

Taking a Strategic Approach to Investment in FCERM

Project Summary and Lessons Learned

Final Report

November 2012

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The following organisations comprised the Project Board and have formally approved the document for public release:

- Defra
- Environment Agency
- Local Government Association
- JBA Consulting

Our thanks go to all those who have contributed to the development of this report and the other output from the project, particularly the Lead Local Flood Authorities contributing to the case studies.

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1. Introduction and Background

“Risk management authorities should be encouraged to consider all future investment needs, for all sources of flood risk (and coastal erosion if appropriate), as part of the local flood risk management strategy required under the Flood and Water Management Act. Some investments within a Local Strategy will score more highly than others against the new funding criteria, with some projects qualifying for 100% funding, and others less.”

Defra (2011) Flood and Coastal Resilience Partnership Funding policy statement, May 2011.

Deciding on which flood risk management schemes (or options) are suitable for investment will need to include testing the local appetite for reducing the risk against the ability or willingness to fill any funding gap. The desired policy change is set against a backdrop of limited resources and low economic activity. This reinforces the need for a Local Strategy to be based on a view of strategic investment choices. – An underpinning investment plan can be drawn up to explore the benefits of potential funding opportunities, to set achievable targets over the plan period and to explore “what if” scenarios related to funding availability.

Who should read this?

This work should be of interest to all those involved in strategic planning and funding of flood and coastal erosion risk management (FCERM or FRM).

Lead Local Flood Authorities (LLFAs) should build towards understanding the full programme of FCERM measures that could be carried out in their area. , Strategic assessment, planning and funding prioritisation can then be considered. Otherwise funding opportunities will be missed, holistic flood risk management approaches not realised and an inconsistent and opportunistic approach becomes the default.

This report, and the associated project dissemination activities, should be of interest to all those with a role to play in funding FCERM.

Research aims

The aims of this research were to establish case study examples and lessons that arise from helping LLFAs to take a strategic, long-term approach to investment planning in their areas. Local Investment Plans were developed taking into account Defra’s [Flood and Coastal Resilience Partnership Funding](#) policy and the responsibilities Lead Local Flood Authorities (LLFAs) have under the Flood and Water Management Act (FWMA). The Investment Plans considered schemes relating to all sources of flood risk, including coastal erosion if appropriate, and explored funding opportunities to meet the identified investment priorities.

Ten LLFAs were recruited by Defra to initially take part in the study. This was quickly reduced to eight, and most of these progressed as far as was possible, helping the

contractor team develop tools and guidance related to strategic investment in FCERM. Three case studies were developed as far as producing a draft Investment Plan.

Related information and research

This research compliments other activity and guidance reports issued by Defra, LGA and the Environment Agency, as described below.

Table 1: Related R&D and sources of information

The Local Government Association Knowledge Hub website is a useful source of information and knowledge sharing for local authorities and others working with them in the field of flood risk management	
The LGA document Framework to assist the development of the Local Strategy for Flood Risk Management provides practical advice.	Considering funding and developing an FRM Investment Plan should both inform and result from a Local Strategy. Funding availability should be kept in mind when developing the scope for a Local Strategy and the scale of potential interventions. A detailed Investment Plan may be a key output from a Local Strategy.
Defra and Environment Agency LLFA capacity building. Email for information on forthcoming capacity building events.	The tools developed in this research need to support existing capacity building efforts. Relevant strands of capacity building include Local Strategy development, FRM project appraisal and Flood Defence Grant in Aid (FDGiA) funding applications.
Defra R&D FD2643 - Partnership funding and collaborative delivery of FRM: a practical resource for LLFAs . Also, LGA document " Securing Alternative Funding Sources for FCERM "	FD2643 provides a useful guide to LLFAs on partnership funding sources and how to achieve it. Knowledge on funding sources is a direct input in the design of an Investment Plan. An Investment Plan marries knowledge on what schemes are desirable with the available funding. The work in FD2643 has been integrated within FD2656 by the development of a "funding screening" tool that can be applied to each FRM scheme being considered. This draws heavily on the decision support tool within FD2643.
Surface Water Management Technical Guidance	Local strategies will have consideration of surface water and small watercourse management problems at their core. This guidance steers local authorities the cycle of identifying and managing such problems. However, many surface water flooding problems are linked to other sources, typically tidal and fluvial. Combined technical and funding strategies are needed to tackle such problems. This R&D provides tools which establish the value of collaborative approaches.
Defra R&D FD2635 Schemes with multiple objectives and funders – guidance and lessons learned And Understanding the business case for surface water management schemes in comparison to other flood and coastal schemes	The research presents a range of coastal case studies examining the funding of schemes with multiple objectives. A separate study was also completed within the project examining the economics of typical surface water schemes, concluding that they often do not compare favourably in value for money terms with fluvial or coastal schemes. Strong partnerships and strategies considering multiple sources in an integrated way were the best means of tackling this issue. These themes are strongly linked with FD2656.

<p>Local Government Group Local Flood Risk Management Partnership case studies</p>	<p>Forming partnerships is an essential element of developing and delivering improved local flood risk management. These case studies provide information on successful existing partnerships. This includes Cambridgeshire Flood Risk Management Partnership, one of the case study partners for FD2656.</p>
<p>Environment Agency guidance on FRM project funding and project appraisal. The funding web page provides a range of useful guidance on partnership funding, applying for FDGiA and the FDGiA calculator tool (recently updated).</p>	<p>FDGiA remains at the core of FRM project funding. An understanding of this funding route and the required project appraisal that is required as a part of it is essential for LLFAs and developing a successful Investment Plan. The tools developed in this R&D assist LLFAs in developing knowledge in both areas.</p>
<p>Environment Agency's Long Term Investment Strategy .</p>	<p>This strategy sets out the Environment Agency's evidence and views on the choices faced concerning the investment needed to manage flooding and coastal erosion up to 2035. It includes information and case studies on raising support and funding locally, ideas for ways to manage flood and coastal erosion risk more efficiently and an analysis of the scale of investment needed and the benefits that would result.</p>

Case study partners

The following case study partners worked with the JBA team in delivering the R&D:

Cambridgeshire County Council	Cornwall Council
East Sussex County Council	Kent County Council
Newcastle City Council	Northamptonshire County Council
North Yorkshire County Council	Slough Borough Council

Further information on the characteristics of each case study is included in Appendix A.

Programme, outputs and further information

The project started in October 2011. Since then the case study partners have collated the information needed to develop pilot Investment Plans (schemes, benefits, costs, Outcome Measure score, potential alternative funding etc.). The R&D contractor team has shadowed and guided the case studies and developed tools to assist.

The project culminated in a phase of matching LLFA FRM aims with potential available funding. A range of scenarios were examined within each case study and supporting tools developed tested and refined.

The project team disseminated the findings of the R&D via the Environment Agency's FCERM 2012 workshops, held October 2012.

Project oversight and contacts

This project was funded by Defra within the joint Defra / Environment Agency Flood and Coastal Erosion Risk Management (FCERM) Research and Development programme under the Strategy and Policy Development (SPD) Theme. Further details of the programme are available from the Environment Agency's [website](#).

This project was governed by a Project Board that included Defra, Environment Agency and the Local Government Association and was part of the joint Defra and Environment Agency FCERM R&D programme.

The Project Board comprised:

Daniel Johns	Defra, Project Lead
Elsie Wuche	Defra
Konrad Bishop	Defra
Jo Allchurch	Local Government Association
David Murphy	Environment Agency
Richard Walker	Environment Agency

The contractor team was led by Kevin Keating and Jonathan Cooper of JBA Consulting.

Contact [Daniel Johns](#) at Defra for further information.

2. Key Benefits – Understanding an Investment Plan

Investment Plan in outline

Defra introduced Resilience Partnership Funding for FCERM in May 2011. The partnership policy means Government money (Flood Defence Grant in Aid) is potentially available to meet the costs, partially or in full, of any economically worthwhile scheme, instead of meeting the full costs of just a limited number of schemes. The level of funding of any scheme is now based on the outcomes and benefits being delivered. The Partnership Funding policy context and FDGiA processes are explained on [Defra's](#) and the [Environment Agency's](#) websites.

In total, around £180~210 million per annum is made available by Defra to schemes via FDGiA during the current spending period. A further £30 million (approx.) per annum is available in the form of RFCC Local Levy. In 2012/13 around £25 million of external contributions are forecast, with more expected in future years. This creates a total funding pot for new FCERM projects of £260 million per annum and potentially rising.

LLFAs now have a local leadership role for flood risk management in their area. £36 million per annum is provided by Defra to LLFAs to support this and invest in small-scale local flood risk management works. LLFAs are required under the Flood and Water Management Act 2010 (FWMA) to produce a Local Flood Risk Management Strategy. Government policy is set against a backdrop of limited resources and low economic activity.

Therefore, the development of a Local FRM Strategy needs to engage stakeholders in the flood investment decisions that affect them. Within this process, developing options for investment will need to test the local appetite for reducing the risk against willingness to meet any additional costs not covered by central government support via Flood Defence Grant in Aid. This could either be completed on a scheme by scheme basis (as is the current situation) or move toward a more strategic approach. The latter requires the LLFA and its funding partners to work towards tackling FRM issues on a holistic and consistent basis across the LLFA area. This is challenging and may not necessarily help realise funding in all cases. However, it does offer potential to lever in more FRM funding and deliver more from the FDGiA system. FDGiA will not be enough for most schemes. It is also worth emphasising that with money comes influence - local engagement and democratic processes will be vital when seeking support and funding in future.

Hence, the Local Strategy will benefit from a strategic Investment Plan to ensure funding will be available to support the management of flood and coastal risks and ensure the objectives set in the strategy are affordable and deliverable. Funding shortfalls need to be identified and potential funding opportunities explored in terms of the benefit that could be delivered. A local Investment Plan would assess the local appetite for investing in

FCERM. The Investment Plan can also to explore “what if” scenarios related to funding availability, allowing the LLFA to be ready to make decisions if the funding picture changes. Targets can then be set over the Local Strategy plan period.

In essence, the purpose of an Investment Plan would be to assess the challenges of funding local FRM projects, balancing the benefits of tackling each source of risk over time against the national and local costs of doing so. A good Investment Plan will create:

- Legitimacy and support through good engagement amongst key decision makers, partners, communities and other stakeholders. It should provide a means of engaging with local communities on their FRM aspirations and issues of affordability.
- Enhanced recognition of the benefits of FRM within LLFAs and district councils.
- More effective and transparent prioritisation between potentially competing projects throughout the county and district or borough, and also between projects tackling different sources of risk.
- Realism regarding what is likely to be viable and therefore a more robust recommended package of FRM measures. The Plan should include assessment and documentation of the LLFAs proposed response to changes in the funding outlook.
- A compelling business case for external contributions and other local investment, by showing that relatively small amounts of local investment over time may have a big impact in terms of long-term residual risk for each sector and area, with implications for local employment, property and land values, and insurability.

When should it be used?

Given the criticality of funding availability in the current climate it is recommended that the analysis of investment opportunities is considered in parallel with the development of a Local Strategy.

First iteration: A first iteration of an Investment Plan at the start of a Local Strategy will help. It would identify key funding partners and their investment programmes. It would also help scope the range of flood risk management issues and measures being considered, tailoring the Local Strategy to suit the funding outlook.

Change in circumstances: Important events will happen during the evolution of a Local Strategy. This may be a flood event mobilising community and local political support for action, or a change in the technical evidence base (e.g. in the predicted level of flood risk at key locations), a change in availability of government FRM funding or some other funding source. As funding opportunities will influence Local Strategy then such changes need to be reviewed as they occur. Having an

adaptable local strategy will allow new opportunities from external funding, such as new development to be captured.

Strategy implementation: An Investment Plan is an integral planning document that will show how the Local Strategy objectives will be met and actions paid for. Again, circumstances can still change and an Investment Plan will need to cater for this. It seems likely that gaining entry to the MTP and accessing GiA (see below) is likely to remain challenging and having a Local Strategy in place will be vital.

Medium Term Plan / FRM1 form: Each year (in June this year), LLFAs provide the EA a list of schemes for which they are seeking GiA or RFCC Local Levy. This is done via the FRM1 form, called the Medium Term Plan or MTP form. This requirement is an appropriate reminder to refresh the Investment Plan. Having an up to date Investment Plan should provide the information needed to make the FRM1 / MTP process straight-forward and also mean that the MTP submitted is more robust.

Tailoring to suit different types of Local Strategy

Local strategies will take various forms to suit local circumstances and needs. The broadest will include a review of all sources of flood risk and helping the LLFA take on the lead role in tackling flood risk within their communities. Whereas others will focus on developing an approach to tackling only “local” sources of flood risk, leaving the strategies of other RMAs (e.g. the Environment Agency) to deal with other issues separately.

The more holistic (all flood sources) strategy is encouraged by Defra’s partnership funding policy. However, the Investment Plan template and tools developed to assist LLFAs are flexible. It should be possible to complete a relatively narrow Local Strategy and then consider the recommendations of this together with other RMA strategies within a single Investment Plan framework.

Some piloting of approaches to this may be beneficial.

Who should be involved in developing an Investment Plan?

The Investment Plan should be owned by the local flood risk management partnership, including support from the RFCC and any other key funding partners. The LLFA, supported by the Environment Agency’s Partnership and Strategic Overview Team, will be at the core of delivering an Investment Plan, but any organisations or groups with a works programme that presents opportunities or constraints for FRM should be engaged. The most notable examples of this are water companies, others in the Environment Agency (e.g. ncpms, WFD related) and regeneration and financing teams within local authorities (e.g. in relation to CIL or other local government project financing routes).

3. Project Outputs

Expectations

The expectations in terms of project output were set out in the project requirements. The following main final outputs were specified:

1. Prepare a template Investment Plan document. This is to be based on lessons that arise from helping a sample of lead local flood authorities (LLFAs) to take a strategic, long-term approach to flood risk management investment planning in their areas.
2. Complete a quantified analysis of the potential for how local funding may be raised to meet any expected shortfall in national funding for local priority schemes. This includes contributions from private beneficiaries, RFCC local levy, Community Infrastructure Levy, a Business Rate Supplement and a Council Tax precept.
3. Develop a spreadsheet-based financial modelling tool to present investment option analysis, allow scheme data and the assessment of funding sources to be brought together for each LLFA and presented in a consistent manner.
4. A series of case study reports.
5. A synthesis and lessons learned report (this report), to draw together overall conclusions and lessons that may be useful for others considering whether to pursue taking a strategic approach to local investment in their area.
6. A PowerPoint slide pack to help summarise and communicate the outputs, achievements and lessons from the study to a wider audience. This has been provided to the Project Board as a separate document and was used in the Environment Agency's FCERM 2012 conferences.

As the project progressed, it became clear to the contractor team that LLFA needs were broader than expected and the project outputs were enhanced to reflect this. The key issue that arose was that many of the case study partners were not as progressed as anticipated in terms of a collated programme of flood risk management schemes. Linked to this there was a general absence of scheme benefit and cost information, both of which are essential for an understanding how much GiA may be applicable. To compound this further, awareness of FCERM appraisal techniques was sometimes limited. As a result, the following templates and tools were developed:

- Maps of where FDGiA opportunities may be strong within the LLFA. This was completed as a trial to explore what utility could be gained to LLFAs from analysing readily available spatial GIS data in a way that highlights where risk reduction might deliver strongest performance in terms of achieving Defra's desired Outcome Measures. This was presented together with standard flood risk data in a

Geospatial PDF format, which is a readily accessible format retaining some GIS software functionality.

- A template spreadsheet for capturing potential FCERM schemes, including useful information and that vital in order to assess what FDGiA may be available.
- Two “picklist” tools were developed to help provide a first cut (i.e. rough) estimate for scheme costs and benefits. These included guidance and links related to approaches to appraisals and in part were developed in order to help capacity building within LLFAs.

In summary, the research has included developing and road testing ideas and tools to help those involved in FRM and investment planning. The key outputs are:

1. The development of **flow charts** designed to guide the development of an Investment Plan, including important links to the Local Strategy, national and local data, and any new work required to form the Investment Plan.
2. Trialling development of “**FDGiA opportunity maps**” as referred to above.
3. Supporting tools to help prepare for using the Funding Share Tool and developing an Investment Plan (see below), including:
 - a. A spreadsheet tool that captures the information needed for LLFAs to fulfil their role in coordinating local FRM: documenting all short, medium and long term FRM activity across the full range of sources of flooding: a **FRM “schemes list”**. **
 - b. Supporting spreadsheet based tools to enable quick “first cut” scheme cost and benefits estimation for FRM schemes / actions (scheme **Costs and Benefits Picklist**), as described above.
 - c. A spreadsheet scheme funding source screening tool. The output from this screening is reworked in the Funding Share Tool in order to suggest how funding gaps could be filled.
4. Development of a spreadsheet based Investment Plan “**Funding Share Tool**” that takes the preferred package of schemes, local priorities, potential GiA and local funding contributions and allows alternative investment assumptions and preferences to be tested. The output from this tool is a list of FRM actions / schemes that can be supported (and remaining funding gaps) based on postulated available funds and the preferred scheme prioritisation.
5. A template for the **Investment Plan**, including suggested content for each section. This was informed by working with each of the case study partners. This was used by several of the case study partners and LLFA Investment Plans were drafted.

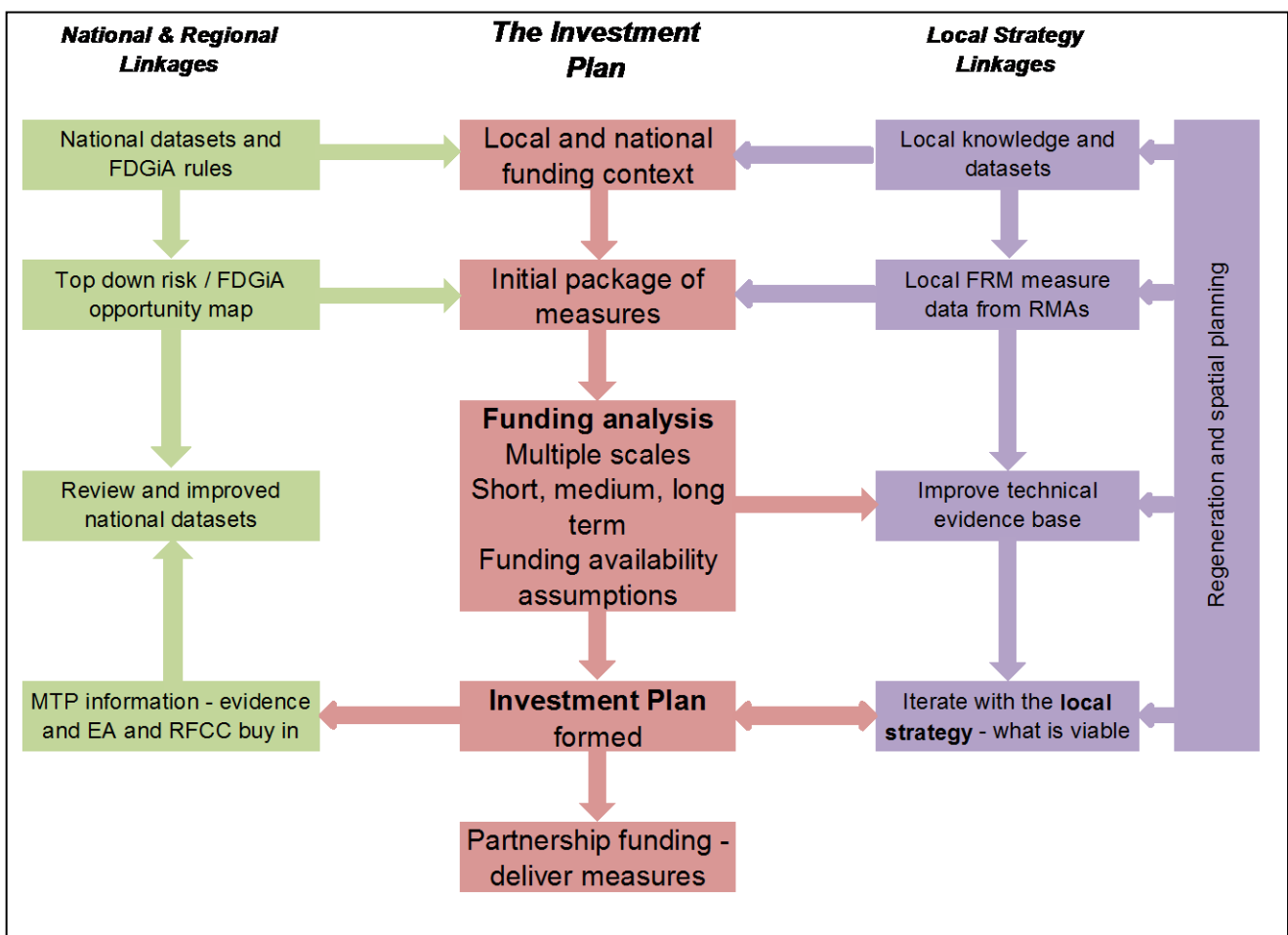
6. **Case study reports.** These are included in Appendix A. A feedback survey was also completed during the project. This reviewed the case study partner's expectations and impressions of the project as the final outputs were becoming clear. This is included in Appendix E.

***NB: Short, medium and long terms are defined differently than is normally the case when considering project funding. The short term may reflect the pressures of the current financial year or, at longest, the content of the Medium Term Plan required by the Environment Agency.*

Key Output 1: Links between a Local Strategy and an Investment Plan

Guidance was developed to assist the case study partners in establishing the linkages between their developing Local Strategies and the Investment Plans needed as output from this project. The flow chart and additional explanatory text below captures key aspects of the guidance provided.

Figure 1: Linkages and formation of an FRM Investment Plan



The top left hand side shows the linkages between an Investment Plan and regional and national datasets, and the bottom left with scheme approvals and access to GiA. The main report includes more information on the FDGiA opportunity mapping (refer to Key Output 2).

The right hand side of the flow chart is described in more detail below by answering a question: what should an Investment Plan include to help the formation of a Local Strategy (and vice-versa)? It is important that this is understood as this drives the content of the Investment Plan. The following key points are of note for both the Plan and Strategy:

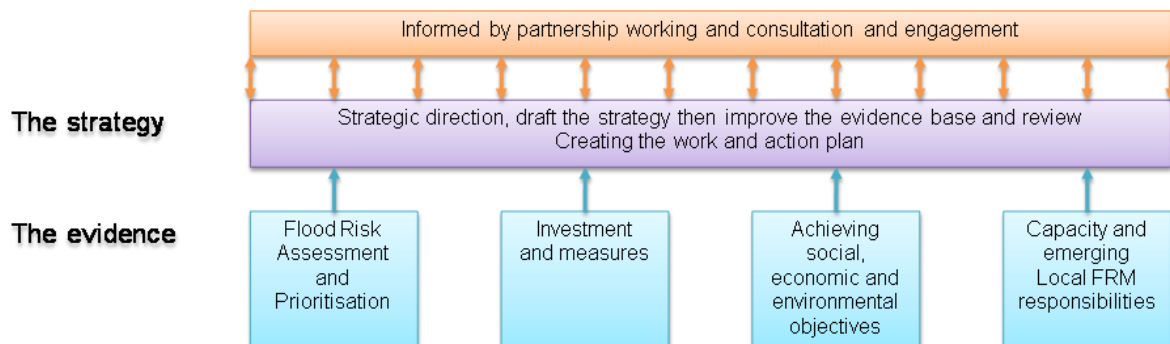
- Ideally it needs to include for all sources of risk, not just “local” (surface water, ground water and non main river) flood risk.
- It should have full LLFA wide coverage.
- It should establish a partnership arrangement including skills and knowledge sharing, data sharing, a decision making forum regarding all FCERM schemes within the LLFA, and pooled access to funding sources where possible.

The process of forming a group of FCERM measures that are collated / included within a Local Strategy (and Investment Plan) should be iterative. The following suggested steps are provided to aid thinking:

- Produce an early (and quick) draft of the Local Strategy (v1). Be confident about producing a Local Strategy with limited information. A first draft should provide an indication of the scale of the flood risk issues present, drawing heavily on existing information including Preliminary Flood Risk Assessments. This can then be used to establish the scale of the likely funding challenge. Key gaps in knowledge should be identified.
- Once a list or “package” of FRM schemes is formed, with the associated necessary economic and financial data, testing viability (i.e. fundability) can be explored. Fundamentally, the length and content of such a list depends local appetite to tackle problems and the funds available, which, of course, are linked.
- Consult with local decision makers, stakeholders and communities early. Crucially for an Investment Plan, this can be used as a litmus test to establish the appetite from potential beneficiaries and the wider community to reduce flood risk and prioritise investment in it. The appetite for enhanced action on FCERM may vary across the LLFA, especially in two tier settings. Following consultation, update the knowledge gap analysis.
- Work on the Investment Plan can then start, as potential schemes and an indication of the local appetite to manage flood risk has been established. Those responsible for drafting the Investment Plan can be tasked with exploring potential responses to fill a manageable funding gap. There is little merit in the Investment Plan including measures that clearly cannot be funded. The output from this stage will be a draft Investment Plan for internal consultation, perhaps in tandem with an updated (version 2) of the draft Local Strategy. The draft Investment Plan will include scheme specific information on funding gaps and potential sources.

- Consult on the draft Local Strategy (v2) and the draft Investment Plan with potential funding bodies. Collate feedback. Consider scheme deliverability and/or the scale or timing of the interventions proposed. More cost effective (or ambitious) solutions may need to be considered depending on feedback.
- Iteration 2 of the Investment Plan can then be produced. The Local Strategy may then be sufficiently robust and detailed for it to be formally approved and / or adopted.
- Repeat the above periodically. The Local Strategy will need to be flexible in structure as supporting documents will need updating relatively frequently, e.g. the Investment Plan.

The following flow chart captures the above and important related themes in producing a successful Local Strategy.



Spreadsheet tools (see Key Output 3 and 4 below) have been developed to assist in working through the framework set out. The iterative nature of this work should be recognised and LLFAs will need to work closely with other RMAs and various council teams in order to develop a Plan that is well founded.

Key Output 2: The “Risk Pack”, including FDGiA opportunity mapping

As a part of this R&D, the Environment Agency and contractor team wanted to explore whether national datasets (NaFRA, flood maps of fluvial, coastal and surface water), could be used to confirm or enhance LLFAs understanding the scale of flood risk and the FDGiA opportunities that may be present. This is also partly a “scene setting” exercise where all sources of flood risk are presented and their scale understood. This emphasises that the Environment Agency has a wealth of data and skills and access to this (e.g. via [Geostore](#)) could be an important way to start the development of a Local Strategy.

Opportunities to gain FDGiA are linked to delivery of Defra's Outcome Measures. These direct FDGiA funding to FCERM measures which are:

- Located in more deprived areas (OM2 / OM3).
- Move more people to a lower flood risk band (OM2 / OM3).
- Result in the greatest economic benefit (OM1).
- Benefit the environment (OM4).

Funding from partners and cost efficiencies (eg. in-kind contributions) help reduce project costs and therefore improve the overall score.

National datasets were used to identify which areas are most likely to achieve FDGiA based on the first two of these for fluvial and tidal flood risk. If thought useful, the approach could be extended to encompass other metrics for the remaining Outcome Measures.

The existing Medium Term Plan information was also captured within the maps. The location of established MTP entries provides a focus for assessing where schemes to tackle other sources of risk might be integrated into the MTP scheme option appraisal, or where seeking further contributions would be appropriate.

Various visualisation options were reviewed and it was decided that a [Geospatial PDF format](#) offered the best combination of accessibility and functionality to supplement providing the raw GIS data. Geospatial PDFs are based on a software platform that is highly accessible and yet allows typical GIS software functionality including interactive features (e.g. turning layers on/off, zooming and mapping scale adjustment, ability to query associated tabular data).

Further information and "screen shot" extracts are included in Appendix B to demonstrate the key features.

Key Output 3: FCERM Schemes List and associated tools

A template Schemes List Register was developed to assist in documenting measures for all sources and RMAs. The register draws on ideas provided by the LLFA case study partners and also ensures the necessary data is present to use the Funding Share Tool (see Key Output 4) and then generate the first iteration of an Investment Plan (Key Output 5). This register also includes the data likely to be required either for LLFA purposes in executing their lead role or needed in order to bid for funding.

When working with the case study partners it became apparent that LLFAs typically have reasonable awareness of the FCERM measures they would like to introduce but often lack the more detailed information needed to prioritise or assess their viability (e.g. outline

scheme costs, benefits or potential funding sources). In response, three tools were developed to assist LLFAs in generating “first cut” type data on scheme costs, benefits and funding. These are referred to as the scheme Costs Picklist, Benefits Picklist and Scheme Funding Screening Tool.

Together with the Schemes List Register, these picklist tools are embedded within a single spreadsheet, with data passing between each as appropriate. Like the Funding Share Tool, they are available separately from the Environment Agency’s external funding team.

An introduction to each tool is presented below.

Scheme Cost and Benefits Picklists

Both tools have a similar structure, allowing the user to pick from a list of unit costs / benefits as appropriate. The tools include cross references to information sources and further guidance (e.g. FCERM-AG). The tools provide initial estimates of Present Value costs or benefits in line with FCERM-AG and Multi-Coloured Manual high level approaches. This is particularly useful when such information is not already available within related strategic plans (SWMPs, CFMPs, SMPs etc) or detailed project appraisal.

The Cost Picklist is based on parallel Environment Agency R&D compiling existing data on FRM scheme costs in order to form a database and tools to aid in scheme costing in strategic settings (the “Long Term Costing” strand of work on MDSF2 – project no. SC080039).

The Benefits Picklist tool is based on data and methods presented in the Flood Hazard Research Centre’s [Multi-Coloured Manual](#) and the Environment Agency’s [FCERM-AG](#).

The Scheme Funding Screening Tool

The scheme Funding Screening Tool builds on the output from parallel research on funding sources (refer to [Section 1](#)). The output from this screening is reworked in the Funding Share Tool in order to suggest how funding gaps could be filled.

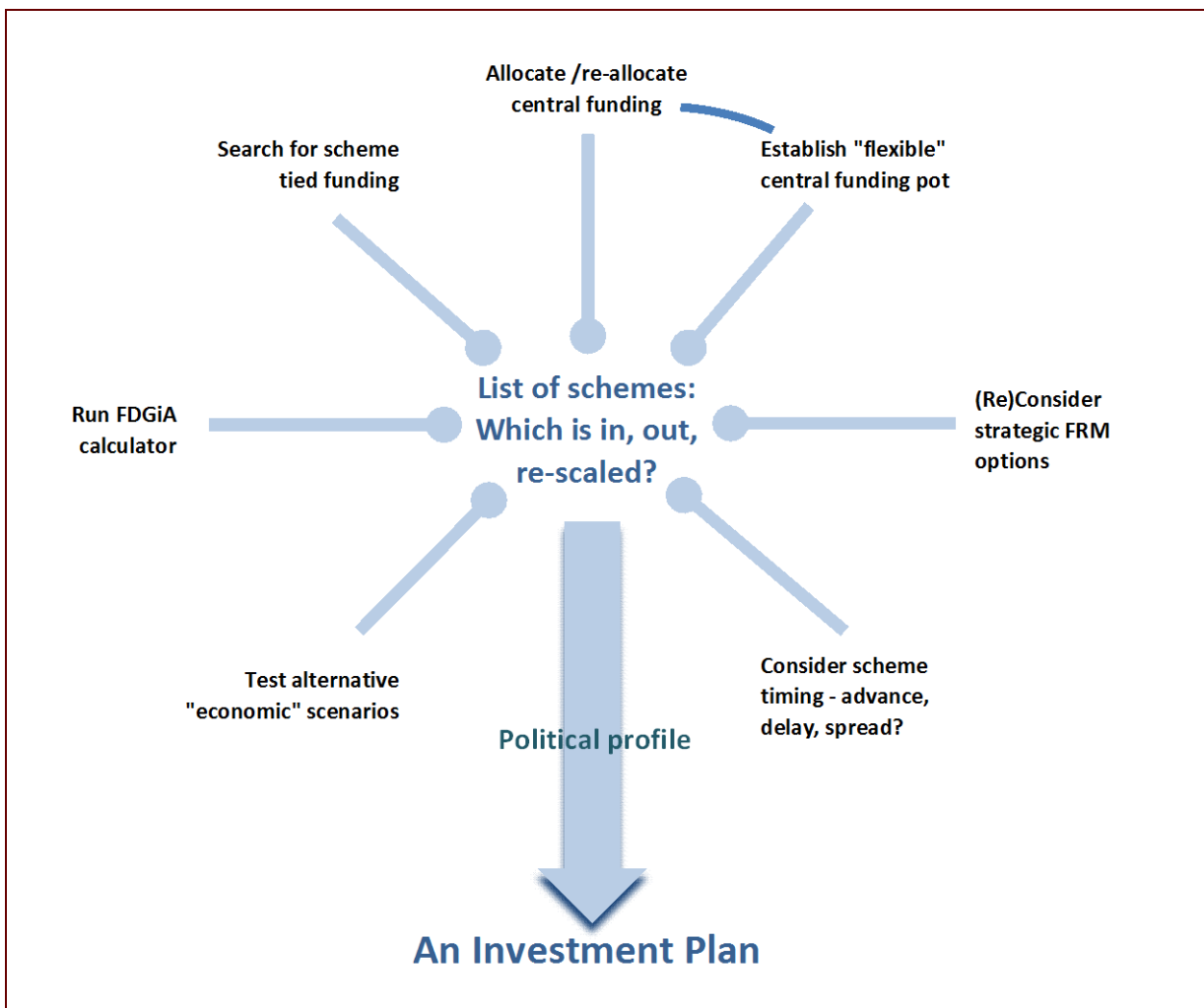
Key Output 4: The “Funding Share Tool”

The conclusion of an Investment Plan is sensitive to several factors, including:

- FDGiA availability – the adjusted OM score needed to attract government support now referred to as the Partnership Funding (PF) Score. The minimum PF Score for attracting FDGiA is 100% but in some years it may be higher if demand is strong. However, RFCCs have the discretion to prioritise any scheme scoring 100% or more into the funded list.
- Local economy - the strength of local economic activity will drive development led funding.
- Local priorities - local community and political priorities will drive the level of support given to FRM from local authority budgets and measures such as council tax.
- Chance / opportunism – flood events, major beneficiaries, multiple beneficiary schemes, regeneration opportunities etc. can arise and affect the ability to fund FRM.

The following flow chart presents the various aspects involved in developing an Investment Plan.

Figure 2: Considerations when forming an Investment Plan



Scenario testing is needed in order to develop a robust and flexible Investment Plan, answering key questions such as: if we wait until FDGiA may be easier to obtain, what

local savings could this bring, but at what risk to the community? Ranking schemes in terms of the strength of likely funding support and presenting funding gaps is needed and can be used to demonstrate the value of support from potential new funding partners (e.g. would a small additional investment raise the PF Score and lever in FDGiA support?).

The project team has developed a tool that provides a means of testing such scenarios. This was named the Funding Share Tool, reflecting the tool's ability to share out available funding in different user-specified ways. A screen-shot of the tool is included in Appendix C. It should be emphasised that using this tool and developing the content of an Investment Plan is an iterative process.

Key Output 5: A template Investment Plan

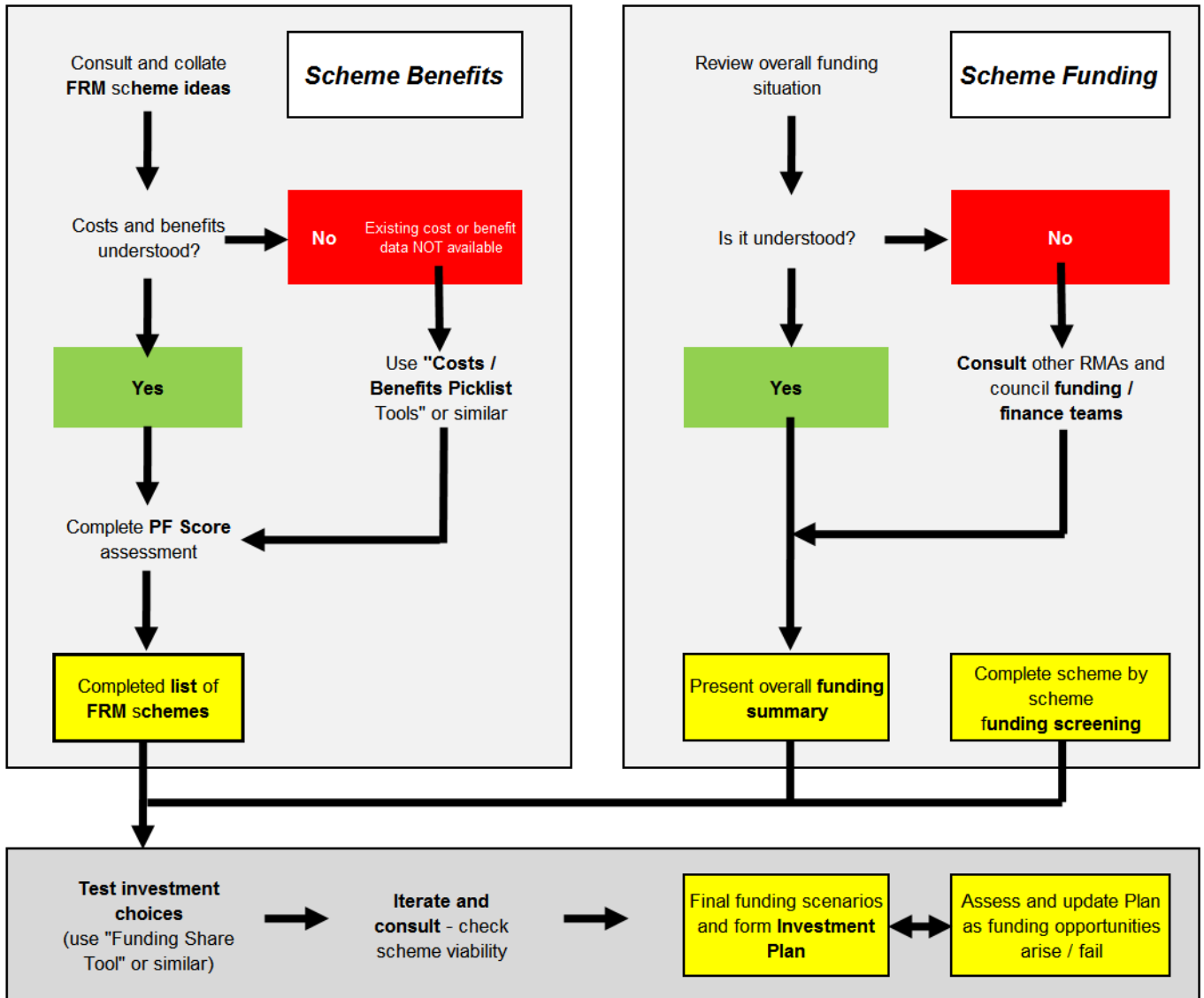
A Template Investment Plan

The final phase of the project involved using the tools to help develop Investment Plans for the case studies, including consideration of the scenarios discussed above. A template / skeleton Investment Plan was drafted (see Appendix D) and was tested using the case studies. The Investment Plan was designed in order to:

- Be accessible to a non technical audience, explaining some key FCERM terms and providing links to further information. This was done as many potential funders (who the report is targeted at) are not familiar with FCERM.
- Summarise the local flood risk context – for similar reasons as above.
- Clearly state a single set of schemes for which funding is sought, its amount and funding related actions needed to facilitate scheme delivery.
- Scenario testing related to alternative future funding outlooks. This was included as an appendix.

The flow chart presented below shows the planned approach for collating information, running the Funding Share Tool and preparing each Investment Plan. However, it should be noted that final iterative stages are only now underway as it was not possible for the LLFA case study partners to engage in the consultation needed within the time constraints of this R&D project.

Figure 3: Flow chart of processes leading to an Investment Plan



How much work is it?

Developing an Investment Plan should require very little additional work beyond what all LLFAs will need to do in order to deliver their Local Strategy and annual MTP updates.

It may, however, have an impact on the order in which tasks required for a Local Strategy are completed particularly if, as suggested, a first iteration is produced very early in the development of a Local Strategy. But as a result, the approach could enable efficiencies by focussing the Local Strategy on improvements that realistically can be delivered.

The tools developed should make producing an Investment Plan efficient, but it does rely on the existence of a coherent set of potential FCERM improvements. It is this area that was most time consuming for the LLFA case study partners associated with this research. The time taken to produce the first draft Investment Plan for each of the three case studies was relatively modest in comparison. This was most welcome and demonstrated the utility of the spreadsheet based Funding Share Tool. However, the Plans produced for this

research had no verification / consultation process within their production. The identification of an appropriate process and its execution will vary but could require considerable effort and ability to bring the Plan to a successful conclusion. This was emphasised by several of the case study partners particularly where the LLFA is in a two tier setting. The following table summarises the main tasks, timescales and potential time budgets.

Table 2: Investment Plan - indicative programme and budget requirements

Task*	Resource Needs	Programme Duration	Comment
* a, b etc indicates parallel tasks			
1a) Collate information on problem locations and potential schemes.	Variable. Between 0 and 15 days work.	0~1 month	Existing data.
1b) Consider review of national datasets, identify potential GiA opportunities.	0 ~ 15 days	1~2 months	The ease of provision and / or analysis of national datasets by the Environment Agency could be improved.
1c) Initial consultation and data gathering on local funding context.	5 days	0~2 months	Internal (finance, planning dept.) and external consultation with RFCC, Environment Agency, water company, district councils, IDBs etc.
2) Review and produce a schemes list, including key Partnership Funding data.	1~2 days	-	Complete with other local RMAs. A workshop?
3) Fill data gaps (e.g. use the Costs and Benefits Picklist and Funding Screening Tool).	5 days	2 weeks +	The time required depends on the level of detail thought appropriate. 2 weeks to use the picklist tools is reasonable.
4) Explore potential funding future funding scenarios (using Funding Share Tool or more specific and detailed assessment – e.g. CIL).	3 days +	2 weeks +	The time required depends on the level of detail thought appropriate. 2 weeks to use the picklist tools and convene a workshop with other RMAs is a reasonable minimum.
5) <u>Draft</u> Investment Plan.	5 days	1 month	This is a draft for consultation within the LLFA, districts, RFCC and other RMAs.
6) Consult and update Plan – achieve buy in from key decision makers.	10~20 days	2~3 months	RFCC, district councils, Environment Agency, finance dept. etc.
Totals	30~90 days	5 months +	

This table is based on the findings of the case studies. The lower end estimate (30 days) is probably a minimum input needed to complete a first iteration of the Investment Plan, which could be used by an LLFA to review its current position and help scope a Local Strategy. It is also likely to be a sensible estimate for completing a Plan after a Local Strategy, assuming a draft does not already exist.

It should be noted that several of the LLFAs involved did not see drafting an Investment Plan as a discrete or stand alone activity – instead they viewed it as an ongoing task integrated within their normal day to day activities. When events arise, such as the need to submit the LLFAs FRM1 / MTP to the Environment Agency, then it becomes easy to respond, rather than a substantial exercise in what could be regarded as “catching up” with what should already have been in place. Similarly, periodic updates to the Investment Plan will be linked to other local authority activity, such as work on local development plans.

Review of the case study Investment Plans

Three of the eight case studies were able to progress to drafting an Investment Plan. These were Cornwall Council, Northamptonshire County Council and North Yorkshire County Council. The Plans were completed in tandem with the relevant case study partners and the style of each varied somewhat to suit local preferences and needs. It proved impossible to produce Investment Plans for the other case studies, mainly due to insufficient data and capacity within the relevant councils.

Northamptonshire CC has used the outputs of the Investment Plan to inform their Local FRMS and further development of the investment plan will occur once feedback from the consultation on the Local FRMS is complete. The Cornwall, Northamptonshire and North Yorkshire draft Investment Plans are available from Defra’s website. The reader should be aware that these documents are published for the sole purpose of helping other LLFAs complete an Investment Plan and further iterations will be necessary.

The contractor and Project Board reviewed the three Plans at the end of the project and this has been captured in the following table.

Table 3: Review of the case study Investment Plans

a) Cornwall	Comments
Positive progress	<p>A much enhanced list of potential schemes is now available. First cut assessment of likely costs and benefits of potential short term schemes through use of the picklist tools.</p> <p>Partnership Funding Calculator Tool used to estimate FDGiA. Funding Share Tool used to test funding scenarios.</p> <p>The LLFA has gained considerably in terms of understanding the FDGiA and MTP processes, which are new to the LLFA since the abolition of two tier local government in 2009.</p> <p>A good partnership has developed with the Environment Agency, including monthly meetings on the MTP. Useful involvement of a member of RFCC in</p>

a) Cornwall	Comments
	discussions on schemes and their funding.
Position statement	<p>£12million capital requirement to deliver the LLFAs short term ambitions.</p> <p>The short term programme would reduce risk to approx. 700 of the nearly 55,000 residential properties at risk. A small proportion but perhaps appropriate given current circumstances. The sources of risk (largest first) are surface water, fluvial and then tidal / sea. The current priority schemes address river (fluvial) and coastal issues. The Council is concerned that it could be drawn into financial / other support of Environment Agency led schemes. The LLFA also plans to consider how to manage windfall funds that may arise – and how this can complement GiA.</p> <p>Internal discussions on funding contributions have commenced. Discussion with RFCC is needed on securing Local Levy.</p> <p>Cornwall Council considers the MTP process too complicated.</p>
Case study critique	<p>The case study has been useful in helping the LLFA develop capacity in appraisal techniques (which are new to them), partnership with the Environment Agency and their understanding of the MTP processes. However, modest progress was made during the project in terms of establishing where the contributions needed would come from – to supplement FDGiA. The Council may be too optimistic in its assumptions regarding FDGiA accessibility as well.</p> <p>Much like elsewhere, surface water flood risk is a challenge that has largely been set to one side up until now. It is by far the dominant source of risk, affecting over 43,000 residential properties. Further iterations of the Investment Plan and Local FRM Strategy will need to set out a strategy for dealing with this.</p>

b) Northants	Comments
Positive progress	<p>A much enhanced list of potential schemes is now available. First cut assessment of likely costs and benefits of potential short term schemes through use of the picklist tools.</p> <p>The Partnership Funding Calculator Tool was used to estimate FDGiA. The Funding Share Tool was used to test funding scenarios. Capacity in terms of scheme appraisal has developed considerably during the study, partly through using the Funding Share and Picklist spreadsheet tools.</p> <p>Very good partnership developed with the Environment Agency and internal finance and planning teams and some additional FRM funding secured. LLFA now confident they are taking the lead.</p>
Position statement	<p>Confirmation that FDGiA would be limited for Northants and its districts - it does not matter what approach is taken to the strategic distribution of funding that may be available. External contributions, development related FRM funding and use of Local Levy are vital.</p> <p>Internal discussions on funding contributions have commenced. Discussions with planning departments on synergy with development planning underway. Discussion with RFCC is needed on securing Local Levy. The LLFA will lobby hard to obtain an amount of Local Levy in keeping with its contributions.</p>

b) Northants	Comments
	Local FRM Strategy to be reviewed in light of the draft Investment Plan.
Case study critique	<p>The case study has been useful in helping the LLFA develop capacity in appraisal techniques, partnership with the Environment Agency and their understanding of the cost and benefits related to problem locations.</p> <p>Northants accept that FDGiA will be limited, and even where PF Score is good, if the amount is low (say below £50~100k) then it will not be worth pursuing. However, little progress was made during the project in terms of exploring sources of funding and associated mechanisms in detail. In retrospect this would have been a more useful focus for the case study, but this was difficult to do with the very limited evidence base available at the start of the project. If such funding is not found, then few of the short term priorities will be achieved.</p> <p>Surface water flooding is a major issue in Northamptonshire. It is by far the dominant source of risk, affecting over 60,000 residential properties. Surface water schemes were identified in the case study, but the common issue of a poor economic case resulted in few being promoted in the short term. Further iterations of the Investment Plan and Local FRM Strategy will need to set out a strategy for dealing with this.</p> <p>The case study highlighted a large Environment Agency scheme, Nene Lock Reversal and Nene Structure Refurbishment, the drivers for which include health and safety concerns. A capital cost estimate of £12million was provided, dwarfing the scale of other local schemes. Uncertainty surrounding the scheme meant it was removed from the Investment Plan short term schemes list and also delayed in the MTP / Sanctioned List. If action is needed then it is important to establish whether priority allocation of FDGiA is a relevant source (as is common for schemes driven by H&S issues). If not, then this scheme could draw in significant “flexible” funds (e.g. Local Levy), to the detriment of other LLFA priorities. The Environment Agency and LLFA need to work closely on this scheme. This also raises the more general point regarding whether it is right for GiA to be used for schemes with a H&S driver.</p>

c) North Yorkshire	Comments
Positive progress	<p>North Yorkshire County Council were well organised and had a relatively robust view on what schemes they needed to progress with at the start of the project. They also had a good basis to assess the viability of FDGiA.</p> <p>A strong local flood risk management partnership was clearly evident, with the LLFA taking a coordinating role.</p> <p>The LLFA’s understanding of FCERM project appraisal and funding processes has benefitted from being a case study. The project also assisted the LLFA by collating the existing information and using the Funding Share Tool to explore how much FDGiA could be gained. The Investment Plan itself captures the LLFAs thinking and will be useful to help them explain the funding needs to potential funders.</p>
Position	The LLFA, and particularly Scarborough Borough Council, has set itself a very ambitious programme to deliver in the short term. The short term priorities have

c) North Yorkshire	Comments
statement	<p>a total capital value of £73million, benefitting over 2,000 households. A massive shortfall exists at present. A fall back / do-minimum programme should also be explored and such a package has been presented in the Investment Plan, benefitting circa 1,000~1,500 households and focussing on projects that can lever in more GiA.</p> <p>Key issues include exploring the viability of aggregating / grouping FCERM issues in order to maximise funding opportunities, including FDGiA.</p>
Case study critique	<p>The LLFA is very well organised and familiar with FCERM and local government processes and politics. This is fortunate as there are large FCERM funding issues to be tackled.</p> <p>Local businesses and communities, whether via their district councils or some other means, will be asked to contribute ideas on future FCERM and funds to support preferred approaches. Other LLFAs may learn much from North Yorkshire CC FCERM work in the coming years. Given its flooding and coastal erosion issues, funding challenges and potential political sensitivities, it will be important for the Environment Agency to ensure that good support is provided.</p> <p>Linked to the funding challenges, the LLFA has criticised the implementation of the R&D project commenting that it has focussed too much on the mechanics of the process, rather than asking more fundamental questions about whether the approach can be made to work in practice. To do this, assessment of the complexity of the process for multiple projects and the administrative costs and timescales for progressing schemes under the new mechanism would be crucial, and this has not been explored. The challenge of working with a number of different districts, and accessing any funding streams for flood management was also seen to be a real issue that may prevent the application of a strategic investment planning process.</p> <p>NYCC believe that there should be opportunities for enhanced local prioritisation in GiA funding. This could include a block allocation for smaller schemes. This could be submitted as part of the MTP, with a defined value and related scale of outputs, but the exact locations of the schemes progressed within this envelope would be defined at a local (sub-regional) level.</p> <p>In terms of understanding flood risk issues, surface water, groundwater and ordinary watercourse flooding issues are not well represented. On completion of the Local FRM Strategy, the updated understanding of flooding from all sources is likely to alter the balance of investment priorities. An additional funding challenge for the LLFA.</p>

4. Lessons Learned

Reflections on the project and case studies

The following observations and lessons are highlighted based on the research and case studies:

- The guidance on strategic approaches to FCERM investment appears to be wanted by LLFAs. Presentations given during this project have been very well received.
- Lesson: Further presentations and awareness raising through technical meetings, webinars etc will be very useful, with the linkages to Local FRM Strategies explained.
- LLFAs have varying needs and ideas about local FRM and its funding.
- Lesson: A non-prescriptive approach appears sensible.
- Two tier LLFAs, and the districts within them, will have particular challenges, including communication challenges, differing organisational priorities and associated resourcing, different funding routes etc. In some places, the LLFAs role may be light and driven by the aspirations of the districts, whereas elsewhere districts and counties may take conflicting positions regarding responsibilities for generating scheme funding.
- Lesson: Again, a non-prescriptive approach appears sensible. Clarity on roles and responsibilities needs to be established within a local partnership with the right level of buy-in from the respective organisations. The Environment Agency and RFCC oversight roles could be important to spot and resolve potential issues.
- Some case study partners thought that the Environment Agency systems and staff are too inwardly focussed. This included comments that the Environment Agency systems (e.g. MTP process) were designed to meet its own needs rather than helping other RMAs deliver better local FCERM.
- A case study partner suggested that the scheme based approach used in the MTP, and associated allocation of GiA, was not always align with the current FCERM funding needs of LLFAs. Bidding for GiA for individual small schemes was often not worthwhile. Could a block grant process be adopted for the delivery of desired outcomes over multiple sites?

Lesson: Environment Agency and Defra to reflect on existing GiA and MTP systems. Environment Agency PSO teams should develop improved awareness and sensitivity to LLFA and district requirements.

- The capacity building needs of many LLFAs should not be underestimated. A suitable grounding in project appraisal and economics was found to be missing from several of the case study partners. Confidence in this area is a key skill for LLFAs - such skills are vital for arguing the case for local or national investment in FCERM.

Lesson: Training should be offered to LLFAs (and Environment Agency PSO teams) in project appraisal and economics.

- Linked to the above, the spreadsheet based tools produced to assist the case study partners in developing an Investment Plan were generally well received, but some found them too complicated initially.
- Lesson: Review and disseminate the tools, but offer training on their use and also general training related to project appraisal (linked to the above).
- The Environment Agency holds many useful national datasets. Many of the case study partners were either not familiar with them or reticent about using them, perhaps because of an absence in GIS capacity.

Lesson: The Environment Agency, perhaps through its PSO teams or nationally, could be more pro-active in promoting and showing the utility of its datasets to LLFAs. The pilot work completed in this R&D on mapping potential FDGiA highlighted this.

- This, and other related R&D, includes information, tools and guidance that can help LLFAs. Unfortunately, the level of awareness of the R&D programme is low.

Lesson: Develop better dissemination routes for R&D outputs, e.g. the bi-annual R&D newsletter.

- Several of the case study partners lacked confidence in entering into discussions with finance officers and others related to project funding. This may be due to a lack of confidence in their data, but also highlights that the internal links within local authorities are not always strong.
- Linked to this, key decision makers within local authorities (related to project funding) have generally had little exposure to FCERM and it is not on the radar as a result.

Lesson: The Environment Agency and Defra at a national and regional level should look for opportunities to disseminate information about FCERM and its funding, including FDGiA as a potentially significant source, but only if supported by local contribution. Publications or conferences organised by relevant professional bodies is one obvious route.

- The usefulness of Local Levy was highlighted across the case studies, and giving lead FCERM officers within LLFAs a stronger involvement in the allocation of this (even if only theoretically within the context of this project), was empowering. In

future, an FCERM Investment Plan provides an excellent vehicle for LLFAs to “bid” for Local Levy.

Lesson: Greater RFCC transparency and clear policy on the use of Local Levy, including more encouragement to LLFAs would be beneficial. This could also include RFCCs promoting / funding capacity building activities for LLFAs. However, LLFAs need to “step up” too, and argue the case for their own areas.

RFCC may also find using the likes of the Funding Share Tool useful in establishing regional priorities in using Local Levy.

- The use of FDGiA to fund what was regarded as essential H&S measures was highlighted during the project as somewhat anomalous. This mechanism is often used by IDBs and Environment Agency operational teams as a means to lever in funds without the same strength of FCERM benefit as other schemes. Clearly, H&S related works need to be prioritised in some way, but should GiA be reserved for projects with FCERM justification tested in accordance with delivery of Outcome Measures? This would make more funds available for partnership funding and, with local contributions, deliver more benefits than the current approach.

Lesson: Should alternative mechanisms for funding essential H&S be investigated?

- It is a natural reaction for LLFAs or districts that have not been subject to significant fluvial and coastal risks to become relatively passive / reactive – waiting for a flood and then considering local responses. This can happen in larger urban settings, but they are often subject to the risk of highly disruptive surface water flooding.

Lesson: It is important that opportunities to raise the profile of strategic FCERM investment are grasped, even if improvements can only be funded and delivered in increments and over a long timescale (e.g. phased implementation of safer flow routing within an urban centre, SUDs or green infrastructure delivery over a development plan period). A strategy should be in place to demonstrate that flood risk is being managed locally.

- Given the strain on resources within local government, it was not surprising that the case study partners struggled to offer as much time as would have been needed to explore some areas of a longer term strategic approach to investment in FCERM. This was a relatively weak aspect of the Investment Plans delivered, which tended to focus on short term needs.

Lesson: It is important that Investment Plans retain the longer term picture in terms of likely funding needs, or if this is missed first time round then priority is given in later iterations. For some, longer term funding sources will be subject to uncertainty, but for others it will be clear that the bulk of it will need to be found locally and a strategy developed to facilitate this.

- Linked to the above issue regarding resources, the development of the case study Investment Plans did not include iteration on options for alleviating risk at a location

(varying option selection, including adaptive variations or lowering target standards of protection). This would have been particularly useful when the first pass assessment indicated funding gaps were large.

Lesson: When developing a viable Investment Plan, LLFAs should remember that a number of approaches are open to them. This includes working harder to identify more funds but also accepting the risk or re-scaling schemes / a do-minimum. Modest improvement (e.g. an adaptive approach including resilience and a lower initial standard of protection) may be preferable to a local community than an uncertain wait for a better solution that may not materialise.

- Knowledge of the local business sector, and its potential to be enhanced if flood risk reduction were achieved, is important data for those seeking financial support for FCERM.
- Lesson: LLFAs and Environment Agency PSO teams should look to map beneficiaries and flood risk and understanding the impairment existing or future flood risk has on the local economy. Freeing up the local economy can provide a strong incentive to invest in FCERM.
- There remains hesitation on the part of some LLFAs in taking the leadership role in managing all sources of flooding and the associated funding solutions. Opportunities to engage local communities and their political representatives will be lost as a result. This is likely to have an adverse impact on the aggregate delivery of FCERM improvements across the LLFA.

Lesson: The Investment Plan provides a good means of setting out local coordination and responsibility for delivery of FCERM improvements. The Plan could identify a sliding scale of LLFA input, ranging from situations where (1) the Environment Agency dominate scheme delivery with LLFA involvement only through “piggy-backing” opportunities, to (2) situations where the LLFA drives all schemes being promoted, as they are the key funding body or in the best position to secure funds.

- Although this project has not included detailed reviews of any Local Strategies produced to date, it has been noted that some have not included sufficient consideration to funding. Greater efficiency and useful output can be obtained if it is. The Floods and Water Management Act 2010 also requires LLFAs to include consideration of funding within their Local Strategy.

Lesson: Based on this project, it is concluded that an Investment Plan should be produced early on in developing a Local Strategy, and updated periodically thereafter.

- The project has highlighted that some LLFAs will be faced with large funding needs which cannot be met in full through application for FDGiA. With time, this is likely to result in keen local political interest. This could result in additional local

engagement and funding (the policy aim) and/or lobbying for enhanced national funding or changes in policy.

Lesson: It will be interesting to monitor how Defra's Partnership Funding policy works in practice, particularly at key LLFAs. The early feedback from Defra is positive, but this is not always reflected by feedback at the local level. Successful approaches and working difficulties will need to be captured, disseminated and responded to. The Environment Agency PSO teams will be vital for this.

5. Conclusions

The following conclusions have been drawn from the project work:

- On the basis of the case studies, there is variation in the readiness of LLFAs to complete a Local Strategy. Varying levels of support is needed – in the form of data analysis, mentoring or tools. Hopefully this project has provided the latter and such tools designed to engage both experienced and fledgling audiences.
- There is a significant increase in the scale of the challenge faced by two tier authorities. Accommodating the various district political priorities and funding sources (e.g. varying take up of CIL by each district) is not an easy task. Taking a strategic approach to investment planning needs to be carefully scoped in a two tier LLFA, so that the effort expended can lead to greater external funding across all district authorities.
- The Environment Agency's new Partnership and Strategic Overview Team is a positive step. It should ensure that LLFAs get consistently good support.
- Linked to the above, the project team has demonstrated that the Environment Agency national datasets can readily be re-worked and presented in a way that is easily absorbed and most relevant to LLFAs.
- It is still uncertain whether surface water schemes, which typically have more modest economic justification, will benefit from the new arrangements. It seems likely that this will depend on how ambitious a LLFA wants to be in terms of producing a wide ranging Local Strategy, maximising the opportunity to fund surface water schemes.
- Finding alternative sources of funding and mapping these against FRM issues to secure scheme funding requires creative thinking, persistence and is time consuming – in many case a full time role.
- Internal Drainage Board settings need specific consideration, especially where FRM systems benefit both rural and urban areas. IDBs have the advantage of established routes to partnership funding, but also have reducing access to FDGiA. Alongside Defra's focus on risk reduction for people and households, there is a need to ensure transparency regarding the impact of IDB systems on urbanised areas, and vice versa. This is important when determining the appropriate contributions towards FRM asset renewals or new investments. This is particularly pressing in coastal lowland systems and where climate change means FRM systems need to be much more robust (and expensive) in the future.
- RFCCs are developing their own policies on using local levy to support the delivery of regional priorities. Improved transparency and strategy in the use of local levy is the aim. A clear theme is that those LLFAs that are more proactive in strategic investment planning can expect to see greater value from RFCC.
- Much has been gained from developing new tools within the case study setting. It will be vitally important that any added burden on LLFAs is clearly outweighed by the benefits offered by the tools.
- Case study partners thought that the Environment Agency systems and staff are too inwardly focussed. This included comments that the Environment Agency systems (e.g. MTP process) were designed to meet its own needs rather than helping other

RMA's deliver better local FCERM, and there would be benefit in the Environment Agency and Defra reflecting on existing GiA and MTP systems.

- Activity that enables LLFAs and others involved to share ideas, case studies or accepted best practice is highly valuable. Good examples include the Defra - Environment Agency LLFA capacity building programme, the Local Government Association Knowledge Hub website, LGA FCERM Bulletin and locally arranged / regional meetings of LLFAs. The project team is very grateful for the observations and ideas contributed by the case study partners. Perhaps an "interest group" could be established within the Knowledge Hub or elsewhere (e.g. a dedicated PSO team page within the Environment Agency's website) to sustain these relationships and share developing case studies and best practice.

LLFAs should gain the following key benefits by adopting the approaches to strategic investment highlighted within this research project.

- Such an approach provides transparency on priorities and aids local democracy. An Investment Plan is a suitable place to document and justify key decisions when LLFAs need to make choices on which projects to promote and which to defer, scale back or reject.
- An Investment Plan can be used to lobby for more local FCRM investment, provide a route into CIL etc. An Investment Plan is a business case for local investment in FCERM. It avoids the technical detail of flood risk and presents financial information in a way that decision makers on funding will be comfortable with. To align with how other investment decisions are taken on local transport and other infrastructure needs, the benefits of flood alleviation need to be translated into more commonly used metrics. Net Gross Value Added (Net GVA) is a key metric used elsewhere.
- The annual MTP process becomes much easier, as it will be straight-forward to extract the information from the Investment Plan.
- It demonstrates to the Environment Agency and RFCC that the LLFA is taking the lead, putting it in a better position to lead investment decisions.
- In tandem with a Local Strategy, it helps LLFA succeed in their role. It can also help guide the Local Strategy – providing a focus on locations where funding of solutions may be more viable.
- Seeking external contributions (non-FDGiA) encourages collaborative projects with multiple objectives.
- A strategic approach to investment decisions should help LLFAs deliver more flood risk management schemes.

Appendices

Appendix A: Case study characteristics & reports

Summary of Case Study Characteristics

Case study	Characteristics of funding challenges
Cambridgeshire	<p>Major existing Environment Agency assets.</p> <p>Potential for multiple source flood problems.</p> <p>“Local” FRM improvements scoped and prioritised.</p> <p>Two tier LLFA, plus Internal Drainage Boards.</p> <p>Strong existing partnership arrangements with other RMAs.</p>
Cornwall	<p>Single tier LLFA.</p> <p>Areas of deprivation and urban regeneration.</p> <p>Strong focus on isolated coastal issues.</p> <p>Developing partnership with other RMAs.</p>
East Sussex	<p>Major coastal FRM assets with mixed beneficiaries.</p> <p>Two tier LLFA, plus Internal Drainage Boards.</p> <p>Strong existing partnership arrangements with other RMAs.</p> <p>Surface water management improvements identified / planned.</p> <p>Potential for multiple source flood problems.</p>
Kent	<p>Major coastal FRM assets with mixed beneficiaries.</p> <p>Two tier LLFA, plus Internal Drainage Boards.</p> <p>Local flood risk / surface water management improvements developed.</p> <p>Potential for multiple source flood problems.</p> <p>Strong existing partnership arrangements with other RMAs.</p>
Newcastle	<p>Single tier LLFA in urban setting.</p> <p>Focus is on surface water problems.</p> <p>LLFA is developing ideas for FRM improvements.</p> <p>Tackling areas of deprivation and urban regeneration a priority.</p> <p>Mix of private/public sector led funding of FRM.</p> <p>Partnership with other RMAs in its early stages.</p>
Northants	<p>Two tier LLFA - collaboration with districts important for partnership funding.</p> <p>Good progress in identifying FRM opportunities.</p> <p>Major growth and regeneration areas.</p> <p>Existing partnership arrangements with other RMAs.</p>

Case study	Characteristics of funding challenges
North Yorkshire	<p>Major Environment Agency assets.</p> <p>Surface water management improvements identified / planned.</p> <p>Potential for multiple source flood problems.</p> <p>Major coastal FRM assets protecting urban communities.</p>
Slough	<p>Single tier LLFA in urban setting.</p> <p>Early stages of identifying FRM opportunities.</p> <p>Tackling areas of deprivation and urban regeneration a priority.</p> <p>Main focus probably public sector led funding of FRM.</p> <p>Partnership with other RMAs in its early stages.</p>

**Appendix B: Geospatial PDF – FDGiA
opportunity mapping**

Geospatial PDF

A description of Geospatial PDF can be found on the web, e.g. http://en.wikipedia.org/wiki/Geospatial_PDF

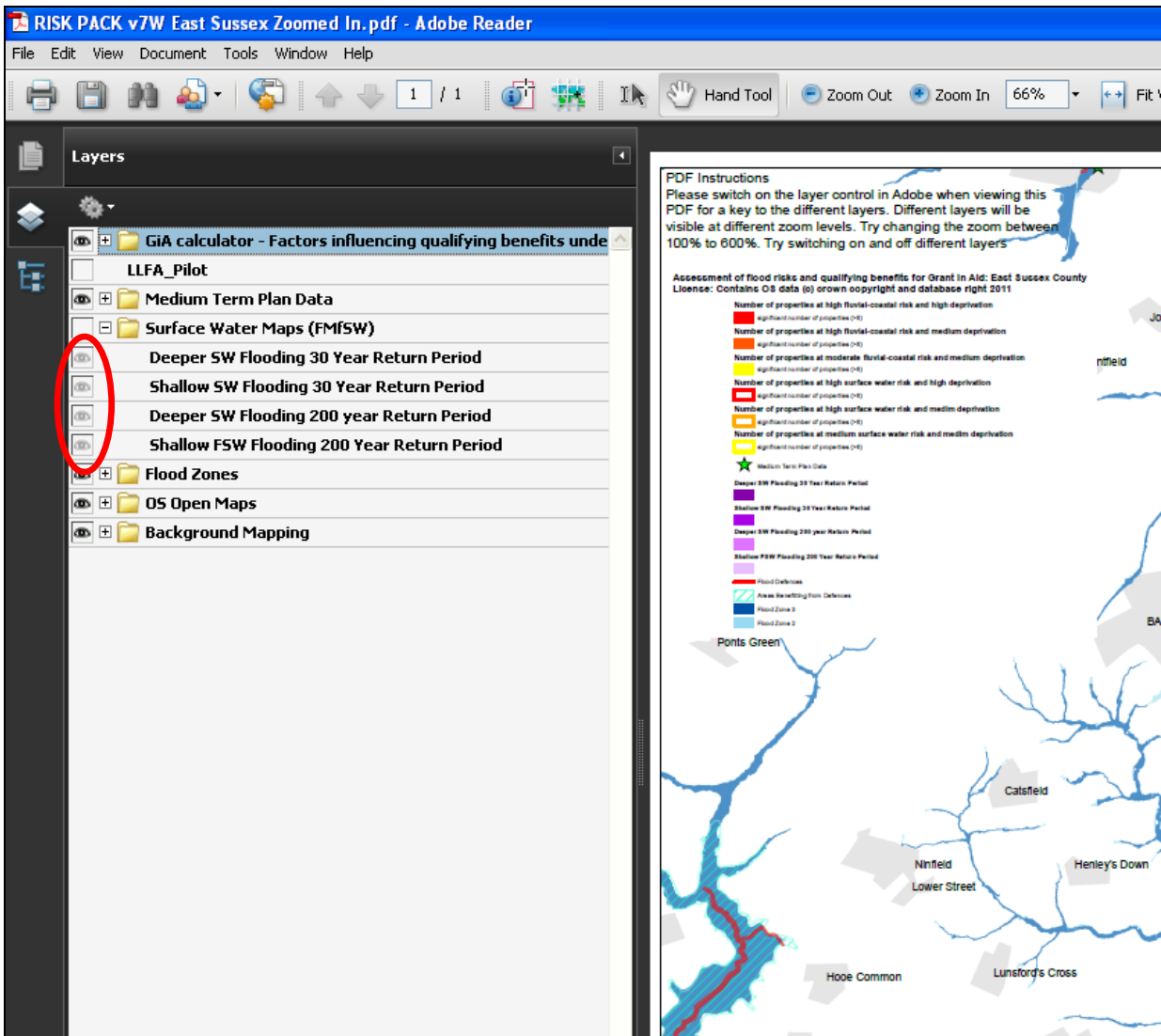
FD2656 Outputs

The following “screen shots” from a Geospatial PDF developed for this R&D are presented in order to provide an indication of the potential utility and content of a FRM Geospatial PDF aimed at identifying flood risk and potential investment opportunities. The latter is based on ranking flood risk areas in accordance with potential Outcome Measure scoring. Further information will be provided in the final R&D reporting.

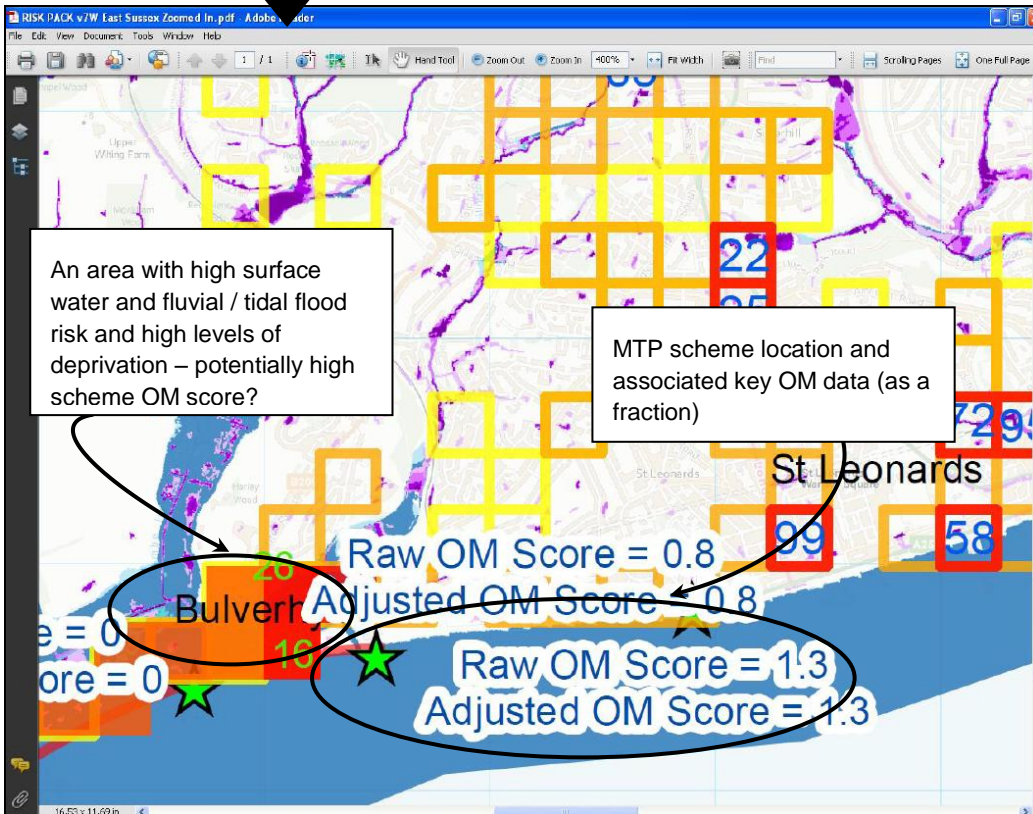
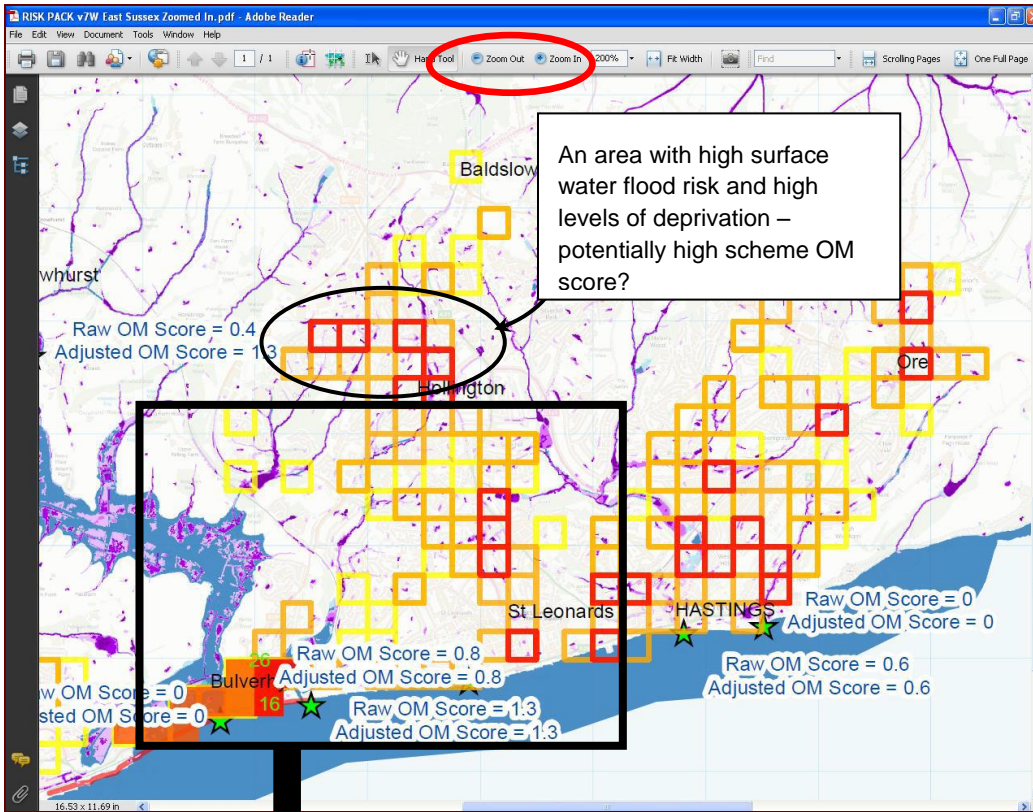
The layers included in the Geospatial PDF developed for this project:



The ability to select and view chosen layers is available:



More detailed data is visualised as the user zooms in, including automatic variation of the scale of the background mapping presented. In the case over page, a grid square based ranking of where FDGiA opportunity may be stronger is presented and also the MTP schemes OM scores (as a proportion rather than percentage) and numbers of properties at risk within grid squares.



MTP scheme location and associated key OM data (as a fraction)

The ability to interrogate the background data is available:

Model Tree

- Number of properties at high fluvial-coastal risk and medium deprivation : 54--339
- Number of properties at high fluvial-coastal risk and medium deprivation : 54--340
- Number of properties at high fluvial-coastal risk and medium deprivation : 55--339
- Number of properties at high fluvial-coastal risk and medium deprivation : 55--340
- Number of properties at high fluvial-coastal risk and medium deprivation : 87--394
- Number of properties at high fluvial-coastal risk and medium deprivation : 87--395
- Number of properties at high fluvial-coastal risk and medium deprivation : 88--394
- Number of properties at high fluvial-coastal risk and medium deprivation : 89--391
- Number of properties at high fluvial-coastal risk and medium deprivation : 89--392
- Number of properties at high fluvial-coastal risk and medium deprivation : 89--393
- Number of properties at high fluvial-coastal risk and medium deprivation : 89--394
- Number of properties at high fluvial-coastal risk and medium deprivation : 89--395
- Number of properties at high fluvial-coastal risk and medium deprivation : 102--396
- Number of properties at high fluvial-coastal risk and medium deprivation : 102--398
- Number of properties at high fluvial-coastal risk and medium deprivation : 103--396
- Number of properties at high fluvial-coastal risk and medium deprivation : 103--397
- Number of properties at high fluvial-coastal risk and medium deprivation : 103--398
- Number of properties at high fluvial-coastal risk and high deprivation : 54--340**

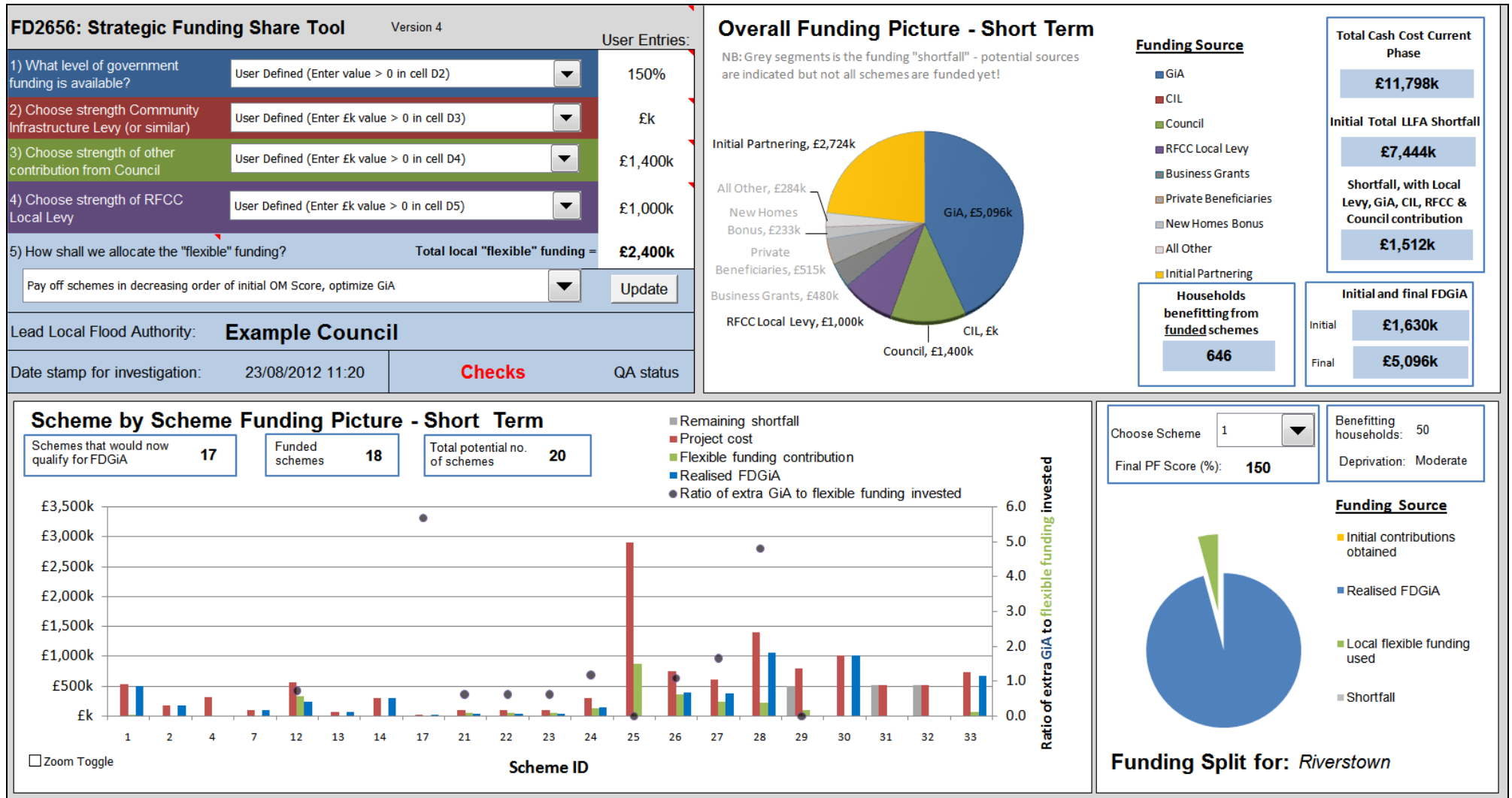
<No 3D Model Selected>

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Join_Count	65
TARGET_FID	299937
Id	0
ET_ID	32362
ET_Index	54--340
Easting	578125
Northing	108625
GRIDSQ	K57800Y10850
NLow_DLow	0
NLow_DMed	0
NLow_DH	0
NMod_DLow	0
NMod_DMed	16
NMod_DH	0
NSig_DLow	0
NSig_DMed	33
NSig_DH	16
Deep_DLow	0
Deep_DMed	0
Deep_DH	0
Shal_DLow	0
Shal_DMed	2
Shal_DH	2
Shape_Length	1000
Shape_Area	62500
N_SW_Int	33
SW_Int	2

16.53 x 11.69 in

Appendix C: Extract from the Funding Share Tool

A "screen shot" from the spreadsheet based Funding Share Tool. Note that "flexible" here refers to funding that the LLFA or local FRM partnership should be able to access locally and direct to schemes as they think appropriate (i.e. not FDGiA or typical private beneficiary support, which is normally scheme tied).



Appendix D: Potential template for an FCERM Investment Plan

The following template, or variations on it, was trialled on the case studies. Appendices should be used for much of the detail. The Investment Plan should be a relatively short document.

1. Summary of Key Findings

A summary of the Investment Plan, including commentary on key decisions on which schemes are being promoted, which are not and why.

2. Context

- a. Aim of an Investment Plan, its iteration / specific purpose.
- b. Scale of FRM problem – summary statistics.
- c. Key links to the policies and priorities of others where they influence funding and funding choices.
- d. General sources of funding – local, regional and national – the present situation and general outlook.
- e. Timetable - for bidding for certain funds and decision points.

Some of the above just include a pointer to sections of text in the Local Strategy

3. FRM Opportunities (schemes to be assessed)

- a. FRM priorities of RMAs – *cross reference a section in local strategy?*
- b. Quick wins and piggybacks – *cross reference section in local strategy?*
- c. Short, medium or long term aspirations – a list of potential FRM schemes.
- d. Initial FDGiA projections for identified FRM schemes for all RMAs.

4. Funding Assessment (or in an appendix)

- a. Value gained from Local Strategy / other work (how this version of the Plan has been informed by other work).
- b. Partnership funding screening for each scheme and in aggregate – a summary of key points with an appendix for the detail. Routes to access main local funds and quantum.
- c. Present funding scenarios and key output from running the likes of the Funding Share Tool. Sensitivity to key parameters explored.
- d. Key decisions required and by who, funding gaps, certainties / uncertainties.

5. The Investment Plan - Package of FRM Schemes

- a. Key assumptions for this Investment Plan.

- b. Preferred list of schemes by timeframe (short, medium, long term), with longer term becoming increasing higher level. Key decisions that have been made – what is included and what is not and why. Main sources of funding, quantum and risks.
- c. Statement of benefits (using local and nationally recognised metrics) vs. costs per scheme / district / LLFA. Present benefit of work done – leveraging in funds etc.
- d. Reflections on the longer term – what funds may need to be in place and the suggested means of doing this. In future iterations of the Plan, review progress.

6. Action Plan – To do list

- a. Annual programme of key dates / action needed. Links to MTP and other FRM works programmes.
- b. Scheme level actions. Key points on main schemes and appendix holding the detail for each scheme. Two aspects:
 - i. Actions needed to deliver scheme funding in short term.
 - ii. Developing sufficient data to bid /secure funding for schemes in the future. Actions needed to secure scheme longer term actions (e.g. CIL, TIF).
- c. Management
 - i. Roles and responsibilities – scheme level and overall programme.
 - ii. Change management - Triggers for changing the Investment Plan (e.g. likely variations in funding picture) and how to manage change.

7. Verification

Document the buy in to the current version of the Investment Plan.