

Greater Lincolnshire Local Enterprise Partnership Water for Growth: Water Management Plan 2015 - 2040

1 Introduction

The Greater Lincolnshire Local Enterprise Partnership (GLLEP) considers the effective management of flood risk and water resources to be a critical factor in enabling economic growth in its area. The strength of existing longstanding 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.

Our aim is for Greater Lincolnshire to be seen as a national exemplar for water management, both flood reduction and water supply, so that this plan acts as an incentive for investors in the GLLEP's priority sectors. This will enable effective water management to be a positive contributor to economic growth.

In achieving this aim, the GLLEP believes that close collaboration with the neighbouring Humber LEP, Greater Cambridgeshire and Greater Peterborough LEP and New Anglia LEP is essential, these areas sharing many important economic challenges and opportunities.

Because of this, the GLLEP has established a Water Management Board, through which it has commissioned this Water Management Plan.

2 Purpose of the Water Management Plan

The Water Management Plan

- Sets out the GLLEP's aims and objectives for water management as a driver for economic growth
- Identifies key current, emerging and future projects that will secure these aims and objectives
- Sets out the need of the water supply challenges for Greater Lincolnshire and the potential construction of major new reservoirs and/or water distribution infrastructure
- Establishes a 'pipeline' of potential bids for funding from a range of sources
- Draws on key actions set out in the three Lead Local Flood Authorities' Local Flood Risk Management Strategies where these directly contribute to economic growth
- Promotes integration between flood risk and water resource management in terms of key projects that facilitate economic growth

- Defines specific opportunities to promote co-operative ventures with neighbouring LEPS

GLLEP recognises that in addition to local, small to medium scale projects, many of which are detailed in this pipeline of projects set out later in this plan, some of the interventions which 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 and/or water distribution infrastructure. These projects will take many years to plan and finance and, in line with the emerging Water Resources East Anglia (WREA) 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, which are likely to cost £millions to develop, are clearly of a much larger scale and will require national support and strategic commitment from multiple partners and stakeholders. GLLEP 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 up 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.

3 Business Case: Water Management and Economic Growth

Greater Lincolnshire faces significant challenges from the risk of flooding and future availability of water. The Humber, East Anglia, Peterborough and large parts of Cambridgeshire share these challenges to a considerable degree.

Flood Risk

Greater Lincolnshire is subject to flood risk from the sea, main rivers, surface water and ground water. The extent and nature of this risk varies across the area, and is described in more detail in the Local Flood Risk Management Strategy for Lincolnshire, North Lincolnshire and North East Lincolnshire. The risk of coastal and river flooding affects up to 45% of the land area of Greater Lincolnshire, while

surface water flooding, although of more localised and limited impact, occurs more frequently and is more difficult to predict.

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

Water Resources

Greater Lincolnshire is within one of the driest regions of the country, and current models of climate change predict increasing scarcity of water over the 21st century. Current models also predict that whilst winter rainfall will increase, by possibly 15-20%, summer rainfall levels will fall by a similar amount. The historic 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 or flooding. In the case of drought, the increased frequency of multi-year periods of below average rainfall, 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 through the following link.

<http://www.anglianwater.co.uk/environment/our-commitment/our-plans/water-resource-management.aspx> (especially pages 140-171 of main document)

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.

The Role of Water Management in Growing the GLLEP Economy

The Greater Lincolnshire LEP has developed an ambitious plan to increase the value of the local economy by £3.2bn by 2023. 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 and was the basis for the Growth Deal submission and future submissions.

The Greater Lincolnshire SEP can be found on the GLLEP's website, at <http://www.greaterlincolnshirelep.co.uk/what-we-do/our-strategy-for-growth>.

The SEP focuses on growth in 3 priority sectors, all of which require a secure supply of water and protection from flooding to facilitate their growth. These sectors are:

- **Agri-Food**; Greater Lincolnshire has more grade 1 agricultural land than any other LEP in England, producing/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 across the supply chain, with a diverse mix of businesses, including Cranswick pla, Greencore, Moy Park, Walkers and Young's Seafood, alongside a wide range of primary producers. The GLLEP Agri-food Sector Plan is targeting doubling the sector's economic contribution by 2030 with a focus on high value manufacturing, increasing the production of intensive crops and livestock (eg, poultry) and investment in new areas such as aquaculture. All of these areas of growth will require additional water provision and improved water management.
- **Manufacturing and engineering**: this sector contributes over £3.3bn (20%) of Greater Lincolnshire's output, employs over 43,000 people and accounts for 42% of our exports; 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.
- **Visitor economy** – the visitor economy is worth over £1.3bn per annum to the Greater Lincolnshire economy, supports over 39,000 jobs and has long-term growth potential; more than 31million people visited Greater Lincolnshire's world-class visitor attractions in 2014, 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.

Around 45% (2,843km²) of Greater Lincolnshire lies within the floodplain (constituting 17% of England's total floodplain area) and the area 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. 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.

Greater Lincolnshire also contains the Ports of Immingham and Grimsby, the largest ports in the UK by tonnage as well as smaller ports in South Lincolnshire at Boston and Sutton Bridge.

A further way in which Greater Lincolnshire will grow is in terms of population. The 100,000 new homes need by 2031 to meet this growth will bring economic growth but require a strong utility structure, not least in terms of water supply and flood protection.

Security from flooding is a key infrastructure requirement for our economy. The threat of flooding affects developer confidence and development viability. Our coast, which is major part of our visitor economy, is particularly vulnerable to the impacts of climate change and sea level rise. We are committed to working with partners to secure sustainable flood risk management through the sustainable development of our coastal economy whilst protecting our communities.

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 LEP wishes to seize this opportunity to harness the potential of effective flood risk management to boost local growth.

Water management is therefore fundamental to the growth of Greater Lincolnshire, not only because it provides valuable services that underpin our environment, economy and quality of life, but also because of our geography.

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.

4 Developing the Water Management Plan

The GLLEP has developed the Water Management Plan in partnership with a wide range of stakeholders and partner organisations, shaping and refining it through workshops in June and September 2015. Stakeholders identified a number of key spheres of action which they considered fundamental in creating a more integrated, forward-looking approach to water management. In brief, these consisted of

- Increased water provision (eg additional storage capacity)

- Water use efficiency by both industry and households
- Flood risk management
- Linking flood risk management and water provision

With a focus on achieving these objectives through

- Awareness raising and education
- Increasing collaboration and focusing on new potential partnerships
- Focusing on innovation in technology, organisational arrangements, funding and planning
- New approaches to funding with a particular focus on facilitating collaborative larger scale schemes
- More joined up approaches to planning

The action plan (Annex) is being developed to identify and progress projects that will help address these areas of activity.

5 Delivery of the Water Management Plan

The importance of water management in Greater Lincolnshire, and its established expertise in managing flood risk – a key 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.

There are a number of existing mechanisms for progressing this approach, with flood risk management already well addressed through strong partnership arrangements across Greater Lincolnshire. In addition, in its Growth Deal, the GLLEP has already agreed a number of key principles on working with Government and its neighbouring LEPs to progress this agenda.

Known as 'freedoms and flexibilities', these principles 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."

and

"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. (* ie Humber and Greater Lincolnshire)."*

Establishing a clear programme of emerging and proposed schemes as a focus for delivering enhanced water management will support these ambitions by providing partners and stakeholders with a clear focus for action and a means of co-ordinating efforts across the area. In order to promote wider co-operation across boundaries the GLLEP is also contributing to the wider Water Resource East Anglia (WREA) project, a potential route for integrating appropriate initiatives into the regulatory programmes of the industry.

As well as forming part of the WREA project's Leadership Group, the GLLEP additionally has the opportunity to shape the project's work to examine planning policy approaches that offer the best support to the delivery of identified water resources for the East of England and support sustainable growth

6 Governance, Monitoring and Reviewing the Water Management Plan

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 particular lead agencies, who will manage progress on these in detail.

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.

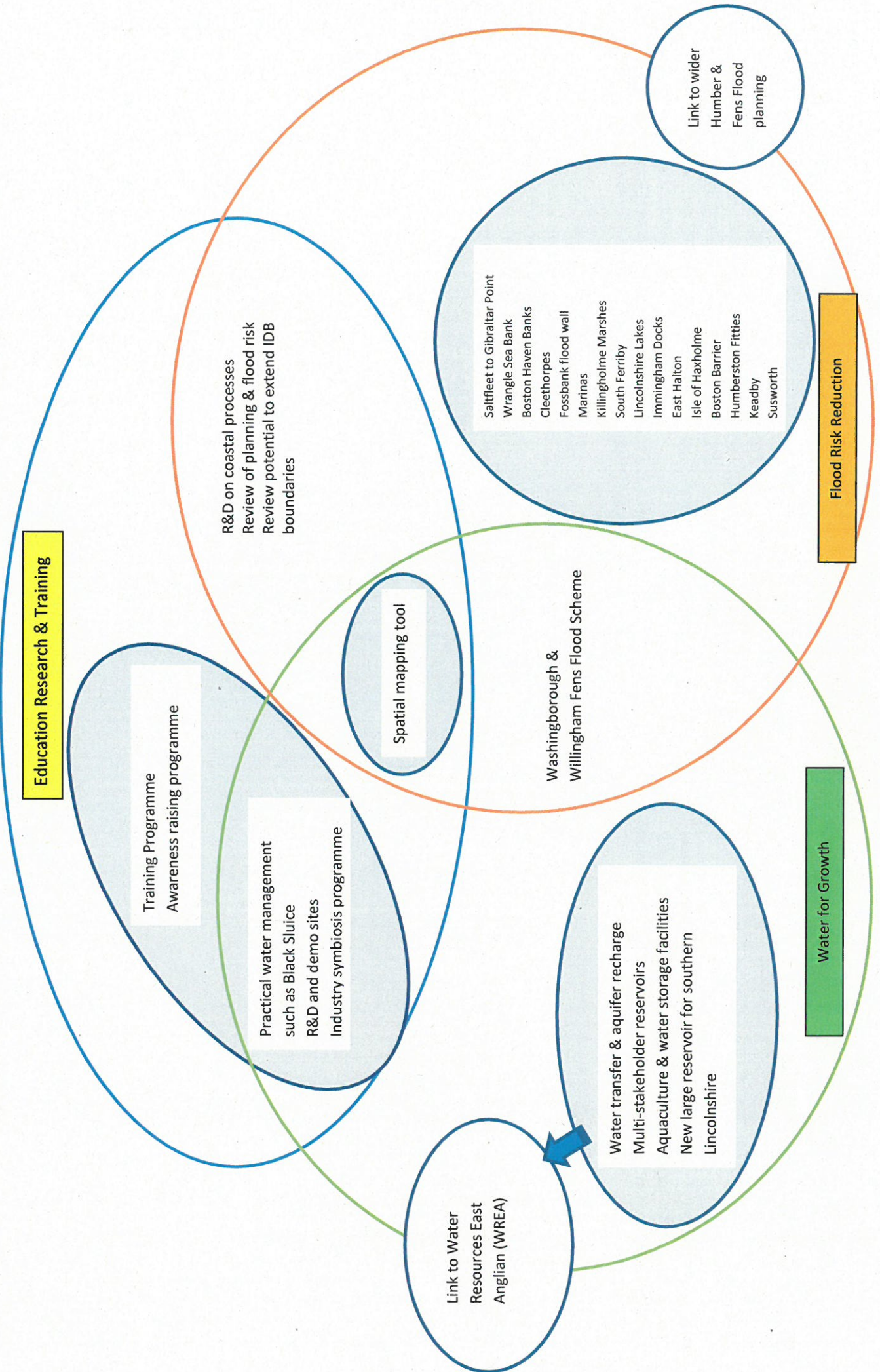
Annex: Water Management Plan – schedule of projects and programmes

The most important part of this Water Management Plan is the attached programme of proposed actions that will support economic growth through improving management of water. Stakeholders will play an important role in developing this programme by putting forward ideas for other 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 the starting point for a programme intended to deliver improvements over a twenty five year period, the Water Management Plan's project schedule 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.

Potential Water Management Schemes

Three Themes: Theme 1 – Education, Research & Training; Theme 2 – Water Provision for Growth (linked to Water Resources East Anglia); Theme 3 – Flood Risk Reduction



Theme 1 – Education, Research and Training				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>The Ark</u></p> <p>The establishment of a Centre of Excellence for Water Management incorporating a training/awareness facility for responders, business and residential community members to collectively develop relevant skills to mitigate risk from flooding and to support recovery.</p>	<p>MEDIUM 1-5 YEARS</p>	<p>Benefits arise from protection and improved recovery:</p> <ul style="list-style-type: none"> • Quick deployment of property level protection can reduce damages (75%) of insurance claims in 2007 were for contents not buildings) • Better prepared business could reduce the average claim from £112,000 and enable faster recovery. • The reduction in costs to communities and business and SROI over 5 years is anticipated to be: £15m. 	<p>£6.2m project £1.2m secured from HFRS</p> <p>Other possible funding sources:</p> <ul style="list-style-type: none"> • ERDF – PAS (Promoting climate change adaptation, risk prevention and management) • DEFRA – Climate change funds • Local levy • Loans 	<p>Initially lead by Humberside Fire and Rescue (HFRS) with development of an Executive Committee for the project to include several partners:</p> <p>LEP members, Lincolnshire FRS, Police, Local authorities, Voluntary sector, business representatives</p> <p>Responding agencies.</p> <p>Appointment of a Strategic Partner.</p>

Theme 1 – Education, Research and Training				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>Awareness Raising Programme</u></p> <p>To support and complement other aspects of the Water Management Plan. Makes links with the national curriculum.</p> <p>Looks at water supply awareness, along with potential flood incidents and to support and improve water efficiency for business/commercial and domestic purposes.</p> <p>Need further specification</p>	Medium Term		ERDF	<p>Potential commission project by the LEP.</p> <p>Some elements on farming could be led by the Uni and potentially funded through the innovation call.</p>
<p><u>Brownfield Land – streamlined planning for flood protection</u></p> <p>Initial focus was streamlining the planning process through the use of Local Development Orders to bring forward housing within the coastal zone of East Lindsey.</p> <p>The principle of bringing brownfield land back into beneficial use is supported by the govt.</p> <p>This approach could be extended to Greater Lincs with a view to understanding that brownfield resource and consideration of use for that land – housing, commercial, industrial, environmental, flood risk management (surface water).</p>	Medium Term			TBC

Theme 1 – Education, Research and Training				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>Black Sluice – R&D</u></p> <p>Future integrated water management of the Black Sluice catchment.</p> <ul style="list-style-type: none"> • This catchment provides a good, timely opportunity to test the principle of integrating flood risk and water resources. • The project could be a separate study (including a business case) that: <ul style="list-style-type: none"> - Addresses the water resource demands (now and future) of the catchment and how the current IDB pumping regime could be managed to meet this demand. - Considers water level management through Boston. - Looks to integrate ecological benefits with flood risk through the slowing the flows principles. - Identifies innovative funding and governance mechanisms. • This project would pave the way for future EU/LGF bids to deliver the capital infrastructure needed. It would also provide a template for taking a similar approach in other catchments (Lower Witham/Glens). 	<p>Short - Medium Term – political priority and WREA case study</p>	<p>Security of water supply will encourage investment in the agri-food sector. Water level management could support economic regeneration within Boston and support tourism. Done well integration of ecological benefit create natural environment tourism</p>	<p>Thinking differently. About EU funding – potential Interreg. Pilot WR Flood. IDB never but Fen Flood Risk – Water Level management. Defra Limited EA FDGIA</p>	<p>Partnership approach facilitated by the GLLEP/WMB/Lincs Floods and Drainage Strategy Group</p>

Theme 2 – Water provision for growth				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>Combined Spatial Mapping Tool</u></p> <p>To produce a detailed holistic spatial model of water use, to include both flooding and water supply and provision pressures. Existing data to be combined at a usable scale to aid in decision making process and to be supplemented by additional new modelling work where hotspots are identified so informed decisions can be made to aid in identifying growth areas. Lead Local Flood Authority and Environment Agency involvement likely as could bring benefits around flood risk planning/management.</p>		Peer Review – DIGG – Infrastructure Group to take forward		Housing and Infrastructure Group
<p><u>Practical Demonstration Sites</u></p> <p>Development of practical demonstration sites for research on water around farming, industry and housing sites in a GLEP network. To build on, and develop existing plans around agriculture to cover research across all sectors which can then provide exemplars of best practice. Agricultural element quite well progressed, industry and housing likely to be longer term.</p>	Short Term		EU bid for innovation	University of Lincoln
<p><u>Industry Applied Research and Symbiosis Programme</u></p> <p>Industry to provide and demonstrate examples of best practice with opportunities to develop a symbiosis programme around water. To look at the movement and recycling of water to make best use of the resource.</p>	Medium			

Theme 2 – Water provision for growth		Timescale	Growth Benefits	Potential Funding	Leadership
Name					
<u>Water Storage and Fish Farming</u>	To supply water and farm fish within 1 to 3 years through provision of reservoirs and lagoons. Aquaculture industry to be supported by Environment Agency, Natural England, NFU and Anglian Water. Likely need for permitting and abstraction licences and further detail required from this industry sector as plans emerge so most appropriate support around growth can be provided.				
<u>Cluster Farms</u>	Support bids under the Countryside Stewardship – Natural England. Manage own water resource on a local level.	Short		Countryside Stewardship Facilitation Fund Defra	Natural England LEP role to identify and communicate the opportunity
<u>New Reservoir for Greater Lincolnshire</u>	Linkages to be made with the Water Resources East Anglia (WREA) project for long term potential projects which may also bring benefits around biodiversity, green infrastructure and tourism	Long term			Anglian Water
<u>Water Transfer and Aquifer Recharge</u>	To map out opportunities to link excess and deficits around water, incorporate SuDs features.				Parties involved to include Internal Drainage Boards, Environment Agency, Anglian Water, Lead Local Flood Authorities and NFU.
<u>Multi Stakeholder Reservoirs</u>	To provide winter storage and provide water for agriculture and environmental (and possibly domestic) needs (the South Forty Foot and South Lincolnshire Fens Partnership areas with potential). Linkages to be made with the Water Resources East Anglian (WREA) project.	Medium – Long (potential output of Black Sluice project)	Security of water supply will encourage investment in the agri-food sector. Done well integration of ecological benefit create natural environment tourism		Parties involved to include FWAG, Internal Drainage Boards, Environment Agency, Natural England, Wildlife Trusts, Anglian Water and NFU.

Theme 2 – Water provision for growth				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<u>Internal Drainage Board Boundaries</u> Generic proposals for the expansion to cover 100% of Greater Lincolnshire with levy rates to all land owners raising £4/5 million per year. This can then be used to fund strategic projects, but this would require Defra approval. Timescale approximately 3 years.	Medium			Leadership Devolution

Theme 3 – Flood Risk Reduction					
Name	Timescale	Growth Benefits	Potential Funding	Leadership	
<p><u>Wrangle Wash Banks Flood Scheme</u></p> <p>Deliver additional protection through the planned sea bank improvements (than that currently funded).</p> <ul style="list-style-type: none"> Following the December 2013 Tidal Surge, this area was shown to be vulnerable to erosion and overtopping with the consequence that residential properties, farm land and businesses are at an increased risk from overtopping and potential breach. Additional funding would allow increased bank raising increasing climate resilience, addressing sea level rise for the next 50 years. 	Short Term	Increased bank raising = increased investor confidence in area	Total cost = £1.5m EA FDGiA = £1m ERDF – PA5 (Promoting climate change adaptation, risk prevention and management) = £0.5m match	Witham 4 th IDB lead EA LCC	
<p><u>Haven Banks (Boston) Flood Scheme</u></p> <p>Deliver additional protection through the planned Haven Bank improvements (than that currently funded)</p> <ul style="list-style-type: none"> Following the December 2013 storm tidal surge, the Haven Banks came very close to overtopping, as a result the Haven Banks were surveyed and areas of low spots identified where banks raising is needed to achieve the required standard of protection. The consequence of these defences being overtopped leading to a breach would severely impact on the town and surrounding agricultural land. Additional funding would allow increased bank raising, increasing climate resilience, addressing sea level rise over the next 30-60 years. 	Short Term	Increased bank raising = increased investor confidence in area	Total cost =£3m EA FDGiA =£2m ERDF – PA5 (Promoting climate change adaptation, risk prevention and management) = £1m EU	LCC EA	

Theme 3 – Flood Risk Reduction					
Name	Timescale	Growth Benefits	Potential Funding	Leadership	
<p><u>Sustainable Management of the open coast from Saltfleet to Gibraltar Point Flood Scheme</u></p> <p>R&D to identify, agree and plan delivery for the sustainable management of tidal flood risk following the current Lincshire Extension programme. This could involve:</p> <ul style="list-style-type: none"> • Trialling of alternative options for future coastal management strategy to inform the current review of flood risk management for future implementation. -- Exploring innovative funding - Exploring innovative governance arrangements - Agreeing an approach and implementing from 2021 - Preparing an Action Plan 	Short to Medium Term	R&D – Investor confidence. Longer term solutions – development of the coast – linked to the Coastal Vision work	Interreg – re learning about sustainable delivery and management of tidal flood risk FDGIA/ERDF for trialling of options	LCC/EA	
<p><u>Boston Marina</u></p> <p>Development of an inland waterways marina including the construction of new marina basin, and associated facilities including commercial, retail and improved visitor access highly desirable to achieve wider waterway objectives improving connections and use, with inherent economic benefits</p>	Medium to Long		RDPE	BBC	
<p><u>Gainsborough Marina</u></p> <p>Part of Riverside gateway brownfield development and regeneration site for residential and mixed use development and to create a marina with circa 200 berths. The marina would provide potential opportunities for flood alleviation and is highly desirable to achieve wider waterway objectives improving connections and use, with inherent economic benefits</p>	Medium to Long		RDPE	WLDC HCA LCC	

Theme 3 – Flood Risk Reduction					
Name	Timescale	Growth Benefits	Potential Funding	Leadership	
<p><u>Replacement of the Fossbank floodwall, Lincoln</u></p> <p>Provide a replacement purpose built watertight defence (adjacent to the Science and Innovation Park) to resolve the seepage, washout and structural risks associated with the current defence.</p>	<p>Medium</p>	<p>Directly it will improve protection for 23 commercial properties.</p> <p>If tied in with flood risk mitigation for the Science and Innovation Park it will help improve investor confidence.</p>	<p>EA FDGiA</p> <p>Growth Deal (potential for Science and Innovation Park)</p>	<p>EA</p> <p>GLLEP/LCC/University of Lincoln (Science and Innovation Park)</p>	
<p><u>Cleethorpes Flood Scheme</u></p> <p>Improve the flood defences on the North Prom in Cleethorpes to protect businesses and residential properties that are currently not being protected.</p>	<p>Long Term (2019/20)</p> <p>The area will be resurveyed by the end of the current 6 year investment programme. At this point more information will come forward about the scale of the flood risk and the scheme that will be needed.</p>	<p>The project will help attract the businesses needed to regenerate this part of the town and will contribute to growing the visitor economy in the GLLEP area</p>	<p>£300,000 Total Scheme Cost</p> <p>FDGiA may become an option in the future along with Private Sector funding.</p> <p>LGF could accelerate project</p>	<p>North East Lincolnshire Council</p>	

Theme 3	Name	Timescale	Growth Benefits	Potential Funding	Leadership
	<p><u>Washingborough and Willingham Fens Flood Scheme</u></p> <p>Delivery of multiple benefits by making space for water in Lower Witham downstream of Lincoln, involving land purchase and realignment of Witham Banks.</p> <p>The EA Witham Opportunities Study identified a number of projects that could potentially deliver flood risk benefit alongside wider benefits – a multi-functional approach. Further work demonstrated that the flood risk benefits to existing properties were minimal and therefore limited FDGiA would be available – insufficient for the EA to progress. However, other partners may wish to progress.</p> <p>Potential benefits could include: surface water attenuation for the significant growth around Lincoln (including eastern bypass), green infrastructure provision for the increased population, improved green tourism offer (supplementing Whisby Nature Park to the west and the Fens Waterway Link to the east and south), and water storage.</p>	Long Term	Multiple Benefits Pilot ?? implement		Partners to be determined
	<p><u>Killingholme Marshes Drainage Improvements</u></p> <p>Construction of a pumping station and drainage solutions to facilitate further development of the South Humber Gateway (SHG). The SHG is strategically important to the region and the UK economy overall. It forms the largest area of any Enterprise Zone in the UK. It will prevent future flooding of industrial land and property, ensuring established businesses can remain and future developments to secure future inward investments can go ahead on the SHG.</p> <p>North East Lindsey Drainage Board is responsible for providing the public service in land drainage and flood protection within the specified area.</p> <p>Funding – Project Total £5,450,000</p>	Short Term	Investor confidence.	ERDF Grant approval, contribution of £2,316.293 from Able Humber Ports Ltd	North Lincolnshire Council – also submitted to the Humber LEP ESIF Call

Theme 3 – Flood Risk Reduction				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>A1077 Highway Improvement & Flood Alleviation Scheme South Ferriby</u></p> <ul style="list-style-type: none"> • Construction of the diverted carriageway onto a suitable embankment, to be designed by NLC/EA. • Erosion is putting pressure on the need to deliver flood protection works on the frontage from South Ferriby Cliff to South Ferriby Sluice. • Flood risk reduction to the village of South Ferriby will be provided by the delivery of the proposed flood embankment towards Ferriby Cliff, around the River Ancholme sluice. 	Long Term	Flood protection for businesses and residential properties. Investor confidence. Serving dock and road.	Possible ESIF bid to be submitted depending on timescale and DfT Challenge fund	North Lincolnshire Council
<p><u>East Halton (North Killingholme) Flood Defence Scheme</u></p> <ul style="list-style-type: none"> • 2km of tidal defences improved. • 4 major existing employment sites will be safeguarded. • Nationally significant assets and infrastructure will be safeguarded. • The physical works to strengthen and improve the existing tidal defences and raise defences in line with sea level predictions to last 100 years. <p>Total Project Cost - £13,000,000</p>	Short Term	Investment confidence.	Funding Bid - £7,800,000 Public Match Funding - £4,100,000 Private Match Funding - £1,100,000	North Lincolnshire Council – also submitted to Humber LEP ESIF Call

Theme 3 – Flood Risk Reduction				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>Lincolnshire Lakes Blue & Green Infrastructure Offer</u></p> <p>This scheme will deliver the first of five lakes to kick start the transformational Lincolnshire Lakes Project. The lake will serve a multifunctional purpose, delivering a stunning waterside setting for housing, recreational opportunities and the surface water management.</p>	Short to Medium Term	The lake will be used for flood water storage to ensure safe housing development can take place	Growth Deal - £2m Private Match Funding - £3,724,401	North Lincolnshire Council
<p><u>Immingham Docks (phase 1) – replacement of the lock gates and improvements to the immediate lock frontages</u></p>	Short Term (2016)	The Port of Immingham makes a crucial contribution to economic growth throughout the Humber and North East Lincolnshire. It is vital that the port is protected from flooding as it has vital supply chains in the borough and the Humber. The scheme would also benefit residential properties in the town	£2.5m FDGiA £m Private Sector contribution £4.5m Total Scheme Cost	North East Lincolnshire Council

Theme 3 – Flood Risk Reduction					
Name	Timescale	Growth Benefit	Potential Funding	Leadership	
<p><u>Immingham Docks – 2nd Phase</u></p> <p>The Port of Immingham makes a crucial contribution to economic growth throughout the Humber and North East Lincolnshire. It is vital that the port is protected from flooding as it has vital supply chains in the borough and the Humber.</p> <p>Total Scheme Cost - £9.5m</p>	Medium Term	<p>The Port of Immingham makes a crucial contribution to economic growth throughout the Humber and North East Lincolnshire. It is vital that the port is protected from flooding as it has vital supply chains in the borough and the Humber. The scheme would also benefit residential properties in the town.</p>	<p>£3.45 ERDF</p> <p>Other funding sources identified FDGiA and LGF and Private Sector contributions</p>	<p>North East Lincolnshire Council</p> <p>Ask of ERDF</p>	
<p><u>Humberston Fitties</u></p> <p>A section of defence from the 1960s was found to have been damaged by high tides in September and October 2015 and as a result it is now failing. Other sections of defence from this time are now coming to the end of their operational life and need replacing.</p> <p>The scheme has only recently been identified and as such more work is required to further develop the proposal.</p>	Medium to Long Term	<p>Humberston Fitties is a chalet park. It is an important part of the visitor economy in Cleethorpes. Doing nothing would likely see the defences breach in 203 years which would severely damage the chalets impacting on the local economy</p>	<p>£10m Total Scheme Cost</p> <p>Funding sources identified include ERDF, FDGiA and LGF and Private Sector contributions. These need to be investigated further as the scheme develops.</p>	<p>North East Lincolnshire Council</p>	

Theme 3 - Flood Risk Reduction				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>Lower Kingsway</u></p> <p>Part of a wider regeneration programme for Cleethorpes that includes: Public realm works, improved visitor economy to the north of the resort through improved business opportunities and growth in employment.</p> <p>Flood protection – Protects the land and buildings against erosion. Can prevent coastal flooding in some areas.</p> <p>Total Scheme Cost - £3m</p>	Long Term	Investment confidence	Other funding sources identified FDGiA and LGF and Private Sector contributions. Currently sits outside the 6 year Investment Programme (Defra)	North East Lincolnshire Council
<p><u>Terminal Groyne</u></p> <p>Deteriorating condition of Terminal groyne could exacerbate damage to sea wall which could lead to a breach and resultant loss of promenade, businesses and flooding to the coastal flood plain behind.</p> <p>Replacement of the timber Terminal groyne will help maintain sand levels which in turn greatly increases the standard of protection provided by the sea walls.</p> <p>This project links with the wider regeneration of the North Prom area of Cleethorpes.</p>	Long Term	Investment Confidence, Coastal Protection	£464,000 FDGiA £15,000 Local Levy £271,000 IDB Precept	
<p><u>Boston Barrier</u></p> <p>When the barrier is built and the banks immediately downstream are raised, Boston will be protected from a tidal surge with a 0.3% annual probability (or 1 in 300 chance of happening in any one year). Unfortunately, we cannot protect against the most extreme tidal surges, but the barrier will protect Boston in most cases and give the town one of the best standards of protection against tidal flooding in the country.</p>	Short to Medium 2019		FDGiA	EA

Theme 3 – Flood Risk Reduction					
Name	Timescale	Growth Benefits	Potential Funding	Leadership	
<p><u>Western Growth Corridor</u></p> <p>The WGC is a strategically important Sustainable Urban Extension necessary to facilitate the growth of Lincoln. This development will require significant investment to manage the risk of flooding.</p>			ERDF - £28m	EA	
<p><u>Keadby Terminal Assisted Outfall (Keadby Pumping Station)</u></p> <p>Review and refurbish or replace current life-expired terminal pumping station in line with recommendations of Isle of Axholme Strategy. Options are currently being assessed to identify best solution that will:</p> <ul style="list-style-type: none"> • Reduce pumping costs • Reduce carbon footprint • Reduce management needs by improving automation • Improve resilience and reduce maintenance needs <p>Potential cost Capital Maintenance - £5m - £7m Major Capital – up to £40m</p>	Short – Medium Capital maintenance 2015-2018 Major capital 2018-2021	Flood protection for businesses and residential properties. Investor confidence.	FDGiA available. Other funding still to be identified as part of business case and delivery strategy.	EA Potential Partners IDBs NLC	
<p><u>Tidal River Trent, Susworth Defences Improvements</u></p> <p>Review and refurbishment of embankment defences alongside Tidal River Trent (East bank) with comparison against recent modelling and Tidal Trent Strategy. Objective is to maintain existing standard of defence and secure asset condition for the future.</p> <p>Potential cost up to £10.5m</p>	Medium Implementation phased 2021-24	Flood protection for businesses and residential properties. Investor confidence.	FDGiA available. Other funding still to be identified as part of business case and delivery strategy.	EA Potential Partners NLC WLDC Lincolnshire CC	

Theme 3 – Flood Risk Reduction				
Name	Timescale	Growth Benefits	Potential Funding	Leadership
<p><u>Isle of Axholme Asset Improvements, including Pumping Station Refurbishment Programme</u></p> <p>Sequential programme of works, amalgamated from individual projects proposed by EA and IDBs, to review assets and pumping stations in line with recommendations of Isle of Axholme Strategy. Optimum solutions will:</p> <ul style="list-style-type: none"> • Reduce pumping costs • Reduce carbon footprint • Identify appropriate management by sharing resources • Improve resilience and reduce maintenance needs <p>Potential cost Up to £15m phased 2015-21 Up to £200m phased over next 10-15 years</p>	<p>Medium implementation phased 2015-21</p> <p>Long implementation phased 2021-35</p>	<p>Flood protection for businesses and residential properties.</p> <p>Investor confidence.</p>	<p>FDGiA available.</p> <p>Other funding still to be identified as part of business case and delivery strategy.</p>	<p>EA & IDBs</p> <p>Potential Partners</p> <p>NLC</p> <p>WLDC</p> <p>Lincolnshire CC</p>

