Havering
LONDON BOROUGH

Flooding in Havering summer 2021

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FLOOD RISK

- Areas within Havering by nature of its location and topography are at risk from flooding.
- The borough has been affected at different times in the past by major flooding events, however the frequency of these events is now very apparent

- Tidal / coastal – River Thames

- Fluvial – rivers and watercourses

- Pluvial – surface water especially in urban environments

- Ground water / land drainage

RECENT EVENTS

- August 2016
- August 2020
- June 2021
- July 2021

- These were all surface water flooding events which were a mixture of both pluvial and fluvial sources.

WHAT HAPPENS WHEN IT RAINS?

- **The journey to a watercourse.**
- There are a number of rivers and tributaries across the borough which generally flow north to south towards the Thames

- They are defined typically by raised areas either side to create river valleys, this then defines catchment areas for these watercourses.

- Over the years development and urbanisation has presented barriers to the natural gravitational flow, necessitating provision of pipes below the ground to redirect flows. The fact that most of the drainage in Havering is separate as opposed to a combined system would suggest it was built from 1930s

WHAT HAPPENS WHEN IT RAINS?

- Design codes at that time would have used a 30 year return period as the basis for determining capacity and respective pipe sizes. It would have been based on empirical data available at the time, in effect the system would be able to convey all surface water during a 1 in 30 year rainfall event. In addition to this highway designs, would have allowed for some additional storage capacity (attenuation) on the carriageway and footway.

- In past 20 years these rainfall events have become more frequent and in some cases more intense across the UK.
- Surface water will enter the drainage system initially through highway drainage – gulley grates and connections to Thames Water surface water sewer, these then discharge into watercourses and then back into sewer system. There are many factors which influence any flooding event, the primary one is water not being able to drain away and then finding an alternative path.

SURFACE WATER FLOODING

- Reasons for surface water unable to drain away –
  - blockage – gulley pot, connection or sewer blocked
  - surcharged (no capacity)
- This can happen in watercourses as well, rivers and streams will break banks and flood adjoining areas
- Also influenced by tidal locking when discharging in to Thames.

FLOOD RISK MANAGEMENT

- There are a number of flood risk management authorities that are responsible for maintaining respective drainage assets.

- Highway Authority Highway drainage, connections to sewer, culverts and ditches (road side)
- Thames Water Surface water sewer and foul water sewerage systems
- Environment Agency Main rivers (Ingrebourne, Ravensbourne, Rom & Beam) as well as Thames
- Network Rail Sewers which interact with both Thames Water and Highway
- London Underground Sewers which interact with both Thames Water and Highway
- LB Havering Riparian responsibilities as land owner

PARTNERSHIP AND COLLABORATION

- After each flooding event the council in its role as Lead Local Flood authority has to produce a section 19 report to investigate and record what happened. Actions and recommendations are then provided.
- Schemes to reduce risk of flooding can be large civil engineering projects that increase network capacity or provide storage within catchment areas. These can cost £M's based on resources required, e.g. Thames Barrier **plus** all of the riverside protection down stream.
- Before any large alleviation scheme can progress it needs to be modelled and justified by the number of properties that move from high risk to low risk – cost benefit justification.
- This is why authorities should be considering and including Sustainable urban drainage systems (SuDS) in all public realm schemes.

HAVERING SCHEMES AND STUDIES

- Drapers Brookside School FAS – ongoing study
- Havering Park FAS – project not viable
- Rise Park FAS – initial project not viable, working with Thames 21 on natural flood management options
- River Rom – naturalisation project Thames 21 – start autumn 2021
- Spinney Close FAS – completed April 21
- Warren Drive FAS – completed April 21
- Moray Way FAS – in progress, finalising wayleaves complete Autumn 21
- Clovelly Close – finalising design and agreement with TW to connect to sewer
- Rainham Marshes – SSSI – funding bid to EA for additional modelling
- Gulley maintenance and mapping
- Beam Washlands FSA (LBB&D)
- SuDS on highway verges – attenuate and create capacity in existing network
- Property level interventions / resilience – Flood maps on line
- Rainwater harvesting / water butts / permeable paving

HAVERING SCHEMES AND STUDIES

- Gulley maintenance and mapping
- Abbs Cross Lane working with partners to confirm assets
- SuDS on highway verges – attenuate and create capacity in existing network
- Property level interventions / resilience – Flood maps on line

Thank you

Questions