Lincolnshire County Council

JOINT MUNICIPAL WASTE MANAGEMENT STRATEGY

Strategic Environmental Assessment
Environmental Report

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ABBREVIATIONS

AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
CHP	Combined Heat and Power
CO2	Carbon Dioxide
DCLG	Department for Communities and Local Government
DPD	Development Plan Document
EfW	Energy from Waste
GHG	Greenhouse Gas
GVA	Gross Value Added
ha	Hectare
HRA	Habitats Regulation Assessment
IDP	Infrastructure Development Plans
ILO	International Labour Organisations
IMD	Index of Multiple Deprivation
JMWMS	Joint Municipal Waste Management Strategy
Kt	Kiloton
LCA	Landscape Character Area
LCC	Lincolnshire County Council
LEA	Local Economic Assessment
LIGHT	Lincolnshire Green Heat Scheme
LNR	Local Nature Reserve
LSOAs	Lower Super Output Areas
LTP4	Local Transport Plan
LWP	Lincolnshire Waste Partnership
MCZ	Marine Conservation Zones
MSW	Municipal Solid Waste
Mt	Megaton
NAA	Nitrate Advisory Areas
NAQS	National Air Quality Strategy
NIA	Noise Important Areas
NNR	National Nature Reserve
NO_x	Nitrogen Oxides
NO2	Nitrogen Dioxide
NSA	Nitrate Sensitive Areas
ONS	Office of National Statistics
PM10	Particulate Matter

PPP	Plans, Policies and Programmes
PUA	Principal Urban Area
SA	Sustainability Appraisal
SAC	Special Areas of Conservation
SAM	Scheduled Monument
SEA	Strategic Environmental Assessment
SOAs	Super Output Areas
SPA	Special Protection Areas
SSSIs	Sites of Special Scientific Interest
SUDS	Sustainable Urban Drainage System
UK	United Kingdom

NON-TECHNICAL SUMMARY

INTRODUCTION

Two-tier areas such as Lincolnshire, where waste collection is the responsibility of the district, borough or city council and waste disposal is the responsibility of the county council, are required to have a joint strategy for the management of municipal waste. These waste management strategies are required to be reviewed every 5 years. Lincolnshire County Council (LCC) is a member of the Lincolnshire Waste Partnership (LWP) which is a body formed of LCC, the Environment Agency (EA) and the seven district, borough and city councils within Lincolnshire.

Strategic Environmental Assessment (SEA) is a process of undertaking an environmental assessment of plans and programmes. WSP has been commissioned by Lincolnshire County Council to undertake a SEA of the replacement Joint Municipal Waste Management Strategy (JMWMS).

This Environmental Report (including this non-technical summary) sets out the SEA of the Lincolnshire County Council JMWMS.

SEA METHODOLOGY

The approach adopted for the SEA of the JMWMS follows that set out in the Practical Guide to SEA[1] and the Planning Practice Guidance to SEA[2].

The key stages of the SEA process are the following:

- Stage A: Scoping
- Stage B: Assessment
- Stage C: Reporting
- Stage D: Consultation
- Stage E: Monitoring

SCOPING

Scoping involves the development of an assessment framework comprising a series of SEA Objectives, assessment criteria and indicators. This framework is developed from an understanding of environmental problems and opportunities identified through a review of existing baseline information and a review of other plans, programmes and environmental protection objectives relevant to the plan area (i.e. Lincolnshire and its neighbours) and subject matter (in this case, waste).

[1] Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf (Accessed October 2017).

[2] Department for Communities and Local Government (2015) Strategic Environmental Assessment and Sustainability Appraisal [online] available at: https://www.gov.uk/guidance/strategic-environmental-assessment-and-sustainability-appraisal

ENVIRONMENTAL ASSESSMENT

The LWP considers that the retention of the existing JMWMS is unlikely to continue to reflect Lincolnshire's needs into the future since it would not take account of recent changes in national and local government budgets or policies and changes in the way waste services are delivered (such as with new technologies or processes).

In environmental terms, there is likely to be little difference between the two strategic options considered. There is no evidence to indicate that the current JMWMS is having negative environmental effects. That said, the existing JMWMS may not be addressing local environmental issues (which are likely to differ across the county).

The development of a new JMWMS would allow stronger provision for the uptake of new waste management technologies/processes to be made which, in general terms, could lead to an environmental benefit.

The assessment has determined that there is the following potential for environmental effects:

- The introduction of a common set of recycling materials is likely to have a significant positive effect in relation to the sustainable use of resource through effective waste management;
- Exploring the use of waste as a resource via the waste hierarchy is likely to have a significant positive effect in relation to the circular economy and the sustainable use of resource through effective waste management;
- Contributing to the UK's recycling target is likely to have a significant positive effect in relation to the circular economy; and
- Seeking to reduce carbon emissions from energy use is likely to have a significant positive effect in relation to carbon emissions.

There are also some unknown effects relating to:

- The effect of separate food waste collections on biodiversity, opportunities for recycling within residential developments, the historic environment and the Lincolnshire countryside; and
- Innovative solutions in the delivery of waste management services.

MITIGATION

There is some potential for adverse effects resulting from the JMWMS. For this reason, a set of precautionary mitigation measures are proposed. These are set out in Section 5 of the report.

MONITORING

A programme of monitoring is proposed so that unforeseen significant effects of implementation can be identified and remedial action taken. Monitoring also measures the performance of the JMWMS against environmental objectives and targets. A set of proposed monitoring indicators is set out in Chapter 5 of the report.

1 INTRODUCTION

1.1 BACKGROUND TO THE JOINT MUNICIPAL WASTE MANAGEMENT STRATEGY

1.1.1. Lincolnshire County Council (LCC) is a member of the Lincolnshire Waste Partnership (LWP) which is a body formed of LCC, the Environment Agency (EA) and the seven districts, borough and city councils within Lincolnshire:

- Boston Borough Council;
- City of Lincoln Council;
- East Lindsey District Council;
- North Kesteven District Council;
- South Holland District Council;
- South Kesteven District Council; and
- West Lindsey District Council.

1.1.2. The Waste and Emissions Trading Act 2003 requires two-tier areas such as Lincolnshire to have a joint strategy for the management of municipal waste in place. Waste Management Strategies require a review every 5 years to ensure that they remain current[3].

1.1.3. The current JMWMS for Lincolnshire was published by the LWP in June 2008 with the aim of providing information on the following:

- The current and future legal obligations that the LWP needs to meet;
- The waste management services that are currently provided;
- How the LWP plans to meet the targets by reducing the amount of waste that is produced, increasing the amount of waste that is recycled and recovered, and minimising the amount of residual waste that is landfilled; and
- How the LWP plans to implement this strategy.

1.1.4. Since 2008, Lincolnshire has made significant progress towards achieving these aims through securing a 25 year contract with FCC Environment in March 2011. This contract is for the disposal of residual Municipal Solid Waste (MSW) and constructing a 150,000 tonne per annum Energy from Waste (EfW) facility at North Hykeham in Lincoln. The EfW facility became fully operational in 2014 and waste going to landfill has dropped from 168,000 tonnes in 2009 to less than 15,000 tonnes after the site became fully operational[4].

1.1.5. The review of the current JMWMS was put on hold when it appeared that legislation would itself be reviewed. The legislative review has not yet happened but a revised waste strategy is now necessary to address the present waste management challenges in Lincolnshire and to address its future needs. The latest Joint Municipal Waste Management Strategy (JMWMS) is currently in preparation by the LWP, led by LCC.

1.1.6. This Environmental Report summarises the results of the Strategic Environmental Assessment (SEA) for the JMWMS.

1.2 THE JOINT MUNICIPAL WASTE MANAGEMENT STRATEGY

1.2.1. The JMWMS seeks to provide a mechanism by which joint working by the districts, borough and city councils and LCC, as well as the EA, can be achieved to deliver sustainable waste management services and establish best value waste management practices. The framework provided by the JMWMS allows the LWP to continually improve the waste services offered, minimise costs and meet challenging recycling and landfill diversion targets.

1.2.2. The LWP has the vision:

[3] Defra, Guidance on Municipal Waste Management Strategies, July 2005
[4] Lincolnshire's Energy from Waste Facility. Available at: https://www.lincolnshire.gov.uk/recycle-for-lincolnshire/energy-from-waste/ (Accessed July 2017)

'To seek the best environmental option to provide innovative, customer-friendly waste management solutions that give value for money to Lincolnshire'.

1.2.3. In order to work towards this vision, the LWP has also developed and agreed a set of high-level objectives which are listed in Table 1. These objectives are key drivers for the delivery of this strategy. In line with the vision, each of these objectives is to be considered in light of the LWPs shared value that:

'All objectives should ensure that services provided under the JMWMS represent the best possible environmental option which gives value for money for Lincolnshire residents.'

Table 1 – LWP Objectives

1	To improve the quality and therefore commercial value of our recycling stream.
2	To consider moving towards a common set of recycling materials.
3	To consider the introduction of separate food waste collections.
4	To explore new opportunities of using all waste as a resource in accordance with the waste hierarchy.
5	To contribute to the UK recycling target of 50% by 2020.
6	To find the most appropriate ways to measure our environmental performance and set appropriate targets.
7	To seek to reduce our carbon footprint.
8	To make an objective assessment of whether further residual waste recovery/disposal capacity is required and, if necessary, seek to secure appropriate capacity.
9	To regularly review the LWP governance model in order to provide the best opportunity to bring closer integration and the implementation of the objectives set by the strategy.
10	To consider appropriate innovative solutions in the delivery of our waste management services.

1.3 THE SEA PROCESS

1.3.1. Strategic Environmental Assessment (SEA) is the term used to describe the application of environmental assessment to plans and programmes in accordance with European Council Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' (known as the SEA Directive).[5] The SEA Directive is enacted in England through the "Environmental Assessment of Plans and Programmes Regulations" (SI 2004/1633, known as the SEA Regulations).[6]

These Regulations introduced a requirement for an SEA to be produced for a number of statutory plans and programmes, including Waste Management Plans. Bodies such as the LWP should ensure that the SEA is an integral part of developing, and later delivering, their Local Waste Plan.

1.3.2. The overarching objective of the SEA Directive is:

"To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans… with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans… which are likely to have significant effects on the environment." (Article 1)

1.3.3. The main requirements introduced by the SEA Regulations are that:

[5]. Directive 2001/42/EC [online] available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042 (Accessed October, 2017).

[6]. SI 2004 No. 1633, The Environmental Assessment of Plans and Programmes Regulations 2004 [online] available at: http://www.legislation.gov.uk/uksi/2004/1633/pdfs/uksi_20041633_en.pdf (Accessed October, 2017).

- Consultation with statutory bodies is undertaken on the scope of the SEA;
- The findings of the SEA are published in an Environmental Report, which sets out the significant effects of the plan;
- Consultation is undertaken on the plan and the Environmental Report;
- The results of consultation are taken into account in decision-making relating to the adoption of the plan; and
- Information on how the results of the SEA have been taken into account is made available to the public.

1.3.4. SEA extends the evaluation to the broader policy and strategy of regional, county and district level plans. It is a systematic process that identifies and predicts the potential significant environmental effects of plans/programmes, informing the decision making process by testing different alternatives or options against environmental objectives.

1.3.5. This Environmental Report sets out the results of the SEA and development of the Lincolnshire JMWMS. In undertaking this SEA, we provide a systematic appraisal of the potential environmental impacts of the JMWMS and identify measures to prevent, reduce and where possible offset any significant adverse effects of implementing that strategy on the environment.

1.3.6. The structure and content of this report can be seen in Table 2 below.

Table 2 – Structure and Content of the Environmental Report

Section	Description
Introduction	A brief introduction to the JMWMS and the SEA process.
SEA Methodology	A description of the approach to the SEA, including how to assess the significant effects of a number of alternative options against key objectives to help develop the strategy.
Baseline and SEA Objectives	A summary of the plans and programmes relevant to the strategy; and an outline description of the environmental characteristics and issues of the study area. Listing of the SEA Objectives derived from baseline information, issues, and plans and programmes.
Assessment of Alternatives and Effects	The assessment of likely significant effects of the Strategy.
Mitigation and Monitoring Plan	A plan of how the impacts of this strategy will be reduced or removed and how to monitor the implementation of the plan, and the associated environmental implications.

2 SEA METHODOLOGY

2.1 INTRODUCTION

2.1.1. This section provides an overview of the SEA process, the stages undertaken to date and the current stage.

2.2 SEA PROCESS

2.2.1. SEA is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted environmental effects. The effects predicted at this stage will be at a strategic level.

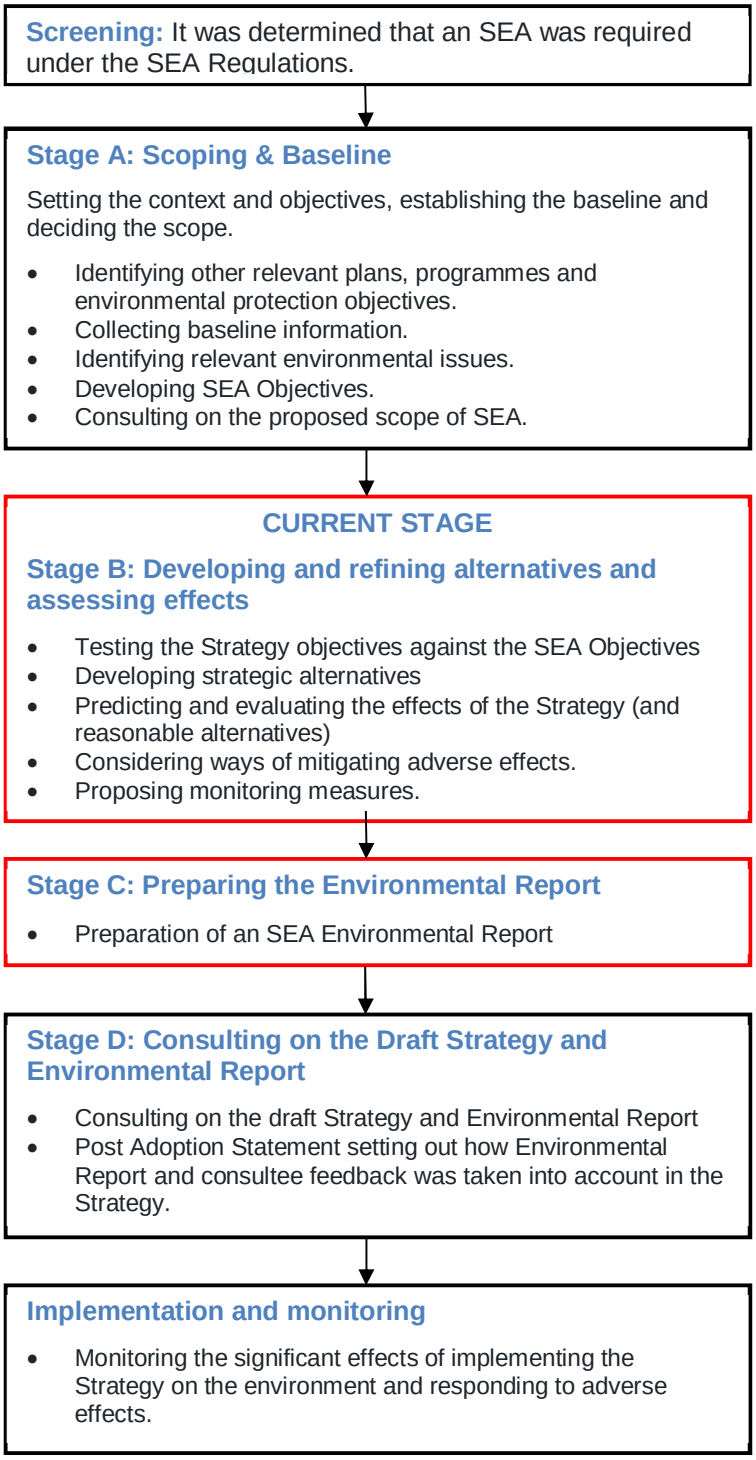
2.2.2. The approach adopted for the SEA of the JMWMS follows that set out in the Practical Guide to SEA[7] and the Planning Practice Guidance to SEA[8]. It involves the development of an assessment framework comprising a series of SEA Objectives, assessment criteria and indicators. This framework is developed from an understanding of environmental problems and opportunities identified through a review of existing baseline information and a review of other plans, programmes and environmental protection objectives relevant to the plan area (i.e. Lincolnshire and its neighbours) and subject matter (waste management).

2.2.3. The SEA process recommended by the Practical Guide is set out in Figure 1 below. The current stage in the process is Stages B and C, which comprise developing and refining strategic alternatives, assessing environmental effects and preparation of the Environmental Report (this report).

[7] Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf (Accessed October 2017).

[8] Department for Communities and Local Government (2015) Strategic Environmental Assessment and Sustainability Appraisal [online] available at: https://www.gov.uk/guidance/strategic-environmental-assessment-and-sustainability-appraisal

Figure 1 SEA Process and Lincolnshire JMWMS



2.3 SEA SCREENING

A 'screening' exercise was not undertaken for the JMWMS as it is mandatory requirement to conduct SEA for a waste plan under the SEA Regulations.

2.4 SEA SCOPING AND BASELINE

2.4.1. In order to determine the scope of the SEA, a number of activities have been undertaken as shown in Figure 1above:

- Other plans and programmes were identified to establish how the Strategy interacts with wider policy framework and identify any environmental protection objectives relevant to the SEA;
- Environmental baseline data was collected and any problems identified to provide an evidence base for prediction of effects, and monitoring; and
- SEA Objectives and associated assessment criteria were developed from the information above to provide a means by which the environmental performance of the Strategy can be appraised.

2.4.2. A Scoping Report was issued for consultation in August/September 2017. Chapters 4, 5 and 6 of the Scoping Report, in addition to Appendices A and B of the report identified other relevant plans, programmes and environmental protection objectives, set out the baseline information and identify relevant environmental issues. The SEA Objectives to be used in the assessment were derived from this information. This information is summarised for ease of reference in Section 3 of this report.

2.4.3. The responses to the scoping consultation and actions taken are summarised in Appendix C of this report. Key issues are summarised below:

- The Scoping Report generally downplays the historic environment/cultural heritage. ; there are no specific schemes or development locations proposed in the JMWMS at this stage, therefore identifying scope for improvement to the historic environment and cultural heritage has been limited;
- The Scoping Report focusses on the potential impact on placement of wheelie bins in conservation areas, when there are other ways in which cultural heritage can be a receptor of harm. The baseline has been updated and assessment reflects this;
- Greater consideration needs to be given to the impact of housing growth on waste disposal capacity and infrastructure provision and on collection capacity methodologies; The baseline has updated and assessment reflects this and
- Additional policies and plans were identified, as well as additional sources or requirements for baseline information. These are now included within Appendices A and B.

2.5 DEVELOPING ALTERNATIVES AND ASSESSING EFFECTS

2.5.1. In this stage of the SEA, the JMWMS was assessed against the SEA Objectives. The assessment covered two key areas:

- The strategic alternatives considered in developing the JMWMS; and
- The proposed policies as set out in the JMWMS.

2.5.2. The SEA Objectives (and assessment criteria) are used to predict and evaluate environmental effects. Chapter 4 of this report summarises the assessment. Where significant adverse effects are predicted or there is uncertainty, measures to prevent, reduce or offset effects are identified. The significant environmental effects of the Strategy must be monitored to identify any unforeseen adverse effects and to enable appropriate remedial action. Chapter 5 of this report includes a mitigation and monitoring plan.

2.5.3. The assessment for the proposed JMWMS is presented in a table format using colour coding shown in Table 3 along with an accompanying narrative description of the assessment finding.

Table 3 – Colour coding of effect significance

Coding	Effect Significance
++	Likely significant positive effect
+	Likely positive effect
0	Negligible or no effect
-	Likely negative effect
--	Likely significant negative effect
?	The effect is uncertain
+/-	The effect is likely to be both positive and negative

2.5.4. Following the findings of the assessment, Section 5.2 of this report also includes a list of proposed mitigation and enhancement measures for any negative or positive significant effects that have been predicted.

2.6 PREPARATION OF THE ENVIRONMENTAL REPORT AND CONSULTATION

2.6.1. This Environmental Report provides the information required by the SEA Regulations and follows the stages of the SEA as described above in Section 2.2. It assesses the environmental effects of the Strategy measures and identifies measures to improve the sustainability of the Strategy as it develops.

2.6.2. Following publication, a Post Adoption Statement will be produced stating how the Environmental Report and the responses to consultation were taken into account during the preparation of the Strategy.

2.7 IMPLEMENTATION AND MONITORING

2.7.1. The Monitoring Plan set out in Chapter 5 of this Environmental Report will be used during the implementation of the Strategy to monitor both positive and negative effects.

2.8 LIMITATIONS AND ASSUMPTIONS

2.8.1. The SEA Regulations require that limitations and assumptions should be described.

2.8.2. This SEA has been based upon the information provided by LCC and the environmental information available at the time of assessment. If other strategic objectives emerge this may potentially affect the outcomes of this assessment. Therefore, it is recommended in this case that the assessment is reviewed.

2.8.3. Currently, there are no formal proposals to provide additional waste management capacity as part of the JMWMS. However, the strategy will explore whether further residual waste recovery/disposal capacity is required and, if necessary, seek to secure appropriate capacity. Therefore, due to a lack of information as to the nature, size and location of such capacity, it has been assumed that no additional capacity is being provided. If it emerges that additional capacity is required, this may affect the outcomes of the assessment and it is recommended that the assessment is reviewed. Where there is potential for impacts arising from a potential increase in capacity, this has been stated so as to inform any future updates to the JMWMS.

2.8.4. The compiled baseline data has been used to provide a ‘snapshot’ of current key issues associated with the JMWMS. Baseline data collection has been collected at a strategic level and is limited to desk-based search of publically accessible sources. There may be other potential issues that the baseline data has not captured due to the constantly changing nature of environmental data.

2.8.5. The JMWMS will apply to a 5 year plan period before a review is required to ensure that it remains current. The assessment will focus on the effects that are likely to occur during the plan period but will also seek to identify longer term effects that may occur beyond this period. It is acknowledged that longer term effects generally have a greater level of uncertainly than shorter-term, more immediate effects.

3 BASELINE AND SEA OBJECTIVES

3.1 INTRODUCTION

3.1.1. This section provides an overview of the policies, plans and environmental information used to develop the SEA Objectives and assess the potential effects of the JMWMS.

3.2 OVERVIEW OF LINCOLNSHIRE

3.2.1. The study area covers the county of Lincolnshire, incorporating the districts, borough and city councils of Boston, City of Lincoln, East Lindsey, North Kesteven, South Kesteven, South Holland and West Lindsey.

3.2.2. The county is predominantly rural and has a geographical area of 2,309 sq miles the extent of which is shown in Figure 2.[9] The main urban area is around the City of Lincoln which is a cathedral town with a rich history dating back to Roman times. Other centres of population include Gainsborough, Louth, Mablethorpe, Skegness, Boston, Sleaford, Grantham, Stamford and Spalding.

3.2.3. Lincolnshire contains some of the country's most versatile agricultural land, a successful tourism industry and internationally important nature conservation sites.

Figure 2 Map of Lincolnshire

[9] https://www.google.co.uk/maps/place/Lincolnshire

3.3 SUMMARY OF RELATED PLANS AND PROGRAMMES

3.3.1. The SEA Regulation requires that the Environmental Report includes information on the relationship of the plan or programme with other relevant plans and programmes (Regulation 12(3)). Those Plans and Programmes most relevant to the Strategy were identified in the SEA Scoping Report (WSP, August 2017). Appendix A to the Scoping Report identified a full list of plans and programmes; those most relevant locally to the strategy are summarised in Table 4 below. LCC will work with the organisations listed to ensure that the JMWMS is integrated with the plans and programmes identified in this table.

Table 4 – Summary of Relevant Plans and Programmes

Plan/Programme	Organisation	Description and Relationship with JMWMS
The Lincolnshire Minerals and Waste Local Plan – Core Strategy and Development Management Policies (Adopted June 2016)	Lincolnshire County Council	Provides the vision, objectives, spatial strategy and development management policies for minerals and waste development in Lincolnshire over the period to the end of 2031. Related to LWP Objective 8 of the JMWMS as to whether further residual waste recovery/disposal capacity is required.
Site Locations Document (Second and final) part of the Lincolnshire Minerals and Waste Local Plan) (adopted on 15th December 2017)	Lincolnshire County Council	Provides specific proposals and policies for the provision of land for mineral and waste development. Related to LWP Objective 8 of the JMWMS as to whether further residual waste recovery/disposal capacity is required.
Boston Borough Council Environmental Policy (March 2010)	Boston Borough Council	Aims to improve the environmental quality of the borough by adhering to certain commitments such as promoting sound waste management practices by minimising its own waste production. Related to LWP Objective 4 and 5 of the JMWMS as to contribute to reducing waste through exploring new opportunities to use waste as a resource and increasing recycling to reduce waste and help in meet targets.
Boston Borough Council Carbon Management Plan (Update 2014-2016)	Boston Borough Council	Provides a framework to help reduce the council's carbon footprint and generate financial savings. Related to LWP Objectives 1 and 7 of the JMWMS to improve the commercial value of LCCs recycling stream and seeking to reduce LCCs carbon footprint.
City of Lincoln: A Climate Change Strategy (2005)	City of Lincoln Council	Objectives of the Climate Change Strategy include assessing Lincoln's impact on climate change and addressing how it can make changes to reduce authority's impact on climate change. Related to LWP Objective 7 of the JMWMS to seek to reduce LCCs carbon footprint.
Low Carbon Lincoln Plan 2012 – 2020 (Draft)	City of Lincoln Council	Preparing a Low Carbon Lincoln plan to reduce Lincoln's carbon footprint and prepare for the impacts of climate change.

Plan/Programme	Organisation	Description and Relationship with JMWMS
		Related to LWP Objective 7 of the JMWMS to seek to reduce LCCs carbon footprint.
Low Carbon North Kesteven Plan 2013-2020	North Kesteven District Council	Aims to reduce the levels of carbon emissions in the North Kesteven District and prepare for the impacts of climate change. Related to LWP Objective 7 of the JMWMS to seek to reduce LCCs carbon footprint.
Central Lincolnshire Local Plan (April, 2017)	City of Lincoln Council, North Kesteven District Council and West Lindsey District Council	Comprises the combined areas of the City of Lincoln, North Kesteven and West Lindsey. Related to LWP Objective 2, 4 and 5 of the JMWMS as it aims to minimise the amount of waste generated across all sectors and increase the re-use, recycling and recovery rates of waste materials.

3.4 SUMMARY OF BASELINE CHARACTERISTICS AND ISSUES

3.4.1. The SEA Regulations require that the Environmental Report covers:

- Relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;
- The environmental characteristics of areas likely to be significantly affected; and
- Any existing environmental problems which are relevant to the plan or programme including European sites for nature conservation.

3.4.2. The Scoping Report (WSP, August 2017) identified a number of environmental aspects which are particularly relevant to the Lincolnshire JMWMS and these are listed in Table 5 below. Appendix A provides further information from the Scoping Report.

Table 5 – Summary of Environmental Characteristics and Issues

Topic	Summary of Current and Future environment
Climatic factors	Future climate change will potentially affect many aspects of UK weather and is predicted to result in more extreme weather events, increased temperatures and rises in the sea level which will be accompanied by economic, social and environmental impacts. The precise nature of these changes is uncertain, particularly for those extreme events, whether of short or long-duration. The increased coastal erosion and flooding that is likely to be associated with climate change has the potential to decrease the quality and availability of agricultural land in the region, with the potential for impacts to the economy and food supply. It is likely that some crops could no longer be grown in the area. There may be more opportunities for vineyards and for growing lavender, sweetcorn, grain maize, sunflowers and navy beans. Additionally there may be an increased potential for planting crops for energy production. These changes in crops however will also have implications for biodiversity. Additionally, climate change is likely to result in an increased threat of pests and new crop pests such as the Colorado Beetle and the European Corn Borer. The East Midlands and Lincolnshire area contains a number of important national transport links and ports which could be affected by climate change. Built structures

Topic	Summary of Current and Future environment
	such as bridges, promenades, pylons, roads and railway lines will become more vulnerable to higher winds, flooding, storm events and changes in soil moisture. Some roads, particularly those near to the coastline and rivers will be particularly susceptible to an increased risk of flooding. Consideration will need to be given to the need to develop the capability of the carriageway to cope with excess water given the likely increase in the frequency of intense rainfall events. Railways will also be susceptible to flooding. Temperature changes also have the potential to affect roads, by causing more frequent melting of the asphalt road surface, and railways by increasing the risk of buckling on the rail tracks. Additionally, climate change has the potential to affect emergency services as a result of extreme weather events.
Air quality	Although air quality across the county is generally considered to be good there are 10 AQMAs in Lincolnshire, declared primarily as a result of pollution caused by traffic emissions. Lincoln City Council has 2 AQMAs, Boston Borough Council has 2 AQMAs and South Kesteven District Council has 6 AQMAs.
Noise	The main sources of noise in Lincolnshire are derived from transport sources, such as roads and rail. Noise action plans provide a framework to manage environmental noise and its effects. There are 94 identified NIAs in Lincolnshire, with South Kesteven district having the largest number of NIAs identified.
Biodiversity, flora and fauna	There are diverse wildlife and habitats in Lincolnshire that are highly valued locally, nationally and internationally. There is wealth of international, national and local designations for nature conservation within Lincolnshire. These include Ramsar sites, SACs, SPAs, AONBs, MCZs, SSSIs, NNRs and LNRs. The designations highlighted could be adversely affected from pollution, waste production, land take and climate change.
Geology and soils	Lincolnshire's bedrocks form a simple pattern of north-south stripes at the surface. There are older Triassic rocks in the west, overlain progressively by marine Jurassic rocks and the younger Cretaceous rocks in the east. At the surface they have been subjected to weathering and erosion under a range of climates including glacial and periglacial during the last 2 million years. The superficial geology of the county is blanketed with a covering of Quarternary superficial deposits that formed within the last two million years. The Quarternary deposits includes glacial and fluvioglacial deposits along with younger Flandrian silts, peat, sands and alluvium that cover the Fenlands, the coastal plains east of the Wolds, much of the Humber coast and the Isle of Axholme. Lincolnshire contains a wide variety of soils including alluvium (clay, silt and sand) along coastal regions, Till (Diamicton), River Terrace deposits (Sand and Gravel), blown sand, peat, glacial sand and gravel. Lincolnshire soils vary in thickness from a few centimetres to over a metre in response to the underlying geology, location in the landscape and agricultural practices. The thinnest soils tend to occur over chalk and limestone escarpments and on valley side, with the deepest soils in the Fenlands. These soils support the important agricultural sector in Lincolnshire.
Water	There are two main rivers that run through Lincolnshire. The River Witham flows through the Lincolnshire countryside, with marshy fenlands stretching out on either side. The River Witham flows from Lincoln moving east towards Bardney (west Lindsey) then south passing through Kirkstead (East Lindsey), Dogdyke (North Kesteven) and then flows into the sea at Boston. The majority of the areas in the vicinity of this river are at a high risk of flooding. The River Trent is the third longest river in the United Kingdom and a part of it forms the district boundary between Bassetlaw and West Lindsey. It runs north and then joins the River Ouse at Trent Falls to form the Humber Estuary. A majority of the areas in the vicinity of this river are at a medium risk of flooding.

Topic	Summary of Current and Future environment
	The water quality of the rivers that flow within Lincolnshire is poor in comparison to other regions. This is attributed to the slow moving flows of the rivers in the Anglican region which restrict the dilution of pollutants and high nitrate loads arising from fertilizer run off and livestock slurry in agricultural areas. The public water supply within Lincolnshire from surface water sources is 21% and that from groundwater sources is 79%. Nitrate pollution is a significant concern and levels have increased in the region despite the introduction of Nitrate Sensitive Areas (NSA's) and Nitrate Advisory Areas (NAA).
Population and human health	The population of Lincolnshire has increased by 64,830 people in the ten year period to 2015. A breakdown of this data shows that the county continues to have an ageing population and is less diverse than other areas. Deprivation across Lincolnshire has worsened slightly from 2010 to 2015.
Material assets	There is an extensive highway network in Lincolnshire. In recent years the length of trunk roads has reduced dramatically as a result of the detrunking of several A roads. There is an increasing demand on the transport network and an increase in concern around the environmental impact of traffic. Waste collection and disposal results in a substantial number of lorry movements into and out of the County to waste management facilities. Regular collections are required from households and with the number of households increasing and the total amount of waste increasing; there is the potential for an impact on transport. Mineral extraction operations within the county will result in substantial lorry movements to transport materials. New housing and employment sites are presently being identified across the county. This has the potential to increase the amount of waste generated that would need to be disposed of appropriately. This may lead to a strain on existing waste collection measures in place currently and decrease waste disposal capacity. In this case new waste infrastructure will need to be proposed. Lincolnshire contains a significant amount of best and most versatile agricultural land and is a large producer of food.
Cultural heritage	Lincolnshire's historic landscape and built environment reflects local topography, land use and the availability of building materials, and more recently changes in social conditions and technological advances. One of the county's assets is the combination of styles and materials which represent the economic and aesthetic influences of different periods of history. This is reflected in the high historic and cultural value of the cores of Lincoln City and surrounding towns. Lincolnshire has a large amount of heritage assets including 162 Conservation Areas, 7200 Listed Buildings and 478 Scheduled Monuments across the county.
Landscape	The Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) is a significant feature of the Lincolnshire landscape; the AONB covers parts of East Lindsey and West Lindsey. There are 11 Landscape Character Areas (LCA) within Lincolnshire. The major urban areas within Lincolnshire are those within and around Lincoln, South Kesteven and Boston Borough. Areas closer to the coastline are recently becoming increasingly urbanised due to tourism. The Lincolnshire coastline has been shaped throughout history by natural processes such as changes in sea level and coastal processes are constantly shaping the coast. The effects of changes in sea level and climate change will impact greater on the coastline leading to coastal erosion.

3.5 SEA OBJECTIVES

3.5.1. The Scoping Report also proposed a number of SEA Objectives, aligned with a series of themes. While not specifically required by the Regulations, SEA Objectives are a recognised way of considering the environmental effects of a plan or programme and comparing the effects of alternatives.

3.5.2. The SEA Objectives and themes for the Lincolnshire JMWMS were derived from the review of baseline information, issues, plans and policies described above. The SEA Objectives are listed in Table 6 along with potential indicators.

Table 6 – SEA Objectives

SEA OBJECTIVES	POTENTIAL INDICATORS	RESPONSIBLE AUTHORITY FOR COLLECTING INFORMATION
Climatic Factors		
1. To reduce carbon emissions from energy use.	Amount of fuel used in waste management collections per annum. Monitoring carbon emissions throughout the treatment of waste (recycling, composting, incineration, landfill)	Local Authority
2. To contribute to a circular economy through the use of waste management collection infrastructure and recycled materials.	Replacement bins that are recycled at the end of their useful life	Local Authority
Air Quality		
3. To prevent deterioration of air quality within the county and where possible make improvements.	Percentage of Euro VI engines, electric vehicles, hybrid vehicles, biogas or hydrogen fuelled vehicles operating on behalf of the local authorities in a waste management related capacity per annum Striving to meet Industrial Emissions Directive Emission Limit Values.	Local Authority
Noise		
4. To minimise the effects of noise in the identified NIAs.	Number of planning applications for new waste management infrastructure that consider the appropriateness of access through NIAs	Local Authority
Biodiversity, Flora and Fauna		
5. To maintain biodiversity in Lincolnshire.	Significant effects upon biodiversity identified during the planning consenting process for new waste management infrastructure.	Environment Agency/ Local Authority
Geology and Soils		
6. Promote the conservation and wise use of land, and protect soil quality and quantity.	Tonnes of green waste that is used as compost per annum	Local Authority
	Fly tipping incidents per annum	Environment Agency/Local Authority

	EfW facility(s) ash disposal use as a sub-base for construction material.	Local Authority
Water		
7. To protect water courses and improve the quality of water and wastewater discharges resulting from waste management activities.	Number of surface water discharge applications for new waste management infrastructure agreed by the Environment Agency.	Local Authority/ Environment Agency
Population and Human Health		
8. To encourage economic investment through waste management.	Monetary value of new waste management infrastructure developed per annum	Local Authority
9. To ensure that the growing population of Lincolnshire does not lead to an increase in the percentage of waste disposed of.	Total percentage of waste recycled and composted per annum	Environment Agency/Local Authority
	Total percentage of waste recovered per annum	Environment Agency/Local Authority
Material Assets		
10. To facilitate opportunities for recycling within residential development.	Proportion of housing scheme planning approvals where dedicated waste management storage considerations are included in the application per annum	Local Planning Authority
11. To protect agricultural resources from waste management activities	Area of agricultural land lost to new waste management infrastructure.	Local Authority
12. To encourage material re-use/waste avoidance.	Waste generated per capita per annum	Environment Agency/Local Authority
13. To ensure sustainable use of resources through effective waste management.	Amount of energy generated by the EfW (as a measure of non-combustible diversion rates) per annum	Local Authority
	Amount of heat exported from the EfW.	Local Authority
	Percentage of recyclables in residual waste per quarter (as an indicator of resources lost to less sustainable management)	Local Authority
Cultural Heritage		

14. Protect and enhance the historic environment, heritage assets and their setting (including architectural and archaeological heritage)	Number of archaeological investigations and cultural heritage setting assessments undertaken for new waste management infrastructure.	Local Authority
Landscape		
15. To protect and enhance the countryside in Lincolnshire	Area of AONB land lost to new waste management infrastructure	Local Authority

4 ASSESSMENT OF ALTERNATIVES AND EFFECTS

4.1 INTRODUCTION

4.1.1. This section presents the findings of the assessment covering two key areas:

- The strategic alternatives considered in developing the JMWMS; and
- The proposed objectives of the JMWMS.

4.1.2. Mitigation and enhancement measures for negative or positive significant effects are set out in Section 5.2.

4.2 DEVELOPING STRATEGIC OPTIONS

4.2.1. At a strategic level, two options were considered:

- Retention of the existing JMWMS; and
- Development of a new JMWMS with new objectives.

RETENTION OF THE EXISTING JMWMS

4.2.2. This option would involve retaining the current JMWMS for Lincolnshire which was published in June 2008. The current JMWMS vision is:

- To commit to sustainable development and the waste hierarchy;
- To minimise waste growth by encouraging and promoting waste prevention and reduction;
- To promote sustainable resource use through increased re-use, recycling and composting of waste;
- To maximise recovery and the use of waste as a resource;
- To reduce the amount of biodegradable waste sent to landfill each year; and
- To minimise the impacts of the final proposal.

4.2.3. Retention of the current JMWMS would reduce both cost and time of producing a new JMWMS.

DEVELOPMENT OF NEW JMWMS WITH NEW OBJECTIVES

4.2.4. This option would involve the development of a new JMWMS.

4.2.5. New objectives could seek to improve Lincolnshire's waste management services in the context of the new challenges and issues faced, taking advantage of new and emerging technologies/processes to meet the needs of the county. It could promote innovative, customer-friendly waste management solutions that give value for money. The development of a new strategy could also allow it to more specifically align with, and take account of, the differences in waste streams, opportunities and aspirations across the county.

CONCLUSION

4.2.6. The LWP considers that the retention of the existing JMWMS is unlikely to continue to reflect Lincolnshire's needs into the future since it would not take account of recent changes in national and local government budgets and policies and changes in the way waste services are delivered (such as with new technologies or processes). For example, new challenges to the management of waste in Lincolnshire include:

- Continuing to provide the best possible service at a time when local authority budgets have been greatly reduced;
- Turning around a recycling rate which has begun to fall both locally and nationally; and
- Possible changes in government policy following our departure from the European Union.

4.2.7. In environmental terms, there is likely to be little difference between the two strategic options considered. There is no evidence to indicate that the current JMWMS is having negative environmental effects. That said, the existing JMWMS is not addressing local environmental issues (which are likely to differ across the county) as fully as it could be. The development of a new JMWMS would allow more specific circumstances across different parts of the county to be considered; potentially leading to better environmental outcomes compared to if the existing JMWMS was retained.

4.2.8. Similarly, the existing JMWMS, which has been in place since 2008, may not sufficiently take into account new waste management technologies. Again, the development of a new JMWMS would allow stronger provision for the uptake of new waste management technologies/processes to be made which, in general terms, could lead to an environmental benefit.

4.3 ASSESSMENT OF JMWMS OBJECTIVES

4.3.1. The assessment of JMWMS objectives against the SEA Objectives is presented in Table 7.

Table 7 – Assessment of JMWMS

SEA Theme		Climatic Factors		Air Quality	Noise	Biodiversity, Flora and Fauna	Geology and Sols	Water	Population and Human Health		Material Assets				Cultural Heritage	Landscape
SEA Objective		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Proposed JWWMS Objective																
Objective 1: Recycling Stream	To improve the quality and therefore commercial value of our recycling stream.	+	+	+	+/-	0	0	0	+	+	+	0	+	+	+	0
		This objective focuses on minimising waste management costs and increasing efficiency throughout the recycling process. 2. An improvement in the quality and therefore commercial value of LCC's recycling stream could potentially contribute to a circular economy; improved waste management collection infrastructure would enhance the quality, variety and subsequently the marketability of waste streams. This would facilitate the use of these waste streams as resources in themselves, and the extraction of further value from them; behaviours which drive the circular economy. 1, 3, 14. There is potential for a reduction in carbon emissions if the quality and commercial value of the recycling stream is improved through an increase in recycling rates and a decrease in disposal. This may have a positive effect on air quality through the reduction of waste vehicles required for transporting non-recyclable waste, or the amount of material sent for landfill/incineration; operations which have a negative effect on air quality. The reduction in waste collection vehicles required could also benefit cultural heritage, for example by reducing the frequency of waste collection operations in conservation areas. 4. By increasing the efficiency in the waste collection stream, there could be a reduction in the amount of waste collections required, which could potentially lead to a reduction in noise levels in NIAs arising from waste collection and reduce noise generated at material recovery facilities. This would have a positive effect on noise levels. However, there is a possibility that the introduction of new technology or processes to improve the quality of the recycling stream could generate noise. The difference would be that the noise generated in this latter scenario would be site focussed (e.g. at														

		the recycling processing facility), rather than route focussed; there could therefore be more opportunities to manage noise emissions in this scenario (i.e. site specific mitigation measures). 8. A focus on improving the recycling stream and engaging with the commercial waste sector could generate investment opportunities in waste management by realising a greater revenue stream from the material collected. Focusing on streams with the most economic and/or environmental value and investment opportunities arising from waste streams as marketable products could drive economic and employment growth. Economic benefits could also arise from cost savings achieved from an increase in efficiency and efficacy of recycling. 9, 10, 12, 13. By striving to enhance the quality and commercial value of waste streams, there would be a knock-on effect at 'waste source', for example, domestic waste, as a key part in the 'supply chain' for these waste streams. Adopting and promoting circular economy thinking andthe potential for realising value from higher quality waste streams would encourage the promotion of recycling and waste reduction behaviours amongst residents. This would incentivise ways to make recycling easier for residents such as the introduction of recycling facilities within residential developments, additional support in the re-use of materials and the avoidance of waste. A growth in population and housing could thereby be seen as an opportunity to increase the amount of marketable, revenue generating material coming out of waste management activities. A quality, reliable source of recyclable material would drive its consumption as a resource in itself. There would therefore be a positive effect on these objectives. It should be noted that there could be a conflict between objectives 12 and 13, because a drive to avoid the creation of waste in the first place would eventually deprive consumers of waste streams (e.g. EfW facilities) of their source material. 5, 6, 7, 15. It is considered that the development of waste management infrastructure for new waste streams would be the most likely aspect of waste management strategy to affect these themes. However, currently there are no proposals for the development of new waste management sites; therefore no effect on these themes is predicted.														
Objective 2: Recycling Materials	To consider moving towards a common set of recycling materials.	+	+	+	+	0	0	0	+	+	+	0	+	++	0	0
		This objective aims to have a common set of recycling materials across the county; if every Local Authority is using the same bins and waste streams, it is easier to integrate waste operations, collections and sites. This would also strengthen relationships within the LWP and promote high quality recycling. 2. Moving towards a common set of recycling materials across the county will enable a greater collaboration on how to extract the most value from these materials as part of on-going re-use. This will further the contribution of the JMWMS to the circular economy. 8, 10. In order to move towards a common set of recycling materials this would require some investment initially as certain Local Authorities would need to provide a revised set of bins, educate people on what materials the new bins are														

		for, adapt/change their waste collection vehicles/collection routes and/or waste treatment sites, and re-train collection operatives. This process would provide an opportunity to revaluate wider provision of recycling facilities, such as the potential to facilitate opportunities for recycling within residential developments and contribute towards increasing recycling rates. Where collection vehicles are replaced, consideration to the procurement of low or zero emission vehicles should be considered. 5, 6, 7, 11, 14, 15. It is considered that the development of new waste management infrastructure would be the most likely aspect of waste management strategy to affect these themes. However, currently there are no proposals for the development of new waste management sites; therefore no effect on these themes is predicted. 9, 12. Having a common set of recycling materials provides an opportunity to update and educate households across the county on recycling and waste avoidance. Collaboration with local schools, youth groups, businesses and companies as part of this may encourage culture change in current and future generations with regards to recycling and waste avoidance. Combining resources across the county would provide greater opportunities for efficiencies in terms of waste collection and treatment and would enhance the capability of each LA to encourage material re-use and waste avoidance behaviours amongst the growing population. 13. Focusing on streams with the most economic and/or environmental value and deciding on a common set of recycling materials would have a positive effect in the sustainable use of resources by creating greater efficiencies across the county in waste stream collection and management. For example, waste collection routes and waste management sites could be planned and used more strategically across the county, responding to potential avenues of re-use more holistically than is currently the case. A certain amount of investment would be required to achieve this, depending on the existing waste management arrangements in each LA, but the potential for increased efficiency and resilience in both the waste management capability of the county and the resulting waste stream supply chain is worth noting. 1, 3, 4. A more strategic county wide approach to waste collection would contribute to more efficient use of vehicles, and lead to a reduction in vehicle emissions, both air quality and noise associated with waste collection vehicle movements.
Objective 3: Food Waste Collections	To consider the introduction of separate food waste collections.	+/- + - - ? 0 0 + 0 ? 0 0 + ? ? This objective aims to introduce the separate collection of food waste. 1, 3, 4. Where existing vehicles, collection routes and processing facilities could not be adapted to incorporate the collection of this new waste stream, additional collection vehicles and routes would probably be required to achieve this objective. The introduction of separate food waste collections could therefore increase the amount of vehicle

		movements related to waste collection and the distance they have to travel to reach a facility capable of processing the new waste stream, thus having a negative effect on climatic factors and a likely negative effect on air quality and noise. Where collection vehicles are replaced, consideration to the procurement of low or zero emission vehicles should be considered. However, by collecting food waste, there would be an associated decrease in the volume and frequency of other types of waste collections. 2, 13. The separate collection of food waste could contribute to the circular economy by enabling the recovery and use of an additional waste resource as a product, thereby realising value from this aspect of the waste stream. It would therefore also encourage greater sustainability in use of resources. For example, the potential for the re-use of food (and other green) waste as a bio-fertiliser could have particular benefits in a county such as Lincolnshire, in which agriculture is a key part of the economy. 8, 9, 10, 12. Investment and engagement with commercial sector would be required to facilitate the separate collection of food waste, but as the value from the waste stream is realised, this would generate further economic benefits. Similar to Objective 2 above, Local Authorities may need to distribute new bins, educate residents on what the new collections are for, adapt their existing vehicles/collection routes and waste treatment sites to accommodate the new waste stream, and re-train operatives. Where collection vehicles are replaced, the procurement of low or zero emission vehicles should be considered. As part of the implementation of this objective, there is an opportunity to increase support for recycling within residential developments, as well as educating households on waste avoidance and recycling, with a view to enhancing these behaviours, thereby offsetting the potential for an increasing population to generate waste. Collaboration with local schools, youth groups, businesses and companies as part of this may encourage culture change in current and future generations with regards to recycling and waste avoidance. 14, 15. There is a possibility that the changes in the frequency of waste collections, and an increase in the number of bins per household, may have a visual impact on landscape/heritage areas. 5, 6, 7, 11. It is considered that the development of waste management infrastructure for new waste streams would help fill in any processing gaps and be the most likely aspect of waste management strategy to affect these themes. However, currently there are no proposals for the development of new waste management sites; therefore no effect on these themes is predicted.														
Objective 4: Waste as a resource	To explore new opportunities of using all waste as a	+	++	+	0	0	0	0	+	+	+	0	++	+	0	0
		This objective aims to achieve sustainable waste management by following the waste hierarchy: Prevention, preparing for re-use, recycling, other recovery and disposal. This objective links to Objective 3: introduction of separate food waste collection														

	resource in accordance with the waste hierarchy.	1, 2, 3. This objective will contribute to an increase in the amount of residual waste that is recycled or composted, and therefore diverted from landfill. Consideration will need to be given to sending the collated waste and recycled materials to nearby locations within each district, borough and city councils to ensure that the environmental effects of transporting do not outweigh the benefits of reducing residual waste. The objective also contributes directly to the theme on circular economy, by seeking to identify uses for and maximising value from waste materials. 8. Using waste as a resource will generate investment, as long as there is a commercial benefit to be gained from the products arising. Careful consideration would need to be given to how this objective is realised, as it is considered that the development of waste management infrastructure for new waste streams could have a number of associated environmental effects depending on the nature and location of such development. However, currently there are no proposals for the development of new waste management sites. 9, 10, 12, 13. The objective focuses strongly on the reuse of materials and avoidance of waste where possible. There is therefore a great deal of opportunity to positively affect these themes through education/communication on recycling and waste avoidance behaviours and provision of support/facilities for households. Collaboration with local schools, youth groups, businesses and companies as part of this may encourage culture change in current and future generations with regards to recycling and waste avoidance. The objective links well to those aspiring to increase the efficiency and efficacy of recycling across the county. Achieving this objective would also help to offset a growth in waste arising from an increasing population in the county. 4, 5, 6, 7, 11, 14, 15. It is considered that the development of waste management infrastructure for new waste streams would be the most likely aspect of waste management strategy to affect these themes. However, currently there are no proposals for the development of new waste management sites; therefore no effect on these themes is predicted.														
Objective 5: Recycling Target	To contribute to the UK recycling target of 50% by 2020.	+	++	+	0	0	0	0	+	+	+	0	+	+	0	0
		This objective aims to increase the percentage of waste recycled and improve the environmental impact of existing services in order to contribute to the UK recycling targets set for 2020.														

		1, 2, 3. An increase in the percentage of recycled materials would lead to a corresponding decrease in the percentage of non-recyclable waste. The relative differences in required collections, vehicles and disposal are likely to lead to a positive effect on carbon emissions and air quality. This objective would also contribute to the circular economy by increasing the potential for additional value to be realised from recyclables. 8. An increase in yield of recycled materials could generate revenue and investment from potential consumers of this material. The marketability of the waste stream would depend on their being an adequate, predictable supply. 9, 10, 12, 13. The growing population of Lincolnshire may lead to an increase in the amount of household waste generated. This objective could help to offset this impact, by increasing the percentage of this waste that is recyclable. It provides an opportunity to promote recycling and waste avoidance to residents, as well as exploring how to enhance the performance of residential developments in terms of recycling. The objective will also drive a greater efficacy in waste management as the implementation of the strategy aligns with the national recycling target. 4, 5, 6, 7, 11, 14, 15. It is considered that the development of waste management infrastructure for new waste streams would be the most likely aspect of the waste management strategy to affect these themes. However, currently there are no proposals for the development of new waste management sites; therefore no effect on these themes is predicted.														
Objective 6: Environmental Performance	To find the most appropriate ways to measure our environmental performance and set appropriate targets.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	This objective aims to improve how the environmental performance of the waste management strategy is measured. The measurement of environmental performance, with a view to setting and tracking progress against appropriate targets, will facilitate the identification of areas for improvement, proposal of actions to drive positive changes, and provide evidence against which performance can be tracked. This will have a positive effect on all the themes, and will also tie into the objectives of this SEA, which should be used as a starting point in the development of these measurements/targets. Fulfilling this objective should ensure that the aspects measured link back to tangible environmental and waste management benefits to ensure that progress is not made for progress's sake. This may require a more strategic and holistic approach to target setting, monitoring and review than is standard practice. A feedback action should be included to make sure that the findings in relation to environmental performance have the opportunity to enable further changes to targets so support continual improvement. Working with and learning from authorities outside the LWP on measuring environmental performance and setting targets can also help achieve this objective.
		++	+	+	+	0	0	0	+	+	+	0	+	+	+	+	

Objective 7: Carbon Footprint	To seek to reduce our carbon footprint.	This objective aims to reduce LCC's carbon footprint. 1, 2, 3, 4, 14, 15. Achieving this objective would contribute directly to these themes. It is expected that this objective will be achieved in relation to the number and frequency of waste management collections made. This can be done by reducing waste collection frequency, miles driven and/or using cleaner fuels in waste collection vehicles or new electric/hybrid vehicles. These actions would lead to improvements in air quality and noise emissions associated with waste vehicle collection, as well as the potential for minor improvements in historic and landscape value. There is also the opportunity to explore the reduction of energy used at existing waste management facilities as part of this objective. 8, 9, 10, 12, 13. The ways in which this objective could be achieved links well with other objectives around waste avoidance and increased re-use of existing waste streams. There is therefore the opportunity for this objective to have a positive effect on these themes as a result of reduction in waste and realisation of higher quantity and better quality waste streams. 5, 6, 7, 8, 11. It is considered that the development of waste management infrastructure for new waste streams would be the most likely aspect of waste management strategy to affect these themes. However, this objective does not necessarily require the development of new waste management sites; it is more closely linked to management of existing infrastructure and processes. Therefore there will be no effect on these themes.														
Objective 8: Residual Waste	To make an objective assessment of whether further residual waste recovery/ disposal capacity is required and, if necessary, seek to secure appropriate capacity.	-	-	-	-	-	-	+/-	+	-	0	-	0	0	-	-
		The aim of this objective is to determine if there is a need for new waste infrastructure and what this potential infrastructure would consist of. 1, 2, 3, 4. An alternative to a potential new facility/waste infrastructure would be to transport waste out of the county to an existing, but more distant, facility. This would contribute to increased carbon, air quality and noise emissions through highway movements in the transport of waste. However, the construction and operation of a new waste recovery/disposal facility could also lead to an increase in these emissions. This objective therefore has a negative effect on these themes. 5, 6, 7, 11, 14, 15. The nature and location of potential new capacity would have the potential to negatively impact these themes as a result of land take, construction and operational emissions, and the addition of infrastructure into the natural, potentially rural/historic environment. Whilst existing legislation protects the water environment to a certain extent, any future development would need to take account of flood risk, both to the development and to other areas as a result of the development. Depending on the extent to which the development incorporated sustainable drainage, it could have positive or negative impacts on drainage and flood risk. It would also need to be resilient in the face of														

		climate change and the changes this will bring to the natural environment and conditions in which the development would operate. 8. This objective would have a positive impact on this theme through the provision of new waste management infrastructure, which would generate investment and employment. The potential for the incorporation of innovative and bold approaches to waste management could also bring benefits. Working with and learning from authorities outside the LWP and engaging with the commercial waste sector could help in forming a solution to processing capacity gaps. 9. Additional waste management infrastructure would be able to accommodate the demands of an increasing population, but unless the development contributed to other objectives in relation to waste avoidance or better recycling, then it would not prevent an increase in waste requiring disposal. It is therefore possible that this objective, on balance, would have no impact on this theme.															
Objective 9: LWP Governance Model	To regularly review the LWP governance model in order to provide the best opportunity to bring closer integration and the implementation of the objectives set by the strategy.	0	0	0	0	0	0	0	+	0	+	0	+	+	0	0	
		This objective aims to encourage and drive efficiency and action within and between the Local Authority areas. 10, 12, 13. The use of positive engagement between the LWP and with the local community can encourage behavioural change and promote recycling initiatives, whilst also identifying and exploiting opportunities for innovative approaches towards instigating change. 8. The efficiency drive can lead to cost savings if this is implemented correctly through effective communication with the Lincolnshire public and stakeholders. The collaboration between local authorities making up the partnership and working alongside and learning from authorities outside the LWP can help contribute to achieving the objectives set by this strategy. Regular reviews will enable the LWP governance model to be responsive to change, opportunities and challenges in relation to implementation of the strategy. This could provide avenues for economic investment and allow greater flexibility to respond to innovations around sustainable use of resources, waste re-use and waste avoidance.															
Objective 10: Innovative Solutions	To consider appropriate innovative solutions in the delivery	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	
		This objective aims to encourage the use of innovations to deliver a sustainable waste management service.															

	of our waste management services.	There are a number of avenues through which the objective could be fulfilled; for example, use of innovative, or emerging waste management or vehicle technology, education/communication strategies to influence or support changes in householder behaviour, adopting and promoting circular economy thinking, development and/or marketing of products from waste streams, or collaborations with waste producers/users and working with and learning from authorities outside the LWP. The implementation of these innovations could take place at a local authority or a county level, and could have varying influences over each of the themes. The consideration of innovative solutions would need to ensure value for money is achieved. The effect on all SEA themes is therefore considered to be uncertain, because of the lack of information on the potential solutions at this stage.

SUMMARY OF ASSESSMENT OF JMWMS OBJECTIVES

4.3.2. The assessment has determined that there is the following potential for environmental effects:

- The introduction of a common set of recycling materials is likely to have a significant positive effect in relation to the sustainable use of resource through effective waste management;
- Exploring the use of waste as a resource via the waste hierarchy is likely to have a significant positive effect in relation to the circular economy and the sustainable use of resource through effective waste management;
- Contributing to the UK's recycling target is likely to have a significant positive effect in relation to the circular economy;
- Seeking to reduce carbon emissions from energy use is likely to have a significant positive effect in relation to carbon emissions.

There are also some unknown effects relating to:

- The effect of separate food waste collections on biodiversity, opportunities for recycling within residential developments, the historic environment and the Lincolnshire countryside; and
- Innovative solutions in the delivery of waste management services.

4.4 ASSESSMENT OF CUMULATIVE EFFECTS

4.4.1. The SEA Directive requires that cumulative effects are considered when identifying likely significant effects. These effects arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the plan (e.g. noise, dust and visual) have a combined effect on an environmental receptor.

4.4.2. The approach taken has been to identify all cumulative effects in terms of:

- Their spatial extent; and
- Their temporal extent;

4.4.3. The tables above have considered how the different elements of the plan combine to affect the various environmental, social and economic elements identified in the SEA Objectives. However, it is also important to consider the effects of plan implementation combined with plans or schemes within and around Lincolnshire. The first section below assesses the potential cumulative effects of the JMWMS with other local plans. Then, the second section below describes potential for cumulative effects resulting from the JMWMS combined with other potential schemes being considered in and around the county.

4.4.4. The tables above have considered how the different elements of the plan combine to affect the various environmental, social and economic elements identified in the SEA Objectives. However, it is also important to consider the effects of plan implementation combined with plans or schemes within and around Lincolnshire. The first section below assesses the potential cumulative effects of the JMWMS with other local plans. Then, the second section below describes potential for cumulative effects resulting from the JMWMS combined with other potential schemes being considered in and around the county.

CUMULATIVE EFFECTS WITH OTHER PLANS

4.4.5. LCC has five neighbouring authorities that have produced waste management development plans and strategies. These documents have been reviewed at a high level to identify the areas where cumulative effects may rise.

The five local authorities that border Lincolnshire comprise of North Lincolnshire, Nottinghamshire, Leicestershire, Peterborough and Norfolk. Each of these local authorities have a waste management development plan or strategy in place. These are considered in Table 8 below and address the potential for cumulative impacts at a strategic, rather than a site specific level.

Table 8 – Assessment of potential cumulative effects with other Plans

Plan	Potential Cumulative Effects	Mitigation/Enhancement Measures
North Lincolnshire Council- Municipal Waste Management Strategy	*This is the waste strategy for North Lincolnshire Council from 2012-2030. Currently, the household waste produced in North Lincolnshire that is not recycled or composted is buried in the ground in a landfill site.* The two strategies should be able to work together to reduce the amount of waste sent to landfill. This would manage the amount of future capacity required for waste disposal, taking into account population growth and greater efficiency of waste management.	None proposed.
Nottinghamshire County Council Waste Core Strategy (adopted 2013)	*This core strategy is part 1 of the Nottinghamshire's Waste Local Plan and sets out the overall approach to future waste management in Nottinghamshire and Nottingham including estimates of how much waste capacity needs to be provided up to 2031 , what types of sites are suitable and where in broad terms new or extended waste management sites should be located. Part 2 of the Waste Local Plan will consist of the Waste Sites and Policies document and is currently being put together by Nottinghamshire County Council and Nottingham City Council.* As both strategies suggest the potential for additional waste management capacity, there is the potential for cumulative effects arising from landtake and development of these sites at a regional/national scale. As neighbouring administrative areas, there is potential for a strategic approach to waste management between the two; for example using or managing each other's waste streams/products as the need arises e.g. composted material, fuel for EfW.	Consult with neighbouring administrative areas as to the opportunities for the use and/or management of various waste streams.
Leicestershire & Leicester WASTE Development Framework (adopted October 2009)	*Core Strategy & Development Control Policies up to 2021. The Core Strategy includes a spatial vision, spatial strategy, strategic objectives and core policies which set out the key principles to guide the form of waste management development in the WDF area.* As both strategies suggest the potential for additional waste management capacity, there is the potential for cumulative effects arising from landtake and development of these sites.	None proposed.

Cambridgeshire and Peterborough Minerals and Waste Development Plan (adopted July 2011)	*The development plan highlights Cambridgeshire and Peterborough, through the sustainable community's agenda and regional spatial strategy, will be subject to a significant level of growth over the period to 2026. Will need to ensure: that the waste generated in the plan area, including the new developments, is managed in a sustainable way through a network of waste management facilities* As both strategies suggest the potential for additional waste management capacity, there is the potential for cumulative effects arising from landtake and development of these sites.	None proposed.
Norfolk Minerals and Waste Development Framework	*Sets out the spatial vision for future mineral extraction and associated development and waste management facilities in Norfolk from 2011 up to the end of 2026.* As both strategies suggest the potential for additional waste management capacity, there is the potential for cumulative effects arising from landtake and development of these sites.	None proposed.
North East Lincolnshire Municipal Waste Management Plan- Summary 2016-2019	*Provides an overview of the measures that North East Lincolnshire Council (NELC) intents to implement to build on the progress made to date on resource management and further enhance: The services provided to residents and The sustainability of the management of Local Authority Collected Waste (LACW) arising in the area*	

CUMULATIVE EFFECTS WITH OTHER SCHEMES

4.4.6. This section of the cumulative effects assessment considers the potential for cumulative effects resulting from the JMWMS combined with other potential schemes being considered in and around the county. Within Lincolnshire the Lincolnshire Minerals and Waste Local Plan comprises of two parts: the core strategy and development management policy document which was adopted on 1st June 2016 and sets out the key principles to guide the future winning and working of minerals and the form of waste management development in the County up to 2031; and the Site Locations document which was adopted on 15th December 2017 and includes specific proposals and policies for the provision of land for mineral and waste development.

4.4.7. There are policies introduced in the Lincolnshire Minerals and Waste Local Plan where some cumulative effects are considered likely. These policies are:

- Policy W1: Future requirements for new waste facilities
- Policy W3: Spatial Strategy for New Waste Facilities
- Policy W4: Locational Criteria for New Waste Facilities in and around main urban areas
- Policy W5: Biological Treatment of Waste Including Anaerobic Digestion and Open-Air Composting
- Policy W6: Landfill
- Policy W7: Small Scale Waste Facilities

  Policy W8: Safeguarding Waste Management Sites.

4.4.8. There are also policies introduced in the Site Locations document where some cumulative effects are considered likely. These policies are:

- Policy SL3: Waste Site and Area Allocations Table 9 discusses the potential for cumulative effects of these nine policies when combined with possible schemes being considered.

Table 9 – Description of cumulative effects from the JMWMS combined with potential schemes in the county

Plan/Policy	Potential Cumulative Effects	Mitigation/Enhancement Measures
Policy W1: Future requirements for new waste facilities	This policy focuses on the County Council, through the Site Locations document, identifying locations for a range of new or extended waste management facilities within Lincolnshire where these are necessary to meet the predicted gaps for waste arisings in the county up to and including 2031. The introduction of new waste facilities may potentially have a negative cumulative effect on a number of aspects of the environment, such as biodiversity during land take (SEA theme 5) or disrupting watercourses and changes to flood risk (SEA theme 7). However, currently there are no proposals for the specific development of new waste management sites; therefore no cumulative effect is predicted.	Environmental assessment should be undertaken on an individual project level where appropriate. Depending on the nature and location of the scheme, statutory or non-statutory EIA may be required.
Policy SL3: Waste Site and Area Allocations	Future requirements for new waste facilities in order to meet capacity gaps, in accordance with Policy W1 of the Core Strategy and Development Management Policies document, will be provided through the granting of planning permission for waste uses at Vantage Park, Gonerby Moor and other allocated sites and areas where the applicant can demonstrate that the proposal is in accordance with the development plan.	Environmental assessment should be undertaken on an individual project level where appropriate. Depending on the nature and location of the scheme, statutory or non-statutory EIA may be required.
Policy W3: Spatial Strategy for New Waste Facilities	Proposals for new waste facilities, including extensions to existing waste facilities, will be permitted in and around the following main urban areas: Lincoln; Boston; Grantham; Spalding; Bourne; Gainsborough; Louth; Skegness; Sleaford; and Stamford.	Environmental assessment should be undertaken on an individual project level where appropriate. Depending on the nature and location of the scheme, statutory or non-statutory EIA may be required.

	New waste facility schemes proposed around these urban areas may potentially have a negative cumulative impact on sensitive receptors in close proximity to these locations i.e. residents, NIAs, AQMAs, etc.	
Policy W4: Locational Criteria for New Waste Facilities in and around main urban areas	This policy states that new waste facilities will be permitted provided that they would be located on: previously developed and/or contaminated land; or existing or planned industrial/employment land and buildings; or land already in waste management use; or sites allocated in the Site Locations Document; or In the case of biological treatment the land identified in Policy W5. The permission criteria within this policy will potentially result in a positive cumulative effect due no new agricultural land take for waste management uses (SEA theme 11); it would also have positive cumulative effects on the protecting soil quality and quantity (SEA theme 6).	Any new land take required should be kept to the absolute minimum for practical operation of the scheme; where possible existing in-use land and infrastructure should be used to achieve this. Schemes should take opportunities to improve existing infrastructure, such as drainage, and remediate contaminated land, wherever possible.
Policy W5: Biological Treatment of Waste Including Anaerobic Digestion and Open-Air Composting	Planning permission will be granted for anaerobic digestion, open air composting, and other forms of biological treatment of waste outside of those areas specified in Policy W3 provided that proposals accord with all relevant Development Management Policies set out in the Plan; The provision in this policy allows for the development of sites to accommodate food/green waste, which would enable this waste stream to be managed within Lincolnshire. This avoids the requirement to transport this material outside the county, thereby reducing air quality impacts and carbon footprint from transport. However, the operation of such sites has the potential to affect air quality in different ways (dust, odour), potentially leading to cumulative effects with other types of development/operations common in Lincolnshire (agriculture).	Ensure proposed waste management activities or developments undertake air quality assessments as required.
Policy W6: Landfill	Planning permission will only be granted for new landfills or extensions to existing landfills (inert, non-hazardous and hazardous) provided that: it has been demonstrated that the current capacity is insufficient to manage that waste arising in Lincolnshire or its equivalent, which requires disposal to landfill in the County; and	Ensure waste management proposals include sustainable landscape management plans.

	there is a long term improvement to the local landscape and character of the area, with enhanced public access where appropriate; and the development would not cause a significant delay to the restoration of existing waste disposal sites; and the proposals accord with all relevant Development Management and Restoration Policies set out in the Plan. The permission criteria within this policy will potentially result in a positive cumulative effect due no new agricultural land take for waste management uses (SEA theme 11); it could have also have positive cumulative effects on the protecting landscape in the longer term (SEA theme 15).	
Policy W7: Small Scale Waste Facilities	Planning permission will be granted for small scale waste facilities, including small extensions to existing waste facilities, outside of those areas specified in Policy W3 provided that: there is a proven need to locate such a facility outside of the main urban areas; and the proposals accord with all relevant Development Management Policies set out in the Plan; and the facility would be well located to the arisings of the waste it would manage; and they would be located on land which constitutes previously developed and/or contaminated land, existing or planned industrial/employment land, or redundant agricultural and forestry buildings and their curtilages. The permission criteria within this policy will potentially result in a positive cumulative effect due no new agricultural land take for waste management uses (SEA theme 11). There could also be a positive influence on air quality (SEA them 3) as a result of co-locating waste production and management. However, the incremental development of even small scale waste facilities could have negative impacts on biodiversity, landscape, noise, geology and soils, water and cultural heritage.	Any new land take required should be kept to the absolute minimum for practical operation of the scheme; where possible existing in-use land and infrastructure should be used to achieve this. Schemes should take opportunities to improve existing infrastructure, such as drainage, and remediate contaminated land, wherever possible.
Policy W8: Safeguarding Waste Management Sites	The County Council will seek to safeguard existing and allocated waste management facilities from redevelopment to a non-waste use and/or the encroachment of incompatible development. By retaining existing waste sites, this policy facilities the avoidance of landtake for new waste management infrastructure. This is positive for those SEA themes potentially affected most by landtake (agriculture, biodiversity etc).	Any new land take required should be kept to the absolute minimum for practical operation of the scheme; where possible existing in-use land and infrastructure should be used to achieve this.

5 MITIGATION AND MONITORING

5.1 INTRODUCTION

5.1.1. The SEA Regulations require that mitigation measures are considered to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan. The guidance states that mitigation measures include both proactive avoidance of adverse effects and actions taken after potential effects are identified.

5.1.2. Whilst there were no significant negative effects identified in the assessment, there are a number of unknown effects, as well as the potential for some significant positive effects. The measures proposed below have therefore been identified in order to ensure that positive effects and the potential for enhancement are realised.

5.1.3. The SEA Regulations also require that monitoring is undertaken on a plan so that the significant effects of implementation can be identified and remedial action imposed. Monitoring also provides an important measure of the performance of the JMWMS against environmental objectives and targets. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage environmental information.

5.2 PROPOSED MITIGATION

5.2.1. The mitigation measures proposed in Table 10 are geared towards the effects of the proposed JMWMS objectives, which are likely to result with the implementation of the JMWMS. The proposed mitigation measures set out below, where applicable, should be considered for each individual waste action/scheme. The measures should then be incorporated into the design, construction and operational stages of the proposed schemes.

Table 10 - Proposed Mitigation Measures

	Proposed Mitigation
1	Should the development of additional waste management capacity be required, environmental assessment should be undertaken on an individual project level where appropriate. Depending on the nature and location of the scheme, statutory EIA or other environmental assessments may be required.
2	Construction should be undertaken in line with a Construction Management Plan which should include measures to manage construction traffic, reduce environmental impacts and make the most of opportunities for enhancement such as landscape and habitat planting. CMPs should also encourage the use of best practice construction methods and equipment.
3	Where changes in the provision of waste collection services are proposed, in terms of materials collected and frequency, consideration will be given to the duties of each Local Authority in relation to noise and air quality.
4	Consideration of low or zero emission vehicles, such as hybrid or electric, should be considered.
5	Schemes which involve information provision should consider whether it is possible to include information such as a) flood alerts or weather events affecting waste infrastructure to increase resilience to climate change, or b) that relating to seasonal variations in waste such as green waste during the summer, or food/packaging waste during holidays.
6	Collaboration with environmental organisations should be considered, particularly where schemes are close to areas of environmental interest e.g. designated sites, habitat, to ensure opportunities for study and conservation are explored.
7	Undertake collaboration with local schools, youth groups, businesses and companies as part of any change in waste collection services or information provision with regards to recycling and waste avoidance.

8	Ensure proposed waste management activities or developments undertake air quality assessments as required.
9	Ensure waste management proposals include sustainable landscape management plan as part of their design and operation.
10	Consult with neighbouring administrative areas as to the opportunities for the use and/or management of various waste streams.
11	Ensure SEA recommendations are linked to future waste management actions/schemes, by making use of the SEA objectives and indicators in the development of action/scheme specific monitoring.

5.3 PROPOSED MONITORING

5.3.1. The existing JMWMS sets out how an action plan, which will break down the actions and tasks required to meet Lincolnshire's targets and objectives set in the strategy, will be prepared. The delivery of the tasks within the action plan will be monitored and reviewed annually to ensure the partnership would deliver the targets it sets itself through the strategy. Where significant changes occur the action plan will be updated accordingly.

5.3.2. The action plan will establish how the strategy will be delivered, considering what will be required by the Partnership in terms of:

- Action required to deliver waste minimisation and further increase recycling and composting,
- Future changes or improvements to collection services (residual waste, dry recycling, garden waste and potential kitchen waste),
- Investments required to deliver future residual waste treatment facility and additional recycling infrastructures.

5.3.3. SEA monitoring is related more to the significant or uncertain environmental effects of the JMWMS. The proposed monitoring programme is set out in Table 11.

Table 11 – Proposed monitoring indicators

SEA Theme	Potential Indicators	Proposed Monitoring Indicators
Climatic Factors		
1. To reduce carbon emissions from energy use.	Amount of fuel used in waste management collections per annum.	Amount and type of fuel used in waste management collections per annum.
2. To contribute to a circular economy through the use of waste management collection infrastructure and recycled materials.	Replacement bins that are recycled at the end of their useful life	Replacement bins that are recycled at the end of their useful life
Air Quality		
3. To prevent deterioration of air quality within the county and where possible make improvements.	Percentage of Euro VI engines, electric vehicles, hybrid vehicles, biogas or hydrogen fuelled vehicles operating on behalf of the local authorities in a waste management related capacity per annum	Percentage of Euro VI engines, electric vehicles, hybrid vehicles, biogas or hydrogen fuelled vehicles operating on behalf of the local authorities in a waste management related capacity per annum
Noise		

SEA Theme	Potential Indicators	Proposed Monitoring Indicators
4. To minimise the effects of noise in the identified NIAs.	Number of planning applications for new waste management infrastructure that consider the appropriateness of access through NIAs	Number of planning applications for new waste management infrastructure that consider the appropriateness of access through NIAs
Biodiversity, Flora and Fauna		
5. To maintain biodiversity in Lincolnshire	Significant effects upon biodiversity identified during the planning consenting process for new waste management infrastructure.	Area of greenfield land lost to new waste management uses per annum Uptake of biodiversity net positive initiatives at new and existing waste management sites
Geology and Soils		
6. Promote the conservation and wise use of land, and protect soil quality and quantity.	Tonnes of green waste that is used as compost per annum	Tonnes of green waste that is used as compost per annum
	Fly tipping incidents per annum	Fly tipping incidents per annum
Water		
7. To protect water courses and improve the quality of water and wastewater discharges resulting from waste management activities.	Number of surface water discharge applications for new waste management infrastructure agreed by the Environment Agency.	Number of surface water discharge applications for new waste management infrastructure agreed by the Environment Agency.
Population and Human Health		
8. To encourage economic investment through waste management	Monetary value of new waste management infrastructure developed per annum	Monetary value of new waste management infrastructure developed per annum
9. To ensure that the growing population of Lincolnshire does not lead to an increase in the percentage of waste disposed of.	Total percentage of waste recycled and composted per annum	Total percentage of waste recycled and composted per annum
	Total percentage of waste recovered per annum	Total percentage of waste recovered per annum
Material Assets		
10. To facilitate opportunities for recycling within residential development.	Proportion of housing scheme planning approvals where dedicated waste management storage considerations are included in the application per annum	Proportion of housing scheme planning approvals where dedicated waste management storage considerations are included in the application per annum
11. To protect agricultural resources from waste management activities	Area of agricultural land lost to waste management uses per annum	Area of agricultural land lost to waste management uses per annum

SEA Theme	Potential Indicators	Proposed Monitoring Indicators
12. To encourage material re-use/waste avoidance.	Waste generated per capita per annum	Waste generated per capita per annum
13. To ensure sustainable use of resources through effective waste management.	Amount of energy generated by the EfW (as a measure of non-combustible diversion rates) per annum	Amount of energy generated by the EfW (as a measure of non-combustible diversion rates) per annum
	Amount of heat exported from the EfW.	Amount of heat exported from the EfW.
	Percentage of recyclables in residual waste per month (as an indicator of resources lost to less sustainable management)	Percentage of recyclables in residual waste per month (as an indicator of resources lost to less sustainable management)
Cultural Heritage		
14. Protect and enhance the historic environment, heritage assets and their setting (including architectural and archaeological heritage)	Number of archaeological investigations and cultural heritage setting assessments undertaken for new waste management infrastructure.	Number of archaeological investigations and cultural heritage setting assessments undertaken for new waste management infrastructure.
Landscape		
15.To protect and enhance the countryside in Lincolnshire	The quality of Landscape character areas, Area of Green Belt land and Area designated as AONB	Area of landscape character area, green belt or AONB designation lost to waste management uses per annum