

**From:** Tony Hills, Chairman of the Kent Flood Risk Management Committee

**To:** Scrutiny Committee – 14 November 2018

**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 2017 to July 2018.

Recommendation(s): The Scrutiny Committee is invited to note the content of the report.

## **1. Introduction**

- 1.1** The Kent Flood Risk Management Committee last reported to this Committee on 9 June 2016. It was considered that as the membership of the Committee had been renewed following the Local Government elections in May 2017, the next report would be delivered in 2018.
- 1.2** The Committee's Terms of Reference are set out at Appendix 1 to this report. The membership of the Committee comprises 6 Members of the County Council. There is also a standing invitation to each of the District Councils, the Internal Drainage Boards in Kent, Kent Fire and Rescue Service and KALC to send representatives to the meetings. All these representatives are treated as full Committee Members except for the formal items of business. The Committee's historic policy has been to encourage attendance by as many organisations as wish to be represented. I am very keen for this policy to continue – even if attendance does tend to dip whenever there is a sustained period of more tranquil weather conditions
- 1.3** Officer support to the Committee is provided by Tony Harwood (Resilience and Emergency Planning Manager) and Max Tant (Flood and Water Manager). Senior Officers from the Environment Agency also report and contribute to the meetings.
- 1.4.** The Committee met on three occasions prior to the Local Government elections following its last report to Scrutiny. The topics covered during this period were:
- The Yalding Local Flood Plan,
  - Southern Water,
  - Exercise Surge (including a full de-brief),
  - The Environment Agency's Winter Readiness,
  - The Kent Resilience Forum,
  - Flood-Re Affordable flood insurance,
  - The DEFRA Select Committee Future Flood Prevention Report,
  - Rewilding and Natural Flood Management,
  - Thames Estuary Asset Management 2100,
  - Standing reports on Environment Agency and Met Office Alerts and Warnings and KCC flood response activity.
- 1.5** In 2017/18, the Committee continued to monitor responses to Environment Agency and Met Office Alerts and Warnings and KCC flood response activity, receiving a report at each meeting throughout the year. As will be seen, the Committee was very concerned throughout the year at the potential for drought due to lengthy periods of dry weather.

Despite this, there were a number of very localised extreme flash flooding events experienced across the county. The operational response to these events was excellent in the Committee's view. Nevertheless, the fact that these events had occurred at the same time as rivers were drying up demonstrated that the Committee needed to gather as much information as possible on the effects of and preparedness for climate change. This became a significant theme for the Committee's work.

## **2. Committee meeting of 17 July 2017.**

- 2.1** The Committee's first priority following the Local Government elections was to become thoroughly grounded in its duties and responsibilities. It received an introduction from Max Tant and identified topics for closer consideration in the future.
- 2.2** The Committee then considered a report on the new Local Flood Risk Management Strategy which differed from its predecessor in terms of its brevity and medium term outlook. The first Strategy had documented the work that would be undertaken to build an understanding of the risk of local flooding in the county. This was no longer included because the necessary information now appeared in the *Flood Risk to Communities* documents which covered all the Districts in Kent.
- 2.3** The Committee sought assurance on the increasing risk of sewer flooding resulting from the expansion of housing development in Kent. Max Tant said that combined sewer networks had been identified as a challenge in the Strategy and that KCC was working closely with Southern Water and the other Kent Local Authorities.

## **3. Committee meeting on 13 November 2017**

- 3.1** John Byrne from the Environment Agency gave a presentation on the Medway Estuary and Swale Shoreline Management Strategy. This covered an area from the Kingsnorth Power Station down to the Medway at Allington, as far east as Graveney Marshes and also incorporated the Isle of Sheppey.
- 3.2** Mr Byrne described the three tiers of coastal defence planning. The Environment Agency had published its Shoreline Management Plans in 2010 and was now working on the Strategies which were to last for 100 years, considering the Plans in greater detail and identifying the nature and timing of works to be undertaken. Once completed, this would lead to the design and construction of capital works and maintenance.
- 3.3.** The criteria for developing the preferred options were to reduce the threat to people and their property; to deliver the greatest environmental, social and economic benefit; to work with natural processes; to adapt to future risks and changes (such as climate change); and sustainability.
- 3.4** The process of identifying preferred options had taken the form of building up a long list of possibilities through workshops and other forms of consultation, and screening them to create a shortlist. Of those options which were seen as realistic and sensible, a number were evaluated in greater detail through investigations and reports with particular regard being paid to environmental and social aspects as well as costs and benefits.
- 3.5** The Committee also received a report from Stephen Scully (Senior Resilience Officer) of the Kent Resilience Team. Flooding had been the focus of much local action. Work undertaken during summer 2017 included a flood risk assessment review of all of the

county's multi-agency flood plans, which resulted in them being updated. They also re-invigorated their humanitarian welfare response, which is a crucial part of flood response work. Work on winter preparedness for 2017/18 was also on-going at this time as Press Officers continued to refine protocols for warning and informing; advice was being rolled out to businesses and a Winter Preparedness Workshop was held for resilience partners. Meanwhile, work on long term risk assessments in relation to climate change impacts continued to be significant.

#### **4. Committee meeting on 5 March 2018.**

- 4.1** The Committee was expecting to receive a presentation from the Environment Agency on the River Basin Management Plans. This had to be postponed at extremely short notice due to the urgent need for the EA to respond to problems arising from the rapid thaw which had followed the recent heavy snowfall and affected some 26,000 properties in Kent. This was a stark reminder that climactic conditions pose a variety of threats whose timing and nature is not easily predictable.
- 4.2** The meeting started with a presentation by Lee Dance, Head of Resources at South East Water on their Water Management and Drought Plans. Water Resource Management is a part of the Committee's remit which has tended to receive less attention than Flood Risk. This presentation was given in the light of the lengthy dry spell and the serious concern that Kent could be faced with a water shortage. It did not escape the Committee's attention that this matter was being considered at the same time as the County was faced with the even more immediate problems caused by the snow and subsequent thaw.
- 4.3** Mr Dance gave a detailed description of the water supply network in the South East before turning to the draft Water Resources Management Plan. Its success since publication in 2014 could be measured in terms of the reduction in water leakage from 95 to 88 MI/d (exceeding the reduction target) as well as in the identified water efficiency programme. More than 80% of South East Water's customers were now on a meter, a 2% reduction in water usage had been achieved through behavioural change; mainly due to a programme of school and community talks and events, as well as water efficiency device promotion. Between 2011/12 and 2016/17, 47,000 new homes had been constructed and connected to South East Water's pipelines. Over the same period, total household demand had nevertheless declined by 21 million litres a day.
- 4.4** The Plan itself needed to be developed by forecasting supply for each of the 60 years covered, including projected changes in population and demand. This forecast indicated that in the early years there would be a surplus of supply over demand, but that this would be dramatically reversed, particularly during the summer peak periods from 2029 onwards, culminating in a demand for an additional 113MI/d during the summer of 2070/80 in Kent (260MI/d in the entire SE Water region). The Plan's response encompassed a variety of solutions such as new resource development, reservoirs, desalination and groundwater options. These solutions (some 500 in total) were then sub-divided into "unconstrained" and "constrained" options. These options were modelled in terms of feasibility, reducing the number to 172. Further modelling was undertaken to identify the most effective combinations in terms of affordability, environmental performance and adaptability to uncertainty. The Plan had taken account of customer preferences which had indicated that there was strong support for work to be undertaken on reducing leakage rates and

improving water efficiency, whilst effluent re-use and desalination were the least popular options.

- 4.5** The conclusions derived from the option modelling process were that it was necessary to improve levels of resilience to cope with a drought of a one in 200-year severity. Climate change impacts were identified as “modest”, but work had nevertheless been undertaken to adapt to the wide variabilities that could occur.
- 4.6** Mr Dance was also asked to comment on South East Water’s response to the current weather conditions. He said that it had been anticipated that there would be a thaw after the snow and ice of the previous week. On this occasion, however, the impacts had been unprecedented. South East Water’s volunteers had walked the entire water network route and discovered very few obvious leaks from the pipes. The problems had occurred because the ground had initially frozen very quickly followed by a very rapid thaw. This had caused the ground to move and unsettled the joints between the pipes. As a result, it had taken a great deal of time to identify exactly where the water was leaking from. The Fire and Rescue Service had reported that many private properties were also experiencing leakages of a similar nature. Hundreds of South East Water’s staff had been taken away from their normal work in order to carry out “find and fix” duties or the provision of bottled water to affected properties and supermarkets. Events were occurring rapidly, particularly in the Crowborough, Rotherfield and Crowhurst area where some 13,000 properties served by SE Water were without water. The priority was to get water to those people whose supply had been cut off.
- 4.7** Members of the Committee asked detailed and often localised questions. The answers were considered very illuminating, and South East Water was keen to encourage those Members present to support them in getting this information to their constituents.
- 4.8** Alan Turner, KCC’s Water Resource Manager gave a presentation in which he said that his team maintained a high-level overview of Kent’s five water companies: *South East Water, Affinity Water, Southern Water, Thames Water and Sutton and East Surrey Water*. It also maintained an overview of some of the broader issues such as population growth, climate change, infrastructure provision, and environmental constraints. Some of this was done through the Kent and Medway Infrastructure Framework which set out the infrastructure requirements to meet future growth. It also provided detailed demographic information including population change, household occupancy trends and age distribution. This information was made available to utility providers for use in infrastructure planning.
- 4.9** Mr Turner explained that infrastructure growth did not necessarily mean an increase in water demand. A graph produced by Southern Water showed how much water that company had put into its network on a daily basis between 1961 and 2015. It peaked in 1989/90 when the water industry was privatised (leading to capital investment in control of leakage) before reducing by some 25% for the remainder of the period. The reasons for this trend were continued leakage reduction, the decline in industrial demand, and metering programmes.
- 4.10** The national *Water Resources Long Term Planning Framework 2015 – 2065* was commissioned by Defra and published by Water UK in 2016. This study took a long-term approach and considered the changing pressures on water resources, including more

severe drought conditions. It assessed measures that could strengthen resilience and made recommendations on water resources management.

- 4.11** KCC's Flood and Water Management Team has supplemented this study by conducting more local specialised analysis such as the *Kent Water for Sustainable Growth Study*, which looked at water supply and demand issues in Kent up to 2031. The Study's first conclusion is that because the water companies' current Water Resource Management Plans were produced *before* the housing growth projections significantly increased, the level of supply will need to be adapted to accommodate them. The Team will therefore need to closely scrutinise the companies' data in their new draft Plans. The second conclusion is that there is a greater need for *water neutrality*, particularly in those areas where growth projections are showing a very marked increase. The third conclusion is that there are grounds for concern over whether technical improvements to Waste Water Treatment Works will be able to keep up with growth levels.
- 4.12** The Flood and Water Management Team is active in water management for horticulture. Water management is not only about the conservation of resources, it is also about supporting a lot of other users, many of whom take their water directly from the environment. KCC is working with a range of partners such as NIAB EMR (formerly East Malling Research), South East Water and the Environment Agency to develop new systems which will provide water savings, increased productivity and business profitability, whilst reducing flood risk and pollution.
- 4.13** It was unusual for one of our Committee meetings to focus on water resource management questions. It was able to satisfy itself that Kent's approach to this question is robust in that it takes full account of national data analysis, applies it to the County and also seeks to improve prospects for water savings beyond the area of conservation of resources.

## **5 Committee Meeting on 16 July 2018**

- 5.1** The Committee received a presentation from Mark Rogers of the Met Office on early severe weather warnings, climate trends and their implications for flood risk. He said that the Met Office's National Severe Weather Warning Service (NSWWS) had been set up in 1988 to issue Warnings when wind speeds were expected to reach 70 mph or when 30 mm of rainfall were anticipated. The weakness of this approach was that there was no policy differentiation between a 70mph wind speed in Scotland and the South East of England, despite the greater impact in the latter area. The NSWWS had therefore developed an impact-based approach in 2011 where the decision on whether to issue Warnings was based on the likely dangers and disruptions caused. The UK was currently the only country in the World operating this system, although a number of countries were now considering doing so after receiving training from the Met Office.
- 5.2** The Met Office has issued Warnings for rain, wind, snow, ice and fog ever since the formation of the NSWWS, and has now added Warnings for lightning and thunderstorms, incorporating rain, hail, lightning and strong winds. Warnings for lightning are particularly important because of its impact on railways and power supplies.
- 5.3** Mr Rogers demonstrated how the NSWWS modelling system works by showing a model indicating a track of low pressure across central southern England with the strongest winds occurring in the South East. If this were the only model available, the Met Office would

issue a Warning for the medium likelihood of a medium impact event in that part of the country. On this occasion, however, a second model was indicating a track further northwest across Wales with the strongest winds across western and into northern England. The Met Office would deal with the conflicting models by increasing the size of the area covered by the Warning whilst reducing the likelihood of the event to “low.”

- 5.4** The Flood Forecasting Centre is a joint unit involving the Met Office and the Environment Agency. It has created a Flood Guidance Statement whose purpose is to forecast the risk of flooding over the next five days (covering rivers, surface water, groundwater and coastal flooding). It is issued daily, using the colours green, yellow, amber and red to identify the level of risk and sets out whether that risk is decreasing, steady or increasing.
- 5.5** The phenomenon of climate change was analysed by the Met Office through numerous computer models. Mr Rogers showed the latest UK Climate Projections (completed in 2009). Three different projections were produced based on low, medium and high emissions scenarios for the years 2020, 2050 and 2080. Although the evidence was complex, the likelihood is that by 2050 rainfall will reduce considerably in the summer and rise significantly in the winter. Summers are likely to become drier by 2100, when rainfall will be heavier and in short events, potentially causing more occurrences of serious flash flooding. This is because the warmer summers become, the more water will be held in the warm air, leading to violent storms.
- 5.6** Innovative research published by the Met Office in 2017 has found that there is now a 1 in 3 chance of a new monthly rainfall record in at least one region of England and Wales each winter. Met Office records show that there have been 17 record breaking rainfall months or seasons since 1910 and that 9 of these occurred since 2000. This demonstrates that weather patterns are becoming very much more volatile.
- 5.7** The Committee discussed this presentation at great length, agreed to receive an update report from Mr Rogers once the revised UK Climate Change projections were published (later this year) and referred its concerns on drainage to the Environment and Transport Cabinet Committee in the light of the expert advice received. This last recommendation came about as a result of concerns raised that if serious action was not taken rapidly to maintain and clear the drains and gullies, there would be severe flooding every time there was heavy rain (which the Met Office was predicting would become a more regular occurrence in the future).
- 5.8** The Committee also received a presentation from Simon Curd from the Environment Agency on future flood risks to Kent. There are currently some 85.5k homes and businesses in Kent at risk of flooding from rivers and the sea. These figures do not take account of the presence of flood defences. There are over 9,700 flood risk assets in Kent, including defences, structures, pumping stations and culverts, which benefit 40,000 homes and businesses.
- 5.9** Mr Curd said that Kent had been allocated £189m over the next five years in grants to deliver capital projects to reduce flood risk in England. Over 60% of this figure came from Flood Defence Grant. These projects were expected to reduce flood risk and coastal erosion to more than 27,000 homes. Under the government's partnership funding rules, however, many of these projects required external contributions in order to go ahead. Without these contributions, the allocated government funding would be redistributed elsewhere in the country.

- 5.10** After detailing the projects underway, Mr Curd summarised the main points of his presentation by saying that Kent was a big winner in respect of government investment on capital projects; partnership funding was needed to unlock government funding for flood defence and coastal risk erosion management projects; partnership was key to success and innovation; and that incorporating Natural Flood Management into schemes could help to deliver more and wider benefits. Surface water would be one of the greater and increasing risks. The Environment Agency's schemes were important for Kent's population and areas, not just in terms of property protection, but also because of their wider benefits for growth and natural habitats.
- 5.11** The Committee agreed to invite the Environment Agency to give an update on future flood risks to the same meeting as the Met Office once the revised UK Climate Change projections were published.

## **6 Future activities**

- 6.1** The next meeting of the Committee will be held on 12 November 2018. It will receive a presentation from the Deputy Cabinet Member for Environment and Transport on KCC's vision for Flood Risk in Kent, together with an update on drainage from Highways and Transportation, in response to the Committee's concerns on this subject.

## **7. Conclusions**

- 7.1** Kent Flood Risk Management Committee has carried out an important oversight and scrutiny function in terms of scrutinising the work carried out by KCC and its partner agencies. The Committee's influence has benefited from the continued positive engagement by those local authorities who regularly attend and by the positions of authority that their representatives hold within those organisations.
- 7.2** It is not surprising that the absence of a major event over the past four years has had the effect of slightly reducing attendance. One of the roles of the Committee has been to examine how the response structures that have been established in many communities are able to remain in good shape and even become strengthened during relatively flood-free periods.
- 7.3** Climate change is undeniably having the effect of increasing the threat of flooding at the same time as major housing developments are taking place in Kent and the South East. The Committee's role is to examine whether and how KCC and all its partner agencies are working together effectively to reduce the risk and to respond to events. The general picture of preparedness is encouraging. Sudden flash flooding is a growing risk and is responded to very thoroughly whenever and wherever it occurs, whilst preparations for major coastal and fluvial floods and reservoir inundation are constantly being updated and tested. At the same time, research of a very high standard is being carried out by different agencies, and the information gathered is widely disseminated amongst them and shared with communities.
- 7.4** It would, nevertheless, be unwise to counsel complacency. There are undeniably matters which need close monitoring. The problems which arise when development takes place on

coastal and fluvial flood plains are a constant source of concern, as are those relating to drainage maintenance and the continuing uncertainty around the progress of and responsibility for sustainable drainage.

## **8. Recommendation**

<b>8.1 The Committee is invited to note the content of this report</b>
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