



Amendments to Planning Policy Statement 25:
Development and Flood Risk
Impact Assessment



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Summary: Intervention & Options		
Department: Communities and Local Government	Title: Impact Assessment of Amendments to Planning Policy Statement 25: Development & Flood Risk	
Stage: Final Proposal	Version: 2	Date: March 2010
Related Publications: Planning Policy Statement 25: Development and Flood Risk.		
Available to view or download at: www.communities.gov.uk		
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What is the problem under consideration? Why is government intervention necessary?

Planning Policy Statement 25 (PPS25) sets out the Government's spatial planning policies for managing and reducing flood risk. The policy approach in PPS25 remains the right one. But since publication (December 2006) it has become apparent that some aspects of PPS25 would benefit from clarification to ensure the policy is fully effective. Following public consultation, the Government has decided to make some limited amendments in relation to essential infrastructure, emergency services facilities, certain facilities requiring hazardous substances consent, wind turbines and the text supporting the definition of 'Functional' Floodplain.

What are the policy objectives and the intended effects?

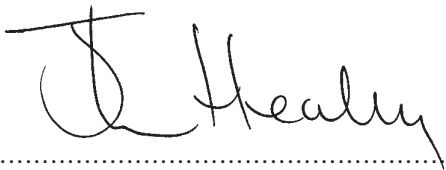
To improve the effectiveness of the existing planning policy approach in PPS25 by making clear that essential infrastructure, certain storage installations requiring hazardous substances consent and emergency services facilities can be located where they are needed, and designed to be safe, resilient and, where appropriate, operable if there is a flood; that new wind turbines can be appropriately located in flood risk areas; and that functional floodplain is appropriately identified in Strategic Flood Risk Assessments.

What policy options have been considered? Please justify any preferred option.

Option 1: To do nothing.

Option 2: To make limited amendments to the existing planning policy in PPS25. **The Government has decided to proceed with this option**, which was its preferred option and was supported in responses to the public consultation proposals, but with a modification to one of the proposed amendments, to reflect some concerns from the water and sewerage industry.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? In view of the relatively modest scale of costs and benefits that are likely to arise from these amendments which are intended to clarify the existing policy approach, it is not considered necessary to conduct a formal review of these aspects of the policy. The original RIA of PPS25 dated December 2006 indicated that it would be desirable to review the policy as a whole after five years.

Ministerial Sign-off For final proposal stage Impact Assessments:
I have read the Impact Assessment and I am satisfied that: (a) this Impact Assessment represents a fair and reasonable view of the expected costs, benefits and impact of the proposed policy; and (b) that the benefits justify the costs.
Signed by the responsible Minister:

..... **Date:** 25 March 2010

Summary: Analysis & Evidence			
Policy Option: 2		Description: Limited amendments to Planning Policy Statement 25 (PPS25).	
COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups'
	One-off (Transition)	Yrs	
	£		Costs have not been monetised.
	Average Annual Cost (excluding one-off)		
£		Total Cost (PV) £ 0	
<p>Other key non-monetised costs by 'main affected groups'</p> <p>Local planning authorities (LPAs) and the Environment Agency (EA) – administrative costs of implementing the amended policy. However, any additional costs should be minimal.</p> <p>Water and sewerage companies, energy providers, including wind energy, the emergency services and the owners and operators of certain storage facilities at ports – no significant additional costs, however possible minor additional costs of providing resilient essential infrastructure.</p>			

BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups'
	One-off	Yrs	
	£		Benefits have not been monetised
	Average Annual Benefit (excluding one-off)		
£		Total Benefit (PV) £ 0	
<p>Other key non-monetised benefits by 'main affected groups'</p> <p>Increased clarity in planning policy on development and flood risk, helping to deliver the policy more effectively. Potential benefits to all in the community through planning policy which facilitates the provision of safe, resilient essential infrastructure and emergency services where they need to be in flood risk areas; and to operators and providers of the particular services, installations and developments affected by the amendments.</p>			

Key Assumptions/Sensitivities/Risks

The regulatory framework (Town and Country planning system) is unaffected by these proposals. The existing policy approach in PPS25 will remain in place. The proposed amendments will clarify and refine how this policy approach should be applied.

Price Base Year	Time Period Years	Net Benefit Range (NPV) £	NET BENEFIT (NPV Best estimate) £
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What is the geographic coverage of the policy/option?	England			
On what date will the policy be implemented?	PPS25 has been implemented since December 2006. Amendments to come into effect on publication.			
Which organisation(s) will enforce the policy?	Planning authorities			
What is the total annual cost of enforcement for these organisations?	£ 0 (additional costs)			
Does enforcement comply with Hampton principles?	Yes			
Will implementation go beyond minimum EU requirements?	N/A			
What is the value of the proposed offsetting measure per year?	£ 0			
What is the value of changes in greenhouse gas emissions?	£ 0			
Will the proposal have a significant impact on competition?	No			
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	No	No

Impact on Admin Burdens Baseline (2005 Prices)				(Increase – Decrease)
Increase of	£ 0	Decrease of	£ 0	Net Impact £0

Key:	Annual costs and benefits: Constant Prices	(Net) Present Value
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Evidence Base (for summary sheets)

Background

1. Managing flood risk through the planning system is a key part of the Government's *Making Space for Water* strategy for flood and coastal erosion risk management in England, announced in March 2005, and the new *Future Water* strategy published in February 2008.
2. The Government's spatial planning policies for avoiding and managing flood risk are set out in Planning Policy Statement 25 (PPS25), "Development and Flood Risk", which was published by Communities and Local Government (CLG) in December 2006. In June 2008 CLG published an accompanying Practice Guide designed to assist planning authorities, developers and other stakeholders in applying the policy approach in PPS25. A further updated version of this Guide was published in December 2009. Both PPS25 and the Practice Guide are available in the 'Planning' section of the CLG web site at www.communities.gov.uk.
3. The principle aims of PPS25 are to locate development away from flood risk whenever possible and prevent inappropriate new development in areas at risk of flooding. This is to be achieved by ensuring that flood risk is taken into account at all stages in the spatial planning process. PPS25 directs the most vulnerable forms of development to areas of lowest flood risk through a Sequential Test, matching vulnerability of land use to the flood risk. This approach is explained in further detail in Annex D to PPS25, including the level of flood risk (from river and sea flooding) in the different Flood Zones (Table D.1), and the relative vulnerability of different types of development and land uses (Table D.2). The amendments that are the subject of this impact assessment are confined to these two tables, as illustrated in the annex below.
4. Sir Michael Pitt's review into the lessons learnt from the 2007 summer floods (http://archive.cabinetoffice.gov.uk/pittreview/thepittreview/final_report.html) found that planning policy in PPS25 is sound and should be rigorously applied by planning authorities. He recommended that the operation and effectiveness of PPS25 should be kept under review and strengthened if and when necessary. This is happening: an interim review of PPS25 was completed in July 2009; these amendments implement some required strengthening of the policy; and the supporting Practice Guide was updated in December 2009.

What is the problem and why is Government intervention necessary?

5. Flooding is a natural process that can threaten life and cause substantial damage to property, as clearly demonstrated by a number of significant flooding events in recent years, and particularly the exceptional floods of summer 2007 in parts of England. Around 10% of England, by land area, population and housing stock, is already

within areas of high flood risk with an annual probability of river flooding higher than 1 in 100, or greater than 1 in 200 for sea flooding. Climate change is likely to increase the risk of flooding from rivers and surface water due to increased intensity of rainfall, and of sea flooding due to rising sea levels.

6. Flooding cannot be prevented, but its impacts can be avoided and reduced through good planning and management. The Government believes that the policy approach in PPS25 is the right one, a view supported by Sir Michael Pitt's review and by the Environment Agency. However, in the light of experiences, including in the context of the 2007 summer floods, since PPS25 was published, some issues have arisen about the clarity of certain aspects of the policy. In particular, it is apparent that some detailed aspects of the flood risk 'Vulnerability Classifications' set out in Table D.2 in Annex D (The Sequential Test and Exception Test) of PPS25, as well as the definition of flood zone 3b in Table D.1, need to be clarified and amended, as described below.

Vulnerability Classification: essential utility infrastructure

7. The present vulnerability classification in PPS25 Table D.2 has been criticised as being ambiguous in relation to essential utility infrastructure. The definition of the 'Essential Infrastructure' category in Table D.2 covers '*strategic utility infrastructure, including electricity generating power stations and grid, and primary sub-stations*'. In accordance with PPS25 Table D.3 (Flood Risk Vulnerability and Flood Zone 'Compatibility'), these infrastructures must satisfy the PPS25 Exception Test before they can be permitted in high flood risk zones 3a or 3b. However, other infrastructure, in the form of water and sewage treatment works, is currently placed in the 'Less Vulnerable' category in Table D.2. This classification means that development associated with these plants can be permitted in flood zone 3a without having to pass the Exception Test, but should not be permitted at all in flood zone 3b (the 'functional' floodplain).
8. Further, the text on 'appropriate uses' for flood zone 3a in Table D.1 of PPS25 explains that: "Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood." This requirement is not applied to 'less vulnerable' uses in this flood zone.
9. The final report (June 2008) of the Pitt Review noted that the summer floods of 2007 had a dramatic effect on electricity power substations, water and sewage treatment works. The flooding of the Mythe water treatment works in Gloucestershire resulted in 350,000 people having their water supply cut off for up to 17 days. In total, five water treatment works and 322 sewage treatment works were affected by the floods. Similarly, several electricity transmission and distribution assets were affected, with 40,000 customers in Gloucestershire being cut off for up to 24 hours and 9,000 customers on rota disconnections for several days in South Yorkshire and Humberside. There were also a number of "near-misses" which could have resulted

in the loss of power to 500,000 in Gloucestershire and South Wales and 750,000 people around Sheffield.

10. Noting the current treatment of 'essential infrastructure' in PPS25, the Pitt Review suggested that essential service assets within PPS25 designated flood risk zones 2, 3a and 3b need to be designed and constructed to remain operational and safe for use in at least a 1 in 200 annual probability flood event. The PPS25 Practice Guide (paragraph 4.82) advises that critical infrastructure, such as electricity substations and water treatment works, that have to be in flood risk areas, should be designed to remain operational during floods. Whilst this helps to clarify the practical advice about how the policy should be applied, there remains some ambiguity in PPS25 Table D.2 (as noted above) about whether different types of essential utility infrastructure should be treated in the same way in flood zones 3a and 3b.

Vulnerability Classification: emergency services facilities

11. PPS25 Table D2 appropriately classifies police, ambulance and fire stations and command centres that are 'required to be operational during flooding', as 'Highly Vulnerable'. This effectively means that any new (or relocated) emergency services facilities of this nature should not be permitted in high flood risk areas (flood zones 3a and 3b). But it is not the intention of the policy to prevent the siting of *all* base facilities for the emergency services within the communities they serve in high flood risk areas.
12. The PPS25 Practice Guide notes that police, fire and ambulance stations need to be located within their operational catchments, even where it may be at high risk of flooding, in order to provide effective emergency service cover in normal circumstances to existing communities. However, the flooding which occurred in Carlisle in 2005 and Hull in 2007 demonstrated the impact on emergency services that could not operate at times of flooding. It is therefore important that emergency services have clear strategies to manage their operational capabilities during a flooding event. The Practice Guide clarifies that emergency services can be located in flood risk areas, *providing* the premises they occupy are *not* required to be operational during flood events. This clarification also needs to be reflected in PPS25 Table D.2.

Vulnerability Classification: facilities requiring 'hazardous substances' consent

13. PPS25 Table D.2 appropriately classifies installations requiring a specific consent under hazardous substances controls ('hazardous substances consent') as 'Highly Vulnerable'. This means that they should not be built in high risk flood zones 3a or 3b. However, distribution storage facilities for bulk materials, such as oil products and chemical substances, requiring hazardous substances consent are likely to be situated next to the port facilities where they are imported or exported, and where they are processed and manufactured. Applying the current policy classification in

PPS25 would mean that any new bulk storage facilities of this nature could not be located where they are required, because ports are inevitably located in high flood risk zones. This approach could potentially have an adverse impact on the supply and distribution of economically important commodities.

14. CLG wrote to planning authorities on 7 September 2007 to clarify that where facilities for the storage of bulk materials requiring hazardous substances consent have to be sited in flood risk areas due to their need to co-locate with other facilities, such as wharves and existing infrastructure, they should be classified under PPS25 as 'Essential Infrastructure'. This classification means that they may be permitted in flood zones 3a and 3b, provided that they satisfy the Sequential and Exception Tests set out in PPS25.
15. This clarification has been recognised through the guidance in the PPS25 Practice Guide. But it still needs to be reflected in PPS25 Table D.2.
16. It is also sometimes necessary for gas storage facilities requiring hazardous substances consent to be placed in coastal locations or other high flood risk areas. Further, in the future, it is likely to be necessary for carbon capture and storage (CCS) installations associated with fossil fuel power stations to be sited in coastal locations, which may be in high flood risk zones. This is because the captured carbon (carbon-dioxide) will be stored offshore in depleted oil and gas reservoirs. These installations may require hazardous substances consent. Accordingly, to ensure these energy infrastructure facilities and installations can be permitted in locations where they are required, it is necessary to make clear that they should be classified as 'Essential Infrastructure' under PPS25.

Vulnerability Classification: wind turbines

17. As noted in paragraph 7 above, the present classification in PPS25 Table D.2 defines 'Essential Infrastructure' as including '*... strategic utility infrastructure, including electricity generating power stations and grid, and primary sub-stations*'. However, this does not obviously include wind turbines for generating renewable energy.
18. Planning Policy Statement 22 (PPS22), 'Renewable Energy', makes clear the importance of positive spatial planning which facilitates renewable energy developments, including onshore wind generation. This approach is supported in the Planning and Climate Change supplement to Planning Policy Statement 1. One of the 'key principles' of the PPS22 policy approach is that renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic and social impacts can be addressed satisfactorily. PPS22 states that increased development of renewable energy resources is vital to facilitating the delivery of the Government's commitments on both climate change and renewable energy.

19. Contrary to the clear policy statements in PPS22 and the PPS1 Planning and Climate Change supplement, there is a lack of clarity over how proposals for wind generated energy developments should be treated under PPS25, and therefore the potential for inconsistencies between planning decision-makers. This is unhelpful to those proposing to develop new wind energy schemes, and to planners and decision-makers. In some circumstances, it could also hinder the Government's policy of encouraging the generation of renewable energy.

Definition of Flood Zone 3b – The 'Functional' Floodplain

20. The 'functional floodplain' is defined in PPS25 Table D.1 (Flood Zones) as comprising '*land where water has to flow or be stored in times of flood*'. The current text continues by saying that Strategic Flood Risk Assessments (SFRAs) should identify this flood zone on the basis of land which would flood with an annual probability of 1 in 20 or greater, or is designed to flood in an extreme (1 in 1,000) flood, or at another probability agreed with the Environment Agency.
21. While this definition does allow flexibility to make allowance for local circumstances, this needs to be made clearer to avoid an approach which places too much weight on the '1 in 20' annual probability parameter in identifying and defining the boundaries of functional floodplains. Such an approach can lead to areas of land that are not intended to allow for floodwater to flow or be stored being inappropriately identified as functional floodplain (and potentially also for areas that are designed to flood being wrongly excluded from identified functional floodplain). The PPS25 Practice Guide advises that the definition should not be on the basis of rigid probability parameters, and areas which would naturally flood with an annual probability of 1 in 20 or greater, but which are prevented from doing so by existing infrastructure or solid buildings, will not normally be defined as functional floodplain.
22. The definition in PPS25 Table D.1 needs to be made clearer, or else there will continue to be a risk that functional floodplain will not be appropriately identified in SFRAs. In some instances, this may have the effect of preventing development or regeneration which might otherwise have been acceptable in flood risk terms; or in other cases, may hinder the primary purpose of a functional floodplain, resulting in increased flood risk to people, property and businesses.

What are the policy objectives and the intended effects?

23. The objective is to clarify and make the risk-based policy approach to development and flood risk set out in PPS25 work more effectively in relation to essential utility infrastructure, emergency services facilities, facilities for the storage of materials requiring hazardous substances consent and wind turbines, and in relation to the identification of functional floodplain.

24. The intended effects are the achievement of the benefits set out in paragraph 47 below.

Main affected groups

25. These are:
- Local planning authorities (LPAs) in applying the policy through the development plan process, including production of Strategic Flood Risk Assessments for their areas, and in determining planning applications.
 - Environment Agency in providing advice to LPAs and developers in accordance with the policy.
 - Water and sewerage companies.
 - Energy generators and suppliers, including of wind energy.
 - Businesses involved in the import/export or storage at or near ports (or other waterside locations) of hazardous substances.
 - The police, ambulance and fire and rescue services.
 - Wider society (through improved emergency response and the availability of services in a flood event).

The policy options considered

26. The options considered were:

Option 1: Do Nothing

Option 2: To amend Table D.2 (Flood Risk Vulnerability Classification) and the 'definition' of flood zone 3b, the 'functional floodplain', in Table D.1 (Flood Zones) in Annex D to PPS25.

27. Option 2 was the Government's preferred option. This will ensure the overall, risk-based policy approach in PPS25 (which has been found to be sound by the independent Pitt Review of the summer 2007 floods) is applied more effectively in the planning process and in planning decisions, to provide safe development which serves and sustains communities in flood risk areas. In response to public consultation, the Option 2 proposals received a high level of support from a range of interests. There were, however, reservations from water and sewerage and energy sector respondents, primarily in relation to the proposed amendment to the 'Essential Infrastructure' vulnerability classification (see paragraphs 7-10 above). These concerns related to potential additional costs resulting from the amendment, as described below.
28. The Government consulted on Option 2 between August and November 2009. One hundred and eighteen responses were received to the consultation. The majority

(around 90%) were in favour of the proposed amendments. The greatest proportion of responses (55%) were received from local authorities/planning authorities and regional planning bodies. Other responses were received from a range of public and private sector organisations, including some community and environmental groups, and one individual member of the public.

29. The summary breakdown of the origin of the responses is as follows:

Number	Sector origin
65	from local authorities/planning authorities, regional planning bodies.
8	from Government agencies & other public sector bodies.
11	from water and other utility companies and representatives.
6	from consultants.
13	from other businesses/business interests.
5	from professional associations.
10	from others.
118	responses in total.

30. A summary of the responses to the proposed amendments is provided in the following table:

Summary of responses to consultation questions		
Question: Do you agreed with the proposed amendment to:	In favour/ no objection	Not in favour/ reservations
1. <i>Definition of functional floodplain (PPS25 Table D1).</i>	90%	10%
2. <i>Amendments to vulnerability classifications (PPS25 Table D2) affecting:</i>		
2a. <i>Essential Infrastructure</i>	88%	12%
2b. <i>Emergency Services Facilities</i>	89%	11%
2c. <i>Hazardous substances installations</i>	94%	6%
2d. <i>Wind turbines</i>	94%	6%

NB: 'In favour/no objection' includes all responses that clearly supported/agreed with the proposed amendment, or expressed support in principle, or implied or qualified support, or said there was no objection to the proposal. Not all respondents expressed a view, or commented, on all the proposals. The percentage figures are derived from the number of respondents who expressed a view/commented on each individual question.

31. Having carefully considered all the responses to the consultation proposals, the Government has decided to proceed with its preferred option (option 2), but with

some modification to the proposed amendment to the classification of essential utility infrastructure, as described in this IA and illustrated in the annex to this evidence base.

- 32. A summary of the qualitative costs and benefits of carrying forward this option for each of the main affected groups listed in paragraph 25 above is set out in the table below.

Affected group	Cost	Benefits
Local planning authorities	Minor administrative	Increased clarity; more effective delivery of policy
Environment Agency	Minor administrative	Increased clarity and operational efficiency
Water and sewerage companies	Minor – possible additional costs of resilient infrastructure	Increased clarity and operational efficiency
Energy generators and suppliers, including wind energy	None identified	Increased clarity and operational efficiency
‘Hazardous substance’ businesses	None identified	Increased clarity and operational efficiency
The police, ambulance and fire and rescue services	Minor – possible additional costs of resilient infrastructure	Increased operational efficiency and increased clarity
Wider society	None identified	Improved emergency response and provision of essential services during floods

Costs and benefits of Option 1

- 33. Under the ‘do nothing’ option the formulation of planning policies in local development frameworks, and decisions on planning applications, would continue to be guided by existing national planning policy in PPS25 and its accompanying Practice Guide, in relation to flood risk considerations. This may not result in any immediate or direct additional costs, depending on particular circumstances and any development proposals that come forward. Indeed, the number and frequency of planning applications for the types of developments affected by these amendments (option 2), with the possible exception (to some degree) of wind turbines, are likely to be very low.
- 34. However, a lack of clarity in some aspects of the existing policy, as outlined above, and a degree of inconsistency between PPS25 and its accompanying Practice Guide,

would remain. In some instances, this may hamper the providers and operators of the infrastructure, services and developments concerned, as well as planning authorities, in the effective and efficient planning and provision of these services and developments in flood risk areas. Over the longer term, this may have adverse consequences for communities in areas at risk of flooding, and more generally, on the provision of renewable energy from wind turbines.

35. There are no identified benefits from doing nothing.

Costs and benefits of Option 2

Costs

36. There would be a relatively minor cost to central Government (principally CLG) in the preparation and publishing of an amended version of PPS25. We do not anticipate there being any ‘familiarisation’ costs. This is because the basic policy approach will remain unchanged. Anyone involved (whether an operator, developer or local planning authority) in development proposals of this nature in a flood risk area should refer to PPS25 and proceed in accordance with the policy. The amendments to PPS25 tables D1 and D2 will not change this need, but should make it clearer and easier to see how the policy should be applied to the particular types of development involved.
37. In response to the consultation proposals, several local authorities expressed some concern about the possible cost implications of the change to the definition of functional floodplain; in particular, the cost of having to review and amend their Strategic Flood Risk Assessments (SFRAs), and also through additional work and discussions to define the extent of the functional floodplain. Some local authorities suggested that the amendments may create some additional cost for development management teams. Comments received suggested varying scales of any additional costs. But no local authority attempted to quantify or estimate the value of the additional costs. However, the large majority of local authorities responding to the consultation proposals did not suggest there would be cost implications, nor did the Environment Agency.
38. Given the limited scope of the amendments and that, essentially, they clarify and refine rather than change existing policy, any additional costs for local authorities should be minimal. In relation to the definition of functional floodplain, some local authorities may have read the amendment as requiring a different approach to defining functional floodplain in their SFRAs. This is not the case. The amendment *clarifies* the approach in applying the *existing* definition as set out in PPS25, including flexibility for local circumstances, as already explained in the PPS25 Practice Guide.
39. SFRAs prepared by local authorities are at the core of the PPS25 policy approach, providing the key evidence base to help them properly inform their development and development control decision making. Having a robust SFRA in place is critical

to meet Sir Michael Pitt's findings in his review of the 2007 floods that PPS25 policy should be rigorously applied by local authorities. We therefore expect local authorities to review their SFRA's and update them as necessary when new information becomes available, or when other circumstances change, which may have a significant bearing on the evidence contained within the SFRA. This may include any amendment to the identification or boundaries of functional floodplain. If local authorities think such amendments are necessary they may wish to consider them alongside reviewing their SFRA's as part of the implementation of the European Union Floods Directive.

40. The limited scope of the amendments and the developments affected are likely to result in only a minor (if any) increase in the number of planning applications that may require flood risk assessments, or more onerous assessments, and which might require any additional information processing and scrutiny beyond the current situation. Any resulting additional officer time and costs for local authorities are therefore also likely to be minimal.
41. A number of water and sewerage companies and Ofwat (the water services regulation authority), expressed concerns over the cost implications of the proposed re-classification of all sewage and water treatment works from 'Less Vulnerable' to 'Essential Infrastructure'. This would entail operators having to meet the requirements of the PPS25 Exception Test for plant developments and upgrades within Flood Zone 3, and to design and construct these plants so as they would remain operational in a flood. Neither of these requirements apply under the current 'Less Vulnerable' classification. The water and sewerage companies suggested this would involve an enhanced flood risk assessment process and flood modelling, and more demanding design and construction to provide higher levels of resilience and flood protection, all of which were, it was suggested, likely to significantly increase costs for operators.
42. In particular, sewage treatment works were considered to be significantly more resilient than the provision of water services, and even where sewage works are disabled, the impact on essential sewerage services was said to be minimal. The practicalities of specifying flood protection for all sewage treatment works was questioned as potentially proving unfeasible and costly (though no costs had been identified in the IA). Another concern was that requiring significant flood protection for water treatment works that already benefit from a high level of network resilience would lead to a misuse of resources. It was argued that it was more important overall to protect the provision of essential services, rather than specific infrastructure assets.
43. Other utility company concerns were about the potential for delays and additional costs if the definition of functional floodplain is not clearly expressed; and over the potential impact on timing and costs of essential infrastructure development, as a result of the proposed inclusion of the term "critical operational reasons" in the definition of 'Essential Infrastructure'.

44. However, none of these respondents provided a quantified evaluation or estimate of the likely scale of these costs.
45. In the light of the consultation responses, the Government has decided that it would not be appropriate to make the proposed amendment to the policy in respect of sewage treatment works, and therefore to leave them classified (as they are currently) as 'Less Vulnerable'. This means that they do not have to be designed and constructed to remain operational during a flood. But the existing policy in PPS25 already requires that development in flood risk areas should be appropriately flood resilient and resistant. For sewage treatment works, this should mean that they are able to resume operation with minimal delay after any flooding event.
46. The Government has also decided to amend the original proposal, so that the policy differentiates between those water treatment works that have to be located in a flood risk area for operational reasons and need to remain operational in times of flood – and should therefore be quite properly considered as 'Essential Infrastructure' – from those that do not need to remain operational and should remain under the 'Less Vulnerable' vulnerability classification. Those works that are classified as 'Essential Infrastructure' should be designed and constructed to remain operational during a flood. The Government considers that these amendments will not result in any significant additional costs for water and sewerage companies. This view is supported by Ofwat. In addition, the Government has decided not to include the term "critical operational reasons" in the definition of 'Essential Infrastructure'.

Benefits

47. The policy amendments proposed will provide additional clarity to aspects of PPS25 policy, which will facilitate more effective and efficient planning and planning decisions. This will;
- enable new/extended or upgraded essential utility infrastructure, including energy infrastructure requiring hazardous substances consent, to be located where it is needed, including within a flood risk area, so long as it is appropriately resilient and (where appropriate) designed and constructed so that it can continue to operate safely if there is a flood, subject to specific safeguards;
 - provide for those water treatment works that are essential and need to remain operational in times of flood, to be located in a flood risk area where necessary for operational reasons;
 - help to enable the emergency services to operate and serve communities effectively in flood risk areas, both during a flood and at other times;
 - provide for facilities for the storage of bulk materials requiring hazardous substances consent to be located with port or other waterside facilities, where this is a requirement of the function or purpose of those facilities;

- clarify that new wind generated energy developments can be permitted in flood risk areas where the natural (wind) resource exists, and where it would be safe to do so, and would not increase flood risk overall; and,
 - help to ensure that functional floodplain is appropriately identified in Strategic Flood Risk Assessments, so that it can serve its proper purpose (ie. land where water has to flow or be stored in times of flood), taking account of local circumstances as well as the probability of flooding, with the benefit of reducing flood risk to lives and property elsewhere.
48. Taking this opportunity to clarify and amend the relevant aspects of the existing policy should *reduce* the following risks arising through inappropriate local planning policies and/or planning decisions:
- Essential (critical) utility infrastructure which has been inappropriately located or designed could be ‘knocked-out’ in a flood, resulting in loss of essential services (power, water, communications) and major disruption and costs to affected communities and businesses, as described in paragraph 9 above, as well as an increased risk of loss of life. Resulting monetary costs are likely to be very substantial, including emergency provision to the affected area (eg. power generators, water tankers or bottled water), and/or possible evacuation and provision of emergency accommodation; loss of business activity; and subsequent repair or replacement of damaged infrastructure.
 - Base facilities (stations) for the emergency services that have been inappropriately located or designed may result in the loss of emergency service cover (police, fire, ambulance) in the event of a flood; or alternatively, if base facilities have been located outside the flood risk area, this could result in less than optimum operational cover in flood risk areas in normal circumstances (ie., when the area is not flooded). The loss of adequate emergency services cover may substantially increase the risks to life, property and economic assets, with associated increased financial costs to individuals, businesses and communities.
 - A refusal to permit distribution storage facilities for bulk materials such as oil products and chemical substances requiring ‘hazardous substances consent’ at sites next to the port facilities where the materials are imported or exported, and where they are processed and manufactured, is likely to have cost implications for the importers and operators and other elements of industry dependent on these materials or their products, and possibly for the wider UK economy.
 - Not allowing certain energy infrastructure which requires hazardous substances consent to be sited where it is needed in a coastal location of other high flood risk area, could cause economic difficulties for energy providers, and wider sustainability issues in relation to energy supply and carbon capture from fossil fuel power stations.

- Undue difficulties and/or delays in obtaining planning permission for some wind generated energy developments which need to be located in flood risk areas to utilise the availability of wind could, in some circumstances, hinder the delivery of renewable, low carbon energy, contrary to the Government’s strategy for tackling climate change.
 - An area of land that has been inappropriately identified in a SFRA as ‘functional’ floodplain (Flood Zone 3b) could (depending on the particular circumstances) result in necessary commercial/economic developments, and potentially some residential and community development, which would provide sustainability benefits, being unnecessarily restricted on flood risk grounds. In other circumstances, functional floodplain which is not properly protected may mean that it cannot serve its proper purpose of space for water to flow or be stored in times of flood. This is likely to increase flood risk to lives and property elsewhere.
49. The risks outlined above are potential risks. It is difficult to assess precisely the likelihood of any of them occurring through inappropriate planning decisions, though the infrastructure failures that occurred in the summer 2007 floods, as described in paragraph 9 above, illustrate the potential consequences. In the light of those experiences, and with increased and wider awareness of flood risk, particularly through the impact of climate change, it is hoped that all parties involved in planning for and approving the types of developments affected by these amendments would work together to ensure that the necessary services and other benefits can be delivered, and that flood risk is fully assessed, avoided and/or mitigated. These amendments to PPS25 are designed to reinforce the policy approach.
50. The financial costs that could arise from the potential failures or difficulties described above are very difficult to quantify. They will largely depend on particular circumstances and individual decisions: eg., the nature, location and number of relevant development proposals which come forward; the approach to these proposals taken by individual local planning authorities, including whether or not they would refuse an application, or the conditions they might attach to a planning permission; the scale, nature and duration of any future flooding event that occurs; and the actual impact such a flood has in any particular instance. As noted above (paragraph 33), the number of development proposals coming forward for the types of infrastructure, facilities and services affected by these amendments is likely to be relatively small overall.
51. Further, the impact of any flooding that occurs and the resulting costs on infrastructure, emergency services, or other developments or operations, may also be affected by other factors, such as operational decisions, which are beyond the scope of spatial planning and the policy amendments covered by this IA.

52. However, climate change over the coming decades is likely to lead to increased and new risks of flooding, from rivers, the sea, surface water and other sources, within the lifetime of planned developments, including new essential infrastructure.

Monitoring, enforcement and sanctions

53. Monitoring of the application of the policy is principally through regional Government Offices' scrutiny of emerging policies in regional (or single) spatial strategies and local planning authorities' local development frameworks. This is assisted through the consideration of any relevant planning applications for major developments referred to the Secretary of State under the 'flood risk' provisions of the 2009 Town and Country Planning (Consultation) (England) Direction. CLG also monitors the impact of the flood risk advice on planning applications given to local planning authorities by the Environment Agency, as reported in the Agency's annual development and flood risk reports. The Government also receives feedback from, and holds discussions with, local authority and other planning interests, the Environment Agency and other stakeholders.
54. These amendments are to planning policy, which is not itself subject to direct statutory enforcement. The application of the amended policy would be achieved through the spatial (Town and Country) planning system, in the same way as it is currently achieved in respect of the existing policy. There are enforcement measures and sanctions incorporated in the planning system, which can be applied if necessary. (Local planning authorities have discretionary powers of enforcement which they can exercise where appropriate). We do not expect the amended policy to require any increased enforcement effort on the part of planning authorities, nor should it result in any greater enforcement impact on the operators, providers or developers concerned.

Specific Impact Tests

Competition Assessment

55. We do not expect these amendments to have any impact on UK competitiveness. The policy clarification affecting facilities for the storage of bulk materials requiring hazardous substances consent that need to be located with port or other waterside facilities should be helpful to the relevant UK industries.

Small Firms Impact Test

56. We have not identified any specific impacts on small firms. However, the proposed amendments are expected to be broadly beneficial to businesses in general through helping to ensure greater security of supply of power, water and communications and the effective provision of emergency services cover in flood risk areas. This should directly assist the continuing operational capabilities of businesses and the safety of their property assets, and generally increase the likelihood of employees being able to continue to work through flooding events.

Legal Aid

57. We have not identified any impact on legal aid.

Sustainable Development

58. PPS25 complements Planning Policy Statement 1 (PPS1), '*Delivering Sustainable Development*'. PPS25 sets out a strategic, risk-based approach to avoiding and managing flood risk which aims to deliver development that is safe and supports the continuing sustainability of communities in flood risk areas, taking account of the impact of climate change. These amendments to PPS25 will help improve the effectiveness of this policy approach.

Carbon Assessment

59. No direct impacts on greenhouse gas emissions have been identified. The proposed clarification in relation to wind power generation should, however, be broadly beneficial in facilitating renewable energy generation. The proposed clarification in relation to energy infrastructure is supportive of carbon capture processes relating to fossil fuel power stations.

Other Environment

60. Some respondents to the consultation were concerned about the potential risk of pollution from allowing (through classification as 'Essential Infrastructure') hazardous substances installations in flood risk areas. It is not the Government's intention to increase risk in this way and it would expect local planning authorities to consider any development proposal for such an installation in accordance with the policy in Planning Policy Statement 23, '*Planning and Pollution Control*' (which emphasises the complementary roles of the planning and pollution control systems). No other significant environmental impacts have been identified.

Health Impact Assessment

61. The proposed amendments should serve to protect the health and safety of citizens by helping to ensure greater security of supply of power and clean (treated) water; and the provision of effective emergency services (including fire and rescue services) during and following flooding events.

Race, Gender, Disability and Other Equality Impacts

62. No specific impacts have been identified. The amended policy would impact equally across all members of the community.

Human Rights

63. No implications for human rights have been identified.

Rural Proofing

64. The proposed amendments should impact in the same way in rural areas as in other areas.

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	Results in Evidence Base?	Results annexed?
Competition Assessment	Yes	No
Small Firms Impact Test	Yes	No
Legal Aid	Yes	No
Sustainable Development	Yes	No
Carbon Assessment	Yes	No
Other Environment	Yes	No
Health Impact Assessment	Yes	No
Race Equality	Yes	No
Disability Equality	Yes	No
Gender Equality	Yes	No
Human Rights	Yes	No
Rural Proofing	Yes	No

Annex

Amendments to Planning Policy Statement 25 (Annex D)

Table D.1 Flood Zones [extract with amended text]

Zone 3b The Functional Floodplain

Definition

This zone comprises land where water has to flow or be stored in times of flood.

Local planning authorities should identify in their SFRAs areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

Appropriate uses

Only the water-compatible uses and the essential infrastructure listed in Table D.2 that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

FRA requirements

All development proposals in this zone should be accompanied by a FRA. See Annex E for minimum requirements.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- i. reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques;
- ii. relocate existing development to land with a lower probability of flooding.

Table D.2 Flood Risk Vulnerability Classification [with amendments]	
Essential Infrastructure	<ul style="list-style-type: none"> • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • <i>Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.</i> • <i>Wind turbines.</i>
Highly Vulnerable	<ul style="list-style-type: none"> • Police, ambulance and fire stations, and Command Centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent¹. <i>(Where there is demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as ‘Essential Infrastructure’²).</i>
More Vulnerable <i>[No change]</i>	<ul style="list-style-type: none"> • Hospitals • Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste³. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

¹ See Circular 04/00: *Planning controls for hazardous substances* (paragraph 18) at: www.communities.gov.uk/publications/planningandbuilding/circularplanningcontrols

² In considering any development proposal for such an installation, local planning authorities should have regard to Planning Policy Statement 23, *‘Planning and Pollution Control’*.

³ For definition, see *Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10* at www.communities.gov.uk/publications/planningandbuilding/planningsustainable

<p>Less Vulnerable</p>	<ul style="list-style-type: none"> • <i>Police, ambulance and fire stations which are not required to be operational during flooding.</i> • Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non-residential institutions not included in 'more vulnerable'; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • <i>Water treatment works which do not need to remain operational during times of flood.</i> • <i>Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).</i>
<p>Water-compatible Development [No change]</p>	<ul style="list-style-type: none"> • Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Notes:

- 1) This classification is based partly on Defra and Environment Agency research on Flood Risks to People (FD2321/TR2)⁴ and also on the need of some uses to keep functioning during flooding.
- 2) Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.
- 3) The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

⁴ See website for further details. www.defra.gov.uk/science/Project_Data/DocumentLibrary/FD2320_3364_TRP.pdf

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