



Report to Economic and Environmental Wellbeing Scrutiny & Policy Development Committee

Report of: Director of City Growth

Subject: Strategic Partnership Approach to Flood Risk Management in Sheffield

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Summary:

This report outlines the strategic partnership approach being taken by the City Council and the Environment Agency to reduce the risk of flooding in Sheffield from its main rivers.

The approach prioritises the provision and operation of capital flood defence infrastructure to protect the city; supported in the long term by upstream flood storage, natural flood management and river stewardship measures.

The report has been requested by the Committee to enable it to scrutinise performance in terms of the strategic approach being taken and the delivery of target standards of protection.

Type of item: The report author should tick the appropriate box

Reviewing of existing policy	
Informing the development of new policy	
Statutory consultation	
Performance / budget monitoring report	
Cabinet request for scrutiny	
Full Council request for scrutiny	
Community Assembly request for scrutiny	
Call-in of Cabinet decision	
Briefing paper for the Scrutiny Committee	X
Other	

The Scrutiny Committee is being asked to:

To provide views, comments and recommendations on the strategic approach being taken to manage the risk of flooding in Sheffield.

Background Papers:

List any background documents (e.g. research studies, reports) used to write the report. Remember that by listing documents people could request a copy.

Category of Report: OPEN

Report of the Director of City Growth – Strategic Partnership Approach to Flood Risk Management in Sheffield

1.0 Introduction/Context

- 1.1 Sheffield's valley communities and some of the city's key assets are at risk of flooding from its main rivers and watercourses. Those risks are forecast to increase over the coming century as the effects of changing weather patterns brought about by climate change take hold.
- 1.2 The City Council and the Environment Agency are working in a strategic partnership with other agencies operating in the city to reduce the risk of flooding in Sheffield primarily through the provision and operation of capital defence infrastructure combined with natural flood management in the uplands above the city.

2.0 South Yorkshire Flooding Event - November 2019

- 2.1 The November 2019 floods highlighted the vulnerability of communities to river flooding across South Yorkshire as well as emphasising the benefits of Sheffield's strategic approach to mitigating flood risk in the city.
- 2.2 The Environment Agency has reported that in terms of river levels, the November event was second only to the 2007 flood event in Sheffield. The preceding 5 months were the wettest since 1891 resulting in saturated soils and full reservoirs in the catchment above Sheffield. In comparison with the 2007 event, however, significantly less properties experienced flooding – 81 number in total. Property flooding was limited to a few locations and was mainly caused by rivers and watercourses overtopping. Across the city, drainage systems were overwhelmed by the intensity of rainfall and washed down debris resulting in 129 roads being flooded with 12 road closures.
- 2.3 The Council's newly built capital flood defences protected property in Sheffield's Don Valley ensuring that flooding was mainly limited to surrounding roads and car parks.
- 2.4 Across the city, clearance and clean up operations took place in the days following the flood event. Large scale evacuations weren't required.
- 2.5 Over the last few months, the City Council has been working closely with South Yorkshire resilience partners and other South Yorkshire local authorities continuing support and arranging financial assistance for affected residents and businesses. A joint initiative led by the Mayoral Assembly and the City Region has brought together all South Yorkshire authorities and the

Environment Agency to develop a countywide flood capital investment submission to Government.

3.0 Protecting Sheffield – a Strategic Partnership Approach

3.1 The investment partnership between the City Council, the Environment Agency and Sheffield City Region is building on the success of the newly built £20 million Lower Don Valley Flood Defence Scheme with further planned investment in capital flood defences scheduled to start construction in summer 2020. This investment will be combined with a targeted approach to natural flood management (NFM) in the uplands above the city.

3.2 The strategic objective is to deliver increasing standards of flood protection in phases as funding sources are identified and become available. Figure 1 on the following page gives a timeline indication of planned phase delivery starting in 2015 with the Lower Don Valley Flood Defence Scheme which was largely funded by Government grant administered through the Environment Agency.

3.3 Phase 1

The Partnership aims to achieve the national target standard of flood protection within all Sheffield's main river valleys by 2025. This standard will give a much reduced likelihood of the city's rivers flooding surrounding areas with the probability of flooding reducing from 10% (1 in 10) in places at present to 1% (1 in 100) in any given year. Future planned measures include traditional defences combined with upstream floodwater storage to slow river flows through the city. The Council has identified sources of investment for this first phase and is actively securing funds and moving to construction in summer 2020.

3.4 Phase 2

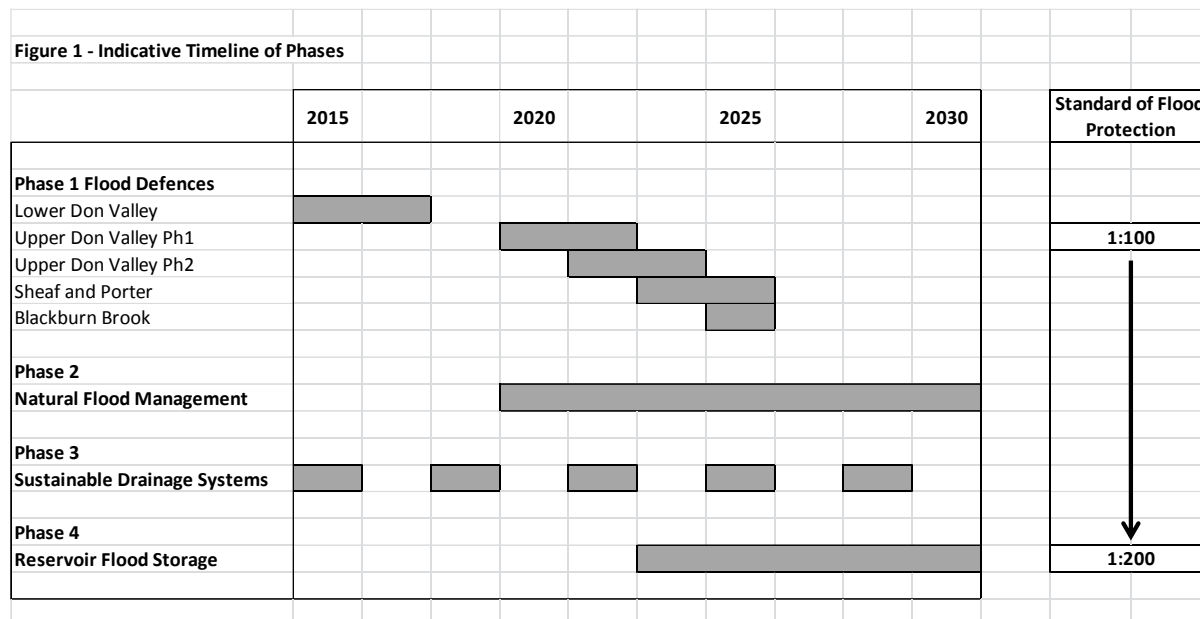
Working alongside flood defence infrastructure, suitable NFM measures are being targeted within upland areas where they will deliver optimum flood risk benefit to downstream communities. Selected measures will also deliver wider environmental benefits. They include afforestation, peatbog restoration, natural damming of flow, floodplain reconnection and land management. The Council is working with its partners to identify NFM funding and deliver NFM measures.

3.5 Phase 3

Working in partnership with Yorkshire Water and housing developers to build natural and sustainable urban drainage systems (SuDS) to reduce pressures on overloaded conventional drainage and sewerage systems reducing the risk of localised surface water and sewer flooding. Innovative pilot strategic SuDS schemes are in operation serving new housing estates across a combined area of some 50 hectares at Manor and Parsons Cross districts.

3.6 Phase 4

By 2030, the City Council aims to further raise the standard of main river flood protection to a higher level that it considers to be suitable for a major core city. The objective is to reduce the risk to a 0.5% (1:200) probability of flooding taking place in any given year. Together with the Environment Agency and Yorkshire Water, the Council is reviewing the potential for storing flood water within upstream compensation reservoirs above the city to deliver this higher standard of protection.



3.7 New Development in Sheffield’s Don and Sheaf Valleys

3.7.1 The City Council’s policy for managing flood risk associated with new development is in accordance with the National Planning Policy Framework. Development is not permitted within areas at risk of flooding or where planned development could transfer flood risk elsewhere.

3.7.2 It is vitally important to Sheffield’s economic and housing growth that prime brownfield sites located within the city’s Don and Sheaf valleys are made available for new development. The Council’s strategic approach, described in this report, is to protect those areas by the provision of catchment-wide capital flood infrastructure that will enable those brownfield sites to be developed without transferring flood risk elsewhere.

4.0 Capital Scheme Delivery and Funding

- 4.1 Building on the completion of the £20 million Lower Don Valley Flood Defence Scheme in 2018, the Council has secured a further £12 million of funding for capital schemes starting construction in 2019 and 2020. Those schemes include the first stage of the Upper Don Valley Flood Protection Scheme (Loxley defences) protecting parts of Hillsborough and Owlerton that flooded in November. A major watercourse culvert renovation and renewal scheme across the city started on site in 2019.
- 4.2 In 2019, the Council submitted a business case to Government for a second stage £14 million Upper Don Valley scheme at Neepsend and Kelham. A further business case is being prepared for submission to the Environment Agency in 2020 for a scheme to protect the Sheaf and Porter valleys.
- 4.3 The Council has appointed a dedicated Natural Flood and Water Management Co-ordinator working within the Flood and Water Management team. Together with the Environment Agency, this new role is bringing together all partner agencies with expertise of delivering in this area to appraise and co-ordinate the delivery of NFM projects as part of a Sheffield NFM Delivery Group. This work will continue over the long term with the aim to slow storm flows emanating in the uplands and reduce the adverse impact of climate change over the coming century. NFM feasibility studies are underway funded by Defra grant.

5.0 Long Term Management and Planning

5.1 River Stewardship

- 5.1.1 Good stewardship is essential to keep rivers free flowing reducing the risk of debris build up at bridges and culverts that can cause blockage and exacerbate flooding. Since 2007, the Environment Agency has undertaken regular main river channel maintenance activities in Sheffield clearing vegetation, invasive species and silt deposits.
- 5.1.2 In 2019, the Environment Agency appointed the River Stewardship Company to carry out an annual programme of river channel maintenance and stewardship work in Sheffield's lower Don Valley. This work is being funded by the Environment Agency and key riparian owners in the lower Don Valley including the City Council. Proposals are to extend these arrangements to other areas of the city as the capital programme develops.

5.2 Emergency Response

- 5.2.1 In 2018, the Council appointed Amey LG to undertake the maintenance and emergency operation of the newly built flood defences in the lower Don Valley for an initial period of 6 years.
- 5.2.2 The Council is working in partnership with the Environment Agency to provide advice and support to vulnerable communities including registering

households and businesses to receive flood warnings and how to plan for what to do when a warning is issued.

6.0 What does this mean for the people of Sheffield?

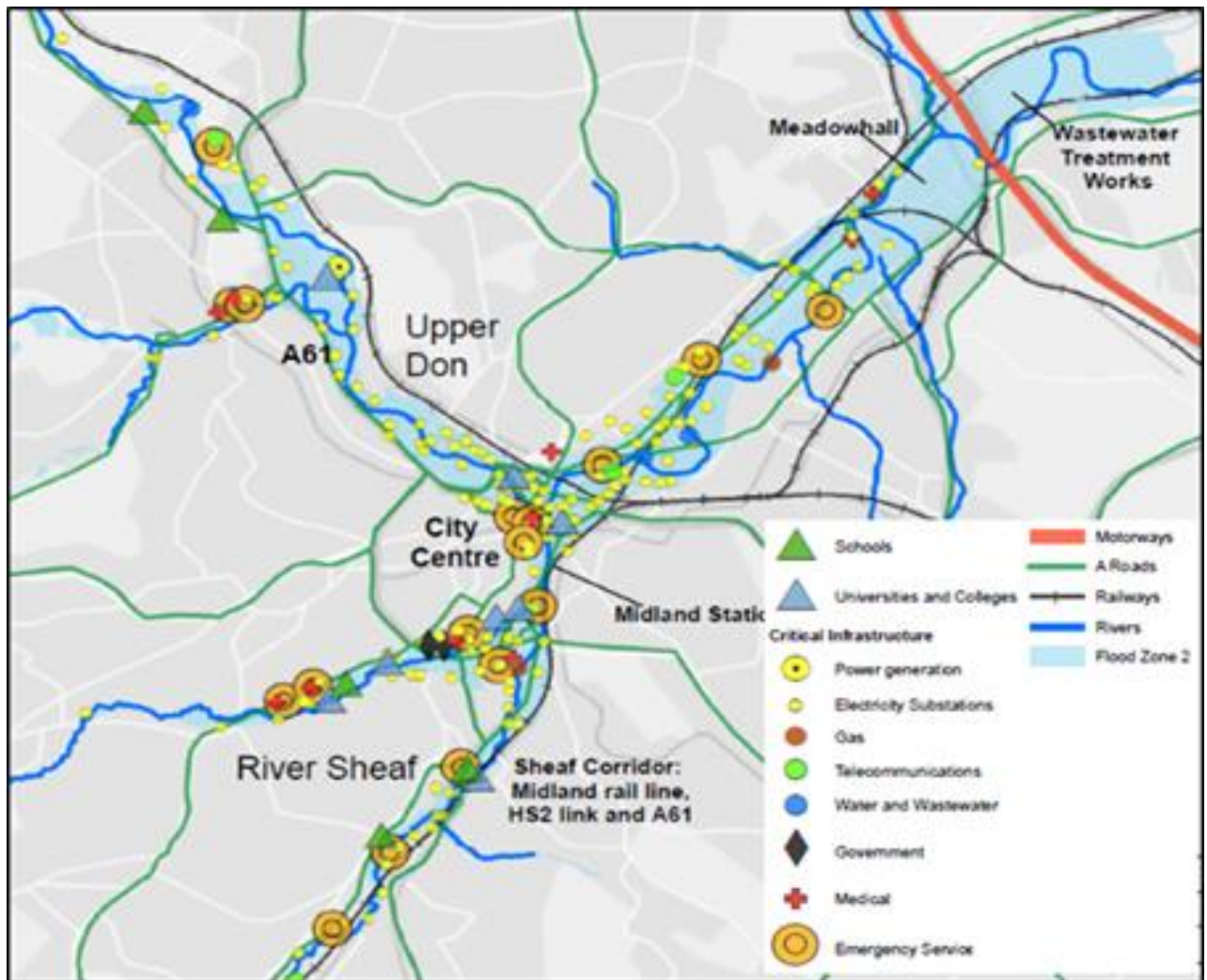
- 6.1 The Partnership's strategic approach with a primary focus on capital infrastructure investment will mean that the risk of main river flooding to Sheffield communities is significantly reduced.
- 6.2 The Council's commissioned assessment (Table 1) outlines that without future capital investment at the year 2080 - 4,001 households and 1,341 businesses will be at risk of flooding in the Upper Don and Sheaf river valleys alone resulting in potential damages of £317 million. Critical utility apparatus and transport infrastructure will become increasingly vulnerable with potential for major disruption to travel and essential services (Figure 2).

Table 1 – Flood Risk in Sheffield's Upper Don and Sheaf Valleys without further capital investment taking place

Upper Don Valley			
Current		Potential in future (beyond 2079)	
Residential properties:	1,245	Residential properties:	2,081
Commercial properties:	760 (402,000m2)	Commercial properties:	852 (490,000m2)
Key infrastructure assets:	A61 Penistone Rd 45 Electricity sub-stations 2 health centres 1 pump house 1 telecoms point	Key infrastructure assets:	A61 Penistone Road 54 Electricity sub-stations 3 health centres 1 pump house 1 telecoms point.
Area of potential development sites affected:	45ha	Area of potential development sites affected:	46ha

Sheaf Catchment			
Current		Potential in future (beyond 2079)	
Residential properties:	1,187	Residential properties:	1,920
Commercial properties:	329 (143,000m2)	Commercial properties:	489 (195,000m2)
Key infrastructure assets:	Midlands station & railway line A61 ring road 16 electricity sub-stations 1 Fire station 1 Police station 2 Health centres 1 Local gov't. office	Key infrastructure assets:	Midlands station & railway line A61 ring road 22 electricity sub-stations 1 Fire station 1 Police station 2 Health centres 1 Local gov't office
Area of potential development sites affected:	12.9 ha	Area of potential development sites affected:	14.1 ha

Figure 2 – Critical Utility Apparatus and Transport Infrastructure in the Flood Plain



7.0 Recommendation

7.1 The Committee is asked to provide views, comments and recommendations on the strategic approach being taken to manage the risk of flooding in Sheffield.