

# Bristol Local Flood Risk Management Strategy



21-Feb Scrutiny

(above: River Avon overtopping into Floating Harbour during Jan-14 surge)



# Citywide Flood Strategy

- First published in 2014, formal update in 2017
- Delivery plan with specific actions
- Covers all activities from large flood schemes to emergency response
- Strong partnership working
- Raise awareness of wider resilience



# Summary of Work Completed

## Flood Risk Management in Bristol

**Avonmouth Sevenside Enterprise Area (ASEA) Ecology Mitigation and Flood Defence Project**

**Flood storage basin in Southmead**

**Embleton Road SuDS Southmead**

**Dorian Road drainage improvements**

**Station Lane drainage improvements**

**Easton Cycle Way infiltration basin**

**Easton show home rain garden**

**Brislington Brook retaining wall repair**

**River Avon Tidal Flood Risk Management Strategy**

**New flood defence wall at Cumberland Road**

**Flood proof fencing in south Bristol**

**Reducing Flood Risk**

Since the inception of the Local Flood Risk Management Strategy in November 2014 we have reduced the risk of flooding to an estimated 220 homes.

Recent works undertaken are demonstrated in the map adjacent.

This has included making a number of improvements to river control structures to reduce the risk of flooding, for example in Victory Park, Brislington and Trevisa Grove, Brentry.

We have also worked in conjunction with partners and the community to proactively manage and respond to a number of weather warnings and flood events.

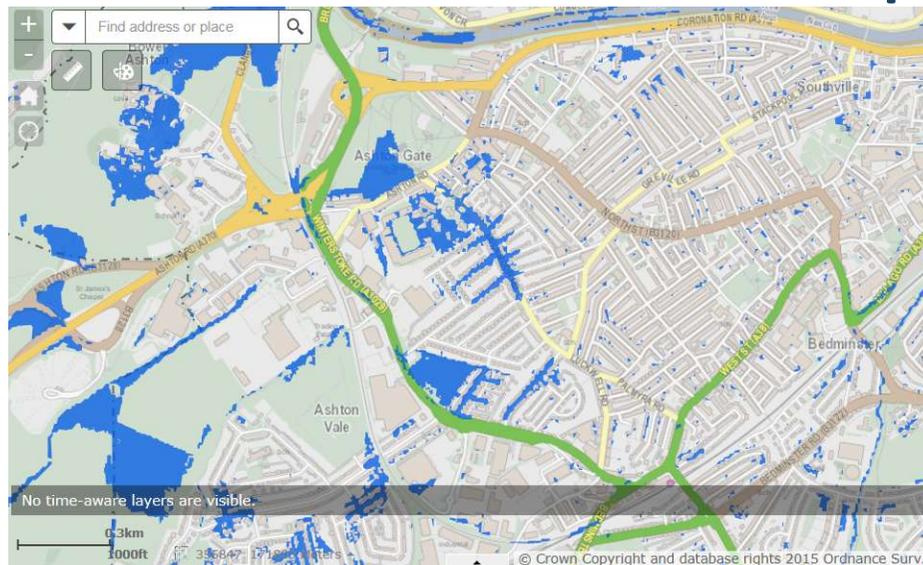
**Contributing towards achieving sustainable development**

The BCCFRM team review planning applications in respect of surface water management and drainage. This helps influence development in the city and reduces its impacts on increasing flood risk. Benefits from this are gained in the following aspects:

- Approximately 250 development proposals have incorporated Sustainable Drainage Systems (SuDS) in their designs
- Nearly 200 have made a reduction in existing surface water run off rates
- Over 150 have made water quality improvements

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[www.bristol.gov.uk/signup](http://www.bristol.gov.uk/signup)

# Surface Water Flooding – A Natural Streets Approach



- Mayor and One City Plan support
- Wider benefits – traffic calming, biodiversity



# River Avon Flood Risk Management Strategy

## Objective 1

### National objective:

- Understand the Risk

### Local objective:

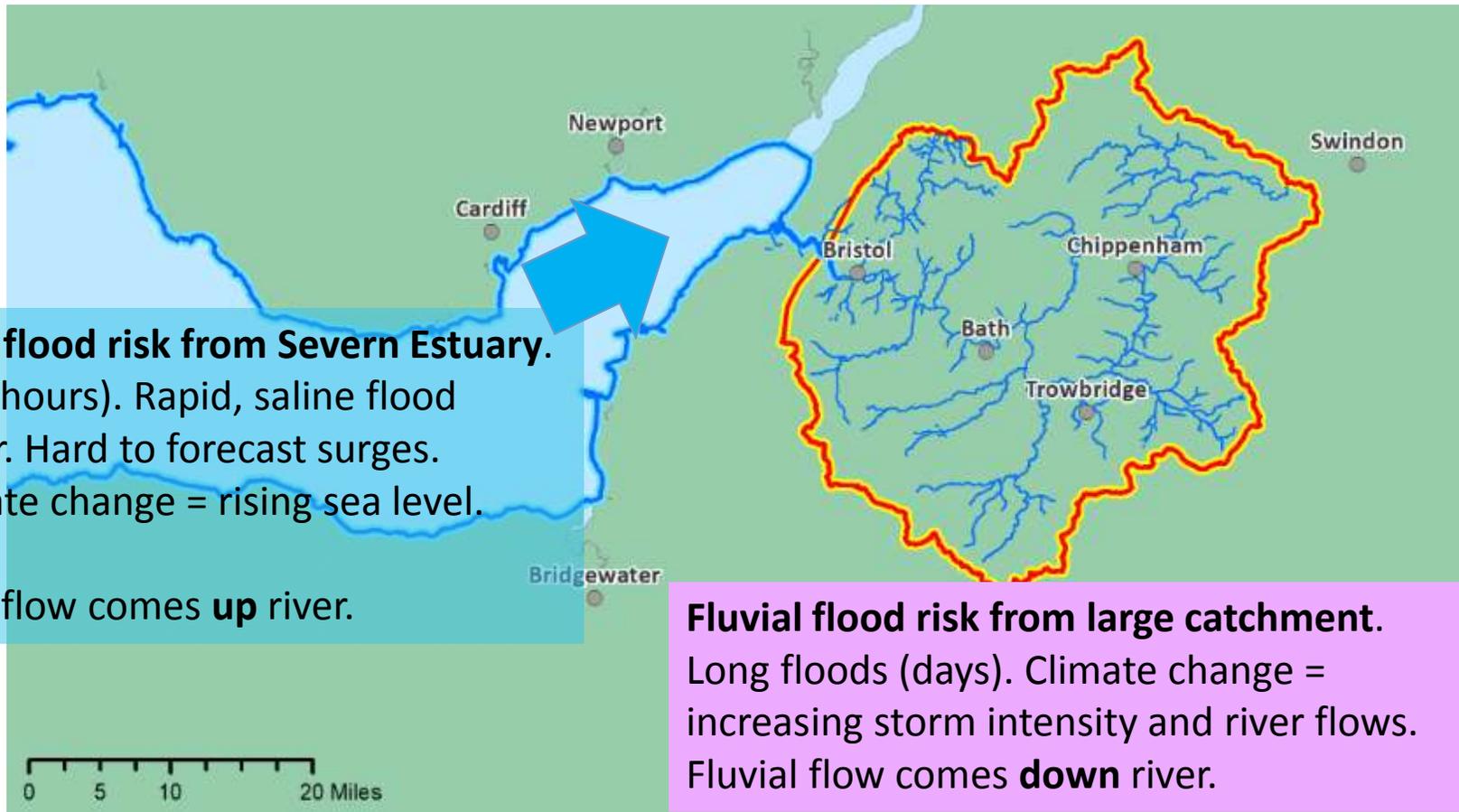
- Gain a greater understanding of the flood risks posed to Bristol and its people and places

Action No.	Action Name	Short term 2016 - 2018	Medium term 2018 - 2022	Long term 2022 onward
1.1	Complete SWMP update including Ashton surface water flood risk study			
1.2	Complete River Avon Tidal Flood Risk Management Strategy			

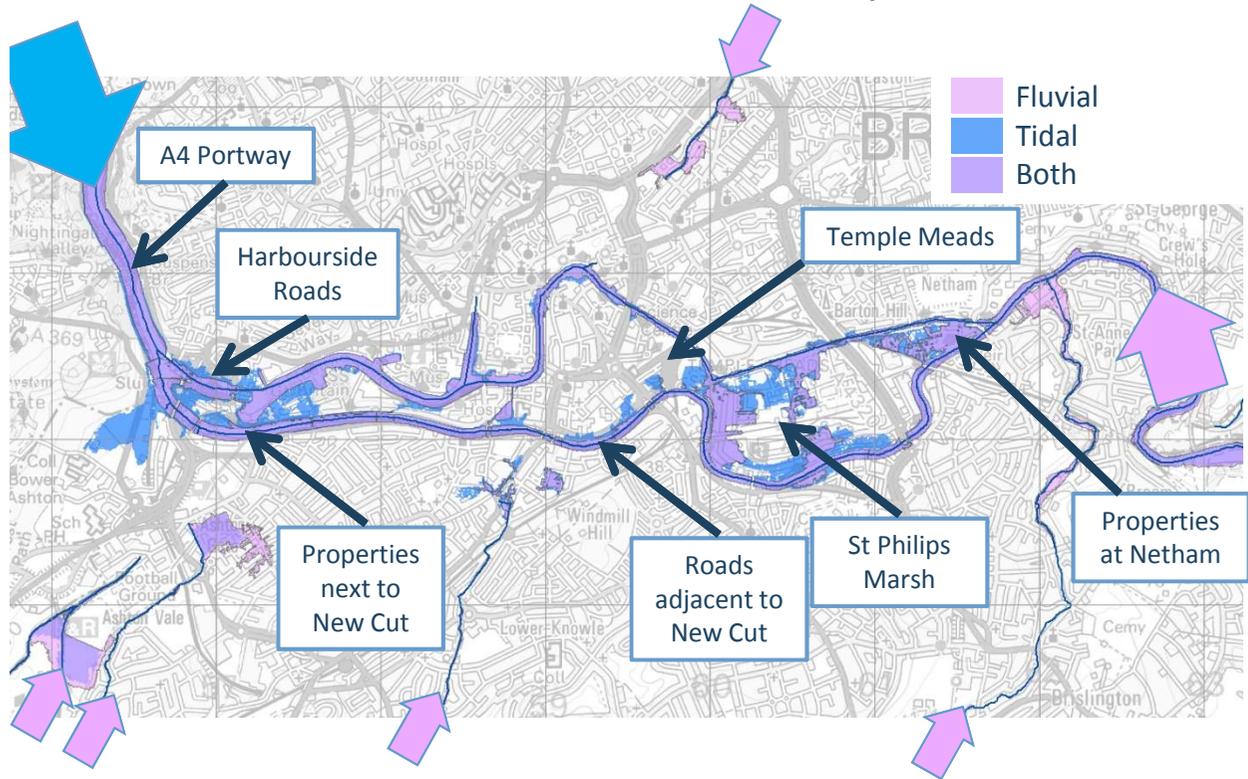
# Timeline

	Workstream	Cost/ funder	Decisions
2010 to 2013	Flood risk in central area of Bristol assessed.	£0.3M EA	Study endorsed by EA and informs UK flood mapping
2013	Pre-feasibility study to recommend way forward	£73k BCC	Jul-14 Key Decision to make tidal flood strategy
2014 to 2017	Appraised strategic options to manage tidal risk to Bristol – modelling, environmental assessment, outline design and costing.	£0.5M BCC £50k EA	EA and Oct-17 Exec Board supported outcome.
2018 ...	Refine strategy inc. fluvial modelling, consult and maximise wider benefits. To date: refined baseline flood risk modelling.	£0.3M EA £75k BCC	Aug-18 – additional work to explore further options

## Bristol is at risk of two sources of flooding from the River Avon



# What could a flood be like, tomorrow?



- 1,000 homes & businesses at tidal risk today (assumes harbour flood gates closed).
- Hazardous fast/deep flood water is a risk to life.
- Overtopping directly from river and also from harbour.
- Lasting, widespread impact. Contaminated water will damage property, disrupt firms & sever road network.
- West of Temple Meads predominantly tidal risk. East of TM risk more fluvial.

## Examples: 1968 fluvial floods



Marksbury Road, Bedminster - Bristol Floods 1968

Photo: David Dallimore

heavy rainfall  
7 people killed  
805 homes flooded



Somermead, Bedminster - Bristol Floods 1968

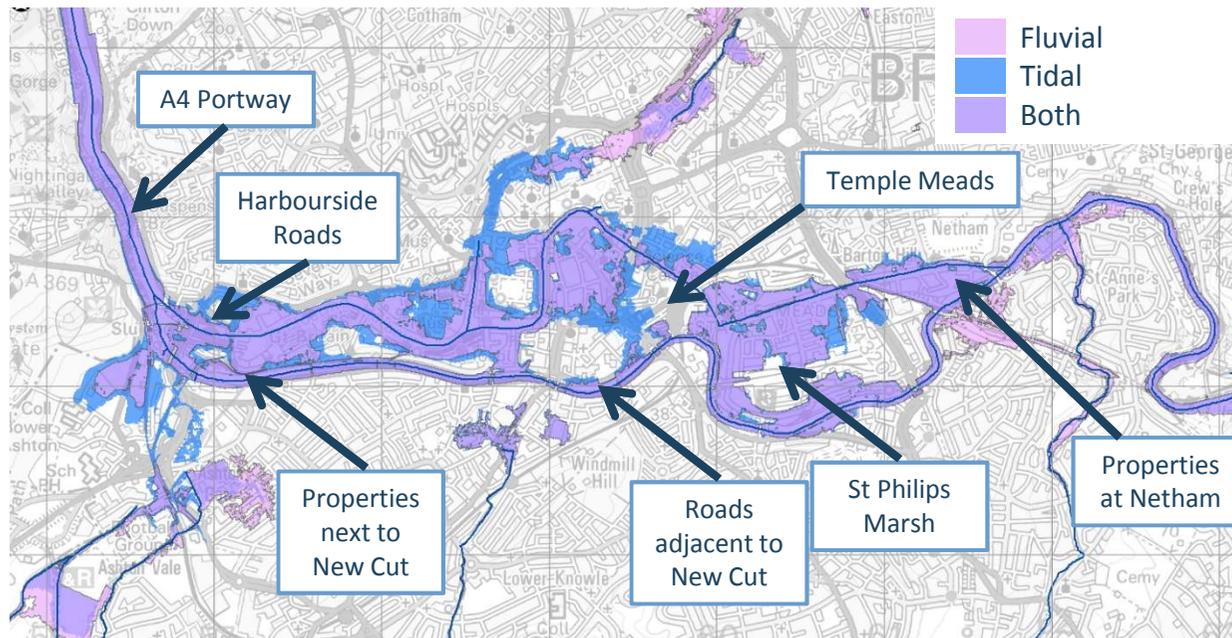
Photo: David Dallimore

- High tide with minor surge (+0.8m).
- Flood barrier used.
- Flooded roads & several harbourside properties.
- Damaged river walls.
- Peak levels 0.1m lower than Dec-1981.

## Jan 2014 tidal near-miss



## Threat increases significantly with continuing sea level rise



2,300 homes & 1,350 businesses (existing) at tidal risk by 2115

£1.6bn flood damage to UK over 100years

Impact on local economy ~£4bn due to commerce, tourism & planned development.

New developments must prove safe from flooding (with climate change) and not increase risk to others.

## River Avon flood strategy objectives

- Support the safe living, working and travelling in and around central Bristol by ensuring **flood threat is reduced** and measures address residual risks.
- **Facilitate sustainable growth** of Bristol and West of England by supporting opportunities for employment and residential land, and infrastructure.
- Maintain, and where possible enhance, natural, historic, visual and built **environment**.
- Ensure **navigation** of river and marine activities continue.
- Ensure strategy **technically feasible** and deliverable (including value for money).



## Measures discounted (infeasible)

- Enhancing harbour operation
- Holding back upstream river flow
- Increasing river capacity by dredging, constructing a flood relief channel / tunnel.
- Do-nothing

## Measures discounted (significant challenges and dis-benefits):

- Property-level resilience measures
- Tidal barrage
- Area mitigation



# Measures under further consideration as part of strategy

- Tidal barrier
- Riverfront defences and public realm



# Discussion