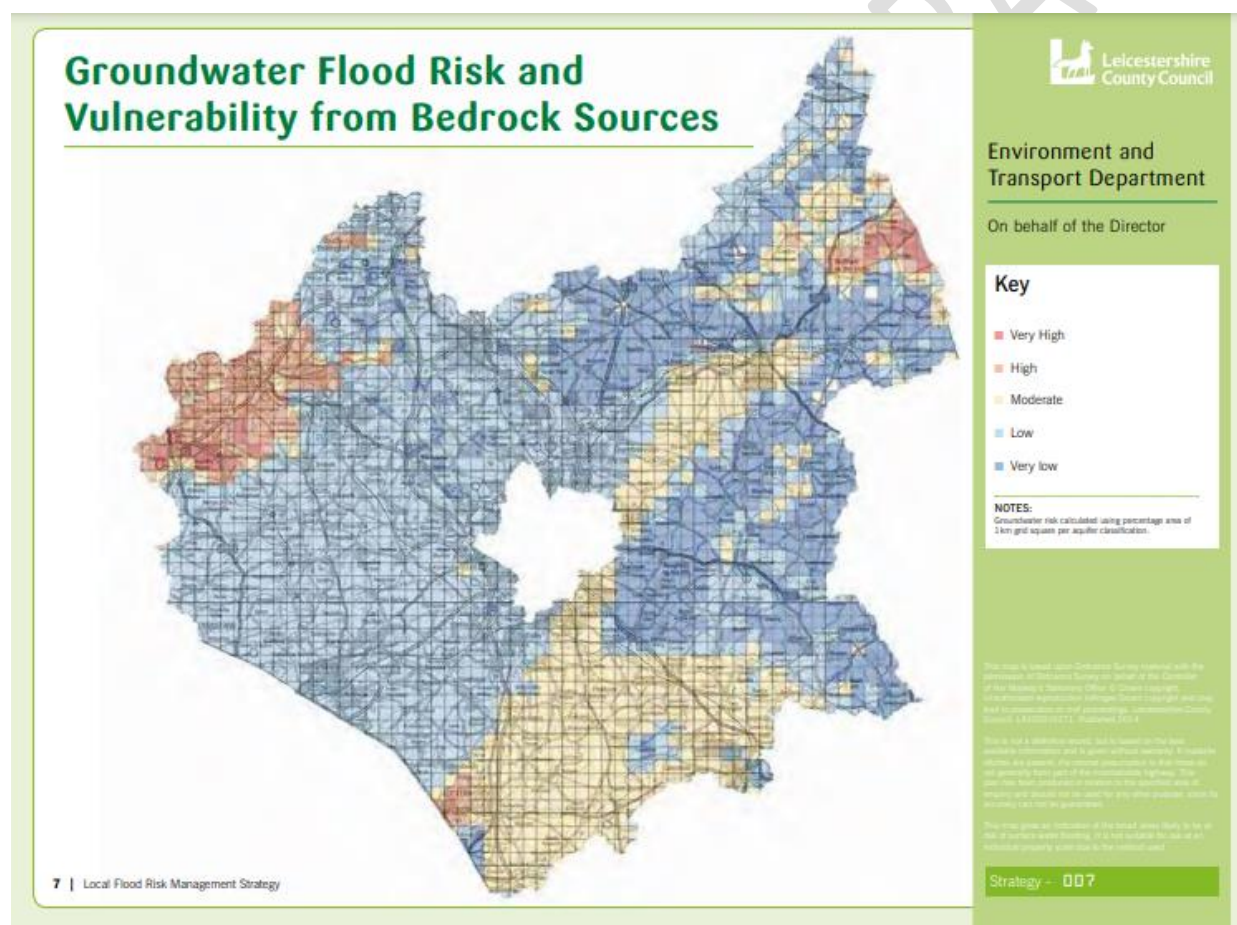


Figure 7: Groundwater Flood Risk and Vulnerability from bedrock Sources across Leicestershire⁶⁴

In England, the EA report that groundwater provides over a third of drinking water. Groundwater is susceptible to contamination from agriculture, mining, transport, housing etc. and cannot be cleaned easily. The SPZs across Leicestershire are shown in Figure 8.

⁶⁴ Local Flood Risk Management Strategy, Appendix 5 (2014). Leicestershire County Council.

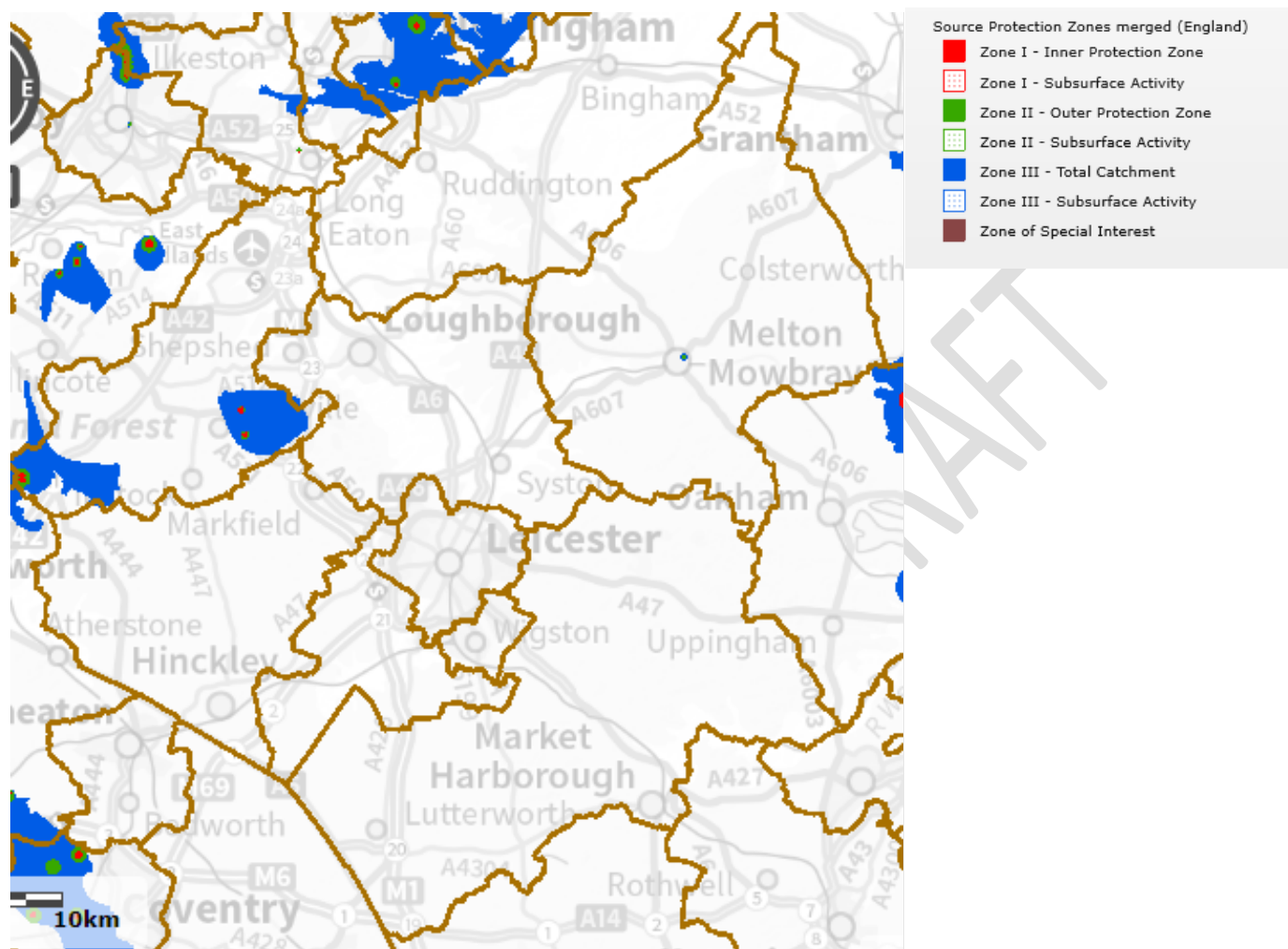


Figure 8: Groundwater Source Protection Zones across Leicestershire⁶⁵

The potential impact of waste management on water quality will be primarily a site-specific issue. Different facility types may have the potential for impacts on water courses or SPZ, e.g. windrow composting sites have the potential for run-off into surface water and contribution to eutrophication or landfill leachate could percolate into the groundwater causing contamination of groundwater. Waste management activities are controlled by strict regulation designed to minimise potential environmental impacts, with locations controlled through the planning process and facility design and operation through the Environmental Permitting system rather than at a waste strategy level.

2.5.3 Land and Soil

Geology

As observed in Figure 9, the bedrock geology for the majority of Leicestershire's geographical area is Mudstone, Siltstone, Limestone and Sandstone. This combination of Lias grouped bedrock (marine derived bedrock found in large areas of Western Europe from approximately 200 to 178 million years ago) is more prevalent in the East of the County. In the West, it is evident that Triassic bedrock (from

⁶⁵ Defra MAGIC Map Tool (Accessed June 2021)

approximately 250 to 200 million years ago) is more common, with Mudstone, Siltstone and Sandstone present here.

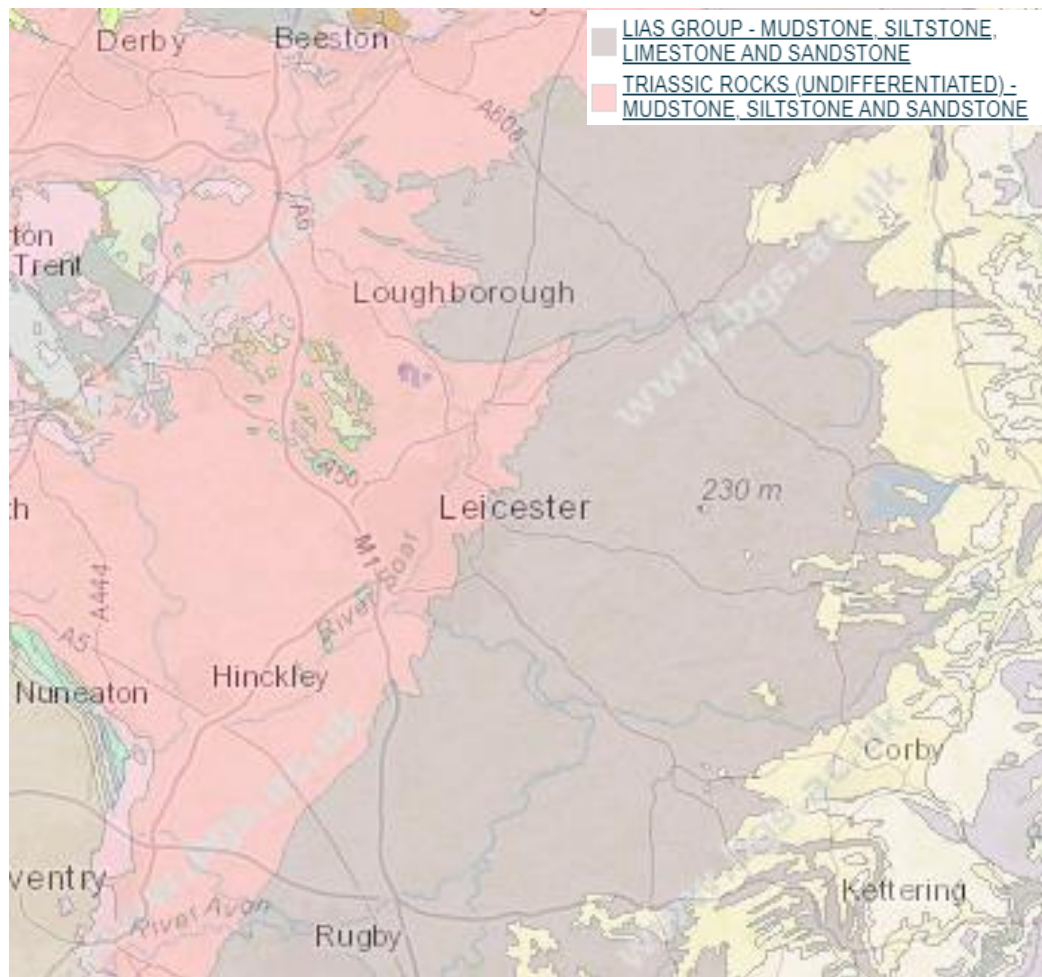


Figure 9: Bedrock geology of the Leicestershire area⁶⁶

⁶⁶ British Geological Survey, Geology of Britain Viewer:
https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.250595782.1788148322.1624981824-581421268.1623841110

Soils

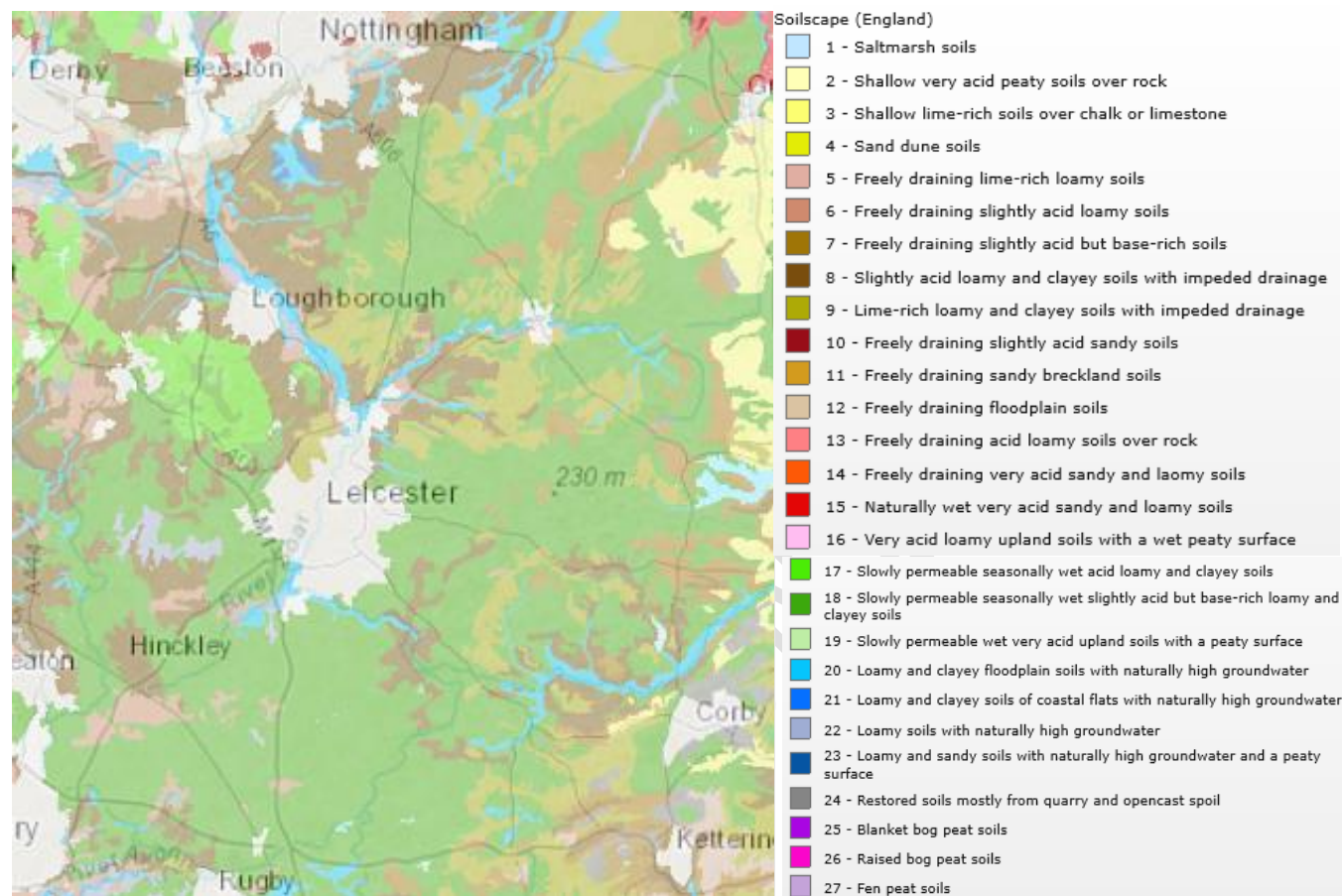


Figure 10: Soilscape (Magic Map), Defra

On the whole, loamy and clayey soils make up the majority of the soil profile for Leicestershire, which can be seen in Figure 10 in dark green. The orange/green areas which are most prevalent in the East, signify lime-rich loamy and clayey soils with impeding drainage. Clayey soils are also present in much of the Northern areas; however the loamy soils are slightly acidic (dark brown in Figure 10). In many parts of the West, free draining and slightly acidic loamy soils are present, noted by the pink areas within the map.

2.5.4 Air Quality

Road transport emissions accounted for 33% of nitrogen oxides (NO_x) emissions across the UK in 2019⁶⁷. The impact of waste management activity on local air quality is most likely to arise through transport impacts, for example, through vehicle movements for household waste collections and the transport of waste and recyclables to transfer/recycling/treatment/disposal facilities.

District and borough Councils are responsible for reviewing local air quality in accordance with the Environment Act 1995. This involves measuring air pollution and predicting how it will change in the future with a view to ensuring that local air quality objectives are achieved and where these are not met

⁶⁷ National Statistics Release:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/960193/Figure07_NOx_sect_or.csv/preview

then Local Air Quality Management Areas (AQMA) can be declared. In such circumstances local authorities are required to put together a plan to improve Local Air Quality Road transport is the main source of air pollution in the majority of AQMAs.

District and borough councils regularly review and assess pollution levels across their designated areas. As stated in the National Air Quality Strategy, which is under the Environment Act 1995, the 8 pollutants which are recommended to be monitored include: Benzene, 1-3 Butadiene, Carbon Monoxide, Sulphur Dioxide, Lead, Particulates, Nitrogen Dioxide and Ozone. However, the three which are most consistently monitored include Sulphur Dioxide, Nitrogen Oxide and Particulates (PM10). There are currently 15 AQMA's within Leicestershire.

An Air Quality and Health Partnership is in place which consists of District / Borough Councils, LCC and Public Health, who work to improve air quality in the area.

Table 23: AQMA's within the Leicestershire area.

District	Location	Cause
Blaby ⁶⁸	A5460 Narborough Road South	Nitrogen Dioxide
	M1 corridor in Enderby and Narborough	Nitrogen Dioxide
	M1 corridor between Thorpe Astley and Kirby Muxloe	Nitrogen Dioxide
	Enderby Road, Whetstone	Nitrogen Dioxide
	B582 on Mill Hill, Enderby	Nitrogen Dioxide
Charnwood ⁶⁹	Loughborough	Nitrogen Dioxide
	Syston	Nitrogen Dioxide
	Mountsorrel	Particulate matter (PM10)
	Great Central Railway	Sulphur Dioxide
Harborough ⁷⁰	A6 Leicester Road	Nitrogen Dioxide
	Lutterworth Town Centre	Nitrogen Dioxide
North West Leicestershire ⁷¹	High Street, Kegworth	Nitrogen Dioxide
	Stephenson Way, Coalville	Nitrogen Dioxide
	High Street/Bondgate Castle Donnington	Nitrogen Dioxide
	Copt Oak Road, Copt Oak	Nitrogen Dioxide
Note – there are currently no AQMA's reported in Hinckley and Bosworth, Melton or Oadby and Wigston.		

The impact of waste management activities on air quality is considered on a local rather than national level. Waste management activities may have site specific impacts related to air quality that would be considered through the planning and permitting process. In addition to this the impact of traffic movements associated with changes to waste management activity as part of the strategy review should

⁶⁸ Blaby District Council: <https://www.blaby.gov.uk/environmental-issue/waste-and-environment/air-quality/> (Accessed Feb 2021)

⁶⁹ Charnwood Borough Council: <https://www.charnwood.gov.uk/pages/landandpropertiesinairqualityman> (Accessed Feb 2021)

⁷⁰ Harborough District Council: https://www.harborough.gov.uk/info/20025/environmental_health/101/air_quality (Accessed Feb 2021)

⁷¹ North West Leicestershire District Council: https://www.nwleics.gov.uk/pages/air_quality (Accessed Feb 2021)

be considered in the assessment as traffic movements can be a major contributor to local air quality emissions, particularly in urban / sensitive areas. Transport is also considered in Section 2.7 below.

2.6 Economics

Leicester and Leicestershire are the largest economy in the East Midlands, with a GVA of £23 billion. The economy here predominantly consists of SMEs of which there are over 42,000, with 98% of businesses in the area employing fewer than 50 people⁷². There is a higher concentration of micro businesses and lower concentration of medium and large businesses in Leicestershire than the regional average.

2.6.1 Employment / Unemployment

Rates of employment and unemployment for those of the working age are outlined within Table 24.

Table 24: Employment statistics for the seven districts and boroughs of Leicestershire⁷³

	Population – 2019	Working age population: aged 16-64 (2019)	Employment and unemployment (Jan 2020 – Dec 2020) *	
			Employed	Unemployed (Model-based)
Blaby	101,500	61,500	46,900 (76.3%)	1,700 (2.8%)
Charnwood	185,900	120,600	100,800 (83.6%)	3,600 (3.0%)
Harborough	93,800	56,000	48,000 (85.7%)	1,700 (3.0%)
Hinckley and Bosworth	113,100	68,000	57,700 (84.9%)	2,300 (3.4%)
Melton	51,200	30,400	24,300 (79.9%)	1,100 (3.6%)
North West Leicestershire	103,600	63,800	48,000 (75.2%)	2,400 (3.8%)
Oadby and Wigston	57,000	34,100	26,800 (78.6%)	1,000 (2.9%)
* Percentage figures are a % of 'All people aged 16-64' (2019) Note. The remaining proportion of people between 16-64 include students, retirees, those unable to work due to temporary or long-term sickness or looking after family/home				

From taking an average of employment and unemployment rates published by ONS, between January 2020 and December 2020, the UK average employment rate was 75.8%⁷⁴. This means that during the same period all district and borough councils were performing above this, with the exception of North West Leicestershire. The UK unemployment rate for the same period was 4.4%, which is higher than any

⁷² Leicester and Leicestershire Enterprise Partnership: <https://lep.org.uk/our-economy/#:~:text=Leicester%20and%20Leicestershire%20is%20the,within%20a%2045%20minute%20drive>. (Accessed Feb 2021)

⁷³ Nomis Official Labour Market Statistics: <https://www.nomisweb.co.uk/reports/lmp/la/contents.aspx> (Accessed June 2021)

⁷⁴ ONS (2021). Employment in the UK: February 2021: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/employmentintheuk/february2021> Accessed June 2021 (May 2020, August 2020 and November 2020 datasets were also used to create this statistic).

2.7.2 Rail

Services to and from Leicester are operated by East Midlands Trains and Cross County Trains. There are four main lines which provide transport to and from Leicester, these are as follows:

- The Midland Mainline – runs north-south between London St. Pancras and Nottingham, Derby and Sheffield
- The South Leicestershire Line – runs east-west from Nuneaton to Leicester
- The Syston & Peterborough Line – runs east-west from Leicester to Peterborough
- The Leicester & Burton line – runs north-west from Leicester to Burton-upon-Trent

As part of the HS2 development, the Eastern leg of Phase 2B from West Midlands to Leeds will come past Leicestershire. Approximately 30km of this route will pass through Leicestershire, in the north of the County. The East Midlands Hub, situated in Toton, will become one of the best serviced stations on the high-speed network and Midlands Engine Rail, and as outlined below, have plans so that Leicester will have good access to this.

Midlands Engine Rail is a £3.5 billion plan which consists of seven projects from the East to West Midlands where up to 60 locations, including Leicester, could receive faster and more frequent rail services. These plans work alongside the HS2 development, with the aim to fully integrate these projects so that services would be available to link Leicester to the new high-speed network.

2.7.3 Bus

Within Leicester and Leicestershire, there are 75 main bus service routes offering an hourly or better daytime frequency from Monday to Saturday. Bus routes during evenings, Sundays and Bank Holidays are greatly reduced, with only 26 services running hourly or better.

2.7.4 Air

East Midlands Airport lies within the north of the County and is home to the UK's largest dedicated air cargo operation⁷⁶. Passenger travel also takes place here, with a large catchment area of 10.6 million people who are within a ninety-minute drive.

2.7.5 Transport Priorities

Overall, the transport links in and around Leicestershire are relatively good, with substantial road, rail, bus and air infrastructure. However, more sustainable methods such as walking, and cycling should continue to be promoted while some of the more rural districts may benefit from improved transport systems. According to the Leicestershire County Council Local Transport Plan 3, there are six Strategic Transport Goals which aim to be worked towards. This document is explored in further detail in Section 3.1.10.

The LWP area comprises all areas of the Leicestershire county excluding the Leicester City region which sits centrally within the county. Therefore, the vehicle and waste movements between Leicester and the rest of the County of Leicestershire will have an environmental impact, consequently some

⁷⁶ <https://www.eastmidlandsairport.com/about-us/cargo/>

consideration of the transport plans for Leicester are relevant for the wider implications for Leicestershire.

2.8 Biodiversity & Conservation

There are many different types of Protected Area across the UK, established either through National legislation (for example Sites/Areas of Special Scientific Interest, SSSI), at a European level through European Union Directives of initiatives (for example, Special Areas of Conservation or Special Protected Area), or areas set under Global Agreements (for example Ramsar sites). Protected Areas are designated for areas for conservation, nature, landscape and amenity value.⁷⁷

Within Leicestershire there are 76 Sites of Special Scientific Interest (SSSI), 58 of which are biological, 12 geological and 6 both biological and geological. An assessment of these SSSI's which was undertaken by Natural England in 2019⁷⁸ showed that:

- 52.38% were in Unfavourable recovering condition
- 7.27% were in Unfavourable condition – no change
- 6.69% were in Unfavourable condition - declining

There are no Areas of Outstanding Natural Beauty (AONB) within Leicestershire, however there is one Special Area of Conservation (SAC). The SAC within the County is the River Mease, which has a variety of important habitats including neutral grasslands, wet meadows and rivers and streams. In addition to this, there are also some species of international importance within this area, including the bullhead fish. Conservation objectives have been set for the SAC site to ensure the site is maintained / restored as appropriate and 'ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features'.⁷⁹

The Natural Environment and Rural Communities Act (NERC ACT 2006) states that '*Every public body must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*'. This is not a site-specific plan and therefore local biodiversity impacts are considered as outside the control of this plan. In a wider sense, and at a national or international level, waste management will impact on biodiversity as the amount of material recycled displaces primary materials extracted for use. Local biodiversity issues should be considered at individual sites through the planning and permitting processes.

In 2016, a Biodiversity Action Plan was developed for Leicester, Leicestershire and Rutland which covers the period 2016-2026. Within this, Species Action Plans were developed for sixteen species, including the Barn Owl, Bats, Otters, Water Voles and White-clawed Crayfish. 19 Habitat Action Plans have been developed for priority habitats across Leicestershire and Rutland, a further plan for Rivers is currently being prepared. For each Habitat Action Plan there is a summary which includes guidance for

⁷⁷ See [UK Protected Areas | JNCC - Adviser to Government on Nature Conservation](#) for information

⁷⁸ Leicestershire County Council (2021). Action for Nature: A Strategic Approach to Biodiversity, Habitat and the Local Environment for Leicestershire County Council.

⁷⁹ European Site Conservation Objectives for River Mease SAC. Available here: <http://publications.naturalengland.org.uk/publication/6217720043405312>

conservation measures, an explanation of the link to Local Wildlife Site criteria and the status of the habitat.

More recently, 'Action for Nature: A Strategic Approach to Biodiversity, Habitat and the Local Environment', has been published by Leicestershire County Council which builds on aims relating to biodiversity, habitats and the local environment (see Section 3.1.11 for more detail).

2.9 Natural Resources

Natural resource use is primarily a national rather than local issue as natural resources such as minerals and sources of energy are consumed locally but often derived from non-local sources. Natural resource use is also linked to the consumption of goods and services by the population of a particular area.

The Ecological Footprint is a monitor of human demand on ecosystems. It shows that humanity is already using nearly 50% more natural resources than the Earth can replenish and by 2050 it is estimated that humans will be using twice as many natural resources than the Earth can replenish. For an individual, a sustainable ecological footprint would be less than two hectares, however in the UK this is over 5⁸⁰.

Resource consumption is an issue at both a national and local level. The waste strategy review provides an opportunity to look at how activity in Leicestershire can reduce the impact on resources depletion.

Waste prevention, reuse, repair and increased or decreased recycling levels can contribute to preserving or recovering resources and so will be considered as part of an overall assessment on the impact of natural resources. Activity that promotes the waste hierarchy will be an important part of the assessment.

2.10 Buildings, Heritage and Landscape

2.10.1 Cultural Heritage

Table 26: Number of listed buildings, monuments and heritage assets⁸¹

Authority	Listed Buildings				Scheduled Monuments	Registered Parks and Gardens			Conservation areas	World Heritage Sites	Battlefields	Protected Wrecks
	Grade I	Grade II*	Grade II	Total		Grade I	Grade II*	Grade II				
Blaby	3	8	183	194	16	0	0	0	11	0	0	0
Charnwood	12	39	741	792	22	0	0	5	38	0	0	0
Harborough	22	105	1,154	1,281	65	0	0	6	62	0	0	0
Hinckley and Bosworth	8	36	306	350	22	0	0	0	29	0	1	0
Melton	26	64	626	716	36	0	1	1	44	0	0	0
North West Leicestershire	7	40	611	658	23	0	2	1	22	0	0	0

⁸⁰ <https://cat.org.uk/info-resources/free-information-service/green-living/carbon-calculators-ecological-footprints/> (Accessed June 2021)

⁸¹ <https://historicengland.org.uk/listing/the-list/> (Accessed June 2021)

Oadby and Wigston	1	4	33	38	0	0	0	0	10	0	0	0
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As observed in Table 26, there are a large number of heritage sites within the seven district and borough councils of Leicestershire which will all require protection. Large numbers of Listed Buildings are present in Charnwood, Harborough and Melton, with Harborough also having the highest quantity of Registered Parks & Gardens and Conservation Areas. None of the district and borough councils have World Heritage Sites (or Protected Wrecks), however there is one Battlefield within Hinckley and Bosworth which is the Bosworth Battlefield.

2.10.2 Landscape

There are 159 National Character Areas (NCAs), across England, as defined by Natural England. They are classified as a natural subdivision of England based on the landscape, history, biodiversity, geodiversity, and economic activity⁸². The boundaries of NCAs follow natural lines, as opposed to administrative boundaries. There are many NCAs which intersect the Leicestershire area, these include:

- NCA 48: Trent and Belvoir Vales
- NCA 69: Trent Valley Washlands
- NCA 70: Melbourne Parklands
- NCA 71: Leicestershire & South Derbyshire Coalfield
- NCA 72: Mease / Sence Lowlands
- NCA 73: Charnwood
- NCA 74: Leicestershire and Nottinghamshire Wolds
- NCA 75: Kesteven Uplands
- NCA 89: Northamptonshire Vales
- NCA 93: High Leicestershire
- NCA 94: Leicestershire Vales
- NCA 95: Northamptonshire Uplands

It should be noted that the Resources & Waste Strategy is not a planning document and doesn't address site specific aspects, and therefore the relationship of buildings, the landscape and site-specific issues is not directly related to this Strategy but will be relevant to the waste local plan and associated planning permissions and also environmental permits for waste management facilities and activities.

⁸² Source: <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making>

3 Key Sustainability Issues and Interrelationships

As part of developing the SEA for the review of the LR&WS, it is important to consider the local environmental baseline. An assessment of the baseline position for Leicestershire has been carried out as part of the scoping phase of the SEA. From this review, the key sustainability issues identified for Leicestershire and the LR&WS review include climate change, local environmental quality, air quality, economics and natural resources. All will be assessed as part of the sustainability assessment. These issues have been presented and discussed with a range of Council representatives covering climate change officers, planning and waste management officers. This took place at a number of workshops, the first of which took place on 9th June 2021 and focussed on draft strategy aims and objectives, options and assessment criteria, and the second was held on 23rd June 2021 and focussed on the SEA process. Draft findings from the Strategy and initial draft Environmental Report were discussed at a second set of workshops on the 29th October and 9th November. The results in this Environmental Report take account of the workshop outcomes and have been subject to further consultation with the district, borough and County Councils prior to inclusion in this document.

It will also be important to take account of interrelationships between issues, for example between climate change and natural resources, as the products that we consume and then discard end up as waste that needs to be managed and disposed of whilst also using up scarce natural resources in their production. The waste services that are provided locally, depending on waste systems and sites for the facilities, could have impacts in terms of environmental quality, air quality and economics that need to be tested through the sustainability assessment.

The key sustainability issues identified from the baseline assessment and initial consultations are:

Climate Change

- Total CO₂ emissions for Leicestershire as a whole and all seven district and borough councils have reduced from their 2006 levels, however there is a substantial challenge to reach 2045 ambitions of net zero carbon across Leicestershire (and the respective climate ambitions of the individual Councils, which have each developed their approach through local strategies).
- Preparing for changing climate, or climate adaptation. Identifying areas at risk across Leicestershire will be important to ensure adequate measures are put in place to mitigate against the impact of climate change. Extreme weather events could impact on the operation of waste management facilities, notably landfill and composting, for example in high winds. This could also be a factor to consider when considering containers for kerbside collections. It is evident from overseas practice in warmer climates, that waste and recycling collection is more frequent, and often at earlier times, in particular for putrescible waste streams.
- More widely, Leicestershire County Council's Local Flood Risk Management Plan identified 40 areas as Priority Settlements for flooding, which are particularly sensitive to the impacts of climate change. As part of this, an Action Plan was developed where a range of actions are listed for each of the seven objectives. A number of mitigation measures are outlined within this which include improving channel capacity through de-culverting and providing property level protection to those identified as being at risk. Flooding events may also entail a significant clean-up effort, generating waste (from silt deposits, water damage etc).

- Waste management can potentially provide different forms of energy (gas, heat, electricity, transport fuel) if needed to support changing energy demands.
- Effective waste management, through application of the waste hierarchy principles (see below) generally have strong climate change benefits.

Waste

- Local Authority collected waste has remained relatively stable between 2014- 2019/20. Councils have reported a rise in domestic waste and recycling and a fall in commercial waste arisings as a result of the Covid-19 pandemic (as reported nationally). New waste streams have been introduced and the composition has changed as a result of changed behaviour (e.g. takeaway food packaging, DIY waste, office-type waste from homeworking). The longevity of these effects / systems is currently unknown.
- Compared to the 2019-20 England average for waste landfilled (8.5%), Leicestershire had a rate of 31.8% in 2019-20, an increase from the 28.2% of waste they sent to landfill in 2014-15. This is high and will contribute to both climate change impacts (notably from biodegradable waste) and resource loss.
- Compared to the 2019-20 England average for recycling / composting (42.8%), Leicestershire had a marginally higher rate of 45.5%. However, this is a decrease on rates ten years ago of >50%. There is a need to reverse this trend in order to realise national targets of 65% recycling / reuse by 2035. Recycling has strong carbon / climate change benefits for most materials.
- Garden waste is a charged service in the majority of district and borough councils, which is contrary to the direction of national policy; efforts could also be made on waste minimisation through home or community composting. Leicestershire County Council have supported home composting for a number of years through campaigns and subsidised compost bins.
- There is a high proportion of food waste in the residual stream⁸³ due to a lack of separate food waste collections (excepting a trial in NW Leicestershire), this is contrary to the direction of national policy and the Environment Act⁸⁴. Recycling food waste via Anaerobic Digestion has strong climate change benefits.
- All district and borough councils support community action groups and volunteers with provisions for litter picking.

Health

- On average across the seven district and borough councils, the average life expectancy is above the average for England.

⁸³ Nearly 30% (by weight) of residual household waste is food waste, source: Integrated Skills (2018) Waste Composition Analysis for Leicestershire County Council

⁸⁴ The Environmental Act is legislation which will improve air and water quality, tackle waste, increase recycling, halt the decline of species and improve our natural environment. This is detailed further in Appendix A, Section 2.15.2.

- Percentage of population living with a long-term health problem or disability are marginally above the England average for most district and borough councils.
- There is a longer-term uncertainty regarding Covid impacts, and the proportions of the population affected by variants, and potential long term effects (e.g. long covid) with possible impacts on waste service demands.
- Issues of accessibility and inclusion are factors for those with health / disability issues.
- Dietary health and food waste are a nationwide issue. Leicestershire's Good Food Charter aims to make Leicestershire a healthier and more sustainable County.

Population

- Large areas of population growth include NW Leicestershire, Blaby, Charnwood, Hinckley and Bosworth and Oadby and Wigston, therefore requiring sufficient waste management infrastructure and systems (domestic and centralised). There are other areas of growth outside urban areas, such as the Lutterworth East new town planned for Harborough.
- The most urban areas are Blaby and Charnwood, then Hinckley and Bosworth, NW Leicestershire and Oadby and Wigston, this is followed by Harborough and Melton which are largely rural. Increased rurality impacts on waste management services by raising costs / reducing collection efficiency. Urban environments may have different waste management challenges such as a lack of storage for bins / containers and specialist requirements for multi-occupancy dwellings; this is particularly relevant for potential future food waste collections.
- The transient (e.g. student) population also creates challenges with waste services / messages. Ethnicity and language barriers are also a factor, as is inconsistent product / package recyclability labelling.
- The number of people aged 65 and over is predicted to increase by 40% by 2035. This change means that 1 in 4.5 of the population will be aged 65 and over by 2035, rather than the current 1 in 5.7. This could have implications for waste management services in a variety of respects. This might for example include increased demands for assisted collections and impact on waste composition.
- The unitary authority of Leicester City sits outside the LWP area⁸⁵, but is located centrally within Leicestershire; the vehicle and waste movements between Leicester and the rest of the County of Leicestershire will have an environmental impact.

Local Environment Quality & Air

- Comparing number of fly tipping incidents from 2016/17 to 2019/20, Blaby, Charnwood, Harborough and Hinckley and Bosworth have all seen an increase in the number of incidents reported. This can impact on local pollution and recreational blight.

⁸⁵ The LWP area comprises all areas of the Leicestershire county excluding the Leicester City region which sits centrally within the county.

- Local air pollution can also impact on local environment quality. There are 15 Air Quality Management Areas (AQMAS) within Leicestershire, 13 of which are caused by high levels of Nitrogen Dioxide. 5 AQMAS are in Blaby, 4 in Charnwood and NW Leicestershire and 2 in Harborough.
- Refuse Collection Vehicles (RCVs) and other waste collection and transportation vehicles which are typically diesel fuelled can contribute to NOx and particulates (in addition to carbon dioxide and other pollutants); exacerbated by collections typically taking place when the roads are at their busiest.
- Domestic vehicles carrying waste (for example to the HWRCs) can also contribute to detrimental impacts to air.
- Waste management processes (e.g. transfer stations, composting sites, etc) can impact on local air quality through vehicle movements and / or operations.
- Monitoring and improving local environmental quality has a significant role in protecting local amenity. Amenity is an important consideration for effective waste management operations (particularly in reference to noise, dust and odour etc).

Water

- Majority of Leicestershire is within the catchment area of the River Soar. Other rivers that pass through the County area include the Trent, Mease and Sence. It is important to be aware of flooding from main rivers, which are typically large Rivers and Brooks of strategic drainage importance (an example of this would be the River Soar), which could put many properties and facilities at risk of flooding.
- Within LCC's Local Flood Risk Management Strategy (2015), flood modelling was undertaken and found that for a 1 in 100 Surface Water Flood Risk, more than 1,400 properties were at risk in: Loughborough (2,743); Blaby, Narborough & Whetstone (1,702); Market Harborough (2,310); Wigston (1,849), and Hinckley and Burbage (1,496). There are a range of flood management projects in these areas.
- The risk of groundwater flooding is relatively low in the majority of the County, however there is moderate risk in the south of the County and very high risk in areas of the North West (including areas of NW Leicestershire).

Biodiversity

- Biodiversity Action Plan for Leicester, Leicestershire and Rutland was developed in 2016 which runs to 2026.
 - 16 Species Action Plans were developed
 - 19 Habitat Action Plans were developed (1 further plan for Rivers is currently being developed)

- 76 SSSIs within Leicestershire (58 biological, 12 geological and 6 both biological and geological), which should be protected. This links to Leicestershire's Action for Nature strategy, see Section 2.8 for more detail.

Transport

- HS2 – The Eastern leg of Phase 2B from West Midlands to Leeds will run past Leicestershire. Approximately 30km of this route will pass through Leicestershire, in the north of the County.
- The East Midlands hub and the Leicester Midlands Engine Rail proposals will influence commuter travel patterns
- Good variety of transport links are evident across the County – road, rail, bus, air, while cycle and footway usage should be promoted. However, rural areas may benefit from improved public transport links; this is being addressed through various plans, such as the Bus Service Improvement Plan⁸⁶.
- Six transport priorities have been identified within the Leicestershire County Council Local Transport Plan 3. This includes working towards a transport system which will help to reduce the carbon footprint of Leicestershire. The district and borough councils have local sustainable transport plans in place.
- Alternative vehicle fuelling infrastructure (Hydrogen, natural gas, electric) is in development and needs to be increased to meet future demand.
- Broadband connectivity is expected to be in continued demand throughout Leicestershire.

⁸⁶ [National Bus Strategy.pdf \(leics.gov.uk\)](#)

4 Draft Sustainability Objectives and Criteria

4.1 Sustainability Objectives

The original objectives from Leicestershire's previous waste strategy and the more recent Sustainability Appraisal (SA) of the Leicestershire Minerals and Waste Local Plan have been reviewed, along with the information within this Scoping Report to determine a list of draft Sustainability Objectives and associated criteria. These are contained in Table 27 alongside a Proposed Measurement Indicator, SEA Regulations Themes and Rationale for inclusion. The objectives and indicators / criteria for measurement were presented at a workshop (with officers from all Council's present) and have been subject to further consultation with the Partnership prior to inclusion in this consultation phase.

Table 27: Sustainability Objectives

Sustainability Objectives for draft Resources & Waste Strategy	Draft Measurement Indicator	SEA Regulations Themes	Rationale
1. To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	Net carbon impact of waste collection and management (GWP100 kg CO ₂ eq. ⁸⁷)	Climate Factors	<p>Links to SO no.5 from Leicestershire Minerals and Waste Local Plan</p> <p>Key driver for Councils and a Sustainability Issue for Leicestershire</p> <p>Many of the district and borough councils have committed to become net zero.</p>
2. To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	<p>MJ of Energy recovered</p> <p>Net carbon impact of waste collection / transportation (GWP100 kg CO₂ eq.)</p>	Climate Factors / Resources & Material Assets / Air	<p>Links to SO nos. 4, 5 from Leicestershire Minerals and Waste Local Plan</p> <p>The Strategy will consider energy generation and alternative fuels. Links to Sustainability issues on Air, Transport and Climate Change</p> <p>Requirement for HGVs to move away from Diesel by 2040 (2035 for HGVs up to 26 tonne)</p>

⁸⁷ In the workshop it was questioned whether the BEIS tool could be used for carbon impacts, but this does not go into the detail required for this assessment.

Sustainability Objectives for draft Resources & Waste Strategy	Draft Measurement Indicator	SEA Regulations Themes	Rationale
3. To reduce resource use	<p>Waste arisings (kg/hh/year AND kg/person/year)</p> <p>Reduce / Repair / Reuse / recycling (kg/hh/yr AND kg/person/year)</p> <p>Resource Depletion measure (Av. Euro person equivalent)</p>	Resources & Material Assets	<p>Links to SO no 1 from Leicestershire Minerals and Waste Local Plan</p> <p>A key objective of the LCC Environment Strategy</p> <p>A Sustainability Issue for the Strategy & the service</p>
4. To divert waste away from landfill	<p>Residual waste to landfill (kg/hh/yr AND kg/person/year)</p>	Resources and Material Assets / Climate Factors	<p>Links to SO no 4 from Leicestershire Minerals and Waste Local Plan</p> <p>A Sustainability Issue for Leicestershire and the service</p>
5. To maintain and enhance good air quality for all	<p>NOx impacts from collection / transport (kg NOx)</p> <p>Particulates from collection / transport (PM, µg m⁻³)</p> <p>Human Toxicity measure (kg 1,4-DCB-Eq)</p>	Air / Human Health	<p>Links to SO no 5 from Leicestershire Minerals and Waste Local Plan.</p> <p>A Sustainability Issue for Leicestershire and the service</p>
6. To promote sustainable economic growth and employment	<p>Semi-qualitative assessment of employment using collection modelling / case study information</p> <p>Potential supply chain / circular economy benefits</p>	Population and socio Economics	<p>Links to SO no 10 from Leicestershire Minerals and Waste Local Plan</p> <p>A Sustainability Issue for Leicestershire and the service</p>

Sustainability Objectives for draft Resources & Waste Strategy	Draft Measurement Indicator	SEA Regulations Themes	Rationale
7. To protect and enhance the quality of water and soils	<p>Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.)</p> <p>Eutrophication (PO₄ kg eq.)</p> <p>Quantity of compost / digestate added (kg/year)</p>	Water & Soil	<p>Links to SO no 1 from Leicestershire Minerals and Waste Local Plan</p> <p>A key objective of the LCC Environment Strategy</p> <p>Links to the Action for Nature Document</p>
8. To protect and increase biodiversity, flora and fauna	<p>Basket of environmental indices:-</p> <p>Acidification (kg SO₂ eq.)</p> <p>Eutrophication (PO₄ kg eq.)</p> <p>Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.)</p> <p>Climate Change impacts (GWP100 kg CO₂ eq.)</p>	Biodiversity, Flora and Fauna	<p>Links to SO nos. 3 & 8 from Leicestershire Minerals and Waste Local Plan</p> <p>A key objective of the LCC Environment Strategy</p> <p>Links to the Action for Nature Document</p> <p><i>[A basket of indices to reflect general impacts on the natural environment. It was queried during consultation (and it is agreed) that it is not an ideal representation of impacts on Biodiversity, however no more suitable alternative measures have been proposed]</i></p>
9. To protect and enhance the landscape and geodiversity of Leicestershire	<p>Qualitative / comparative assessment, not a site-specific plan</p> <p>Land take (ha)</p>	Geodiversity and Landscape	<p>Links to SO nos. 3, 6 & 8 from Leicestershire Minerals and Waste Local Plan</p> <p>A key objective of the LCC Environment Strategy</p> <p>Links to the Action for Nature Document</p>

Sustainability Objectives for draft Resources & Waste Strategy	Draft Measurement Indicator	SEA Regulations Themes	Rationale
10. To protect the significance of heritage assets of archaeological, cultural and historic value	Qualitative /comparative assessment, not a site-specific plan Land take (ha)	Cultural Heritage	Links to SO no 7 from Leicestershire Minerals and Waste Local Plan A key objective of the LCC Environment Strategy Links to the Action for Nature Document

4.1 Key themes

The review of programmes and plans (Appendix A) highlights a number of key themes of relevance to LR&WS and the sustainability objectives above. Key themes are included in Table 28 below.

Table 28: Consolidated list of themes for consideration in the revised R&WS

Key Themes	Comments
Waste prevention	Whilst these themes could be combined under the theme of the waste hierarchy, within the LR&WS it is important that they are considered as individual themes. The elements of waste hierarchy will also contribute to renewable energy generation and the emerging theme of zero avoidable waste.
Reuse, recycling and composting	
Energy recovery from waste	
Landfill diversion	
Reducing the carbon / greenhouse gas impact of waste management to achieve collective net zero ambitions	Covering climate change and including carbon / greenhouse gas emissions from treatment / disposal options, low carbon economy, renewable energy, reducing transport impacts.
Affordability	Including value for money and the potential for delivering cost savings.
Circular economy	Encompassing resource efficiency / productivity, industrial symbiosis, wider collaborative working, developing markets for recyclable materials and sustainable procurement as a means of completing the circle.
Sustainable transport	Waste management, in one sense, is a logistics operation within a wider supply chain of production, consumption and management of materials arising as wastes. Transport is therefore a key aspect of waste management operations.
Limiting environmental impacts and harm to human health	Including environmental protection, sustainable communities.
Improving biodiversity	Whilst not a site-specific strategy waste management operations can impact on biodiversity through emissions to air, water and land.

Key Themes	Comments
Reducing fly-tipping and litter	Encompassing the quality of the local amenity and contributing to green infrastructure.
Managing the impact of food waste	Two very topical themes, which could be considered under different elements of the waste hierarchy and are specific themes within the LR&WS.
Managing the impact of plastic wastes	
Management of all municipal waste	With the emergence of municipal waste targets covering commercial wastes similar in nature to household waste.
Raising waste awareness and education	On-going behaviour change.
Developing clean infrastructure / Build back better / Innovation	This has relevance for waste management strategy decisions (e.g. food waste collection and treatment infrastructure) and services (e.g. collections using electric vehicles).

5 Draft Strategy Aims and Objectives

The initial consultation phase of the Strategy development process has considered the new aim and objectives of the LR&WS. A workshop was held on the 9th June with the district and borough councils and County Council to review the previous aims and objectives of the Strategy, discuss their relevance for the new Strategy and propose a new aim and accompanying objectives for statutory consultation.

This section below includes a proposed vision (or aim) for the Strategy and objectives as a result of the discussion at the workshop.

Proposed Strategy Vision

To work towards a circular economy and contribute to achieving net zero carbon by 2050 in Leicestershire. This means fully embracing the waste hierarchy by preventing waste and keeping resources in circulation for as long as possible, through reuse, repair and recycling, to realise their maximum value whilst minimising environmental impacts.

Strategy Objectives

The objectives have been grouped into themes. These are all important guiding principles for the service as a whole and are not in order of priority.

Table 29: Strategy Objectives

Proposed LR&WS objectives
Deliver services in accordance with circular economy principles
Objective 1: Manage materials in accordance with circular economy principles, except where costs are prohibitive, or where the environmental consequences can be demonstrated to be negative.
Objective 2: As local authorities, set an example by preventing, reusing, recycling and composting our own waste and use our buying power to positively encourage sustainable resource use.
Reduce the climate change / carbon impact of waste services in Leicestershire
Objective 3: Reduce carbon emissions from Leicestershire's waste management services.
Deliver services that are financially sustainable and equitable across the Partnership
Objective 4: Consider the whole life financial, social and environmental impact, and deliver quality services designed to allow flexibility, innovation and improvement.
Objective 5: Promote the economic and employment opportunities of sustainable waste management where this is consistent with circular economy principles. Consider local / regional supply chain and markets for recycle and other secondary raw materials.
Delivery of high-quality waste services for residents of Leicestershire
Objective 6: Work together to adapt and deliver coordinated services and infrastructure for waste services with lower environmental impacts.

<p>Objective 7: Aim to reduce and manage residual waste within the County where this is consistent with the proximity principle and to manage all other waste at the nearest appropriate facility by the most appropriate method or technology.</p>
<p>Work in partnership with local communities across Leicestershire</p>
<p>Objective 8: Work with the community and businesses to raise awareness about environmental matters (including climate change, energy and resource management) and increase participation in waste prevention, reuse and recycling initiatives and link to national campaigns.</p>
<p>Objective 8: Lobby and work with others, in pursuit of the Partnership’s vision of sustainable waste and resource management.</p>

The LR&WS also includes a number of pledges setting out specific actions to support and achieve these objectives, these can be found in the draft LR&WS.

6 Strategy Waste Management Options

6.1 Options Appraisal and SEA

A Strategy requires an options appraisal to prioritise between alternative options for the purposes of service delivery, procurement, and planning. The methodology for the options appraisal was discussed at a workshop held in June 2021, and the results presented and discussed in a workshop on the 29th October 2021.

Article 5.1 of the SEA Directive states:

“an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated”

Each level of the waste hierarchy is considered in sequence as recommended in the Practice Guidance for the Development of Municipal Waste Management Strategies⁸⁸.

The initial consultation phase has also considered the alternative waste management options that have been assessed as part of developing the LR&WS. Options across the waste hierarchy have been considered in the waste strategy and SEA. The options also take account of future policy direction including the Resources and Waste Strategy for England.

The options have been grouped to provide a rounded set of options for the strategy appraisal process. The structure of these allows the effect of proposed national policies, residual waste restrictions, different dry recycling schemes to be compared. A wide range of options were considered at workshop held on the 9th June with the district and borough councils and the County Council.

The modelled options for the LR&WS are listed and briefly described below.

Table 30: Modelled options for the LR&WS

Option	Description
Baseline	Current service
Option 1: Waste minimisation	Focus on waste awareness / education / waste reduction / recycling and prevention initiatives
Option 2: Reuse and repair	Focus on facilitating or promoting reuse / repair activities across Leicestershire
Option 3: Revised Baseline with Consistent Collection measures, EPR & DRS	As Baseline ⁸⁹ kerbside collection service, except: <ul style="list-style-type: none">• Recycling collection consistent with materials indicated in national consistent collections consultation (e.g. plastic film, cartons etc) where not currently collected• ‘Free’ garden waste collection• Separate weekly food waste collection

⁸⁸ ‘A Practice Guide for the Development of Municipal Waste Management Strategies’, DEFRA, November 2005

⁸⁹ Commingled for all district and borough councils, except NWL (kerbside sort)

Option	Description
	<ul style="list-style-type: none"> New national measures (extended producer responsibility, EPR, and a deposit return scheme, DRS) come into effect as set out in the national consultation This option only, also includes batteries, textiles, small waste electrical and electronic equipment (WEEE) collections
Option 4: Retained charged garden	As Option 3, except: <ul style="list-style-type: none"> Garden waste collection is retained as a charged service for all Councils that currently operate a subscription service
Option 5A: Restricted residual waste	As Option 3, except: <ul style="list-style-type: none"> Residual waste collected fortnightly in 140L wheeled bins
Option 5B: Restricted residual waste	As Option 3, except: <ul style="list-style-type: none"> Residual waste collected three-weekly in 240L/180L wheeled bins
Option 6: Twin stream recycling, fibre out (paper and card)	As Option 3, except: <ul style="list-style-type: none"> Fortnightly twin stream collection of dry recycling: paper and card in one box; plastics, glass and cans together in a wheeled bin
Option 7: Kerbside sort	As Option 3, except: <ul style="list-style-type: none"> Fortnightly kerbside sort collection of dry recycling (collecting recyclables in different boxes and bags and collection crew sort them into different compartments on a specialist recycling vehicle)
Option 8: Three-stream recycling	As Option 3, except <ul style="list-style-type: none"> Fortnightly three-stream collection of dry recycling: paper and card in box 1, glass in box 2, plastic and cans in box 3. These are collected in two different vehicles.

Three further sensitivities for the options were tested on option 3:

- Electric vehicle sensitivity – (replacing all diesel collection vehicles with electric equivalent)
- Reduced reliance on landfill and increased use of Energy from Waste for residual waste treatment (electricity recovery only)
- Reduced reliance on landfill and increased use of Energy from Waste with combined heat and power recovery (CHP)

These sensitivities were to explore other aspects that could have a significant benefit to the options in general. The implications are used to inform the scoring and mitigations that can be applied.

A detailed description of the appraisal process and results are included in the Options Appraisal Report. The results are used to inform the scoring in this report.

6.2 Assessment Criteria

The nine alternative options reflect national, regional, and local government policy and were developed to reflect the needs of, and issues in, Leicestershire. The options of the draft LR&WS have been assessed against the SEA sustainability objectives and analysed according to an impact/effect appraisal scale.

The nature of impacts will vary between the options being considered and not all measures will be relevant in each case. Impacts can be indirect, cumulative, or one-off, temporary, or permanent and

short/medium/long term and these are appraised in Appendix B with some aspects included later in this section.

Impacts against the SEA criteria are scored as to whether they exhibit a positive or a negative impact. The nature of environmental impacts and this relatively high-level assessment means that in some cases the options considered may exhibit effects that can be described using a number of these descriptions, for example an option may have both positives and negative impacts against an objective. The criteria used for this scoring exercise can be seen in Table 31 below.

Table 31: Scoring criteria

Major positive effect	++
Some positive & major positive effects	+ / ++
Positive / indirect positive effect	+
Neutral effect	0
Negative / indirect negative effect	-
Negative / major negative effect	- / --
Major negative effect	--
Possible positive & negative effects	- / +
Possible neutral & positive effects	0 / +
Possible negative & neutral effects	- / 0
Unknown	?
Unknown / positive	? / +
Unknown / negative	? / -

6.3 Scope of the Assessment

The geographical scope of the assessment is limited to Leicestershire; however, some environmental impacts (e.g. global warming impacts) will clearly exhibit impacts wider than the area covered by the LR&WS. The LR&WS considers a number of options for dealing with waste in the future, activities, and facilities for which will ultimately require a site(s). Sites are not identified as part of this assessment and therefore the issues of land use are assessed on a generic basis, with detailed consideration in the local development documents associated with waste planning.

The assessment combines both quantitative and qualitative approaches. The qualitative assessment is informed by technical judgement and the quantitative input has been informed by modelling work undertaken to understand the impact of technologies on recycling rates and the diversion of biodegradable waste from landfill. The Waste & Resources Assessment Tool for the Environment (WRATE)⁹⁰ has been used to assess certain environmental issues, where suitable. The results of the WRATE modelling (which has been used for the evaluation of the SEA objectives) are included in Appendix C.

⁹⁰ A Life Cycle Assessment model, specifically developed for municipal waste management decision making, funded by the Environment Agency and managed by Golder Associates.

6.4 Strategy Options Assessment Matrix

For further details on the analysis, including causes, mitigations, timescales and whether there are cumulative / synergistic type impacts are provided in Appendix B.

Scenarios 1-8 have been assessed against the SEA objectives as detailed in Table 32.

Table 32: Summary assessment of all scenarios within the SEA

SEA Objective	Option								
	1	2	3	4	5A	5B	6	7	8
	Waste minimisation	Reuse and repair	Revised baseline with consistent collection measures, EPR & DRS	Retained charged garden	Restricted residual waste capacity	Restricted residual waste collection frequency	Twin stream recycling, fibre out	Kerbside sort	Three-stream recycling
To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	+/++	+/++	+	+	++	++	0/+	0/+	0/+
To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	0	0	++	++	++	++	++	++	++
To reduce resource use	++	++	++	++	++	++	++	++	++
To divert waste away from landfill	+	+	++	++	++	++	++	++	++
To maintain and enhance good air quality for all	?	?	-/--	-/--	-/--	-/--	-/--	-/--	-/--
To promote sustainable economic growth and employment	?	?/+	+	+	+	+	+	+/++	+/++
To protect and enhance the quality of water and soils	?	?	-/+	-/+	-/+	-/+	-/+	-/+	-/+
To protect and increase biodiversity, flora and fauna	?	?	-/+	-/+	-/+	-/+	-/+	-/+	-/+
To protect and enhance the landscape and geodiversity of Leicestershire	0	0	0/+	0/+	0/+	0/+	0/+	0/+	0/+
To protect the significance of heritage assets of archaeological, cultural and historic value	0	0	0/+	0/+	0/+	0/+	0/+	0/+	0/+

7 SEA Conclusions and Mitigation

The following points are the key conclusions and mitigation issues arising from this SEA of the draft LR&WS. The Strategy seeks to improve on the baseline situation through improved resource management and continued movement of waste management practices in Leicestershire up the waste hierarchy. This is consistent with good practice in the area of resource and waste management.

The analysis of the Strategy and alternate delivery approaches for the Strategy give rise to the following mitigations for consideration in the Strategy review process:

- To deliver campaigns and communications activity that will engender strong and sustained participation in waste minimisation, reuse or recycling systems
- To focus communications and resource / waste services on preventing, reusing/repairing or recycling waste streams with the highest environmental impact (or best environmental savings). Examples include food waste, metals, textiles and waste electrical equipment.
- The waste hierarchy is a useful guide in terms of the preferred approach to reduce environmental impacts (i.e. prevent waste in the first instance, then reusing 'usable' items or packaging, recycling other material resources and recovering energy, with landfill as the least desirable option).
- Providing a dedicated food waste collection significantly increases the recycling performance of the Partnership. The best food waste treatment option, in carbon terms, is to send the waste to Anaerobic Digestion facilities with efficient energy recovery. The energy is classified as renewable and is low carbon.
- Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. There is the potential to offer composts back to households for domestic horticulture and raise awareness of the benefits of the garden waste service.
- Establishing good communications around effective separation of organics, will improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will help to reduce contamination of digestate and consequent impacts on land and soil.
- Whilst some residual waste is inevitable, seek to minimise this and reduce the amount sent to landfill as far as practicable.
- Where residual waste is sent to Energy from Waste facilities, higher efficiency plants should be used where available and a pro-active approach (for reasons of reducing climate change impacts) take for the removal of plastics from the residual waste. The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred when this technology becomes available.

- The carbon impact of the Leicestershire Resource and Waste Strategy actions should be measured and considered holistically to ensure that the service contributes effectively towards net zero carbon targets and climate emergencies of respective partners.
- To reduce emissions to air from vehicle movements, particularly in areas where there are local pollution hotspots (e.g. Air Quality Management Areas) alternative fuels should be considered for collection and transport of waste.
- Where infrastructure is required under the Strategy activities, reusing existing buildings or infrastructure should be considered, to maximise the use of existing resources and reduce additional environmental burdens. Appropriate planning and regulatory practice must be observed, including (where applicable) Best Available Techniques (BAT), Biodiversity Net Gain requirements and good practice in terms of facility design for visual amenity and operations management for local amenity (noise, odour etc.).
- The Partnership has a role in supporting the circular economy by enabling collection systems that can readily extract usable resources from waste and helping facilitate or signpost to other circular economy initiatives (such as waste prevention, remanufacture, repair, reuse and prevention activity).
- The Partnership can support upskilling for aspects like repair and refurbishment activities to support a circular economy.
- The Partnership can lead by example to manage its consumption and management of resources and waste to reduce environmental impacts and support behaviour change.
- By promoting linkages between waste / resource management activities and other environmental impacts (e.g. biodiversity), the Strategy can exhibit broader environmental benefits.

These elements should be applied in the Leicestershire Resources & Waste Strategy and its implementation in order to reduce negative impacts and enhance positive impacts, as identified by this Strategic Environmental Assessment.

8 Monitoring

The areas of particular sensitivity from waste management operations and initiatives should be subject to monitoring as part of the SEA process. The proposed monitoring criteria are provided in Table 33 below.

Table 33: SEA monitoring criteria

Criteria	Unit of Measurement	Frequency of Measurement	Target / Comment	Trigger Point/s	Responsibility
Waste Arisings	Kg of collected household waste / person / annum Kg of kerbside residual waste/ household / annum	Monitored annually using Defra's Local Authority Collected Waste Statistics Monitored annually using the WRAP's Local Authority Waste and Recycling Portal ⁹¹ Analysed biennial (to take account of short-term variations)	Benchmark against comparable local authorities to understand variations that occur.	Where waste arisings are not in line with expectations and increase beyond anticipated levels relative to the previous two-years; and this is not a trend observed in the other benchmark local authorities over the same period, the reasons should be investigated and where necessary remedial action taken.	Responsibility for any remedial action will depend on the reason for the unanticipated changes in waste arisings.
Recycling/ Composting	% household waste recycled / composted	Annually using Defra's Local Authority Collected Waste Statistics	Delivery of the LR&WS targets / pledges on recycling and composting.	Where annual performance, committed actions and forecasts shows the progress is not in line with delivering the LR&WS targets / pledges. The causes of this should be investigated and where appropriate remedial action taken.	Responsibility for any remedial action will depend on the reason for the failure to meet recycling / reuse ambitions.

⁹¹ <http://laportal.wrap.org.uk/>

Criteria	Unit of Measurement	Frequency of Measurement	Target / Comment	Trigger Point/s	Responsibility
Landfill Diversion	% of LACW landfilled	Annually using Defra's Local Authority Collected Waste Statistics	Delivery of the LR&WS targets / pledges on landfill diversion	Where annual performance, committed actions and forecasts shows the progress is not in line with delivering the LR&WS targets / pledges. The causes of this should be investigated and where appropriate remedial action taken.	Responsibility for any remedial action will depend on the reason for the failure to meet landfill diversion ambitions.
Behaviour Change	Yield of 'widely recycled' materials kg / household	Annually using the WRAP's Local Authority Waste and Recycling Portal	Benchmark against other comparable local authorities to understand variations that occur.	Where yield per household, committed actions and forecasts shows the progress is not in line with delivering the LR&WS targets / pledges. The causes of this should be investigated and where appropriate remedial action taken.	Responsibility for any remedial action will depend on the reason for the failure to meet anticipated yields.
Local Air Quality	Annual waste collection mileage Number of low / zero emission vehicles	Biennial	Review changes in waste collection mileage taking account of changes to collection services. Uptake of low / zero emission vehicles should may a positive contribute to local air quality.	Where collection transport mileage is not in line with anticipated changes based on any changes to collection services, the strategy may not be progressing as intended and remedial action may be required	Responsibility for any remedial action will depend on the reason for the failure to achieve anticipated collection transport mileage.
Carbon Impact	Kg of CO ₂ equiv.	Full carbon analysis at strategy review (5 yearly)	Full carbon analysis will determine position relative to baseline. The five yearly reviews should show substantial improvement in carbon performance.	Where the 5 yearly reviews does not show anticipated reduction in carbon emissions from the baseline, the strategy may not be progressing as intended and remedial action may be required.	Responsibility for any remedial action will depend on the reason for the failure to achieve anticipated carbon performance.

9 Consultation Process

The consultation process is designed to provide the public and other consultees with an opportunity to comment on the scope of the Strategic Environmental Assessment for the LR&WS.

This document forms the Strategic Environmental Assessment draft Environmental Report, designed for external consultation to statutory bodies, the public and interested parties, and includes the following material:

- Baseline Position (Chapter 2)
- Key Sustainability Issues and Interrelationships (Chapter 3)
- SEA Sustainability Criteria and Objectives (Chapter 4)
- Strategy Aims & Objectives (Chapter 5)
- Strategy Waste Management Options (Chapter 6)
- SEA Conclusions of Appraisal & Mitigations (Chapter 7)
- Monitoring (Chapter 8)
- Consultation Process (Chapter 9)
- Review of relevant plans and programmes (Appendix A)
- Options Assessment Matrix (Appendix B)
- Indicator and measurements used for SEA objective scoring (Appendix C)
- Responses from Statutory Consultees (Appendix D)
- Responses to Statutory Consultees (Appendix E)

The Consultees are invited to comment on any or all of these aspects.

Please provide any comments or views on the Document to LessWaste@leics.gov.uk

Alternatively post to;

Waste Services Consultation/Env Report

Environment and Waste Management

Room 700

Leicestershire County Council

Have Your Say

FREEPOST NAT18685

Leicester

LE3 8XR

The deadline for responses is 25th April 2022

Appendix A – Review of relevant plans and programmes

1 Introduction

1.1 Report Background

The purpose of this report is to provide an overview of existing National, County and District/Borough level policies which relate to the management of waste and environmental impacts. These documents informed the consideration of Baseline issues (section 2), Sustainability issues (Section 3), Sustainability Objectives and themes identified (section 4).

2 Waste Policy and Legislation Review

This section provides a summary of key waste policy and legislation over the last ten years and the potential implications this may have for future local authority waste management in Leicestershire.

2.1 Guidance on applying the Waste Hierarchy, 2011

The Waste Hierarchy guidance was produced under Regulation 15(1) of the Waste (England and Wales) Regulations 2011 and came into force on 29th March 2011. This document was created for use by any businesses or public bodies who generate, handle or treat waste.

The guidance summarises the waste hierarchy and what it means for common materials and products, legal obligations for business and public bodies and how the waste hierarchy can be applied. The guidance on how to apply the waste hierarchy is based around the following questions:

- How can my business / public body prevent any of this waste?
- What do I currently do with my waste?
- Could it be prepared for reuse?
- Could my waste / more of my waste be recycled?
- Is there anything else that could be extracted from my waste?

2.2 UK Plans for Shipments of Waste, 2012

UK Plan for Shipments of Waste sets out Government policy on shipments of waste for disposal to and from the United Kingdom. Under the Waste Shipment Regulations and the UK Plan:

- The shipment of non-hazardous wastes to and from the UK for disposal is prohibited (except in specific circumstances e.g. emergency situations)
- The shipment of hazardous waste from the UK for disposal is prohibited (except in specific circumstances)
- With regards to shipments of waste for recovery there are two main policy objectives:
 - To encourage international trade in waste for recovery where this is of environmental benefit in driving up levels of recovery at national, EU and global levels;
 - To prevent damage to human health or the environment occurring as a result of this international trade.

2.3 National Policy Statement for Hazardous Waste, 2013

This National Policy Statement (NPS) sets out Government policy for the hazardous waste infrastructure. It sets out the basis for granting development consent for hazardous waste infrastructure which is defined as Nationally Significant Infrastructure Project. Nationally significant infrastructure for hazardous waste covers the following types of activities and facilities:

- The construction of a landfill or a deep storage facility with a capacity of 100,000 tonnes per year or the alteration of such facilities which increase the capacity by more than 100,000 tonnes per year; or
- The construction of any other type of hazardous waste facility with a capacity of 30,000 tonnes per year or the alteration of such facilities which increase the capacity by more than 30,000 tonnes per year.

2.4 Prevention is better than cure – Waste Prevention Programme for England, 2013

The Programme sets out the Government's view on how to reduce the amount of waste produced and presents the key roles and actions which should be taken in moving towards a more resource efficient economy. This Programme's objectives were to:

- Encourage businesses to contribute to a more sustainable economy by building waste reduction into design, offering alternative business models and delivering new and improved products and services;
- Encourage a culture of valuing resources by making it easier for people and businesses to find out how to reduce their waste, to use products for longer, repair broken items, and enable reuse of items by others;
- Help businesses recognise and act upon potential savings through better resource efficiency and preventing waste, to realise opportunities for growth;
- Support action by central and local government, businesses and civil society to capitalise on these opportunities.

The Programme sets a series of actions for central government, the wider public sector and businesses.

Central government actions include setting a clear direction, leading by doing, driving innovation and culture change, influencing other e.g. the European Commission, information and advice and developing the evidence base. One of the most notable commitments from central government with the Programme was to introduce a five pence charge on single use plastic carrier bags (for large retailers) in England from autumn 2015.

For local authorities, the key actions linked to the development of future waste management plans are:

- Develop a Waste Prevention Plan - All local authorities are encouraged to have a current waste prevention plan, setting out a strategy for local action on preventing waste, which should be reviewed every six years;
- Measure progress - Locally-based aims and relevant indicators could be included in a Waste Prevention Plan;

- Educate and raise awareness - Raising the awareness of the opportunities for householders and businesses is identified as a key role for local authorities
- Procurement practices - designing procurement process to support low waste solutions, e.g. through the supply of refurbished or upgradeable products, and the correct amount of materials and reducing the use of disposable and single use products.

Government have recently completed a consultation period (March-June 2021) on a new Waste Prevention Programme for England which will supersede this policy once published.

2.5 Energy from Waste – A guide to the debate, 2014

It is government policy that efficiently recovering energy from residual waste has a valuable role to play in both diverting waste from landfill and energy generation. In 2014, the government published ‘Energy from waste - A guide to the debate⁹²’ which aims to inform discussions and decisions relating to energy from waste for everyone who is interested in the topic.

The guide highlights key environmental, technical and economic issues associated with energy from waste and identifies options that could be considered and some of the main points where decisions can be influenced.

Some key points relevant to the development of a revised waste strategy are highlighted in the guide:

- For local authorities, the decision-making process on whether energy from waste is right for their circumstances would be part of the development of their waste strategies and local plans.
- Coordination between different tiers of councils and neighbouring authorities is very important in determining if energy from waste is the best solution;
- The development and revision of local waste strategies and plans represents perhaps the most important opportunity for the local community to be engaged in the process.
- In developing waste strategies, the decision to use energy from waste should not be taken in isolation but as part of a wider appraisal of options for the full waste management process.
- Significant importance should be placed on local authorities having engagement with their communities about the need and locations for waste management infrastructure (including energy from waste) before, during and after options are selected and plans developed.
- The proximity principle and the associated issues such as the scale of a facility and catchment area of the feedstocks can have implications for any solution. Therefore ‘considering them in the early stages of planning and waste policy development has the potential to deliver better overall outcomes’.

2.6 National Planning Policy for Waste, 2014

The Government believes that positive planning plays a pivotal role in delivering this country’s waste ambitions. The National Planning Policy for Waste sets out detailed waste planning policies which aim to:

⁹² <https://www.gov.uk/government/publications/energy-from-waste-a-guide-to-the-debate>

- Deliver sustainable development and resource efficiency by driving waste management up the waste hierarchy;
- Ensure that waste management is considered alongside other spatial planning concerns recognising the positive contribution that waste management can make to the development of sustainable communities;
- Provide a framework in which communities and businesses are engaged with and take more responsibility for their own waste, in line with the proximity principle
- Help to secure the reuse, recovery or disposal of waste without endangering human health and without harming the environment; and
- Ensure the design and layout of new development and infrastructure complements sustainable waste management, including the provision of appropriate storage and segregation facilities to facilitate high quality collections of waste.

It sets out policies, which all local planning authorities should have regard to when discharging their responsibilities:

- Using a proportionate evidence base;
- Identify need for waste management facilities;
- Identifying suitable sites and areas; and
- Determining planning applications for both waste and non-waste development

2.7 Fly-tipping Partnership Framework, 2014

Fly-Tipping Partnership Framework provides practical advice on how to prevent and tackle the problem of fly-tipping. It sets out a combination of voluntary and non-binding principles and options around best practice that may be used directly or adapted by local groups and partnerships to tackle fly-tipping in a way that suits local circumstances.

The Framework recognises that tackling fly-tipping needs a range of central Government, local government and stakeholder interventions if it is to be successful.

2.8 Litter Strategy for England, 2017

The strategy sets out how the government will work with communities and businesses to reduce litter. The strategy intends to achieve this through ‘good infrastructure and clear social expectations, supported by proportionate enforcement, which will help reinforce social pressure on everyone to do the right thing’. Key measures include:

- New Regulations giving local councils the power to fine the keeper of vehicles from which litter is thrown;
- Government to publish improved guidance for local councils on their enforcement functions;
- Producing new guidance on “binrastructure” (the design, number and location of public litter bins and other items of street furniture) for local areas to help them reduce levels of litter.

2.9 Clean Growth Strategy, 2017

The aim of the Clean Growth Strategy⁹³ (CGS) is to grow national income while cutting greenhouse gas emissions. The strategy sets out policies and proposals that aim to accelerate the pace of ‘clean growth’, i.e. deliver increased economic growth and decreased emissions, and achieve the commitments in the Climate Change Act of reducing greenhouse gas emissions by at least 80% by 2050 when compared to 1990 levels.

The CGS highlights that the UK has achieved significant results in the power and waste sectors in hitting the UK’s carbon budgets, with the large reduction in waste being sent to landfill contributing to significant falls in emissions. In addition, the waste sector helped to generate 14% of UK renewable electricity in 2015, enough to power 2.3 million homes.

Key policies and proposals in the strategy related to waste management include:

- Work towards our ambition for zero avoidable waste⁹⁴ by 2050, maximising the value extracted from resources, and minimising the negative environmental and carbon impacts associated with their extraction, use and disposal;
- Explore new and innovative ways to manage emissions from landfill
- Innovation: Invest £99 million in innovative technology and research for agri-tech, land use, greenhouse gas removal technologies, waste and resource efficiency

There is also an ambition to reduce waste, with actions to divert more food waste than ever before from landfill, to support resource productivity and avoid further emissions by preventing food waste in the first place. There is an ambition to work towards zero food waste entering landfill by 2030.

With regards to waste to energy, the government plans to work with the waste sector to ensure that different waste materials going into energy recovery processes are treated in the best possible way, to minimise environmental impact and maximise their potential as a resource.

The CGS also highlights the importance of local leadership in driving emissions reduction through policy on land, buildings, water, waste and transport.

2.10 A Green Future: Our 25 Year Plan to Improve the Environment, 2018

The 25-Year Environment Plan⁹⁵ sets out ‘*goals for improving the environment, within a generation, and leaving it in a better state than we found it*’.

The Plan sets out ten 25-year goals, two of which are specifically related to waste management:

- Using resources from nature more sustainably and efficiently; and
- Minimising waste

⁹³ <https://www.gov.uk/government/publications/clean-growth-strategy>

⁹⁴ Zero avoidable waste equates to eliminating all waste where it is technologically, environmentally and economically practicable to do so

⁹⁵ <https://www.gov.uk/government/publications/25-year-environment-plan>

The 25-Year Plan identifies six areas around which actions will be focused and whilst effective waste management has a role to play across all areas, it is area 4 on resource efficiency and waste, which has the greatest implications for the revised LR&WS:

- Using and managing land sustainably;
- Recovering nature and enhancing the beauty of landscapes;
- Connecting people with the environment to improve health and wellbeing;
- Increasing resource efficiency, and reducing pollution and waste;
- Securing clean, productive and biologically diverse seas and oceans;
- Protecting and improving the global environment.

The 25-Year Plan goes on to set specific goals and targets under each area, the goals and targets under *'Increasing resource efficiency, and reducing pollution and waste'* are:

- Working towards our ambition of zero avoidable waste by 2050;
- Working to a target of eliminating avoidable plastic waste by end of 2042;
- Meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones;
- Seeking to eliminate waste crime and illegal waste sites over the lifetime of this Plan, prioritising those of highest risk. Delivering a substantial reduction in litter and littering behaviour;
- Significantly reducing and where possible preventing all kinds of marine plastic pollution – in particular material that came originally from land.

2.11 Resources and Waste Strategy, 2018

In December 2018, Defra published, the Resources and Waste Strategy entitled 'Our Waste, Our Resources: A Strategy for England' (RWS), the first significant waste policy intervention by the Government in over a decade, with the Circular Economy as a central strand.

The RWS sets out policy proposals under 8 key headings, aimed at giving a clear longer-term policy direction in line with the 25 Year Environment Plan

- **Sustainable production**, with measures related to:
 - The 'polluter pays' principle and extend producer responsibility for packaging, ensuring that producers pay the full costs of disposal for packaging they place on the market;
 - Stimulating demand for recycled plastic by introducing a tax on plastic packaging with less than 30% recycled plastic; and
 - Setting minimum requirements through eco-design to encourage resource efficient product design.

- **Helping consumers take more considered actions**, including providing consumers with better information on the sustainability of their purchases and banning plastic products where there is a clear case and alternatives exist.
 - Resource recovery and waste management, with measures on:
 - Ensuring a consistent set of dry recyclable materials is collected from all households and businesses to improve recycling rates;
 - Reducing greenhouse gas emissions from landfill by ensuring that every householder and appropriate businesses have a weekly separate food waste collection;
 - Working with business and local authorities to improve urban recycling rates;
 - Driving greater efficiency of Energy from Waste (EfW) plants.
- **Tackling waste crime**, including increased awareness of waste regulations toughening penalties for waste criminals.
- **Cutting down on food waste**, including looking at more effective redistribute food and consulting on legal powers to introduce food waste targets and surplus food redistribution obligations.
- **International leadership**, much of which is focused on managing the wider implications of plastics in the environment.
- **Research and innovation**, covering areas such as:
 - The development of standards for bio-based and biodegradable plastics
 - Support further investment in resource efficient technologies
- **Measuring progress**: data, monitoring and evaluation, with measures related to
 - A new approach to data on resources and waste;
 - Moving away from weight-based towards impact-based targets and reporting, focusing initially on carbon and natural capital accounting.

Alongside the RWS, various consultations were launched related to the legislative proposals to implement a number of the key measures in the RWS. Many of the measures that will directly affect local authorities are not expected to come into force until 2023 and are subject to on-going consultations.

2.12 Waste Management Plan for England, 2021

In January 2021, Defra published a National Waste Management Plan for England to replace the previous one from 2013. The Plan is a high-level document and provides an overview of waste management in England. It explains the current waste management situation in England, the measures being taken to improve waste management and an assessment of existing waste collection schemes.

2.13 Build Back Better: Our plan for growth, 2021

'Build Back Better: our plan for growth' is a government plan to support economic growth, it was published in March 2021 and supersedes the UK's Industrial Strategy. It is explained that there will be £600 billion of gross public sector investment over the next five years, and this will be focussed on three key areas. These are as follows:

- **Infrastructure** – It is stated that this is crucial for economic growth, boosting productivity and increasing competitiveness. For the 2021-2022 period, there will be £100 billion of capital investment within this area.
- **Skills** – A transformation in Further Education, encouraging learning through the Lifetime Skills Guarantee and revolutionising apprenticeships is explained as being a process in which people's life chances can be improved through giving them the skills needed to succeed.
- **Innovation** – The UK will become the best location in which businesses can be started and grown. There is already a world-leading research base, which will be accelerated by increased investment in Research & development, and the creation of the Advanced Research & Invention Agency which will accommodate for high-risk, high-reward research.

2.14 Environmental Services Association (ESA): A net-zero greenhouse gas emissions strategy for the UK recycling and waste sector, 2021

In 2021, the ESA published their net-zero emissions strategy which aims to achieve net-zero emissions for the sector by 2040. This strategy has been developed in context of the Government targets and the Sixth Carbon Budget produced by the Climate Change Committee. £10 billion for investment in recycling infrastructure has been forecasted over the next decade, which will help to reach carbon neutrality.

The strategy sets out a number of objectives which were considered in the preparation of this document, these are as follows:

- Identify and develop a clear and consistent methodology to quantify GHG emissions for the recycling and waste management sector
- Enable accurate sector GHG emissions reporting for all organisations within the sector
- Calculate the sector's impacts upon UK GHG emissions and establish a credible but ambitious target for decarbonisation of our sector
- Define the sector's potential contribution to the national transition to net zero by 2050
- Assess and promote the key actions necessary for the sector to achieve net zero GHG emissions by 2040
- Introduce clear transitional targets and reporting to drive performance
- Measure our contributions to the decarbonisation of the many sectors we serve

Amongst numerous targets which are set out within this strategy, three overarching priority actions for decarbonising the sector are also outlined:

- 1 – Invest in new recycling infrastructure to make the recycling process more efficient and to reduce associated emissions, while meeting the government’s 65% recycling target for municipal waste. ESA members alone forecast a collective investment of more than £10 billion in recycling over the next decade.
- 2 – Decarbonise non-recyclable waste treatment by removing organics from landfill by 2030 and plastics from energy recovery facilities, while working with government to enable carbon capture, utilisation and storage (CCUS) technology to mitigate remaining emissions.
- 3 – Transition vehicles and fuel use to zero emission sources.

2.15 Upcoming policy / legislation

2.15.1 Proposed Measures in the Resources and Waste Strategy (RWS) for England

The RWS published by Defra in December 2018, set out a series of policy measures that will have implications for the waste management sector over the next ten to fifteen years. The principal proposed measures, including:

- Extended Producer Responsibility (EPR)
- Deposit Return Scheme (DRS)
- Consistency in household and business recycling collections in England
- A plastic packaging tax

In February 2019, Defra launched a consultation on each these measures which set out the principles that would underpin further legislation, as well as a second round of consultations which took place from March 2021. Each of the proposed measures are summarised below.

Extended Producer Responsibility

EPR includes proposals to reform the packaging waste regulations and is UK-wide. The principles of the proposals are that businesses should bear the full net cost of managing the packaging that they handle at end of life (throughout the supply chain), and for better design of packaging to consider waste / recycling obligations. As of July 2021, there have been two rounds of consultations.

The consultation concerns a ‘radical’ reform of the packaging producer responsibility system, including PRNs / PERNs / compliance schemes, data management, and removal or lowering of the de minimis thresholds for obligation. Fees raised by obligated businesses will be used to support management of packaging waste and the achievement of recycling targets, including through supporting local authority collection services for packaging in household waste and potentially collectors of household-like business waste. Governance arrangements will need to be determined for the management and distribution of funds generated through the reformed system, and several options are put forward in the consultation, along with options for setting fees. The interfaces with a potential DRS (see below) and consistent recycling collections for municipal waste are recognised within this EPR consultation.

The aim is to place responsibility on producers for the cost of managing their products once they reach end of life and give producers an incentive to design their products to make it easier for them to be reused or dismantled and recycled at end of their life. Under a reformed system, packaging placed on

the market and packaging waste recycled will have to be reported by producers by nation as well as for the UK, and packaging waste recycling targets will need to be met by producers for each nation and for the UK as a whole.

The Government's intention, according to the second consultation document released in March 2021, is to implement EPR through a phased approach which would commence from 2023.

Deposit Return Scheme

This consultation covers the options around introducing a DRS for single use drinks containers in England, Wales and Northern Ireland as a means to increase recycling rates and to reduce litter. There are two key options being considered: 1) an 'all-in' scheme which covers all in-scope drinks containers, and 2) an 'on-the-go' scheme which covers in-scope containers up to 750ml capacity (considered to be consumed outside of the home).

Broadly, the DRS would be based around consumers paying a deposit on the drink container at the point of purchase, which can be redeemed via reverse vending machines or in-store take back by retailers. The DRS would be managed by a governance organisation, and retailers reimbursed for deposits paid plus a handling fee.

Drinks containers proposed to be in-scope are: PET bottles, steel cans, aluminium cans and glass bottles. It is proposed that HDPE bottles, cartons, sachets & pouches and disposable single-use cups would not be included.

According to the second consultation document which was released in March 2021, it is anticipated that the introduction of DRS in England, Wales and Northern Ireland would be in late 2024 at the earliest.

Consistent Collections

The UK government are also proposing the requirement for households and businesses to present dry recyclables, food and garden waste separately from residual waste for collection and recycling; and on a minimum service standard for local authority household waste collections. For households, this includes collection of the same set of dry materials (including a consistent set of packaging materials) for recycling, and to have a separate weekly collection of food waste (separate from garden waste where practicable) from 2023. For businesses, this means segregation of dry recyclates and food waste, measures to reduce costs and improve data capture /management.

The aim of the proposals is to incentivise quantity and quality of material collected to achieve higher recycling levels, and to address householder confusion.

The proposals include consistency in the collection of the following materials for recycling from households:

- Paper and card (including cartons)
- Plastics (including plastic film and pots, tubs and trays)
- Metal and glass (including aluminium foil and aerosols)

It is understood that local authorities complying with the consistency framework would be reimbursed for burdens in terms of capital costs, transition costs and operating costs, however details of this are not clear.

Plastic Packaging Tax

HM Treasury is consulting on the introduction of a new tax on the production and import of plastic packaging to the UK from April 2022. The tax is intended to provide a clear economic incentive for businesses to use recycled material in the production of plastic packaging to drive demand for this material. The tax will complement a reformed packaging producer responsibility system.

The tax will apply to businesses that produce (and sell in the UK) or import plastic packaging which uses insufficient recycled content (less than 30%), taking effect from April 2022. For those materials which don't comply, there will be a tax incurred at a rate of £200 per metric tonne of plastic packaging that contains less than 30% of recycled plastic.

2.15.2 Environment Act

The Environment Act is a government policy which aims to address key environmental issues such as air and water quality, wildlife and climate. After the Bill was announced in July 2018, it received approval on 9th November 2021.

The first part of the Bill is to provide measures to address environmental governance gaps following withdrawal from the EU and beyond. The Bill puts into legislation a series of environmental principles and establishes an Office for Environmental Protection, which will have scrutiny, advice and enforcement functions. It also makes provision for the setting of long-term, legally binding environmental targets in four "priority areas" of air quality, water, biodiversity and resource efficiency and waste reduction, along with the production of statutory Environmental Improvement Plans.

The Act will also be the primary legislation for a number of the key waste management measures in the RWS. The provisions in the Bill introduce a revised extended packaging producer responsibility scheme, the power to regulate for eco-design standards and resource efficiency information across a wider range of products, and amendments to the responsibilities and powers for separating and recycling waste. It also provides a framework for the deposit return scheme.

3 Relevant County and District/Borough Level policies / strategies / documents

As well as the range of National policies which are outlined above, there are key documents from Leicestershire County Council and all seven of the district and borough councils relating to the environment, economy, waste, transport and biodiversity, amongst others, which must also be considered.

3.1 Leicestershire County Council policies / strategies / documents

3.1.1 Strategic Plan (2018-2022)

Leicestershire County Council (LCC) adopted its Strategic Plan for 2018-2022 in December 2017. The Strategic Plan illustrates the Council's 'Shared Vision', which outlines what the Council wants for Leicestershire over the next 20 years. The vision is supported by five strategic outcomes on which to focus, these consist of :

- Strong Economy
- Wellbeing and Opportunity
- Keeping People Safe
- Great Communities
- Affordable and Quality Homes

Each strategic outcome is accompanied by a set of supporting outcomes, each with a set of measures against which to monitor progress.

3.1.2 Environment Strategy (2018-2030)

The impact of climate change on LCC's operations is particularly important to waste operations, at a local level, this is addressed strategically by LCC's Environment Strategy. The strategy was adopted in 2018 and was updated in 2020. It is due to run up until 2030. LCC's Environment Strategy focuses on the environmental impact of the delivery of their services and also the wider impact in Leicestershire, where the Council has control and influence.

The vision for the Environment Strategy is:

"Leicestershire County Council will minimise the environmental impacts of its own activities and will improve the wider environment through local action. We will play our full part to protect the environment of Leicestershire. We will tackle climate change and embed environmental sustainability into what we do."

The strategy has objectives relating to climate change to reduce carbon emissions from local authority operations. There is also an objective to increase resilience to the predicted changes in climate. This is particularly important to waste operations in terms of delivering the service against increased flooding events and extreme weather (e.g. high winds, snow, heatwaves, etc.). LCC carries out a Climate Change Resilience Review periodically to monitor progress and to identify priority actions across all Council

services. The Environment Strategy covers both aspects at an internal (LCC) level and external level (where LCC has control and influence). The objectives relating to climate change are as follows:

Aims	Internal objectives	External objectives
Reduce our own greenhouse gas emissions and those in the wider County where we have influence	The Council's greenhouse gas emissions are reduced	The Council contributes to the reduction of greenhouse gas emissions across the County
Take action to adapt to climate change and to minimise the impacts of extreme weather events across the County	The Council increases its resilience to the existing and predicted changes in climate	The Council contributes to increasing the resilience of the County to the existing and predicted changes in climate

More specifically, the revised Environment Strategy sets the following targets to contribute to the UK's long-term targets for climate change:

- A 64% reduction in greenhouse gas emissions from LCC operations by 2025 (compared to 2016-2017 baseline levels).
- A 100% reduction in greenhouse gas emissions (net carbon neutral) from LCC operations by 2030.
- Continuous improvement in reducing the number of climate change risks with a high-risk score.
- 100% reduction in greenhouse gas emissions (net carbon neutral) for Leicestershire by 2050. Note, since the publication of their Environment Strategy in 2019, Leicestershire County Council have brought this target forward so that their aim is to reach net zero carbon across the County by 2045⁹⁶.

Moving waste up the hierarchy should reduce greenhouse gas emissions, but waste operations also have an impact in terms of the types of vehicles and equipment used, and utilities used (source of energy and efficiency). In addition to waste reduction targets at a national and local level, the Environment Strategy includes the following objectives that have direct implications for the waste operations:

- Reduce the environmental impacts of travel and transport:
 - Reduced mileage;
 - Increased proportion of efficient and less polluting vehicles in the fleet;
- Improved biodiversity value at all LCC sites;
- Reduced pollution emissions and contamination from operations; and
- Increased use and generation of low / zero carbon energy

⁹⁶ <https://www.leicestershire.gov.uk/news/leicestershire-makes-ambitious-net-zero-pledge> (Accessed June 2021)

3.1.3 Strategic Growth Plan (up to 2050)

Leicestershire and Leicester's Strategic Growth Plan forms a strategic planning framework by setting out the amount and location of future growth in the area, covering housing, economic and infrastructure growth up to 2050.

The Strategic Growth Plan helps to make it possible for Leicester and Leicestershire to jointly control:

- how expected population and economic growth will be accommodated and supported;
- how existing problems can be resolved;
- what type of development is needed and by when;
- what is the most appropriate location for these developments;
- which environmental assets should be protected and enhanced; and
- what investment in services and infrastructure is required where and by when?

The Strategic Growth Plan was developed by Leicestershire County Council, the seven district and borough councils, Leicester City Council and the Local Enterprise Partnership. It was formally approved and published in December 2018.

3.1.4 Communities Strategy

The Leicestershire Communities Strategy entitled 'Working Together to Build Great Communities' explores the aspiration to strengthen and empower communities, it covers the period from 2017-2021 and is due to be reviewed this year. The Communities Strategy focusses on developing assets for people and places in Leicestershire, attempting to address local issues and improve quality of life. The strategy is primarily focused on creating great communities, which is one of the outcomes that underpin LCC's overarching vision. The Communities Strategy sets out to:

- Ensure that stretched resources are used effectively
- Work in partnership with businesses who have an interest and shared commitment to supporting communities
- Ensure people are healthy, have choices and are safe
- Maintain a strong economy which is growing and resilient
- Allow the council to continue to be outward focussed and open to new ways of working
- Challenge existing services to identify alternative delivery models and achieve better outcomes for everyone
- Encourage Corporate Social Responsibility across the region

By setting out these goals, LCC is attempting to build a strong and healthy community, both economically and within the community.

3.1.5 Leicestershire and Leicester Waste Development Framework (up to 2021)

The Leicestershire and Leicester Waste Development Framework (WDF) sets out policies and proposals for the development and use of land for waste management within the framework area and guides decisions about planning applications. The current WDF runs to 2021.

The WDF comprises:

- A Core Strategy which sets out the guiding principles of waste management development in the area;
- Development Control Policies which set out the criteria against which planning applications for waste management must be assessed; and
- A Site Allocation document which includes specific proposals for the provision of land for waste management development.

The WDF covers all waste streams, including commercial and industrial (C&I) waste, construction and demolition (C&D) waste, as well as municipal waste. It provides figures on the potential treatment and disposal capacities for the different facilities required to deal with all waste streams, to estimate indicative capacity shortfall or surplus.

The WDF identifies broad locations for strategic waste management sites around the Leicester area and the area between Loughborough and Coalville.

3.1.6 Leicestershire Minerals and Waste Local Plan (up to 2031)

The Leicestershire Minerals and Waste Local Plan will eventually replace the core strategy and development controls policies in the WDF, covering the period up to 2031. The Local Plan does not cover Leicester City but recognises the need for co-operation between County and Leicester City. The pre-submission consultation ended in December 2017 and was adopted in September 2019.

The Local Plan is accompanied by a Sustainability Appraisal of the policies and strategies, which incorporates a Strategic Environmental Assessment of significant environmental effects of the plan.

As for the WDF, waste management facility need (or otherwise) is strategically determined, and it is deemed acceptable to locate strategic waste facilities close to the urban areas of Loughborough / Shepshed, Hinckley / Burbage, Coalville and close to the urban area of Leicester. Smaller, non-strategic waste facilities are also deemed to be suitable for these areas as well as around Melton Mowbray and Market Harborough.

3.1.7 Medium Term Financial Strategy

The Medium-Term Financial Strategy (MTFS) provides information on LCC's financial planning for the current financial year and provisional allocation for the subsequent three financial years. The MTFS provides the revenue and capital budgets for each department along with targeted growth and savings for each key service. The MTFS provides the envelope of budgetary resources within which each LCC department must deliver the required services.

The latest MTFS is due to be published shortly (as of June 2021).

3.1.8 Waste Disposal Authority Plan (2018-2030)

Leicestershire County Council published a Waste Disposal Authority Plan (WDA Plan) in May 2018. The WDA Plan sets out the overall ambition of LCC as regards its waste management duties in terms of a set of priorities and supporting objectives. The WDA Plan takes on the strategy objectives relating to Leicestershire's waste disposal function in order to provide strategic direction to LCC's decision-making process. The WDA Plan runs from 2018 to 2030 to support the vision:

"Our aim is to deliver a waste management service that encourages prevention, reuse, recycling and reduces waste to landfill, recognising the importance of value for money to Leicestershire residents."

The WDA Plan sets out five key priorities to deliver the vision. These priorities cover the principal functions of the Council as a Waste Disposal Authority and are supported by objectives which guide WDA activities. The priorities are:

- Priority 1: Resilience, Innovation and Change
- Priority 2: Customer Service and Community Engagement
- Priority 3: Environment – Consideration of Environmental Impacts
- Priority 4: Joint / Partnership Working
- Priority 5: Commissioning – Contract Management / Procurement Approach

It is recognised that all decisions will be made in accordance with LCC's Commissioning & Procurement Strategy, supported by a business case where appropriate. All decisions need to demonstrate value for money, service efficiencies and cost optimisation for the Council in support of LCC's over-arching vision.

The Housing and Economic Development Needs Assessment (HEDNA) forms the key basis for the WDA Plan.

3.1.9 Leicestershire Joint Strategic Needs Assessment (2018 – 2021)

The Leicestershire Joint Strategic Needs Assessment (JSNA) explores the health needs of the local population, with the aim to improve health and wellbeing within the area. The JSNA is made up of a variety of different chapters which cover many topics, including the economy, local demographic, housing, health and air quality. Some key points which arise from this assessment are as follows:

- Between 2016 and 2041, the population of Leicestershire is projected to increase by 15.8%, compared to the 12.1% for England as a whole. The greatest change is expected to occur in the older age brackets, accounting for an additional 74,300 adults who are 65+ by the end of this period.
- There are projected to be 341,000 households in the County by 2041, an increase of over 21%.
- Leicestershire is ranked 117th out of 152 upper tier local authorities, where 1st is most deprived.
- In Leicestershire, 87% of those aged 85+ have more than one long-term condition, and 23% of this age group having eight or more long-term conditions.

- There are currently 14 AQMAs in Leicestershire, and it is estimated that 0.6% of Leicestershire's population live within one of these areas.

3.1.10 Leicestershire Local Transport Plan 3 (2011-2026)

Leicestershire County Council's third Local Transport Plan (LTP3) outlines how the transport authority will ensure that transport continues to play a key role in helping Leicestershire to become a thriving County. The long-term vision for the course of the LTP3 is for:

'Leicestershire to be recognised as a place that has, with the help of its residents and businesses, a first-class transport system that enables economic and social travel in ways that improve people's health, safety and prosperity, as well as their environment and their quality of life'.

As part of this plan, six goals have been developed, and the delivery of which will be used to measure the success of this strategy. The six goals are:

- Goal 1: A transport system that supports a prosperous economy and provides successfully for population growth.
- Goal 2: An efficient, resilient and sustainable transport system that is well managed and maintained.
- Goal 3: A transport system that helps to reduce the carbon footprint of Leicestershire.
- Goal 4: An accessible and integrated transport system that helps promote equality of opportunity for all our residents.
- Goal 5: A transport system that improves the safety, health and security of our residents.
- Goal 6: A transport system that helps to improve the quality of life for our residents and makes Leicestershire a more attractive place to live, work and visit.

Note, as of June 2021 there is a fourth Local Transport Plan (LTP4) which is being developed.

3.1.11 Action for Nature: Strategic Approach to Biodiversity, Habitat and the Local Environment

The Action for Nature document brings together the environmental aims and objectives within Leicestershire County Council's Strategic Plan (Section 3.1.1) and Environment Strategy (3.1.2), which focus on supporting and improving biodiversity, habitats and the local environment. While building on and supporting these aims, 'Action for Nature' also:

- Creates an understanding of the policies and legislation in which these aims, and objectives have been developed within
- Gives an outline of the current state of nature within Leicestershire
- Identifies the key opportunities for action
- Outlines a supporting Delivery Plan which gives greater detail of the actions which are recommended to be taken

Alongside this document is also a Delivery Plan, which goes into greater detail about how the council will work to achieve the aims and objectives.

3.1.12 Leicestershire Food Plan / Leicestershire Good Food Charter

Leicestershire County Council have developed a Good Food Charter, in which they set out how everyone in the County can play their part in sustaining the local economy, help people towards better health and have a reduced environmental impact. One of the three principles is 'A food system which has a reduced environmental impact', this is then broken down into the following objectives:

- Food waste is prevented and reduced where possible, with any waste produced being dealt with responsibly through surplus being redistributed
- Food production, processing, distribution and disposal has a reduced environmental footprint
- The food system's contribution to climate change and biodiversity loss is reduced.

3.1.13 Leicester and Leicestershire LEP: Low Carbon Environmental Goods and Services Market Snapshot

In March 2021, Midlands Energy Hub published this evidence-based study which set out to understand the current state of the Low Carbon Environmental Goods and Services (LCEGS) Sector in the Midlands, and where support is needed to help grow this sector.

The report states that the LCEGS sector (consisting of Renewable Energy (41%), Low Carbon (37%) and Environmental (22%) goods and services) was worth £2.8 billion to Leicester and Leicestershire LEP's economy in 2019/20, with this sector having grown year on year since 2017/18.

The top sub-sector strengths within the Leicester and Leicestershire LEP were identified as being Wind (£474m), Building Technologies (£394m) and Alternative Fuels (£384m). Waste Management (£188m) and Recovery and Recycling (£155m) were placed 7th and 8th respectively.

Some sub-sector weaknesses were named as Geothermal and Wave & Tidal services which both showed weaker growth within this LEP area than UK, as well as having a below average market size. Therefore, extra support may be needed in order to grow these sectors as the country works towards carbon neutrality.

3.2 District/Borough Level policies / strategies / documents

3.2.1 Local Plans

All of the seven district and borough councils within Leicestershire have a Local Plan. A Local Plan gives an overview of an area at present, the type of place it aspires to be at the end of the period, and the objectives which can be worked towards in order to achieve this.

Some of the common environmental aims and objectives which feature in many of the district and borough council's Local Plans include:

- To reduce contributions to climate change through the use of non-renewable sources and encourage / develop renewable energy production.
- To improve transport links while encouraging more sustainable forms of travel, such as walking, cycling and public transport, and reducing the reliance on cars.

- To protect, maintain and enhance the natural environment and all aspects of it, including the biodiversity, geology, natural landscapes and conservation areas of a district or borough council.
- To deliver infrastructure which meets the needs of local populations, while achieving higher environmental standards within these development and respecting the local environment.
- To minimise the risk of flooding for people and properties by locating new housing developments in low-risk areas.
- To protect the local heritage, character and historic environments.
- To encourage reuse and recycling while decreasing the quantities of waste which are produced.

3.2.2 Climate Change Strategies

Although not all district and boroughs have declared a climate emergency, all have developed or are in the process of developing climate change / environmental strategies. These documents outline many aims and ways in which this is hoped to be achieved, some of the most common aims in regard to addressing climate change include reducing carbon emissions and educating local residents in order to increase engagement and encourage behavioural change. A number of the district and borough councils have developed targets to become carbon neutral Councils by 2030, while all will play a part in Leicestershire becoming a net zero County by 2045.

3.2.3 Litter Strategies

A litter strategy outlines the issues faced, what is currently being done to address this, as well as a plan to meet litter challenges going forward. Oadby and Wigston Borough Council have recently developed a Litter Strategy & Action plan which outlines what is currently being done to address these issues as well as what will be done moving forward, including increased education and community engagement, good infrastructure and continued enforcement. Note, North West Leicestershire District Council are also currently developing a Litter Strategy.

In addition, many of the district and borough councils have supported local volunteer environmental action groups by providing litter picking equipment and supporting campaigns. For example, in Harborough there are ongoing litter campaigns with action days, to encourage as many people as possible to get involved.

3.2.4 Medium Term Financial Strategies

As mentioned earlier, A Medium-Term Financial Strategy (MTFS) is a key financial document which outlines the vision and priorities of a district/borough council, and how this will be afforded within the available funds. As well as the County Council, all district and borough councils also have a MTFS in place, with the majority lasting for 3 to 5 years.

3.2.5 Transport Plans

Despite transport plans being present on a County level, individual district and borough councils also develop these to address more local priorities. For example, a South East Leicestershire Transport Plan is currently in place, of which Harborough and Oadby and Wigston are a part of.

3.2.6 Green Infrastructure Strategies

Green Infrastructure (GI) refers to the network of green spaces and features which can deliver quality of life and environmental benefits for communities. A number of the district and borough councils have specific strategies for this, which typically include an introduction to GI and why it is needed, the identification of GI issues within a given area, as well as opportunities for action. Examples of suggested actions within these district/borough council documents include the re-wilding of road verges, the expansion of woodland cover and ensuring spaces are managed for biodiversity.

3.2.7 Other plans

North West Leicestershire District Council has a recycling strategy entitled 'Recycle More', setting out their steps to increase recycling to 50% of household waste⁹⁷.

⁹⁷ [Recycle more - North West Leicestershire District Council \(nwleics.gov.uk\)](https://www.nwleics.gov.uk/recycle-more)

Appendix B – Options Assessment Matrix

Scenario 1: Waste minimisation

Table 34: Scenario 1 Options Appraisal Results

SEA Criteria	Impact ⁹⁸	Uncertainty	Duration ⁹⁹	Comment ¹⁰⁰	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	+/++	Low/medium	Short to Long	Waste minimisation has significant carbon benefits. The extent of this will be dependent on the type of waste/product avoided/reduced.	Higher carbon benefits will be delivered through sustained waste reduction initiatives and communications that deliver long term behaviour change. Focusing on waste streams with high environmental impacts, e.g. food waste.
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	0	Low/medium	Short to Long	Waste minimisation does not generate clean renewable fuels.	No mitigation proposed.
Objective 3 - To reduce resource use	++	Low/medium	Short to Long	Waste minimisation reduces resource use across the supply chain.	Greater resource benefits will be achieved through sustained waste reduction initiatives and communications that deliver long term behaviour change.
Objective 4 - To divert waste away from landfill	+	Low/medium	Short to Long	Waste prevention has carbon and resource benefits but is likely to have limited impact on total tonnages sent for disposal.	Greater landfill diversion will be achieved through sustained waste reduction initiatives and communications that deliver long term behaviour change.

⁹⁸ Impact scoring scheme is presented in Table 31

⁹⁹ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹⁰⁰ The Strategy provides a generic approach, and therefore is a non-site specific plan.

Objective 5 - To maintain and enhance good air quality for all	?	Medium/high	Short to Long	Waste minimisation prevention initiatives could result in the removal of a collection round and associated air emissions. However, this is uncertain and would require substantial behaviour change.	Any waste minimisation related to transport activity would deliver lower emissions to air if cleaner alternative fuels were adopted.
Objective 6 - To promote sustainable economic growth and employment	?	Medium/high	Short to Long	Employment can be gained through waste minimisation communications, master home composters etc. However, there may be impacts on sale of goods and associated employment.	Establish sustainable circular economy business models, not reliant on consumption and sale. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	?	Medium/high	Short to Long	Waste prevention is unlikely to significantly affect water and soil quality.	N/A
Objective 8 - To protect and increase biodiversity, flora and fauna	?	Medium/high	Short to Long	Some prevention type activities, for example home composting or home digestion or wormeries, could deliver some benefits to flora and biodiversity.	Promote linkages between prevention activities and biodiversity protection, e.g. making a wildlife garden using home compost. Councils can also promote biodiversity through verge cutting regimes.
Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0	Medium/high	Short to Long	Waste prevention is unlikely to significantly affect the landscape and geodiversity.	N/A

Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0	Medium/high	Short to Long	Waste prevention is unlikely to significantly affect heritage assets.	N/A
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Scenario 2: Reuse and repair

Table 35: Scenario 2 Options Appraisal Results

SEA Criteria	Impact ¹⁰¹	Uncertainty	Duration ¹⁰²	Comment ¹⁰³	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	+/++	Low/medium	Short to Long	Reusing and repairing items avoids the carbon impacts associated with producing new products. This has benefits across the supply chain.	Identify areas that the partnership could intervene to improve reuse, including direct engagement, communications, and sign posting to other initiatives. This requires more support to get people involved and potentially upskilled, for example through repair workshops.
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	0	Low/medium	Short to Long	Reuse and repair does not generate clean renewable fuels.	No mitigation proposed.
Objective 3 - To reduce resource use	++	Low/medium	Short to Long	Reusing and repairing items avoids the resource impacts associated with producing new products. This has benefits across the supply chain.	Identify areas that the partnership could intervene to improve reuse, including direct engagement, communications, and sign posting to other initiatives. This requires more support to get people

¹⁰¹ Impact scoring scheme is presented in Table 31

¹⁰² Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹⁰³ The Strategy provides a generic approach, and therefore is a non-site specific plan.

					involved and potentially upskilled, for example through repair workshops.
Objective 4 - To divert waste away from landfill	+	Low/medium	Short to Long	Whilst reuse and repair has strong carbon and resource benefits, it is likely to have a smaller impact on total tonnages sent for disposal.	Greater landfill diversion will be delivered through sustained reuse and repair initiatives, and communications that deliver long term behaviour change.
Objective 5 - To maintain and enhance good air quality for all	?	Medium/high	Short to Long	Reuse and repair initiatives could result in the removal of a collection round and associated air emissions. However, this is uncertain and would require substantial behaviour change.	Any reuse and repair related to transport activity would deliver lower emissions to air if clean alternative fuels were adopted.
Objective 6 - To promote sustainable economic growth and employment	? / +	Medium	Short to Long	Some employment can be gained through reuse and repair communications, furniture repair, bike and lawn mower refurbishment. However, there may be some impacts on sale of goods and associated employment.	Establish sustainable circular economy business models, not reliant on consumption and sale. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	?	Medium/high	Short to Long	Reuse and repair activities is unlikely to significantly affect water and soil quality.	N/A
Objective 8 - To protect and increase biodiversity, flora and fauna	?	Medium/high	Short to Long	Some reuse activities can have positive impacts on biodiversity and flora, such as repurposing items to encourage habitat restoration. Examples include using waste materials as planters or insect homes.	Promote linkages between reuse and repair activities and biodiversity protection, for example, promoting a wildlife garden using reusable materials. If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.

Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0	Medium/high	Short to Long	Reuse and repair activities are unlikely to significantly affect the landscape and geodiversity.	N/A
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0	Medium/high	Short to Long	Reuse and repair activities are unlikely to significantly affect heritage assets.	N/A

Scenario 3: Revised baseline with consistent collection measures, EPR and DRS.

Table 36: Scenario 3 Options Appraisal Results

SEA Criteria	Impact ¹⁰⁴	Uncertainty	Duration ¹⁰⁵	Comment ¹⁰⁶	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	+	Low	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts are improved (reduced) through the collection and recycling of additional materials (textiles, batteries and small WEEE) and through the composting of additional garden waste and digestion of food waste.	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food	Maximising the recovery of food for AD treatment. Enhancing the

¹⁰⁴ Impact scoring scheme is presented in Table 31

¹⁰⁵ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹⁰⁶ The Strategy provides a generic approach, and therefore is a non-site specific plan.

fuel energy through the use of clean renewable fuels and low carbon or renewable energy				waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	efficiency of AD and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit return scheme (DRS) and enhanced kerbside separation.	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside collection offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove waste from the residual (disposal) stream. Furthermore, separate collection of food waste, greater recycling and free garden waste will also reduce residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet (which results in the bulk of local emissions) are retained at least for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	The impacts on local air quality from transport can be substantially reduced through adoption of alternative fuels e.g. electric RCVs or hydrogen.

Objective 6 - To promote sustainable economic growth and employment	+	Low	Short to Long	<p>This option is modelled to deliver c. 100 additional jobs, as collection crew or drivers.</p> <p>Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.</p>	Additional employment could be delivered through associated activities such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	- / +	Low	Short to Long	<p>Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.</p>	<p>Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, to improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility to help reduce contamination and consequent impacts on land and soil.</p>
Objective 8 - To protect and increase biodiversity, flora and fauna	- / +	Medium	Short to Long	<p>In general, the environmental indices used to measure impacts of</p>	<p>Greater resource recovery will increase the positive benefits of this option. Compost and digestates applied to land should be managed in</p>

				<p>this option are positive, primarily due to reduced raw material extraction and processing. These activities can have substantial impacts on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.</p>	<p>a way that reduces impacts on water and in accordance with good practice.</p> <p>Provide compost back to residents for use in horticulture.</p> <p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.</p>
<p>Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire</p>	0/+	Medium	Short to Long	<p>The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.</p>	<p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government¹⁰⁷ and should be applied wherever feasible.</p>
<p>Objective 10 - To protect the significance</p>	0/+	Medium	Short to Long	<p>The measurement of land use required with this option falls</p>	<p>Assess opportunities for reusing existing buildings and materials</p>

¹⁰⁷ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

of heritage assets of archaeological, cultural and historic value				relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	(where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹⁰⁸ and should be applied wherever feasible.
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Scenario 4: As option 3, with garden collections as per the baseline

Table 37: Scenario 4 Options Appraisal Results

SEA Criteria	Impact ¹⁰⁹	Uncertainty	Duration ¹¹⁰	Comment ¹¹¹	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	+	Low	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts appear slightly worse than the baseline due to the increased collection impacts outweighing the benefits of additional recycling (food waste).	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food	Maximising the recovery of food for AD treatment. Enhancing the efficiency of AD

¹⁰⁸ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹⁰⁹ Impact scoring scheme is presented in Table 31

¹¹⁰ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹¹¹ The Strategy provides a generic approach, and therefore is a non-site specific plan.

fuel energy through the use of clean renewable fuels and low carbon or renewable energy				waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit return scheme (DRS) and enhanced kerbside separation.	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside collection offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove some waste from the residual (disposal) stream. Furthermore, separate collection of food waste and greater recycling will also reduce the amount of residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet (which results in the bulk of local emissions) are retained at least	The impacts on local air quality from transport can be substantially reduced through adoption of alternative fuels e.g. electric RCVs or hydrogen.

				for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	
Objective 6 - To promote sustainable economic growth and employment	+	Low	Short to Long	This option is modelled to deliver c. 100 additional jobs, as collection crew or drivers. Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.	Additional employment could be delivered through associated activities such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	- / +	Low	Short to Long	Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.	Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, to improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility to help reduce contamination and consequent impacts on land and soil.
	- / +	Medium	Short to Long	In general, the environmental indices used to measure impacts of this	Greater resource recovery will increase the positive benefits of this option. Compost and

Objective 8 - To protect and increase biodiversity, flora and fauna				option are positive. This is primarily due to the benefit of reduced raw material extraction and processing. These activities can have substantial impacts on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.	digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Provide compost back to residents for use in horticulture. If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.
Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹¹² and should be applied wherever feasible.
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the	Assess opportunities for reusing existing buildings and materials (where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice

¹¹² Designing Waste Facilities – a guide to modern design in waste, Defra 2008

				additional recycling / organic treatment infrastructure required.	guidance on design of waste facilities has been developed by Government ¹¹³ and should be applied wherever feasible.
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Scenario 5A: Restricted residual waste (140L fortnightly)

Table 38: Scenario 5A Options Appraisal Results

SEA Criteria	Impact ¹¹⁴	Uncertainty	Duration ¹¹⁵	Comment ¹¹⁶	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	++	Low	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts are improved significantly (reduced) through the collection and recycling of a greater proportion of materials (due to the restriction of residual waste capacity) and through the composting of additional garden waste and digestion of food waste.	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food	Maximising the recovery of food for AD treatment. Enhancing the efficiency of AD

¹¹³ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹¹⁴ Impact scoring scheme is presented in Table 31

¹¹⁵ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹¹⁶ The Strategy provides a generic approach, and therefore is a non-site specific plan.

fuel energy through the use of clean renewable fuels and low carbon or renewable energy				waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit return scheme (DRS) and enhanced kerbside separation.	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside collection offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove some waste from the residual (disposal) stream. Furthermore, separate collection of food waste, greater recycling and free garden waste also reduce the amount of residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet	The impacts on local air quality from transport can be substantially reduced through adoption

				(which results in the bulk of local emissions) are retained at least for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	of alternative fuels e.g. electric RCVs or hydrogen.
Objective 6 - To promote sustainable economic growth and employment	+	Low	Short to Long	This option is modelled to deliver c. 100 additional jobs, as collection crew or drivers. Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.	Additional employment could be delivered through associated activities such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	- / +	Low	Short to Long	Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.	Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, would improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will also help reduce contamination and consequent impacts on land and soil.
Objective 8 - To protect and increase biodiversity, flora and fauna	- / +	Medium	Short to Long	In general, the environmental indices used to measure impacts of this option are positive. This is primarily	Greater resource recovery will increase the positive benefits of this option. Compost and digestates applied to land should be managed

				<p>due to the benefit of reduced raw material extraction and processing. These activities can have substantial impacts on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.</p>	<p>in a way that reduces impacts on water and in accordance with good practice. Provide compost back to residents for use in horticulture.</p> <p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.</p>
<p>Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire</p>	0/+	Medium	Short to Long	<p>The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.</p>	<p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government¹¹⁷ and should be applied wherever feasible.</p>
<p>Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value</p>	0/+	Medium	Short to Long	<p>The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.</p>	<p>Assess opportunities for reusing existing buildings and materials (where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government¹¹⁸ and should be applied wherever feasible.</p>

¹¹⁷ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹¹⁸ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

Scenario 5B: Three-weekly residual collection (180L or 240L)

Table 39: Scenario 5B Options Appraisal Results

SEA Criteria	Impact ¹¹⁹	Uncertainty	Duration ¹²⁰	Comment ¹²¹	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	++	Low	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts are improved significantly (reduced) through the collection and recycling of a greater proportion of materials (due to the restriction of residual waste capacity) and through the composting of additional garden waste and digestion of food waste.	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	Maximising the recovery of food for AD treatment. Enhancing the efficiency of AD and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit return	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside collection

¹¹⁹ Impact scoring scheme is presented in Table 31

¹²⁰ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹²¹ The Strategy provides a generic approach, and therefore is a non-site specific plan.

				scheme (DRS) and enhanced kerbside separation.	offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove some waste from the residual (disposal) stream. Furthermore, separate collection of food waste, greater recycling and free garden waste also reduce the amount of residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet (which results in the bulk of local emissions) are retained at least for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	The impacts on local air quality from transport can be substantially reduced through adoption of alternative fuels e.g. electric RCVs or hydrogen.
Objective 6 - To promote sustainable economic growth and employment	+	Low	Short to Long	This option is modelled to deliver c. 100 additional jobs, as collection crew or drivers. Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.	Additional employment could be delivered through associated activities such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.

<p>Objective 7 - To protect and enhance the quality of water and soils</p>	- / +	Low	Short to Long	<p>Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.</p>	<p>Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, would improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will also help reduce contamination and consequent impacts on land and soil.</p>
<p>Objective 8 - To protect and increase biodiversity, flora and fauna</p>	- / +	Medium	Short to Long	<p>In general, the environmental indices used to measure impacts of this option are positive. This is primarily due to the benefit of reduced raw material extraction and processing. These activities can have substantial impacts on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.</p>	<p>Greater resource recovery will increase the positive benefits of this option. Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice.</p> <p>Provide compost back to residents for use in horticulture.</p> <p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.</p>

Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹²² and should be applied wherever feasible.
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	Assess opportunities for reusing existing buildings and materials (where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹²³ and should be applied wherever feasible.

¹²² Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹²³ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

Scenario 6: Twin-stream recycling

Table 40: Scenario 6 Options Appraisal Results

SEA Criteria	Impact ¹²⁴	Uncertainty	Duration ¹²⁵	Comment ¹²⁶	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	0/+	Low/medium	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts are worse than the baseline through less recycling and increased transport of waste within this option.	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	Maximising the recovery of food for AD treatment. Enhancing the efficiency of AD and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside

¹²⁴ Impact scoring scheme is presented in Table 31

¹²⁵ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹²⁶ The Strategy provides a generic approach, and therefore is a non-site specific plan.

				return scheme (DRS) and enhanced kerbside separation.	collection offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove some waste from the residual (disposal) stream. Furthermore, separate collection of food waste, greater recycling and free garden waste also reduce the amount of residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet (which results in the bulk of local emissions) are retained at least for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	The impacts on local air quality from transport can be substantially reduced through adoption of alternative fuels e.g. electric RCVs or hydrogen.
Objective 6 - To promote sustainable economic growth and employment	+	Low	Short to Long	This option is modelled to deliver c. 100 additional jobs, as collection crew or drivers. Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.	Additional employment could be delivered through associated activities such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.

<p>Objective 7 - To protect and enhance the quality of water and soils</p>	- / +	Low	Short to Long	<p>Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.</p>	<p>Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, would improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will also help reduce contamination and consequent impacts on land and soil.</p>
<p>Objective 8 - To protect and increase biodiversity, flora and fauna</p>	- / +	Medium	Short to Long	<p>In general, the environmental indices used to measure impacts of this option are positive. This is primarily due to the benefit of reduced raw material extraction and processing. These activities can have substantial impacts on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.</p>	<p>Greater resource recovery will increase the positive benefits of this option. Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice.</p> <p>Provide compost back to residents for use in horticulture.</p> <p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.</p>

Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0/+	Medium	Short to Long	<p>The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.</p>	<p>If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government¹²⁷ and should be applied wherever feasible.</p>
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0/+	Medium	Short to Long	<p>The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.</p>	<p>Assess opportunities for reusing existing buildings and materials (where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government¹²⁸ and should be applied wherever feasible.</p>

¹²⁷ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹²⁸ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

Scenario 7: Kerbside sort recycling

Table 41: Scenario 7 Options Appraisal Results

SEA Criteria	Impact ¹²⁹	Uncertainty	Duration ¹³⁰	Comment ¹³¹	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	0/+	Low/medium	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts are worse than the baseline through less recycling and increased transport of waste within this option.	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	Maximising the recovery of food for AD treatment. Enhancing the efficiency of AD and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.

¹²⁹ Impact scoring scheme is presented in Table 31

¹³⁰ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹³¹ The Strategy provides a generic approach, and therefore is a non-site specific plan.

Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit return scheme (DRS) and enhanced kerbside separation.	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside collection offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove some waste from the residual (disposal) stream. Furthermore, separate collection of food waste, greater recycling and free garden waste also reduce the amount of residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet (which results in the bulk of local emissions) are retained at least for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	The impacts on local air quality from transport can be substantially reduced through adoption of alternative fuels e.g. electric RCVs or hydrogen.

Objective 6 - To promote sustainable economic growth and employment	+ / ++	Low	Short to Long	This option is modelled to deliver c. 150 additional jobs, as collection crew or drivers. Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.	Additional employment could be delivered through associated activities such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	- / +	Low	Short to Long	Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.	Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, would improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will also help reduce contamination and consequent impacts on land and soil.
Objective 8 - To protect and increase biodiversity, flora and fauna	- / +	Medium	Short to Long	In general, the environmental indices used to measure impacts of this option are positive. This is primarily due to the benefit of reduced raw material extraction and processing. These activities can have substantial impacts	Greater resource recovery will increase the positive benefits of this option. Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice.

				on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.	Provide compost back to residents for use in horticulture. If any additional infrastructure locations are required, they should be selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.
Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹³² and should be applied wherever feasible.
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	Assess opportunities for reusing existing buildings and materials (where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹³³ and should be applied wherever feasible.

¹³² Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹³³ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

Scenario 8: Three-stream recycling

Table 42: Scenario 8 Options Appraisal Results

SEA Criteria	Impact ¹³⁴	Uncertainty	Duration ¹³⁵	Comment ¹³⁶	Mitigation
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	0/+	Low/medium	Short to Long	Collection contracts are typically seven to ten years, so we have assumed any changes are maintained. Carbon impacts are worse than the baseline through less recycling and increased transport of waste within this option.	Greater participation in the separate recyclables and organics collections will enhance carbon performance. For treatment of food waste, AD has the greater carbon benefits. Adoption of alternative fuels (e.g. electric RCVs or hydrogen) can substantially reduce transport impacts. For residual waste the potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	++	Low	Short to Long	The recovery of electricity from the anaerobic digestion process of food waste is renewable. There is also energy produced from combustion (EfW) of part of the residual waste which is derived of fossil and non-fossil energy.	Maximising the recovery of food for AD treatment. Enhancing the efficiency of AD and/or EfW facilities will increase low carbon or renewable energy. Minimising the proportion of plastics or other non-fossil waste sent to EfW plants (this will lower the carbon intensity of the energy generated). The potential for carbon capture & storage (CCS) and recovery of heat from EfW plants should be preferred where viable.

¹³⁴ Impact scoring scheme is presented in Table 31

¹³⁵ Duration is dependent on whether and the extent mitigation / initiatives are implemented and sustained

¹³⁶ The Strategy provides a generic approach, and therefore is a non-site specific plan.

Objective 3 - To reduce resource use	++	Low	Short to Long	All collection options (3 - 8) increase recycling and will have a net effect of increased resource use through a combination of a national deposit return scheme (DRS) and enhanced kerbside separation.	Greater participation in the separate recyclables and organics collections will enhance resource recovery. The addition of extra materials to the kerbside collection offers further opportunity for resource recovery.
Objective 4 - To divert waste away from landfill	++	Low	Short to Long	Extended Producer Responsibility (EPR) and the Deposit Return Scheme (DRS) both remove some waste from the residual (disposal) stream. Furthermore, separate collection of food waste, greater recycling and free garden waste also reduce the amount of residual waste sent to landfill.	Greater participation in the separate recyclables collections will reduce the amount of residual waste sent to landfill. Adopting alternative residual waste treatment technologies (e.g. EfW) will further reduce reliance on landfill.
Objective 5 - To maintain and enhance good air quality for all	-/--	Low	Short to Medium	Collection contracts are typically seven to ten years, so we have assumed that the current vehicle fleet (which results in the bulk of local emissions) are retained at least for the short term. Collection operations create local air pollution in the form of particulates, NOx and other emissions.	The impacts on local air quality from transport can be substantially reduced through adoption of alternative fuels e.g. electric RCVs or hydrogen.
	+ / ++	Low	Short to Long	This option is modelled to deliver c. 150 additional jobs, as collection	Additional employment could be delivered through associated activities

Objective 6 - To promote sustainable economic growth and employment				crew or drivers. Additional employment could be created through associated activities such as waste minimisation, and reuse and repair.	such as reuse and prevention. The Partner authorities should lead by example in their procurement (consumption) activities and in the management of their resources and wastes.
Objective 7 - To protect and enhance the quality of water and soils	- / +	Low	Short to Long	Potential soil benefits arising from the application of compost and digestate to land. There are also some benefits to freshwater quality in a global sense from reduced manufacturing and raw material extraction. There are however some detrimental impacts as regards eutrophication of water bodies, from the application of nutrients to land.	Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Establishing good communications around effective separation of organics, would improve the quality of resultant compost and digestates applied to land e.g. lower contamination. Appropriate alignment of food waste collection liners with the anaerobic digestion facility will also help reduce contamination and consequent impacts on land and soil.
Objective 8 - To protect and increase biodiversity, flora and fauna	- / +	Medium	Short to Long	In general, the environmental indices used to measure impacts of this option are positive. This is primarily due to the benefit of reduced raw material extraction and processing. These activities can have substantial impacts on biodiversity, flora and fauna. A detrimental impact on water comes from the eutrophication	Greater resource recovery will increase the positive benefits of this option. Compost and digestates applied to land should be managed in a way that reduces impacts on water and in accordance with good practice. Provide compost back to residents for use in horticulture. If any additional infrastructure locations are required, they should be

				measure arising from excess nutrients flowing into water courses from compost / digestate applied to land.	selected in accordance with planning requirements and delivered in accordance with regulatory requirements including Best Available Techniques (BAT) where applicable. Biodiversity Net Gain requirements (in draft within the Environment Bill) should be implemented.
Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	If any additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹³⁷ and should be applied wherever feasible.
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	0/+	Medium	Short to Long	The measurement of land use required with this option falls relative to the baseline (current) service. This is primarily due to a reduced reliance on landfill. This requirement more than offsets the additional recycling / organic treatment infrastructure required.	Assess opportunities for reusing existing buildings and materials (where appropriate) for any additional infrastructure. If additional infrastructure locations are required, they should be selected in accordance with planning requirements. Good practice guidance on design of waste facilities has been developed by Government ¹³⁸ and should be applied wherever feasible.

¹³⁷ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

¹³⁸ Designing Waste Facilities – a guide to modern design in waste, Defra 2008

Cumulative, Synergistic, Direct, Indirect Impacts

Waste management impacts are often cumulative by nature. For example, waste deposited in landfill can add to existing environmental burdens from the same source such as leachate generation and potential for uncontrolled release. It should be noted that waste management services are often 'fixed' for a period of time in contracts. For example, collection contracts are usually between 7 and 10 years in length (reflecting the operating 'life' of a new Refuse Collection Vehicle), whereas disposal contracts can be up to 25 years. Therefore, sufficient flexibility should be built into contracts to enable environmental or other improvements over the course of a contract where viable.

Some uncertainty regarding cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. A good degree of organic material separation will deliver high quantities of compost or digestate which may be applied to land, potentially leading to improved crop yields and better soil quality. This can also impact on Eutrophication however due to greater nutrient content in runoff or ground waters. Conversely if the householder does not effectively separate non organic from organic waste streams, then contamination may occur of the food waste or garden waste, potentially creating issues for onward waste treatment, the possibility of rejected loads (sent for disposal) or the application of compost / digestate to land containing contaminants (like plastic) which could adversely affect fauna. The encouragement of home composting or use of compost from a central source (like the HWRCs) could enable secondary benefits like improved local biodiversity from application to land in gardens, or reduced food miles when used for growing food in gardens or allotments.

Becoming involved in waste prevention or reuse activity may engender wider environmental benefits (indirectly) through lifestyle changes and supporting other environmental agendas.

Some waste services will create both positive and negative effects. Increased recycling or food waste collections for example may exhibit carbon benefits but are also likely to increase transport impacting on local air quality. More particulates in the air can affect those sensitive to respiratory impacts and be cumulative and potentially secondary. These aspects can be mitigated through vehicle innovation (alternate fuels) or reduced frequency of residual waste collection for example.

More recovery of material resources can provide secondary resources for the economy as well as preserving raw materials and reducing carbon impacts. These secondary resources can help develop domestic employment and manufacturing in the UK but potentially reduce overseas employment through raw material extraction / processing.

Where energy is recovered, for example by an Energy from Waste plant or Anaerobic Digestion facilities, there is the potential for generation of electricity (typically) or also to provide heat. In either case a direct effect is local generating capacity and a contribution towards fuel security, having a point source for emissions offers the future potential for carbon capture and storage potentially making these processes net carbon sinks.

The carbon offset from recycling or reuse activities, or the carbon emission from waste transport, will exhibit impacts related to global contributions of greenhouse gases and so be adding to a wider global burden. The effects of global warming are secondary to the increase of 'warming gases', but a direct effect of it. Synergistic effects include increased climate instability, flooding and rising water levels which could have multiple impacts including on society, economics and the natural world.

Appendix C – Indicator and measurements used for SEA objective scoring

These scorings are subject to subtle changes as comments on the Options Appraisal report are incorporated however it is not envisaged that any changes will exhibit a significant difference to the commentary or impact assessment.

SEA Criteria	Indicator	Baseline and all modelled options (3-8)							
		Baseline	3	4	5A	5B	6	7	8
Objective 1 - To increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal service	Net carbon impact of waste collection and management (GWP100 kg CO2 eq. 73)	-4,369,766	-4,659,954	-3,990,047	-9,085,382	-8,920,370	-1,497,459	-548,466	-1,581,773
Objective 2 - To reduce the use of fossil fuel energy through the use of clean renewable fuels and low carbon or renewable energy	MJ of energy recovered	158,960,633	171,039,865	172,864,556	172,745,620	171,331,284	172,092,818	175,070,101	175,068,931
	Net carbon impact of waste collection and management (GWP100 kg CO2 eq. 73)	-4,369,766	-4,659,954	-3,990,047	-9,085,382	-8,920,370	-1,497,459	-548,466	-1,581,773
Objective 3 - To reduce resource use	Total kerbside + HWRC arisings ¹³⁹ (kg/hh/year)	971	927	910	927	927	927	927	927
	Reduce / reuse / repair / recycling (kg/hh/yr)	454	510	485	547	542	508	500	500
	Resource Depletion measure (Av.	-484,569	-432,149	-436,244	-451,496	-454,078	-407,268	-403,634	-413,074

¹³⁹ This figure is derived from kerbside collection modelling as part of the options appraisal exercise with the addition of HWRC tonnages (static across all options). This figure will differ from data reported to WasteDataFlow by local authorities which also include additional waste streams such as bulky, trade waste and street sweepings.

	Euro person equivalent)								
Objective 4 - To divert waste away from landfill	Residual waste to landfill ¹⁴⁰ (kg/hh/yr)	306.0	244.8	250.1	222.7	225.7	246.5	251.0	251.0
Objective 5 - To maintain and enhance good air quality for all	NOx impacts from collection / transport (kg NOx)	45,325	55,939	54,888	554,268	53,782	70,111	71,708	62,919
	Particulates from collection / transport (PM, µg m ⁻³)	1,156	1,398	1,366	1,347	1,332	1,641	1,663	1,472
	Human Toxicity measure (kg 1,4-DCB Eq)	-98,556,808	-59,689,700	-60,342,212	-60,101,432	-60,357,498	-57,443,087	-56,989,710	-56,595,421
Objective 6 - To promote sustainable economic growth and employment	Semi-qualitative assessment of employment using collection modelling / case study information	289	397	386	400	364	424	454	451
	Potential supply chain / circular economy benefits	[qualitative ¹⁴¹]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]
Objective 7 - To protect and enhance the quality of water and soils	Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.)	-7,282,070	-3,944,895	-3,979,101	-3,925,987	-3,955,991	-3,774,600	-3,867,855	-3,846,844

¹⁴⁰ This is kerbside residual only and used for the purposes of comparing options. This will differ from data reported to WasteDataFlow

¹⁴¹ Included in commentary under Objective 6

	Eutrophication (PO4 kg eq.)	33,302	30,467	30,021	27,462	27,795	33,140	33,313	32,099
	Quantity of compost / digestate added (kg/year)	64,021	93,839	86,038	101,419	99,853	93,839	93,839	93,839
Objective 8 - To protect and increase biodiversity, flora and fauna	Acidification (kg SO2 eq.)	-182,827	-130,311	-130,225	-134,094	-136,258	-113,372	-110,509	-116,461
	Eutrophication (PO4 kg eq.)	33,302	30,467	30,021	27,462	27,795	33,140	33,313	32,099
	Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.)	-7,282,070	-3,944,895	-3,979,101	-3,925,987	-3,955,991	-3,774,600	-3,867,855	-3,846,844
	Climate Change impacts (GWP100 kg CO2 eq.)	-4,369,766	-4,659,954	-3,990,047	-9,085,382	-8,920,370	-1,497,459	-548,466	-1,581,773
Objective 9 - To protect and enhance the landscape and geodiversity of Leicestershire	Qualitative / comparative assessment, not a site-specific plan	[qualitative] ¹⁴²	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]
	Land take (ha)	1.41	1.33	1.30	1.32	1.33	1.31	1.30	1.31
Objective 10 - To protect the significance of heritage assets of archaeological, cultural and historic value	Qualitative / comparative assessment, not a site-specific plan	[qualitative] ¹⁴³	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]	[qualitative]
	Land take (ha)	1.4	1.33	1.30	1.32	1.33	1.31	1.30	1.31

¹⁴² Relevant points included in commentary

¹⁴³ Relevant points included in commentary

Appendix D – Responses from Statutory Consultees

Natural England

Planning consultation: Leicestershire Waste Partnership – Joint Municipal Waste Management Strategy - SEA Scoping Report Statutory Consultation

Thank you for your consultation on the above dated 27 August 2021.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Natural England broadly welcomes the Strategic Environmental Assessment (SEA) Scoping Report but has the following brief comments to make.

We welcome the reference made to the SSSIs within Leicestershire, as well as the River Mease SAC. We advise that the hierarchy of nature conservation sites should be made more clear. Further information on this can be found here: [UK Protected Areas | JNCC - Adviser to Government on Nature Conservation](#). Reference could also be made to the conservation objectives for the River Mease, as well as its unfavourable condition (unfavourable - no change). Further information on this can be found here: [Site list \(naturalengland.org.uk\)](#).

We welcome Draft Sustainability Objective 8, 'To protect and increase biodiversity, flora and fauna', however, the Draft Measurement Indicators (Acidification, Eutrophication, Freshwater Aquatic Toxicity, Climate Change Impacts) are not directly representative of biodiversity; we therefore recommend that further indicators could be investigated in order to assess the strategy's impact on biodiversity.

Natural England notes the review of relevant plans and programmes in Appendix A. We welcome the reference to the 25 Year Environment Plan, however we advise that you also consider including relevant Green Infrastructure Strategies within Leicestershire.

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us.

For any queries relating to the specific advice in this letter please contact me on 02087204183. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

Lead Adviser – East Midlands Area Delivery (East)

Historic England

Thank you for the consultation on the above document relating to the emerging waste strategy. I apologise for the delay in response.

I am writing to advise that Historic England welcomes the inclusion of Objective 10 relating to cultural heritage matters (Section 4.1, Table 27).

In addition to the various aspects covered within the Scoping report the SEA offers opportunity to highlight the synergy between Local Authority aspirations for conserving or enhancing designated and non-designated heritage assets in relation to reducing carbon footprints. Particularly, opportunities for the reuse of existing buildings rather than demolition and new build, as well as the potential for reuse of materials.

We look forward to working with you in due course as the strategy progresses.

Should you have any queries please do not hesitate to give me a call.

Environment Agency

Feedback received from Regulated Industry (waste) and Sustainable Places Team at the Environment Agency as follows:

Here is the response from Regulated Industry. Nick Wakefield will be in touch from Sustainable places on return from annual leave with regards to his list.

Regulated Industry's main concern is that environmental impact are considered but there is no mention of protecting amenity which we would consider extremely important considering the frequency with which we deal with dust, odour, noise etc.

Regulated Industry supports the draft sustainability objectives, however Nick's input will be important on these. EA continues to work with the government to enable UK net zero. The objective to increase the positive carbon impacts and reduce the negative carbon (and other greenhouse gases) impacts of the waste collection, recycling, treatment and disposal services converges with our climate ambition. Leicestershire's ambition of developing the circular economy to reduce resource use within Leicestershire will also play an important part in driving down emissions.

Waste partnership objectives that seek to protect and enhance the quality of water and soils and maintain and enhance good air quality are fundamental to regulating our permitted sites, so we fully support this.

Embracing the waste hierarchy by preventing waste and keeping resources in circulation, through reuse, repair and recycling, to realise their maximum resource value whilst minimising environmental impact will be supported by regulation of permitted waste sites within the Leicestershire area.

Further to Craig's response below, the following comments concern the role the waste industry has to play in sustainable development.

Waste planning has a role to play in delivering objectives including:

- reducing greenhouse gas emissions,
- better management of resources and protecting the environment.
- Promoting treatment of waste further up the waste hierarchy,
- Waste planning can also contribute to the development of the circular economy and associated sustainable growth.

Waste is a strategic matter in two tier areas under Section 33A of the Planning and Compulsory Purchase Act 2004 (as inserted by the Localism Act 2011) and is referred to as one of the strategic infrastructure priorities in the NPPF ([paragraph 156](#)). This means that waste will often be subject to the Duty to Cooperate. In the case of Leicestershire Waste Partnership, as well as cooperation amongst the County and District Councils, this may also require coordination with Authorities adjacent to Leicestershire.

We have the following further comments on the attached report:

Baseline position

2.1 Climate Change

The Environment Agency welcomes the consideration and detail provided within this section. The contribution which the waste industry has on CO₂ emissions appears to have been demonstrated by a robust evidence base.

We welcome Leicestershire County Council's decision to declare a climate emergency in 2019 and the pledge to achieve carbon neutrality for its operations and across the county by 2030 and 2045 respectively. We also support the decision of those districts within the county which have also declared a climate emergency.

2.5.2 Water

River Quality

We welcome the inclusion of and discussion within this section.

Flood Risk

This section is silent on the issue of flooding from [Main River watercourses](#) (fluvial flooding). This issue should be included within the baseline position; a (GIS) map showing the location of Flood Zones 1, 2 and 3 within the county would also be a useful inclusion. Waste management facilities which are located within areas at risk of fluvial flooding from Main Rivers (and ordinary watercourses) have the potential to contribute and exacerbate both environmental and human consequences during a flooding event. It is therefore important that when deciding the location of new waste facilities a sequential approach must be taken (in line with the requirements of the National Planning Policy Framework (NPPF), steering the development at areas at least risk of flooding (Flood Zone 1).

2.8 Biodiversity

We welcome the inclusion of and discussion within this section.

2.9 Natural Resources

We welcome the inclusion of and discussion within this section.

3 Key Sustainability Issues and Interrelationships

Climate Change

Regarding the 2nd bullet point, we consider that the distinction between adaptation to climate change and mitigating climate change. Adaptation is the process of adjusting to the current and future effects of climate change. Mitigation is the process of making the impacts of climate change less severe by preventing and reducing emissions of greenhouse gases.

Regarding the 3rd bullet point, a significant omission, as mentioned above is the issue of flooding from Main Rivers and which is and will be just as important as the effects of flooding from surface water, groundwater and ordinary watercourses.

Water

This section is silent on the number of properties potentially at risk from flooding from Main Rivers and we consider this an unfortunate omission.

We have no further comments to make on the strategic objectives, criteria or other aspects of the report.

I hope you find the above comments useful and again I apologise for the delay in replying.

Appendix E – Responses to Statutory Consultees

Consultee	Comment	Action
Natural England	We welcome the reference made to the SSSIs within Leicestershire, as well as the River Mease SAC.	Noted.
	We advise that the hierarchy of nature conservation sites should be made clearer. Further information on this can be found here: UK Protected Areas JNCC - Adviser to Government on Nature Conservation.	Actioned. We have incorporated further information on this within the Baseline of the SEA, see section 2.8.
	Reference could also be made to the conservation objectives for the River Mease, as well as it's unfavourable condition (unfavourable - no change). Further information on this can be found here: Site list (naturalengland.org.uk).	Actioned. We have incorporated further information on this within the Baseline of the SEA, see section 2.8.
	We welcome Draft Sustainability Objective 8, 'To protect and increase biodiversity, flora and fauna', however, the Draft Measurement Indicators (Acidification, Eutrophication, Freshwater Aquatic Toxicity, Climate Change Impacts) are not directly representative of biodiversity; we therefore recommend that further indicators could be investigated in order to assess the strategy's impact on biodiversity.	We recognise that the basket of indicators included for Biodiversity are a broad measure and not as targeted as, for example, the populations of specific indicator species. However the latter is more appropriate for a site-specific plan where particular impacts and baselines can be duly recorded and alternative options measured. For a municipal waste management strategy there will be no way of determining whether a species in any given area will rise or fall subject to decisions around waste and recycling collection systems from households. We have therefore included the basket of indicators to have a recognition that some options may have, for example, greater emissions to air, land or water which could deleteriously impact on biodiversity (as well as other receptors), albeit we cannot predict in detail which species or where the impacts may occur (some may be in County, some may be national or international). This method has been applied to a large number of waste strategy SEA in the past. Please note that this is different to a Waste Local Plan which will be a site-specific document, where alternate approaches may be delivered.
	Natural England notes the review of relevant plans and programmes in Appendix A. We welcome the reference to the	Actioned. We have incorporated further information on this within the Baseline of the SEA, see Section 3.1.14.

	25 Year Environment Plan, however we advise that you also consider including relevant Green Infrastructure Strategies within Leicestershire.	
Historic England	I am writing to advise that Historic England welcomes the inclusion of Objective 10 relating to cultural heritage matters (Section 4.1, Table 28).	Noted.
	In addition to the various aspects covered within the Scoping report the SEA offers opportunity to highlight the synergy between Local Authority aspirations for conserving or enhancing designated and non-designated heritage assets in relation to reducing carbon footprints. Particularly, opportunities for the reuse of existing buildings rather than demolition and new build, as well as the potential for reuse of materials.	Actioned. These aspects have been included in the SEA as mitigations of impacts and thank you for the points raised. See Section 7.
Environment Agency	Regulated Industry's main concern is that environmental impact are considered but there is no mention of protecting amenity which we would consider extremely important considering the frequency with which we deal with dust, odour, noise etc.	Actioned – reference to amenity added in the sustainability issues (Chapter 3).
	Regulated Industry supports the draft sustainability objectives. EA continues to work with the government to enable UK net zero.	Noted.
	Waste partnership objectives that seek to protect and enhance the quality of water and soils and maintain and enhance good air quality are fundamental to regulating our permitted sites, so we fully support this.	Noted.
	Embracing the waste hierarchy by preventing waste and keeping resources in circulation, through reuse, repair and recycling, to realise their maximum resource value whilst minimising environmental impact will be supported by regulation of permitted waste sites within the Leicestershire area.	Noted.
	Section 2.1 (Baseline Position) The Environment Agency welcomes the consideration and detail provided within this section. The contribution which the waste industry has on CO2 emissions appears to have been demonstrated by a robust evidence base.	Noted.

	<p>We welcome Leicestershire County Council's decision to declare a climate emergency in 2019 and the pledge to achieve carbon neutrality for its operations and across the County by 2030 and 2045 respectively. We also support the decision of those district and borough councils within the County which have also declared a climate emergency.</p>	
	<p>2.5.2 Water (Baseline position)</p> <p>River Quality - We welcome the inclusion of and discussion within this section.</p> <p>Flood Risk - This section is silent on the issue of flooding from Main River watercourses (fluvial flooding). This issue should be included within the baseline position; a (GIS) map showing the location of Flood Zones 1, 2 and 3 within the County would also be a useful inclusion. Waste management facilities which are located within areas at risk of fluvial flooding from Main Rivers (and ordinary watercourses) have the potential to contribute and exacerbate both environmental and human consequences during a flooding event. It is therefore important that when deciding the location of new waste facilities a sequential approach must be taken (in line with the requirements of the National Planning Policy Framework (NPPF), steering the development at areas at least risk of flooding (Flood Zone 1).</p>	Actioned. See updated section 2.5.2 and reference in Chapter 3.
	<p>2.8 Biodiversity (Baseline position)</p> <p>We welcome the inclusion of and discussion within this section.</p>	Noted.
	<p>2.9 Natural Resources (Baseline position)</p> <p>We welcome the inclusion of and discussion within this section.</p>	Noted.
	<p>3 Key Sustainability Issues and Interrelationships</p> <p>Climate Change</p> <p>Regarding the 2nd bullet point, we consider that the distinction between adaptation to climate change and mitigating climate change. Adaptation is the process of adjusting to the current and future effects of climate change. Mitigation is the process of making the impacts of climate change less severe by preventing and reducing emissions of greenhouse gases.</p> <p>Regarding the 3rd bullet point, a significant omission, as mentioned above is the issue of flooding from Main Rivers and which is and will be just as important as the effects of flooding from surface water, groundwater and ordinary watercourses.</p>	Actioned – climate change paragraph amended in Chapter 3, split out between climate change and mitigation.

	<p>Water</p> <p>This section is silent on the number of properties potentially at risk from flooding from Main Rivers and we consider this an unfortunate omission.</p>	<p>Paragraph on flood risk from main rivers added (Section 2.5.2 and Chapter 3).</p>
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