

Lincolnshire flood risk and water management partnership



Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050

Strategic Vision

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1 Introduction

Reviewing the existing Joint Lincolnshire Flood Risk and Drainage Management Strategy

Lincolnshire County Council is the Lead Local Flood Authority (LLFA) for the administrative county of Lincolnshire. Because of this role, since 2010 the Council has been responsible for implementing and monitoring a local flood risk management strategy.

The purpose of the strategy is to manage the impact of flood risk to people, businesses and the environment across Lincolnshire. The basic contents of the Strategy are outlined in legislation as follows:

- The risk management authorities operating in the LLFA's area
- The flood risk and coastal erosion functions that may be exercised by those authorities relating to the area
- Objectives for managing flood risk in the area
- Measures proposed to meet those objectives
- How and when the measures are to be implemented
- Costs and benefits of the measures and how they are to be paid for
- Assessment of local flood risk (meaning from surface runoff, groundwater and ordinary watercourses)
- How and when the strategy is to be reviewed
- How the strategy contributes to the achievement of wider environmental objectives

In developing the strategy, the LLFA must consult the public and risk management authorities that may be affected by the strategy. The strategy must be consistent with the National Flood Risk and Coastal Erosion Management Strategy and the LLFA must publish a summary of the strategy, including guidance about the availability of relevant information.

In Lincolnshire our strong partnership approach meant that we were able to put together our Strategy as a joint venture between all the organisations with a role in flood risk management. Completed in 2012, the Joint Lincolnshire Flood Risk and Drainage Management Strategy was one of the first of its kind in the country. It also established a trend that has grown since to join up the work of different organisations, and to tackle flood risk and water in a more co-ordinated way than in the past.

The existing Joint Lincolnshire Flood Risk and Drainage Management Strategy was developed as a partnership venture during 2011 and 2012, and was approved for the County Council by the Executive on 4 December 2012 and by Full Council in January 2013. Part 3 of the Strategy, the action plan, was made available from April 2013 and continues to be updated annually. As a consequence Lincolnshire was one the first areas in England to publish and implement a Local Flood Risk Management Strategy, and was forward looking

in implementing a strategy that sought to co-ordinate the work of all risk management authorities within the area and to consider flood risk in the round.

In effect, the strategy co-ordinates all the work delivered by the Lincolnshire flood risk and water management partnership as a whole, overseen by the flood risk and water management scrutiny committee.

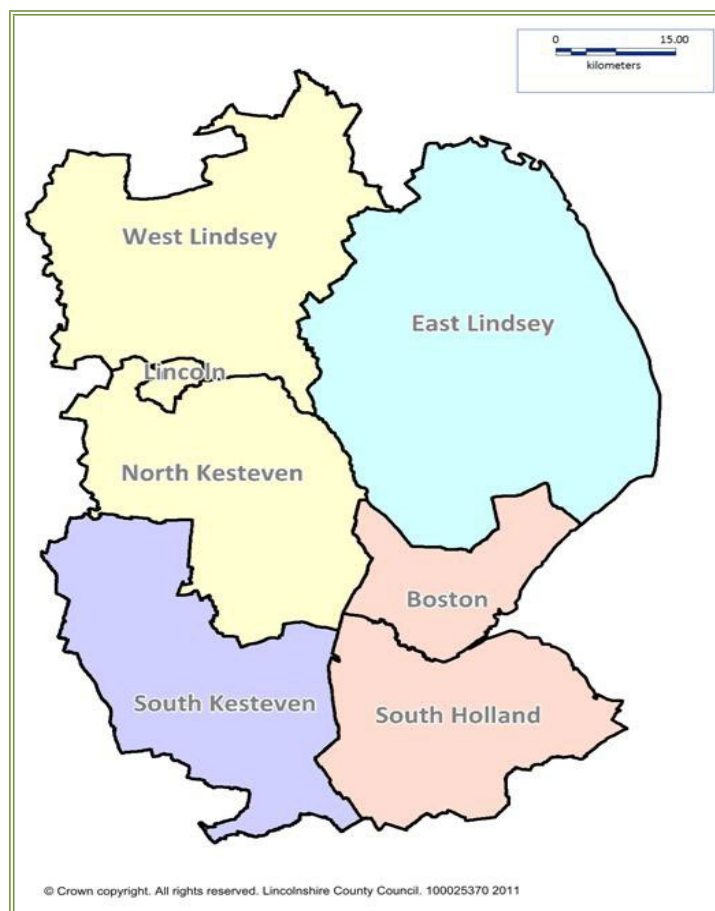
This co-ordinated approach was embedded by establishing the common works programme in 2013. This includes the major capital programmes of all partners, as well as the programme of joint activities that address solutions where responsibility is shared or where there is no clear single authority with the capacity or responsibility to act. The common works programme allows the partnership to prioritise works across the county according to need, and within the constraints imposed by availability of local and national funding.

The current strategy consists of

- Part 1: strategic vision (including high level objectives)
- Part 2 (A & B): implementation plan for the strategy
- Part 3: common works programme (annually updated action plan)

[Read the full strategy.](#)

Figure 1 Map of strategy area showing district authority boundaries



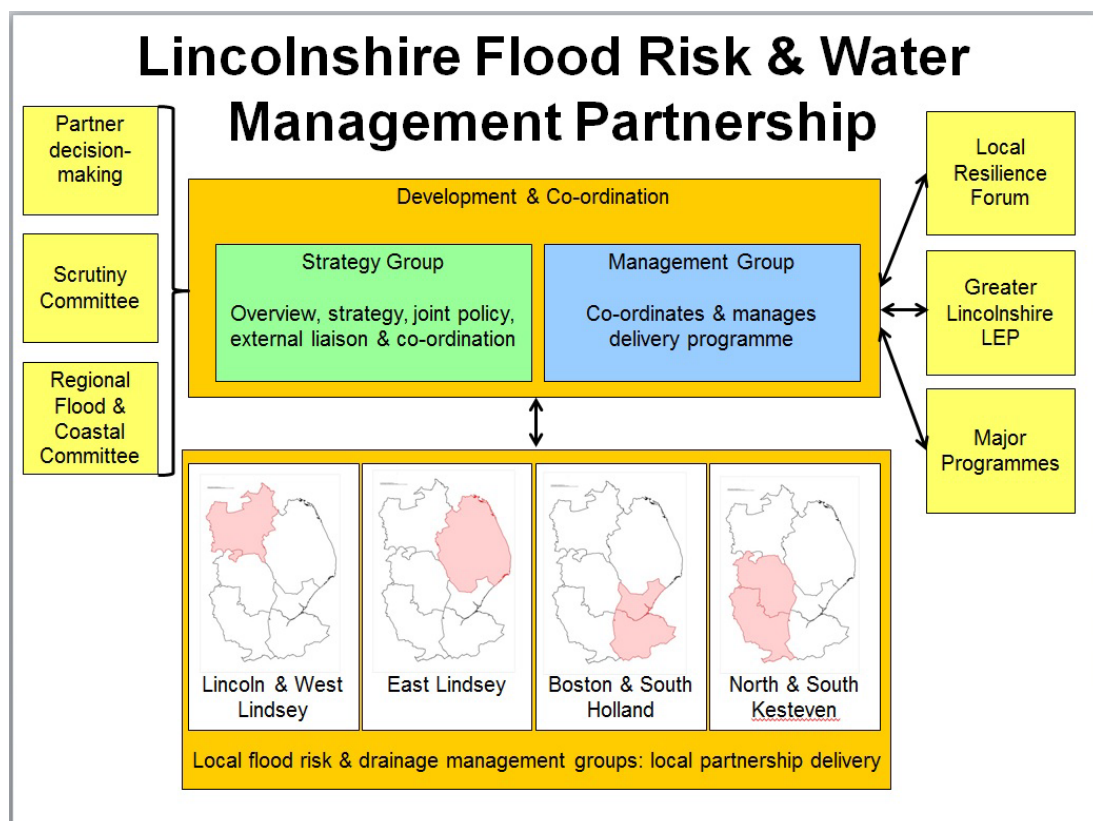
2 The Lincolnshire flood risk and water management partnership

The Lincolnshire flood risk and drainage management partnership was established in 2010 in advance of the Flood Risk and Water Management Act (2010). It was created in order to provide the level of co-ordination needed to develop the joint strategy described above.

Since 2012 flood risk management has increasingly been recognised as an integral part of a wider issue of managing water as a resource that is essential to economic growth nationally and, particularly, in the east of England. To recognise this, a review of the existing partnership role and structure was undertaken during 2017/18. As a result, the partnership now includes wider water interests. Water Resources East (WRE), a regional initiative looking at water availability from a multi-sectoral position and the Greater Lincolnshire Local Enterprise Partnership and its water management board are now full members.

Read about the [revised governance and functions](#) of the Lincolnshire flood risk and water management partnership.

Figure 2 The Lincolnshire flood risk and water management partnership



When determining priorities and actions, the Lincolnshire flood risk and water management partnership directs its resources to areas where there is the greatest need, and where investment will bring the greatest benefits. As such investment is considered in the round by attempting to take a truly systemic view of the water cycle to include economic benefits it supports and unlocks.

The partnership has reviewed the key issues it believes Lincolnshire faces in terms of water. This includes flood and drought and the associated economics. It aims to work with communities to develop long term resilience to the impacts of climate change and sea level rise. It also seeks to develop new and innovative ways of funding the work that will need to be delivered to achieve this.

The partnership will focus on locations which exemplify these issues or themes and will facilitate discussions across partners, businesses, communities and central government as to how to best tackle these issues in the long term. These locations are shown on the map in Figure 3 overleaf.

Coastal Lincolnshire

Lincolnshire's open coast is subject to significant flood risk from tidal inundation. It is protected by a mix of defences which are described in the Environment Agency's Saltfleet to Gibraltar Point strategy. Located immediately behind these defences are large communities, businesses, infrastructure and tourist attractions.

Our ability to support these communities and interests to grow sustainably brings together a great number of partners and policies. These include land use planning, infrastructure provision and flood risk. The partnership aims to bring these concerns together to deliver a sustainable plan and vision for our open coastline.

Agriculture

Agriculture and the agri-food Industry are vital to a thriving Lincolnshire economy. It is dependent on the provision of clean water and the drainage of land. At present these concerns are not linked through strategy or policy. Moreover agricultural land does not attract as much government grant for flood risk protection as housing, while currently rates for drainage are subject to the local authority council tax cap. As such the partnership has two aims. To raise the importance of our contribution to the agricultural production of the UK in a post Brexit Britain and to ensure policies reflect the need to adequately fund land drainage and flood protection for agricultural land.

Catchment based approach

Current strategic approaches to managing water are delivered generally in silos. This separates the management of flood risk, water resource provision and land drainage. By taking an holistic view of the management of water we believe it is possible to provide multiple benefits to the environment, businesses and communities. The governments' 25 year environment plan identifies that land should be used and managed more sustainably and this approach will be tested in the south forty foot catchment under the South Lincs Water Partnership (SLWP) supported by the Lincolnshire flood risk and water management partnership.

Urban areas

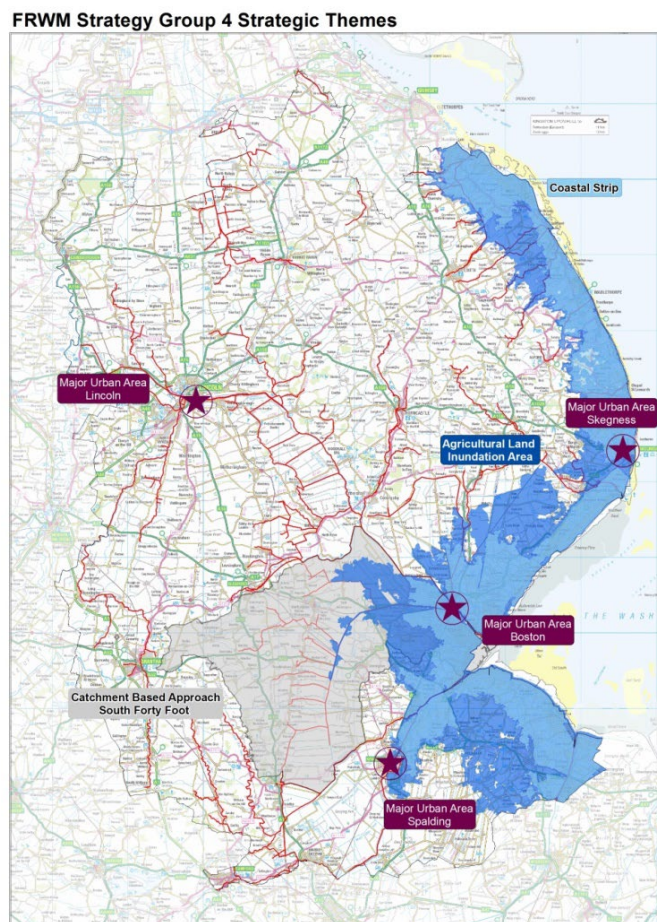
Major urban areas provide a particular challenge. Flood risk arises from a number of sources including surface water, sewers, rivers and the sea. Growth and economic development can often be focused here. Our aim is to collectively manage these risks whilst allowing our urban centres to flourish and grow sustainably.

The major urban areas in Lincolnshire identified in Figure 3 are as follows:

- Boston,
- Lincoln,
- Skegness, and
- Spalding.

The partnership aims to show ambition and determination to bring the necessary stakeholders and policy makers together to deal with the challenges facing Lincolnshire and build sustainable, resilient and thriving communities and economies. It must also be remembered that the partnership co-ordinates day to day operational works throughout the county to manage the risk from all sources of flooding. Read the current programme of these works in Part 3 of the [current strategy](#).

Figure 3 Map showing strategic themes / locations



The history of the Lincolnshire flood and water management partnership, means it has developed a key role in managing flood risk in particular. This includes deploying resources and co-ordinating risk across a range of partners and risk management authorities.

The type of action that will be undertaken to manage flood risk and drainage will depend on the severity of the risk in each circumstance, including factors such as the likelihood of flooding, the level of danger posed by flooding, its impacts and the physical and economic feasibility of implementing a specific scheme or activity.

Since 2012 flood risk management authorities in Lincolnshire have been very successful in securing national funds for works, known as 'grant in aid' and funding provided by the Government to the Environment Agency allocated at regional level by the regional flood and coastal committee. This is also true of funds raised locally (called 'local levy') and provided to the Environment Agency by Lincolnshire County Council.

Figure 4 Lincolnshire capital schemes 2012-13 to 2017-18

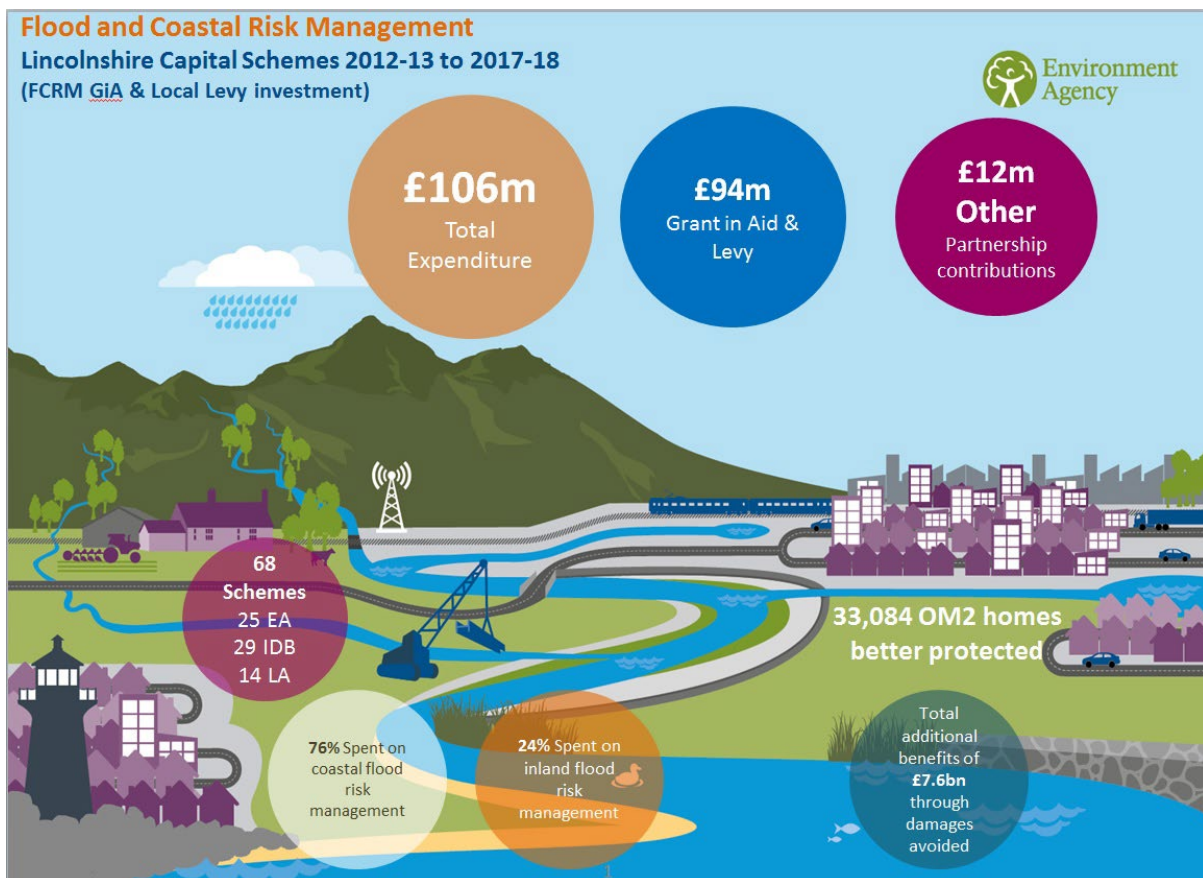
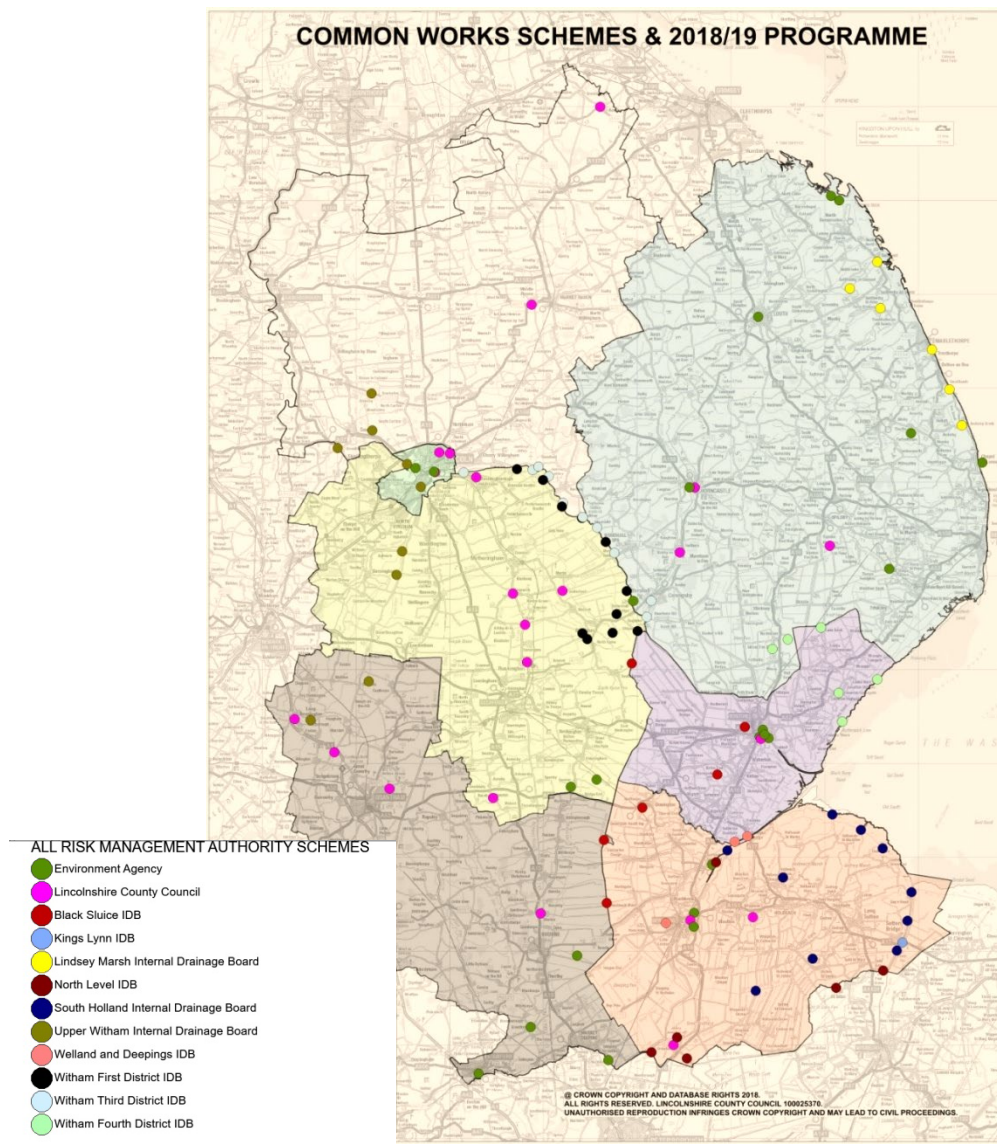


Figure 4 demonstrates that, between financial years 2012-13 to 2017-18, £106 million was spent on flood risk management within Lincolnshire. 76 percent of spend was focused on coastal flood risk management schemes, whilst 24 percent was focused on inland flood risk management schemes. In total 68

schemes were delivered by the partnership, better protecting 33,084 homes and providing an additional £7.6 billion worth on benefits through damages avoided.

Many of the flood risk management activities undertaken are already the responsibility of individual organisations, such as the maintenance of an organisation’s own assets, or the fulfilment of particular legal obligations. The common works programme includes schemes, works and other initiatives undertaken by flood risk management authorities across Lincolnshire where, in some cases, two or more authorities have come together through the Lincolnshire partnership to deliver work that would not have been possible, or would have taken longer to achieve, if undertaken by one organisation alone. The common works programme is refreshed annually with all risk management authorities retaining the flexibility to respond to schemes and works needs as they arise. By combining resources, partners have been able to attract inward investment at a national level and raise the priority of proposed schemes regionally (Figure 5 and Table 1).

Figure 5 Location of partnership works that have received national funding and been delivered by Lincolnshire risk management authorities since 2012



Since 2012, Lincolnshire risk management authorities have undertaken works within the following districts of Lincolnshire (Table 1).

Table 1 Works undertaken by Lincolnshire risk management authorities by District of Lincolnshire. Yes means that works have been undertaken in that district, whilst no means that works have not been undertaken.

Risk management authority	Boston	East Lindsey	Lincoln	North Kesteven	South Holland	South Kesteven	West Lindsey
Environment Agency	Yes	Yes	Yes	Yes	Yes	Yes	No
Lincolnshire County Council	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Black Sluice IDB	Yes	No	No	No	Yes	Yes	No
Kings Lynn IDB	No	No	No	No	Yes	No	No
Lindsey Marsh IDB	No	Yes	No	No	No	No	No
North Level IDB	No	No	No	No	Yes	No	No
South Holland IDB	No	No	No	No	Yes	No	No
Upper Witham IDB	No	No	Yes	Yes	No	Yes	Yes
Welland and Deepings IDB	Yes	No	No	No	No	No	No
Witham First District IDB	No	No	No	Yes	No	No	No
Witham Third District IDB	No	Yes	No	Yes	No	No	Yes
Witham Fourth District IDB	Yes	Yes	No	No	No	No	No

3 Future look

Overall the Lincolnshire partnership will maintain its key role within the county and build on its ability to galvanise support and consensus around key strategies, economic growth and influence central government. The work of the partnership and delivery of the our strategic aims is far from complete and significant challenges and opportunities lie ahead.

Climate change

It is widely accepted that climate change is occurring and will affect our weather patterns. Climate change poses a major challenge in our planning, adaptation and resilience to managing flood risk and water resource issues in Lincolnshire. In November 2018 the Met Office published its projections for future climate change - UK Climate Projections 2018 (UKCP18), which are the first major update to the UK's national climate change projections for nearly 10 years. The information available will help government, business and other interested parties to assess the challenges and opportunities we face from our changing climate.

In the most part trends show that the UK climate is continuing to warm and that sea levels continue to rise. We need to take into account however that these latest predictions were released whilst this strategy was being reviewed and therefore due to the complexity of the new projections, it is likely to be some time before clear guidance emerges as to what this may mean for Lincolnshire in respect of both land use planning and scheme/ project development. Some of the headline findings that have been identified are summarised below.

Overview

By the end of the 21st century, all areas of the UK are projected to be warmer, more so in summer than in winter.

Hot summers are expected to become more common.

Rainfall patterns across the UK are not uniform and vary on seasonal and regional scales and will continue to vary in the future.

A new set of marine projections show that sea level around the UK will continue to rise to 2100 under all emission pathways.

There is now no doubt the continuation and likely increase in the weather extremes will provide significant challenges in managing flood risk and water resources in the future, with examples of some of the variances highlighted below.

Some key findings from UKCP18

The average temperature over the most recent decade (2008-2017) has been on average 0.3 °C warmer than the 1981-2010 average and 0.8 °C warmer than the 1961-1990 average. Nine of the ten warmest years have occurred since 2002.

The most recent decade (2008-2017) was around 1 °C warmer than the pre-industrial period (1850-1900). This temperature rise in the UK is consistent with warming that has been observed at a global scale, of around 1 °C since the pre-industrial period.

Summers in the UK, for the most recent decade (2008-2017), have been on average 17% wetter than 1981-2010 and 20% wetter than the 1961-1990 average. However, very long-period natural variations are also seen in the longer observational record.

Total rainfall from extremely wet days (days exceeding the 99th percentile of the 1961-1990 rainfall) has increased by around 17% in the most recent decade (2008-2017), for the UK overall. However, changes are largest for Scotland and not significant for most of southern and eastern England.

Mean sea level around the UK has risen by about 16 cm since the start of the 20th century (when corrected for land movement).

The pattern of sea level rise is not uniform across the UK. Sea level rise is less in the north and more in the south, this is mainly due to the movement of land, up and down.

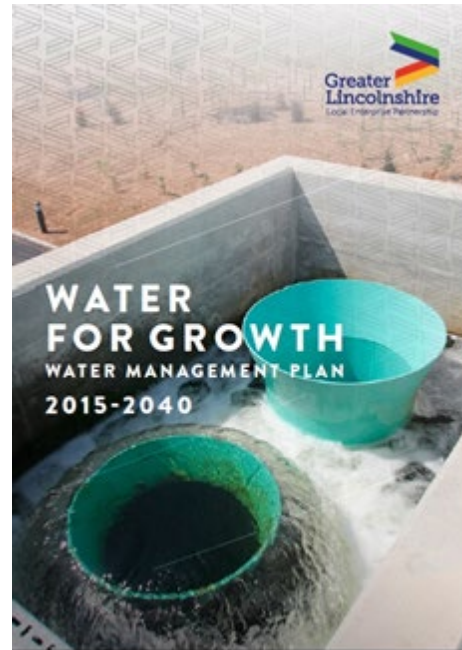
We can continue to expect increases to extreme coastal water levels driven mainly by increases in mean sea level rise, although we cannot rule out additional changes in storm surges.

Recent developments in Lincolnshire

Since 2012 flood risk management has increasingly been recognised as an integral part of a wider issue of managing water as a resource that is essential to economic growth nationally and, particularly, in the east of England. The Greater Lincolnshire Local Enterprise Partnership (GLLEP) has recognised the importance of managing water in this way through its Water Management Plan (2016), which incorporates key strategic flood risk management issues where they can directly support or influence the growth agenda. This has particular relevance in Lincolnshire because of the importance of sustainable water supply and resilience to major sectors of the county's economy, notably with regard to agri-food and the visitor economy.

Greater Lincolnshire LEP's water management plan 2015-2040

The strength of an existing long-standing Partnership working in flood risk management in Greater Lincolnshire provides an opportunity to develop this further and to drive links with organisations responsible for water supply and management. The aim is for Greater Lincolnshire to be seen as a national exemplar for water management, in both flood reduction and water supply, and to act as an incentive for investors in the LEP's priority sectors of Agri-food, visitor economy and manufacturing & engineering. This will enable effective water management to be a positive contributor to economic growth.



In achieving this aim, the LEP believes that close collaboration with the neighbouring Humber LEP, Greater Cambridge and Greater Peterborough LEP, and the New Anglia LEP is essential, as these areas share many important economic challenges and opportunities. Because of this, the Greater Lincolnshire LEP has established a Water Management Board and launched a Water Management Plan.

Greater Lincolnshire faces significant challenges from the risk of flooding and future availability of water. Around 45% (2,843km²) of Greater Lincolnshire lies within the floodplain - representing 17% of England's total floodplain area - and has been affected by a number of significant coastal and inland floods, most notably in 1953, 2007, 2012 and 2013.

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. In April 2012, the second of these two dry winters was followed by an exceptional summer which led to significant problems for our priority sectors and illustrates the need to prepare for more weather extremes.

The importance of water management in Greater Lincolnshire and its established expertise in managing flood risk, a critical part of the solution, provides an opportunity to explore innovative approaches across the whole range of water management activities. No other part of the country is taking this comprehensive approach or has identified water management as so essential a factor in bringing about economic growth.

Find out more about the [water management plan 2015 to 2040](#).

Water resources

A related development is the growing importance of water resource management since major droughts (interspersed with significant surface water flooding events) in 2012 and 2013. Flood risk is increasingly seen as part of a bigger picture that includes resilience to drought and planning for sufficient supplies of water where and when it is needed. This future planning for water availability has led to further consideration of potential opportunities for strategic linkage between water resource, flood risk, growth and environmental management, as reflected in Anglian Waters draft water resources management plan. These are key elements in supporting economic growth across Lincolnshire, and of direct interest to key economic sectors in Lincolnshire and its neighbouring authorities.

Most recently, future planning for water availability has led to the Water Resources East (WRE) initiative within the Anglian region and further consideration of potential opportunities for strategic linkage between water resource, flood risk, growth and environmental management. These are key elements in supporting economic growth across Lincolnshire, and of direct interest to key economic sectors in Lincolnshire and its neighbouring authorities.

WRE is a collaboration between Partners in the east of England to develop a more integrated approach to water resource planning and management.

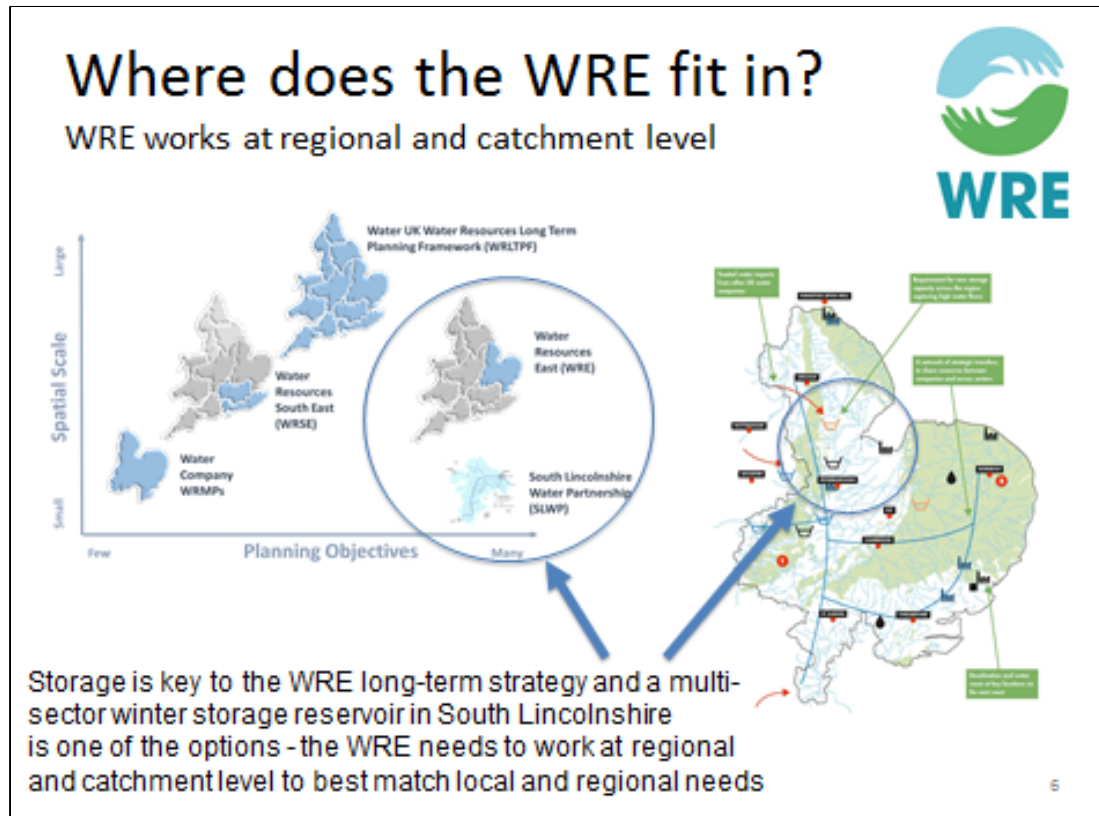


WATER RESOURCES EAST

The WRE vision is for a strong economy and a flourishing environment with a purpose to build capacity in the region to deliver this. It operates at three different scales being regional, catchment and sub-catchment as shown in the graphic overleaf:

- a) Regional: the WRE has developed the first multi-sector long-term regional water resource strategy in England using modern planning techniques. The strategy covers an area from the Humber to north London and is designed to meet the needs of the public water supply, environment, power and agricultural sectors in a future where impacts from climate change, growth and severe drought are expected but uncertain. The strategy combines far-reaching demand management, including large reductions in leakage, with a combination of new resource and transfer options. These include a multi-sector winter storage reservoir in south Lincolnshire
- b) Catchment: the WRE is working in south Lincolnshire and elsewhere to develop a partnership based water resource planning process at catchment level. This will use the techniques developed for the regional planning effort, but will apply them at local scale. In south Lincolnshire the aim is to produce a sustainable water resource strategy for an area where water supply, drought and flood risk are constraints on economic development. The project is being delivered by the South Lincolnshire Water Partnership (SLWP) and aims to ensure that future reservoir development in the area meets local economic and environmental needs, as well as the needs of the wider region, and

- c) Sub-catchment level: the WRE also works with landowners at farm and estate level to develop “Water Plans” based on the principle of Integrated Water Resource Management (IWRM). A number of these are being developed in Lincolnshire where water quality issues are being examined, along with measures to capture high flows in streams and rivers so as to reduce flood risk, increase the volume of water available for irrigation and increase the sustainability of irrigation operations



The catchment level work of the WRE & SLWP is supporting implementation of the Environment Agency “Water Abstraction Plan”. This programme will reform the current abstraction licensing system, helping maintain abstraction at sustainable levels and improving access to the available resources.

In Lincolnshire, the WRE & the SLWP report through to the Lincolnshire Flood Risk and Water Management Strategy Group.

A broader approach to water

Emerging initiatives are supporting our approach of improved flood risk that also provides greater water resource sustainability which in turn supports economic growth. These methods also support the catchment approach in managing an area from source to sea rather than in isolation.

This broader integration of water related activities was explicitly recognised when the flood risk and drainage partnership was renamed the Lincolnshire flood risk and water management partnership in 2015. The review of partnership during 2017-18 consolidated these developments and confirmed the need to embed a wider approach in its membership and terms of reference. The review of the partnership's strategy provides the opportunity to continue this process of alignment and co-ordination and be formally recognized as the Joint Lincolnshire flood risk and water management strategy to reflect the broader scope of our ambitions.

Since 2012 there has been the development and emergence of a number of local, regional and national strategies and initiatives which moving forward as a partnership we will need to take into account when considering our role in managing water more holistically within Lincolnshire. A list of these is provided on page 25 of this document.

The 25 year environment plan, published in early 2018 sets out the government's ambition to protect and enhance England's natural landscape for now and the long-term. How we manage flood and coastal risk will be a key part of how the plan is implemented and Lincolnshire's Risk Management Authorities (RMA) are well positioned to take on the challenge. Collaboration between RMAs and their partners in managing all sources of flooding and coastal risk and at all spatial scales is essential if we are to achieve this and increase both the county's and our nations resilience to such pressures. [25 year environment plan](#)

The Environment Agency is in the process of reviewing its national strategy for flood and coastal erosion risk management. It is working in partnership with RMAs and a range of other partners to form a collective vision for the future of flood and coastal risk management. The aim of this coalition of partners is to identify the initial measures needed in order to achieve a shared vision and then to deliver it together. It is encouraging that the ambitions in this emerging national strategy reflects the goals and ambitions which are set out in the Lincolnshire Flood Risk and Water Management Strategy. Formal public consultation commenced in May 2019. [Flood & Coastal Erosion Risk Management National Strategy Information](#)

In a Lincolnshire context the vital work the Environment Agency carry out along the open coast is also being reviewed as part of the Saltfleet to Gibraltar Point strategy review. How management of flood risk on the Lincolnshire coastline is undertaken remains vital to over 20,000 homes, approx. 24,500 static caravans, 35,000 hectares of farmland and a bustling tourist industry that lie within the strategy area.

A preferred strategy and delivery plan for flood risk management on the Lincolnshire coast over the next 100 years is being developed as the Environment Agency work closely with partners in local and central government to finalise the draft strategy document, which is planned to be taken forward to a public consultation in 2019.

Looking at long term scenarios a map showing the 2115 future breach hazards for the coastal floodplain of Lincolnshire during the 0.5% tide is attached in Annex 1. This map shows the level of flood hazard to people (called a hazard rating) if our coastal and tidal flood defences are breached. The hazard rating depends on the depth and velocity of floodwater in different locations. The map is based on computer modelling of simulated breaches at intervals along the coastline but does not show the likelihood of breaching, only the consequences once breaching has taken place. Coastal defences provide a good standard of flood defence but a risk of breaching remains and this map illustrates the importance of having long term plans for coastal Lincolnshire.

While work is undertaken to finalise the draft strategy, planning continues for the 2019 beach nourishment campaign which will protect the sea defences and to manage the risk of flooding to communities across the Lincolnshire coast. Read the [Saltfleet to Gibraltar Point Strategy](#).

Environmental betterment

Intrinsically linked to our approach around water management is the provision to enhance amenity benefits and environmental betterment. This approach is demonstrated by the south Lincolnshire fenlands partnership. The partnership is a group of organisations, land managers and community representatives all with an interest in enhancing and protecting the unique and special qualities of the cultural, natural and historic environment of the Lincolnshire fenlands. The area covered by the project lies between Bourne, Spalding, and Market Deeping and includes the villages of Baston, Langtoft, Thurlby Fen, Tongue End and Twenty. The project officer facilitates and engages a broad spectrum of people from land owners and local residents to politicians and national statutory bodies to discuss approaches to managing natural assets in a changing world to secure benefits for wildlife and people. This area is low lying with rich farming soils and astonishing amounts of water flowing through courses, some of which are rich in botanical diversity and rare fauna. As the impacts of climate change become more apparent, then the partnership's role in finding solutions of a landscape scale approach to water management for people and wildlife will increasingly become more critical.

Over the past six years Lincolnshire risk management authorities and partners have adapted to ever-changing and growing pressures, learning lessons through collaboration and continuously seeking to evolve. Funding will remain one of the key challenges faced in delivering the aspirations of this strategy. The current national six year capital investment programme ends in March 2021 and consideration is being given to what a future programme may look like. As this strategy is being reviewed Defra and Treasury are still in discussions, but this will be informed by the next Long Term Investment Scenarios (LTIS) analysis which will provide an updated view on the optimal amount to spend on flood risk management. The new analysis will build on the existing information and address a number of emerging questions and issues including high range climate change scenarios, development controls, standards of protection,

property level resistance and resilience, temporary community defences, natural flood management, and risks to infrastructure.

These current uncertainties mean it is as ever important for Lincolnshire organisations to pull together to seek collaborative solutions to address these challenges and continue to seek innovative and forward thinking methods to do so.

Wrangle Sea Banks

This £1.8million project, completed in September 2018, was the first major improvement to coastal flood defences in the area for over 30 years. Over 3,400 hectares of prime grade one farmland, and 460 domestic and industrial properties in this area of the Wash are now better protected, thanks to the co-ordinated efforts of flood risk management authorities and local landowners.

An Environment Agency review in 2012 had identified a 5km stretch of The Wash sea defences near the village of Wrangle, as particularly vulnerable, with the lowest sea banks along the Wash frontage, and only a single line of defence.

Witham Fourth District IDB (W4IDB) agreed to be the lead risk management authority on the project as they were able to deliver efficiencies using local landowner agreements and local contractors. This partnership approach, combined with the number of households and businesses protected, enabled an application of support through £1.3 million of DEFRA and half a million pounds of EU funding.

The project involved re-profiling the sea banks and raising them to over 7 metres high, with a 1 in 3-rear slope leading to a soke dyke to cope with future over-topping. During high tides, these accommodate the water that permeates up through the ground and during heavy rainfall, they enable surplus water to flow to the W4IDB managed pumping stations. This also enabled at least 10 hectares of habitat creation behind the banks including grassland and semi-wetland habitats. Landowners contributed around 40 linear metres of farmland to provide the spoil to re-profile the sea banks.

It was the tidal surge of December 2013, again breaching the main line of defence as it had 60 years earlier, that galvanised farmers and landowners to push for action. W4IDB were by partner representatives from Lincolnshire County Council, landowners, EA and Natural England to deliver the project.



4 Delivering the strategy

Vision

Our vision statement for working in partnership to tackle flood risk and water resource issues to 2050

"Working in partnership for a resilient future"

In order to work towards this vision, the partnership has developed and agreed a new set of high-level aims. These aims take account of changes and developments since 2012 in how we consider the effective management of water and flood risk whilst recognising the ambition to seek wider benefits for Lincolnshire in not only flood risk but broader water resource issues.

In collectively developing these aims the partnership is clear that a 'do nothing' approach is clearly not an option. Climate change will bring significant challenges for both flood risk (such as rising sea levels and more extreme weather events) and water resources issues (i.e. drought). Water is the essential component that brings organisations together to seek a resilient future to the extreme challenges we face. Through partner and stakeholder engagement the following themes are considered key in moving forward to deal with these challenges.

Catchment based approach

Currently when taking a strategic approach to managing water such as management of flood risk, water resources provision and land drainage this is largely looked at in isolation. In adopting a holistic view of the management of water it is possible to provide multiple benefits to the environment, businesses and communities by managing water sustainably through a whole catchment approach. As indicated through the innovative approaches being looked at as part of the WRE initiative in the South Forty Foot catchment and the pilots which formed part of the PACM project the lessons learned will provide a sound evidence base that can be tested on catchments in other areas. Ultimately the ambition is to cover all catchments (both rural and urban) within the county as well as maximizing opportunities with other neighbouring authorities encouraging cross boundary working.

Ecosystem services

The natural environment is one of Lincolnshire's greatest strengths. If the ecosystem services that the natural environment provides are restored and recreated across the county, and delivered in a sympathetic way, it is possible to combine effective flood risk and water resource management solutions.

In certain situations adaptations to existing, or new, environmental features can improve flood defence through an increase in capacity to store water (both for flood risk management and irrigation), improve connecting habitat, improve

water quality and accommodate leisure and tourism activities. All of these have the added value of bringing economic benefits to the area. To align with proposals set out in the draft national FCERM strategy it is recommended that, where possible, Risk Management Authorities in Lincolnshire will seek to achieve biodiversity net gain in all programmes and projects. They will seek to work with developers and planners to achieve environmental net gain as part of strategic development proposals and will use lessons learned from pilot projects to expand and mainstream working with natural processes.

Strategic thinking on land use planning

Our approach to land use planning will become even more critical moving forward to balance the challenges faced from flood risk and managing water resources. Planned for, and managed in a sustainable way, this will aid in securing economic growth and environmental enhancement but there are likely to be challenges meeting different government targets. The partnership will build on its influencing role and ensure it is in a strong position in negotiating key policy developments. Conserving and enhancing the natural, built and historic environment in Lincolnshire will also be a key consideration when addressing land use planning in the county. The draft national flood and coastal erosion risk management strategy emphasis the need to develop local resilience to flood risk and climate change. Delivering this aspiration strategically for Lincolnshire could include a variety of approaches, ranging from more traditional coastal management techniques through to long term evolution of some communities to focus their future development towards lower risk locations or with greater provision for resilience in the event flood risk events.

Asset management

It is recognised that there is a need to have a joint approach to resolving issues with obsolete legacy assets such as old navigation assets (subject to navigation rights), weirs, outfalls, embankments and culverts. These are currently maintained by RMAs and consideration needs to be given, where appropriate to decommissioning or transferring assets to a more appropriate body. The recent rationalising the main river network project highlighted the success of this approach which can lead to the streamlining of operations, make efficiency savings and bring opportunities to achieve more for the environment. New guidance is currently being developed in this area. Practical approaches to transfers or decommissioning of FCERM assets is due for publication in early 2020 In assessing such assets it should be considered that some may be heritage assets (both designated and undesignated) which should be considered when decommissioning or transferring.

Establish an evidence base for Lincolnshire

Flood risk management authorities in Lincolnshire have been recognised by government as among those leading nationally in the development of

partnership and co-ordination is through the creation of the Lincolnshire flood risk and water management partnership. These same authorities, along with other stakeholders, are determined that such recognition is maintained through our broader aspirations around water management in the whole.

To ensure Lincolnshire remains at the forefront of such activities it is essential a sound proof and evidence base is developed to demonstrate how we will collectively face the flood risk and water resource challenges in our region. Agri-food, housing growth, tourism, the environment, historic environment and energy sectors are all nationally strategically important within the county and will be a priority for investment and infrastructure needs in the future. All are highly reliant on water to function effectively whether it be protection from the risk of flooding and tidal inundation or the need to have a guaranteed supply of water. A supporting evidence base will be key in lobbying government and engaging key stakeholder groups to ensure we achieve the support and backing to deliver against our aims.

As a result of partner and stakeholder engagement, four aims have been developed. Outlined below, they will be the key drivers for the delivery of this strategy.

Aim	Key area of focus	How this will be achieved
Aim 1.	To move from flood risk management to cover water management	<p>To have clear objectives for supporting and developing linkages between effective water management and securing economic growth and environmental enhancement</p> <p>To have a greater emphasis on managing water in catchments, both locally and at a strategic level</p> <p>To promote a greater mix of measures including water retention & attenuation and natural flood risk management methods</p>
Aim 2.	To develop a more strategic approach to development and land use planning	<p>To have alignment with major regional and national strategic infrastructure initiatives, particularly involving water resources linking flood risk solutions with improved resilience to drought.</p> <p>To have a greater integration of flood risk and water resource management with local planning policy development</p>

		<p>Conserving and enhancing the natural, built and historic environment in Lincolnshire will also be a key consideration when addressing land use planning in the county</p> <p>To ensure the effects of climate change are included in long term planning for flood risk and water resources</p> <p>RMA's will invest in planning skills and capabilities to ensure they can advise planners and developers effectively to enable climate resilient places</p> <p>To better align long term planning for flood and coastal change with water company business planning cycles to identify opportunities for managing both floods and droughts</p>
Aim 3.	To build on the existing strong profile of the Lincolnshire Partnership ensuring it has a strong influencing role	<p>To ensure awareness of the partnership is maintained with proactive engagement regionally and nationally in key policy developments</p> <p>To proactively support national initiatives that can enhance local approaches to flood risk and water management such as IDB boundary extension</p> <p>To build a proof and evidence base to government and key stakeholder groups that support the ambitions of the partnership</p>
Aim 4.	To build and develop key lines of communication to promote the aims, ambitions and achievements of the Lincolnshire Partnership	<p>To Develop a public and stakeholder communications & engagement strategy</p> <p>To develop a partnership action plan detailing key priorities moving forward</p>

Strategic outcomes: what will be in place when the vision is achieved

- 1 Efficient and innovative delivery - Existing resources will be used in the most efficient way possible. We will attract as much external funding as possible, and will secure new resources locally and nationally.
- 2 Meeting local needs - The Lincolnshire flood risk and water management partnership will work with local communities to develop flood risk and drainage management services that meet local needs.
- 3 Increased awareness and resilience - Local communities and businesses will be more aware of flood risk, and with the help of public authorities, will take steps to protect themselves and become more resilient through individual and community action.
- 4 Safe development - Planning and development control across the county will take account of all forms of flood risk and sustainable drainage; inappropriate development in areas of high flood risk will be minimised.
- 5 Thriving environment and economy - Flood risk, water management and future development will contribute to better water quality, wider environmental benefits, sustainable growth and overall resilience to the effects of climate change and sea level rise.
- 6 Enhanced rural economy - The Lincolnshire flood risk and water management partnership will continue to lobby government for a fairer deal for the rural economy in the county with regard to flood risk activities and supporting economic growth
- 7 Adapting to a changing future - Adaptive planning against the effects of climate change will be a key factor in all future planned flood risk mitigation works by the Lincolnshire flood risk and water management partnership
- 8 Delivering multiple benefits - The Lincolnshire flood risk and water management partnership will focus on the key issues it believes Lincolnshire faces in terms of water, both flood and drought, and seek long term solutions to support the coast, agri-food, a catchment based approach and urban areas

Strategic objectives: how we will arrive at our vision and outcomes

- The Lincolnshire flood risk and water management partnership will seek to develop new and innovative ways of funding flood risk and water management activities and build on current successes in maximizing national funds and delivering efficiencies.

Outcomes 1, 2, 4, 6

- The Lincolnshire flood risk and water management partnership will proactively engage with partners and stakeholders to establish effective policy and delivery approaches for the future management of the Lincolnshire coast by 2021.

Outcomes 1, 2, 3, 4, 5, 7, 8

- Lincolnshire RMAs will work closely with the Greater Lincolnshire LEP to deliver the plan of increasing the value of the local economy by £3.2bn by 2030. Water management is fundamental to the growth of the economy, the environment, quality of life and food security.

Outcomes 1, 2, 4, 5, 6

- By 2025, in collaboration with WRE, water resilient solutions to flood risk, drought and water supply will have been developed for south Lincolnshire.

Outcomes 1, 4, 5, 7, 8

- Lincolnshire RMAs will work together to explore and develop a catchment based approach to delivering flood risk and water management schemes by 2023.

Outcomes 1, 2, 3, 5, 7, 8

- RMAs in Lincolnshire will work closely with developers and local planning authorities to ensure future development is located appropriately and takes account of suitable flood risk mitigation measures

Outcomes 2, 3, 4, 5, 7

- Working in collaboration with other partners and stakeholders, the Lincolnshire flood risk and water management partnership will develop a proof and evidence base to government to support our strategic aims by 2021.

Outcomes 5, 6, 7, 8

- A public and stakeholder communications and engagement strategy will be developed by 2020 to develop key lines of communication to promote the aims, ambitions and achievements of the Lincolnshire Partnership .

Outcomes 2, 3, 4

- The common works programme will continue to be reviewed and updated on an annual basis and remain the key source of information on flood risk and water management activities undertaken by risk management authorities in Lincolnshire.

Outcomes 1, 2, 5, 7, 8

Collectively our combined aim is that by 2050 Lincolnshire will be an area resilient to flood risk and water resources issues with a long term strategic vision delivering local benefits.

Strategy review process

Delivery of the strategy will be managed by the Lincolnshire flood risk and water management partnership, with regular progress reports against targets to the management group, and from there to strategy group and the scrutiny committee.

The strategic delivery common works programme will continue to be reviewed annually, and the strategy as a whole will be subject to a five-yearly review process, including full public involvement, to ensure it is kept up-to-date, takes account of objectives achieved, and continues to maintain a focused forward programme at strategic, tactical and operational levels.

The LLFA will be responsible for ensuring that monitoring and reviews are undertaken according to plan, but the partnership as a whole will contribute to the review and refresh of the strategy.

5 Find out more

[Read the full strategy.](#)

Hard copies are available on request. Postal enquiries should be sent to:

Joint Lincolnshire Flood Risk and Water Management Strategy
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Environment and Economy
Lancaster House
36 Orchard Street
Lincoln
LN1 1XX

Email enquiries should be sent to

FloodRisk@lincolnshire.gov.uk

For telephone enquiries please contact 01522 552222

6. Glossary

Term	Meaning
Assets	Structures or a system of structures used to manage flood risk.
Catchments	An area that serves a river with rainwater. Every part of land where the rainfall drains to a single watercourse is in the same catchment.
Defences	A structure that is used to reduce the probability of floodwater or coastal erosion affecting a particular area (for example a raised embankment or sea wall)
Defra	Department for Environment, Food and Rural Affairs
GLLEP	Greater Lincolnshire Local Enterprise Partnership
Groundwater	Water which is below the surface of the ground and in direct contact with the ground or subsoil.
IDBs	Internal Drainage Boards
LLFA	Lead Local Flood Authority (Lincolnshire County Council)
Local flood risk	Flood risk from sources other than main rivers, the sea and reservoirs, principally meaning surface runoff, groundwater and ordinary watercourses.
LPA	Local Planning Authority
Main river	A watercourse shown as such on the main river map, and for which the Environment Agency has responsibilities and powers
NFM	Natural Flood Management
Ordinary watercourses	All watercourses that are not designated Main River, and which are the responsibility of local authorities or, where they exist, IDBs.

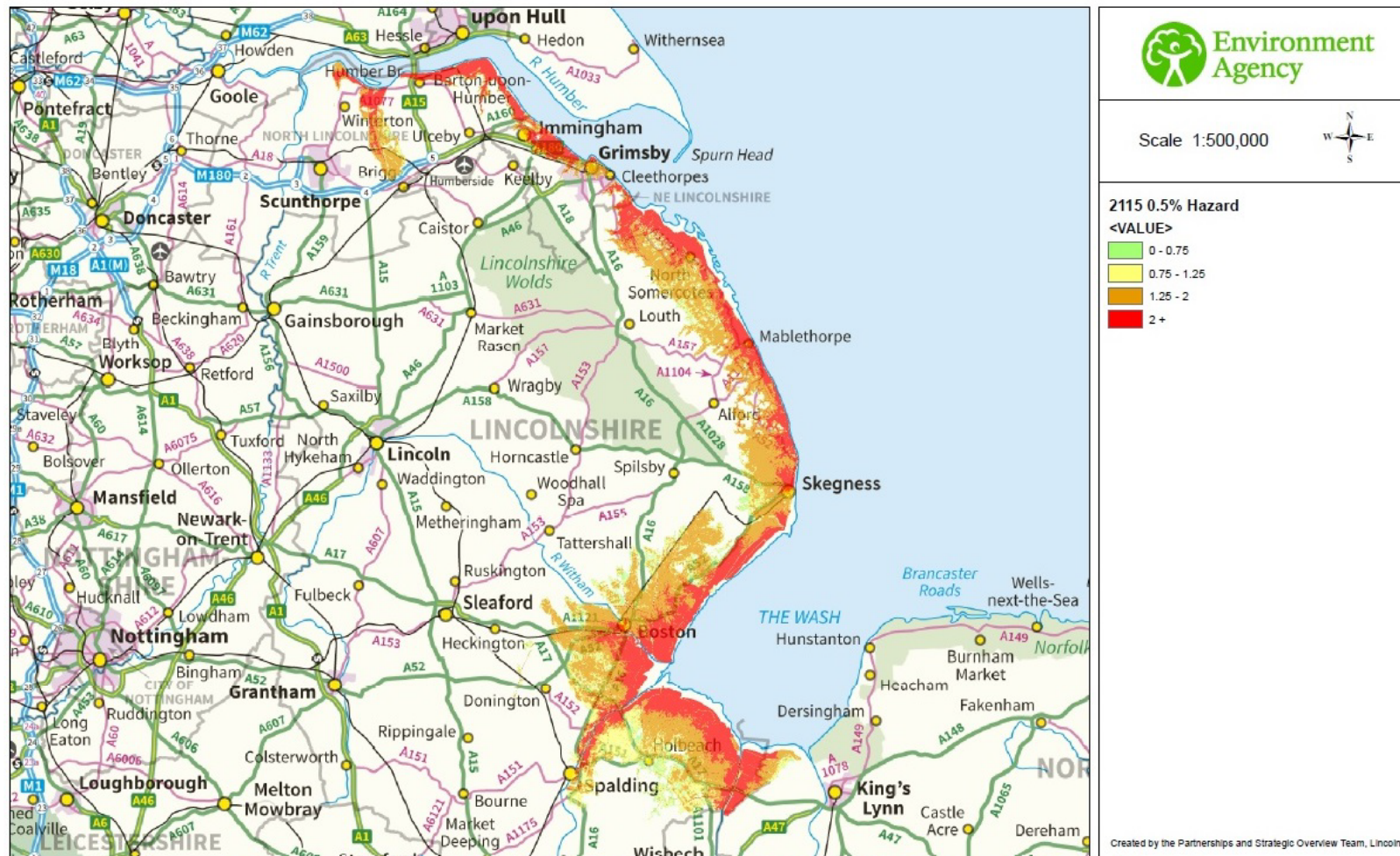
Resilience	The ability of the community, services, area or infrastructure to withstand the consequences of an incident.
Risk	Measures the significance of a potential event in terms of likelihood and impact.
RMA	Risk Management Authorities
Source	The origin of a hazard (e.g. heavy rainfall, strong winds, surge etc).
Surface runoff	Rainwater (including snow and other precipitation) which is on the surface of the ground (whether or
WRE	Water Resources East

7. Key strategies and initiatives developed since 2012 that will influence our strategic approach within Lincolnshire

- Current review of national flood risk and coastal erosion management strategy
- Humber estuary strategy
- Current national review of shoreline management plans
- Saltfleet to Gibraltar Point strategy
- Wash Banks strategy
- Partnership approach to catchment management
- Flood plan for Lincolnshire (emergency response)
- Water resources management plan
- Water Resources East initiative
- Local planning policy – local plans
- GLLEP strategic economic plan
- GLLEP water management plan
- GLLEP energy strategy for Greater Lincolnshire
- National and local industrial strategies
- Defra 25 year environment plan
- LCC waterways development plan 2018-2028



Coastal Hazard Breach Map - 2115 / 0.5% scenario - created August 2019



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 Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Annex 1

Annex 1 shows the hazard associated with the breaching of coastal sea defences in Lincolnshire in the year 2115. The event on which the scenario is based has an annual chance of 1 in 200, i.e., the chance of this event being equaled or exceeded in any one year is 0.5%. Areas near to the coastline have the highest level of risk. In most cases this risk reduces as one progresses inland.