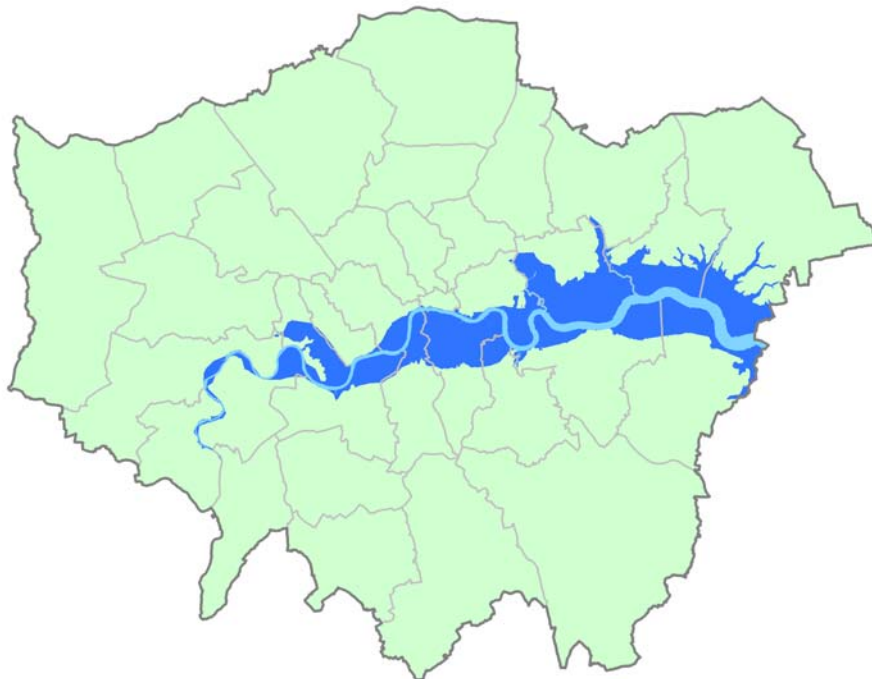


**London under threat?**  
**Flooding risk in the Thames Gateway**  
**Environment Committee**  
**October 2005**



**London Assembly**

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Cover illustration The blue marks the area of London near the Thames or its tributaries that are less than 5 m above sea level. This area would be vulnerable to tidal flooding if it was not currently protected by flood defences.

## Chair's Foreword



Over the next ten years the Mayor of London is aiming for at least 120,000 new homes and up to 250,000 new jobs in the Thames Gateway area of east London. However, climate change means that London has to take the issue of flood risk more seriously than ever before. While we were carrying out this investigation, New Orleans provided the world with a tragic reminder of the impact flooding can have. It is therefore vital that lessons are learned and action taken to ensure that new homes and workplaces are not built only to become devastated by flooding.

The Committee believes fragmented responsibility for maintaining flood defences and lack of clarity over planning are putting London at risk. A web of different agencies in the Thames Gateway area share overlapping responsibility for action to prevent flooding. For the majority of defences, the landowner is responsible for paying for and implementing maintenance. Yet in some cases it is impossible to identify who owns the land.

During the investigation, the Committee was told that 5% of East London defences are in poor or very poor condition. Information on those outside London, towards the coast, is patchy and defences are thought to be in a worse state than those in London. The area at risk from flooding in the Thames Estuary is home to 1.25 million residents and workers, which is more than the entire population of Birmingham.

But it is not just barriers, walls and concrete that will protect Londoners. Strong and clear planning policy has a crucial role but the Committee is concerned about the number of bodies producing planning guidelines and strategies in the Thames Gateway and the degree of co-ordination. Different sites are subject to different master plans and local development frameworks as well as a number of strategies. This means developers and architects are unsure of standards required and whom to consult in advance of submitting planning applications. We are particularly concerned about the Mayor's draft planning policy for the area, the East London Sub-Regional Development Framework. The document has given insufficient emphasis to guidance on flooding and has not taken sufficient account of the substantial new information provided by the Strategic Flooding Risk Assessment. We urge that these plans are substantially revised.

New Orleans has proved the dangers of complacency when it comes to flood risk. We cannot afford to repeat the same mistakes and I therefore hope this report is timely and useful. I would particularly like to give thanks to the rest of the Committee and to everyone who gave evidence to our investigation.

**Darren Johnson AM 10 October 2005**

## **Environment Committee membership & terms of reference**

At the meeting of the Assembly on 11 May 2005, the membership and terms of reference of the Environment Committee was agreed as the following:

Darren Johnson (Chair)	Green
Murad Qureshi (Deputy Chair)	Labour
Roger Evans	Conservative
Bob Neill	Conservative
Valerie Shawcross	Labour
Mike Tuffrey	Liberal Democrat
Peter Hulme Cross	One London

1. To examine and report from time to time on -
  - the strategies, policies and actions of the Mayor and the Functional Bodies
  - matters of importance to Greater London
2. To examine and report to the Assembly from time to time on the Mayor's Air Quality, Biodiversity, Energy, Noise and Waste Strategies, in particular their implementation and revision.
3. To consider environmental matters on request from another standing committee and report its opinion to that standing committee.
4. To take into account in its deliberations the cross cutting themes of: the health of persons in Greater London; and the promotion of opportunity.
5. To respond on behalf of the Assembly to consultations and similar processes when within its terms of reference.

**Comments on the findings and recommendations of this report are welcomed. Any comments will be considered as part of the review and evaluation of this scrutiny.**

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## **Executive Summary**

In this report the Committee describes the potential impact of flooding in the Thames Gateway. The report gives an update on work to improve flood defences, including the creation of a 'Green Grid' of open space which would be inundated in the case of a flood in order to protect surrounding homes and businesses. We also give our views on progress and consistency in development control for the area.

Since work on this report began, the world has had a tragic reminder of the threat from natural disasters and the impact that flooding can have. The report therefore also touches on how to make sure London learns from the catastrophe in New Orleans.

1.25 million people are already at risk from flooding by the Thames and a major flood in the Thames Gateway could cost as much as £12 billion. According to the recent Association of British Insurers report, climate change could increase fluvial and coastal flood risk by a factor of 8 to 12 times.

The Thames Estuary 2100 project, led by the Environment Agency on behalf of Government, is already working with partners to identify the range of solutions necessary to reduce this risk and the impact of any flood that occurs. We welcome the approach of this project, but are concerned that the deadline for proposing options may slip and call for any options to be accompanied by clear funding mechanisms. We expect a high standard of flood protection and management to be maintained in London, through a variety of solutions appropriate to the local area.

Improved flood barriers and walls are not the only action that is required to protect Londoners. We welcome plans to create a Green Grid in east London of areas which can be sacrificed to flooding when necessary and at other times can be used for recreation and leisure. Plans for the Green Grid need to progress rapidly to ensure that the idea does not get lost due to the speed of new development in the area.

Enforcing strong planning policy will be the other most important factor to reduce the impact of floods, and could halve the risk in Thames Gateway. We want to see national planning guidance improved in its dealings with residual flooding risk, and better co-ordination of existing policy and information.

We call on the Mayor to amend his planning framework for the area (the East London Sub-regional Framework) to strengthen its approach on all aspects of flooding. We recommend further work to ensure that this guidance takes into account flood risk assessments, requirements for the Green Grid and national planning policy.

# 1 Introduction

- 1.1 Major floods, both from the Thames and its tributaries, have long been a part of London life. These have caused damage to homes and businesses and, tragically on some occasions, the loss of life. When a tidal surge caused the Thames and east coast to flood in 1953, three hundred people died. The response to this resulted in the most recent substantial improvements to London's flood defences, including the Thames and Barking Barriers. 1,250,000 Londoners rely on these and other flood defences to keep their homes safe and homes and businesses estimated to be worth £80 billion are within the floodplain.<sup>1</sup> The continued potential threat of flooding to London and the expected impact of climate change means that the London Assembly has an ongoing interest in reviewing this threat and the actions being taken to reduce and address flood risk<sup>2</sup>.
- 1.2 This report is on the potential risk in east London because the scale of proposed new developments in the area which will increase the potential impact on Londoners of any flood that might occur. As the Rt Hon Keith Hill MP stated as Minister for Planning and Housing: 'We know that flood risk is something we are going to have to deal with more and more as a result of climate change. We need to ensure we deal with it in the Thames Gateway.'<sup>3</sup> The Committee recognises the rate of change that the proposals entail and the emergence of new research and initiatives to support them.
- 1.3 Plans for development in the Thames Gateway are progressing rapidly. It is the Mayor's aspiration to accommodate at least 120,000 new homes and up to 250,000 new jobs by 2016 in this part of London. This equates to building the equivalent of 5 per cent of the homes that currently exist in the whole of London<sup>4</sup> in the next decade. The Committee therefore decided to investigate whether policy and practice was taking proper account of the risk of flooding in order to ensure that new homes and businesses would be safe and would not detrimentally affect existing ones.
- 1.4 The scale and timescale of proposals in the Thames Gateway mean that relevant policy and practice is a dynamic field with new research and initiatives being reported regularly, along with revisions of policy and strategies. Information arises from a variety of sources and is influenced by a number of different bodies. The Committee identified 11 public bodies responsible for policy development at a strategic level on overall issues for the Gateway, with a further three organisations doing important work on flooding<sup>5</sup>. We considered the progress on

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<sup>1</sup> Figures from p4 Thames Estuary 2100: Protecting your future. Environment Agency 2005

<sup>2</sup> This interest resulted in the Flooding in London report in November 2002, and an update on how organisations have responded to its recommendations in January 2004

<sup>3</sup> Speech to Regenerating the Gateway and managing flood risk conference. 16 July 2004.

<sup>4</sup> Calculated by comparison with 2001 census data of 3.2 million homes in London.

<sup>5</sup> See Annex D - policy development institutions and process in the Thames Gateway, based on work by Campaign for the Protection of Rural England.



improvement of regional flood defences through the Thames Estuary 2100 project, new research on flooding risk in the Thames Gateway. We also looked at how development control policies were advancing. We particularly wanted to check that the Mayor was taking proper account of flooding risk, in his framework for the planning of new developments in the area, considering his pressure for more building.

- 1.5 The Committee investigated flooding risk with the awareness that it is too expensive for London to be protected by simply building bigger and more extensive defences, which has been the pattern since 1879. We considered the variety of options for reducing flood risk, including planning and design considerations, and how effectively they were being implemented in the Thames Gateway.
- 1.6 Before our investigation concluded, New Orleans and communities across Louisiana were hit by catastrophe when flooding from storm surges overwhelmed defences and caused devastation and shocking loss of life. The Committee feels it is important to consider what lessons there are for the situation in London.
- 1.7 During our investigation, we were given information from a variety of sources including the Environment Agency, the insurance industry and developers, held a meeting with key organisations on 7 April 2005 and visited the Thames Barrier on 22 February 2005. We also took into account responses to the Mayor's planning framework for East London. We are grateful for the time and effort of those involved.

## 2 Flood risk in London

- 2.1 A substantial part of London is built on the floodplain of the Thames and its tributaries and is prevented from flooding by a complex system of flood defences. There are flood defence measures in place against two major kinds of flooding. Tidal flooding occurs when high tide and storm surges coincide and fluvial flooding occurs when rivers overflow due to high or intense rainfall.
- 2.2 The likelihood of a tidal flood is increasing because sea level is rising due to a number of factors. Tidal and fluvial flooding are also predicted to increase as a result of climate change. According to the recent Association of British Insurers (ABI) report, climate change could increase fluvial and coastal flood risk by a factor of 8 to 12 times. Research for the London Climate Change Partnership estimated that by the 2080s, winters will become wetter by up to 30 per cent, heavy winter rainfall could occur twice as frequently, and the number of storms each winter crossing the UK could increase from five (the 1961-90 average) to eight. Relative sea level in the Thames Estuary will continue to rise, and will be between 26 and 86cm by the 2080s with extreme sea levels experienced more frequently.<sup>6</sup>
- 2.3 The impact of floods may also worsen because new developments are planned within the floodplain increasing the number of people and properties potentially at risk. 91 per cent of new homes and 1 million m<sup>2</sup> of commercial property proposed for London Thames Gateway are likely to be located in the floodplain<sup>7</sup>, although it should be remembered that this is largely within well-protected areas.
- 2.4 The protected area already contains nearly half a million properties and includes eight power stations, 400 schools, 16 hospitals and many underground and railway stations<sup>8</sup>. Without flood defences, 15 per cent of London's homes would suffer a 0.1 per cent chance of tidal flooding each year, a percentage that would increase as sea level rises<sup>9</sup>. Flooding causes risk and disruption to people's lives and the damage takes substantial amounts of money to repair. For example, the floods across Britain in 2000 caused by heavy rainfall were estimated to have caused £1.4 billion in damages.
- 2.5 The historic pattern of building in the Thames floodplain is likely to continue due to land values in and around London and the scarcity of alternative sites. The number of people living in the floodplain is also expected to increase in east London because sites potentially at flood risk, which were previously industrial, are being developed to include residential buildings.

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<sup>6</sup> *London's Warming: The impacts of climate change on London* October 2002

<sup>7</sup> *Making Communities Sustainable. Managing flood risks in the Government's growth areas* Association of British Industry (ABI) February 2005

<sup>8</sup> *Protecting your future* Thames Estuary 2100 Environment Agency 2005

<sup>9</sup> Environment Agency – evidence provided for Flooding in London investigation

- 2.6 New buildings on floodplains are not only at risk of flooding themselves, but also unless care is taken with their design and location, can worsen flooding. Inappropriate new developments can reduce floodwater storage areas and increase surface runoff.<sup>10</sup>
- 2.7 The most recent planning documents from the Greater London Authority (GLA) show the extent to which development is planned on sites within the floodplain. Sixteen opportunity and intensification areas are discussed in the East London Sub-regional Development Framework. These areas are expected to site 40 – 45 per cent of the housing and 85 per cent of new jobs planned until 2016 for the sub-region. Of these sites only two are considered to have no need for defences against flooding risk. Twelve are at risk of tidal flooding and two more are at risk from fluvial flooding.
- 2.8 The development areas at risk of tidal flooding from the Thames have a target as part of the Sustainable Communities Plan for 36,400 homes. There are a further 18,200 homes targeted on sites at risk from fluvial flooding or tidal flooding from a tributary. The target for areas without flood risk is only 1,500 homes – 2 per cent of the total target for all the areas detailed. Furthermore Dr Catovsky, an Association of British Insurers adviser, has stated that an estimated 5,040 houses would be at significant risk of flooding (a term used to indicate a chance of flooding of more than 1.3 per cent each year) unless appropriate planning and defence measures are taken.

‘Initial calculations suggested that a major flood in the Gateway could cost between £12-16 billion, with about £4-5 billion coming from the new developments if precautions are not taken in the new developments.’<sup>11</sup>

- 2.9 The scale of this risk will have an impact on insurance premiums for those homes and businesses thought liable to flooding. If insurance premiums are too high this would affect the affordability of property in the Thames Gateway or make it more likely that people most at risk will be the ones least likely to have insurance.
- 2.10 It is important to consider the impact of what would happen should defences fail or be overtopped by the size of the flood. In east London, the value of property subject to this residual risk is substantial. ‘[Insurance] risk behind flood defences due to the new housing developments in East London could be ... £26 million’.<sup>12</sup>
- 2.11 These figures emphasise how the risk is if developments are allowed without taking action to reduce the likelihood and impact of flooding and show the importance of the issue for east London. Is enough being done to reduce this risk, or is the scale and rate of change tending to prevent an appropriate response?

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<sup>10</sup> para 2.2 *Flooding in London* London Assembly 2002

<sup>11</sup> Dr Sebastian Catowski, ABI Committee meeting 7 April 2005

<sup>12</sup> ABI written submission July 2005.

### 3 Flood defences

- 3.1 London is protected from tidal and fluvial flooding of the Thames and its tributaries by comprehensive flood defences. It is currently estimated that 98 per cent of East London is protected to a very high standard from tidal flooding (against a 1 in 200 year flood) with 95 per cent of defences known to be in good condition in the London region.<sup>13</sup>
- 3.2 The Thames, Barking and Dartford Barriers are major defences against tidal flooding which can be moved into place at times of threat. These are managed and maintained directly by the Environment Agency. The Thames Barrier and its associated defences are engineered to protect London from a tidal surge of up to 7 m, which has a probability of 1 in 2000 years at the current time. The Barrier will stop meeting its original design standards in 2030 due to rising sea levels, although it will continue to protect against a 1 in 1000 flood risk. The Environment Agency is therefore leading a project to prepare a strategy for flood risk management in the Thames Estuary until 2100. This project was originally known as Planning for Flood Risk Management in the Thames Estuary, but is now entitled Thames Estuary 2100.
- 3.3 The barriers are closed in order to prevent water from a tidal surge moving up the Thames estuary and overtopping fixed flood defences such as the Thames embankments. The decision to close the Thames Barrier is a complex one that takes into account the volume of water flowing down the Thames and its feeder rivers in comparison with the volume of the incoming tide.
- 3.4 The Barrier is now also being closed in response to high water levels in Thames tributaries rather than only when a tide is exceptionally high. This is to prevent tidal waters from moving upstream and preventing water from flowing out of the tributaries. There are potential situations when despite the need to let through rain and river water to prevent localised flooding upstream, the Barrier is closed to prevent a more major flood elsewhere.<sup>14</sup> In addition, closure raises water levels on its seaward side during high tide which will affect levels in tributaries that feed in downstream of the Barrier. This emphasizes the importance of the Thames Estuary project's approach of assessing tidal defences in a wider context.
- 3.5 The Committee was informed on the progress of Thames Estuary 2100 by the Environment Agency and recognises the advances that have been made during the research stage. We agree with the project's approach of: considering tidal defences in a wider context; seeking to reduce flooding risk by avoiding development on high risk areas; managing areas as inundation zones to deflect flood water. Although defences will be important we cannot just block out higher tidal surges. We welcome the work to date and look forward to hearing about proposed options.

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<sup>13</sup> ABI report 2005 op cit, figures based on Environment Agency information.

<sup>14</sup> Discussion with Environment Agency officers, visit to Thames Barrier March 2005.

- 3.6 However, we are concerned that the date should not slip for when information is submitted on potential options and recommendations. The Committee heard in 2002 that findings would be submitted to Defra in 2006, yet this may not now happen until 2007.
- 3.7 We trust that this project will have more success in creating the necessary response than have proposals from the Thames Tideway strategy. This strategy proposed the construction of a major new tunnel and storage system to prevent untreated sewerage from being discharged into rivers at an expected cost of £ 2 billion. The strategy initially reported in February, but unfortunately there has yet to be a decision by Government on whether this tunnel will be built. The Committee recognises the difficulty of identifying funds for a major project which requires changes to privately owned infrastructure for the public good.
- 3.8 Committee will continue to have an interest in the Thames Estuary 2100 project and will be especially interested to see proposals on funding mechanisms for any new defences and the maintenance of existing defences. We want to ensure that, for the Thames 2100 project, funding mechanisms for any proposed options are suggested at the same time as the those options so that there is clarity over the practicalities and resource implications of the decision to be made. At least part of this funding would be required to be provided by the Government because of the national importance of protecting homes and businesses in the London area.
- 3.9 We expect a high standard of flood protection and management to be maintained in London, through a variety of solutions appropriate to the local area. The Assembly will continue to monitor Thames Estuary 2100 to ensure that it progresses in a timely and effective way.**

*Recommendation 1*

**The Government, through Defra and the Environment Agency, should ensure that funding mechanisms are identified and that there is consultation on different funding proposals in 2007 when options on flood protection are put forward from the Thames Estuary 2100 project. The project should propose, and the Government commit to, a timetable for delivery of these options. The Thames Gateway boroughs and the GLA should monitor the progress of the Thames Estuary 2100 project and ensure that it suggests locally appropriate solutions.**

**Who is responsible?**

- 3.10 Development in the Thames Gateway area is subject to web of agencies with overlapping responsibilities. There is likewise a complex situation for flooding responsibility. Responsibility for defences is shared between Defra, Environment Agency, and the Thames Flood Defence Committee. The main responsibility to ensure that defences are built and maintained to an appropriate standard is with the Environment Agency. Boroughs, the GLA and Office of the Deputy Prime

Minister are responsible for ensuring that individual sites have defences when they are developed, and the boroughs are responsible for ensuring that planning obligations are met.

- 3.11 As we have stated the Environment Agency also maintains, and operates where relevant, the most important tidal defences. But it is important to stress that for the majority of defences, it is the landowner who has the responsibility to pay for and implement any maintenance. In some cases the ownership of flood defences is in doubt, particularly for defences which are set back from the river front<sup>15</sup>. Lack of clarity over ownership prevents accountability and can cause problems for maintenance of the flood defence system. A substantial number of defences are owned by the public sector, but these are spread across different bodies including numerous boroughs.
- 3.12 There should be better co-ordination, with clearly designated responsibilities, to ensure that flood measures are: properly planned in an integrated manner; implemented to an acceptable standard; and monitored to keep them meeting that standard. Flooding defences, whilst possibly delivered by different bodies, need to be strategically planned and comprehensive. A piecemeal, patchwork quilt defence system will not work.
- 3.13 An example of where we feel the current system is not working as well as it should is on ensuring that defences are to a suitable standard. Whilst we were pleased to hear that most tidal defences in east London are well-maintained, we are very concerned that not all defences are in good condition. In early 2004, we were told by the Environment agency that 19 kms of the 223 kms of tidal flood defences 'are in less-than-satisfactory condition'<sup>16</sup>, this is about eight per cent of the defences. According to recent evidence there has been an improvement, but not all defences are yet in satisfactory condition.
- 'there are parts where the condition of the defences is poor or very poor, and that affects the chance that the defence could breach under an extreme flood. It is about five per cent of the defences ...
- 3.14 Perhaps more shocking was the fact that outside of the London area, the condition of 65 per cent of the defences are not known. If a defence fails due to pressure from flood water the repercussions could be catastrophic.

There were other parts of the Gateway where there was no readily available information about the condition of the defences. The condition is important, because a defence in poorer condition is more likely to breach, which means break under the force of the water. That kind of flood is

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<sup>15</sup> Dennis Woodman, Kew Society evidence provided to review of Flooding in London in 2004.

<sup>16</sup> Peter Burrows, Environment Agency Committee meeting 13 January 2004

much more significant than an over-topping, potentially, because you have the whole head of water flowing through.<sup>17</sup>

3.15 We recognise that lack of knowledge does not mean that the defences are necessarily in bad condition, and that breaches in some defences would be more important than others. However, there is clearly no room for complacency, when we take into account that flood defences were only breached in three places during the flooding of New Orleans.

**3.16 The Committee ask the Environment Agency to identify the lessons that should be learnt from the flooding in New Orleans, the failure of flood defences there and how flood water from the breaches spread through the city. We want to know if any of this information will influence the Thames Estuary 2100 project.**

*Recommendation 2*

**The Environment Agency should undertake a survey of all Thames Estuary defences, not just tidal ones, and by the end of 2006 should develop a plan for how any sub-standard defences will be repaired. This should include measures to address maintenance of any defences that do not have identified owners.**

3.17 In previous work the Assembly has considered other types of flooding risk in the capital, and during this investigation we were reminded of the impact from fluvial flooding, i.e. that from rivers. This is a more frequent problem for many Londoners, partly because existing protection is to a lower standard.

‘In East London, there is also a problem with some of the tributaries into the Thames, and they are defended to quite a low standard. Actually, a lot of the significant flood risk that you find in East London with a greater than one-in-75 chance comes from the tributaries, rather than the Thames itself – the Lea and those areas’<sup>18</sup>

**3.18 We would question whether this lower standard of defence is appropriate considering the fact that it a common problem. We would welcome a discussion between the different levels of government and affected communities on appropriate standard of defence and how to deliver this.**

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<sup>17</sup> Dr Sebastian Catowski, ABI committee meeting 7 April 2007

<sup>18</sup> Dr Sebastian Catowski, op cit

## 4 Green Grid

- 4.1 The Committee supports the development of a Green Grid in which green, and other open spaces, are not built on but maintained as multi-functional areas, including for flood inundation and storm water abatement. This is when areas are allowed to flood in order to store water and prevent it flowing to where it could cause more damage.
- 4.2 In the Thames Gateway development is progressing rapidly and there is a danger that sites that are most appropriate this kind of flood management will already have been developed for new homes and business. The areas required for flood inundation therefore should be set aside to be part of the Green Grid as quickly as possible.
- 4.3 The identification of how much land is required for the Green Grid has not yet been completed. There are no mechanisms for funding the development nor maintenance of this land at present. No land has yet been formally designated for this use nor determination made of whether compulsory purchase of land will be required. On the positive side the Strategic Flooding Risk Assessment for the area can provide the information on which land is most vulnerable and therefore best used for the Green Grid.

### *Recommendation 3*

**The plans for the Green Grid are progressing too slowly considering the speed of development in the Thames Gateway and further action is required by Office of the Deputy Prime Minister (ODPM) and the London Development Agency (LDA). ODPM should fund the work necessary to identify sites based on the Strategic Flooding Risk Assessment, including those that should be subject to compulsory purchase. Funding mechanisms for development and maintenance of the Green Grid should be determined by March 2006 in conjunction with boroughs and the LDA.**



## 5 Surface water and sewerage flooding

- 5.1 Surface water flooding occurs when London's drainage system cannot cope with the speed that cumulative rainfall hits it and flooding spreads from water collecting on roads and pavements. This type of flooding is becoming more common, which is due to a number of interrelating factors:
- Increased frequency of intense rainstorms. This is expected to worsen in predictions on climate change.
  - Increase in hard surfaces which reduce the time that water takes to hit the drains and increases the amount of water as less is absorbed or evaporates. This is due both to the level of development in London and from the cumulative effect of changes to our houses and gardens.<sup>19</sup>
  - Inadequate maintenance of drains.
  - Inadequate capacity of drains to deal with the increase in run-off.
- 5.2 We do not consider it acceptable that the different agencies responsible for street drains blame each other, as happened after flash flooding in Stratford on 10 September.<sup>20</sup> Different aspects of street drainage are the responsibility of the boroughs, Transport for London, Thames Water and private landowners in some cases. It is apparent that solutions will require constructive joint working.
- 5.3 In previous work we have identified the importance of incorporating 'Sustainable Urban Drainage Systems' (a combination of techniques to reduce the amount of run-off) and storm abatement measures (to store that run-off) into new developments.<sup>21</sup>
- 5.4 An additional problem in London is sewerage flooding. Apart from where sewers break, these floods are normally caused by the overflow of 'combined sewerage overflows' which are common across London. These carry both sewerage and surface run-off. Their existing capacity is failing to meet growing levels of run-off as discussed above and the increase of sewage as we use more water in our homes.
- 5.5 The Thames Tideway Strategy mentioned in paragraph 3.7 could alleviate the situation if it gains approval and for those who are interested in this aspect of flooding we would refer to previous work by the Health and Public Services Committee<sup>22</sup>. We have previously recommended that new developments should

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<sup>19</sup> The loss of London's front gardens is the subject of our recent report 'Crazy Paving. The environmental importance of London's front gardens. London Assembly 2005

<sup>20</sup> Comments during broadcast media coverage 10 September 2005

<sup>21</sup> Response to the Mayor's Supplementary Planning Guidance on Sustainable Design and Construction July 2005

<sup>22</sup> [check full list of relevant reports and meetings]

be obliged to have separate sewerage and surface-run off systems and to have measures in place to minimise water use (and hence sewerage).<sup>23</sup>

**5.6 Further discussions are required between the Environment Agency, Thames Water, the boroughs and the GLA in order to identify what other measures are required to reduce surface water and sewerage flooding, in addition to further changes to building standards for new developments.**

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<sup>23</sup> Response to the Mayor's Supplementary Planning Guidance on Sustainable Design and Construction July 2005

## 6 Planning policy and guidance

'It is essential that the Government develops stronger and more strategic land-use planning policies. Our study shows that planning is the most cost-effective and sustainable solution, halving the risk [due to flooding] in Thames Gateway.'<sup>24</sup>

- 6.1 This statement by the Association of British Insurers from spring 2005 supports the Committee's view that **planning is an essential tool for reducing risk from flooding and that further changes are required in policy and particularly to its implementation. We recognise the progress in planning strategy and policy in providing guidance to reduce flooding risk to date, but the scale of development in the Thames Gateway requires more action at all levels of government.**
- 6.2 National planning policy on flooding (Planning Policy Guidance 25) outlines how planning authorities should take into account the level of flood risk when deciding whether to grant permission for new developments. The guidance gives a hierarchy of response according to risk with new developments not permitted on high risk areas and expected to be flood resistant in low to medium risk areas.<sup>25</sup> Guidance from the Environment Agency and others stresses this hierarchy: avoid building in flood risk areas; reduce vulnerability through design and construction techniques and only then alleviate risk through flood defences.
- 6.3 The situation for London is complicated by the fact that flood risk would be high in many areas if there were no defences, but residual risk is often low. There is debate over planning control in such situations as national planning guidance refers to residual risk. The guidance currently states that defences should reduce risk to an acceptable level for the expected life of the development. Yet in the Thames Gateway, the area vulnerable to flooding is so extensive that any site is likely to be dependent on defences owned by numerous different landowners. Bearing in mind that flooding risk is increasing then the current guidance could result in different defences being built to different standards. Yet these defences are required to act together to protect a wider area.
- 6.4 National Planning Guidance on flooding is due to be revised in 2005<sup>26</sup>. Part of the revision is expected to include further detail on how planners and developers should respond to risk in defended areas. **A comparable hierarchy of planning responses to levels of residual risk is crucial for appropriate development in the area. The Committee welcomes the planned revision of PPG25 to clarify how decisions should be made in where areas are protected by flood defences and would expect this to include a hierarchy for areas with residual risk.**

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<sup>24</sup> ABI report 2005 op cit

<sup>25</sup> *Planning Policy Guidance 25 Development and flood risk* Office of the Deputy Prime Minister 2001

<sup>26</sup> Announced by the Rt Hon Keith Hill MP. Hansard 24 Mar 2005

## Co-ordination of approach

- 6.5 The Committee is very concerned about the number of bodies which produce policy and strategies which are relevant to the Thames Gateway and the degree to which this is co-ordinated. Different sites will be subject to different masterplans and local development frameworks, and will be subject to a number of strategies which often overlap. It can therefore be hard to determine what status and weight should be given to the different forms of guidance. This is causing difficulty for developers and architects because they are unsure of what standards are needed or who should be consulted in advance of submission of planning applications.

‘We are finding it is that it is very difficult for us as architects to find out who to talk to at the early stages, because there are so many different groups, agencies, special interest groups, and things’<sup>27</sup>,

- 6.6 A further difficulty is that within the London Thames Gateway there are three levels of government with statutory powers on large developments: the local authority; the Mayor; and the Secretary of State. In London national and regional government set the framework for local planning policy. The boroughs set policy for their local area and make the planning decisions. For large developments the Mayor can direct the boroughs to refuse planning permission on large developments. On large developments, or ones which may have a wide impact, the borough may refer planning decisions to the Secretary of State. In addition, certain areas will come under the East London Urban Development Corporation in which case this body will take over the boroughs’ responsibilities on planning.
- 6.7 Strategies, guidance and policy are produced by the GLA, Thames Gateway London Partnership, Thames Estuary Partnership, Thames Gateway Strategic Partnership, English Partnerships amongst others. (see Annex D). This issue of multiple sources of strategies and guidance has arisen on a number of occasions when we have looked at improving environmental standards through planning control. This complexity acts against creating an overarching approach.
- 6.8 There was discussion at the Committee’s meeting about the need for better information for those commissioning and designing new developments. Architects and developers would welcome ‘a pack ... for developers, for who to talk to and when, and the sooner that comes along, the better’<sup>28</sup>. We have since heard from the Environment Agency that they are initially working on further guidance for their own staff and are in discussions about how best to provide guidance for developers and external organisations. **We believe that co-ordinated information for developers and planners is highly important and look forward to further action on this by the Environment Agency.**

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<sup>27</sup> Kees van der Sande, architect, Committee meeting 7 April 2005

<sup>28</sup> Kees van der Sande op cit

*Recommendation 4*

**Thames Gateway London Partnership and Environment Agency should develop a website to act as the main source of information for flooding and development in the Thames Gateway, including the Strategic Flooding Risk Assessment web-based user guide. This should be connected to other guidance or policy on flooding, sustainable design and construction and development in the Thames Gateway.**

6.9 We were concerned to here that limited resources were preventing action by the Environment Agency. Implementation of policy on flood risk and the large numbers of planning applications requires sufficient staff. Otherwise it will be hard to implement good practice and provide appropriate guidance for developers and planning officers.

‘there is quite a serious staff shortage at the Environment Agency, so actually getting that policy [on development control on sites with flood risk] implemented through the mechanics of the organisation is not proving very easy’.<sup>29</sup>

**Flood Risk Assessments**

6.10 National planning guidance states the requirement for and outlines the usefulness of flooding risk assessments. The nature of flooding risk in London means that these are most informative when they relate to strategic flooding risk so that the wider impact of any development is properly considered. The Strategic Flood Risk Assessment produced through the Thames Gateway London Partnership is an important start in the Thames Gateway, although more detailed risk assessments will still be needed for specific sites.

6.11 The Committee is heartened that the regional information is now available for London Thames Gateway through the Strategic Flooding Risk Assessment. This provides information on tidal and fluvial flood risk, has estimated the depth of potential flooding in different areas and has modelled the impact of scenarios where flood defences are breached or overtopped. Maps and other information produced as part of the Assessment is now available to the boroughs in the area. The project is also expected to produce information for the public available through the Thames Gateway London Partnership website, but this has not been launched at the time of writing.

6.12 The process to draw up the Strategic Flooding Risk Assessment was guided by interested parties in the area including input from the Environment Agency, boroughs and the Association for British Insurers. We understand that it has created the level of information necessary for developers to be able to complete

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<sup>29</sup> William McKee Tilfen Land op cit

the flooding assessments necessary for their sites and the boroughs to develop appropriate policies for the new Local Development Frameworks which will supercede Unitary Development Plans. Whilst it is commendable that this has been produced for the London Thames Gateway, this level of guidance is not yet available for other areas in London subject to flooding.

*Recommendation 5*

**Strategic Flooding Risk Assessments should be produced for the areas of London that are subject to tidal or fluvial flooding to provide similar information to that now available for the Thames Gateway area. This process should be lead by the Environment Agency in consultation with the Regional Flood Defence Committee.**

6.13 The importance of this level of flooding assessment should not be understated. It not only provides the flood risk information that local and site assessments should be based on, but also considers the wider picture including cumulative impacts. This can inform policy makers and will be crucial for planning flood management measures such as the Green Grid. On the other hand, the lack of regional information is affecting developers, as was stressed by William McKee of Tilfen Land.<sup>30</sup>

‘They [the Environment Agency] have not yet completed the regional model [of flood risk assessment], which is intended to inform the local model that we produced, for assessing flood risk in Thamesmead. That is a major problem, ... what it means is that we have to make assumptions about what is in their model in order to inform our own model. When it goes back to them, they may decide that our assumptions are wrong’<sup>31</sup>

6.14 It is clear from this and other information provided to the Committee that developers and designers do not yet have sufficient and consistent guidance in order to respond effectively to flooding risk issues.

### **Regional planning guidance**

6.15 The Committee noted three draft documents of strategy and guidance which have been released this year by regional organisations: Guidance on Designing Developments for a Changing Climate; Thames Estuary Strategy East and the draft East London sub-regional development framework. These have all touched upon developments in Thames Gateway and flood risk.

6.16 The guidance on how to ensure developments consider climate change and the Thames Estuary Strategy have considered flood risk robustly. The Committee believe that they helpfully address the issues although minor redrafting would be

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<sup>30</sup> Environment Committee meeting 7 April 2005

<sup>31</sup> William McKee op cit

beneficial. We expect this improvement will occur through the consultation process.

6.17 Whilst these documents were considered to provide very useful information by the Committee, we have concerns over whether this information is reaching those people it should and how the different strategies, policy and guidance fit together. Architects and developers spoke of the need for a single source for information and a 'roadmap' to provide a timeline of who should be involved in discussions about plans for the site and at which stage. The Committee has heard of this need for a single source of information on a number of issues relating to development.

6.18 **The Committee is disappointed by the draft East London Sub-regional Development Framework (SRDF).** We think that its treatment of flooding is cursory, which is surprising given the potential economic impact shown by ABI research. The Committee has heard from the Environment Agency, the Thames Gateway London Partnership and the ABI that the document should strengthen its guidance on flooding risk.

'The current draft of the East London SRDF only considers how to maintain the high standard of defence that the area currently enjoys, but does not consider how to manage the consequences of flooding should it occur.'<sup>32</sup>

'The references to Flood Risk need to be strengthened in a separate section.'<sup>33</sup>

'Given the levels of growth and the associated flood risk we are concerned that flood risk does not have enough importance attached to it'<sup>34</sup>

6.19 The Committee believes that the document has given insufficient emphasis to guidance on flooding overall, has not taken sufficient account of the substantial new information provided by the Strategic Flooding Risk Assessment. It appears overly reliant on the fact that east London is presently defended to a high standard against tidal flooding. For example it in paragraph 220 it states 'substantial investment has already been made in flood defences. Development can occur within the natural floodplain provided it meets certain criteria ... to ensure that impacts can be managed and mitigated'. The criteria then make no mention of protection levels for anything other than tidal flooding or for managing residual flood risk.

6.20 We call on the Mayor to ensure that any lessons learnt from the impact of the breach of flood defences in New Orleans are incorporated into the Framework.

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<sup>32</sup> ABI draft submission on the East London SRDF July 2005

<sup>33</sup> Kate Nelson, written information about TGLP draft comments on East London SRDF July 2005

<sup>34</sup> Environment Agency, comments to Environment Committee on draft response July 2005

- 6.21 There is no evidence that the targets on housing and commercial development for opportunity zones in the Framework have been tested against the detailed information on flood risk that has been released this year in the Strategic Flooding Risk Assessment. We are concerned that this will lead to boroughs' Local Development Frameworks (the new form of Unitary Development Plans) being unable to meet these targets unless they allow development on inappropriate sites.
- 6.22 The Sub-Regional Framework should be clearly in line with national policy guidance to ensure that sites that are developed should be those with the least negative environmental impact. We do not feel that at present this is emphasised enough and the Framework should stress that a sustainability appraisal is required before development sites are put forward in Local Development Frameworks.
- 6.23 The guidance on flooding is incorporated in the section on Blue Ribbon policies (those relating to riverside issues). This was felt by Thames Gateway London Partnership to emphasise the open space aspects of development control and flooding rather than a comprehensive approach. It also emphasizes the impression that flooding is only a riverside issue which is far from the case in east London.
- 6.24 The Framework is particularly weak on fluvial and other non-tidal flooding, despite the scale and frequency of these types of flood in the past five years and the misery that this caused to Londoners. New developments are an important factor that is increasing the frequency of certain types of flood especially from surface water as we outlined in section 4. The Framework should strengthen the information it provides on how to minimise this impact.

*Recommendation 6*

**The East London Sub-Regional Development Framework should be substantially revised to ensure that it provide advice that is consistent with national guidance (PPG 25), the Environment Agency's advice on development in flood risk areas, and up-to-date information on flood risk. The final version should provide more detailed guidance for the boroughs on the opportunity areas, in order to inform their Local Development Frameworks.**

*Recommendation 7*

**The targets in the East London SRDF should be rigorously tested to ensure that this level of development is possible given the hierarchy on flooding in national guidance (PPG 25), information provided by the Strategic Flooding Risk Assessment and the requirements for land to create the Green Grid.**



## **7 Increasing flood resilience**

7.1 We believe that appropriate planning control of new developments and physical flood defences (whether to keep out water or channel it into areas away from homes and businesses) will be the most important factors to reduce flooding risk. However we would also like to draw attention to other ways of reducing the impact of flooding because improved defences cannot be the only solution.

7.2 The ABI and other groups have researched flood resilience measures for homes to identify their cost implications and how they are likely to reduce flood risk. Ideas include: defence measures on the homes and businesses themselves; raising the height of electrics and other vulnerable services on the ground floor; designing the ground floor for less vulnerable uses (including for car parking); and water resilient flooring and fittings. It is clear that with appropriate designs, uses and materials the affect of a flood can be greatly reduced.

‘making the ground floor more resilient with concrete floors, waterproof plaster, and electrics above the typical flood level – those kinds of measures ... is certainly an option ... even adding an extra storey to properties or flats.’

**7.3 Guidance on flood resilience measures is already available and new ideas are always emerging. We would suggest that links are provided in existing flood information sources, and including our proposed website on flooding and development in the Thames Gateway.**

## **Annex A – List of recommendations**

**Recommendation 1:** The Government, through Defra and the Environment Agency, should ensure that funding mechanisms are identified and that there is consultation on different funding proposals in 2007 when options on flood protection are put forward from the Thames Estuary 2100 project. The project should propose, and the Government commit to, a timetable for delivery of these options. The Thames Gateway boroughs and the GLA should monitor the progress of the Thames Estuary 2100 project and ensure that it suggests locally appropriate solutions.

**Recommendation 2:** The Environment Agency should undertake a survey of all Thames Estuary defences, not just tidal ones, and by the end of 2006 should develop a plan for how any sub-standard defences will be repaired. This should include measures to address maintenance of any defences that do not have identified owners.

**Recommendation 3:** The plans for the Green Grid are progressing too slowly considering the speed of development in the Thames Gateway and further action is required by Office of the Deputy Prime Minister (ODPM) and the London Development Agency (LDA). ODPM should fund the work necessary to identify sites based on the Strategic Flooding Risk Assessment, including those that should be subject to compulsory purchase. Funding mechanisms for development and maintenance of the Green Grid should be determined by March 2006 in conjunction with boroughs and the LDA.

**Recommendation 4:** Thames Gateway London Partnership and Environment Agency should develop a website to act as the main source of information for flooding and development in the Thames Gateway, including the Strategic Flooding Risk Assessment web-based user guide. This should be connected to other guidance or policy on flooding, sustainable design and construction and development in the Thames Gateway.

**Recommendation 5:** Strategic Flooding Risk Assessments should be produced for the areas of London that are subject to tidal or fluvial flooding to provide similar information to that now available for the Thames Gateway area. This process should be led by the Environment Agency in consultation with the Regional Flood Defence Committee.

**Recommendation 6:** The East London Sub-Regional Development Framework should be substantially revised to ensure that it provide advice that is consistent with national guidance (PPG 25), the Environment Agency's advice on development in flood risk areas, and up-to-date information on flood risk. The final version should provide more detailed guidance for the boroughs on the opportunity areas, in order to inform their Local Development Frameworks.

**Recommendation 7:** The targets in the East London SRDF should be rigorously tested to ensure that this level of development is possible given the hierarchy on flooding in national guidance (PPG 25), information provided by the Strategic Flooding Risk Assessment and the requirements for land to create the Green Grid.

## **Annex B – Terms of reference**

The Committee will:

- identify the advances in policy and research since the Committee's previous scrutiny report in 2002 and any areas of weakness for the Thames Gateway
- investigate whether sufficient funding and appropriate mechanisms are in place for the large scale investment required for flood measures and defences in the Thames Gateway area, including for the Green Grid proposals
- consider if policy on flood prevention, resilience and mitigation is implemented effectively especially for new developments in the area
- examine if the Mayor is making full use of his powers, particularly in the area of spatial development, to respond to flooding risk in East London.
- determine if recommendations made in its original report relevant to these issues have been progressed and what more should be done

## **Annex C – Summary of evidence**

## **Annex D - Policy development institutions in the Thames Gateway**

This information is based on work by Campaign for the Protection of Rural England.

### MISC 22 Cabinet Sub-Committee

Chaired by the Prime Minister.

The Committee was set up to examine the development potential of the Thames Gateway and guides what the Government proposes in the area, particularly on its Sustainable Communities initiative. The Committee is of Government Ministers.

### Thames Gateway Strategic Partnership

Formed of Government Ministers from five departments, the Mayor of London, Chairs of the Regional Development Agencies (LDA, SEEDA, EEDA), and the three sub-regional partnerships (Thames Gateway London, Thames Gateway South Essex Economic Partnership, Thames Gateway North Kent Partnership), and representatives of the three regional bodies (Greater London Authority, South East England Regional Assembly and East of England L G C). It has a number of sub-groups which include representatives from statutory agencies (e.g. the Countryside Agency), local authorities and non-governmental organisations.

### Thames Gateway Strategic Executive

The grouping of officers from organisations which form the Thames Gateway Strategic Partnership. This group supports the work of the Partnership.

### Sustainable Communities Delivery Unit

Housed within the Office of the Deputy Prime Minister (which is responsible for urban policy, national planning policy and housing policy) it leads on the Governments work on the Thames Gateway and other Sustainable Communities development areas. This includes responsibility for design issues, establishing and overseeing Urban Regeneration Companies and English Partnerships. A key part of its work is with the GLA to develop the London and Thames Gateway Development and Investment Strategy.

### Greater London Authority (GLA)

The Mayor of London leads, or is influential on, a number of the joint bodies which create policy for the Thames Gateway and the GLA develops strategic planning guidance for the London Thames Gateway and policy on various other issues in its own right. Planning guidance is issued through the London Plan (London's spatial development strategy); supplementary planning guidance; and the East London sub-regional development framework.

### London Thames Gateway Partnership Board

This is a non-executive group (i.e. has no implementing powers) chaired by the Minister for London (a Minister from the Office of the Deputy Prime Minister) and the Mayor of London. Its role is to co-ordinate planning and delivery of regeneration programmes. The Board includes various Government agencies, regeneration and housing quangos

and the private sector. Confusingly, it is not the board of the London Thames Gateway Partnership.

#### Thames Gateway Steering Group

This is led from the GLA and supports the work of the London Thames Gateway Partnership Board. It brings together the GLA, Office of the Deputy Prime Minister, English Partnerships, London Development Agency, Transport for London, and the Thames Gateway London Partnership (which represents the boroughs in the area) and other agencies.

#### Thames Gateway London Partnership (TGLP)

Leads strategic regeneration in the London Thames Gateway and co-ordinates work between the local authorities in the area, the London Development Agency, agencies responsible for public services e.g. health and education, and involves other stakeholders. Has a number of Task Groups to work on specific areas which include a wider range of organisations from the private and the voluntary and community sector. TGLP leads on the Green Grid, the Strategic Flood Risk Assessment, Thames strategy East, Thames Gateway London Partnership Economic Strategy amongst other policies. Thames Gateway South Essex Partnership, Thames Gateway Kent Partnership are the equivalent Partnerships for the Essex and Kent sections of the Thames Gateway.

#### East London Urban Development Corporation

Also referred to as the London Thames Gateway UDC. This was established in late 2004/2005 although is not fully functional at the time of writing. The Development Corporation will lead on implementing regeneration in the areas within its control and will take over certain powers from the local authorities including planning control of significant developments (i.e. not routine planning applications for minor changes to existing buildings). The board will include representatives of local authorities, the private sector and the LDA.

Thurrock Urban Development Corporation, are the equivalent Urban Development Corporations in the Thames Gateway outside London.

#### English Partnerships

The national urban regeneration agency, an executive body of the Office of the Deputy Prime Minister. Implements physical regeneration by assembling land and commissioning and managing development projects. These projects are normally delivered in partnerships with the local authorities and private sector. Has an important role in policy for building on brownfield (i.e. previously developed) land. English Partnerships is a major owner of Government land that is to be released for development.

#### London Development Agency

Responsible for economic development and regeneration of London as part of the Greater London Authority group. Akin to English Partnerships but at a regional level, it develops strategy on economic development and regeneration in London and implements regeneration projects.

## **Annex E – Orders and translations**

### **How to order**

For further information on this report or to order a copy, please contact Anna Malos, Scrutiny Manager, on 020 7983 4421 or email to [anna.malos@london.gov.uk](mailto:anna.malos@london.gov.uk)

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## **Annex F – Principles of Scrutiny**

The powers of the London Assembly include power to investigate and report on decisions and actions of the Mayor, or on matters relating to the principal purposes of the Greater London Authority, and on any other matters which the Assembly considers to be of importance to Londoners. In the conduct of scrutiny and investigation the Assembly abides by a number of principles.

Scrutinies:

- aim to recommend action to achieve improvements;
- are conducted with objectivity and independence;
- examine all aspects of the Mayor’s strategies;
- consult widely, having regard to issues of timeliness and cost;
- are conducted in a constructive and positive manner; and
- are conducted with an awareness of the need to spend taxpayers money wisely and well.

More information about scrutiny work of the London Assembly, including published reports, details of committee meetings and contact information, can be found on the London Assembly web page at [www.london.gov.uk/assembly](http://www.london.gov.uk/assembly).