

River Tame Flood Risk Management Strategy

Environmental Report - Non Technical Summary

May 2009



River Tame Flood Risk Management Strategy Environmental Report

Non Technical Summary

The Environment Agency has a vision of a rich, healthy and diverse environment for present and future generations. Part of this vision is to manage flood risk and improve the environment. Flooding is a natural process that can have a major effect on communities, the economy and the environment. We cannot prevent all floods, but we can prepare for them. This is known as 'flood risk management'. The risk of flooding is influenced by river processes as well as urban and rural land use. By managing land and river systems, we can reduce the chance of properties flooding. To reduce the impact of flooding we:

- provide flood warning systems
- influence the planning process to restrict development in areas at risk of flooding
- encourage the use of flood resilience measures
- provide flood storage areas
- maintain and construct flood defences

To plan our activities we take a wide view of flooding across a large geographical area. We call this a Flood Risk Management Strategy. For Birmingham, the Black Country and Tamworth we have produced the River Tame Flood Risk Management Strategy (Tame Strategy). The Strategy examines the options available for managing flood risk and makes proposals for our approach over the next 100 years.

Our proposals seek to balance technical constraints, cost, environmental impacts and social improvements. As part of this approach we have undertaken a Strategic Environmental Assessment (SEA) of the Tame Strategy. The SEA is the method for ensuring that we take account of the environmental consequences of flood risk management options in making our decisions for the River Tame. When making strategic decisions we consider the environmental impacts that are most significant at a catchment scale. This enables us to decide what measures the Strategy should promote. There will be more detailed impacts that are not covered in the SEA. The appropriate method for dealing with these environmental impacts will be during the Environmental Impact Assessment (EIA) that we will undertake for each of the specific projects resulting from the recommendations of the Strategy.

We have produced an Environmental Report documenting the full SEA process. This Non-Technical Summary is a summary of the Environmental Report. A full copy of the Environmental Report is available for viewing at our offices in Solihull at the address at the end of this summary or on request from: rivertamestrategy@environment-agency.gov.uk. Alternatively, please call 07808 506506. We have also produced a Public Engagement Document summarising the Strategy proposals.

The Study Area

The Tame catchment covers an area of 1490 square kilometers with a main river length of 100 kilometers. 1.7 million people live within this area. The River Tame starts as two watercourses in the urban areas to the west of Birmingham: the Oldbury Arm and the Willenhall Arm. It then flows in a generally easterly direction through the urban conurbation of Birmingham, to its confluence with the River Blythe. After this the river begins to flow in a northerly direction. It passes through more rural areas and the town of Tamworth. The River Tame then joins the River Trent at Alrewas, approximately 15 kilometers to the north of Tamworth. An overview of the catchment is contained in Figure 2.

In order to assess the environmental impacts of the flood risk management options we split the catchment into 35 different flood cells. In the Environmental Report there is an assessment of the impacts in each cell. However to make it simpler to present the Strategy we combined the flood cells into 9 sections of river referred to as 'reaches'. We have a preferred option, or combination of options, to manage flood risk in each reach. The figure below shows the study area and the nine reaches.

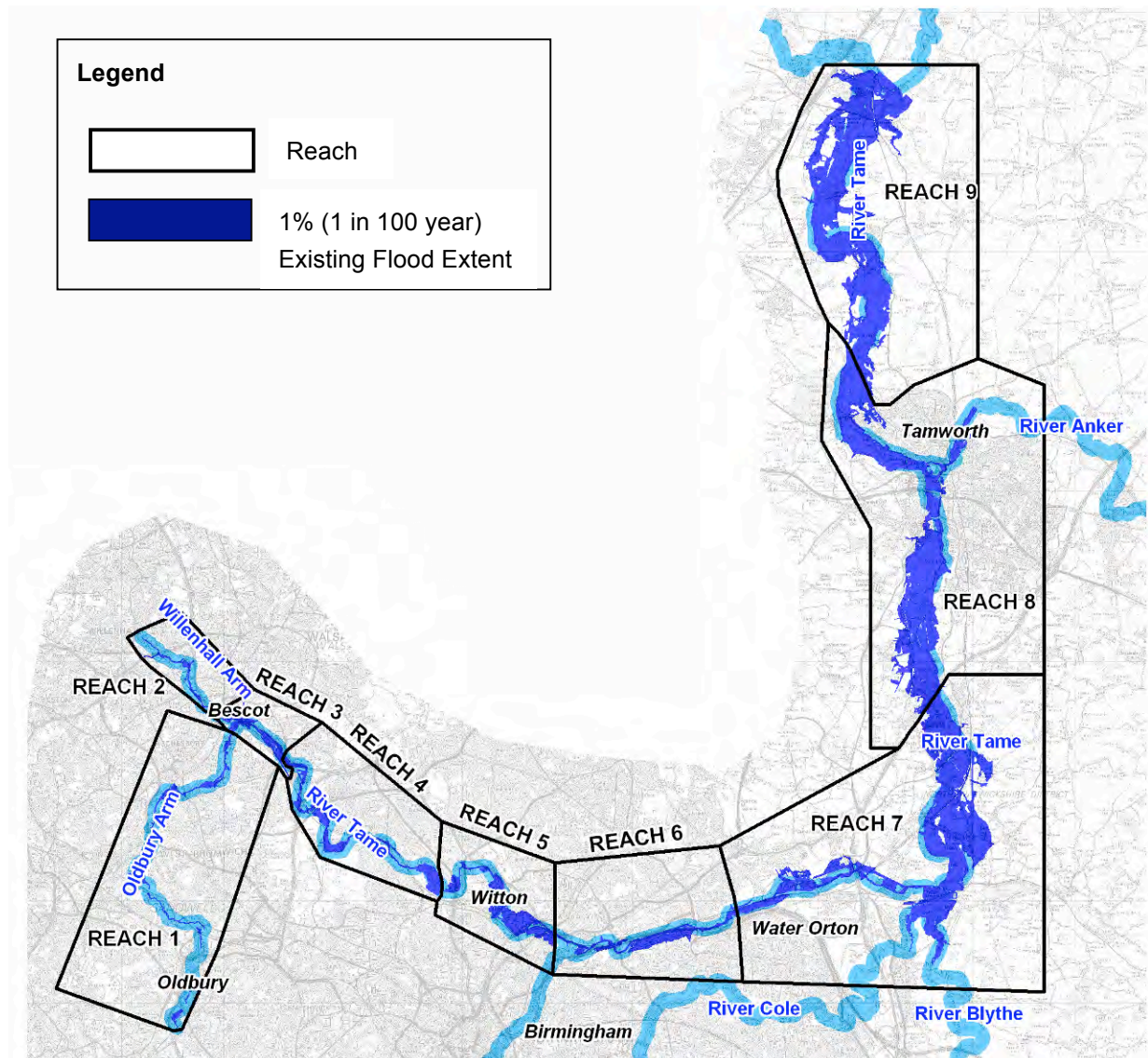


Figure A : Study area and reaches. (Detailed flood outlines are contained in Figure 1a – I)

Existing Flood Risk

There are 3,100 residential and commercial properties at risk from flooding. In the future this could rise to 5,400 properties as a result of the impact of climate change on flood levels.

Objectives

We have set general objectives for the Strategy and have also set more detailed environmental objectives to help guide the SEA. These were developed after consultation with stakeholders and

were devised to ensure that we consider the most significant environmental factors in the SEA process. These objectives are set out in the box below.

Environmental Objectives

- To protect and, where possible, enhance biodiversity.
- To avoid and, where possible, enhance possible effects on human health and population.
- To protect and enhance land quality.
- To protect and enhance water.
- To protect existing material assets.
- To protect and enhance cultural heritage features.
- To protect and enhance landscape character/visual amenity.

We have collected existing information about the River Tame study area. This information allows us to assess what impacts the flood risk management options may have on the environment.

How we developed our Strategy

The key aim of the Strategy is to identify how we can manage flood risk. We have developed a vision which takes a holistic approach and have developed the Strategy to follow four key aims of sustainability; maximising environmental benefit; developing safe schemes; and securing value for money.

We apply a clearly defined approach to assessing flood risk management options which is set by the Department for Environment, Food and Rural Affairs (Defra).

To develop our Strategy we used a two stage process. The first stage was to identify all the possible options that were available to manage flood risk at a broad strategic level.

Stage 1: Strategic Options

We identified a range of Strategic options for managing flood risk along the River Tame. We assessed each of these options against the following criteria:

1. How much each option would cost in relation to the benefits gained including the number of properties affected.
2. Whether the option would effectively manage flood risk.
3. The environmental impact of choosing the option.

We also engaged external stakeholders to ask them what suggestions and opportunities they could offer.

This process provided the following short list of proposed options that were included in the second stage of the assessment:-

Option 1: Do Nothing

For the 'Do Nothing' option we stop all our current activities and no maintenance work is carried out in the future. Further, the existing defences will not be replaced when they reach the end of their design life. This option provides an indication of the worst case for flooding. It is a standard option that under government guidance we must use in the second stage of the assessment as a baseline for costs and benefits.

Option 2: Do Minimum

Under Option 2, we continue with our current river maintenance activities (e.g. clearing channel blockages). However, under this option the existing defences are not replaced when they reach the end of their design life. This is also a standard option under government guidance and ensures that we do not do more than we need to for managing the flood risk.

Option 3: Maintain existing flood defences to achieve current flood risk management

Under the third option the current river maintenance activities are continued and once existing defences reach the end of their design life, they are replaced in order to maintain the current level of flood risk management.

Option 4: Optimise existing storage areas

There are a number of flood storage areas in the upper catchment which form part of a flood defence scheme designed in the 1970s. These storage areas, or balancing ponds, are located at Sheepwash, Ocker Hill, Bescot, Forge Mill Lake and Perry Hall Playing Fields. During a flood event, water is stored in these areas and once the flood event has passed the water is released slowly back into the River Tame.

Option 4 is to modify these storage areas to allow them to operate more effectively during flood events as urbanisation and the effects of climate change have altered river flows since the scheme was designed.

Option 5: Increase flood storage

This option is to increase flood water storage by looking for new storage areas and, or extending the existing storage.

Option 6: Localised improvements

'Localised improvements' include measures such as constructing new flood defences, raising existing defences and increasing river water flow (known as conveyance) through opening culverts or either removing or redesigning bridges.

Stage 2: Assessment of Environmental Impacts

The second stage looked at the flood cells within each of the reaches in the overall study to consider the most effective way to manage flood risk in these areas. This involved a detailed assessment of the likely economic costs and benefits and the likely environmental impacts. We have described the preferred option (or combination of options) for each reach and the most significant environmental impacts of implementing the option in that reach.

Reach 1: Oldbury Arm

Our preferred option along the Oldbury Arm is a combination of Option 3 and Option 6, (see Stage 1, above). We will continue to maintain the channel and existing defences in the reach. We also propose to improve a section of the river in the Tipton area which run through pipes, known as culverts. Where possible we intend to remove the culvert. In other areas we will increase the size of the culvert. In addition we intend to raise the existing defences in the areas of Oldbury, Tipton Junction and The Woods.

The proposals will have positive benefits for people and property by reducing the risk of flooding for 191 properties in a flood event with a 1 % probability of occurring in a year.¹ The option will also have moderate positive benefits by reducing the risk of flooding to infrastructure. However raising existing defences will have moderate negative visual and landscape impacts by further reducing visibility of the watercourse and separating the river from the adjacent land. Opening the existing sections of culvert will have minor benefits for biodiversity.

Reach 2: Willenhall Arm

Our preferred option in the Willenhall Arm is Option 3. We will continue to maintain the channel and existing defences in the reach. We will also continue to provide flood warning and flood resilience advice in the area.

6
6

¹ A flood event with a 1% probability of occurring is also expressed as a flood that has a 1 in 100 chance of occurring in any given year. If a flood occurs in one year the chance of it occurring the following year is the same, 1 in 100.

This option will have minor positive impacts in this reach on archaeological and historic features, through a reduction in the risk of flooding for listed buildings. However the proposed option will have a moderate negative impact on infrastructure as approximately 500 metres of railway remains at risk from flooding in a flood event with a 1 % probability of occurring in a year. This impact will be mitigated through ensuring that infrastructure owners are aware of the level of risk in order that they can develop appropriate resilience plans. No residential properties are currently at risk from flooding in a flood event with a 1 % probability of occurring in any given year. This will remain the same under our preferred option.

Reach 3: Bescot Junction

The Bescot Junction area contains a mix of residential and industrial properties, the local landmark of Walsall Football Club stadium and the nationally important rail depot. Our preferred option in this reach is a combination of Option 3 and Option 6. We will continue to maintain the channel and existing defences throughout the majority of the reach and we propose raising a short length of defence north of The Woods area of Bescot.

This option will have major negative impacts on transport infrastructure, as a significant stretch of the railway at Bescot junction will remain at risk from flooding in a flood event with a 1 % probability of occurring in a year. This impact will be mitigated through ensuring that infrastructure owners are aware of the level of risk in order that they can develop appropriate resilience plans. Raising the short stretch of existing defence will also have localised moderate negative visual impacts by further reducing visibility of the watercourse.

Reach 4: Newton and Hamstead

This section of the study area is characterised by open spaces bounded by residential properties. Important features within this reach include the Sandwell Valley Country Park (and RSPB reserve) and the Perry Hall playing fields. These areas are important for recreation and biodiversity. Forge Mill Lake in Sandwell Valley Country Park, and Perry Hall playing fields both provide existing flood storage areas.

Our proposals for this reach are a combination of Option 3 and Option 4. We will continue to maintain the channel and existing sections of defences. We also propose to alter the operation of the Forge Mill Lake and Perry Hall flood storage areas in order to make them more effective.

These proposals are an important measure for reducing flood risk downstream in key areas in Witton. Therefore, there will be a positive impact in reach 5. Further, there will be moderate positive impacts on infrastructure, by ensuring that the risk of flooding for sections of the railway, a sewage treatment works and an electricity substation is reduced to a flood event with a 1 % probability of occurring in a year.

Forge Mill Lake currently supports important numbers of breeding wildfowl which nest on the lake boundaries during the breeding season. We propose to alter the operation of the Forge Mill Lake flood storage area by allowing flood water to enter the lake earlier in a flood event. This will increase the number of occasions when the lake's water level is temporarily raised. If this occurred during spring and summer months the additional water could adversely impact on marginal habitats and any birds nesting in them. We have analysed historical water level data and this indicates that these flood events will occur infrequently and outside the most sensitive nesting periods. We have consulted the RSPB regarding these changes and identified ways of reducing this impact. Further we have identified that in partnership we can create new areas of habitat adjacent to Forge Mill Lake.

Reach 5: Perry Barr and Witton

In Perry Barr and Witton the land use is mostly commercial and industrial properties, though there are some residential areas. Our preferred option in this reach is a combination of Option 3 and Option 6. We will continue to maintain the channel and existing sections of defences. The proposed localised improvements under Option 6 include raising sections of existing defences and constructing new defences in the Regina Drive area of Perry Barr and in the vicinity of Brookvale Road, Witton. Under this option we also propose to investigate whether we can remove or alter key bridges.

These options will have significant benefits for population, as the number of properties at risk from flooding in a flood event with a 1 % probability of occurring in a year, will be reduced by 864. There will also be major and moderate flood risk benefits for infrastructure and archaeological features respectively. However, raising sections of existing defences and constructing new defences will have moderate negative visual and landscape impacts by further reducing visibility of the watercourse and separating the river from the adjacent land.

Reach 6: Gravelly Hill and Bromford

Downstream of Spaghetti Junction the River Tame flows underneath the M6 through Gravelly Hill, Bromford and Castle Vale. The Gravelly Hill area contains a high number of commercial and industrial properties. Downstream the river passes the large residential area of Bromford on the right bank and Castle Vale on the left bank.

In this area, our preferred option is a combination of Option 3 and Option 6. We will continue to maintain the channel and existing sections of defences. We propose to reduce the risk of flooding by raising the height of defences and constructing new defences on the left and right banks of the River Tame to protect the areas of Bromford and Castle Vale. We will also investigate whether we can remove a small bridge behind Star City shopping centre.

Our proposals will have significant benefits for people and property by reducing the risk of flooding in a flood event with a 1 % probability of occurring in a year for 1239 properties. The option will also ensure that the risk of flooding to Castle Bromwich Hall and Gardens, an important recreational area

and site of a Scheduled Monument, is reduced. To achieve this we intend to raise long sections of flood defences and there will be moderate adverse visual effects and reduced views of the river corridor. The option will also result in negative impacts on the landscape, as the river corridor will be further separated from the adjacent land.

Reach 7: Water Orton, Lea Marston and Kingsbury

Downstream of Birmingham, the River Tame passes through the small settlement of Water Orton. From here the river flows through a series of purification lakes at Lea Marston, which are designed to remove water pollutants that originate from the upper reaches of the catchment. Downstream of these lakes the river flows down towards Kingsbury and this area is characterised by small settlements, former gravel workings and agricultural land.

Our preferred option in this reach is a combination of Option 3 and Option 6. For the majority of the stretch we will maintain the existing defences and continue to carry out channel maintenance in order to maintain the channel flow. We also propose to reduce the risk of flooding in Whitacre Heath by raising a short section of the existing defences.

This option will have moderate positive benefits for biodiversity through ensuring no adverse impact on Whitacre Heath SSSI, a nationally important site for nature conservation. The option will also have major positive effects on archaeological features by ensuring that two Scheduled Monuments are not affected by flooding in a flood event with a 1 % probability of occurring in a year. There will also be moderate positive impacts on landscape as the valuable Tame Washlands landscape is conserved. This combination of options will also have benefits for people and property by reducing the risk of flooding in a flood event with a 1 % probability of occurring in a year for 285 properties.

The main negative impact of the option is that large areas of agricultural land will continue to remain within the floodplain.

Reach 8: Fazeley and Tamworth

Downstream of Kingsbury the River Tame continues to flow through agricultural land and former gravel workings located on the floodplain. The river flows through Fazeley and Tamworth and the river Anker meets the Tame in Tamworth.

In this reach, our preferred option is a combination of Option 3 and Option 6. We will maintain the existing defences and continue to carry out channel maintenance in order to maintain the channel flow. Proposed localised improvements comprise raising existing sections of defences on the left bank of the River Tame in the vicinity of the Mayfair Drive area of Fazeley and Coton Lane and Lichfield Road, in Tamworth.

This option will have major positive benefits for biodiversity through ensuring no adverse impact on Middleton Pool SSSI, a nationally important site for nature conservation. There will be major positive effects on archaeological features by ensuring that four Scheduled Monuments are not affected by flooding in a flood event with a 1 % probability of occurring in a year. The options will also have benefits for people and property by reducing the risk of flooding in a flood event with a 1 % probability of occurring in a year, for 299 properties.

The main negative impact of the proposed option is that large areas of agricultural land will continue to remain within the floodplain.

Reach 9: Comberford to Alrewas

Downstream of Tamworth, the river flows through a largely rural landscape with wide floodplains. The small settlements of Comberford and Elford are located on the right bank and the National Memorial Arboretum is located on the left bank immediately upstream of the confluence of the River Tame with the River Trent.

Our preferred option in this reach is Option 3. There are no existing defences in this reach, but we will continue to carry out channel maintenance in order to prevent any restrictions to flow.

This option will have major positive impacts on landscape, through ensuring that the valuable Tame Washlands landscape, with the river in continuity with its floodplain, is conserved. The valuable natural geomorphology of the river will also be conserved with this option. However under this option there will be a major negative impact as large areas of the National Memorial Arboretum and a number of scheduled monuments will continue to be in the floodplain. There will also be a minor increase in the numbers of properties at risk from flooding in a flood event with a 1 % probability of occurring in a year. 5 properties that do not flood at the moment will flood in the future. We will be undertaking measures such as individual properties protection to manage this impact. Following the likely impacts of climate change the numbers of properties at risk are predicted to increase by a further 128 properties.

Climate Change

As part of the Strategy we have to take account of the likely impact of climate change on water levels in the River Tame. It is predicted that over time climate change will increase flood water levels and so we are proposing solutions to address these changes. There will be different measures in different locations throughout the catchment and these will include:-

- increasing the heights of existing defences in the future;
- where we are raising or rebuilding defences we will increase the height of the walls and embankments to allow for climate change;

- accepting an increase in the risk of flooding in the future where this is appropriate.

Enhancement Opportunities

We have also identified additional opportunities for environmental enhancements that can be implemented through the Tame Strategy.

The most significant of these are:

- Encouraging future development or re-development to be set back from the river corridor and seeking opportunities at detailed design stage to set existing defences back from the river as they are replaced.
- Creating additional BAP wetland habitat adjacent to the River Tame and Forge Mill lake and improving the habitat at Forge Mill lake, within Sandwell Valley Country Park, in partnership with the RSPB.
- Creating additional wetland habitat at various sites in the mid Tame catchment, in partnership with Birmingham and Black Country and Warwickshire Wildlife Trusts.
- Improving existing BAP habitats and creating additional BAP habitat at Middleton Lakes RSPB reserve in partnership with the RSPB.
- Improving floodplain grassland habitat through control of floodplain grazing in the lower Tame in partnership with Natural England.
- Improving recreational access to the river corridor and improving sections of the Tame Valley Way footpath at various sites in the upper and lower Tame.
- Improving public information and signage for archaeological sites (scheduled monuments and listed buildings) that are located in the vicinity of the River Tame.
- Creating new landscape features e.g. waterbodies in floodplain, as part of mineral restoration plans, through the Central Rivers Initiative Partnership.

These improvements will be linked to the flood risk management projects resulting from the Strategy.

Commenting on the Strategy and Environmental Report

The consultation period for the Strategy and this Environmental Report will take place from 18 May 2009 to 10 August 2009. If you have any comments on the Strategy and the Environmental Report please contact:

River Tame Strategy Consultation
Environment Agency
Olton Court, 10 Warwick Road, Solihull, B92 7HX

E-mail: rivertamestrategy@environment-agency.gov.uk

Tel: 08708 506 506

Would you like to find out more about us, or about your environment?

Then call us on

08708 506 506 (Mon-Fri 8-6)

Weekday Daytime calls cost 8p plus up to 6ppm from BT Weekend Unlimited.
Mobile and other providers' charges may vary.

email

enquiries@environment-agency.gov.uk

or visit our website

www.environment-agency.gov.uk

incident hotline 0800 80 70 60 (24hrs)

floodline 0845 988 1188



Environment first: This publication is printed on paper made from 100 per cent previously used waste. By-products from making the pulp and paper are used for composting and fertiliser, for making cement and for generating energy.