



# LEP WATER MANAGEMENT BOARD

8<sup>th</sup> July 2019, 10.30am to 12.00pm  
The Boardroom, Lancaster House,  
36 Orchard Street, Lincoln, LN1 1XX

## Paper 0 - Agenda

Item	Item and brief description	Lead	Access/Circulation
1	Welcome by the Chair	Robert Caudwell, Chair	
2	Minutes of meeting held on 8 <sup>th</sup> November 2018	Robert Caudwell Chair	Paper 1
3	Lincolnshire Flood Risk Partnership Direction	Norman Robinson	Presentation
4	Review of the Lincolnshire Flood Risk and Water Management Strategy	Matthew Harrison	Presentation
5	Water Management Plan and project list	Martin Osborne	Paper 2
6	Planning for Growth Vision and SIDP	David Hickman	Verbal Update
7	EA Update of Lincolnshire Coast	Deborah Campbell	Attachment
8	Policy Environment	Martin Collison	Verbal
9	PA5 Call	Susannah Lewis	Verbal
	Close of meeting		

**Attendees:** Robert Caudwell, Cllr Eddy Poll, Deborah Campbell, David Hickman, Ian Warsap, Martin Collison, Martin Osborne, Matthew Harrison, Steve Moncaster, Phil Drury, Norman Robinson

**Tentative:** None

**Apologies:** Paul Valleley, Ruth Carver

**Awaiting Response:** Andy Bailey, Chris Duffill,



# LEP WATER MANAGEMENT BOARD

5<sup>th</sup> March 2019

THE BOARDROOM, LANCASTER HOUSE,  
36 ORCHARD STREET, LINCOLN, LN1 1XX

# Draft Minutes

<p><b>Present:</b> Robert Caudwell (Chair), Ruth Carver, Phil Drury, Paul Vallely, David Hickman, Deborah Campbell, Ian Warsap, Robin Price</p> <p><b>Apologies:</b> Matthew Harrison, Carly Walker, Cllr Eddy Poll, Chris Duffill</p>	
<p><b>Welcome by the Chair</b> The Chair welcomed all to the meeting and introductions were given.</p>	
<p><b>Minutes of the Meeting held on 8<sup>th</sup> November 2018</b> The minutes were agreed with minor amendments.</p> <p>Actions from previous minutes: Terms of Reference - Approach has been made to North Lincolnshire Council and North East Lincolnshire Council for nominations for Board members, nominations have not yet been received.</p> <p><b>Forward Plan</b></p> <ul style="list-style-type: none"> <li>➤ Lincolnshire Flood Risk &amp; Water Management Partnership -Norman Robinson from EA invited to attend meeting on 8<sup>th</sup> July</li> <li>➤ Review of the Water Management Plan - Martin Osborne to refresh and prioritise projects, which will also need to fit in with WRE and South Lincs Partnership and will attend meeting on 8<sup>th</sup> July</li> <li>➤ RC stated that there was a pipeline call for projects over £250k in October 2018 where 50 projects were submitted. This list of projects will be shared at the July meeting to see if there are any other projects (relating to water) can be included. Agreed that this could be an opportunity for Greater Lincolnshire Drainage Boards.</li> <li>➤ SM and IW said that they may have a project ready for the next call of projects that would fit in with the Water Management Plan or be supplied with a Letter of Support from the GLLEP.</li> </ul>	<p><b>Action</b></p>
<p><b>Update on the LEP and the Local Industrial Strategy</b> RC gave a presentation on the production of a Local Industrial Strategy</p> <ul style="list-style-type: none"> <li>➤ The Local Industrial Strategy will help position Greater Lincolnshire for the future. It is a long-term strategy to support our growing business sectors, which takes account of how the economy will evolve by 2050 and how global trends, such as technological change and industrial digitalisation, Brexit, globalisation and demographic change are likely to impact on the local economy. There is currently more focus on the next 15-20 years.</li> <li>➤ The purpose of the Local Industrial Strategy:             <ul style="list-style-type: none"> <li>- is to position Greater Lincolnshire for the future</li> <li>- should help to rebalance the UK economy. It should be inclusive ensuring that all areas benefit from economic prosperity.</li> <li>- it should pass the "Tipp-ex" test.</li> <li>- it will not be a bidding document</li> <li>- will need to be developed and agreed with National Government, which will be evidence-led.</li> </ul> </li> <li>➤ Our Local Industrial Strategy needs to align strongly with the National Industrial Strategy.</li> <li>➤ The local Industrial Strategy Policy Prospectus will be launched in October 2018, where comments will be requested.</li> </ul>	

<ul style="list-style-type: none"> <li>➤ The Industrial Strategy is built around 5 foundations of productivity (People, Ideas, Business Environment, Infrastructure, Places) and 4 Grand Challenges (Artificial Intelligence, Ageing Society, Clean Growth, Future of Mobility).</li> <li>➤ GLLEP has been collecting evidence over the last 9 months.</li> <li>➤ Regarding the evidence, there needs to be a clear line of sight between any policy priorities in the LIS and the supporting evidence, evidence needs to be robust, an independent economic review will be commissioned, which will also be supplemented by local intelligence from stakeholders, call for evidence and industry experts, the evidence needs to show: <ul style="list-style-type: none"> <li>- how we distinguish between our areas and others</li> <li>- determine how local productivity can be improved</li> <li>- how local resources can be steered to improve productivity</li> <li>- how the evidence aligns with the Grand Challenges and/or Foundations of the Modern Industrial Strategy</li> </ul> </li> <li>➤ Our evidence will be subject to a challenge session with BEIS analysts.</li> </ul>	
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<p><b><u>Environment Agency Update - Deborah Campbell</u></b></p>	
<p><u>East Coast Review</u></p>	
<ul style="list-style-type: none"> <li>• Waiting for Executive to make a decision on the consultation with communities and partners, but would like to carry out the consultation Coastal Defence - preferred choice is rock, but this would not be popular with the Visitor Economy. There could be another way forward, but may be more expensive and would need funding.</li> </ul>	
<p><u>Humber Estuary</u></p>	
<ul style="list-style-type: none"> <li>• The Environment Agency, 12 Local Authorities around the Humber and the Humber LEP are working together, in association with IDs and Natural England, to review how the tidal flood risk around the Humber Estuary, including rivers where tidal flow is the main source of tidal flood risk.</li> <li>• The key objective of the review is to support sustainable development and a prosperous Humber, by redefining the strategic approach to managing tidal flood risk on the Humber, setting the way forward for the next 100 years.</li> <li>• In Spring 2018, the Environment Agency worked with key stakeholders to assess a long list of flood risk management options, ranging from baseline options, such as doing nothing, to a large barrier on the estuary. Following a detailed evaluation process and through consolidating elements of many of the options, the EA were able to produce three strategic approaches that they are now working to refine: <ul style="list-style-type: none"> <li>- Containing the tide: using a combination of flood defences, flood storage, and occasional large scale planned flooding, to contain water largely within the estuary. Improved resilience and changes to land use in some areas would also be required to adapt to rising sea levels and high tides.</li> <li>- Adapting to the tide: by changing land use in some areas, to allow defences to be deliberately altered or moved back in some locations over time. This would create greater capacity for flood storage or large scale planned flooding, and allows the Environment Agency to respond to the fact that it may not be possible to safe maintain or continue to raise defences where they are at present. This would be combined with continued maintenance and improvement of defences in key areas of population and industrial development.</li> </ul> </li> </ul>	

- Keeping out the tide: by constructing a tidal surge barrier, most likely in the outer estuary. This would be a complex and long term option.
- < 5 years
  - Seek to accelerate work of WRE across all sectors (WRE to look at commercial and industrial demand)
  - Encourage Local Authorities to require good water developments, ie, minimise water use/more recycling
  - Prepare information packs for developers - make it a common policy for all developers
  - Inform industry and agriculture on the need for water - this is a common message to all from Anglian Water and demand has already decreased by 25% over the last 5 years, but will increase with Climate Change
- These three approaches are currently going through a thorough appraisal process which should be complete by late 2020. After this, the results will be used to develop a new strategy. At this stage, the Environment Agency is being open-minded about what this might look like and considering options that are feasible, affordable and will best support the area's aspiration for growth. The strategy will need to be able to adapt to changes and/or opportunities in the future - such as rates of sea level rise, changes to legislation or economic factors. These "influencing factors" could set the strategy in a different direction or pathway.

**WRE Business Plan - Robin Price**

RP gave a presentation:

- WRE is being created as a separate company from Anglian Water and will have its own Board, governance etc.
- A regional strategy has been produced to show what it will look like in 2060, ie, what supply options. There will be a multi-sector approach to show where the pinch-points are for water, energy etc and the new approach is now moving to the delivery phase.
- The pace of regulatory change is increasing with the government, with WRE helping to shape the regional planning, and having the following four priorities for water:
  - Improving financial and corporate governance
  - Securing long-term resilience
  - Improving the environment to deliver clean and plentiful water
  - Protecting vulnerable customers
- WRE is one of five regional groups as part of the EA National Water Resource Planning Framework.
- By August 2022, WRE will need to achieve:
  - Pull together all relevant multi-sector stakeholders, including water companies, Local Authorities and Local Enterprise Partnerships, the energy and agricultural sectors, landowners and key environmental NGOs to develop a single, multi-sector Regional Plan for Eastern England.
- The criteria for the next phase of WRE in order to be effective are:
  - Independent of water companies, other abstractors and users of water and regulators
  - Technically credible with the capacity for effective decision-making
  - Influential, involved in the co-creation of national policy, working in partnership with Government, regulators and other stakeholders
  - Capable of delivering outputs in time for inclusion in WRMP24 and other sector plans
- Water Resources East (WRE) Ltd is a "Company Limited by Guarantee" and it is proposed that the organisation will have an independent Chair,

Managing Director, Technical Director, Finance Manager, Comms & Engagement Executive, Project Managers who will feed into South Lincs Water, LEPs and other partners, and an Administrator.

- The proposed Governance Structure:
  - Independent Chair - Henry Cator
  - Managing Director (Executive Director to be appointed)
  - Permanent staff (3.6 - 4FTE)
  - Project staff/consultants as required
  - Strategy Advisory Group (Board of Directors) to include Water Companies, agriculture, energy, Environment Agency, LEPs Local Authorities.
  - Technical Delivery Group
  - Specific Task & Finish Groups
  - Communications & Engagement Group
- Funding Proposals:
  - There will be two classes of membership of WRE, namely Primary Funding Members (PFMs) and Standard Members. PFMs, who will form the Board of Directors, will be expected to contribute a minimum of 3% direct contribution to the day to day operational costs for the organisation (salaries, accommodation and expenses), or will make an "in kind" contribution, ie, the provision of a support service, which reduces the overall operational cost of the business.
  - PFMs will nominate a named individual within their organisation for appointment as a non-executive director of the company.
  - There will be no precise funding formula. It is expected that organisations will make a financial or other contribution to the business which reflects the likely benefit that they will receive from being a member of the Board of WRE Ltd.
  - The Technical Programme will be funded completely separately from the day to day operation of the organisation, and PFMs will not be automatically expected to fund elements if they will not derive a benefit.
  - Each element of the technical programme will be different, and the Technical Delivery Group will identify how each will be funded and the Technical Director will make recommendations to the Board of Directors via Business Cases.
- Types of organisations to be invited onto the Board are Water Companies agricultural, energy, the environment and regional development/Local Authorities.
- Types of organisations to be invited onto the Strategic Advisory Group are: LEPs, Universities, Local Authorities, environmental groups etc.
- Types of organisations to be invited as consultants are Environment Agency, Defra, BEIS, Water Companies and Customer Engagement Forums
- The Technical Programme will involve:
  - Phase II Regional Water Resource Modelling
  - Catchment Based Projects
  - Environmental Land Management System (ELMS) trials
  - Links to other working groups in the region
- Next Steps:
  - A draft Business Plan has been published for consultation; stakeholders are being invited to confirm their preferred role in the organisational structure. WRE is aiming to make the company operational from 1<sup>st</sup> April 2019, and will support committee/working group structure to be formalised, terms of reference to be developed
  - The company will run for 12 months in this structure, but at the

<p>beginning of 2020, the Managing Director will undertake a full review in consultation with all stakeholder</p> <ul style="list-style-type: none"> <li>- A revised (if necessary) structure will then operate to ensure that the draft Regional Plan is published by August 2022.</li> </ul> <p>Comments from Board Members:</p> <ul style="list-style-type: none"> <li>• These are comprehensive proposals, but concerns raised that the WRE Strategic Plan and pipeline of projects - is it to enable delivery on their own - response was to build capacity for the area and to work with others.</li> <li>• The LIS/SEP/WRE Business Plan - make sure they all say the same thing.</li> <li>• National Framework Group will publish guidelines, which is driven by NIC.</li> </ul>	
<p><b><u>Any Other Business</u></b></p> <ul style="list-style-type: none"> <li>• Application of £800k ERDF funding for Smart Water turned down, some funding has been received for planning purposes from AW/RSPC/LCC.</li> <li>• Possible drought this year - WRE is working with sectors</li> <li>• Need to collect data for supply/use needs - SM to report back to July Board meeting.</li> </ul>	

DRAFT





Water for Growth  
Water Management Plan 2019 – 2045

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# 1 Growing the GLLEP Economy

***Water management is fundamental to the growth of Greater Lincolnshire, because it provides valuable services that underpin our environment, economy and quality of life, and food security.***

The Greater Lincolnshire LEP has developed an ambitious plan to increase the value of the local economy by £3.2bn by 2030. The plan helped determine the share the Greater Lincolnshire LEP - along with the 38 other LEPs in England, received from the £2bn Single Local Growth Fund, known as the Growth Deal. To date, the LEP has been successful in securing £146m from central Government.

The Strategic Economic Plan (SEP) - also called the Growth Plan - is a business investment programme across Lincolnshire, North Lincolnshire and North East Lincolnshire which aims to help create 13,000 new jobs, support the building of 100,000 new homes and help 22,000 businesses grow.

The Greater Lincolnshire SEP was refreshed in 2016 and can be found on the GLLEP's website, at <https://bit.ly/2ZlePeE>.

The SEP focuses on growth in 4 priority sectors, the first three explicitly require a secure supply of water and protection from flooding to facilitate their growth. The low carbon energy sector also has many interactions with the water environment.

1. Agri-food
2. Manufacturing
3. Visitor economy
4. Low Carbon

## 1.1 Agri-food

Greater Lincolnshire has more grade 1 agricultural land than any other LEP in England, producing or processing over 12% of the UK's food supply, including more than 70% of its seafood and 25% of its vegetables. The sector employs more than 68,000 people through the supply chain, including a wide range of primary producers and a diverse mix of food businesses, including Cranswick plc, Greencore, Moy Park, Walkers and Young's Seafood. The GLLEP Agri-food Sector Plan has a target to double the sector's economic contribution by 2030 with a focus on high value manufacturing, increasing the production of intensive crops and livestock (e.g. poultry) and investment in new areas such as aquaculture. All of these areas of growth will require additional water provision and improved water management.

The LEP also supported partners to bid for three unique and complementary Food Enterprise Zones, strengthening Greater Lincolnshire's position as a key player in the agri-tech sector.

## 1.2 Manufacturing and engineering

Manufacturing and engineering contributes over £1.9bn (11%) of Greater Lincolnshire's output and employs around 43,000 people. Our manufacturing/engineering strengths encompass power engineering, petrochemicals/chemicals, steel manufacture and motorsport engineering, with global businesses including Siemens, Total, Phillips 66, Tata Steel and Pilbeam Racing Designs.

Many of these industries rely on a reliable and plentiful source of water and on protection of valuable assets from flooding.

## 1.3 Visitor economy

In the 5 years between 2012 and 2017 the tourism sector in Lincolnshire increased in value by nearly one third with an increase to 34.3m visitors to Greater Lincolnshire's world-class visitor attractions including Lincoln Castle and Cathedral, the Lincolnshire Wolds and the

vibrant coastal resorts of Cleethorpes, Mablethorpe and Skegness (the UK's fourth most popular holiday resort). The sector is currently estimated to be worth over £2.24bn per annum to the Greater Lincolnshire economy and it supports over 39,000 jobs, with potential for continuing long-term growth. The visitor economy not only requires a reliable supply of water for the visitor services but also requires that the water environment and the water dependent environment are healthy and attractive but clean bathing waters and healthy waterways.

## 1.4 Low carbon

The low carbon economy particularly offshore wind is already worth £1.2bn per annum to Greater Lincolnshire employing over 12,000 people.

This offers exceptional potential for growth over the next fifteen years including the development of other low carbon goods and services including:

**Green Power Stations.** Phillips 66 operates the Immingham Combined Heat and Power plant, one of the greenest power stations in the world generating 730 MW of electricity. It produces electricity and creates steam, which is used by the nearby Humber and Lindsey refineries. The plant, together with the Humber refinery, is part of an ultra-low-carbon integrated energy hub.

**Bioenergy Projects.** Proximity to the UK's largest port complex, Europe's food town and the agricultural hinterland of Lincolnshire, makes the area extremely attractive for green energy facilities. Companies involved in bioenergy and biomass projects in the area include Greenergy; Total; Vireol; and Helius/RWE Innogy.

There are lots of interactions between the water sector and the low carbon economy.

- Water companies are energy intensive and are a significant part of the total energy demand of a community. Reducing water demand therefore reduces energy use (and carbon).
- Heating domestic water is a significant part of community energy demand (figures from Switzerland suggest that it could be more than half of the energy demand of a home built to the latest insulation and energy efficiency standards).
- Recovering energy from sewage sludge is an important source of carbon free heat and electricity.
- There may also be longer term needs for a supply of water to generate hydrogen as a replacement for oil and natural gas.

## 1.5 Population

Greater Lincolnshire will also grow in population. The 100,000 new homes needed by 2031 to meet this growth will bring economic growth but require a strong utility structure, with water supply and flood protection being important components of that.

## 2 The role of water management

Greater Lincolnshire faces significant challenges from the risk of flooding and future availability of water. Water management is therefore fundamental to the growth of Greater Lincolnshire, because it provides valuable services that underpin our environment, economy and quality of life.

Through developing an integrated approach to water that fully links flood risk, drainage and water-resources management, we can maximise the services it provides, including drinking water, input for business, crop irrigation, tourism and recreation and improved biodiversity. This will move us from just managing water towards managing water sustainably and will help to ensure that Greater Lincolnshire is fit for the future, improve our competitiveness and facilitate economic growth.

We will need to do this together with the surrounding areas of Humber, East Anglia, Peterborough and Cambridgeshire, who share the same challenges.

### 2.1 Flood Risk

Greater Lincolnshire is subject to flood risk from the sea, main rivers, surface water and ground water.

The risk of coastal and river flooding affects up to 45% of the land area of Greater Lincolnshire (constituting 17% of England's total floodplain area) and the area has been affected by several significant coastal and inland floods, most notably in 1953, 2007, 2012 and 2013., while surface water flooding, although of more localised and limited impact, occurs more frequently and is more difficult to predict.

Furthermore, climate models predict that we will see more frequent periods of flooding due to exceptional rainfall.

The extent and nature of flood risk is described in more detail in the Joint Lincolnshire Flood Risk and Water Management Strategy. Our coast, which is major part of our visitor economy, is particularly vulnerable to the impacts of climate change and sea level rise.

These impacts are also felt inland. At Louth and Horncastle, in the Lincolnshire Wolds, risk management authorities have combined their efforts to prepare flood resilience measures against significant flood risk that affects the potential of these towns to drive growth and provide development opportunities.

The key impacts on economic growth from flood risk are:

- Risk to existing economic activity
- Perceived risk impacting on the confidence to invest in the area
- Costs of recovery from flooding event
- Costs of mitigating flood risk
- Insurance costs

Security from flooding is a key infrastructure requirement for our economy.

We are committed to working with partners to secure sustainable flood risk management through the sustainable development of our economy whilst protecting our communities. The LEP wishes to seize the opportunity to harness the potential of effective flood risk management to boost local growth.

### 2.2 Water Resources

The Greater Lincolnshire area is also one of the driest in the country and is prone to drought. The two dry winters experienced in 2010/11 and 2011/12 demonstrated the challenges and raised awareness of the need to adapt to this element of our changing climate. The second of these two dry winters was followed, from April 2012, by an exceptional summer which led to problems for our key sectors from flooding and illustrates

the need to prepare for more weather extremes.

Current models of climate change predict increasing scarcity of water over the 21st century. that although winter rainfall will increase, by possibly 15- 20%, summer rainfall levels will reduce by a similar amount. The past reliance on summer abstraction from surface and groundwater will therefore be less sustainable in the future. Furthermore, climate models predict that we will see more frequent and longer periods of drought with increased frequency of multi-year periods of below average rainfall. This is particularly difficult to respond to and will necessitate more investment in water storage for both domestic and commercial use.

Water and Sewerage Companies are addressing the impacts of this on their own operations through Water Resource Management Plans. A good example of this is provided by Anglian Water Services, whose Water Resource Management Plan can be found online at <http://www.anglianwater.co.uk/>

The supply of water is clearly important for the agri-food industry, with its reliance on a plentiful and reliable supply of clean water for growing and processing foodstuffs. It also plays a major part in supporting the growth of the visitor economy, and in sustaining well-planned and appropriate housing growth.

### 2.3 Water environment

Our ambition is for Greater Lincolnshire to be a nice place to work, live and visit with a pleasant and sustainable environment.

Our bathing beaches all currently rate as Excellent for water quality and we want to maintain that to support the visitor economy and provide facilities for the people of Lincolnshire.

Our inland waterways are also important in making Lincolnshire a place that people want to be with facilities for boating, fishing and just being close to water. A sustainable water environment is also important to avoid the impacts of drought on the green infrastructure of the land environment.

The water environment is under pressure from population and economic growth leading to greater water use and more wastewater discharged. It is also under increasing pressure from climate change with lower flows in summer and higher temperatures. Agricultural runoff can contribute pesticides and phosphates that damage the quality of inland waterways. Most of the waterways fail to meet the European standard of Good quality.

There is also a threat from invasive species of plants and animals that can threaten the existing ecological balance and biodiversity.



- Adequate water resources for sustainable agriculture.
- Communities and businesses sufficiently prepared that even after a flood with an annual probability of only 1 in 200 they are unaffected or can recover quickly.
- Residential properties not suffering significant damage even in a flood with an annual probability of only 1 in 75 each year.
- Minimise the impact of unplanned flooding on agriculture.
- All bathing waters maintain Excellent classification.
- In the long-term less than 10% of significant waterbodies with a less than **good** quality classification. In the short term no significant waterbodies of less than **moderate**.
- No delays to planned new development waiting for provision of utility infrastructure.
- To make Greater Lincolnshire a national exemplar for water management.



## 4 Policies

The objectives will be achieved through implementation of policies covering all aspects of the water cycle. The GLLEP does not have the power to enforce policies to be adopted by other public or private bodies, but this section of the plan sets what the GLLEP would like to see adopted by organisations that do have the ability to directly influence the water cycle.

### 4.1 Availability of water

#### 4.1.1 Water consumption

The GLLEP will work with WRE to develop understand current and future water consumption for all uses and to map this information so that it is available to all stakeholders.

##### *Residential*

Encouragement for all new developments from 2020 to be designed for a per capita consumption (PCC) of 110 l/h/d achieved through water efficient fittings and longer term of 80 l/h/d through the use of rainwater harvesting and greywater reuse.

Encouragement for programmes to retrofit water efficiency and rainwater harvesting in existing properties to achieve an average 12% reduction in PCC by 2045 (down to 120 l/h/d).

These initiatives will also lead to a reduction in energy use and carbon. A focus on low-flow showers probably has the greatest benefit as this can be 50% of the domestic use of hot water. Greywater is generally hot and recycling gives an opportunity to also recover the heat and reduce energy consumption.

##### *Commercial*

Encouragement for all new or refitted commercial properties from 2020 to be water efficient and, where feasible, harvest rainwater.

Encouragement for programmes to retrofit water efficiency and rainwater harvesting in existing commercial properties with a focus on those with high water use such as visitor accommodation, gyms and health clubs.

##### *Industrial*

Encourage industry to be water efficient and to reuse or recycle water either internally or with other nearby users.

Encouragement for planning for new industrial hubs to make provision for water reuse and recycling within and between businesses.

##### *Agriculture*

Encourage farmers to work together to identify farming practices that use water more efficiently both by reducing the total amount of water used and, where appropriate, using water of lower quality that could not be used for drinking water.

Publish guidance on best practice, benchmarks for water use and use of alternative water sources.

#### 4.1.2 Water supply

A key part of the AWS plan for improving availability of water resources is the construction of transfer mains to connect up different areas of Lincolnshire. The LEP will engage with AWS in the selection of routes for these mains to minimise disruption to communities and to best serve current and planned major water users.

The LEP will support an analysis of the wider economic benefits that can be achieved from multi-purpose reservoirs.

Agricultural water abstractions are likely to be restricted in some areas to protect the water environment. The LEP needs to work with WRE to understand these changes and to work

with farmers to develop alternatives including; drainage channel water, treated effluent and on-farm storage.

## 4.2 Flood risk

Managing flood risk requires an integrated approach from reducing the rate of runoff of rainwater, through increasing capacity for storage and flow to protection of properties and land. Action is required on all of these components to provide protection against all forms of flooding.

### 4.2.1 Reducing runoff

The guidance in the National Planning Policy Framework (NPPF) on sustainable drainage needs to be strengthened when it is incorporated into planning authority policies. Sustainable drainage should be required to be considered on all developments including small ones. These local policies could be open to challenge from developers wanting to revert to the national guidelines and so the LEP will coordinate a standard approach across all Lincolnshire authorities to provide a strong response to any such challenges.

### 4.2.2 Increasing capacity

The NPPF requires that local planning authorities identify areas that should be reserved for flood risk management. The LEP will work with LCC in its role as lead local flood authority to map the areas that will be required. This will include areas for managing river flood risk, but also those for managing surface water in urban areas in extreme events. This includes use of roads, open space and car parks for flood flow routes and flood storage. These should then be incorporated into local planning guidance.

### 4.2.3 Flood protection

Over the next 10 years the impact of climate change on sea levels could become critical for Lincolnshire. The LEP will need to justify significant expenditure by central government on improving flood defences by demonstrating the cost benefit of avoiding impact on the local economy. Political lobbying is also likely to be necessary to back up the cost benefit case. In the longer term coastal erosion will become a significant issue and some existing communities or businesses will have to be relocated as managed retreat is implemented. The LEP will need to provide a coordinating voice on how this is best achieved and where those displaced will be relocated to.

For some properties it is difficult to ensure that flood water will be kept away from the property in all circumstances. The LEP will encourage local initiatives to provide household level protection to these properties. This could help develop specialist businesses in flood protection.

## 4.3 Water environment

Clean river and bathing water is a vital resource for our ecosystems, commercial activities, recreation and fisheries. All economic activity has some impact on the water environment and the GLLEP has a role in minimising that impact while supporting economic growth.

Maintaining the water environment requires collaboration with a wide range of stakeholders. The GLLEP will work with the Environment Agency, rivers trusts, water companies, agriculture and local communities to achieve this.

### *Environment Agency*

The GLLEP will work with the Environment Agency to monitor the impacts on the water environment and help to identify measures that are required to reduce these pressures. It will encourage the Agency to take action against those who damage the water environment.

### *Rivers Trusts*

The Lincolnshire Rivers Trusts has a significant role to play in monitoring and improving the water environment through catchment basin partnerships. The GLLEP will engage with

these partnerships (e.g. the Witham Catchment Partnership) to identify future actions required to maintain the water environment and potentially help to obtain funding for the required improvements.

#### *Water companies*

The GLLEP will work with the Environment Agency to monitor the impact that water companies have on the water environment (including bathing beaches) and support the companies in making the case for any required investment in wastewater systems to reduce this impact.

#### *Agriculture*

Agricultural runoff is a major source of nutrients including nitrogen and phosphorus that damage the watercourses by encourage the growth of weed and algae. The GLLEP will use its influence with the agricultural sector to minimize this problem through better land management and reduced fertilizer use. If done correctly this could potentiall show cost savings for farmers.

### 4.4 Provision of utilities for new developments

There is a perceived problem of delays and high cost for the provision of water, wastewater and drainage utilities for new development sites. The GLLEP will work with planners, developers, and water companies to overcome these problems.

The costs for the provision of water infrastructure have recently been standardized by Ofwat so that developers can now buid up a cost estimate from a shopping list of items. There remains an uncertainty with this, in that if a sewage pumping station is required for wastewater from the site this is a large additional cost.

The GLLEP will work with the water companies to identify these additional costs for the 25 strategic development sites in the Greater Lincolnshire area. It will also encourage planning authorities to collate this information for smaller development sites. This information should then be made publicly available so that all developers are on an even footing when estimating costs.

The water companies have policies to avoid delaying development by being able to provide infrastructure in time. However they are reluctant to commit to planning for this infrastructure until there is a enquiry from a developer. The GLLEP will overcome this for strategic sites by themselves approaching the water companies and paying the initial application fees to have the initial planning and design carried out. For particularly key sites it may be appropriate for the GLLEP to fund the water companies to provide the infrastructure in advance of the development and then recover the costs from future developers.

There are potential significant delays to the expansion of wastewater treatment works to accommodate new development. This is particularly a problem for small rural works discharging to sensitive watercourses where taking additional flow could involve a complete replacement of the works.

The GLLEP will liaise with water companies for all of the proposed growth to understand the time constraints that the water companies will have on upgrading treatment works and then ensure that developments are planned taking this into account.

### 4.5 Becoming a national exemplar

Integrated water management requires the engagement of communities, the development of knowledge and businesses specialising in water management products and services. The GLLEP will encourage all three of these strands.

The GLLEP will encourage stakeholders, water companies, local authorities and other stakeholers to engage with communities to explain the importance of water management and the role of communities in delivering it. Working with schools has been shown to be

particularly effective in generating engagement of the whole community.

The GLLEP will continue to work with the University of Lincoln and other academics to develop a centre of excellence in water management with a particular focus on agricultural water management. The support will include support for funding applications to research councils and if necessary provision of top-up funding for individual research projects.

Achieving the ambitions for improved water management will require the provision of products and services that could be provided locally to help grow the Lincolnshire economy. Examples include; services to retrofit water efficiency measures to properties, construction and maintenance of sustainable drainage systems, development of smart systems for managing water. The GLLEP will identify these business opportunities and support existing businesses or startups to develop the skills and expertise to deliver them.

## 5 Delivery of the Water Management Plan

### 5.1 Collaborative working

The GLLEP has already agreed, in its Growth Deal, key principles on working with Government and its neighbouring LEPs to progress water management. These principles, known as 'freedoms and flexibilities', establish how Government and the LEPs will seek to explore the best ways of securing economic growth locally. Key freedoms and flexibilities in the Greater Lincolnshire Growth Deal are:

- *"...the LEP and local partners will lead the development of a local consortium of partners (including the lead local flood authorities in the area, the Environment Agency and the Regional Flood and Coastal Committee, and neighbouring LEPs), who will further develop a pipeline of projects to add value to outcomes for the area through new local governance arrangements that reflect national accountability requirements."*
- *"Defra will support the continuing development of a strong strategic partnership approach between the LEP, the Lincolnshire Flood Risk and Drainage Management Partnership, and the risk management authorities in the Greater Lincolnshire LEP area, in which the LEP will play a prominent role. The partnership will enable the LEP and local risk management authorities to determine local priorities and make decisions on the use of national and locally raised funding allocated to their area so as to give greater certainty and flexibility. Defra will welcome any evidence the LEP can provide on a) the value agricultural land and the impacts that flood management investment could have on the national economy and b) innovative ways of securing local funding, and will discuss with the LEP[s]\* any steps that might be taken by Government in the light of the evidence. (\* i.e. Humber and Greater Lincolnshire)."*

The GLLEP is also contributing to the Water Resource East (WRE) project that covers a wider geographic area. This is a powerful forum for developing the long-term water strategy for Greater Lincolnshire. The LEP will continue to support WRE but will also seek to accelerate the development of strategies and plans focussed on Greater Lincolnshire and its needs.

### 5.2 Action plan

A detailed action plan is being developed of proposed projects that will support economic growth through improving water management. This is the most important part of this Water Management Plan. Stakeholders will play an important role in developing this programme by putting forward ideas for schemes to accomplish the GLLEP's ambitions to drive a joined-up agenda for water management across Greater Lincolnshire, and in partnership with neighbouring LEPs.

As this is the starting point for a twenty-five-year programme the action plan will be regularly reviewed and updated, with new schemes coming in and completed schemes coming out as the Plan unfolds. Revision and updating of the schedule will be managed overall by the GLLEP's Water Management Board, drawing on the expertise and resources of partner organisations and stakeholders.

### 5.3 Strategic projects

Some of the interventions that may need to be developed over the next 25 years will require large scale, long term strategic projects. This could include:

- Meeting the long-term water needs of the GLLEP area (and neighbouring LEP areas as appropriate) through the construction of major new reservoirs or water distribution infrastructure. These projects will take many years to plan and finance and, in line with the Water Resources East (WRE) programme, GLLEP is keen to explore the

potential for shared water resource infrastructure which simultaneously meets the needs of domestic, industrial and agri-food users

- Projects to defend the coastline in conjunction with neighbouring LEPs and local authorities in the Humber or Wash areas to provide long term security to the large areas of coastal land, many thousands of businesses and homes in these locations.

These projects are likely to cost £millions to develop and will require national support and strategic commitment from multiple partners and stakeholders. GLLEP therefore welcomes the government's creation, in late 2015, of the National Infrastructure Commission to support the development of large-scale infrastructure to support growth. GLLEP will open a dialogue with the National Infrastructure Commission on how these major water projects could be supported and will, where appropriate, establish task and finish groups to work with stakeholders to develop larger strategic water projects.

## 5.4 Governance

The Water Management Plan forms a discrete section within the GLLEP's Growth Strategy, providing an action plan for achieving key elements of the Strategic Economic Plan for Greater Lincolnshire, and for channelling funding available for appropriate schemes and activities through the SEP.

Governance will therefore be provided, on behalf of the GLLEP Board, by the Water Management Board, working with key established bodies such as established flood risk and drainage management partnerships and the Regional Flood and Coastal Committee.

In discharging this role, the Water Management Board will be responsible for monitoring progress in delivering the Water Management Plan as a whole, although individual projects and programmes will be the responsibility of individual lead agencies, who will manage progress on these in detail with the GLLEP co-ordinating efforts across the area.

Because the Plan covers a 25-year period it can be expected that circumstances will change and opportunities arise that will necessitate regular review of the Plan overall, while the schedule of projects and programmes will require updating on a more frequent basis. The Water Management Board will ensure that these reviews take place and will identify the appropriate partner resources to lead and manage the process.



# SALTFLEET TO GIBRALTAR POINT STRATEGY

## NON-TECHNICAL SUMMARY



Environment  
Agency

We are the Environment Agency. It's our job to look after your environment and make it a **better** place - for you, and for future generations.

Your environment is the air you breathe, the water you drink and the ground you walk on. Working with businesses, Government and society as a whole, we are making our environment cleaner and healthier.

The Environment Agency: using science to create a better place.

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January 2019



# Foreword

Just over 45,000 people live within the Saltfleet to Gibraltar Point Strategy area<sup>1</sup>, and each year a further 2.7 million people visit the area generating almost £500 million annually for the Lincolnshire coastal economy<sup>2</sup>. Our flood risk management work in this area is absolutely vital for the continued success of Lincolnshire's coastal communities, its bustling tourism industry and its strong agricultural sector.

As climate change predictions increasingly become reality it is crucial that we take into account and plan for the effects of severe weather and sea level rise throughout our work<sup>3</sup>. We regularly review our flood risk management strategies and plans to ensure we continue to provide a sustainable and affordable future for all.

Over the last 24 years, we have nourished the beaches in Lincolnshire between Mablethorpe and Skegness with sand to provide a wide defence which reduces the impact of wave action and tides, in combination with the existing hard and soft flood defences. This work has proved very successful in managing tidal flood risk for Lincolnshire. However, our estimates suggest it will not be sustainable to continue with this method of flood risk management in the future due to the increased levels and frequency of sand that would be associated with the effect of climate change.

1 Lincolnshire County Council, "Demographic Projections for Coastal Districts in Lincolnshire". March 2012, Page 6

2 East Lindsey District Council, "East Lindsey Coastal Strip STEAM Final Trend Report for 2015-2017". page 4

3 <https://www.gov.uk/government/collections/environment-agency-and-climate-change-adaptation>

Our strategy for the next 100 years has been reviewed in line with government requirements and has been assessed against environmental, economic and sustainability factors. We have also listened to feedback received through our extensive consultation efforts.

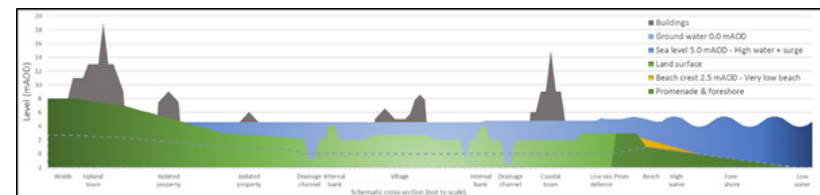
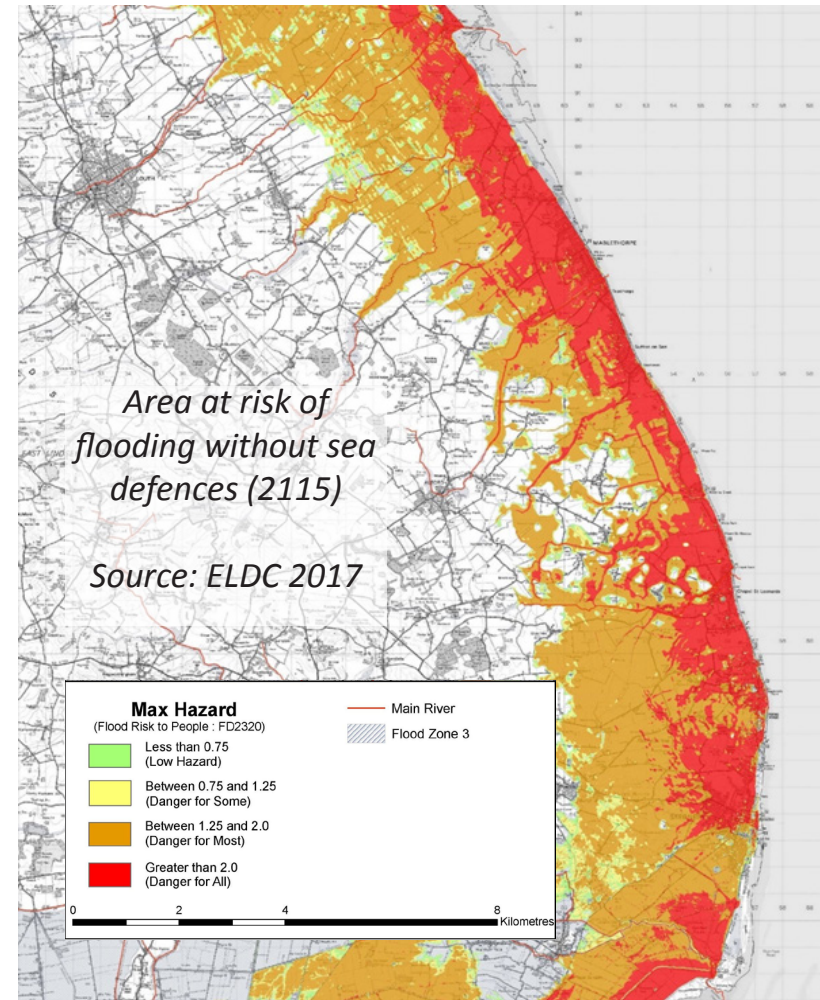
We are very pleased to now present this strategy which is adaptable to a changing climate, and which will enable us to continue to provide and maintain coastal sea defences with healthy beaches for the enjoyment, wellbeing and prosperity of people visiting, working and living in Lincolnshire.



**Norman Robinson**  
Area Director, Environment Agency  
Lincolnshire and Northamptonshire

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Schematic cross-section of the Lincolnshire flood plain without a flood defence

# 1. Introduction

This document is the non-technical summary of our draft Saltfleet to Gibraltar Point (SGP) strategy and has been designed to provide you with a clear and concise overview.

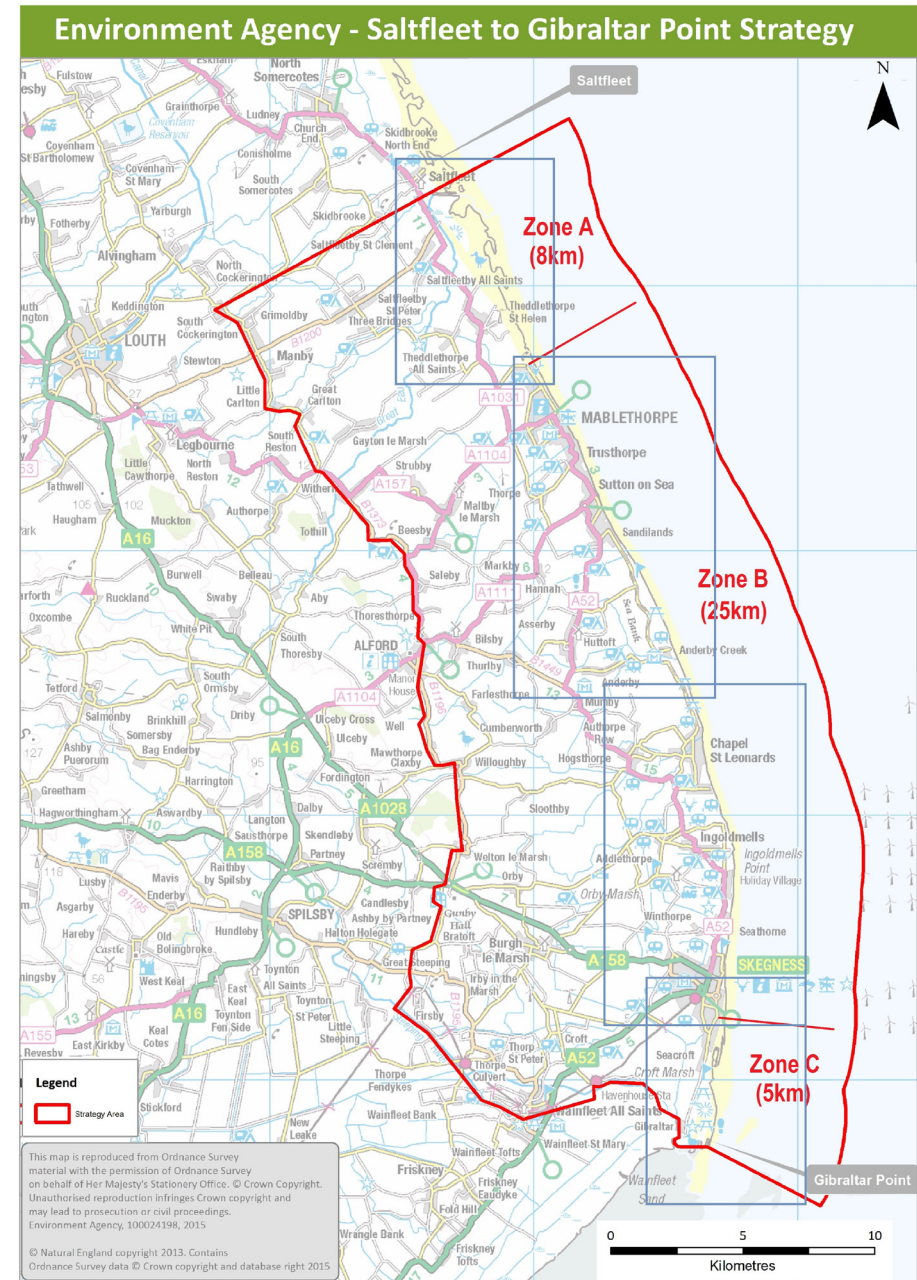
This document will set out:

- The local context and history
- The process that has shaped this new draft strategy
- The proposed strategy

This strategy will be available for consultation during this summer and we invite everyone to participate by visiting our consultation webpage or by requesting a hard copy of the consultation papers<sup>1</sup>. Following this consultation, we expect to publish our final strategy in 2020.

Lincolnshire relies on raised flood defences for its continued protection. The strategy frontage between Saltfleet and Gibraltar Point covers 38km of the open coast. Without sea defences floodwater would reach up to 15km inland and could extend even further with predicted climate change predictions and sea level rise. Across the strategy area, 20,000 residential properties, 1,700 businesses, 24,500 static caravans and 35,000 hectares of farmland are at risk of flooding. The Lincolnshire coast is also home to a bustling tourist industry as well as a wealth of internationally important wildlife and nature. Hundreds of thousands of people visit the coast every year to enjoy the area's beaches, its sand dunes and its seaside resorts between Skegness and Mablethorpe.

<sup>1</sup> <https://consult.environmentagency.gov.uk/lincolnshire-and-northamptonshire/sgp/> or write to Fé Toussaint, SGPS Engagement Officer, Ceres House, Searby Road, Lincoln LN2 4DW. Freepost envelopes available on request.





The Saltfleet to Gibraltar Point Strategy will meet the aspirations of the Shoreline Management Plan (SMP) for Flamborough Head to Gibraltar Point SMP<sup>2</sup>. This SMP is a partnership document that sets the policy intent for this coastline. SMPs exist for every section of the English coast, and they identify how flood risk is managed on the coast in the short term, medium term and long term.

The Shoreline Management Plan policy for this frontage is to 'hold the line', which means we keep the line of defence in approximately the same location, over the 100-year plan period. However, in the long term there is potential for limited 'managed realignment', which means small areas where defences may have to be set back. The current method of protecting this frontage and maintaining the level of protection is to nourish annually between Mablethorpe and Skegness, replacing the sand lost through natural processes during the previous year.

Given the nature of the low-lying floodplain, a failure of the hard defences at any location could result in widespread flooding across the whole strategy area. Over half of normal high tides we currently experience are above the level of the land behind the existing sea defences. This means that without these important sea defences flooding would be an extremely frequent occurrence, which could happen as many as fourteen times a month based on current predictions. This frequency of inundation would most likely render areas uninhabitable and unsafe for any of their current uses.

The strategy area is divided into three sections: Zone A, Zone B and Zone C (please see figure above). To date the evidence means our nourishment work is concentrated within Zone B, the central area between Mablethorpe and Skegness, as this is typically where beach widths are at their narrowest and sand losses at their greatest. Management in Zones A and C will continue to be monitored and triggers will determine

<sup>2</sup> <https://www.gov.uk/government/publications/shoreline-management-plans-smpls>

the need for change. Currently both Zone A and Zone C are accreting (gaining sand quantities through coastal processes).

Having a healthy beach in front of a sand dune or seawall provides many benefits in providing an effective form of coastal defence. Maintaining beach profiles with shallow gradients absorb wave energy and provides protection to the existing seawalls. It limits wave depth, reducing overtopping and the risk of breach in stormy conditions.

Beach nourishment also protects the underlying clay layer from long-term exposure and erosion, which is crucial to the continued stability



# 1.1 Vision and aims

of the foundations of the sea wall. In addition to offering effective management of tidal flood risk, this solution provides a sandy beach to the coastline, which supports a vibrant seaside tourism economy.

Beach nourishment in combination with both soft and hard defences is currently the most cost effective way to manage tidal flood risk.



However, through this strategy review another solution has been identified which is likely to become the preferred approach in the long-term future. Due to the impact of climate change, our existing flood risk management approach would require greater volumes of sand in the future, potentially delivered at a higher frequency than the current annual rate.

This means nourishment would become more costly and would increasingly come with a very large carbon footprint, driving the need for a change in flood risk management. This is why we are now introducing a new strategy, which will help the area to continue to flourish amidst a changing climate.

Through this strategy, we aim to create a better place for people and the environment, by working in partnership to manage the risk of flooding from the sea. The objectives of this strategy are to:

- Provide sustainable flood risk management over the 100 year term of the strategy
- Mitigate against the risks of and adapt to the challenges of climate change and reduce our carbon footprint.
- Continue to investigate opportunities to secure the funding required to deliver the strategy.
- Protect the social, recreational, cultural, agricultural and commercial value of the coastal floodplain.
- Adapt to future opportunities, challenges and other key issues including tourism as well as environmental, social and economic factors.
- Support sustainable and resilient development in the coastal floodplain for economic growth.

The strategy has to work in parallel with our other work in this area, including cooperation with local communities and our routine maintenance work on flood defences. While this strategy seeks to offer an approach that is more sustainable in the long term, it will not be able to eliminate the risk of flooding completely. It is therefore vital that coastal communities take ownership of their risk of flooding and build a better understanding of what the risk may look like in the future. More information on flood risk and how to prepare for flooding can be found on our flooding [webpage](http://www.gov.uk/flooding)<sup>1</sup>.

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1 [www.gov.uk/flooding](http://www.gov.uk/flooding)

# 2. Background

The Lincolnshire coast has been a major tourist destination since the Victorian era, when resorts formed in Mablethorpe, Ingoldmells and Skegness. Over time, promenades and sea defences were put in place in these coastal towns.

## 1953

The 1953 floods caused devastation across the East Coast of the UK. 307 people lost their lives, including 42 in Lincolnshire.



## 1960s/70s

Further surges continue along the coast. Each time, the beach is stripped of sand exposing defences.

Between 1984 and 1997, 70% of the defences between Mablethorpe and Skegness were upgraded.



## 1994-98

Beach nourishment begins - rebuilding the beaches is completed by 1998. Annual nourishment continued under the name Lincshore.



## 2013

A storm surge, larger than 1953, hits the east coast. The defences work well and protect thousands of properties. Following the surge, we repaired damaged defences.



## 2016/17

The first workshops with partners are held for the new Saltfleet to Gibraltar Point Strategy.



## 2018

The public are asked their views on the strategy options to manage flood risk in the area. Lincolnshire Beach Management (LBM) 2018-2021 replaces Lincshore until the Strategy is delivered in 2021.

## 2019

**The draft strategy is published for consultation.**



# 3. Option appraisal

Through an intensive strategy review process, we have identified a preferred approach that will help us to sustain the current standard of protection into the future. The strategy review process that led to the present draft included extensive consultation with partners, residents, business owners and other stakeholders as well as detailed environmental and economic assessments. The following section will explain these processes in more detail.

We start a strategy review process by drawing up a long list of options. This strategy contained over one hundred possible flood risk management options. We subsequently worked with national and local partners to produce a shortlist of six options.

The six shortlisted options were:

1. Continuation of present management (annual beach nourishment);
2. Using coarser sand, shingle or pebbles to nourish the beaches;
3. Rock groynes and nourishment;
4. Rock groynes and fishtails plus nourishment;
5. Rock groynes, fishtails and varying volumes of nourishment; and
6. Rock groynes, fishtails and varying frequencies of nourishment

We assessed the costs and economic benefits of all of the above shortlisted options based on the following key factors:

- Damages avoided
- Potential for added value
- Funding required for each option, benchmarked to today's prices

Through the process of producing this strategy, we assessed what flood damage would be avoided to residential properties, industry and commercial premises against the cost of carrying out works for each shortlisted options over the strategy period.



The flood damage avoided by continuing with flood risk management has a much greater value than the cost of carrying out works, which means there is significant benefit in continuing with managing flood risk for the strategy areas.

The second element of the economic assessment was to look at any potential for added value. Some of the options that were shortlisted, especially those that include the introduction of structures in some way could present opportunities for added value in addition to the flood risk elements of the strategy. For example, rock structures may form the basis for a pier, thereby creating new attractive space for local businesses. Added value would require additional funding as we are unable to use government flood risk management funds (Grant in Aid) for direct investment outside the scope of flood risk management measures. However, with the right partnership funding GiA may be used to “match fund” to support a range of additions for this coastline like a marina or lagoons that could offer an attract tourism destinations along the Lincolnshire coast.

A final key element to our economic assessment of each option was to look at the funding required to deliver each option. While our current annual beach nourishment campaign is affordable, as outlined previously, it is likely the costs will rise significantly as the impact of climate change

*Visualisation of what structures may look like*



increases. While introducing structures to the beach would incur a large cost upfront, it could reduce the frequency and volumes of sand required for beach nourishment. This is why funding requirements have to be considered over the full 100-year strategy for each of the options. In addition to this economic assessment, our environmental specialists worked together with partners including Natural England, Historic England, and Lincolnshire Wildlife Trust to assess the potential environmental impacts (both positive and negative) of the preferred strategy approach of introducing structures in combination with continued nourishment.

We are undertaking a Strategic Environmental Assessment (SEA) ahead of the publication of our final strategy. We have produced a detailed Habitats Regulations Assessment (HRA) for the preferred option which was agreed by Natural England. The HRA and the draft SEA Environmental Report set out at a strategic level the potential impacts that could result from the preferred strategy approach, and identify how these impacts could be mitigated.

The environmental assessments we have undertaken in collaboration with our partners have influenced the draft strategy. Once the strategy is approved we will need carry out scheme specific environmental assessments before we can obtain the consents needed for the resulting works. We will also look to identify opportunities to improve existing habitats and/or to create new areas where wildlife may thrive.

Working closely with local stakeholders we were able to produce a shortlist of options, and in 2018 we went to consultation with the public on this shortlist. This enabled us to formulate the preferred option for change, which we are now taking forward as part of this draft strategy. During the 2018 consultation period, we organised a number of drop-in events along the coast with over 500 people attending, and over 65% returning a completed survey.

As part of our wider engagement work we have been able to reach out to a large range of audiences throughout coastal communities in the Strategy area. This has been achieved by producing a number of strategy newsletters, contributing to both Parish and Town council community newsletters, extensive coverage in the local media, and attendance at community group meetings throughout the strategy area.



*Visualisation of what structures may look like*



# 4.1 The proposed strategy

This strategy recommends a preferred approach of combining nourishment and structures on the beach as the most cost-effective and sustainable basis for future tidal flood risk management. Structures, such as rock groynes or fishtails, are a long established form of defence and are used on many coastlines both in the United Kingdom and across the world. The strategy is expected to be approved prior to 2021, and in the meantime we will continue with our present management approach.

The new strategy will be adaptive to change driven by triggers. Triggers are best described as a change in circumstances that drives a change to how flood risk is managed over the strategy period:

Trigger	Examples
Funding	New government funding rules
Climate change	Faster or slower sea level rise than predicted; increased storm rates
Availability of materials	Scarcity of non-renewable resources
Policy and plan change	Change in local government plans
Implementation impacts	Observed effects after implementing step change
Technological development	Availability of cost-saving new technology
Asset condition and performance	Decreased or increased losses of sand on the beach
Defence failure	Loss of beach
Resource resilience and succession planning	Limited number of experts in the relevant fields
Public and institutional acceptance of works needed to manage flood risk	Public's raised awareness of flood risk following a significant event

Further triggers may be added where appropriate as the delivery of the strategy progresses. Through modelling and monitoring work, we will continually assess conditions which will determine if we need to change in the future. When a change is triggered we will review our strategy and may need to consult before making the necessary adjustments..

The structures we propose to introduce as part of the strategy could take a number of shapes and configurations. Rock fishtail structures or rock groynes could both help manage tidal flood risk by absorbing energy from incoming waves and stabilising sand movement and losses. This will reduce the amount of work required to maintain beach levels and protect both soft dunal systems and hard seawalls from the impact of wave action and tides. The reduction in sand required will also lead to a reduction in our carbon footprint for our flood risk management work.



*The Lincolnshire coast is home to Europe's largest concentration of static caravans.*

## 4.2 Strategy delivery

The delivery of works over the full strategy period will be determined by the impact(s) of the above triggers, and we have produced an indicative timeline setting out our current programme.

In the first five years of delivery - starting from 2021, a focus will be placed on further development of the plans for the introduction of structures, including completion of the relevant environmental assessments, and obtaining the required permissions and consents. This process is required ahead of any construction on the beach, and will be essential to the implementation of the structures.

During this phase, we will need to consider rock structure configurations and designs for consultation and potential additional funding opportunities.

Subject to the outcome of the first phase, the second five-year phase of the strategy we look to introduce the first set of rock structures in combination with continued beach nourishment. The exact location of the structures will be determined during the detailed design phase and will be informed by technical engineering knowledge, consultation with stakeholders, funders and local residents, as well as engagement with any other interested parties. It is likely that the first set of structures will be built in Zone B, between Mablethorpe and Skegness, where we already experience the greatest losses of sand each year, known as 'hotspots'.

Following construction of the first set of structures, we will need to closely monitor their performance to assess crucial data to determine future configurations, positioning and size. Timing for the delivery of further structures will depend on when triggers determine the need for change.

We will need to continuously monitor the coast and review our approach to flood risk management between Saltfleet and Gibraltar Point. It is expected that nourishment requirements will reduce significantly after the rock structures have had time to establish, which could lead to significant overall reduction of cost while continuing to provide Lincolnshire's coastal communities with a good standard of protection from tidal flooding.



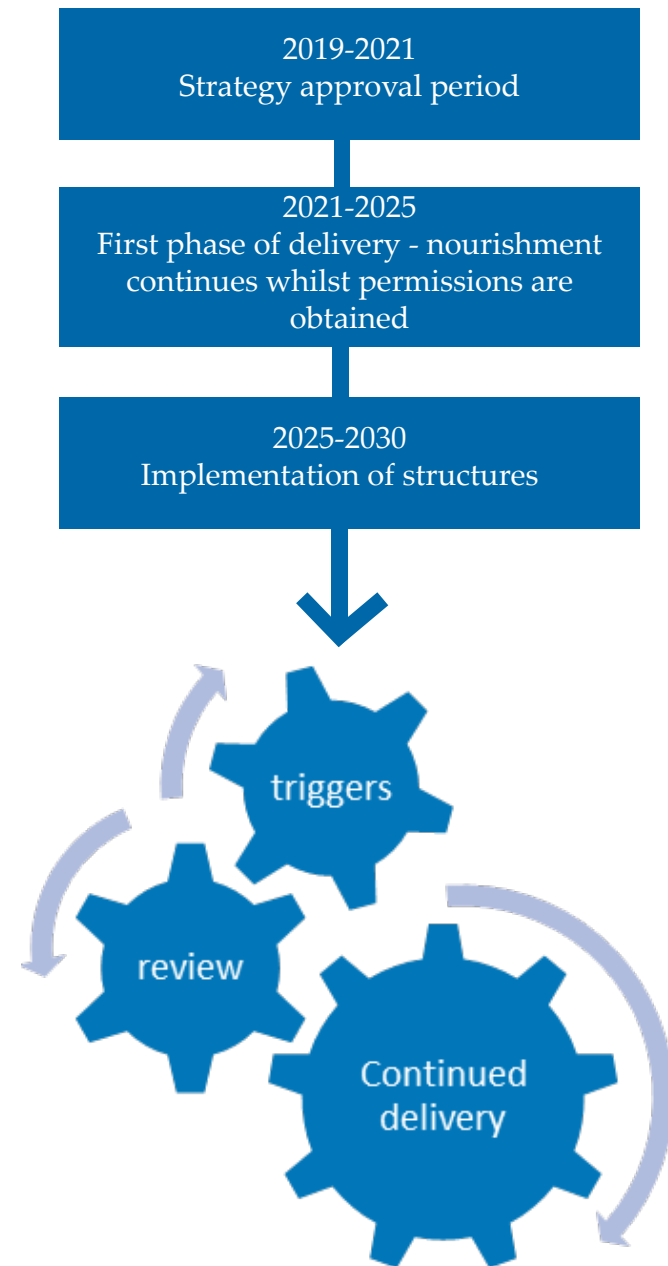
## 4.3 What's next?

The draft strategy will be available for consultation from 3 June to 25 August 2019. We invite any interested parties, including residents, tourists, business owners and representatives of partner organisations to submit their views on this strategy by visiting <https://consult.environment-agency.gov.uk/lincolnshire-and-northamptonshire/sgp/> or by requesting a paper copy of the consultation documents.<sup>1</sup>

Following the consultation, we will produce a final strategy which will need to pass the relevant internal and external approval processes before being published.

Once the strategy has been published, it will remain a live document which is flexible enough to adapt to any need for change, determined by trigger points. We will continue to work and engage with partners and communities throughout the delivery of the strategy.

<sup>1</sup> <https://consult.environment-agency.gov.uk/lincolnshire-and-northamptonshire/sgp/> or write to Fé Toussaint, SGPS Engagement Officer, Ceres House, Searby Road, Lincoln LN2 4DW. Freepost envelopes available on request.



# Flood warnings - know what to do?



**FLOOD  
ALERT**

**PREPARE**

- Prepare a bag that includes medicines and insurance documents
- Visit [flood-warning-information.service.gov.uk](https://www.flood-warning-information.service.gov.uk)



**FLOOD  
WARNING**

**ACT**

- Turn off gas, water and electricity
- Move things upstairs or to safety
- Move family, pets and car to safety



**SEVERE  
FLOOD  
WARNING**

**SURVIVE**

- Call 999 if in immediate danger
- Follow advice from emergency services
- Keep yourself and your family safe