

TE2100 action plan: **action zone 5** – middle Estuary

Action plan for zone 5 – table A.5.

12 actions identified


Description of the policy units


- Dartford & Erith
- Swanscombe & Northfleet
- Purfleet, Grays & Tilbury


Table A.5. describes the 12 actions for Zone 5 – middle Estuary which have been identified through the TE2100 Plan. The actions are described under the following headings:


- TE2100 recommended actions (and whether or not costs for this have been included in the TE2100 Plan)
- Implementation partners
- How this will be achieved
- How your response can help us finalise the TE2100 Plan



 Do you consider that we have identified the right strategic options for managing tidal flood risk in the Thames estuary, and do you agree with the final preferred options?

 Do you agree with the actions identified in our action plans and the timing of those actions?

 Do you agree with the mechanisms we have set out to deliver the action plans?

 Have we identified the right partner organisations to deliver our action plans and are you, or your organisation, able to contribute to these actions?

Policy unit – Dartford & Erith

Policy: Our recommended flood risk management policy is policy **P4** to take further action to sustain the current level of flood risk into the future (responding to the potential increases in risk from urban development, land use change and climate change).

Description

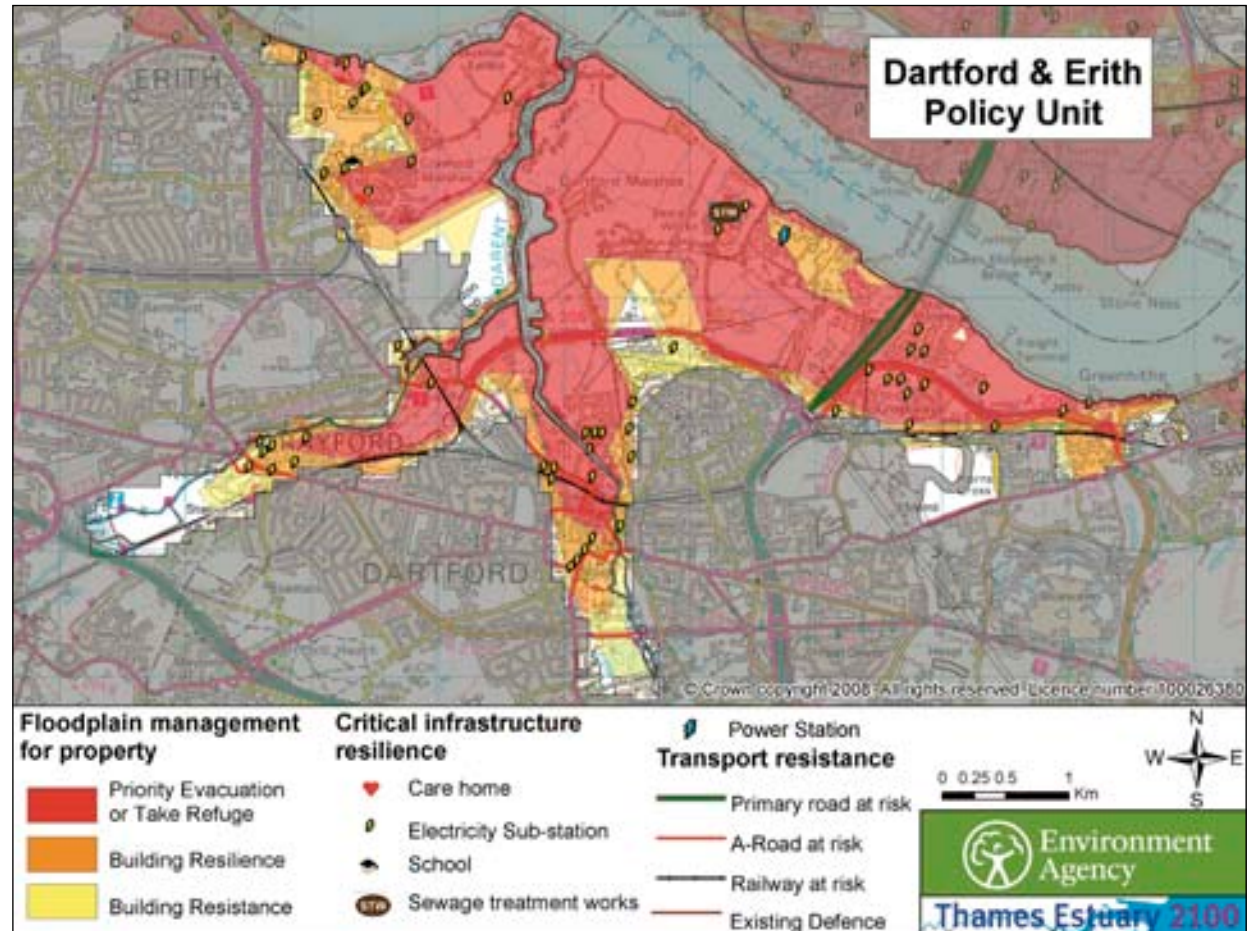
The Dartford & Erith policy unit includes extensive areas of undeveloped and developed marshes and the riverfront town of Greenhithe. It also includes parts of Dartford and Crayford.

The new developments include large areas of ground raising to reduce flood risk. Much of the development is recent, and further development is planned. There is new residential development on the east side of Erith, and new commercial development on Stone Marshes near the Queen Elizabeth II Bridge.

The River Darent (and a tributary, the River Cray) pass through the policy unit. The lower reaches of these rivers pass through the largely undeveloped Dartford and Crayford Marshes.

Sources of flooding

- Tidal from the Thames downriver of the Thames Barrier (probability 0.1% per annum or greater), flood depths up to 5 m.



At risk in Dartford & Erith policy unit

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- Tidal on the Rivers Darent and Cray (probability about 0.1% per annum). Barrier controlled.
- Fluvial from the Rivers Darent and Cray (probability 1 to 20% per annum), flood depths up to 2 m.
- Fluvial from the marsh drainage system on Crayford marshes (probability >1% per annum).
- Fluvial from marsh drainage systems on Dartford and Stone marshes (probability <1% per annum).
- Local drainage.
- Groundwater from rock aquifers.

The existing flood risk management system

- Tidal flood defences downriver of the Barrier on the Thames.
- The Dartford Barrier for tidal water levels on the Rivers Darent and Cray.
- Secondary tidal and tidal/fluvial flood defences on the Rivers Darent and Cray.
- Local fluvial flood defences.
- Drainage system outfalls including Crayford, Dartford and Stone Marshes.

Policy context

Dartford & Erith policy unit forms part of the Thames Gateway regeneration area and is covered by Thames Strategy East in addition to the Thames Gateway Parklands vision. There are extensive areas of redevelopment planned in this policy unit, which provide opportunities to improve flood risk

management arrangements including floodplain management and new defences that enhance the riverfront environment.

Vision

There is likely to be considerable new development in this policy unit, and there are opportunities to improve the river frontage as new defences are constructed. In particular, there is scope to combine new defences with new development, and possibly retreat the defence in some areas with resilient development on the riverward side.

The marshes should be retained as an important green space in an otherwise developed area. There is a possibility that these marshes could be used for tidal flood storage. If infrequently used the storage area could also be enhanced to provide habitats and recreation opportunities. The marshes are included as community parklands in the Thames Gateway Parklands vision, and provide considerably opportunities for environmental and amenity enhancement with or without the proposed flood storage area at this location.

Local issues and choices

Measures will be needed for tributary flooding from the River Darent and the River Cray, which joins the Darent in this policy unit. The Darent is already

protected from extreme tidal floods by the Dartford Barrier but defence raising will be needed. Choices for the River Darent are given in table A.5.

Separate fluvial flood risk management schemes would be needed for Dartford and Crayford. These schemes could include fluvial storage in the marshes to draw flood levels down, although at present this would not be very effective because of the restricted conveyance upstream.

In addition to the River Darent/Dartford Creek, there are a number of marsh drainage systems with outfalls into the Estuary. Responses to manage fluvial flood risk in these systems might include outfall improvements, local fluvial flood storage and management of surface runoff. The need for these has not been investigated.

Responses for local flood risk management have not been designed or assessed in detail, and will be the subject of consultation and subsequent appraisal. This work is included in our action Plan.



Do you understand our assessment for the Dartford & Erith policy unit?



Do you agree with it?

Policy unit – Swanscombe & Northfleet

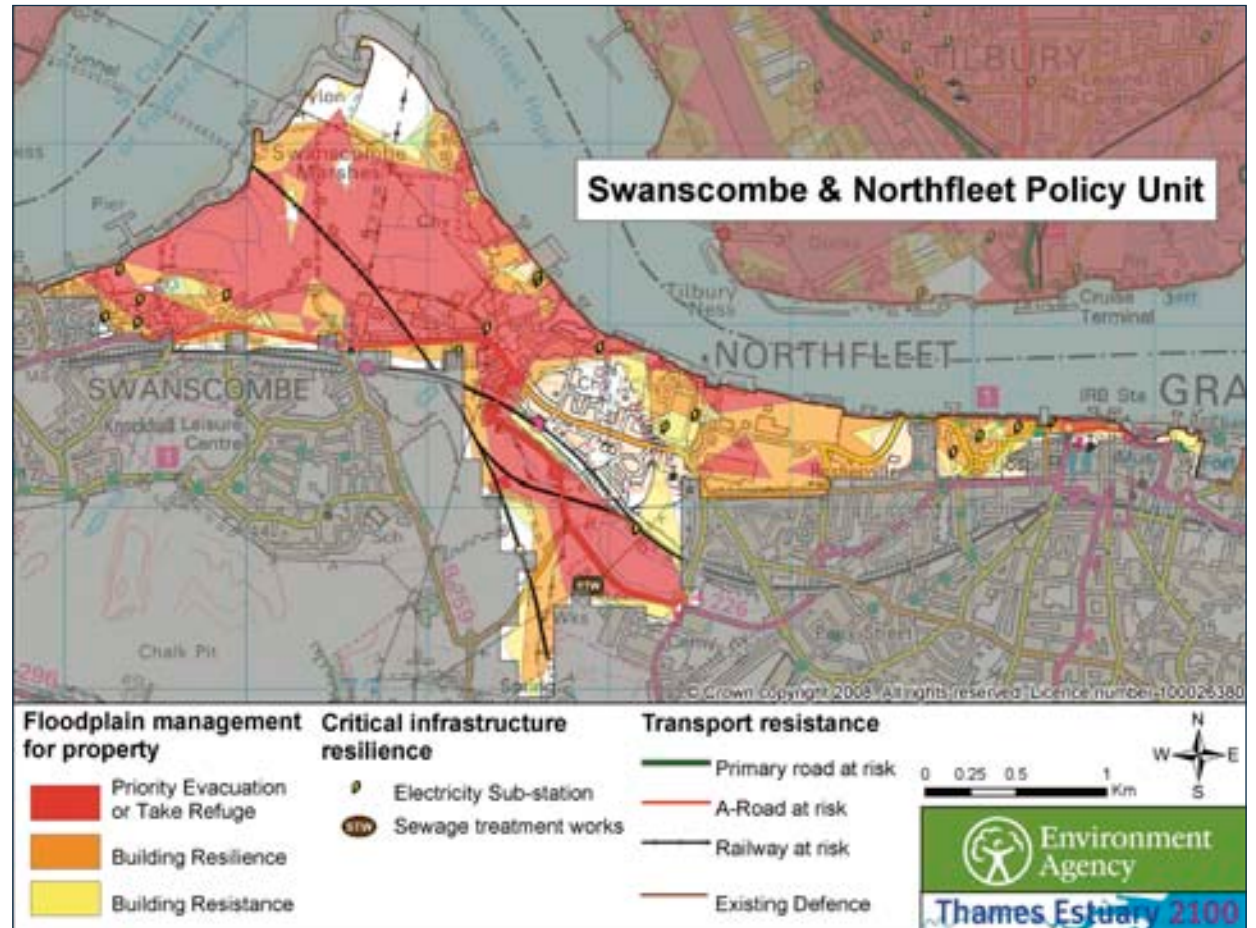
Policy: Our recommended flood risk management policy is policy **P4** to take further action to sustain the current level of flood risk into the future (responding to the potential increases in risk from urban development, land use change and climate change).

Description

Swanscombe & Northfleet includes the Swanscombe peninsula, the industrial area of Northfleet and part of the town of Gravesend. The Gravesend and Northfleet frontage includes residential, industrial and recreation areas. The industrial area extends into the Swanscombe peninsula. Most of the peninsula is currently undeveloped. It includes landfill sites and two areas of freshwater marsh. It also contains a portal of the High Speed One (formerly CTRL) tunnel under the Thames.

Sources of flooding

- Tidal from the Thames downriver of the Thames Barrier (probability 0.1% per annum or greater), flood depths up to 5 m but much less in most of the area owing to raised ground levels.



At risk in Swanscombe & Northfleet policy unit

- Fluvial from local watercourses including the River Ebbsfleet and the marsh drainage systems on Swanscombe and Botany marshes (probability >1% per annum in marsh areas).
- Local drainage.
- Groundwater from rock aquifers.

The existing flood risk management system

- Tidal flood defences downriver of the Barrier on the Thames.
- Drainage system outfalls including the River Ebbsfleet and the marsh drainage systems on Black Duck and Botany marshes.

Policy context

Swanscombe & Northfleet forms part of the Thames Gateway regeneration area and is covered by Thames Strategy East in addition to the Thames Gateway Parklands vision.

There are extensive areas of redevelopment planned in this policy unit.

This provides opportunities to improve flood risk management arrangements including floodplain management and new defences that enhance the riverfront environment.



Swanscombe – High Speed One (formerly CTRL)

Vision

There are opportunities to combine improved arrangements for flood risk management in this area with the creation of green space on the Swanscombe peninsula. This could be developed to promote closer links between the floodplain and the Estuary in Northfleet and Gravesend.

There is also a need to work with planning authorities to create a plan that fully integrates flood risk management with new developments, new amenity areas and new/improved conservation areas.

Local issues and choices

Management of flood risk on the River Ebbsfleet might include improvements to the outfall or conserving the floodplain and maximising flood storage.

The fluvial flood risk on the Swanscombe marsh drainage systems is small. Flood mitigation measures might include improved outfalls and local fluvial flood storage.

There is a potential flood risk from groundwater emerging from the chalk aquifer which is very close to the Estuary in this policy unit, although this is unconnected with the Estuary.

Choices for local flood risk management have not been designed or assessed in detail, and will be the subject of consultation and subsequent appraisal.



Do you understand our assessment for the Swanscombe & Northfleet policy unit?



Do you agree with it?

Policy unit – Purfleet, Grays & Tilbury

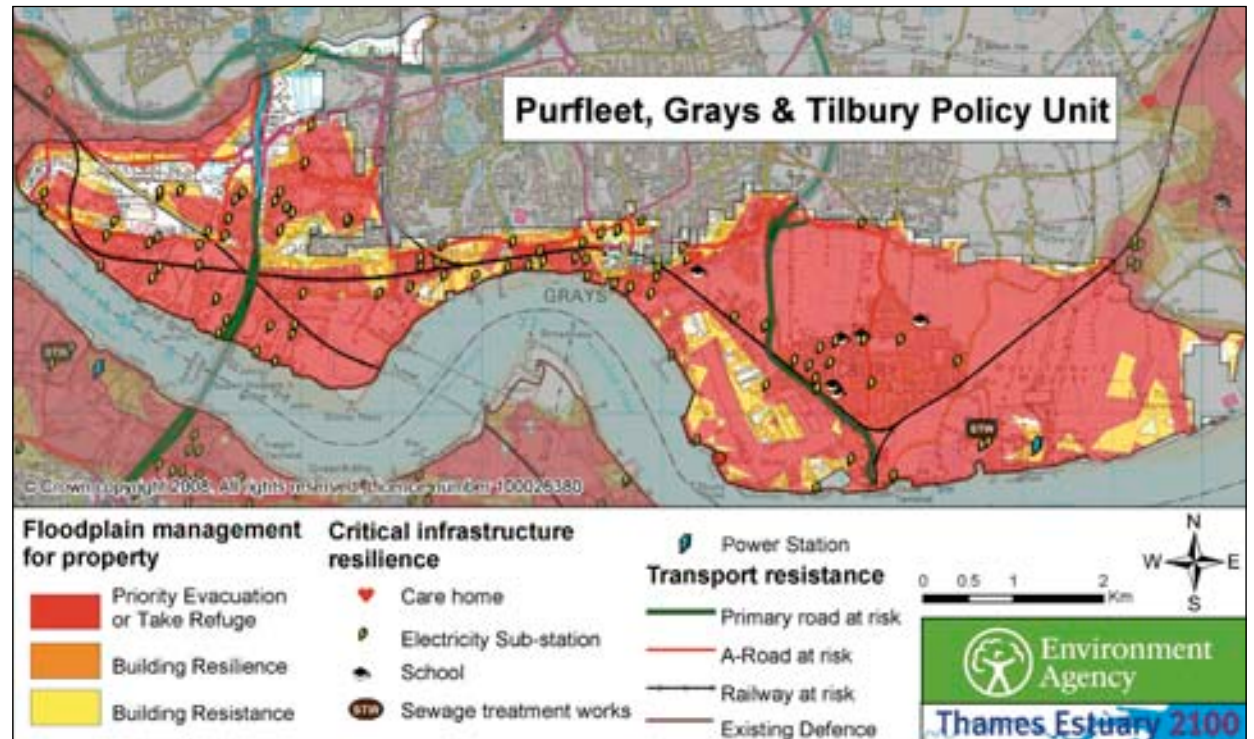
Policy: Our recommended flood risk management policy is policy **P4** to take further action to sustain the current level of flood risk into the future (responding to the potential increases in risk from urban development, land use change and climate change).

Description

Purfleet, Grays & Tilbury is a large policy unit that includes Tilbury Town and parts of the urban areas of Grays and Purfleet. This policy unit has two main floodplain areas, at Tilbury and West Thurrock/Purfleet. Much of the marsh areas are low lying, less than 1 m AOD, and some of the developed areas are very vulnerable to flooding.

Purfleet and West Thurrock marshes are mainly industrial and commercial, with some residential areas and large redevelopment sites. Tilbury marshes include Tilbury Docks and Tilbury Power Station together with the residential area of Tilbury Town.

Part of the riverside town of Grays is on strip of floodplain between these two areas. This policy unit contains numerous port facilities and there are a large number of active riverside jetties and wharves.



At risk in Purfleet, Grays & Tilbury policy unit

The western boundary of the Purfleet, Grays and Tilbury policy unit is the Mar Dyke, which is included within this policy unit.

The Dartford tunnel northern portal is in this policy unit.

Sources of flooding

- Tidal from the Thames downriver of the Thames Barrier (probability 0.1% per annum or greater), flood depths up to 5 m.
- Fluvial and tidal/fluvial from the Mar Dyke (probability >1% per annum).
- Fluvial from local watercourses in West Thurrock Marshes (probability about 1% per annum).
- Fluvial from local watercourses in West and East Tilbury Marshes (probability about 1% per annum).
- Local drainage.

The existing flood risk management system

- Tidal flood defences downriver of the Barrier on the Thames.
- Tilbury Dock floodgate.
- Local fluvial flood defences on the Mar Dyke.
- Local fluvial defences at Tilbury Town.
- Drainage system outfalls including West Thurrock and West Tilbury marshes.

Policy context

Purfleet, Grays & Tilbury forms part of the Thames Gateway regeneration area and is covered by Thames Strategy East in addition to the Thames Gateway Parklands vision. There are extensive areas of redevelopment planned in this policy unit which provide opportunities to improve flood risk

management arrangements including floodplain management and new defences that enhance the riverfront environment.

Vision

It is likely that this area will continue to be an important commercial and industrial centre. However there are likely to be major changes following the extensive development and redevelopment in the area, and plans to create parks and green corridors.

Future flood defences can be an important catalyst for improvement by providing good access to the Estuary and helping to create important public amenity areas. There is also an opportunity to create a safer floodplain where developments are resilient to flood damage and people would be safe during a flood event.

Local issues and choices

Measures are not included in our Plan for tributary flooding from the Mar Dyke as the flood risk is very low.

Drainage systems in the Purfleet, West Thurrock and Tilbury areas will require upgrading as the sea level rises and storm rainfall is expected to increase. Mitigation measures might include improved outfalls and drainage channels,

additional pumping capacity, additional flood storage and new or improved local flood defences.

There is likely to be a limit to the number of times the new Tilbury Dock flood gate can be closed because of the interference with shipping. A possible mitigation measure would be to raise the quay edges in the dock, although this may interfere with commercial operations.

Choices for local flood risk management have not been designed or assessed in detail for the TE2100 Plan, but they are identified in our action plan and will be the subject of consultation and subsequent appraisal.



Do you understand our assessment for the Purfleet, Grays & Tilbury policy unit?



Do you agree with it?

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Table A.5. – Policy units

■ Dartford & Erith P4


■ Swanscombe & Northfleet P4

■ Purfleet, Grays & Tilbury P4

[Note that all dates are based on government’s current guidance on climate change – the TE2100 Plan will be reviewed and updated if these predictions change]




	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.1. TE2100 Plan informs the development and revisions of local authority Strategic Flood Risk Assessments (SFRAs) and flood plans.</p> <p>[Note: there is a night time population of over 29,000 and over 50,000 workers during the day. Some 5600 are classed as highly vulnerable to a flood, implying physical immobility or other severe health problems and the financially deprived. These factors provide particular to challenges to LA in the event of a flood. Particularly, with limited transport infrastructure, much of which could be inaccessible – see At Risk maps]</p> <p><i>(Cost of implementing this action not included in TE2100 Plan, but TE2100 data and information will be available to assist)</i></p>	<p>Environment Agency</p> <ul style="list-style-type: none"> • LB Bexley • Dartford District Council • Gravesham District Council • Thurrock Unitary Authority <p>Kent Resilience Forum, Essex Resilience Forum</p>	<p>TE2100 information is provided to local authorities preparing flood plans and emergency capability testing.</p> <p>Local authority flood plans are developed with an understanding of TE2100 recommendations and data.</p> <p>TE2100 information is provided to LRF to inform Community Risk Registers and support exercises.</p> <p>A community engagement programme to ensure the public, businesses and other groups understand, are involved in and supportive of the flood plans.</p>	<p>Implementation partners: Do your flood plans include the findings and recommendations from TE2100? Do you have enough information from us to develop your flood plans so that they can be informed by TE2100? Your response will guide the development of our implementation “blueprint” during 2009 and improve arrangements for partnership working.</p> <p>Landowners, the public, business and other interested groups: The Thames tidal defences are robust and well managed. But should there be a failure of a defence or an extreme event which overtops the defences large areas of the middle Estuary zone would be at risk. The Flood Plans will set out arrangements for managing this sort of emergency. Your response on the TE2100 proposals will be shared with Agencies responsible for preparing the flood plans.</p>

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	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.2. To agree a programme to provide localised flood protection and resilience for vulnerable key sites in the middle Estuary action zone.</p> <p>[Note: there are 203 electricity substations, four railway stations and three care homes in the middle Estuary. There are small proportions of basements and mobile homes which are particularly vulnerable in this zone. The At Risk map provides more detail and our proposed floodplain management measures]</p> <p><i>(Cost of implementing this action not included in TE2100 Plan, but TE2100 data and information will be available to assist)</i></p>	<p>Environment Agency</p> <ul style="list-style-type: none"> • LB Bexley • Dartford District Council • Gravesham District Council • Thurrock Unitary Authority <p>Kent Resilience Forum, Essex Resilience Forum</p>	<p>We will discuss with implementation partners to agree strategic scope of measures required.</p> <p>Agreement between implementation partners on the strategic approach, and roles and responsibilities for achieving it.</p> <p>All site owners supportive of approach and confidence maintained. Local floodplain management measures in place or planned within 25 years.</p>	<p>Implementation partners: Are you aware of the risks and particular vulnerability of sites and infrastructure in this zone? Do you have arrangements in place to investigate the scope of works required for the properties/areas in which you have an interest? Can the Environment Agency assist with this through implementation of action A.5.2?</p> <p>Landowners, the public, business and other interested groups: We would be interested to hear your views to assist us in planning the implementation of this action A.5.2. particularly if you live, work or have interests in this area.</p>
	<p>A.5.3. To agree partnership arrangements and principles to ensure that new development in this zone is safe, and flood risk management is factored into the planning process at all levels for the first 25 years from 2010 to 2034.</p>	<p>Environment Agency</p> <p>GLA, LDA, Essex CC, Kent CC, SEEDA, SEERA</p> <p>Local Authority spatial and emergency planners</p> <ul style="list-style-type: none"> • LB Bexley • Dartford District Council 	<p>TE2100 Plan and associated information informs RSS and Local Development Frameworks (LDF) and future updates of existing LDFs.</p> <p>Application of PPS25 for new development and encourage adoption of property-level protection and resilience.</p>	<p>Implementation partners: Are your RSS and LDFs supported by sustainability appraisals that include local tidal flood risk and the implications of climate change? If not, does the TE2100 Plan provide you with the information you need to do this? If guidance is produced on interpretation of PPS25 in a defended area, what sort of information would be most helpful to you? Would you be able to assist the Environment Agency in preparing this guidance?</p>

(continued)



TE2100 action plan: action zone 5 – middle Estuary

	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.3. (continued)</p> <p>[Note: there is need for greater clarity over methods and procedures for safety in new development behind defences. Environment Agency and local authority staff are providing advice to developers and responding to difficult Planning applications]</p> <p><i>(Cost of implementing this action not included in TE2100 Plan, but TE2100 data and information will be available to assist)</i></p>	<ul style="list-style-type: none"> Gravesham District Council Thurrock Unitary Authority <p>Developers & architects</p>	Local guidance for local authority and Environment Agency staff for planning applications to reflect the complexities of the west London defended tidal/fluvial floodplain.	<p>Landowners, the public, business and other interested groups:</p> <p>We would be interested to hear your views to assist us in planning the implementation of this action A.5.3, particularly if you have had experience (good or bad) of dealing with us and other authorities over planning and building by the river and in the tidal floodplain in this middle Estuary zone.</p>
	<p>A.5.4.</p> <p>To review and maintain partnership arrangements and principles from 2035 to 2069.</p> <p>As A.5.3. above</p>	As A.5.3. above	Local guidance updated to reflect changing needs. The TE2100 10-yearly update to include review of Action A.5.3. and recommend further action.	We cannot know what institutional arrangements will be in place during this period or what pressures there will be on the environment. We do know that for the middle Estuary zone to continue to thrive, flood risk management must continue to be integrated into the spatial planning process. If you would like to help shape the development of these arrangements then please let us have your views.
	<p>A.5.5.</p> <p>To review and maintain partnership arrangements and principles from 2070 and into the 22nd century</p> <p>As A.5.3. above</p>	As A.5.3. above	TE2100 10-yearly update to include review of Action A.5.4. and recommend further action. Local guidance is updated to reflect changing needs.	Flood risk management continues to be integrated into the spatial planning process into the 22nd century – see above.



TE2100 action plan: action zone 5 – middle Estuary

	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.6. To maintain, enhance and replace the river defence walls and active structures through the middle Estuary zone over the first 25 years of the Plan from 2010 to 2034.</p> <p>[Note: This is a continuation our current activities to ensure that confidence in the Thames tidal flood risk management system is maintained and that opportunities for environmental enhancements and partnership through planning are actively sought and carried out]</p> <p><i>(Cost of implementing this action is included in TE2100 Plan)</i></p>	<p>Environment Agency Land Owners Developers and local authority planning teams Thames Strategy East Parklands vision</p>	<p>Our Planning Liaison and Development Control staff will promote these works as part of ongoing development applications.</p> <p>Our Asset System Management teams will promote theses schemes. However, the method of improving the defences is different from the present day approach. It involves greater maintenance and repair work in addition to replacement. Promotion of schemes through the capital programme may not be appropriate for maintenance and repair, and a different way of working may be required.</p>	<p>This is the work which the Environment Agency does now. We will continue with our programme of operations, maintenance and replacement but we are looking for ways of working better and more effectively.</p> <p>We are also seeking opportunities for environmental and recreational enhancements which will create a better place, and for partnerships which will help us achieve this.</p> <p>We would welcome any comments that you or your organisation can provide which assist us in these aims.</p>
	<p>A.5.7. To operate, maintain and enhance the defence walls and active structures through the middle Estuary zone the 35 year period of the Plan from 2035 to 2069 – this will include defence raising in 2040.</p>	<p>Environment Agency Land Owners Developers and local authority planning teams Thames Strategy East</p>	<p>Our Planning Liaison and Development Control staff will promote these works as part of ongoing development applications.</p>	<p>Our aims remain as A.5.6. above, but during this period, there will be a major programme of rebuilding and refurbishment of the river walls and defences through middle Estuary zone. This provides many opportunities for creating a better place and to plan for a better riverside environment. If you would like to help shape the future environment in this area, then please let us have your views.</p> <p style="text-align: right;">(continued)</p>

TE2100 action plan: action zone 5 – middle Estuary

	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.7. (continued)</p> <p>[Note: Continuing our activities to ensure that confidence in the Thames tidal flood risk management system is maintained and that opportunities for environmental enhancements and partnership through planning are actively sought and carried out]</p> <p><i>(Cost of implementing this action is included in TE2100 Plan)</i></p>		<p>We will promote schemes through capital programme and they will form part of strategic and investment plans subject to replacement/repair working arrangements as A.5.6. above</p> <p>There are major opportunities for reshaping the local landscape as part of these works.</p>	<p>During this period we will be preparing for the “end of the century” any decisions made as part of action A.5.7. must recognise that there may be major changes from 2070.</p>
	<p>A.5.8.</p> <p>To Implement our “end of the century” option in 2070.</p> <p>Our front runners at this stage for end of the century options are:</p> <p>Option 1.4 – Improve Existing system</p> <p>Option 3.2 – New Barrier at Long Reach.</p> <p>The Long Reach barrier site is within this zone.</p>	<p>Environment Agency</p> <p>Defra/CLG</p> <p>Landowners</p> <p>Local Authorities</p> <p>Developers</p> <p>The public</p> <p>Local interest groups</p> <p>GLA/SEERA/EERA</p> <p>Floodplain users</p>	<p>This will be a major multi-£bn construction project and the arrangements for implementation are likely to differ from our normal defence construction projects.</p> <p>There are major opportunities for reshaping the local landscape as part of these works.</p>	<p>2070 is a long way ahead but a decision needs to be made on the TE2100 “end of the century” option. This will enable us to finalise our Plan. The end of the century options (see estuary-wide action plan – action zone 0) affect conditions in the middle Estuary.</p> <p>So if you have views about the value of the Middle Estuary riverside and the effect of raising the walls versus construction of a barrier, please share them with us in submitting your response to this action (A.5.8). We can then weigh up all the evidence before finalising our Plan. We will make recommendations based on conditions now, in 2009, but the final decision on the end of the century options will not be taken until 2040 or 2050.</p> <p style="text-align: right;">(continued)</p>

TE2100 action plan: action zone 5 – middle Estuary

	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.8. (continued)</p> <p>If a new barrier is constructed in 2070 (option 3.2), further defence raising upstream of the barrier site will not be needed in this zone and there will be an opportunity to lower the defences by up to a metre. The TE2100 10-yearly update will include a review of action A.5.8. and recommend further whether the end of the century recommendations have changed.</p> <p><i>(Cost of implementing this action is included in TE2100 Plan)</i></p>		<p>The defences will require raising during the period covered by the Plan including the Dartford Barrier. The amount of raising will depend on the rate of sea level rise. The flood control gate at Tilbury Dock would be difficult to raise and will require replacement.</p>	<p>It is important to send us your views because the responses we receive during this consultation will set the baseline for establishing public attitudes to the west London riverside environment. This “2009 snapshot” of Middle Estuary stakeholder views will form a starting point for measurement of public attitudes in the future.</p>
	<p>A.5.9.</p> <p>To maintain and enhance the river defence walls and active structures through the Middle Estuary post 2070 and into the 22nd century.</p> <p>Whether or not defences are raised, all defences will still require ongoing maintenance, repair and replacement (and hence engineering works) and this has been allowed for in our Plan investment profile.</p> <p><i>(Cost of implementing this action is included in TE2100 Plan)</i></p>	<p>Environment Agency</p> <p>Land owners</p> <p>Developers and local authority planning teams</p>	<p>Our Planning Liaison and Development Control staff will promote these works as part of ongoing development applications.</p> <p>We will promote schemes through capital programme and they will form part of strategic and investment plans subject to replacement/repair working arrangements as A.5.6. above.</p> <p>There are major opportunities for reshaping the local landscape as part of these works.</p>	<p>We cannot now what institutional arrangements there will be as we approach the 22nd century, but our TE2100 vision imagines an environment where the middle estuary riverside continues to thrive, is increasingly enjoyed and respected by the people who live, work and visit. This means that the actions established in A.5.6. and A.5.7. will be continued by whoever is looking after our environment at that time. If you have views about the long-term future management of this part of the Estuary, we would like to hear them. This consultation provides an opportunity for you to have these views recorded and presented as part of an on-going vision statement to those who follow us 60 to 100 years from now.</p> <p style="text-align: right;">(continued)</p>

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A.5.10.

To agree a programme of works required to manage fluvial flood risk in the tidal zone from the River Darent in the first 25 years of the plan.

Local choices which could be considered:

1. Retain and enhance the existing system including defence raising.
2. Replacement of the Dartford Barrier by an outfall structure.
3. Construction of a new flapped outfall at the upstream end of the flood storage areas, and combine Dartford and Crayford marshes into a single tidal flood storage unit.
4. Retain and enhance the existing system including defence raising.
5. Replacement of the Dartford Barrier by an outfall structure.
6. Construction of a new flapped outfall at the upstream end of the flood storage areas, and combine Dartford and Crayford marshes into a single tidal flood storage area.

Implementation partners

Environment Agency
Land Owners
Developers and local authority planning teams

How this will be achieved

These works will be the responsibility of local EA area teams. The planning and agreement on what is needed should happen in the short term.

Implementation may be a medium term action, depending on local scheme justification.

Agreement between implementation partners on the strategic approach, and roles and responsibilities for achieving it.

All site owners must be supportive of approach and confidence of public and users maintained. Local measures for management of flooding from other sources to be in place or the planned within 25 years.

How your response can help us finalise the TE2100 Plan

We would be interested to hear your views to assist us in planning the implementation of this action A.5.10. particularly if you live, work or have interests in this area and are concerned about flooding from sources other than tidal. This includes pluvial and urban drainage and fluvial flooding from the River Darent and the River Cray.

Our TE2100 Technical Plan and local choices documents for the policy units provide further information on these matters and the choices which are available to assist with problems. If you would like to comment on these in more detail, please contact the project team.

(continued)

TE2100 action plan: action zone 5 – middle Estuary

	TE2100 recommended actions	Implementation partners	How this will be achieved	How your response can help us finalise the TE2100 Plan
	<p>A.5.10. (continued)</p> <p>7. Possible realignment of the River Darent.</p> <p>8. Separate fluvial flood management schemes for Dartford and Crayford.</p> <p><i>(Cost of implementing this action is included in TE2100 Plan)</i></p>			
	<p>A.5.11.</p> <p>Understanding Local views on alternative end of the century options.</p>	<p>Environment Agency</p> <p>GLA</p> <p>Local Authority spatial and emergency planners</p> <ul style="list-style-type: none"> • LB Bexley • Dartford District Council <p>Developers & architects</p>	<p>We will discuss with implementation partners to review changes to flood risk drivers.</p> <p>Should options which, at this point in the TE2100 plan, are not considered ‘front runners’ become more viable in the future agree strategic scope of measures required.</p>	<p>We cannot know how the drivers of flood risk, be they climate, environment or social/economic, will change in the future.</p> <p>We are interested to know your thoughts on the options that through the TE2100 appraisal process have not been identified as front runners for the Plan (see table A.O. for further information). If you have views about the long-term future management of the middle Estuary riverside, we would like to hear them. This consultation provides an opportunity for you to have these views recorded and presented as part of an on-going vision statement to those who follow us 60 to 100 years from now.</p>

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A.5.12.

To agree a programme for habitat enhancement and creation

In 2024 planning and, soon after, groundworks may need to be started in this policy unit to compensate for the potential loss of designated freshwater and grazing marsh interest features as a result of intertidal habitat creation. The following sites have been identified in this policy unit as having the potential to support the interest features that could be lost, either through enhancement of existing habitat features or creation of new sites:

- Dartford Marshes East
- Dartford and Crayford Marshes
- Tilbury Marshes and West Tilbury Marshes
- Mar Dyke.

Implementation partners

Environment Agency
 Natural England
 Land owners
 Local Authorities
 Public and local interest groups
 RSPB
 Wildlife Trusts

How this will be achieved

Planning and groundworks would take at least five years and there would be an additional 10 years before the habitat is fully established at the sites.
 We will be looking for partnership arrangements to manage these sites and get the best for the natural environment, for the local population and for visitors.

How your response can help us finalise the TE2100 Plan

We would like to hear your views on our 2024 habitat creation proposal.
 It is important that we use this consultation to have a proper and effective airing of information and views regarding any land use change. In the Environment Agency we see habitat creation as a positive step toward the goal of sustainability and supporting the habitats and species that make the Thames estuary internationally important.
 Habitat creation also provides opportunities for enhancements for recreation, visitors centres and other facilities. In order to finalise our plans, we need to hear what you think – in general terms, or at a local level.