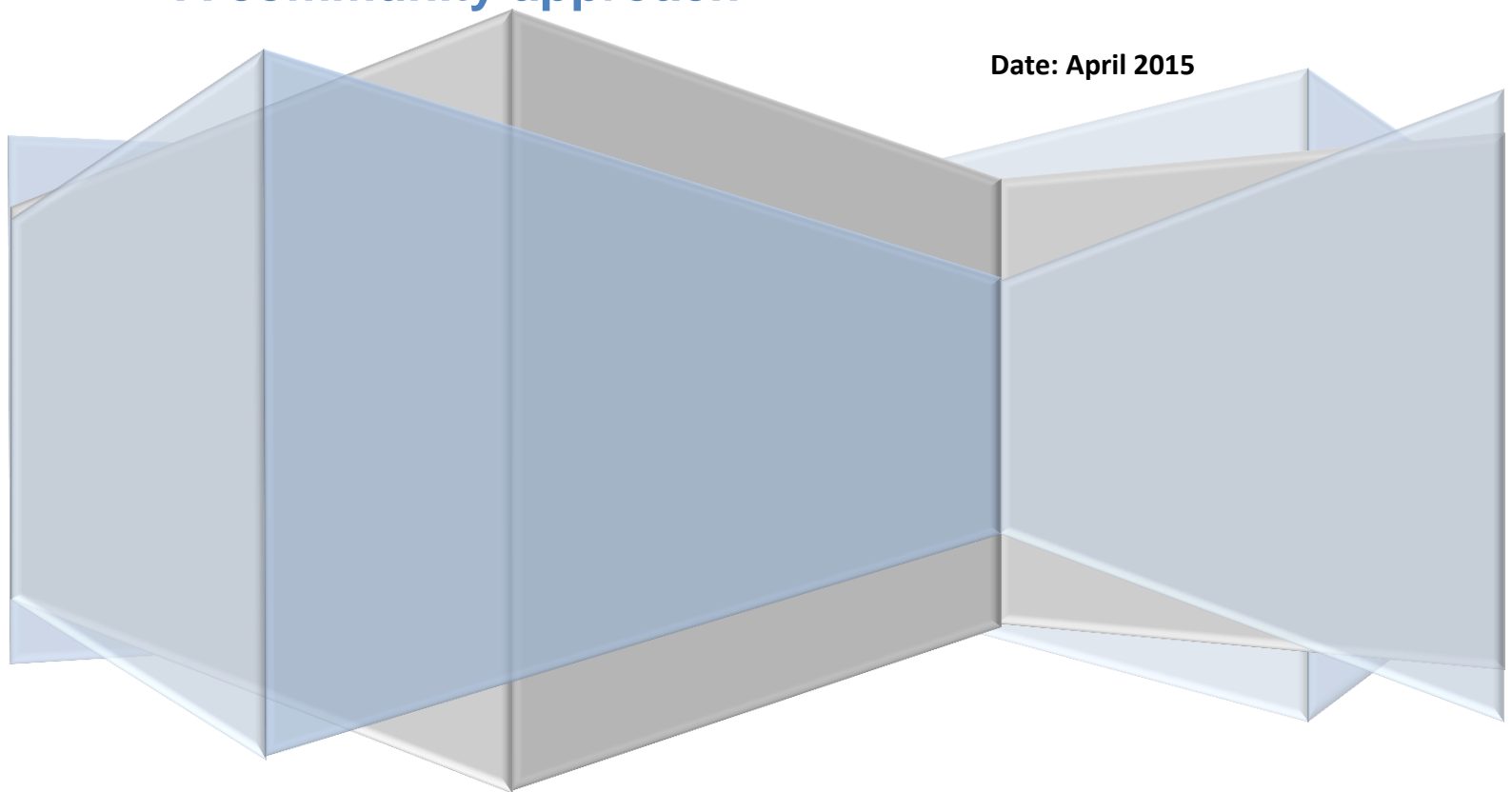




Warwickshire Community Flood Resilience Pathfinder Project Final Report

A community approach

Date: April 2015



EXECUTIVE SUMMARY

In March 2013 Warwickshire County Council was successful in securing funding from Defra for a pilot project across the county. The Community Flood Resilience Pathfinder project started in April 2013 and had three main objectives as follows.

1. Create five sustainable flood action groups.
2. Promote and improve county-wide resilience.
3. Engage with pupils within schools.

Throughout the two years, nine flood action groups have been established through the project and subsequently a further four, having heard about the approach adopted in these nine areas, have also sprung up. The nine pathfinder communities were selected working with Borough/District representatives to determine communities:

- a) at risk of flooding (partly due to culverts blocking);
- b) that have had previous positive engagement with flood risk management authorities.

The communities were encouraged to form flood action groups and to draft action plans in which local flooding issues were identified and the relevant flood risk management authorities invited to address these issues. Meeting with flood risk management authorities in an informal, non-contentious way (in 'Multi-Agency Meetings') meant that these issues could be discussed, questions asked and any actions noted. The pathfinder communities were:

- Nether Whitacre – North Warwickshire Borough
- Donnithorne Avenue – Nuneaton and Bedworth Borough
- Delamere Road – Nuneaton and Bedworth Borough
- Willoughby – Rugby Borough
- Grandborough – Rugby Borough
- Eathorpe – Warwick District
- Finham Brook – Warwick District

- Shipston-on-Stour and surrounding area – Stratford-upon-Avon District
- Bidford-on-Avon – Stratford-upon-Avon District

As part of the project, a 'technologies' budget was allocated to communities for initiatives to help communities to help themselves. Examples of this included CCTV monitoring equipment, erosion protection, rakes and wheelbarrows. This was completed on a bidding system and the nine pathfinder communities were given this opportunity. It was ensured that each community had experienced at least one multi-agency meeting so they were able to discuss suggestions with authorities and gain advice. During March 2015 a networking event was organised for all flood groups so they could meet, learn and share experiences.

Events were also held around the county over the course of the two years for all communities at flood risk. This included county-wide engagement workshops during 2014 and councillors and flood risk communities (representatives from Parish and Town Councils) were invited to learn more about the role of Warwickshire County Council, to input information into the surface water management plan and to learn how to be more resilient. Grab boxes were also provided to all communities who attended to encourage resilience at a community level. These included items such as high-visibility jackets, wind-up torches, multi-chargers and megaphones and communities were encouraged to keep these in a communal area for ease of access during a flood event. During the second year of the project, the National Flood Forum recovery trailer visited each Borough/District to provide a chance for those at risk of flooding to share and gather information and speak to flood risk management authorities. This coincided with and supported Warwickshire's Local Flood Risk Management Strategy public consultation.

The project worked with three schools: Southam College, Nicholas Chamberlaine School in Bedworth and Shipston High School. Interactive lessons on flooding were given, explaining the causes and impacts of flooding. Weather stations were funded by the project and installed on site. The data can be accessed through smart devices which encourages pupils and guardians to monitor the weather and be more aware of their local flood risk.

The project has been very successful in learning from and informing Warwickshire residents and working on a local level with a grass roots approach. One of the major successes is the partnership that has been experienced throughout from other Flood Risk Management Authorities within the county.

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Introduction

Warwickshire County Council received funding from Defra in 2013 for the two year Community Flood Resilience Pathfinder project. Warwickshire were one of thirteen Lead Local Flood Authorities to successfully bid for money for a pilot project to work with communities at risk of flooding. Each project had different objectives and work-packages. However, the aim of them all was to investigate community-led resilience and the best approaches to achieving their objectives.

The project aimed to assist communities in helping themselves to become more resilient to flooding, and the Warwickshire project included funding for technology initiatives that communities believed would benefit. The National Flood Forum (NFF) were appointed to deliver the project alongside the County Council: Naomi Gibson from the NFF was the industrious, energetic and effective project lead.

As the project is a pilot, or pathfinder, it has been evaluated throughout, both by Warwickshire Wildlife Trust on a local level for Warwickshire and by Collingwood Environmental Planning on a national level.

The model used within Warwickshire included developing flood action groups, with links to their local parish/town councils. These groups included residents at risk of flooding, many of whom have previously experienced internal flooding. By working in partnership with agencies and partners, communities can learn about the roles of each risk management authority in order to contact the right people at the right time and build a rapport with these people. This also helps risk management authorities to have positive relationships with communities at risk and have a direct positive dialogue with those at risk.

Project Objectives:

- ❖ To create five sustainable Flood Action Groups within the five Boroughs/Districts of Warwickshire, where communities will work with Flood Risk Management Authorities in an aim to lower the risk of flooding. These communities were selected by working closely with the councils to choose areas with previous flooding history, an actively engaged community and preferably a pro-active Parish/Town Council in which initial engagement could be made and continued support received after the project.

- ❖ To improve county-wide resilience to flooding across Warwickshire. By completing a baseline questionnaire, which not only covered the target areas but was also available for all, the level of resilience to flooding could be determined; this will feed into the Local Flood Risk Management Strategy. Throughout May and June 2014 seven workshops have been organised in partnership with Warwickshire County Council, the Districts and Boroughs of Warwickshire, the National Flood Forum and Coventry, Solihull and Warwickshire Resilience, to speak to representatives from Parish and Town Councils and community groups and flood groups about becoming more resilient, not only to flooding but to other emergencies too.

- ❖ To work with schools to install a weather station for the pupils to use as part of their school curriculum to raise awareness of flooding, and teach them how to be more prepared, in order to limit the impact of living in a flood risk area. It is hoped that students will be able to encourage parents to be more aware of the risk of flooding by discussing what they have learnt during lessons. The weather station data will be accessible online and also on smartphone apps so pupils are able to view data away from school, when they are out of term time and Flood Risk Management Authorities will also be able to access the information for monitoring purposes.

Project Highlights

There have been many highlights from the pathfinder project, including improved community cohesion, growth in knowledge and understanding of flood risk, positive exchange of local knowledge and expertise between communities and flood risk management authorities, and the tangible reduction in flood risk and communities feeling that they are better prepared for protected from flooding.

Community Cohesion

In many of the areas where the project has worked, residents who before did not know their local neighbours have come together to work with the authorities and each other to investigate ways to help reduce the flood risk. One particular area which has had a very joined-up community approach is **Shipston-on-Stour**. At the initial drop in session, held in November 2013 only one household showed an interest in working with the project. A near miss of flooding from the River Stour during November/December 2013, however, resulted in a renewed interest in the project. Since then, residents from a number of communities along the River Stour (Shipston, Newbold and Tredington) have joined together to look at ways in which flood risk can be mitigated. Meeting monthly as a group and quarterly with agencies, the flood group use the local pub to discuss issues and the evening has become a social occasion. The group have developed newsletters to update local residents on progress, provide the details of the flood action group's email address and encourage new members to help and support. The flood action group have worked with Coventry, Solihull and Warwickshire Resilience teams to produce emergency plans that have been distributed to each household. This includes information not only about flooding but other severe weather and likely emergencies. The flood group are working with Warwickshire County Council, the Environment Agency and the Woodland Trust to look at ways of introducing natural flood management upstream of Shipston to offset the potential impacts of climate change.

'Grass roots' Approach

The pathfinder project aimed to adopt a 'grass roots' approach, engaging with the community and collecting their local issues on flooding and any suggested solutions

residents might have. On a local level, residents are more aware of the direction that flooding comes from, and local signs to raise awareness. Part of the project is to capture these in plans so that new residents are also aware and the knowledge is not lost. These issues and solutions are compiled into a rolling action plan. When working with communities there are two main issues constantly mentioned when they are dealing with agencies. These are as follows.

1. Speaking to the right agency about the flooding experienced. Residents often feel that there can be 'buck passing' about ownership of assets and origins of water. Communities often experience changes in contact people, due to job changes, etc., which can result in communities having to 'start from the beginning' with the new contact people.
2. Receiving feedback and any resolutions from the issues raised. Once issues have been reported and the relevant agency is investigating, communities often feel they have to chase things up, but how long do they give for the work to be completed? And when will they feedback any resolutions?

Multi-Agency Meetings

By holding multi-agency meetings the community can build relationships with representatives from all the flood risk management authorities. This is an approach championed by the National Flood Forum. As they are all in the same room, ownership of assets is accepted by representatives and the communities learn what each authority manages. Holding these meetings frequently, usually quarterly, enables the community receive feedback on issues and agreed actions. The meetings include five core agencies:

- the County Council (or lead local flood authority);
- Environment Agency;
- Local Borough/District Council;
- Water company;
- County Highways.

Other agencies can be invited depending on individual issues within the community, for example:

- resilience or emergency planning teams;
- Canal and River Trust;
- other Highway Authority.

A major success of multi-agency meetings is the knowledge shared both from the agencies to the community and vice versa. Communities feel that they have a voice and they feel empowered to help themselves. They are able to suggest ways in which they believe flood risk could be lowered in their areas. Being part of the process allows the community to be involved in developments.

Insurance

Some of the target communities that were selected for the project had previously experienced internal flooding of homes primarily due to structures blocking. Insurance is often a key issue for communities, and in Kenilworth the project is working with insurance brokers to see if, with measures in place, insurance premiums and excesses can be reduced and made more affordable. The project has worked with Triton insurance, providing information on the initiatives in place in Kenilworth. The group have installed a CCTV camera through this project which allows them to view the culvert from smart devices. They are also completing action plans and emergency plans at a local level. With this information, Triton has agreed to work with each household individually to access insurance. Each household will be able to explain what precautionary measures they have in place and what historic flooding if any, they have experienced.

Utilising innovative and intermediate technologies

Another highlight of the project is the different technologies that have been implemented through pathfinder funding. These are all initiatives to help promote and encourage community resilience. The technologies are aimed at encouraging residents to help themselves when it comes to flood risk, monitoring watercourses and trash screens/culverts for any blockages. These technologies vary from simple gauge boards, for monitoring the water level, to surface water pumps. Other initiatives include money to refurbish an existing surface water pump, money for rakes and brooms (for use to clear watercourses before a potential high flow event, not during a flood) and funding for anti-erosion methods. The

ownership lies within the relevant community/parish after the project and this also includes the continual maintenance and any replacements that may be required in the future.

County-wide benefits

As part of the Warwickshire Pathfinder project there have been county-wide engagement workshops to inform representatives from communities about the role that Warwickshire County Council have as Lead Local Flood Authority and as Category One emergency responder. Working in partnership with the Coventry, Solihull, Warwickshire Resilience Team, local and community emergency plans were promoted and the importance of being prepared for events. The feedback from these events was positive and follow-ups were requested after the project to build on this initial support.

Schools Engagement

The project worked with schools to educate pupils on the causes and effects of flooding. Schools within close proximity to the flood action groups and in areas of significant flood risk were approached and engagement occurred in three of these: Nicholas Chamberlaine Technology College, Bedworth; Shipston High School; and Southam College. Interactive lessons involving exploring the Environment Agency flood risk map, a 'what if' game online and activity sheets kept the pupils engaged in the topic. As Table 1 below indicates, pupils went home and passed on to parents what they had learned. Through the project, weather stations were installed at these schools, so that pupils and teachers could access live information from smart devices to help raise awareness of extreme weather and flood risk. Southam College have added a 'today's weather' tab on their website with a link to the weather produced from the station. This information is available for both pupils and parents/guardians to raise awareness and encourage monitoring of the weather/climate.

Table 1: Number of pupils disseminating information to parents/guardians

<u>Location</u>	<u>Number of pupils in class</u>	<u>Number of pupils who went home and spoke to parents/guardians</u>	<u>Who has been home since the weather station has been installed and spoken to parents/guardians</u>	<u>How many pupils know that their parents visit the website to see the blog and link to the weather station</u>
Nicholas Chamberlaine School (Bedworth)	30			
Shipston High School	30			
Southam College	31	6	7	1
TOTAL NUMBER OF PUPILS ENGAGED	91			

NB: Information for Nicholas Chamberlain and Shipston High School was not received for this exercise

Flood Resilience Community Pathfinder scheme

Defra is working across a range of technical areas including planning, land management, flood defences, sustainable water management, to improve flood resilience in England.

Community resilience – the response of people at risk of flooding - is an important aspect of this system. Quite often, simple actions by individual householders and communities can significantly reduce local vulnerability and the level of any resulting damages from flood events. The Flood Resilience Community Pathfinder scheme is a demonstration pilot, whose outputs and outcomes will help us understand better the contribution that actions by individuals and communities can make to better manage their flood risk.

The scheme operated between 2013 and 2015 and we expect that the overall investment in this scheme to be around £5.2m of which, Defra will have provided £4m. The first output from the scheme was published in February 2014 – a study reviewing the best research evidence about communities and resilience [The report <http://goo.gl/jf0N9G>]. Its findings underscored the complexity the relationship between awareness and action but noted that interventions based on engagement, dialogue and learning seem to provide promise, in terms of improving resilience to flood risk at the community level. This will form part of the base line for the overall evaluation of the scheme.

Authorities in: Blackburn, Buckinghamshire, Calderdale, Cornwall, Devon, Liverpool, Northamptonshire, Rochdale, Slough, Southampton, Swindon, Warwickshire and West Sussex, all implemented practical projects with local communities. Many are partnerships, with the authority working with a range of national and local organizations to deliver the aims of their project. The local audience for each project varies considerably across the country and they deployed a range of approaches to engage local people. We hope that the results help authorities work with other local communities in their area and that by sharing their learning and experience from their projects; they can inspire neighbouring authorities to engage their communities in similar ways.

Defra will be evaluating the results from all 13 projects during the summer of 2015. By reviewing the work of all the pathfinder we hope to capturing the key practical and policy learning points to better inform our policy making and that of other flood risk management authorities’.

Department for Environment, Food and Rural Affairs (Defra)

What has changed as a result of the project's activities in relation to the project objectives?

Pathfinder has encouraged positive community engagement with agencies and communities. There has been shared learning through multi-agency meetings. Although some of the outcomes from this Pathfinder project may have happened without the project, it is very likely that progress would have been much slower. Having someone independent from the County Council leading the project has meant that trust and positive action from communities has been received.

By creating flood action groups in flood risk areas, communities are able to help manage their own risk and take ownership of flood risk management issues.

Outcomes of the pathfinder project within Warwickshire include the following (see Table 2).

Table 2: – Outcomes from the Warwickshire Pathfinder Project

<u>Outcome</u>	<u>Justification</u>
Positive engagement with communities	Engagement with communities may have happened within Warwickshire without pathfinder; however this may have been negative such as dealing with complaints. Using the proactive approach espoused in this project has led to a positive dialogue between the community and Flood Risk Management Authorities.
Better knowledge of flooding, rights and responsibilities both within the community and also the agencies	Local knowledge is important and residents are able to share years of flooding facts with the agencies. This is also an opportunity for the community to learn about the rights and responsibilities not only that agencies have in managing flood risk, but also those of landowners and residents.
Greater community cohesion	In some areas, where members of the community did not previously know each other, they now look at the group as a social gathering. By raising awareness of flooding, linking up with Parish and Town councils, the community are more

	<p>aware of vulnerable people in the area and what to do in emergencies. Shipston and Eathorpe have developed emergency plans which include information for the wider community. This demonstrates an improvement in community preparedness and an awareness of both communities and individuals.</p>
Reduced flood risk	<p>Initiatives are in place to reduce the risk of flooding around Warwickshire. Creating links between agencies and the community means blockages, if deemed to be a flood risk, can be reported and removed before flooding occurs. Surface water pumps in specific locations are an output of the project and these in turn reduce to a reduced flood risk.</p>

What has the project achieved in terms of its objectives?

In terms of achievement of the original objectives, the Pathfinder Project within Warwickshire has been very successful. The county-wide engagement has raised the profile of flooding across the county, in particular in locations where flood groups have been established. Over the duration of the two year project, engagement with a variety of people has occurred which may not have happened without the project. Councillors, partners and communities were made aware of the project and its aims, encouraging people to attend events for information and advice. The Pathfinder project has also been an effective means of getting information from communities to feed into the both the Warwickshire Surface Water Management Strategy and also the Local Flood Risk Management Strategy.

Within Warwickshire nine flood action groups have been created through the Pathfinder project. In all of these established groups at least one multi-agency meeting has taken place. Five of these nine groups have since held subsequent meetings to receive feedback on actions agreed.

As part of the pathfinder funding for Warwickshire, there was a grant system through which flood action groups could bid for money to spend on community resilience 'technologies'. Seven of the flood action groups bid for money and were successful in securing funds for items which will help them to be more resilient to flooding. Some of these items include:

- gauge boards - for residents to monitor the river watercourse levels;
- equipment such as wheelbarrows, spades, brooms – to enable the community to move sandbags/clear out watercourses;
- CCTV – to allow the watercourse and trash screens to be monitored, lowering the risk of blockage and therefore lowering the risk of flooding;
- surface water pump – to decrease the risk of surface water flooding.

Another major achievement for the project is the increased county-wide knowledge of the role of the County Council as Lead Local Flood Authority and an increased awareness of flooding. By holding workshops throughout Warwickshire, Councillors and representatives from Parish and Town Councils and Flood Action Groups able to share knowledge and

flooding experiences as well as learn. Seven workshops were held around the county with a good turnout of people and good information collected on 'hot spot' areas of flooding. This information gathered is being used as part of the Surface Water Management Plan and Local Flood Risk Management Strategy for Warwickshire, to help with prioritisation.

Further outcomes from the project include the following.

- Pupils being engaged and educated about flooding, weather stations installed for use within schools and extra curriculum.
- Insurance premium/excess potentially lowered. Triton insurance has agreed to work with residents at a local level along Finham Brook, rather than a postcode basis, to take into account precautionary measures that home-owners have taken. This will include incentives such as the CCTV for monitoring the watercourse and any property level protection measures installed.

Case Studies:

KENILWORTH CCTV CAMERA

WHAT HAS HAPPENED?



As part of the Pathfinder Project within Warwickshire, a CCTV camera has been installed along the Finham Brook to enable residents in Northvale Close and Forge Road to monitor the watercourse away from homes or during the night. The camera is infra-red and the image is accessible on smart app devices. The capital cost (£174) was paid for by Warwickshire County Council, through the project, but the continual costs and ownership of the asset lies with the community. This shows a partnership approach between residents and authorities. The residents of Northvale Close and Forge Road flooded badly in 2012. They have since worked to set up a flood action group and look at ways of lowering the damage in the future. Being more prepared will help them during an emergency. The residents felt helpless

during 2012 as many were away for Christmas holidays and the river responds rapidly at this location. There was no plan in place for residents to help those away from properties and no warning about the rising levels. As of February 2014 a flood warning system for Kenilworth as a whole, provided by the Environment Agency, has also been installed, providing the community with some prior warning. Using both of these technologies together can reduce the damage caused by flooding, allowing the recovery to be quicker and hopefully less traumatic.

AIMS AND OBJECTIVES

- To encourage community resilience by allowing residents to view the camera away from their homes; to make a decision about returning to secure properties with individual property level protection, which most of the homeowners have, or moving furniture and vehicles to higher ground.
- To give residents peace of mind. Although the camera will not stop the flooding, they feel better prepared being able to monitor the levels themselves.
- To learn more about the community and other residents, working with them to write an emergency plan and learn about vulnerable people within close proximity who will need assistance.

OUTPUTS AND OUTCOMES

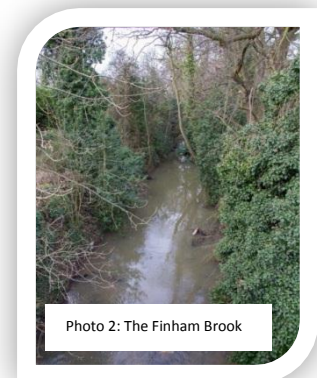
- Increased knowledge of flood risk and the rights and responsibilities of agencies and landowners.
- Positive engagement with agencies: watercourse clearance and CCTV inspections of drains are examples of these.
- Increased preparedness for an event; camera to visibly monitor the watercourse and emergency plans to limit damage to personal items by moving them to higher ground and property by erecting individual property level protection measures that have been purchased.

LESSONS LEARNT

The installation of the camera, along with continual maintenance and the partnership approach worked well. The residents were prepared to pay for the CCTV camera but the capital costs were covered by the project. This showed that the residents were keen to install the camera and that the maintenance fees would be continued.

WHAT DO RESIDENTS THINK?

“The camera provides reassurance. It is great to be able to monitor levels from inside the house when it is dark and wet outside, and the remote access feature takes away some of the worries when away from home” (Sue Fitton, Chair of the Flood Action Group, 2014).



Case Studies: **BEDWORTH CCTV CAMERA**



WHAT HAS HAPPENED?

Working with a community in Delamere Road in Bedworth, a CCTV camera has been funded and installed through the pathfinder project. The residents regularly monitored the trash screen, during the night and in hazardous condition before the installation. Warwickshire County Council funded the capital costs of the camera, a vision link product, and the maintenance and data costs have been picked up by The Environment Agency. Working with the Environment Agency, who already have another camera within close proximity meant that this could happen on their same maintenance programme. The camera has a twitter feed (@CV12 8QW) and a photo is posted every 4 hours.

The link is also available online (<http://www.vision-link.co.uk/community-home.php>) for the public to see. More frequent photos can be requested, by the Environment Agency during times of flooding. Having worked with the agencies, the residents would know who to call if they notice a blockage, therefore reducing the risk of flooding to the area.

AIMS AND OBJECTIVES

- To encourage community resilience by allowing residents to view the camera away from homes; to make a decision about returning to secure properties with individual property level protection, which most of the homeowners have, or moving furniture and vehicles to higher ground.
- To allow residents peace of mind. Although the camera will not stop the flooding, they feel better prepared being able to monitor the levels themselves.

OUTPUTS AND OUTCOMES

- Increased knowledge of flood risk and the rights and responsibilities of agencies and landowners.
- Positive engagement with agencies: watercourse clearance and CCTV inspections of drains are examples of these.
- Clear example of partnership working between Warwickshire County Council funding the capital costs and the Environment Agency funding and completing maintenance.

LESSONS LEARNT

- Communities are more favourable of visual aids.
- Working in partnership produces positive benefits for the community.

WHAT DO RESIDENTS THINK?

“The camera is working and our group view it regularly, even though we have not had very much rain. The river level has been steady for a couple of weeks” (Tom Gay, resident of Delamere Road, 2014).

Case Studies:

SHIPSTON-ON-STOUR

NATURAL FLOOD ALLEVIATION



WHAT HAS HAPPENED?

Shipston and surrounding areas, Newbold and Tredington, have set up a flood action group to represent the communities at risk of flooding. Working in partnership with various agencies, they are investigating natural flood systems on a catchment level. The group understand, having spoken to representatives from the Environment Agency and Warwickshire County Council, that the benefit-cost ratio for Shipston would not indicate that a large scale hard engineering scheme is viable. Therefore, they accepted that they needed to look at alternatives. By monitoring the river levels during heavy rainfall and also flood conditions, they have the knowledge and evidence to prove that if the peak river level at a

particular point is higher than 3.4m then Shipston will flood. Therefore, if they can slow water down upstream, reducing the peak, they will reduce the risk of flooding in Shipston, Newbold and Tredington.

AIMS AND OBJECTIVES

- Reduce the peak flow in Shipston and surrounding areas to reduce the frequency of flooding.
- Work with landowners to create natural flood management measures such as debris dams and small storage areas upstream of Shipston.
- Encourage farmers and landowners to help manage flood risk, rather than hinder, through good practice, working closely with the National Farmers' Union.

OUTPUTS AND OUTCOMES

The last twelve months have been spent investigating funding processes and building knowledge of these within the flood group. They have secured funding to investigate further and visit other site locations where natural flood management has been a success. Output and outcomes so far include greater community cohesion, greater awareness and preparedness, and greater knowledge and understanding of flood risk.

LESSONS LEARNT

- Natural flood management is a very slow process, liaising with agencies and landowners takes time.
- There is a relatively small amount of solid evidence currently held on the benefits of natural flood management.
- Each rainfall event will be different and, with the large number of tributaries flowing into the Stour, it will be hard to monitor benefits of such work.

Economic benefits

A number of different technologies have been implemented through Pathfinder funding. The technologies are aimed at encouraging residents to help themselves when it comes to flood risk, monitoring watercourses and trash screens/culverts for any blockages. These technologies vary from simple gauge boards, for monitoring the water level, to a surface water pump. Other initiatives include money to refurbish an existing pump, money for rakes and brooms (for use before a potential high flow event) and funding for anti-erosion methods. The ownership lies within the relevant community/parish after the project. This also includes the continual maintenance and any replacements that may be required in the future.

The table below lists the different technologies which have been implemented in each of the communities, along with the likely economic and financial values associated with the flooding of properties in these areas. The technologies will reduce the frequency of flooding to these properties and will reduce the damages associated with flood events. They may even remove all damages during a specific event by, for example, maintaining a channel and trash screen upstream of a culvert so that the culvert does not block and no properties are internally flooded (instead of the number of properties in the table below).

Community	Technology implemented	Approximate number of houses with better protection	Economic value (£) (Based on £25,070 damages per property*)	Financial value (£) (Based on £38,032 damages per property*)
Eathorpe	Refurbished surface water pump and general resilience equipment	7	175,490	266,224
Grandborough	Signs for road users advising of flooding	4	100,280	152,128

Kenilworth	CCTV, gauge boards and furniture bags for residents	41	1,027,870	1,559,312
Willoughby	Road signs, rakes for maintenance of trash screens	3	75,210	114,096
Shipston	Research regarding natural flood management	19	476,330	722,608
Nether Whitacre	Surface water pump and gauge boards to monitor watercourses	16	401,120	608,512
Bedworth	CCTV installed on trash screen	40	1,002,800	1,521,280

*Based on flood duration of less than 12 hours with a depth of 0.3 m above upper surface of ground floors and taken from the MCM 2010 and represent ;'high level' means.

A more detailed modelling investigation was undertaken in-house by Warwickshire County Council flood risk management team for Kenilworth using the Finham Brook model provided by the Environment Agency. This found that there was a 60% reduction in the numbers of properties flooded during a 1 in 100 year event when the Common Lane culvert is clear, as opposed to when this culvert is 90% blocked, and over 70% reduction in numbers of properties flooded for a 1 in 20 year event. If the flood group's action plan to ensure that the channel is maintained (assisted by monitoring the CCTV and gauge board provided by the project) means that a blockage at the culvert is averted during a 1 in 100 year event, this equates to a likely economic saving of around £410k and a financial saving of around £620k, using the figures in the table above.

Lessons from the Pathfinder Project

There have been many lessons learnt from the Warwickshire Community Flood Resilience Pathfinder project to be taken forward when using this approach in other areas. Engaging communities by means of an independent person from the National Flood Forum has proven to be successful in terms of gaining trust quickly within local communities. There has been plenty of positive engagement with communities within Warwickshire, both with Warwickshire County Council and other agencies. Using the model of creating flood action groups adopting a 'grass roots' approach has enabled positive engagement.

Forming the flood groups in communities has given people who are at risk of flooding a positive voice in helping to shape flood risk issues within their local areas and engaging with flood risk management authorities in a positive way.

Two communities from each Borough/District were selected to work on the project. This was a new way of working for the National Flood Forum; normally communities at risk of flooding, or those that have previously flooded, contact the National Flood Forum for support. This made the initial engagement much harder due to the need to create an interest in flooding in some areas at risk of flooding.

In the early stages of the project, time and resources were dedicated to getting people involved, through letters and drop-in sessions. Some of these were more successful than others due to the issues that caused flooding problems.

It was evident that, after the winter floods of 2013/2014, the interest in the project increased. For example, when letter drops were completed in October 2013 and a drop-in session held within Shipston, only one household turned up. However, after the near miss in late 2013 and the gentle reminder of flooding issues in the area, a group has since been established and has been very pro-active.

It is apparent when working with communities that many of them are unaware of the rights and responsibilities of both agencies and landowners. Education on this is paramount and

engagement with the community, holding workshops and events, will help to disseminate this information.

Working with communities is a slow process. Residents often lead busy lives, and they are required to drive this type of project. Pathfinder had a small timescale and this will have implications. A two year project was often not long enough to establish flood groups, establish all their issues, work with agencies to help alleviate these, and implement all the technologies to help with their community resilience. As the project was a pilot, it was evaluated and the baseline and final questionnaire have also taken time. Initially, prior to the baseline questionnaire being distributed, there was little communication with communities to avoid affecting the baseline results. Effectively, after taking into account the project set-up time, and the baseline and final evaluations, the project was a year in length, and this is a short duration for a community-led project.

Having worked within schools it became apparent that the younger years, years 7 and 8, were much more engaged and interested in the content of the presentations. The activities could be organised to be fun with an element of learning. Teaching one class of 16 year olds was not as interactive or successful. Younger children are also more likely to speak to parents about what they have done during the day, on the journey home from school for example, and therefore the information is disseminated to parents/guardians.

Throughout the Pathfinder project, there was one particular community that did not engage with the project and this could have been for a number of reasons. Works completed in the area, such as clearing of the watercourse/works to drains may lead to communities feeling their problems are sorted and they are no longer at risk. Other reasons such as deprivation and ownership of the property encouraged/discouraged residents to be involved in the project as well as whether the property was owned or rented. Many of the properties in one area are businesses with a lease, and it may be thought that the issue does not lie with the tenant.

The model followed throughout the project has been successful with eight established groups having at least one multi-agency meeting to discuss issues. Some of these communities believe they have the answers to their questions and therefore the groups may subside over time. However, many of them will be continually working to get what they can to help their situation. Many of the communities are currently working on initiatives that will help them feel more prepared for flooding or lower their flood risk. Managing the expectations of the communities was a large part of this project and ensuring they were not under the pretences that at the end of this project they would be risk free. Instead, the groups have focussed on working towards feasible solutions and building relationships with the agency representatives.

'How To' Recommendations

Activity? (obj)	Engage on a county-wide level regarding flooding.
Audience?	Diverse audience consisting of councillors, stakeholders and members of the public.
Who can deliver?	Anyone with knowledge of the County Council and other authorities roles and responsibilities with regard to flood risk management, as well as the way in which partners work positively together. Those delivering need to have an understanding of legislation, budgets and programmes. This is to engage with the community in a positive way while ensuring that expectations are not raised too high.
What?	<p>Presentation on the role of the Lead Local Flood Authority with a question and answer session. This is to include a brief of the legislation, schemes completed and future schemes. An interactive activity, including large scale maps and questionnaires allowed participants to mark up areas prone to flooding and the effects. Warwickshire County Council could then use this information in their county-wide Surface Water Management Plan and Local Flood Risk Management Strategy to prioritise and highlight hotspots.</p> <p>The workshops were held from 7-9pm to get the highest number of attendees. Seven were held in total across the county.</p>
Method	<p>The agenda included:</p> <ul style="list-style-type: none"> ○ Warwickshire County Council – The role of a Lead Local Flood Authority (Michael Green, Flood Risk Manager); ○ a break out session collecting local flooding information; ○ Pathfinder Project Overview, aims and objectives (Naomi Gibson, Project Officer, National Flood Forum); ○ Community and household resilience – Coventry, Solihull and Warwickshire resilience team.
Resources	<p>Room hire, printing of large scale maps, employee time</p> <p>All trivial costs that can be incorporated into resources. Room hire within buildings will eliminate room hire costs.</p>

Outcome	Increased community awareness of flooding and procedures and policies within county. Evaluation was positive and number of people who attend will help determine the success of the outcome		
Risk Table			
<u>POTENTIAL RISKS</u>	<u>LIKELIHOOD</u>	<u>IMPACT</u>	<u>MITIGATION</u>
Poor turn out	Medium/High	High	Promotion through community groups, engagement with residents, social media
Negative response from community at workshop	Low/Medium	Medium	Requesting information on local flooding issues defuses initial frustration from those with specific flooding issues to report. Question and answer session allows community to learn and receive feedback. Managing expectations from offset is important. Honesty and knowledge will help when answering difficult questions

Activity (obj)	School engagement
Audience	Year 7 & 8 pupils
Who can deliver	Anyone with flooding knowledge and knowledge on what flood risk management authorities do.
What	<p>School lessons delivered to pupils in an interactive way. Activities designed to keep pupils interested. Using laptops, children were able to use the EA flood map to look at their areas to increase awareness of local flood risk. Online games were played such as 'what if' (http://www.crucial-crew.org/what-if/): here pupils select the right choice of what to do in a situation.</p> <p>A weather station was funded in each school as part of the project for pupils to use, allowing them to monitor the weather and climate.</p>
Method	<ul style="list-style-type: none"> - Introductions - EA flood map - Activities - 'what if' game
Resources	<p>Laptop with internet access (unless provided by the school). 'What if' game (http://www.crucial-crew.org/what-if/) and time for preparation and delivery of lesson. Printing of activity sheets.</p> <p>Weather station installed as an incentive for the schools. This resource would not need to be included if money is not available.</p>
Outcome	Engagement with pupils. Feedback from lessons was positive. Keeping pupils engaged and interactive shows that they are interested and learning.

Risk Table

<u>POTENTIAL RISKS</u>	<u>LIKELIHOOD</u>	<u>IMPACT</u>	<u>MITIGATION</u>
Pupils not willing to engage	Low	High	Keep lesson interactive, teacher will be observing, if not involved to keep pupils disciplined.
Lesson overruns	High	High	Plan lesson carefully, things take longer than you would imagine. Overrunning means that information may not be passed on.

Project legacy

The Flood Action Groups established as part of the Warwickshire Pathfinder have been established and supported with project legacy clearly in view. In practice, this has involved being 'hands on' initially with the groups, but ensuring that they take ownership of the group and its organisation after the first multi-agency meeting.

During March 2015 a networking event was held for flood action groups around Warwickshire. This was a chance for both pathfinder and non-pathfinder groups to meet and discuss problems they may have experienced and solutions to problems found. It was also a chance for sharing lessons learnt and exchanging details for future correspondence. The event proved successful with feedback being positive. Of the thirteen groups invited around Warwickshire, seven attended. The format of the evening allowed presentations from agencies on issues such as insurance and resilience and an informal break out session over food.

As part of the legacy of pathfinder and also to meet the objective of county-wide engagement through the project, the National Flood Forum Recovery Trailer visited each Borough/District within Warwickshire. This was completed over the duration of a week and was a chance to engage with the general public about flooding, delivering information from flood action groups and organisations as well as advertise and encourage responses on the Warwickshire Local Flood Risk Management Strategy consultation.

Technologies have been implemented in communities and the ownership handed over to communities/parishes. These have been funded by the Pathfinder project and communities are aware of this. Therefore the legacy of the project will continue within the area.

Developing emergency flood plans, working with the Coventry, Solihull, Warwickshire Resilience team, will ensure that communities are better prepared for future flooding. The groups have been established through the Pathfinder project, and by working on emergency action plans it is hoped that damage will be limited and the recovery process quicker.

Warwickshire County Council has secured funding for a role of similar nature to continue part-time within Warwickshire following the completion of the Pathfinder project. Due to the success and the positive outcomes from Pathfinder, the approach will also be adopted in Worcestershire to make the role full time. Staffordshire and Shropshire are also implementing a similar role and lessons learnt within Warwickshire and other areas can be implemented.

Four of the nine flood action groups were particularly engaged and pro-active. This is due to the group. All communities experienced the same level of input and support and it is likely that many of these flood action groups will continue long after the project and the three year contract. Some of these groups, after having a multi-agency meeting or funding, have had their questions answered and incentives implemented. They now have greater knowledge of the roles within flood risk management and have also built links between themselves and the risk management authorities for the future. At least two non-pathfinder groups are also likely to continue after March working with agencies within their communities to lower/mitigate flooding within the community.

The project has also trained up a number of staff, allowing them to gain experience and knowledge. The two university students on placement with the County Council to work on the project (one for each of the two years), for example, have developed working skills and engagement experience both with partners and communities and this is a wider success of the project.

Conclusion

The project within Warwickshire achieved its objectives, largely through creating nine flood action groups around the county. In addition, other communities have heard about the approach and themselves formed a flood group.

Evidence collected illustrates that communities feel this approach has helped speed their achievements as well as receiving funding they would not have had access to without the project. They have built relationships with agency representatives and know more about responsibilities that each of them has.

County-wide engagement has raised awareness of flooding, and the important role of communities in helping to manage and mitigate local flood risk. By doing this through county-wide engagement workshops and using the National Flood Forum trailer communities not directly targeted by the Pathfinder project have also been reached.

Many of the communities engaged feel better prepared for and protected from flooding, although due to the short duration of the project, some communities feel that they are on the way towards being more resilient with the best yet to come. An evaluation of groups around the county could be conducted in a few years to determine the successes and how the technologies for which they received funding have been received. This may be most beneficial following another flooding event.

Appendix 1 – Grant allocation and other funding

Community's allocation

Allocation of monies to communities from grant applications

Community	Grant award recommended	Maybe	No	Total Requested	Total allocated
Eathorpe	£2,820	£5,000	£2,600	£10,420	£7,820
Grandborough	£750			£750	£750
Kenilworth	£2,800		£1,800	£4,600	£2,800
Willoughby	£960	£930	£1,800	£3,690	£1,890
Shipston	£8,500	£1,500	£2,000	£12,000	£10,000
Nether Whitacre	£29,200	£3,000	£3,000	£35,200	£32,200
Bedworth	£3,670			£3,670	£3,670
Total	£48,700	£10,430	£11,200	£70,330	£59,130

Appendix 2 –Exit Strategy

Warwickshire Community Flood Resilience Pathfinder Project Exit Strategy

Introduction

In March 2013 Warwickshire County Council were awarded a grant from Defra to run a Community Flood Resilience Pathfinder project. This project is ongoing and aims to develop a truly community-led approach to flood resilience by proactively engaging and empowering individuals and groups to gain a greater understanding and ownership of flood risk and to develop and implement sustainable solutions by their leading the creation and delivery of their own Local Flood Resilience Action Plans as an integral part of the Local Flood Risk Management Strategy. There are three main aspects to the project:

- achieving a reduced flood risk due to community-working within ten target communities;
- achieving greater community-working in flood risk across the county through a county-wide engagement programme;
- engaging more fully in specific areas through local schools.

The funding is for a two year project finishing in March 2015. During the course of this, and other, pathfinder projects, it has become increasingly clear that two years is a very short timescale for making progress in community engagement. While we will need to report to Defra on lessons learned within the required timescales, there are risks and opportunities in withdrawing the support which the project has provided since early 2014.

This exit strategy seeks to address these risks and opportunities with the following objectives in view.

1. To build on what we have achieved in the nine target communities and county-wide engagement.
2. To use the project as a springboard to enable the benefits of the project to be spread to other communities and flood groups across the county.

Building on what we have achieved in the target communities

This focusses on the sustainability of the flood groups which have been set up during the project. As part of the ongoing work with each target community the project is seeking to embed within the communities the methodologies being employed as part of the project and empower the communities to lead in actioning these methodologies. For example, each target community is being encouraged to lead on

the development of action plans and the organisation of Multi-Agency Meetings. These action plans focus on local flood risk management and how Flood Risk Management Authorities can help community groups to reduce their local flood risk. Target communities have also been encouraged to develop emergency action plans to mitigate the effects of a flood and become more resilient to flooding. The target communities have already been encouraged to consider how they will continue after the completion of the Pathfinder project, and they should commit these to writing to form exit strategies for each community.

There was a training day / networking event organised for the nine target communities towards the completion of the Pathfinder project in order to enable sharing of lessons learned and to enable communities to more easily offer support for each other. It is proposed that this become an annual event to provide ongoing support for the pathfinder communities with minimal resource required from WCC and its partners.

Multiplying the benefits of the project to other communities across the county

Lessons learned from the pathfinder target communities will be gathered as part of the evaluation process. These, and lessons learned from other Pathfinder projects, will be utilised to increase the effectiveness of future engagement with other communities and establishment of other flood groups. Some communities have already expressed an interest in setting up flood groups (such as Welford and Fillongley) – this may increase moving forward.

It is proposed that the schools engaged be contacted on an annual basis to encourage them in the continued use of the gauges installed and for purposes of **ongoing evaluation** of the benefits of the project across the county.

The county-wide engagement meetings were undertaken in order to better enable communities to prepare for, and respond to, flooding. They also had a number of other benefits, however, including:

- clarifying the roles of the WCC flood team, CSW Resilience and Districts and Boroughs;
- listening to the concerns of communities;
- making new contacts with communities; and
- managing expectations.

Those who attended the meetings gave very positive feedback and it is proposed that this activity be undertaken in the future, say, biannually with one for north of the county and one for the south. This will, in part, depend on available resources (see next section).

A similar event to the annual event for target communities could be undertaken for all communities across the county, or that event opened up to include other communities, especially for example those involved in the 'Pathfinder Plus' project in Rugby Borough.. This event could also be used for **ongoing evaluation** of the benefits of the project for the target communities, and indeed for the county as a whole.

Resources

The main activities of the pathfinder project were concluded in November to allow a post-project evaluation before the end of March deadline and enable a 'handover period' when the communities exit strategies are put into action. We anticipate that the current full-time project worker will still be in post until the end of March 2014 to enable a four month handover. The current student placement in WCC will continue until the end of July 2014, giving a further four months after project completion with continued support and exit strategy implementation.

While the activities specified above have been proposed as those that will bring greatest benefit for least resource input from WCC and its partners, there will nevertheless be some resource implications to organise, for example, annual flood group meetings. The County Council have allocated around £30k per annum for a part time project worker from April 2015 until March 2018 in order to work with communities across the county to reduce the risk of flooding and identify possible sources of partnership funding to enable flood alleviation schemes to happen. This will be a full-time post joint funded by Warwickshire and Worcestershire County Councils and provided by the National Flood Forum. The project worker will spend on average 3 days per week in Warwickshire and 2 days per week in Worcestershire.

The project budget, while not ring-fenced, should be utilised in the undertaking of the project which will contribute to the project evaluation, lessons learned, and future policy development by defra. As such, there is limited scope for any use of the project budget beyond the lifetime of the project to assist in implementing the exit strategy.

Michael Green

24th March 2015.

Appendix 3 – Exit Strategy for each individual community

Exit Strategy for individual communities

NORTH WARWICKSHIRE

- Nether Whitacre

A flood action group was formed in Nether Whitacre through the Pathfinder project. There had been previous engagement in the area through the Environment Agency due to the 'Tame Scheme' within the area to help alleviate fluvial flooding. The community believed that the new banks will increase the likelihood of surface water flooding within the area.

Nether Whitacre flood action group have secured funding for £32,200 for a surface water pump. They have continued to work in partnership with the Environment Agency about the size of the pump required. The group have approached contractors to design the pump, working with partners and are looking to get insurance for members of the group to operate the pump during events. The group have constituted and have their own bank account for which the funding has been granted into. The group will continue after the project, ensuring they get their pump and an action plan in place for times of emergency. The group are proactive and attend events organised by Warwickshire County Council.

RUGBY

- Willoughby

Flooding within Willoughby occurs mainly on the road, causing access issues through the village and bow waves created by passing cars flood properties. The group formed as a result of the Pathfinder project and includes members of the community and parish council, joining the two. The Willoughby group are proactive and have attended events organised by Warwickshire County Council. It is expected the group will continue although less frequently as they have had works completed to clear the watercourse by Warwickshire County Council.

The group have been successful in receiving £1890 for community resilience measures such as;

- habitat survey for along the watercourse, so the riparian owner can remove overhanging debris
- erosion measures along the watercourse, working with Warwickshire County Council for consent
- rakes to clear the watercourse of any blockages prior to flooding
- purchase of road diversion signs

The money has been transferred to the parish council account for the use of the flood action group and the proposals they have made. Willoughby are also part of the lengthmans scheme, a pilot project for two years working through Rugby Borough Council and Warwickshire County Council. The community have a fixed amount of money to employ a lengthsman to keep highways clear, helping to alleviate the issues and reducing resources required in the area. This pilot started during 2015 and the community were selected through the Pathfinder project, due to the highway issues.

- Grandborough

A flood action group formed in Grandborough as part of the Pathfinder project. The main issues within the village include road flooding. The village is used as an alternative route for commuters during events, who often do not realise the lay of the road. The hump back bridge can be deceptive to drivers and many cars have been lost during historic events. The group were successful in securing £750 so they are able to survey an area of the road for markings to help indicate to drivers the depth of the water. There is also money available for road advisory signs to warn traffic of flooding. Warwickshire County Council is working with Coventry, Solihull Warwickshire Resilience to determine a system in which highways can be monitored safely. This is always a high priority within communities.

Grandborough are also part of the lengthmans scheme, a pilot project for two years working through Rugby Borough Council and Warwickshire County Council. The community have a fixed amount of money to employ a lengthsman to keep highways clear, helping to alleviate the issues and reducing resources required in the area. This pilot started during 2015 and the community were selected through the Pathfinder project, due to the highway issues.

NUNEATON AND BEDWORTH

- Nuneaton – Donnithorne Avenue

Donnithorne Avenue suffers with flooding from surface water and the watercourse. The main issue is debris build up and blockage of drains.

Currently, the residential home at the end of the close is being increased in size and the group have formed partnerships, not only with flood risk management authorities, but also the management personnel from the residential home to work with the group during the expansion.

The group did not apply for any money from the pathfinder grant and are likely to not function as a group following the end of pathfinder. They have however now built the links with the authorities that they needed.

- Bedworth – Delamere Road and Croft Pool

A small group of residents from Delamere Road formed following the start of the Pathfinder project. Many of the properties had flooded in 2008 and since, they have had a scheme constructed through the Environment Agency. The group were keen to get monitoring equipment on a trash screen that was known by residents as a common blockage site so they could see the watercourse from smart devices. This would allow them to remove/report any blockages to agencies as well as the river level during heavy rainfall. Works there should therefore be proactive rather than reactive. The group successfully bid for the capital costs for the unit and installation as well as one year's data. Working closely with the Environment Agency, who have a camera within close proximity; maintenance costs have been picked up by them in the future.

The group are less involved and less likely to function as a flood action group frequently after the project. They have however now built links with flood risk authorities and have the camera – which was their main objective.

WARWICK

- Eathorpe

There had previously been engagement in Eathorpe prior to the Pathfinder project and since forming a flood action group within the area the group has had positive outcomes. They have been successful in securing £7820 which will pay for a number of initiatives to help make the community more resilient. These include:

- Money to refurbish an existing surface water pump, for use during flooding
- Money for equipment to help during an emergency, such as wheelbarrows
- Property level protection surveys on 10 properties at risk of flooding for property level protection measures

The group are proactive and currently organising their second multi-agency meeting to meet with partners. They have had CCTV inspections carried out along the highway to investigate if there are any blockages.

- Kenilworth

Finham Brook flood action group was established after flooding occurred in 2012 to the area within Northvale Close and Forge Road. The group were in contact with the National Flood Forum and it was agreed this could be a community for the Pathfinder project. The group have continued to have multi-agency meetings and have achieved a large amount in a small amount of time. They have been successful in funding for furniture bags, a CCTV camera and gauge boards, which will help the community monitor the water levels of the watercourse. The group are currently working to create an emergency plan for residents and are working

with Warwickshire County Council Highways to be able to move cars to higher ground during a flooding event.

The group are proactive and attend events organised by Warwickshire County Council, they are likely to continue after the end of pathfinder, working with the partners to develop plans.

STRATFORD-UPON-AVON

- Shipston and surrounding area

Through the Pathfinder project, Shipston and surrounding areas flood group formed. This includes residents from Shipston, Tredington and Newbold who all have issues with the River Stour. Newbold also have sewer flooding issues and are working with Severn Trent Water. The group are very proactive and currently working to look at natural flood defences upstream. They have been to visit other areas where these have taken place to investigate their successes. The area narrowly missed flooding during the winter storms of 2013/2014 where the group established and are working to ensure drains and ditches are clear on a local level and natural flood defences around the catchment.

The group were successful in securing £10,000 for research, working with landowners and agencies such as the woodlands trust to help slow the flow into the area. This will be through woody dams, storage ponds etc.

The group are very proactive and organised multi-agency meetings themselves. They have up to date minutes which are distributed to all members and agencies. They attend events organised by Warwickshire County Council and have designed their own emergency plan for households which have been distributed to homeowners at flood risk. They have a very active town council and have a great partnership between them. The group are looking to work with other communities affected by the same catchment issues in the future.

- Bidford on Avon

The group formed through the Pathfinder project due to the flooding issues experienced. Their main concerns were the siltation and debris under the arches and clearance of ditches and drains. The group have had a multi-agency meeting to discuss these issues with the agencies.

Since the meeting the group have remained quiet, however the links to the relevant agencies have been formed should they require them in the future. There was no bid submitted by Bidford flood group for resilience measures.

Appendix 4 – Activity Report Year 1

Project Objectives:

- ❖ To create five sustainable Flood Action Groups within the 5 Boroughs/Districts of Warwickshire, where communities will work with Flood Risk Management Authorities in an aim to lower the risk of flooding. These communities were selected by working closely with the councils to choose areas with previous flooding history, an actively engaged community and preferably a proactive parish/town council in which initial engagement could be made and continued support received after the project.

- ❖ To improve county-wide resilience to flooding across Warwickshire. By completing a baseline questionnaire, which not only covered the target areas but was also available for all, the level of resilience to flooding could be determined; this will feed into the Local Flood Risk Management Strategy. Throughout May and June 2014 seven workshops have been organised in partnership with Warwickshire County Council, the Districts and Boroughs of Warwickshire, The National Flood Forum and Coventry, Solihull and Warwickshire Resilience, to speak to parishes, community groups and members of the public about becoming more resilient, not only to flooding but to other emergencies too.

- ❖ To work with schools to install a weather station for the pupils to use as part of their school curriculum to raise awareness of flooding, and teach them how to be more prepared, in order to limit damage of living in a flood risk area. It is hoped that students will be able to encourage parents to be more aware of the risk of flooding by discussing what they have learnt during lessons. The weather station data will be accessible online and also on smartphone apps so pupils are able to view data away from school, when they are out of term time and Flood Risk Management Authorities will also be able to access the information for monitoring purposes.

Year 1 highlights

Since the start of the project, baseline information has been collected for the ten target areas and a detailed report completed. Flood Action Groups in Kenilworth, Shipston, Bidford and Willoughby have been established, with a core group who will represent the community. Working with these groups, email addresses have been created so that residents and members of the community can send individual issues they may have to the Flood Action Group. They have also produced leaflets to publicise themselves, promote their work and have collated flood risk related issues and suggested solutions to present to Flood Risk Management Authorities in 'multi-agency meetings'. In the other areas this process has been slower but most communities have been engaged with. A multi-agency meeting has been held within Willoughby and was deemed a success. The residents were pleased with the meeting and got to discuss flood related issues that they had. Many actions arose from the meeting and site visits with the community and Authorities have been set up to discuss the issues and any possible solutions. Relationships have been established between the Authorities and the core flood group members and these will continue to be built, meeting regularly for the multi-agency meetings to discuss possible solutions to flooding and ways forward.

Seven 'Community Flood Resilience Workshops' have been organised throughout May and June, to which parishes, community groups and members of the public have been invited. These are not only covering resilience to flooding but also what to do in any emergency. The agenda consists of the following:

- **Local Flood Risk Management Strategy** – *Michael Green / WCC Flood Risk Management Team*
 - How is flood risk managed in Warwickshire?
 - "Tell us your flooding stories" – breakout session
- **Warwickshire Community Flood Resilience Pathfinder Project** – *Naomi Gibson / Sacha Barnes*
 - What is Pathfinder?
 - Communities involved
 - Wider county engagement

- **What to do in emergencies** – *Michael Enderby / CSW Resilience Team*
 - What happens in an emergency
 - CSW Resilience and our response
 - Community Resilience: Parish Emergency Plans & Grab Boxes
 - Personal Resilience Programme

Grab boxes will also be distributed to parish/town councils (or ward councillors in Nuneaton & Bedworth) and possibly Flood Action Groups, which will include essential items required in an emergency such as; wind up radios, disposable gloves etc. that the community can use.

The baseline survey, when it went live, was not only available to target areas but to all residents within Warwickshire affected by flooding. Warwickshire County Council will be able to use the results to assist in the on-going preparation of the Local Flood Risk Management Strategy. As part of the evaluation, a community questionnaire is currently being distributed. Those people who completed the baseline survey are being invited to attend the workshops already described.

The project also aims to work with schools. Six schools have been approached that are in close proximity to the target areas where Flood Action Groups are being established. Pathfinder is funding on site weather stations in interested schools for pupils to use as part of their curriculum activities when learning about weather, climate and flooding. By monitoring the data they will become more aware of the weather around them. It is hoped that by going into the schools and discussing flooding in their areas and the effects it has on the communities, they will think more about being prepared. They will be advised to go home and discuss with parents, increasing awareness and encouraging resilience. It is hoped that once the weather stations are installed and pupils are using them and the relevant Flood Action Group is established and sustainable, that a link can be made between the two. This could allow the local community to use the data from the weather station, and the profile of the Flood Action Group will be raised within the school. This will aim to prolong the sustainability of the group as well as ensuring that the school and community projects are not disjointed and isolated.

Within Warwickshire as well as the ten community groups that pathfinder is working with, there has been interest from another three groups who are working with The National Flood Forum to establish Flood Action Groups and follow the same approach. These groups have been established in Fillongley; North Warwickshire Borough, Welford-on-Avon; Stratford District, and Barton; Stratford District. These are all in the early stages of formation.

Winter storms 2013/2014

Although Warwickshire did not suffer too greatly during the wet weather over the winter period in terms of internal property flooding, there was definitely a positive impact upon the project due to the high river levels and the news coverage nationally. This was particularly the case in Shipston-on-Stour where previous drop-in sessions held during November received a poor turnout of people. Following the recent wet weather, interest in the project increased in Shipston and residents were very keen to set up a group. Since meeting with the community again, a very proactive core group has been established and a multi-agency meeting has been organised for early May. The River Stour came very close to flooding in December 2013; this served as a reminder that flooding is a likely phenomenon within Shipston and people can be more prepared, resilient and work with the agencies to try and limit the impact of flooding. Over the whole of Warwickshire, the general level of interest in the project was raised because of the weather.

Expected long term impacts

The intention is to build relationships between the Agencies and communities that will be sustainable long after the project has finished. By facilitating the groups, but encouraging their own ownership, it is hoped that following the closure of the Pathfinder project the Flood Action Groups can continue to work with the Flood Risk Management Authorities to share information and manage flood risk locally. Where weather stations have been installed, these will continue to be used after the project – to raise awareness of flooding and allow the children to monitor the weather. It is hoped the legacy of pathfinder will remain within Warwickshire and the process of partnership working within and between communities continued.

By linking the Flood Action Group with schools it is also hoped that this will promote the sustainability of the groups. Allowing groups to share experiences and pictures with students may encourage them to think more about resilience and how they can be more prepared.

During the second year it is hoped that meetings will be organised where established Flood Action Groups within Warwickshire can get together to encourage the sharing of ideas and experiences and act as a learning experience. This will link the groups, establishing relationships and aid the sustainability once the pathfinder project ceases. By this time all the groups should have had multi-agency meetings and it will be an opportunity to link the pathfinder Flood Action Groups with those set up with help from the Environment Agency and The National Flood Forum.

The community flood resilience workshops will also provide new knowledge and encourage parishes to create emergency plans and individual residents to consider improving their own personal resilience. By increasing the persona of flooding on a county level, sharing information and learning and encouraging people to become more resilient it will hope to lower the effect that flooding has on individual properties. Hopefully insurance companies may work with the project to provide more affordable insurance in areas where they are proactively trying to minimise the damage to properties.

Organising workshops where the Flood Action Groups can all be together, share experiences, knowledge and contact details will mean they are able to work together to learn once the pathfinder project has finished. They can learn from experiences and lessons learnt and share this with other groups. Emergency plans, insurance and property level protections measures are key ideas that can be shared between groups.

Working with the Flood Action Groups, small scale technologies that will benefit the community have been discussed. In Kenilworth, CCTV has been installed along the watercourse that can be accessed online during the day or night (through an infrared camera). The residents within the community have access to the online viewing of the camera and are able to monitor the watercourse. This is beneficial if they are away from their homes, such as at work or on holiday. It will allow them to monitor the watercourse in periods of high rainfall so they can make a decision about whether they need to move furniture and cars etc. or implement their property level protection. They are also hoping for two gauges to be located on the watercourse so the level of the river can be monitored from varying locations.

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Within Bedworth negotiations and discussions are underway to look at automatic trash screen clearing. By working with insurance companies pathfinder aims to determine whether having this implemented would lower the insurance premiums in the area. The Environment Agency has completed modelling scenarios of the trash screen for various

sized blockages to determine the impact this would have. Costing's of an automatic trash screen are currently being discussed.

In many of the areas the most common form of expenditure they require is for CCTV, so they are able to monitor the watercourse – therefore this may be implemented in other communities as well as Kenilworth, as well as gauge boards, again so that the level of the river can be monitored by residents.

Baseline Characterisation

Within Warwickshire there were previously six Flood Action Groups established. These were: Kenilworth, Southam, Avon Caravan Estates, Broom, Henley in Arden and Alcester. These had been set up with help from The National Flood Forum or The Environment Agency. Within Warwickshire there were also three Flood Wardens established in Kenilworth, Avon Caravan Estates and Southam. A Flood Warden as described by The Environment Agency is 'usually those who have been through training from the Environment Agency in conjunction with their Parish Council.' This is something that some of the other communities may be interested in completing later in the year.

The communities selected for pathfinder were chosen due to the likelihood of them working positively as a community and with Flood Risk Management Authorities to yield results within the short two-year timescale. Communities that were selected had experienced previous flooding and encountered previous positive engagement. This way the risk was reduced because it was hoped these residents would be keen to work with the project. The original project plan was to work with five community groups, one from each Borough/District but this was quickly increased to ten.

Kenilworth had already formed a Flood Action Group following the November/December 2012 flooding that occurred within the area. The main residents affected by the Finham Brook are Northvale Close and Forge Road. They were then selected with Warwick District Council, Warwickshire County Council and The National Flood Forum to be part of pathfinder. Working with the Environment Agency they have managed to get modelling completed on the Finham Brook to determine the effect upstream storage would have on the residents downstream, and working with county highways they managed to have the drains examined for blockages; the residents felt the highway drainage was increasing flood risk. CCTV has been installed along a section of the Finham Brook in which the residents can view online using a username and password. They will be able to see the river levels 24 hours per day, which will be of great importance when it is raining – especially if they are away from their houses. They will be able to monitor the water levels and proceed with plans to minimise the impact if flooding is imminent. They will be able to assess the

situation from work or on holiday etc. and determine if plans need to be adapted in order to return home and put emergency procedures into place. The CCTV has been funded by the pathfinder project. Capital costs were reimbursed to residents however ownership and maintenance as well as on-going costs lie with themselves. They are fully aware and accepting of this arrangement.

Within Polesworth previous engagement, led by The Environment Agency, had been carried out during February 2013. A public drop-in ('flood surgery') was held in which residents were able to discuss with the relevant agencies the effect that flooding has, where they believe the flooding originated from, and their personal experiences. The turnout for this event was good and it was hoped that Pathfinder could follow on from this. However, the engagement following this has not been well received. Resources have been used to try to encourage people to work with the project, but with little success. The original project plan to create a Flood Action Group within Polesworth has now been changed and the new proposal is to work with the owner of the only shop that internally floods (the Spar), to complete a business contingency plan and install property level protection. The owner is keen to engage and was one of the only few prepared to work with us originally. Hopefully by working in this way some sort of legacy can be left within Polesworth from Pathfinder.

Rugby Borough Council has been very proactive in working with parishes where there is a significant risk of flooding prior to Pathfinder. Grandborough and Willoughby were selected for the project because: they were keen to be engaged; there were issues that could be worked with which would hopefully be mitigated; and they had suffered from blocked trash screens/culverts that they are keen to monitor themselves, (which was part of the original project plan). Rugby Borough Council are working with the other parishes in the Dunchurch Division to complete 'Pathfinder plus' following the same approach as Pathfinder and initiating Flood Action Groups to work with Agencies to aid them in managing their own flood risk. This is one of the many wider benefits of the pathfinder project within Warwickshire.

Description of work packages

Work package activities and milestones

Activity	Date completed
Baseline questionnaire design	August/September 2013
Baseline questionnaire distribution	September/October 2013
Deadline for baseline questionnaire responses	November 2013
Drop in sessions in target areas	November/December 2013
Initial meetings held with residents	January/February 2014
Meeting with the core groups to develop action plans	February 2014 - On-going
Engagement with schools	March 2014 – On-going

Work Package Audience

Currently successful groups have been established in Willoughby, Kenilworth, Shipston and Nether Whitacre where engagement with the community has occurred. Groups are also being formed in Nuneaton, Bedworth, Grandborough, Eathorpe and Bidford. The groups have been encouraged to ensure the rest of the community is aware of the Flood Action Group, the project, and its expected outcomes. This has been completed in a variety of ways, such as leaflet drops, creation of email addresses, websites and using social media. In terms of school engagement, we are working with pupils to encourage and raise awareness of resilience to flooding, with the aim of them disseminating information to parents/guardians. Presentations have been shown to years 7, 8 and 11, with the most engaged and interested being the younger year groups. Interactive games have been played, information has been given and the pupils were able to engage in question and answer sessions. The county-wide engagement workshops will reach other residents within Warwickshire who want to learn about resilience measures and the Local Flood Risk Management Strategy. Councillors have also been invited to these events to encourage emergency plans within their localities, therefore raising the level of county resilience within Warwickshire.

Work package outputs

<u>Tangible Output</u>	<u>Number</u>
Distribution of baseline questionnaire	900 (approx.)
Baseline questionnaire responses	457
Distribution of community questionnaire	300 (approx.)
Community questionnaire responses	100 (approx.)
Number of Flood Action Groups formed	9 (all at different stages)
Number of initial meetings organised	8
Number of second meetings organised	7
Number of third meetings and multi-agency meetings organised	4

Work package outcomes

Many communities have had previous engagement with relevant Flood Risk Management Authorities in the past, especially those areas that flooded badly during 2007 and 2012. Many of the communities deal with the Authorities singularly and this is not often the best way as responsibility for assets can be unclear. Also, by working together in partnership there may be other funding opportunities that can be looked at and explored. Working with the community to determine worries/concerns they may have and share experiences will mean that they are involved in future decisions and understand work that is to be carried out in their area.

Reasons for changes from the pathfinder proforma

There have only been two significant changes within the Warwickshire pathfinder project. Firstly, the number of communities in which we were working increased from five groups to ten. Although this created more work, the risk of not creating five sustainable Flood Action Groups has been lowered; this was the original project plan.

The other main variance is that Polesworth has been eradicated from the plan as a community to engage with due to the lack of interest in the project. Many attempts have been made to involve the community; firstly, initial drop-in sessions were held in November with very little success. Following this, the baseline questionnaire results were studied and those who had replied stating they would be interested in a local Flood Action Group and did not mind being approached again were contacted to explain the project in more detail and ask if they wished to be involved. Again this did not prove very forthcoming of residents showing an interest. Visits to the area were undertaken to speak to businesses about the flood risk in the area and there were a few common reasons for the apparent lack of enthusiasm. Firstly, the main concern, as a result of the Environment Agency drop in session during February 2013, was the residents feeling that the river needed dredging. Due to works undergone in the area by another organisation this dredging has now been completed. The drains within Polesworth have also been relined and this was another big issue the residents had and believed posed a flood risk. There is also a parish led flood alleviation scheme being undertaken in the area to create a ditch which will help alleviate flooding to some properties. Again these residents will be less likely to want to engage with the project as their risk has been lowered. Finally, the majority of the buildings in which the businesses are situated are owned by the same person, who does not live in or near to Polesworth. The businesses that rent are those such as butchers, where stock would not get damaged if flooding occurred, but would be more of an inconvenience. They may have the mind-set “why should we protect someone else’s building?”

The Warwickshire Pathfinder project is on track, with only minimal changes to the original Gantt chart. These have mainly been towards aspects that relate to the communities because of working at their pace. Often they have other priorities so the progress with the flood group is slower. The overall aim of the project is to have completed the majority of work packages by December 2014. This would leave January, February and March 2015 to complete the evaluation and report writing. The meeting for all the flood groups to get together will be organised for early 2015 to encourage the groups to continue following the closure of the project. This will interlink the groups with knowledge and experiences shared.

Appendix 5 – Activity Report Year 2

Project Objectives:

- ❖ To create five sustainable Flood Action Groups within the five Boroughs/Districts of Warwickshire, where communities will work with Flood Risk Management Authorities in an aim to lower the risk of flooding. These communities were selected by working closely with the councils to choose areas with previous flooding history, an actively engaged community and preferably a pro-active Parish/Town Council in which initial engagement could be made and continued support received after the project.

- ❖ To improve county-wide resilience to flooding across Warwickshire. By completing a baseline questionnaire, which not only covered the target areas but was also available for all, the level of resilience to flooding could be determined; this will feed into the Local Flood Risk Management Strategy. Throughout May and June 2014 seven workshops have been organised in partnership with Warwickshire County Council, the Districts and Boroughs of Warwickshire, The National Flood Forum and Coventry, Solihull and Warwickshire Resilience, to speak to representatives from Parish and Town Councils and community groups and flood groups about becoming more resilient, not only to flooding but to other emergencies too.

- ❖ To work with schools to install a weather station for the pupils to use as part of their school curriculum to raise awareness of flooding, and teach them how to be more prepared, in order to limit the impact of living in a flood risk area. It is hoped that students will be able to encourage parents to be more aware of the risk of flooding by discussing what they have learnt during lessons. The weather station data will be accessible online and also on smartphone apps so pupils are able to view data away from school, when they are out of term time and Flood Risk Management Authorities will also be able to access the information for monitoring purposes.

Year 2 highlights

Pathfinder created nine flood action groups across Warwickshire. Throughout year two, the progress of these groups has continued, as well as working with other non-pathfinder groups.

A major highlight of year two is grant funding which was available for flood action groups within pathfinder to bid for. Seven of the nine pathfinder groups provided applications for funding to promote and encourage community resilience. Some of these initiatives included CCTV for trash screens; allowing residents to view the trash screens from smart devices. Table 1 illustrates the expenditure that each community received and a small description of what the funding will be spent on.

Table 1: What each pathfinder community received in funding and what it will be spent on

Community	Grant award recommended	Maybe	No	Total Requested	Total allocated	Description of what funding will be spent on
Eathorpe	£2,820	£5,000	£2,600	£10,420	£7,820	Survey of 10 properties for property level protection, money to refurbish a surface water pump, equipment to aid resilience, wheelbarrows etc.
Grandborough	£750			£750	£750	Survey of ground to allow markings for flood levels, signs for road users advising of flooding
Kenilworth	£2,800		£1,800	£4,600	£2,800	CCTV, gauge boards, furniture bags for residents
Willoughby	£960	£930	£1,800	£3,690	£1,890	Habitat survey, road signs, rakes for maintenance, erosion control
Shipston	£8,500	£1,500	£2,000	£12,000	£10,000	Research funding for natural flood defences
Nether Whitacre	£29,200	£3,000	£3,000	£35,200	£32,200	Surface water pump and maintenance, gauge boards to monitor watercourse
Bedworth	£3,670			£3,670	£3,670	CCTV installed on trash screen. Community able to view from smart devices. EA to continue maintenance thereafter
Total	£48,700	£10,430	£11,200	£70,330	£59,130	

Winter storms 2014/2015

During 2014/2015 there has not been significant flooding within Warwickshire or nationally. The project has continued to try and raise awareness of flooding and remind people of the consequences; ensuring they best prepare themselves for the future. Flooding appears to be soon forgotten by communities, meaning engagement is that little bit more difficult.

Expected long term impacts

The intention is to build relationships between the Agencies and communities that will be sustainable long after the project has finished. By facilitating the groups, but encouraging their own ownership, it is hoped that following the closure of the Pathfinder project the Flood Action Groups can continue to work with the Flood Risk Management Authorities to share information and manage flood risk locally. Where weather stations have been installed, these will continue to be used after the project – to raise awareness of flooding and allow the children to monitor the weather. It is hoped the legacy of pathfinder will remain within Warwickshire and the process of partnership working within and between communities continued.

By linking the Flood Action Group with schools it is also hoped that this will promote the sustainability of the groups. Allowing groups to share experiences and pictures with students may encourage them to think more about resilience and how they can be more prepared.

During the second year a networking event was organised for all flood action groups around Warwickshire. This linked the groups together, establishing relationships and aid the sustainability once the pathfinder project ceases. All flood action groups have had at least one multi-agency meeting and the networking event allowed the groups a chance to meet with other groups around the county. The community flood resilience workshops will also provide new knowledge and encourage parishes to create emergency plans and individual residents to consider improving their own personal resilience. By increasing the persona of flooding on a county level, sharing information and learning and encouraging people to become more resilient it will hope to lower the effect that flooding has on individual properties. Hopefully insurance companies may work with the project to provide more affordable insurance in areas where they are proactively trying to minimise the damage to properties.

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Description of work packages

Work package activities and milestones

Activity	Date completed	Audience
Engagement with schools	January 2015	Pupils and teachers at schools in flood risk areas
Networking	March 2015	All flood action groups within Warwickshire
County wide engagement through recovery trailer	March 2015	County-wide