KENT FLOOD RISK MANAGEMENT COMMITTEE

Monday, 21st July, 2014

2.00 pm

Council Chamber, Sessions House, County Hall, Maidstone

Kent County Council
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AGENDA

KENT FLOOD RISK MANAGEMENT COMMITTEE

Monday, 21st July, 2014, at 2.00 pm Ask for: **Andrew Tait**

Council Chamber, Sessions House, County Hall, Maidstone Telephone **01622 694342**

Tea/Coffee will be available 15 before the start of the meeting in the meeting room

Membership

Conservative (4):	Mr M J Harrison (Chairman), Mr A H T Bowles, Mr L B Ridings, MBE and Mrs P A V Stockell
UKIP (1):	Mr D Baker
Labour (1)	Dr M R Eddy
Liberal Democrat (1)	Mr M J Vye

UNRESTRICTED ITEMS

(During these items the meeting is likely to be open to the public)

Webcasting Notice

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1. Membership

   To note the appointment of Cllr Geraldine Brown (KALC) and Mr Paul Flaherty (KFRS) as representatives of their organisations on the Committee.

2. Substitutes

3. Declarations of Members' Interest relating to items on today's agenda

4. Minutes of the meeting on 11 March 2014 (Pages 5 - 16)

5. Report Back from Scrutiny Committee (Pages 17 - 22)

6. Report to Cabinet on the Christmas/New Year 2013/14 Storms and Floods (Pages 23 - 54)

7. Highway Drainage Infrastructure Repairs, Renewals and Improvements (Pages 55 - 58)

8. Environment Agency and Met Office Flood Alerts and Warnings and KCC flood response activities since the last meeting (Pages 59 - 62)

9. Sustainable Drainage Oral Update

10. Other items which the Chairman decides are Urgent

EXEMPT ITEMS

(At the time of preparing the agenda there were no exempt items. During any such items which may arise the meeting is likely NOT to be open to the public)

At the end of the public session, Members of the Committee should remain in the meeting room for 20 minutes for summing up

Peter Sass
Head of Democratic Services
(01622) 694002

Friday, 11 July 2014

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KENT COUNTY COUNCIL

KENT FLOOD RISK MANAGEMENT COMMITTEE

MINUTES of a meeting of the Kent Flood Risk Management Committee held in the Council Chamber, Sessions House, County Hall, Maidstone on Tuesday, 11 March 2014.

PRESENT: Mr M J Harrison (Chairman), Mr D Baker, Mr A H T Bowles, Mr R H Bird (Substitute for Mr M J Vye), Dr M R Eddy and Mrs P A V Stockell

IN ATTENDANCE: Mr M Tant (Flood Risk Manager), Mr T Harwood (Senior Emergency Planning Officer) and Mr A Tait (Democratic Services Officer)

ALSO IN ATTENDANCE: Mr P Vickery-Jones (Canterbury CC), Mr T Edwards, Mr J Muckle (Dartford BC), Mr F Scales (Dover DC), Mr A Hills (Shepway DC), Mr G Lewin (Swale BC), Mr H Rogers (Tonbridge and Malling BC), Mr D Elliott Tunbridge Wells BC) and Mr M Tapp (River Stour IDB)

UNRESTRICTED ITEMS

1. Membership
(Item 2)

The Committee noted the appointment of Mr D Baker in place of Mr B MacDowall

2. Minutes of the meeting on 18 November 2013
(Item 5)

RESOLVED that the Minutes of the meeting held on 18 November 2013 are correctly recorded and that they be signed by the Chairman.

3. Update on the recent floods - Oral report by Ian Nunn from the Environment Agency
(Item 6)

(1) Mr Ian Nunn from the Environment Agency began his presentation by saying that the flood events over the recent winter months had been worse than those of 2000. It had rained incessantly over the entire period. He believed that Kent was the area of the UK most at risk from flooding and that the recent events bore this out. There had been widespread flooding across the County, including a high number of affected properties.

(2) Mr Nunn went on to say that the Flood Incident Room had been open for some 50 days and had only closed at the start of the previous week. Everyone concerned had worked very hard for long periods and he thanked the Committee for having already unofficially thanked all staff for everything that they had done.

(3) Mr Nunn briefly explained that most people registered to receive Flood Warnings rather than Flood Alerts (which called for people to stay alert and vigilant). Often, they were not prepared for the emergency when the Flood Warning came.

Fortunately, there had been no risk to life which would have necessitated a Severe Flood Warning.

(4) There had initially been a massive coastal event, which had seen water levels rise higher than they had in 1953 (particularly in places such as Dover and Rye), making it a straightforward decision to close the Thames Barrier. This had been essential to avoid London flooding, but had resulted in significant damage to Kent's tidal defences. Repairs to these were ongoing. Those at Sandwich and Jurys Gap were almost repaired at a cost of some £1.5m to date.

(5) The coastal event had been followed by very heavy rainfall. Between 23 December and 5 January the total rainfall had been some 500% of the usual average for that period. The months of October, December, January and February had all seen rainfall well above the normal average.

(6) Mr Nunn said that the key was "warning, informing and preparing". The highest priority was to get information out to the highest number of people at risk. Operationally, the EA sought to prepare its assets and to link up with its partners in order to ensure that its response was as effective as possible.

(7) Over 1,000 properties had been flooded over the period in question whilst some 40,000 had been protected by the flood defences.

(8) Mr Nunn continued by saying that over 12,000 Flood Alerts, Flood Warnings and Severe Flood Warnings had been issued during the coastal flooding period. Thirteen percentent had been unsuccessful. Some 18,000 had been issued in January and February, of which 15% had been unsuccessful. 26,000 Groundwater alerts had been issued in the same period.

(9) The main reasons for Flood Warnings being unsuccessful were people picking up the phone and not listening to the entire message; unobtainable numbers; ringing with no answer; dialled but no ring; and engaged. A great deal of work would need to be undertaken to ensure that as many of the unsuccessful warnings as possible were rectified in the future.

(10) Mr Bird suggested that some people put down the phone immediately because they had already been contacted. He added that he personally had received 4 messages in 10 minutes. Mr Nunn replied that the Environment Agency would be visiting a number of people to gather their views as to why the warnings had not been successful in their case.

(11) Aldington Reservoir had been completely full and Hothfield (which some Committee Members had visited that morning) had been 80% full. Their channels and embankments had been designed to overspill and there had been no imminent danger. Full monitoring of all the data had taken place with officers visiting the reservoirs twice daily.

(12) The Chairman asked whether it would be possible to retain some 40% of the fresh water in the reservoirs in order to replenish aquifers at times when they dried up. This same water could also be released if a flood was imminent. Mr Nunn replied that there was no combined flood protection and water storage reservoir in the county. The problem would be designing the reservoir to hold the required amount of

water as well as the amount of water from the potential flood. This would certainly not be impossible.

(13) Mr Nunn showed some pictures of affected areas including the Stour Mouth pump which had worked non-stop for 1,600 hours. He then said that the Medway had been badly affected just before Christmas, particularly in Tonbridge and Yalding. Leigh water storage area had held 25,000³ metres of water. It had been the largest flood water storage area in Europe at the time it had been constructed. The barrier had been operated to allow peak flow for a very short period at some 160m³ per second.

(14) It had also become clear shortly before Christmas that the groundwater levels were rising significantly. Accordingly, a groundwater risk map had been produced to identify those areas where the risk was rising or reducing. There remained a significant risk, particularly in the North Downs area.

(15) Mr Nunn commented that there had been excellent multi-agency partnership working at Nailbourne, including tremendous support from the community. The main issue here was that Southern Water was still discharging some of its sewage into the watercourses.

(16) The Environment Agency was now gathering as much data as possible, including river gauging, damage to assets (the Government had made some money available for asset repair, areas where assets needed to be improved or where new ones were needed. The Government wanted to produce a state of the nation report in April. The Army (200 engineers in the UK) had been employed to walk the entire watercourse, with 15 military personnel inspecting some 12,000 assets on the coast and rivers in Kent and the South London.

(17) Mr Nunn concluded his presentation by saying that overall, the Environment Agency's co-ordination with its partners had worked really well. Everyone had been aware of their roles and knew what they needed to do. Work on assets and removal of blockages was projected to continue into October. Far more Flood Ambassadors had been sent out than in 2000. This had worked out well on occasions but less well on others. Groundwater risk would also continue to be monitored for a number of months. The view was that spring had arrived earlier than usual and that this would help because the plants and trees would draw moisture from the ground and reduce groundwater levels further. It was therefore considered that the most likely end of the groundwater risk would be May 2013.

(18) The Chairman thanked Mr Nunn for his presentation. He recognised that there had been hostile public reaction to the Environment Agency but that this was mainly an expression of understandable frustration which was to be expected, but did not give a true picture of the amount and quality of the work that had been undertaken. He suggested that some of the difficulties experienced had been the result of the pre-flood power failures and suggested that future presentations could explain this.

(19) Mr Hills said that parts of the Romney Marsh area had experienced the highest water levels ever and were slowly going under water. Pumps had been brought in but had not worked (largely because of the power failures) and the maintenance schedules had not been able to cope. He suggested that the lessons to

be learned were that there needed to be more knowledge of the maintenance systems and that storage pumps needed to be held in reserve for a floof event. Mr Nunn replied that this area had largely been affected due to the failure at Jurys Gap in October (which was now being repaired at a cost of some £800k). Because water could not be discharged through the outwall. The repairs could not start all the time that water was seeping under the sea wall and during the period of intense rain. The other problem had been the inability to bring pumps in to the area due to the decision of East Sussex CC not to permit closure of the road. Water and sewage levels in the Lydd area had now been considerably reduced.

(19) Mr Nunn commented on the power outage problems. The first of these had lasted several weeks. Following discussions between the Environment Agency and UK Power Networks, a number of power failures had been responded to by UK Power Networks very much more speedily.

(20) Mr Rogers thanked the Environment Agency for the brave way in which they had spoken to the public. The public meetings at Hildenborough and Yalding had been very useful, particularly in the ability of the EA to respond to public anger with facts and figures. The angriest people were those who had initially been flooded by sewage. The Environment Agency and the water companies needed to work closely together to reduce this particular aspect of flooding events.

(21) Mrs Stockell asked questions on behalf of her Yalding constituents. The residents did not consider that the warnings had been adequate. They were sceptical about the EA's ability to operate a national flood warning system in the future. She stressed the need for the data to be complete and accurate in order that the necessary measures could be funded and undertaken.

(22) Mr Baker asked whether the Environment Agency had examined the system in operation in Rotterdam. Mr Nunn replied that some of his colleagues had visited the Netherlands shortly before Christmas in order to observe an exercise involving the public in a village that had installed its own flood defence system. A reciprocal visit had been arranged with some Dutch engineers and discussions were taking place to see if it was feasible to carry out some joint project work.

(23) Mr Bird asked whether it would be possible to invite Southern Water to the next meeting so that they could describe the work they were undertaking to make their sewage systems more resilient. The Chairman agreed that to this request.

(24) Mr Bird said that there was still some confusion over flood warnings. None had been received in Yalding when the Medway was overflowing (the Environment Agency had agreed that a severe flood warning should have been issued), whilst such warnings had been issued on many occasions along the entire course of the Thames, which had not had any worse events than Yalding had experienced. However, since Christmas he had received a number of unnecessary warnings, including one in respect of the River Tees. Too much information could become counter-productive and people were losing confidence in the system. He believed that a very comprehensive survey was needed to fully justify the cost of the programme of improvements that were needed.

(25) Mr Edwards said that multi-agency work had been undertaken in respect of the Nailbourne (which was still flooding). A suggested programme of minor

improvements had been made. The deadline for bids to the Environment Agency for 2015/16 had been brought forward from May to March, which meant that the improvements to the Nailbourne could not take place until 2016/17. Furthermore the bidding schedule had become very much more complex with some 350 columns needing to be filled in. The previous year's schedule had only had 56 columns.

(26) The Chairman asked Mr Edwards to provide him with the pertinent information so that he could raise this issue at the EA Regional Flood Defence Committee.

(27) Mr Tapp said that the public remained confused over the roles and responsibilities of the various agencies in respect of flood warnings, alerts and defence. This led them to blame bodies that were not responsible and also promoted the view that there was official confusion over what should be done. He suggested that KCC would be the ideal body to clarify the roles and responsibilities of the various partners. This should be done both on the website and through other media outlets.

(28) Mr Tant said that the KCC website already explained these matters. Work was now taking place to provide an interactive tool which would enable people to identify the nature of their problem and then direct them to the appropriate organisation. The challenge was to get people to read the relevant pages.

(29) Mr Nunn said that the Environment Agency had previously carried flood awareness work but that this had largely ceased as it had needed to prioritise in the light of reductions in Government funding. Nevertheless, the EA was committed to attending as many public meetings as possible.

(30) RESOLVED that:-

(a) Mr Nunn be thanked for his presentation; and

(b) The Committee's heartfelt thanks be recorded to all the agencies and individuals involved in mitigating the recent flooding event be thanked for their dedicated and excellent work.

4. Oral Presentation by Martin Twyman from the Little Stour and Nailbourne River Management Group

(Item 7)

(1) Mr Martin Twyman from the Little Stour and Nailbourne River Management Group gave a presentation *that was accompanied by photographs which appear on the KCC website on the agenda for this meeting.* He said that the Management Group comprised 11 Parish Councils from Lyminge to Stourmouth, the Canterbury region to Sandwich Great Stour as well as many farmers and landowners who had once again been affected by the recent floods. He added that he was also putting forward views held by many other parishioners.

(2) Mr Twyman thanked Ian Nunn and Andrew Pearse and their teams from the Environment Agency as well as various councils. He wished especially to thank Ted Edwards from Canterbury CC. He also thanked other organisations, the Army and

the many local volunteers. He said that without everyone pulling together the situation would have been far worse.

(3). Mr Twyman continued by saying that the Management Group had attended a similar meeting after the floods in 2001. Similar warnings and events had been repeated on this occasion. The Nailbourne had started flowing in mid January as it normally did. This was the sixth time this had happened since 2000. This had caused 5 major sewage infiltrations and had led to disgraceful replications of the events of previous years. It was stressful and not acceptable to the local residents in this day and age. These stresses included overpumping by Southern Water into the watercourses, sewage into properties, a continual fleet of lorries thoughout the entire 24 hours of the day (although they were doing a necessary job), many road closures and businesses being put out of action. Southern Water had on three occasions undertaken major repairs (some successfully) but these events kept on occurring. It only needed the Nailbourne to flow to find the leakages and breaks. The pumping station at Bekesbourne was again in a terrible state, with the major watercourse blockage through the underpass of the railway line. The villages surrounding Bridge had taken the brunt, and Bridge High Street looked like a war zone.

(4) Mr Twyman then said that consideration needed to be given to a holding area or reservoir in the Upper Nailbourne valley and to the construction of the Broad Oak reservoir, to cope with the fairly regular events of water availability and future water requirements. The Management Group considered that the Nailbourne had three different section. These were Lyminge to Barham; Barham to Littlebourne; and Littlebourne to Seaton. There were many pinch points along each of these sections.

(5). The Environment Agency had constructed the relief channel around Littlebourne and Wickhambreaux after the flooding of 2001. This had been a saviour as it had been successful in avoiding house flooding, and the Action Group was grateful to them and the landowners. There was, however, a major pinch point between Wickham and Ickham Lane as the underpass was not big enough. Major services ran in the road and 5 major pumps had taken the pinch point pressures off the 4 mill sluice structures, which had only just coped. If there had been just two more days of rain there would have been some major flooding. More rain had fallen than ever before, and the Nailbourne flow had risen to 4.5 m^3 per second as against the previous flow of 3.8 m^3 per second.

(6). Mr Twyman said that he had arranged a boat trip on the Great Stour with Roy Newing, the local MP, Ted Edwards and Paul Marshall (from the Environment Agency) and the local press in mid December. They had reported that the river was in poor condition and silted up. They had not been able to reach Fordwich from Grove Ferry as the river was not navigable due to fallen trees. The river flow had been less than 50% (although the EA had not agreed with this assessment). The Management Group had immediately warned that there could be serious consequences if river maintenance was not carried out. This warning had duly been borne out.

(7) Mr Twyman said that the Great Stour took flow from the Weald, Ashford, Canterbury, Sturry, Fordwich, with all their housing, businesses, roads and ground works, and that there would be many more of these to consider in the future. Canterbury itself had not suffered too greatly on this occasion. From there downwards the river access could not be seen, and hardly any maintenance had

been carried out for many years. The river was silted up. There were major blockages. Major tree surgery was required. The necessary work was not being carried out for Health & Safety reasons or due to red tape.

(8) Mr Twyman continued by saying that when the NRA had merged into what became the Environment Agency, landowners had been replaced by different representatives. As a result, biodiversity had become a major influence, and consequently, river maintenance had ceased to be a priority. Local knowledge and advice were no longer considered and various people with over 50 years' experience had been ignored. The IDB was now in agreement with the Management Group and was carrying out its regular maintenance. The events of the last few months had once again been bad for wildlife, nature, the SSSI and for Natural England. A lot of money and hard work had been wasted.

(9) Mr Twyman then said that due to severe blockages, the Great Stour had overtopped for 200 metres and flooded over 1,000 acres of valuable farm land and crops in the Grove and Plucks Gutter area alone. This area would be under water for at least another two months.

(10) Mr Twyman continued by saying that he believed the Environment Agency would now have to change its priorities and concentrate on managing waterways, getting water away for flood protection far earlier than it currently did, and running the Sandwich Cut for more hours. It should also become far less bureaucratic - a view shared by a number of ground staff. The EA needed to look after people, livelihoods, property, businesses, insurance and costs rather than bureaucratic EC Rules and other environmental schemes. He agreed that such schemes did have value, but it was more important to base decisions on common sense, taking full account of people's views.

(11) Mr Twyman summed up his presentation by saying that the Government was putting funding money aside for environmental schemes. The Management Group had sent letters to the Prime Minister, Mr Pickles and other key people. Farmers were seeing part of their Single Farm Payment being deducted to part fund them. This money now needed to be channelled into managing flood protection, waterways and the countryside. If regular maintenance continued to be neglected, it would cost far more to put everything right. Everyone needed to be positive and look after Kent's country, rivers, properties and residents. He therefore asked for Kent County Council's support in finding the necessary funds. This would ensure that the county was properly prepared to cope with the next weather event.

(12) Mr Vickery-Jones said that he had attended a meeting organised by the EA at Plucks Gutter. He said that the EA representative at that meeting had tended to express their priorities in the manner described by Mr Twyman.

(13) Mrs Stockell said that she had attended a number of Flood Group meetings including one with the local MP and the Leader of the Council. One of the problems that had been discussed had been that farmers were no longer being required to carry out necessary maintenance work such as ditching. As a consequence, rivers and streams were silting up and ponds were being filled in. These concerns were being taken forward.

(14) Mr Nunn said that he understood the concerns that were being expressed. Some 18 months earlier, the EA had commissioned a survey of the Stour. This had been part of a programme of collating evidence to prove that silt levels were building up. What was now needed was for the EA, other interested parties such as the Action Group and the public to discuss the best way forward. There were areas where silt was clearly building up in the channel. However, he was not in a position to categorically say what impact this was having on the flooding. A second survey had been carried out in October 2013. The results had very recently been released but the analysis had not been completed. He offered to share it widely once this was done. Mr Nunn then said that the 1960s had seen a great deal of concentration on land drainage and food security. In his view, food security was not now a high priority for the Government.

(15) Mr Hills said that the interpretation of wildlife and habitat regulations was currently putting people at the bottom of the pile. This, in turn led to the damage to the very thing that environmentalists wanted to protect. He added that he had recently attended a conference chaired by Lord Smith, in his capacity as Chair of the Engagement Group Romney Marsh. Lord Smith had stated that every case needed to be treated on its merits. This answer had been very encouraging as it indicated that the Environment Agency was slowly moving in the direction of putting the needs of the community first.

(16) Mr Tapp said that, in his view, the Environment Agency had too wide a remit. He suggested that the Minister should be lobbied to separate Flood Defence from the rest of the Agency's work. This would enable the Flood Defence function to stand alone, develop its own priorities and fight its own corner. He then said that one of the problems arising from the Stour not being properly maintained was that the water came out just upstream of Grove Ferry and then spread across the Marshes doing a tremendous amount of damage to wildlife and farming interests, and then needing to be pumped back in again. Some 50 years earlier, the Government had categorised the River Stour as "self-cleansing." Since then, two new catchment areas had been built up, reducing the speed of the waterflow so that the river no longer fitted that category. During the 1970s, there had been a number of droughts, which had raised silt levels. Environmentalists had then added to this problem by seeking to protect the species that were growing on the silt.

(17) Mr Tapp then said that between Sandwich and Fordwich the tidal river was somewhere between 15 and 20k. There was no fall on that river at all. Only a minimal obstruction would be needed to hold the flow up. There were a number of points along this stretch which needed de-silting (rather than dredging) in order that the water could flow out.

(18) Mr Vickery-Jones noted that the Netherlands was spending £4 billion on flood defence as opposed to the £0.5 billion spent by the UK. This led him to the conclusion that the real problem was lack of funding. This was exacerbated by EU Directives on the local environment, diverting funds from the areas where they were most needed.

(19) The Chairman noted that a number of local officer level meetings were taking place. He asked that the Committee be kept informed so that best practice could be widely disseminated.

(20) Dr Eddy thanked the Environment Agency for its work on flood defences in Deal and Sandwich. Although these had not been completed, they had stood up remarkably well to the storm surge. There had been groundwater flooding in Deal (particularly in Canute Road). This had been caused by the inadequate size of the soakaways and the fact that land and sea level were at the same height so that groundwater had nowhere to escape to. These problems had been exacerbated by the decision of Dover DC to turn an area of grassland into a car park. As a result more now water flooded the road than had previously been the case.

(21) Mr Muckle said that Dartford BC had a lot of praise and no criticism for the various agencies' work in what had been an area relatively unaffected by the flood. The exception had been KCC Highways for the way in which it had managed the situation at Bob Dunn Way. He had been highly critical about its lack of preparedness at a meeting of the BC's Scrutiny Committee, particularly as the water level of the lake abutting the road was at the highest level he could remember. The only reason the road remained clear was that water was being constantly pumped away. The Fast Track route had also been flooded, so that the buses had to make their trips through water. The groundwater levels remained high, as did that of the River Thames.

(22) Mr Muckle then said that the problem was not just one of lack of money. There was also a great difference of opinion on how the money that was made available should be used. A decision needed to be taken on the correct course of action and fully implemented thereafter.

(23) Mr Lewin said that KCC's Emergency Planning should be thanked for its response to the crisis. The impact on Swale (at Faversham and Conyer) had been caused by coastal rather than fluvial flooding. He then referred to the closure of the Thames Barrier and said that its impact downriver needed to be discussed in detail on another occasion. He then said that the constant rain had impacted road surfaces and also asked for consideration of the best way to access funds from the Bellwin Scheme of emergency financial assistance.

(24) Mr Tant confirmed said that funding under the Bellwin Scheme had previously required the Local Authority to provide the first £3.3m of funding. This threshold had recently been reduced by the Government in the light of the flooding. It would nevertheless remain a significant financial commitment from the County Council.

(25) On behalf of the Committee, the Chairman thanked the Little Stour and Nailbourne River Management Group for all its work and also expressed the Committee's condolences for all those affected by the floods. He thanked the Management Group for the open invitation to Members of the Committee to attend its meetings.

(26) RESOLVED that Mr Twyman be thanked for his presentation and that the accompanying photographs be sent to all Members of the Committee and posted on the KCC website.

5. Environment Agency Flood Alerts and Warnings and KCC Flood Response activity since the last meeting
(Item 8)

(1) Mr Harwood informed the Committee that the Environment Agency had issued 106 Flood Alerts and Flood Warnings since the previous meeting of the Committee on 18 November 2013. This contrasted with the total of 95 in the whole of 2013. The same period had seen 87 Severe Weather Warnings, as opposed to 42 in 2013.

(2) Mr Harwood said that the whole of Kent had been affected over the period, and that this had been in terms of storm conditions as well as flooding. The extent of power outages, some 28,000 recorded across Kent, had contributed significantly to the problems faced by responders.

(3) Mr Harwood referred to lectures given some ten years earlier by the Insurance Industry in which the prediction had been made that weather patterns were changing and that storms were increasingly tracking from the Atlantic Ocean across the southern UK, instead of the Bay of Biscay and northern Scotland. This prediction appeared to have been borne out by recent events. In a warming world, with increased sea and air temperatures, it was predicted that autumns and winters would become increasingly wet and stormy.

(4) Mr Harwood then said that emergency planning delivery in Kent was changing from the start of the 2014/15 financial year. Ten of the currently thirteen members of the Emergency Planning Team would be seconded to a multi-agency Resilience Team based within the Kent Fire and Rescue Service. KCC Emergency Planning would now consist of Mr Harwood himself and Mr Greg Surtees.

(5) Mr Harwood replied to a question from Mrs Stockell by saying that the creation of the multi-agency Resilience Team, comprising Fire, Police and KCC Emergency Planning, was designed to strengthen the County's ability to respond to emergencies. The Emergency Planning Centre would need to be retained as KCC was the Lead Agency for a number of functions. He said that it would now become even more important for Managers and other staff across KCC to engage more robustly with the emergency planning agenda to ensure that corporate resilience was maintained.

(6) Mr Harwood went on to pay tribute to the Voluntary Sector whose work across the entire range of responses to the winter severe weather emergencies had been crucial.

(7) Dr Eddy reported that he had visited the local Emergency Centre in Dover shortly after the coastal event had begun. Whilst he had been there, an urgent request had been received from the Police for some of its staff to go to Sandwich. Having done so, these Dover DC staff had neither been given the necessary equipment nor been fed.

(8) Dr Eddy also reported that some of the affected areas in the Dover District (such as East Studdle) had never experienced an emergency such as this before. Overall, the public had been very complimentary about the high quality response from local authority personnel in that area.

(9) RESOLVED that the level of alerts received since the last meeting of the Committee be noted together with comments made during discussion of this item.

6. Local Flood Risk Management and the Local Strategy

(Item 9)

(1) Mr Tant reminded the Committee that the Local Flood Risk Management Strategy had been adopted in June 2013. A review and update of the Strategy had been scheduled for the year-end. Both were progressing well, as set out in the Appendices to the report.

(2) Mr Tant then said that KCC's new role for SuDS was now expected to commence in October 2014.

(3) Mr Tant replied to questions from Dr Eddy by saying that the most significant action to be taken forward in Deal Town was likely to be in Church Road. The Wantsum Channel was a main river. The issue of the Nailbourne was that there were more than just fluviual issues (e.g. groundwater flooding and sewage). KCC's role in this case was to act as part of a multi-agency group. Kent's role in respect of the Wantsum Channel would be similar to this.

(4) In response to a question from Mrs Stockell, the Chairman confirmed that the Review would be considered by the Environment, Highways and Waste Cabinet Committee.

(5) Mr Tapp commented that the amount of wheat lost due to the flooding events amounted to some 8 million loaves of bread.

(6) Mr Bird said that the Natural Trust had estimated that more trees had been lost than in 1987. Many of these were on Council property. Even though they would fulfil a value flood defence function in their fallen state, they would need to be replaced as living flora.

(5) RESOLVED that the implications and risks associated with delivering the 2014/15 action plan be noted.

7. Next Meeting

(Item)

(1) The Committee noted that its next meeting would be held on Monday, 21 July. It would be preceded by a visit to the Leigh Barrier.

(2) Committee Members also expressed their appreciation of the site tour that had been organised in the morning and asked for a letter to be sent to Mr Nick Sandford at Goddinton House thanking him and the National Trust for welcome them on to the land and for giving his time to demonstrate the river remedial measures that had been put in place.

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To: Kent Flood Risk Management Committee – 21 July 2014

From: Michael Harrison, Chairman of Kent Flood Risk Management Committee

Subject: Report Back from Scrutiny Committee.

Classification: Unrestricted

Summary: To update the Committee on the overview report to the Scrutiny Committee meeting on 12 June 2014.

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1. Background

1.1 The Kent Flood Risk Management Committee, as part of the Scrutiny Suite is required to submit an annual report to the Scrutiny Committee.

1.2 I attended the Scrutiny Committee meeting on 12 June 2014, accompanied by the Flood Risk Manager, Max Tant and the Senior Resilience Officer, Tony Harwood. Andrew Tait from Democratic Services was also present as the Clerk to the Committee. The report to the Scrutiny Committee is enclosed at **Appendix 1** without including the Terms of Reference and the Minutes of the previous meetings).

2. Discussions.

2.1 I introduced the report by explaining that over the previous year the Committee (KFRMC) had carried out its scrutiny function with diligence and enthusiasm. Its Members had participated fully and their views, as set out in the Committee Minutes, were conveyed to the relevant agencies for their information. All 12 of the Kent Districts as well as the IDBs were invited to attend the KFRMC meetings and to participate fully in its activities.

2.2 Tony Harwood reported that the KFRMC took its oversight duties very seriously. It had arranged an informal meeting on 15 January 2014 to receive key agency updates and to capture any major issues whilst they were still fresh in the mind. He went into detail about KCC's emergency response activities during the Autumn/Winter 2013/14 period which had not only dealt with the impact of flooding, but also with the significant storm damage, including disruption to transport systems and the loss of utilities to tens of thousands of households. He added that a further report addressing the winter floods was due to be submitted to Corporate Board on 23 June and to Cabinet on 7 July. This report, including its outcomes would also be submitted to KFRMC in its scrutiny role.

2.3 Members of the Scrutiny Committee raised a number of matters during the discussion. For example, that there had been no overall authority on the ground in Sevenoaks West and that there was a need for the Authority to be able to co-ordinate the next steps in the recovery process following the flooding.

2.4 I stressed that KFRMC's role was one of scrutiny and oversight rather than operational control. I added that KFRMC was, nevertheless, gaining increased

powers of persuasion. Issues such as the protection of livestock and pets (which suffered greatly during the flooding period), long-term maintenance and management of watercourse and flood-plains, the capacity of surface water drainage pipes were being addressed in this way.

2.5 An example of the ability of KFRMC to respond to local concerns had occurred as a result of the presentation given to the Committee by the Little Stour and Nailbourne Management Group on 11 March. Following that meeting, I was invited to undertake a trip up the River Great Stour to observe the lack of maintenance on that river, which was locally perceived as the cause of slow flows, producing a greater likelihood of tide-locking and surface water events in surrounding areas. As a result, I was able to underline to the Environment Agency the view of many Members of the KFRMC that some de-silting would allow the local catchments to drain more efficiently.

2.6. The Scrutiny Committee also focussed on Mr Baker's comments at KFRMC's last meeting in respect of Dutch Flood Defences. I was asked whether KFRMC had received an update on the discussions between the Environment Agency and representatives from Holland. Whilst I would not expect KFRMC to necessarily receive a report back on this matter between meetings, I consider that the fact that this question was asked gives a very clear indication of the level of interest in the area of work that our Committee is involved in. In any event, I and my two KCC colleagues on the Environment Agency's Regional Flood Defence Committee will be taking this matter up at that particular forum.

3. Conclusions

3.1 A number of Scrutiny Committee Members praised the work of the Kent Flood Risk Management Committee, and also suggested areas for additional scrutiny. This included inviting a representative from Kent Highways Services to report on drainage improvement work. I was delighted to agree to this and was also able to say that a report on this matter had already been requested by the KFRMC Members.

3.2. The Scrutiny Committee thanked us for the report and said it was looking forward to the next report in a year's time.

4. Recommendations

4.1 The Committee is invited to note the report and the assurance that it is carrying out its work to the Scrutiny Committee's satisfaction.

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Background documents: None

Appendix 1

From:	**Mike Harrison, Chairman of the Kent Flood Risk Management Committee**
To:	**Scrutiny Committee – 12 June 2014**
Subject:	**The work of the Kent Flood Risk Management Committee**
Classification:	**Unrestricted**

Summary: This report provides the Scrutiny Committee with an overview of the work of the Kent Flood Risk Management for the period May 2013 to March 2014. .

Recommendation(s): The Scrutiny Committee is asked to note the contents of the report.

1. Introduction

1.1 The Kent Flood Risk Management Committee's first meeting following the Local Government Elections took place on 22 July 2013. This meeting elected me as the Chairman.

1.2 The Committee's Terms of Reference are set out at **Appendix 1** to this report. The membership of the Committee consists of 8 Members of the County Council. There is also a standing invitation to each of the District Councils and the Internal Drainage Boards in Kent to send representatives to the meetings. I have followed the practice of my predecessor, Richard King in treating these representatives as though they are full Members except for the formal items of business.

1.2 The Minutes of the Committee's three meetings are set out at **Appendix 2.** These are very detailed. I summarise the main areas of activity from each of the Committee's events. .

3. Committee meeting of 22 July 2014.

3.1 The Committee received reports accompanied by presentations on Local Flood Risk Management and the Local Flood Risk Management Strategy; an overview of flood risk in Kent; and Environment Agency Flood Alerts and Warnings. The main purpose of these reports was to enable the new Members of the Committee to familiarise themselves with the areas of work that the Committee was required to undertake. The presentation on Flood Alerts and Warnings was particularly significant, given the events that were to come. The Committee was impressed by the awareness shown by all the agencies at both a strategic and local level of both the risk of flooding and the potential consequences which would need to be grappled with.

3.2 The Committee also received an excellent presentation from Christine Wissink and Carolyn McKenzie on the Coastal Communities Project, which reinforced the Committee's understanding of current medium and long term tidal flood risks for Kent, including detailed planning that is very closely linked to our Committee's remit.

3.3 The meeting also agreed a series of topics for further consideration at future meetings.

4. Committee meeting on 18 November 2013

4.1 This meeting occurred a month before the major storm and flood events struck. The first report considered was an East Kent Flooding Update, prepared by the Cabinet Member

for Community Services and the Emergency Planning Team. This report detailed the national threat and Kent's preparedness to deal with it (both in terms of dealing with an emergency itself and of increasing general levels of awareness). The Committee endorsed the KCC and wider-partnership approach and agreed on the need for "sustained vigilance in the light of recent rainfall and forecast unsettled weather conditions."

4.2 The Committee also considered the standing item on Environment Agency Flood Alerts and Warnings as well as a report on the County Council's new responsibilities for sustainable drainage which were expected to commence in the near future.

5. Informal Meeting on 15 January 2014

5.1 I invited the Committee Members, our District and IDB colleagues to attend an Informal meeting in order to give an opportunity to discuss the response to the major flooding events that were still ongoing at this time. Many of the officers reporting to the Committee were still in "response mode." The meeting was well attended. It heard contributions from two Cabinet Members (Mr Brazier and Mr Sweetland), the Head of Community Safety and Emergency Planning; the Head of Planning Applications Group; and Kent Highways Services. We were extremely grateful that representatives from Kent Police and Kent Fire and Rescue found the time to attend. Likewise, we were delighted that the Chairman of Yalding Parish Council was able to join us and speak movingly of her community's experiences.

5.2 I had made it clear at the outset of the meeting that it would not be appropriate to consider the minutiae of the flooding response. Nevertheless, if there had been areas of broad dissatisfaction, they would have received a thorough airing. What emerged instead was that everyone who spoke expressed deep gratitude and satisfaction for the work of all the partner agencies and all the local volunteers who had responded with commitment and efficiency to the prolonged and serious events during the winter.

6. Site Tour on 11 March 2014.

6.1 The Committee Members were very keen to undertake visits which would enable them to gain a better picture of flood attenuation schemes to support their work. On this occasion, we visited three sites in the Ashford area. The first visit was to Hothfield flood storage area, which had made a major contribution to protecting many thousands of homes downstream in Ashford during the period of abnormally high seasonal flows in the River Stour. The Committee Members were able to compare the current water levels with those of a mere two weeks earlier, when the entire area on which they were walking had been completely under water. We noted that the water was automatically released into the River Stour at a rate that did not threaten the town of Ashford downstream.

6.2 The Committee then inspected the river restoration work at Goddington Manor. This work had been carried out by the Environment Agency. By profiling the channel and providing obstacles to flow at strategic locations, the EA had managed to get the river to flow at the optimum speed to prevent siltation and provide a better habitat for fish and other aquatic wildlife, which it will be able to maintain in perpetuity.

6.3 Lastly, we went to a sustainable drainage system (SUDS) scheme at Singleton Hill, Ashford. We walked the entire route from top to bottom, observing how the different features of the system provided attenuation to prevent flooding, habitat for wildlife and

amenity for the development. Many Members considered this visit to be particularly valuable.

7. Committee meeting on 11 March 2014.

7.1 The Committee received an oral presentation from Ian Dunn from the Environment Agency, which went into detail about the entire flood response since Christmas 2013. Whilst all Members of the Committee reiterated their appreciation for the work that had been done, a number of issues of concern were also raised. These included the need for the EA and Water Companies to work closely together to ensure that flooded communities did not simultaneously experience such an event as the sewage deluges experienced in Hildenborough and Yalding over the winter; the inconsistencies in the flood warning systems (either in terms of consistency of alert levels or in their frequency); and the complexity of the bidding process for minor flood defence improvements.

7.2 The Committee was also very pleased to receive a report from Martin Twyman from the Little Stour and Nailbourne River Management Group. This presentation is detailed in the Minutes at **Appendix 2**. The Committee Members were particularly receptive to the view that the Environment Agency ensure that management of waterways benefitted both flood protection and biodiversity. They were also concerned to hear about the local water quality problems caused by over-pumping of the sewer by the water company.

8. Future events.

8.1 The Committee is due to meet three times over the next year. The next meeting is in July 2014 when a representative from Southern Water will be invited to give a presentation, including on the issues described above.

8.2 The meeting will be preceded by a visit to the Leigh Barrier.

9. Conclusions

9.1 The Committee has carried out its scrutiny function with diligence and enthusiasm. Its Members have participated fully, and their views as set out in the Minutes are conveyed to the relevant agencies for their information.

10. Recommendation

10.1 The Committee is invited to note the content of this report

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To: Kent Flood Risk Management Committee – 21 July 2014

From: Michael Harrison, Chairman of Kent Flood Risk Management Committee

Subject: Report to Cabinet on the Christmas/New Year 2013-14 Storms and Floods

Classification: Unrestricted

Summary: To update the Committee on the decision of the Cabinet meeting on 7 July 2014 in respect of how the County Council, in collaboration with its partners, can be better prepared to manage such future events and flood risk.

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1. Background

1.1 The severe weather events that the County experienced from October 2013 to February 2014 were unprecedented, continuous and greatly affected many communities, residents and business across Kent:

- The East Coast tidal surge on 5th & 6th December was equal to a 1 in 200 year tidal event and the biggest tidal event to impact Kent since the devastating floods of 1953;
- This was also the wettest winter in over 250 years, with 120mm of rainfall falling between 19th to 25th December on already saturated ground;
- On Christmas Eve, the highest ever peak flows were recorded upstream of the Leigh Flood Storage Area;
- 929 properties were flooded across Kent, compared to approximately 1000 properties flooded in the 2000 floods;
- Additionally, high winds throughout this period cause extensive damage and disruption with, tragically, the loss of one life on October 23rd (the St Jude Storm) and 28,500 people without power on Christmas Eve.

1.2 These extreme weather events stretched and strained all public services, emergency responders, utilities and the transport network. The main risk and impact was to life and property, but events also significantly impacted on the environment, particularly the farming community.

1.3 After such events KCC, along with its statutory and voluntary partners, has a duty to examine and assess its plans and procedures to identify lessons to be learnt. To this end Cabinet requested the detailed paper attached, which was tabled on 7th July 2014. All 17 of its recommendations were formally approved by Cabinet. A copy of this report is enclosed at **Appendix 1**.

2. Next Steps

2.1 A Cross-Directorate Steering Group (chaired by Paul Crick, Director of Environment, Planning & Enforcement) will be established to take forward the 17 recommendations outlined in the report.

2.2 As many of the recommendations in the report require partnership input, the group will maintain strong links with the Kent Resilience Forum (KRF) via the Kent Resilience Team (KRT).

2.3 A further report will be presented to Cabinet in the Autumn to provide an update on progress in preparation for Winter 2014-15

3. Kent Flood Risk Management Committee's role

3.1 In accordance with Schedule 2 of the Localism Act 2011, Kent Flood Risk Management Committee is responsible for reviewing and scrutinising the exercise by risk management authorities of flood risk management or coastal erosion risk management functions which may affect the local authority's area.

3.2 The Cabinet report has set out its targets which the County Council has set. Whilst it is open to this Committee to suggest variations, additions or deletions, our principal role is to monitor and scrutinise how successfully these targets are being implemented.

4. Conclusions

4.1 The Committee has an important duty to examine how successfully the identified targets are being met and to suggest any other activities that may be identified as a result of this process.

5. Recommendations

5.1 The Committee is invited to note the Cabinet report and its 17 agreed recommendations. This Committee will consider reports at future meetings on progress against the targets set.

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Background documents: None

APPENDIX 1

From:	**Michael Hill, Cabinet Member, Community Services**
To:	**Cabinet – 7th July 2014**
Decision No:	**N/A**
Subject:	**Christmas / New Year 2013-14 Storms & Floods – Final Report**
Classification:	**Unrestricted**
Past Pathway of Paper:	
Future Pathway of Paper:	**Growth, Economic Development & Communities Cabinet Committee – 8th July 2014**
	Environment & Transport Cabinet Committee – 22 July 2014
Electoral Division:	**N/A**

Summary: This report provides Cabinet with a full review of lessons learned from the Christmas / New Year 2013-14 storms & flooding (and previous severe weather events) and makes recommendations for how the County Council, in collaboration with its partners, can be better prepared to manage such future events and flood risk.

Recommendations: Cabinet is asked to a) note and endorse the recommendations outlined in the Action Plan in **Annex 1**; and b) once approved, receive further options papers / progress reports on delivery against the Action Plan.

1. Introduction

1.1 Members will be aware that the extreme severe weather experienced over Christmas and New Year was unprecedented and presented an exceptionally challenging time for all concerned.

1.2 Indeed, in the Government's 'Flood Support Schemes Guide' sent to Local Authority Chief Executives in flood affected areas by Sir Bob Kerslake, Permanent Secretary, Department for Communities & Local Government (DCLG) and Head of the Civil Service stated:

'On 5th and 6th December 2013, the worst tidal surges in 60 years struck the east coast of England, leaving a trail of destruction and flooded properties. In addition to the December tidal surges, the country has experienced the wettest winter in over 250 years. This has resulted in many areas of the country remaining on high alert for extended periods as the emergency services, supported by local authorities, statutory agencies and local residents have battled to protect communities'.

1.3 Notwithstanding that the initial severe storms and rainfall occurred during the Christmas Bank Holiday with many staff on leave and out of county, KCC deployed all its available staff throughout this period to support those communities across the County that were affected, not only by flooding, but by storm damage and power outages.

1.4 Kent was one of the most severely affected areas in the country with some 28,500 properties without power on Christmas Eve and 929 homes and business flooded over the following 8 week period. See **supporting Appendix 1 sections A1 and A2** for a detailed breakdown of properties flooded and other key facts and statistics.

1.5 It is recognised that these unprecedented severe weather events strained not only KCC resources but all other emergency and public services and priority decisions had to be made in order to ensure support to those communities, residents and businesses affected by these events.

1.6 This report provides:

- A summary of the storms & floods that affected Kent between December 2013 and February 2014 & the actions taken by KCC & its multi-agency partners in response;
- Good practice and lessons learned to inform how KCC and its partners can better respond to such emergencies in the future;
- A review of options for managing flood risk in the long-term; and
- Draft Action Plan for taking forward proposed recommendations – see **Annex 1**.

1.7 Whilst this report will focus on the events from 23rd December 2013 onwards, to provide further background and context, reference is also made to the preceding severe weather events on 28th October (St Jude storm) and 5th & 6th December (east coast tidal surge).

1.8 Contributions from the following have been used to inform the content of this report:

- Internal KCC and multi-agency debriefs;
- Key internal departments & partner agencies e.g. KCC Flood Risk Management, Environment Agency (EA) and Kent Police;
- Individual responses from residents, businesses and elected representatives; and
- Public consultation meetings and 'flood fairs' in affected communities[1].

1.9 Details of key meetings & event dates are provided in **Appendix 1 section A3**.

2. Managing Emergencies

2.1 The Civil Contingencies Act 2004 establishes a clear set of roles & responsibilities for those involved in emergency preparedness & response at the local level. The Act divides local responders into 2 categories, imposing a different set of duties on each.

2.2 'Category 1 Responders' are organisations at the core of the response to most emergencies (e.g. the emergency services, local authorities, NHS bodies and the EA) and have statutory responsibilities for the ensuring plans are in place to deal with a range of emergency situations, including flooding. 'Category 2 Responders' (e.g. the Health & Safety Executive, transport and utility companies) are 'co-operating bodies'. They are less likely to be involved in the heart of planning work, but are heavily involved in incidents that affect their own sector. Category 2 Responders have a lesser set of duties - co-operating and sharing relevant information with other Category 1 & 2 Responders.

2.3 Category 1 & 2 Responders come together to form 'Local Resilience Forums' (based on police force areas) which helps co-ordination and co-operation between responders at the local level. In Kent, this is known as the Kent Resilience Forum (KRF), which is chaired by Kent Police who adopt the lead organisation role in most emergency situations.

3. Management of the Emergency

3.1 Kent Police undertook the role of lead organisation in the 'emergency response' phases, with each declared emergency given an operational name - see **Appendix 1 section A4** for details.

3.2 During the 'emergency response' phases, a multi-agency 'Gold' Strategic Co-ordinating Group (SCG) and 'Silver' Tactical Co-ordinating Group (TCG) were hosted and chaired by Kent Police at Kent Police Headquarters and Medway Police Station respectively.

[1] Public meetings with residents / businesses were co-ordinated by the EA via the Parish / Town Councils & the Tonbridge Forum, with attendance from elected members and officers from KCC, District / Borough Councils, Kent Police and Southern Water. Flood fairs are a joint initiative between District / Borough Councils, EA, KCC, Parish / Town Councils & the National Flood Forum - a charity that raises awareness of flood risk & helps communities to protect themselves & recover from flooding.

3.3 Multi-agency 'Bronze' Operational teams were deployed across the County in specific affected communities (e.g. Yalding, Bridge and the Brishing Dam) and undertook work such as door-knocking, evacuations, sandbagging and public reassurance.

3.4 Led by the Kent Police Gold Commander, the SCG agreed upon a Gold Strategy to guide the response, with the central aim of:

'Saving and protecting life and property risks to people in Kent and Medway by coordinating multi-agency activity to maintain the safety and security of the public'.

3.5 The core roles undertaken by KCC were as follows:

- Supporting and, at times, leading multi-agency co-ordination;
- Responding to the effects on the highway network throughout the period dealing with fallen trees, damaged roads, surface water flooding, blocked gullies and more;
- On-scene liaison with partners and affected communities;
- Working with District / Borough Councils to provide temporary accommodation to those who were flooded, with transport arranged to take people from flooded areas to safety;
- Provision of welfare support to those evacuated or in their own homes[2];
- Co-ordinating support from the voluntary sector[3]; and
- Logistics management of countywide resources such as sandbags.

4. Recovery Management

4.1 As of 18th February, KCC has been the lead organisation in managing the long-term recovery process and has developed a Gold Recovery Strategy with the central aim of:

'Ensuring partnership working to support the affected individuals, communities and organisations to recover from the floods and return to a state of normality'.

4.2 To manage the recovery, five task-focused teams have been established with representatives from all appropriate authorities and organisations involved

- Health, Welfare & Communities: KCC Public Health led;
- Environment & Infrastructure: EA led;
- Business & Economy: KCC Business Engagement & Economic Development led;
- Finance, Insurance & Legal: KCC Finance led; and
- Media & Communications: KCC Communications led.

4.3 Central Government are taking a keen interest in progress and key issues, with regular reporting to DCLG and the office of Greg Clark MP, the Flood Recovery Minister for Kent.

5. Lessons Learned

5.1 The following are the main points raised during the relevant debriefs, meetings & individual responses received, which have been used to inform a set of recommendations which are summarised in the Draft Action Plan in **Annex 1**.

[2] This included vulnerable person checks and provision of food, clothing and other practical support, such as arranging electrical contractors to ensure safety within people's flooded homes and hiring dehumidifiers to support the clear up.

[3] This included undertaking community liaison roles and provision of equipment, practical support (such as first aid, transportation, or provisions for responders) and psycho-social support.

5.2 For reference, the draft lessons learned from the KRF multi-agency debrief held on 21st March 2014 can be found at **Appendix 1 section A5**.

Pre-Planning & Resilience

Identified Successes

5.3 Overall, KCC and it's KRF partners, with joint planning for responding to and management of emergencies, were able to deliver support and assistance to the many communities, individuals and businesses in Kent affected by the severe weather events.

5.4 Staff, systems & procedures coped well when one considers the unprecedented scale, complexity and protracted nature of the events that took place

5.5 There were numerous examples of the commitment & resourcefulness of staff, partners, volunteers and communities to help others in need and to provide practical solutions to real problems for those affected.

Areas for Improvement

5.6 In the early stages of the response, staffing levels were affected by the timing of the emergencies, which occurred over the Christmas Bank Holiday period. Coupled with the sustained and complex nature of the emergency, on occasions considerable demands were placed upon a small number of individuals & teams undertaking crucial emergency response roles. Increased resilience should be established across KCC to be better prepared in the future.

5.7 Although there is no legal obligation on any organisation to provide sandbags and other practical support (e.g. pumps, dehumidifiers), public expectation was, understandably, to the contrary. This was exacerbated throughout the response by a general lack of awareness, mis-communications & inconsistency of approaches adopted.

5.8 Linked to this last point, it has been observed and reported of a general lack of flood awareness and individual / community resilience. For example, in some parts of Kent, 40-50% of the homes and businesses at risk of flooding in Kent are not signed-up to the EA's Floodline Warnings Direct (FWD) Service and so are unlikely to receive any prior warning of flooding – see **Appendix 1 section A6** for more details.

Recommendations

REC1: Undertake a fundamental review & update of key KCC and partnership plans to ensure they are fit-for-purpose for even the most complex and protracted of incidents.

REC2: Provide Cabinet with an options paper for enhancing KCC's resilience, including training a cadre of 'emergency reservists'. Once approved, implement a programme to train, equip & support relevant personnel in readiness for Winter 2014.

REC3: Develop a consistent countywide policy & plans for maintaining & providing sandbags and other practical support to individuals & communities at risk of flooding.

REC4: Implement a strategy to encourage greater flood awareness & individual / community resilience, including improving sign-up for the EA's Floodline Warnings Direct (FWD) Service and training local volunteers as Flood Wardens.

Command, Control, Co-ordination & Communications

Identified Successes

5.9 Actions by KCC and our partners undoubtedly saved and protected life, livestock and properties.

5.10 As the emergency progressed, joint plans, procedures and working arrangements matured, informed by the experiences of previous events.

5.11 When established, multi-agency co-ordination was effective, particularly when this was co-located. Specifically, Bronze / Operational teams deployed on the ground provided an effective and invaluable link into affected communities, particularly when communication and transport links were disrupted

5.12 Throughout the sequence of events, the voluntary sector provided extremely valuable support, demonstrating a high level of professionalism, dedication and capability.

Areas for Improvement

5.13 Feedback from debriefs, public consultations & flood fairs suggest that the EA's flood warnings were not always received or there was difficulty in receiving warnings, particularly as power supplies were disrupted. Additionally, many residents received conflicting warnings, were unsure of the level of risk & therefore the relevant actions they should take.

5.14 KCC and its partners responded to emergency calls throughout Christmas Eve, Christmas Day & Boxing Day. However, pressure on staffing levels due to the Bank Holiday & sheer volume / complexity of incidents that were being reported led to delays in establishing co-ordinated multi-agency support structures in key affected communities (e.g. Tonbridge, Hildenborough, East Peckham, Yalding & Maidstone) until the following weekend which, understandably, has angered many residents & businesses.

5.15 Additionally, partner agencies, residents & businesses alike all suffered from a lack of / poor quality engagement & support from the utilities companies, particularly the power, water & sewerage providers.

5.16 Information management was a continual challenge – difficulties in obtaining critical information when it was need and, vice versa, information overload at times of intense pressure.

Recommendations

REC5: Undertake a fundamental review & update of the EA's Floodline Warnings Direct (FWD) Service for communities with high / complex flood risk.

REC6: Develop enhanced arrangements for warning & informing the public in flooding / severe weather scenarios, including contingency arrangements in the event of power outages and greater usage of social media.

REC7: Develop multi-agency arrangements to provide critical 'on scene' liaison & support to affected communities e.g. via multi-agency 'Bronze' / Operational teams.

REC8: Work with DCLG and the Flood Recovery Minister for Kent to bring pressure to bear on utilities companies to improve their arrangements for engaging with & supporting partners & customers.

REC9: Streamline & enhance existing multi-agency information management protocols & systems for sharing critical data in the planning for & management of emergencies.

Escalation, De-Escalation & Recovery

Identified Successes

5.17 Central Government colleagues have commended KCC and our partners for our approach in a number of key areas, and are promoting these as good practice e.g. early identification & monitoring of warnings / developing situations and a flexible / proportionate approach; and recovery management arrangements developed during Operation Sunrise 4.

Areas for Improvement

5.18 Some partners felt that, at times, there were delays in 'standing up' the co-located multi-agency emergency response co-ordination arrangements and, conversely, that these were occasionally stood-down too soon, declaring the 'emergency' over and handing-over to the 'recovery' phase.

5.19 Delays in involvement / support from Central Government caused difficulties for partners and the public over Christmas / New Year period. Conversely, once Central Government command & control was put in place, requests for detailed information at very short notice placed an additional burden on local responders.

5.20 The financial support schemes brought in by Central Government have also been difficult to interpret and implement at the local level, and do not adequately reflect the significant burdens placed on County Councils e.g. most schemes are focussed towards the Districts / Borough Councils, with significant cost incurred by KCC currently unlikely to qualify for central support.

Recommendations

REC10: Formalise the recovery management structures developed during Operation Sunrise 4 and adopt these as good practice.

REC11: Develop protocols to support emergency responders in deciding when to escalate / de-escalate to / from the 'emergency response' & 'recovery' phases.

REC12: Influence Central Government to secure additional financial support in recognition of the severe burden that these incidents have placed on KCC.

6. Flood Risk Management

6.1 As well as lessons learned to improve how KCC prepares for and manages flooding emergencies in the future, consideration must also be given to roles of each organisation and the broader flood risk management options available for preventing or reducing the likelihood and / or impacts of flooding occurring.

Roles & Responsibilities

6.2 EA: Responsible for taking a strategic overview of the management of all sources of flooding and coastal erosion. This includes, for example, setting the direction for managing the risks through strategic plans; working collaboratively to support the development of risk management and providing a framework to support local delivery including the administration of Flood Defence Grant in Aid (FDGiA). The Agency also has operational responsibility for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea, as well as being a coastal erosion risk management authority.

6.3 KCC: Lead Local Flood Authority (LLFA) for Kent as defined by the Flood and Water Management Act (2010) and has a role to provide strategic overview of local flooding, which is defined as flooding from surface water, groundwater and ordinary watercourses (watercourses that are not main rivers). As part of its role as LLFA KCC has prepared and adopted the Kent Local Flood Risk Management Strategy, which sets out the objectives for

managing local flood risks in Kent. All risk management authorities must act consistently with the local strategy.

6.4 District / Borough Councils: Key partners in planning local flood risk management and can carry out flood risk management works on minor watercourses, working with LLFA and others, including through taking decisions on development in their area which ensure that risks are effectively managed. Districts / Boroughs and Unitary Authorities in coastal areas also act as coastal erosion risk management authorities.

6.5 Internal Drainage Boards: Independent public bodies responsible for water level management in low lying areas, also play an important role in the areas they cover (approximately 10% of England at present), working in partnership with other authorities to actively manage and reduce the risk of flooding.

6.6 Water and Sewerage Companies: Responsible for managing the risks of flooding from water and foul or combined sewer systems, providing drainage from buildings and yards.

Effectiveness of River & Flood Management Assets

6.7 Partners, residents & businesses alike have raised a number of queries & concerns regarding the effectiveness of river & flood management systems / assets operated by the EA and Southern Water, including:

- EA: dredging of rivers and the operation of the Leigh Barrier and sluice gates at Yalding & Allington; and
- Southern Water: lack / effectiveness of non-return valves in preventing sewage flooding, particularly in the Tonbridge area.

Recommendations

REC13: EA / Southern Water to respond to queries / concerns regarding the perceived lack / effectiveness of their management of rivers & flood management systems / assets.

Potential Flood Defence Schemes – information supplied by the EA

6.8 Approximately 65,000 homes and businesses are at risk of fluvial or coastal flooding in Kent, of which 38,000 currently benefit from flood defences with 27,000 not benefitting from defences. The EA has identified a further £194m of investment which would protect an additional 17,000 properties, between now and 2021. It has also identified further schemes identified for 2021 and beyond through its pipeline development programme.

6.9 The EA has worked successfully in the past with KCC and the private sector to implement flood risk management schemes such as the Sandwich Town Tidal Defence Scheme. It has also attracted additional partnership funding from a range of contributors including private businesses, developers and other government departments. There is a need to continue to work together to secure funding for priority schemes.

6.10 The recent flooding across the County has reinforced the need to accelerate this investment to reduce the risk of flooding. The EA in Kent & South London has secured £27.4m FDGiA for 2014-15. This will allow the EA to progress schemes including:

- Broomhill Sands Sea Defences
- Sandwich Town Tidal Defences
- Leigh Barrier Mechanical / Electrical Improvements
- East Peckham (Medway) Flood Alleviation Scheme (FAS)
- Aylesford Property-Level Protection Scheme (£50k contribution from KCC)
- Repairing assets damaged in the

- Study into Yalding Storage on the Beult
- Denge shingle re-nourishment

recent coastal surge and fluvial floods

Flood Defence Grant in Aid (FDGiA)

6.11 In order to protect areas at Kent at risk of flooding investment is required in flood defences. The government will contribute to flood defences through FDGiA. However, current rules mean that schemes are rarely fully funded through this grant. Additional contributions or partnership funding is required to make up the shortfall. Without partnership funding flood defence schemes cannot be delivered.

6.12 The Government's partnership funding mechanism means that each scheme must have a minimum cost benefit of 8 – 1 and a partnership funding score of more than 100% in order to achieve Government allocated FDGiA. The EA has identified priority locations for accelerating flood defence projects based on people at risk and economic development including Yalding and Tonbridge that do not currently meet FDGiA criteria.

6.13 Areas that require investment to deliver flood defences in Kent include:

- The Leigh Flood Storage Area (FSA) and Lower Beult;
- East Peckham;
- Five Oak Green;
- South Ashford;
- Dover;
- Whitstable & Herne Bay;
- Folkestone; and
- Canterbury.

6.14 See **Appendix 1 section A7.4** for a detailed financial breakdown of each scheme.

Recommendations

REC14: Explore all possible opportunities with partners and beneficiaries to contribute to the priority flood defence schemes required in Kent, including influencing the EA, Defra & HM Treasury to secure funding to deliver the schemes that do not currently receive sufficient FDGiA funding even with substantial partnership contributions.

Other Flood Risk Management Options

6.15 Work is also currently on-going in the county by the EA and KCC to improve our understanding of flood risk and investigate options to provide protection. These include:

- Spatial & land-use planning & drainage;
- Personal flood resilience;
- High / complex flood risk communities; and
- Surface water management.

6.16 In most of the above areas, existing strategies and programmes of work are maintained by the relevant authorities. However, in light of recent events and the issues / opportunities highlighted in **Appendix 1 section A8** the following recommendations are made.

Recommendations

REC15: Ensure the consequences of flood risk are fully considered before promoting development in flood risk areas by consulting all organisations with a role in flood risk management and emergency management.

REC16: Implement a strategy to encourage greater awareness & take-up of individual & community flood protection measures e.g. property-level protection, sandbags.

REC17: Support awareness & implementation of key initiatives to support communities with high / complex flood risk, particularly e.g. Surface Water Management Plans (SWMPs), Multi-Agency Flood Alleviation Technical Working Groups

7. Recommendations

Recommendations: Cabinet is asked to a) note and endorse the recommendations outlined in the Action Plan in **Annex 1**; and b) once approved, receive further options papers / progress reports on delivery against the Action Plan.

8. Supporting Information

8.1 Annex 1. Draft Action Plan

8.2 Appendix 1 – Christmas & New Year 2013-14 Storms & Floods Final Report

Sections as follows:

A1. Numbers of Properties Flooded;
A2. Key Facts & Statistics;
A3. Key Meeting & Event Dates
A4. Summary of Emergency Response Operations;
A5. Kent Resilience Forum (KRF) Multi-Agency Debrief - Draft Lessons Learned;
A6. Floodline Warnings Direct (FWD) Service;
A7. Potential Future Flood Defence Schemes; and
A8. Other Flood Risk Management Options.

8.3 Background Documents

Christmas / New Year Storms & Floods Update Report to KCC Cabinet (22nd January 2014)

https://democracy.kent.gov.uk/mgConvert2PDF.aspx?ID=44733 (Report &
https://democracy.kent.gov.uk/mgConvert2PDF.aspx?ID=44762 Appendices)

Kent Local Flood Risk Management Strategy

http://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/flooding-and-drainage-policies/kent-flood-risk-management-plan

Local Surface Water Management Plans

http://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/flooding-and-drainage-policies/surface-water-management-plans

Revenue & Capital Budget Monitoring Report to KCC Cabinet (28th April 2014)

https://democracy.kent.gov.uk/mgConvert2PDF.aspx?ID=46275

Flood Support Schemes – Funding Available from Central Government

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/304805/Flood_Recovery_-_Summary_of_Support_Guide.pdf

DfT Pothole Challenge Fund

https://www.gov.uk/government/news/councils-urged-to-apply-for-168-million-pothole-repair-fund

Severe Weather Impacts Monitoring System (SWIMS)

http://www.kent.gov.uk/business/Business-and-the-environment/severe-weather-impacts-monitoring-system-swims

9. Contact Details

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Annex 1. Draft Action Plan

No.	Recommendation	Lead / Supporting Action Owner(s)	Start Date	End Date
REC1	Undertake a **fundamental review & update of key KCC and partnership plans** to ensure they are fit-for-purpose for even the most complex and protracted of incidents.	KCC / KRT	Jun 2014	Nov 2014
REC2	Provide Cabinet with an **options paper for enhancing KCC's resilience**, including training a cadre of 'emergency reservists'. Once approved, implement a programme to train, equip & support relevant personnel in readiness for Winter 2014.	KCC	Aug 2014	Nov 2014
REC3	Develop a **consistent countywide policy & plans for maintaining & providing sandbags and other practical support** to individuals & communities at risk of flooding.	KRT / Districts & Boroughs / EA	July 2014	Nov 2014
REC4	Implement a **strategy to encourage greater flood awareness & individual / community resilience,** including improving sign-up for the EA's Floodline Warnings Direct (FWD) Service and training local volunteers as Flood Wardens.		Apr 2014	Nov 2014
REC5	Undertake a **fundamental review & update of the Floodline Warnings Direct (FWD) Service** for communities with high / complex flood risk.	EA / KRT	July 2014	Nov 2014
REC6	Develop **enhanced arrangements for warning & informing the public in flooding / severe weather scenarios**, including contingency arrangements in the event of power outages and greater usage of social media.			
REC7	Develop **multi-agency arrangements to provide critical 'on scene' liaison & support** to affected communities e.g. via multi-agency 'Bronze' / Operational	KRT	July 2014	Nov 2014

No.	Recommendation	Lead / Supporting Action Owner(s)	Start Date	End Date
	teams.			
REC8	Work with DCLG and the Flood Recovery Minister for Kent to **bring pressure to bear on utilities companies** to improve their arrangements for engaging & supporting partners & customers.	KRT / KCC / EA	Ongoing	
REC9	Streamline & enhance existing **multi-agency information management protocols & systems** for sharing critical data in the planning for & management of emergencies.	KRT	July 2014	Nov 2014
REC10	**Formalise the recovery management structures** developed during Operation Sunrise 4 and adopt these as good practice.			
REC11	Develop **protocols to support emergency responders in deciding when to escalate / de-escalate** to / from the 'emergency response' & 'recovery' phases.	KRT	July 2014	Nov 2014
REC12	**Influence Central Government to secure additional financial support** in recognition of the severe burden that these incidents have placed on KCC.	KCC	Ongoing	
REC13	EA / Southern Water to respond to queries / concerns regarding the **perceived lack of / effectiveness of their rivers & flood management systems / assets**	EA / Southern Water	July 2014	Sept 2014
REC14	**Explore all possible opportunities with partners and beneficiaries to contribute to the priority flood defence schemes required in Kent**, including influencing the EA, Defra & HM Treasury to secure funding to deliver the schemes that do not currently receive sufficient FDGiA funding even with substantial partnership contributions.	KCC & Districts & Boroughs	Ongoing	

No.	Recommendation	Lead / Supporting Action Owner(s)	Start Date	End Date
REC15	Ensure the **consequences of flood risk are fully considered before promoting development in flood risk areas** by consulting all organisations with a role in flood risk management and emergency management.	Districts / Boroughs / KCC, EA & KRT	Apr 2014	Mar 2015
REC16	Implement a **strategy to encourage greater awareness & take-up of individual & community flood protection measures** e.g. property-level protection, sandbags.	KRT / Districts / Boroughs / EA		
REC17	**Support awareness & implementation of key initiatives to support communities with high / complex flood risk, particularly** e.g. Surface Water Management Plans (SWMPs), Multi-Agency Flood Alleviation Technical Working Groups	Various leads, determined by nature of flood risk	Ongoing	

* Action Owners listed here are illustrative and these lists are not exhaustive. Work will need to involve a broader range of organisations with flood risk management responsibilities.

Christmas & New Year 2013-14 Storms & Floods Final Report

A1. Numbers of Properties Flooded

A1.1 As of 15th May 2014, the following are the latest figures provided by the EA and Districts / Boroughs to the Department of Communities & Local Government (DCLG).

County	Residential	Commercial	Total
Surrey	1,971	342	2,313
Thames Valley	635	295	930
Kent	**731**	**198**	**929**
Lincolnshire	662	106	768
Wiltshire	484	56	540
Cornwall (incl. the Isles of Scilly)	267	144	411
North Lincolnshire	339	70	409
Dorset	252	81	333
Norfolk	215	69	284
Devon	121	85	206
West Sussex	112	18	130
East Sussex	81	16	97

A1.2 Detailed breakdown of properties flooded in Kent.

Authority Area	Residential	Commercial	Total
Ashford	-	1	1
Canterbury	40	4	44
Dartford	10	3	13
Dover	30	6	36
Gravesham	2	-	2
Maidstone	207	55	262
Medway	3	2	5
Sevenoaks	30	6	36
Shepway	8	1	9
Swale	36	17	53
Thanet	-	-	0
Tonbridge & Malling	335	101	436
Tunbridge Wells	30	2	32
Total	**731**	**198**	**929**

Important Note: These figures presented are likely to be an underestimate as they mainly consist of properties known to have been flooded by rivers, groundwater or groundwater-fed rivers. Information on numbers of properties flooded by surface water or sewage is less certain. Additionally, many hundreds more properties were indirectly affected by flooding (loss of utilities, access etc.) e.g. Tonbridge & Malling Borough Council (TMBC) estimate 720 businesses indirectly affected in their area.

A2. Key Facts & Statistics

A2.1 The following is a snapshot of key facts & statistics from Operation Vivaldi and Operations Sunrise 2, 3 & 4.

A2.2 A comprehensive report into the key facts & statistics, costs & demands (collated using the Severe Weather Impact Monitoring System - SWIMS) from all the severe weather events experienced over Winter 2013-14, will be tabled by KCC Sustainability & Climate Change Team later in the coming months.

- **4.7m** – peak sea levels in Dover on 5th & 6th December, the highest recorded since 1905. The Environment Agency (EA) estimates that the tidal impacts in Sandwich were equal to a 1 in 200 year event and the biggest tidal event to impact Kent since the devastating event of 1953.
- **120mm** of rainfall falling between 19th to 25th December on already saturated ground on the Upper Medway catchment. December 2013 was the wettest December for 79 years.
- **342m^3 / second** – the highest ever peak flows upstream of Leigh Barrier Flood Storage Area (FSA) were recorded on Christmas Eve.
- **91** x Flood Alerts, **73** x Flood Warnings and **5** x Severe Flood Warnings issued by the EA for Kent since December.
- **28,500** properties without power in Kent on Christmas Eve.
- **929** properties flooded in Kent since Christmas Eve. In the 2000 floods, approximately 1000 properties were flooded in Kent.
- **50,000** sandbags provided by KCC, District / Borough Councils and the EA to help protect at risk communities.
- **6,400** hours worked by KCC Emergency Planning staff since 20th December in response to the storms & floods, including 1,300 out-of-hours and sustained periods where the County Emergency Centre (CEC) was operating 24 hours a day.
- **88** flood victims supported by Kent Support & Assistance Service (KSAS) with essential cash, goods and services.
- **32,000** calls received by KCC Highways & Transportation in January, a 150% increase in normal call volumes.
- **6km** of public rights of way in need of repair.
- **£8.6m** central government grant received by KCC under the 'Severe Weather Recovery Scheme' to help repair damaged highways infrastructure[1].
- **£3m** new investment by KCC Highways & Transportation into significant drainage schemes to improve existing infrastructure that was impacted by the floods.

[1] KCC Finance is exploring the potential for additional central funding being progressed by KCC Finance, under the Bellwin Scheme and the 'Pothole Challenge Fund'.

A3. Key Meeting & Event Dates

A3.1 The following is a summary of key debriefs, public consultation meetings and flood fairs, feedback from which has been used to inform this report.

Date	Details	Location
3rd December 2013	Kent Resilience Forum (KRF) multi-agency debrief for Op. Sunrise 1	Kent Police HQ
4th February 2014	Public consultation meeting	Hildenborough
	Public consultation meeting	Faversham
5th February 2014	Public consultation meeting	Danvers Road, Tonbridge
12th February 2014	Public consultation meeting	East Peckham
17th February 2014	Public consultation meeting	Tonbridge Forum
19th March 2014	Public consultation meeting	Collier Street
21st March 2014	KRF multi-agency debrief for Op. Vivaldi and Ops. Sunrise 2, 3 & 4	Kent Police HQ
28th March 2014	KCC internal debrief for Op. Vivaldi and Ops. Sunrise 2, 3 & 4	KCC
5th April 2014	Flood fair	East Peckham
12th April 2014	Flood fair	Hildenborough
8th, 13th & 19th April 2014	Flood fair	Yalding
26th April 2014	Flood fair	Little Venice Caravan Park & Tovil
27th April 2014	Flood fair	Maidstone
3rd May 2014	Flood fair	Tovil & East Farleigh
4th May 2014	Flood fair	Clifford Way, Maidstone
10th May 2014	Flood fair	Yalding
11th May 2014	Flood fair	Little Venice Caravan Park

A4. Summary of Emergency Response Operations

A4.1 Important Notes

- The sequence of severe weather events, which necessitated complex & protracted multi-agency emergency operations are summarised below.
- The date ranges and operational names outlined above refer specifically to the 'emergency phase' of these events, where the situation is deemed to present a risk to life. For several days and weeks preceding and superseding each event, a significant multi-agency effort in the pre-planning for, and recovery from, each incident was put in place throughout and beyond these periods.
- Indeed, to date the recovery operations are still ongoing for the Christmas / New Year events, some 4 months later.
- A range of additional complex and challenging events also occurred during this period, including:
  - Significant operations to prevent flooding from Brishing Dam at Boughton Monchelsea;
  - Widespread surface water flooding in Eynsford (17th to 19th January);
  - A 'mini tornado' on 27th January; and
  - A number of sink-holes causing disruption, including a 15ft deep hole on the M2 central reservation (11th February).

A4.2 'Operation Sunrise 1': 28th October 2013

- St Jude Storm – Winds speeds in excess of 90mph hit the County causing widespread disruption to travel & power supplies and, tragically, one fatality.

A4.3 'Operation Vivaldi': 5th & 6th December 2013

- Spring tides combined with a tidal surge caused flooding along the East and South UK coastline impacting much of Kent coastline. The EA issued 5 x Severe Flood Warnings, 3 x Flood Warnings & 6 x Flood Alerts to homes and businesses. 41,000 properties were protected by flood walls, banks and other flood risk management assets along the Kent coast and estuaries. 58 properties were flooded.

A4.4 'Operation Sunrise 2': 23rd to 27th December 2013

- Storm force winds (60-70mph) leave 28,500 properties without power. Heavy rainfall on already saturated catchments causes river, surface water and sewage flooding across Kent, particularly in the north and west of the county. Numerous communities suffered flooding, with hundreds of homes and many businesses affected. Edenbridge, Tonbridge and Hildenborough, East Peckham, Yalding, Collier Street and surrounding communities, Maidstone, and South Darenth, amongst other locations, were all significantly affected.

A4.5 'Operation Sunrise 3': 4th to 6th January 2014

- A sudden deterioration in weather conditions threatened to bring further flooding of severity akin to that experienced over Christmas to already affected communities, and elsewhere. A significant multi-agency operation was put in place (including Military assistance) to provide thousands of sandbags for communities at risk.

A4.6 'Operation Sunrise 4': 6th to 18th February 2014

- Heavy rainfall continued into February 2014. As the rainfall soaked into the ground we experienced extremely high groundwater levels. In some locations groundwater flooding exceeded previously recorded levels by over 1 metre. The peak of the event was experienced towards the end of February and communities were subject to both groundwater flooding and flooding from groundwater fed rivers. The impacts of groundwater flooding in Kent were widespread with particular concentration along the Elham Valley. A multi-agency response to the groundwater flooding and pre-planned measures were deployed to reduce the damage to communities vulnerable to groundwater flooding, including over-pumping of sewage by Southern Water and a significant sand-bagging operation.

A5. Kent Resilience Forum (KRF) Multi-Agency Debrief – Draft Lessons Learned

A5.1 Important Note

- The following are initial draft lessons identified through the KRF multi-agency debrief process hosted by Kent Police on 21st March 2014.
- At time of writing these have yet to be agreed with partners, but Kent Police will shortly be circulating a draft debrief report to all partners for consultation.

A5.2 Pre-Planning & Resilience

- Kent Resilience Team (KRT) to develop guidance for the public in a range of situations advising them of which agencies are responsible for which issues within their areas, and who will provide what information.
- Pan-Kent flood response plans to be reviewed to ensure they are cognisant of arrangements and contingencies across all levels, including Parish, District / Borough and County.
- Review of emergency plans to ensure use of social media for warning and informing purposes is included.
- A number of respondents cited the benefit of taking part in Training & Exercising programmes at National and Regional level which left us better placed than in previous flooding events.
- It was suggested that adoption a similar programme focussed at district level would have eased some of the more local issues and built working relationships. The KRT should work with local partners to deliver a number of District / Borough based exercises focussed on civil emergency type scenarios.
- KRF to maximise training & exercising opportunities for staff attending the multi-agency Tactical Co-ordination Centre (TCC) / Strategic Co-ordination Centre (SCC), including the College of Policing's Multi-Agency Gold Incident Command (MAGIC) training course.
- Resilience in a number of partner agencies was stretched, particularly Category 2 responders and those with regional responsibilities.
- This impacted on maintaining a physical presence at the TCC and participation in the TCG process.
- Some agencies not present on the ground outside normal working hours.
- Bank holiday staffing particularly over Christmas period was lacking.
- Sustained nature of the operation presented problems for maintaining staffing at TCC / SCC.

A5.3 Command, Control, Co-ordination & Communications

- The operation was acknowledged as being tactically led, those Districts / Boroughs which involved an Operational Coordination Group at Bronze level reported a higher level of multi-agency understanding and coordination at ground level.
- Commonly Recognised Information Picture (CRIP) template to include location maps in future.
- Teleconferencing facilities in the SCC have now been upgraded to allow a greater volume of dial-in from partner agencies.
- The multi-agency room within the TCC at Medway has also been upgraded to allow hardwiring of partners IT systems, to allow a quicker transfer of information.
- It was considered that Airwave radio interoperability was not used to full effect on ground.
- Single countywide Silver control was acknowledged as being fit for purpose, non-blue light agencies would not have been able to cope with multiple TCCs.
- Decision to locate the Scientific & Technical Advice Cell (STAC) at TCC was considered sound, in view of the operation being tactically driven.
- Confusion about who the key decision maker should be for ordering evacuation.
- Clearer command protocols need to be developed between responsibilities of County / District / Parish councils e.g. evacuation, sandbag distribution.
- KRT to develop clear guidance for partner agencies to understand decision making process and responsibilities of each agency in a range of civil emergency situations.

A5.4 Escalation, De-Escalation & Recovery

- Escalation from Severe Weather Advisory Group (SWAG) with a proportionate Silver Control, set-up to flex into a functional TCC was identified as good practice.
- Need to ensure understanding of status of incident to each agency.
- Clear and distinct lines of communication are needed to ensure dissemination of escalation / de-escalation of operations. It is not sufficient to only include this in CRIP or minutes from meetings.
- KRT to develop protocols for establishing tipping points at which point an event or situation escalates into an emergency and when the 'response' phase may be safely de-escalated into the 'recovery' phase.
- The relationship between the Recovery Working Group (RWG) and the SCG during the 'emergency' phase was unclear. However, recovery structures subsequently developed during Operation Sunrise 4 to be formalised and adopted by KRT as best practice.
- Menu of capabilities of agencies / organisations to be developed by KRT for assets available for on-going deployment during 'recovery' phase.

A6. Floodline Warnings Direct Service (FWD) – information supplied by the EA

- The EA will be working with affected communities, KCC and other partners, to learn the lessons of the flooding and how it can make its FWD service even more effective. This will include providing warnings to communities that were not able to receive a warning, making warnings more focussed on particular communities, and developing Flood Warden schemes in at risk communities.

- One of the challenges during the flooding was providing consistent and trusted information to communities prompting appropriate action. Where Flood Wardens or community leaders were able to be involved in this activity it proved effective. The EA is working with Parish Councils, District / Borough Councils and KCC to establish Flood Warden Schemes in communities, especially those with a complex flood risk where the benefit can be greatest. Amongst others, the communities of central Tonbridge and Hildenborough are communities where we are supporting flood wardens.
- Registering with FWD allows customers to register multiple contact details (mobile, e-mail etc) and manage which messages they receive e.g. Flood Alerts, Flood Warning no-longer in force etc. This increases our ability to get a message through, and provide a good level of service. In areas of relatively low take-up e.g. where fewer people have registered) the EA has automatically registered properties. This is a positive step because it allows the EA to provide a service and warning to those who wouldn't otherwise have received one. However, it only uses home landline contact details (provided by BT). This therefore has a higher message failure rate, and because people haven't chosen to register, there is a lower level of engagement with the service
- The importance of receiving Flood Warnings means that a partnership effort is needed to encourage people to:
    - Sign-up:

      In some parts of Kent, take-up is as low as 51% of those properties for whom the EA is able to alert via the FWD Service.
    - Keep their details up to date and provide multiple contact numbers:

      The most common reason for warning messages not being received is out of date contact details. 1 in 4 people have been automatically signed-up to receive Flood Warnings, meaning that only basic contact details are available e.g. landline telephone.
    - Act: When they receive a Flood Warning: we have received some feedback that people were waiting for a Severe Flood Warning to be issued before acting, when a Flood Warning indicates immediate action required.

Take-Up of the FWD Service Across Kent[2]

Percentage of 'at risk' properties offered the FWD Service	91%
Percentage of Flood Zone 2 properties registered	76%
Percentage of Flood Warning Area properties registered	84%

Take-up of the FWD Service by District / Borough Council Area

Authority Area	Nos. of Properties Offered FWD Service	Take-up of FWD Service (Fully Registered)	Take-up of FWD Service (Automatically Registered)	% Take-up of Properties (Fully or Automatically Registered)
Ashford	2,360	1,459	1,012	104.70%
Canterbury	7,770	4,728	1,850	84.66%
Dartford	3,198	844	1,365	69.07%

[2] Data correct as of 31/03/14

Authority Area	Nos. of Properties Offered FWD Service	Take-up of FWD Service (Fully Registered)	Take-up of FWD Service (Automatically Registered)	% Take-up of Properties (Fully or Automatically Registered)
Dover	7,591	5,424	1,241	87.80%
Gravesham	2,125	554	808	64.09%
Maidstone	2,966	1,440	917	79.47%
Sevenoaks	1,738	1487	467	112.43%
Shepway	133,80	8,741	3,092	88.44%
Swale	9,981	3,686	3,788	74.88%
Thanet	671	133	215	51.86%
Tonbridge & Malling	3,715	2,200	972	85.38%
Tunbridge Wells	542	276	149	78.41%

A7. Potential Future Flood Defence Schemes in Kent – information supplied by the EA

A7.1 Leigh Flood Storage Area (FSA)

- The EA is working hard to communicate better the purpose of the Leigh FSA and its operation[3]. On 24th December, 5.5million cubic metres of water were stored at the Leigh FSA. By operating the Leigh FSA the EA was able to reduce the 342m^3 / second of water entering the FSA reservoir down to 160m^3 / second flowing downstream and continued to moderate the persistently high water levels during 25th and 26th December.

A7.2 East Peckham

- The EA will use its analysis of the event to test the proposed River Medway and Bourne East Peckham Flood Alleviation Scheme (FAS). It discussed this proposed scheme with East Peckham Parish Council in summer 2012 and, if constructed, it would protect all developed areas of East Peckham and Little Mill. The EA hopes to start the scheme design in November 2014.
- The EA's review of the event will also cover the operation of its existing assets (including the Coult Stream FSA), to see if there is anything more can be done to maximise their performance.

A7.3 Yalding

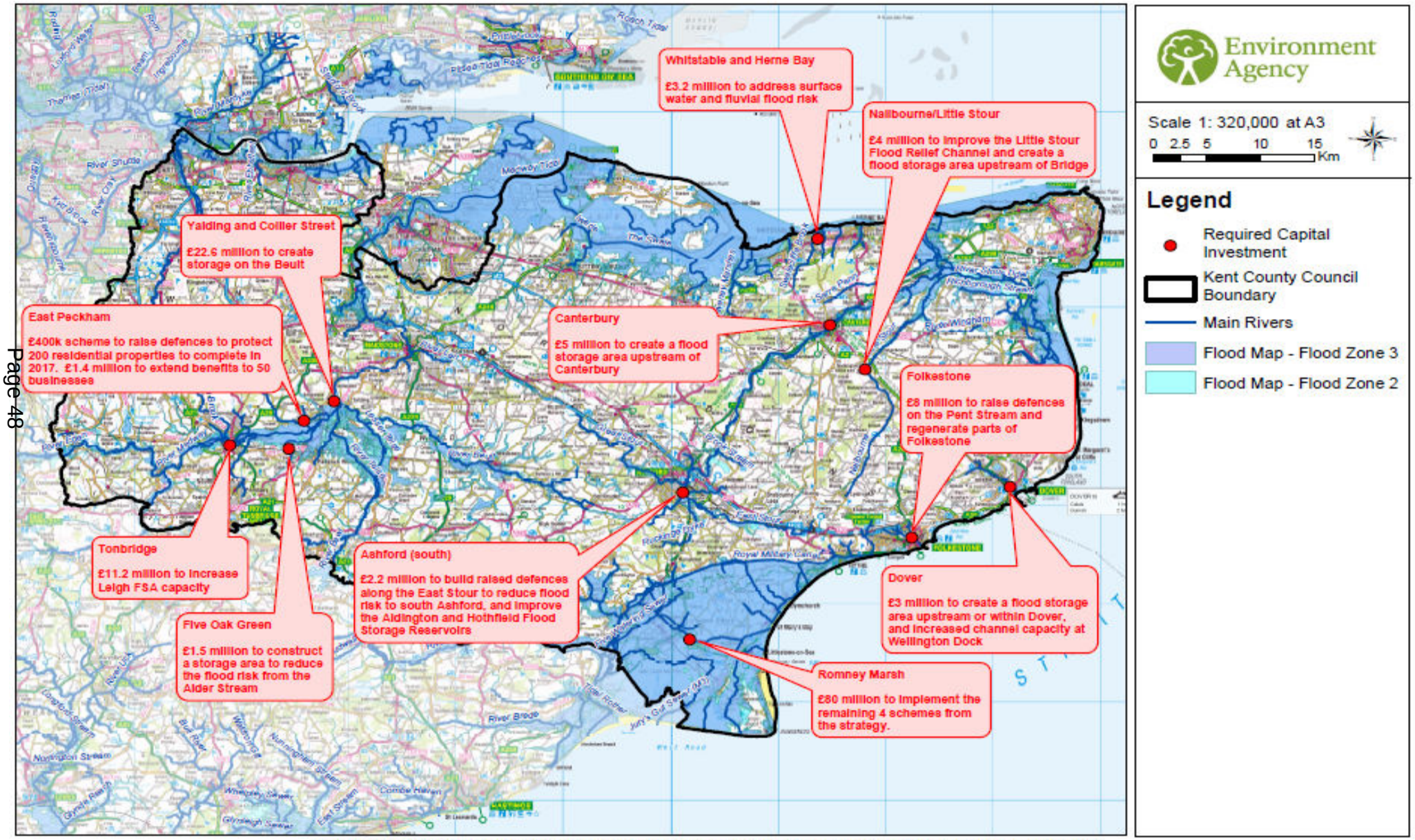
- Yalding is a particularly vulnerable location. 197 properties were flooded when river levels peaked on 24th December 2013. This flooding was comparable to the 1968 flood and worse than in 2000, when 119 properties flooded.
- The EA is urgently investigating whether it can accelerate projects to reduce the risk of flooding in Yalding. There is no single solution that will benefit the whole community

[3] http://m.youtube.com/watch?v=336-6IN-J2I

because of the way the homes and businesses are spread out. It is using the data it has collected from the recent flooding to review our understanding of the way floods happen in the catchment. This will help present the best case to gain funding for future schemes.

- The EA is investigating if it can further localise the current Floodline Warnings Direct (FWD) Service for Yalding. The data it is currently collecting from a project to improve the flood risk modelling for the River Medway will help the EA to improve further its forecasting and flood warning.
- Future works to reduce the risk of flooding are set out in the Middle Medway Strategy which was developed in 2005 and updated in 2010. The EA has considered a number of potential schemes to reduce flooding in Yalding.
- An option that residents are keen to progress is to find a suitable location to store water on the lower reaches of the River Beult.
- The Middle Medway Strategy also recommended that the Leigh FSA be raised by 1m giving an additional 30 per cent storage capacity.
- However, under Government funding rules, most of the schemes will need substantial contributions from external partners in order to proceed – see A6.4 and A6.5 for details.
- The EA has secured funding to progress a feasibility study into both options. It is anticipated this work will be completed by summer 2015. KCC has offered to part fund an additional FSA on the River Beult at Stile Bridge and an increase in the capacity at the Leigh FSA. The EA has submitted its funding bid to secure the additional £17.6m needed to complete both schemes. If this is successful, the earliest construction could start would be in the financial year 2017-2018.
- The EA will continue to work with KCC, Maidstone Borough Council (MBC), Tonbridge & Malling Borough Council (TMBC) and other professional partners to identify partnership funding opportunities which will increase the likelihood of the above works going ahead.

A7.4 Future Capital Investment Requirements for Potential Future Flood Defence Schemes



A7.5 Priority Schemes Currently Not Qualifying for FDGiA Without Partnership Contributions

Scheme	Estimated cost	Nos. of properties to which flood risk would be reduced	Raw partnership funding score	Required partnership contribution	Final partnership funding score (including contribution)	Planned completion
Lower Beult Storage	£22.6m	1,151	36%	£16m	125%	2020
Increased Storage at Leigh	£11.2m	2,151	74%	£5m	130%	2019
Five Oak Green Flood Alleviation Scheme	£1.5m	266	46%	£900k	100%	2018 (only achievable with contributions)
South Ashford Flood Alleviation Scheme	£2.2m	282	24%	£1.7m	100%	2019 (only achievable with contributions)
Canterbury	£5m	1364	144%	N/A	N/A	2020 (dependant on investigations and consultations)
Romney Marsh	£80m	14,500	119%	£3m	N/A	2022
Whitstable & Herne Bay	£3.2m	Projects in early stages of development				
Dover	£3m					
Folkestone	£8m					
East Peckham	£400k	200 domestic	165%	N/A		2017
	£1.4m	50 businesses	50%	£1m	100%	This scheme will currently only defend homes in East Peckham. Additional funding required for an extension of the protection to businesses.

A8. Other Flood Risk Management Options – information supplied by EA and KCC

A8.1 Summary of Ongoing EA Work

- The EA is keen to learn with communities, and gain a clearer understanding of the impacts of these events on people, its assets and the environment. Also to discuss how, collectively, it can improve its preparations for and response to future events.
- The EA has worked with partners to visit affected communities and attended public meetings across the County. These meetings were an opportunity for people to learn about the risks associated with flooding, to share their experiences and to find out what they can do to better prepare themselves for flooding.
- It was also an opportunity to discuss how flood protection assets, such as the Leigh Flood Storage Area (FSA), are operated to reduce the impact of flooding.
- Attending community events, including flood fairs, hosted by Parish and District / Borough Councils taking place in communities impacted by the recent flooding.
- Holding one-to-one meetings with residents.
- Planning to give residents the opportunity to visit the Leigh FSA.
- A review of the Flood Warnings issued will help the EA to understand if their warnings were timely, appropriate and relevant to those who were affected.
- Identify that new or improved warning areas are required in Hildenborough and Yalding and are investigate how the EA can localise the current Flood Warning Service.
- Work with partners to set up and support a number of Flood Warden schemes.
- Distribute questionnaires to affected communities to find out more about the extent and impact of the flooding to improve EA flood maps and Flood Warning areas.

A8.2 Spatial & Land-Use Planning & Drainage

- The EA's role as a statutory planning consultee is to provide advice to local planning authorities to manage flood and environmental risks and enable sustainable growth. We do not receive government funding to protect development built after 2012. It is therefore vital that flood risk is managed within the planning system. The EA works with partners to seek solutions to overcome these risks. Where risks cannot be overcome and development is contrary to the National Planning Policy Framework (NPFF), the EA recommends planning authorities refuse applications.
- In line with the NPFF we recommend that development is outside the flood plain. If this is not feasible the EA provides advice to Local Planning Authorities (LPAs) to ensure that people are not put at risk and that flood risk is not passed downstream.

- LPAs must ensure that Emergency Plans are fit for purpose to ensure that access and egress is still possible in flood conditions. In all circumstances where warning and emergency response is fundamental to managing flood risk, the EA advise LPAs to formally consider the emergency planning and search & rescue implications of new development in making their decisions.
- It is Local authority responsibility to ensure that flood resilience measures are incorporated into building design. The EA still advise on surface drainage at sites over 1 hectare. The future implementation of Sustainable Drainage Systems (SuDS) Approving Bodies (SABs) will mean that KCC and Local authorities will need to manage surface water risks, groundwater flooding and access and egress within the planning process.

A8.3 Personal Flood Resilience

- A 'Property-Level Protection Scheme' is already in place in Lamberhurst. In response to Flood Warnings these measures were deployed by residents, and greatly reduced the flood impact. Funding is also now in place to adopt similar measures in Aylesford.
- District / Borough Councils have been proactively promoting the Central Government 'Repair & Renew Grant'[4] but take-up across the County has been patchy. However, as at 10th April 2014, T&MBC had received 49 requests for further information, 20% from businesses.
- The EA and KCC have also been supporting flood fairs in various locations around the County (see **section A3 of this appendix** for further details) where residents have been investigating their personal flood resilience options.

A8.4 Investigating & Improving Support to Communities with High / Complex Flood Risk Profiles

- The EA has heard from affected communities that there are often multiple sources of flooding and that the appropriate flood risk management options required are complex to determine.
- The EA has therefore promoted the formation of Multi-Agency Flood Alleviation Technical Working Groups across the County to explore future options.
- Groups that have already met (including existing groups):
    - Tonbridge & Malling (Hildenborough, Tonbridge & East Peckham)
    - Five Oak Green
    - Aylesford
    - Edenbridge
    - Yalding
    - Forest Row
    - Lamberhurst
    - Staplehurst
    - Headcorn
    - Faversham
    - Westerham

[4] A scheme providing up to £5,000 per flood-affected home or business to contribute to the costs of additional flood resilience or resistance measures.

- Collier Street
- Canterbury – Nailbourne
- Sundridge & Brasted

- New groups still to meet:
  - Maidstone
  - Eynsford*
  - South Darent & Horton Kirby*

Key:

* Still to be established if wider group needed

A8.5 Surface Water Management Plans (SWMPs)

- In order to understand the risks from local flooding KCC has undertaken a number of studies across the county to collect and map data on these floods. These studies are known as Surface Water Management Plans (SWMPs). These documents vary in their nature, some are high-level assessments of the risks, while others are in-depth studies of the causes and potential solutions to local flooding. SWMPs can be found on the KCC website.
- During 2014-15 KCC will continue to develop SWMPs, and will undertake studies in Marden, Staplehurst, Headcorn and Paddock Wood (all areas impacted by varying degrees of local flooding during the winter). KCC will also be exploring the opportunities to manage local flooding identified by the recently completed SWMPs in Folkestone, Margate and Dartford. SWMPs include an Action Plan of measures that can be used to manage local flooding identified by the study. However, many options require funding in order to be delivered, this funding is drawn from the same Defra fund, which is administered by the EA, as all other flood risk management investment, and each scheme must compete for funding.
- Additionally, KCC is currently co-ordinating the development of local flood risk documents that provide local communities with a simple overview of the range of flood risks in their area. KCC is working with the EA, Internal Drainage Boards (IDBs), Local authorities and water companies to prepare a pilot document. The document will show what the main flood risks are, where significant assets are, which authorities exercise risk management functions in the area, any plans or strategies they may have in hand to manage flood risks in the future and who to get in touch with for more information. Initially, the pilot will focus on the Canterbury City Council (CCC) area. If this proves successful it will be rolled out across the County, with TMBC and MBC areas likely to be considered next.

A8.6 Little Stour, Nailbourne & Petham Bourne Flood Management Group

- The EA, KCC, CCC, Shepway District Council, Southern Water, and representatives from key Parish Councils are investigating the causes and effects of the flooding experienced during the winter of 2013/14 in the Nailbourne, Little Stour and Petham Bourne valleys. These partners are working together to assess the options to manage this winter's flooding, and are seeking to reduce the potential for disruption in the future.
- The Nailbourne, Petham Bourne and parts of the Little Stour are groundwater fed watercourses. This means that they are dry for long periods of time. However, following periods of prolonged rainfall groundwater levels in the underlying

aquifers rise to a point where water emerges through springs throughout the length of these valleys, and the streams begin to flow.

- The Nailbourne has been flowing since mid-January and has approached near-record levels. There has been extensive flooding of farmland, with internal property flooding reported in Bridge, Patrixbourne, Bishopsbourne and Barham. The Petham Bourne, which typically flows less frequently than the Nailbourne, has also been active over the winter causing flooding and disruption. The Little Stour has burst its banks in a number of locations, also flooding farmland properties and roads.
- Owing to the high flows experienced this winter, many culverts have been overwhelmed in these valleys. At its peak, portable pumps were used to help move water over the culverts in some places, and sandbags were used extensively to protect many properties.
- The group will be undertaking three main activities:
    1. Survey the measures put in place over the course of this winter to manage and reduce flooding. This will provide a blueprint for future events, and will help enable us to mobilise and deploy necessary equipment in time if the groundwater levels rise again.
    2. Identify any opportunities that can be delivered as quickly as possible to reduce the impact of flooding should these watercourses flow again next winter.
    3. Identify opportunities to reduce the impact of flooding that can be delivered over a longer timeframe. These measures will require further investigation, more detailed design work and an application for additional funding.

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To: Kent Flood Risk Management Committee – 21 July 2014

From: David Brazier, Cabinet Member, Environment and Transport

Behdad Haratbar, Head of Programmed Work

Subject: Highway Drainage Infrastructure Repairs, Renewals and Improvements

Classification: Unrestricted

Summary: To update the Kent Flood Risk Management Committee on how highway drainage repairs, renewals and improvements are identified, prioritised and delivered. Members of the Committee are requested to note this report.

1. Background

1.1 The County Council is responsible for the maintenance of 5,400 miles of public highway including 250,000 roadside drains (gullies) and associated drainage systems.

1.2 The primary objectives of the highway drainage system are:

- Removal of surface water (from the carriageway) to maintain road safety and minimise nuisance,
- Effective sub-surface drainage to prevent damage to the structural integrity of the highway and maximise its lifespan, and,
- Minimise the impact of highway surface water on the adjacent environment including properties

1.3 In recent years we have experienced increasing numbers of prolonged and heavy rainfall events, the most recent being this winter. As prolonged, heavy rainfall events have become more frequent, the number of customer enquiries has increased year on year. The volume of customer enquiries now stands at twice that of 2009. In the last 12 months we have received around 10,000 enquiries related to drainage and flooding. Of these, 3,000 are related directly to highway flooding and a further 500 are related to incidents of highway flooding that had resulted in damage to private properties.

1.4 Drainage repairs, renewals and improvements are prioritised on the basis of the following risks:

- Highway Safety
- Internal flooding of properties
- Network disruption

2. Discussion

2.1 Highway flooding causes significant level of disruption; it affects movement of people and goods, therefore adversely affecting the local economy. It also causes significant damage to the highway network; at surface level, flood water scours the surface of the carriageway and footway, which will allow ingress of water to the layer below. In the short term it will result in cracking and development of potholes. Flood water also penetrates the lower layers of road construction washing away fine materials and in time results in large failures of the road structure which may require significant repairs or even reconstruction.

2.2 Over the past two years, we have, as part of the gully cleaning operations, been collecting information about the highway drainage system. We now know the quantum of road drains on each street and this information is used to inform planning and programming of maintenance and improvement works. The location and condition of the connecting carrier pipes and other drainage assets such as soakaways and culverts, remains largely unknown. A discrete data collection exercise would cost many hundreds of thousands of pounds so at the moment is not financially viable. Instead, when highway drainage issues arise we investigate the local system, chart its details and add the information to our asset database. The detail collected is fundamental to identifying the cause of problems, devising solutions and informing works in the future.

2.3 Highway flooding is caused by a number of factors including those listed below;

Damaged and Ageing Infrastructure

Much of the County's drainage infrastructure was installed when the roads were originally constructed, some of which date back to late 1800s/early1900s. Over the years, settlement of the soil, ingress of tree roots and road works by third parties (largely utilities) have caused damage to the highway drainage infrastructure.

Much of the highway drainage system is reliant on soakaways with an estimated 8,000 across the County. These are large perforated or deep bored chambers which collect the water from the road drains and allow it to disperse into the surrounding ground. The average lifespan of a soakaway is 20 to 30 years.

Over time, soakaways and the ground around them can become silted, soakage is reduced and the soakaway fails. When this occurs, the water can no longer drain away and instead backs up in the system, causing the road to flood.

Insufficient Capacity

Development and changes in land use have resulted in increased volumes of surface water being discharged into the drainage system. In many places the sewers are now running at capacity.

New connections into the highway drainage system are permitted however if and only if the works promoter/ developer can demonstrate that:

- There is sufficient capacity
- There are no critical issues downstream or upstream with respect to flooding or critical drainage infrastructure.

If a developer needs to connect to a highway system because it is the appropriate discharge point, he must undertake sufficient assessment to indicate the impact on the highway system, even if this requires undertaking surveys and further modelling. Any works that are need to carry additional flow need to be funded by the developer, whether it is upsizing, increasing storage or providing a complete extension.

In many areas of the county, the highway drainage system discharges into a third party sewer, for example the public surface water sewer or the combined sewer which are maintained by the local sewerage authority. There is no mechanism for us to require the party responsible for the sewer to upgrade their infrastructure so the only option is to divert the water elsewhere. Where the drainage system is owned and

maintained by the County Council, the drainage system can be altered, upgraded or replaced entirely.

Diverting or changing a drainage system often requires significant investment and in the past, cost has made schemes of this nature unaffordable. Instead, the impact of flooding due to insufficient capacity has tended to be managed by installing permanent warning signs, increasing the height of kerbs and re-profiling the road to divert water away from properties.

Land Drainage

Water being discharged from adjacent land onto the road is becoming an increasingly common cause of highway flooding.

As LLFA, the County Council also has permissive powers (not duties) to regulate ordinary watercourses, predominantly ditches. These powers consist of two parts:

- The enforcement obligations to maintain flow in a watercourse and repair watercourses, bridges and other structures in a watercourse; and
- The power to give consent for structures in the watercourse and changes to the alignment of the watercourse.

In the last 12 months we have dealt with over 250 flooding issues associated with roadside ditches and water being discharged onto the highway. Whilst we always endeavour to resolve issues amicably and in partnership with landowners, the recent increase in heavy rainfall events has made it necessary for us to take a more robust stance.

We have developed and implemented a more stringent enforcement process now utilise our powers by virtue the Highways Act 1980 to take action to stop water from flowing onto the highway and recharge the land owner for the costs incurred.

2.4 The weather this winter highlighted numerous pinch points in the drainage network. Some of these are being addressed by the implementation of an enhanced cleansing regime however in a large number of cases work is required to improve the functionality of the system.

2.5 The annual capital budget allocation in recent years has been around £2.7m. This has enabled us to complete around 800 priority minor repair and small improvements and a small number of larger improvement schemes each year. Nevertheless, there are many more sites that need attention and this has been demonstrated by the 3,500 enquiries received during the winter of 2013/14. In response, the County Council is investing an additional £3m to enable the completion of a further 120 drainage improvement schemes in 2014/15.

2.6 The KCC Local Flood Risk Management Strategy highlights that "local flooding has a significant impact on the people and economy of Kent and it is predicted to increase due to climate change, increasing development and changing land use practices." To respond to this anticipated increase in demand, the following areas have been identified as needing continued investment in the future:

- Repairs and improvements of highway drainage infrastructure
- Engagement with local communities and landowners to improve understanding of responsibility for land drainage

- The continued development of multi-agency surface water management plans to understand where local flood risks are, how they arise and to agree a set of actions to enable better management of the risks.

3. Recommendations

Prolonged and heavy rainfall events are occurring more frequently and the volume of customer enquiries are increasing year on year. The highway drainage network is deteriorating and repairs, renewals and improvements are urgently required to ensure that we can respond to the anticipated increase in demand.

It is recommended that the Kent Flood Risk Management Committee note the need for the current level of investment in highway drainage infrastructure to be maintained and potentially increased in the future.

Lead Officer: Behdad Haratbar Ext. 7200 411645

To: Kent Flood Risk Management Committee – 21 July 2014

From: Michael Hill, Cabinet Member, Customer and Communities

Subject: Environment Agency and Met Office Alerts and Warnings and KCC flood response activity since last meeting.

Classification: Unrestricted

Summary: To update Kent Flood Risk Management Committee on Environment Agency and Met Office Alerts and Warnings and KCC flood response activity since the last meeting of the Committee on 11th March 2014. Members are requested to note this report.

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1. Background

1.1 KCC Resilience and Emergencies Unit and the Call Centre receive Environment Agency Flood Alerts and Warnings and Met Office Severe Weather Alerts and Warnings by e-mail and fax on a 24 hour 7 days a week basis. Impacts upon communities, infra-structure and the wider environment are assessed and a response mobilised as required.

1.2 Some 70,000 properties in Kent are located within areas at risk of fluvial or tidal flooding. Where practically possible, these properties are offered a Flood Warning Service by the Environment Agency. However, other parts of the county are also potentially vulnerable to surface or ground water flooding. Early warning of flood risk to communities (including areas outside of floodplains) is delivered through Flood Guidance Statements, Severe Weather Warnings and Severe Weather Advisory Group.

2. Latest situation

2.1 As we moved into spring and summer flood response activity across Kent reduced significantly over that experienced in the preceding autumn and winter months. Indeed, KCC has undertaken a cross-directorate debrief exercise to learn lessons from the response to this period of intense storms and flooding. The report to Cabinet on the 7th July included recommendations arising from this process and is featured elsewhere on this agenda.

2.2 Since 11th March 2014 just 1 Environment Agency flood alert and no warnings have been issued. However, 2 yellow Met Office Severe Weather Alerts and 5 yellow Severe Weather Warnings have been issued for heavy rain and the risk of surface water flooding[1]. The most significant of these precipitation events struck Kent on the afternoon of 1st May, and resulted in a number of surface water flooding and subsidence events in the Maidstone area.

2.3 The Thames Barrier was closed on 2 occasions for test purposes.

[1] please see appendix 1

2.4 A total of 4 flooding related incidents were reported to the 24/7 KCC Emergency Planning Duty Officer over the same period, encompassing surface and ground water flooding, subsidence and sewage pollution.

2.5 The long term trend, for the 2002 – 2014 calendar year, covering Environment Agency and Met Office alerts and warnings and miscellaneous emergency incident reports made to KCC is set out at appendix 2[2]. The graph clearly identifies the significant spike in severe weather and wider emergency response activity experienced over the autumn and winter of 2013/14.

3. Next Steps

3.1 KCC is implementing recommendations arising from the autumn and winter storms debrief. KCC and our partners are determined to enter the next autumn and winter period better prepared and more resilient to severe weather events.

3.2 KCC must of course remain vigilant in relation to the risk of flooding arising from summer storms and other severe weather events.

4. Recommendations

4.1 That Members:

- Note the level of alerts received since the last meeting of the Kent Flood Risk Management Committee and the longer term trend; and

- Contribute any additional matters arising from debate by the Committee.

Tony Harwood, Senior Resilience Officer, Growth Environment and Transport
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Background documents: None

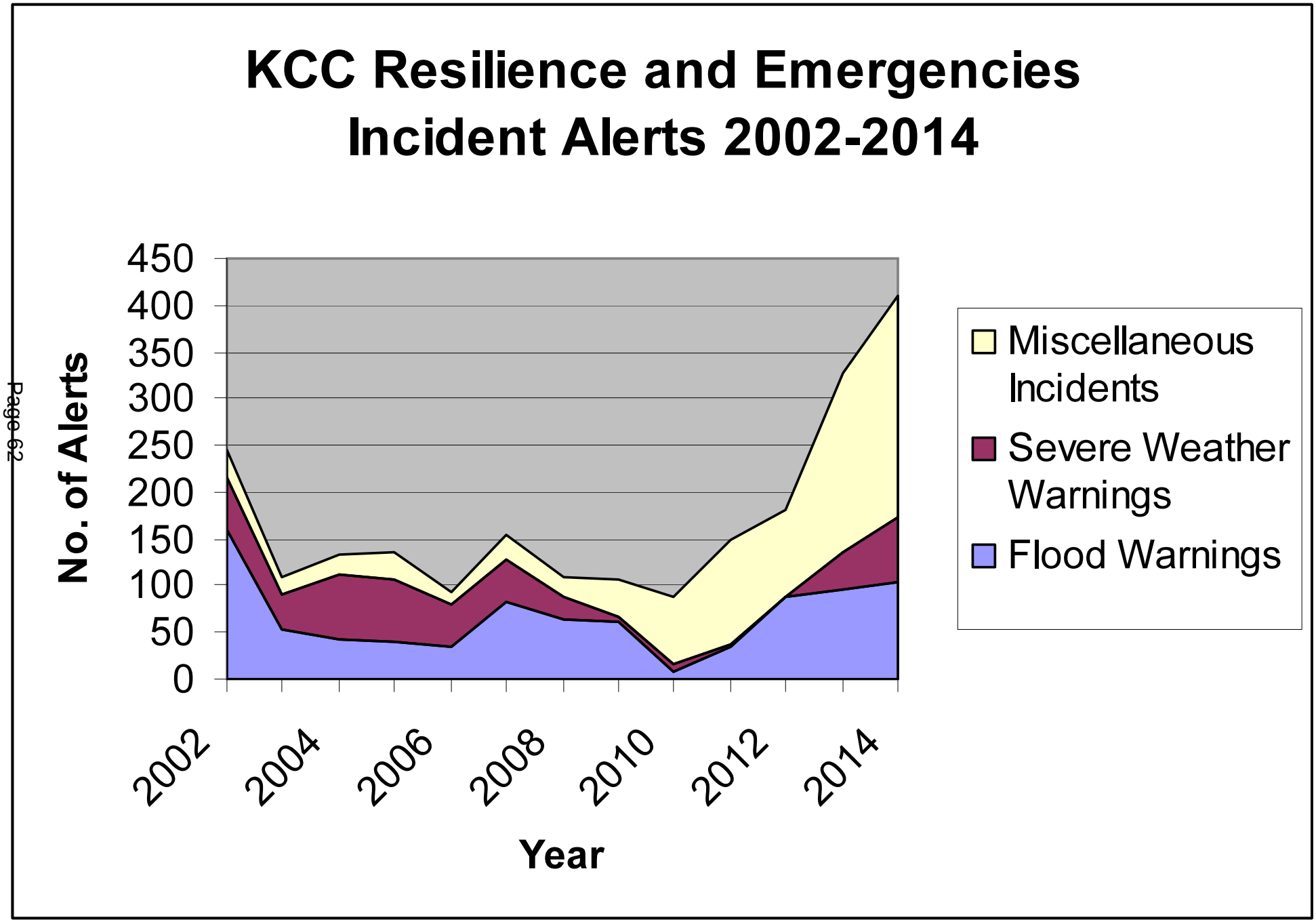
[2] please see appendix 2

Appendix 1

Environment Agency Flood Alerts, Met Office Severe Weather Alerts and Warnings (issued between11th March – 11th July 2014)

403	Wednesday	30/04/2014		TH	Yellow Alert of Rain for London & South East England from 1200 Thu 01 May to 2000 Thu 01 May
404	Wednesday	21/05/2014		TH	Yellow Warning of Rain for London & South East England from 1800 Wed 21 May to 2355 Wed 21 May
405	Wednesday	21/05/2014		TH	Yellow Warning of Rain for London & South East England from 0005 Thu 22 May to 2100 Thu 22 May
406	Tuesday	03/06/2013		TH	Yellow Alert of Rain for London & South East England from 0015 Sat 07 Jun to 2345 Sat 07 Jun
407	Thursday	26/06/2014		TH	Yellow Warning of Rain for London & South East England from 0400 Fri 27 Jun to 2100 Sat 28 Jun
415	Tuesday	08/07/2014		TH	Yellow Warning of Rain for London & South East England valid from 1030 Tue 08 Jul to 1900 Tue 08 Jul
417	Wednesday	09/07/2014		TH	Yellow Warning of Rain for London & South East England valid from 0600 Thu 10 Jul to 0900 Fri 11 Jul
	Thursday	10/07/14		TH	Flood alert for the Shuttle and Cray catchments issued at 15:24

Appendix 2


KCC Resilience and Emergencies
Incident Alerts 2002-2014
No. of Alerts
450
400
350
300
250
200
150
100
50
0
2002
2004
2006
2008
2010
2012
2014
Year
Miscellaneous Incidents
Severe Weather Warnings
Flood Warnings