

11^e Conférence internationale

LYON 2023

— L'eau dans la ville | Urban water

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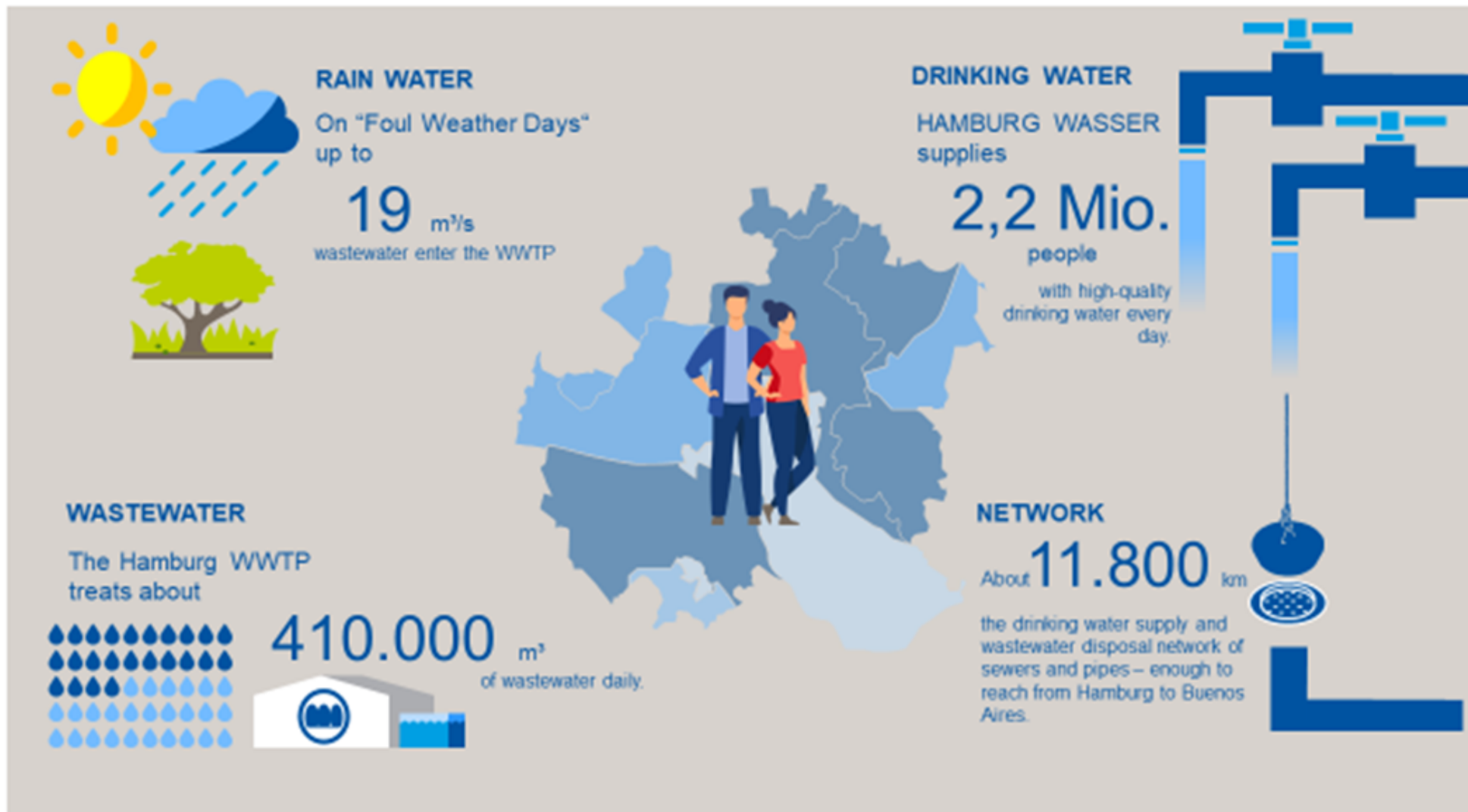
nôvateCH

L'eau dans la ville | Urban water

Multifunctional areas - *one of the solutions for Hamburg (Germany) on the way towards a water sensitive city*

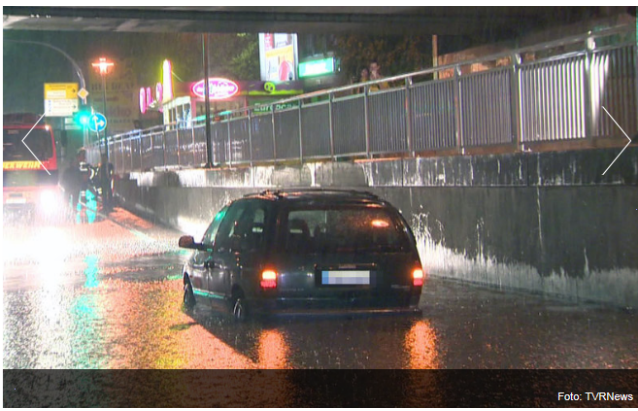
Pascale Rouault, Julia Doering, Andreas Baier, Franziska
Meinzinger

HAMBURG WASSER





Wetterdienst warnt: Starkregen nimmt deutlich zu. Experten sicher: Das ist der Klimawandel



6. Juni 2011: Unwetter in Hamburg



Pictures from 2011, 2013, 2015, 2016, 2018



3 Steps methodology for identification of multifunctional areas for heavy rain prevention

GIS Projet:

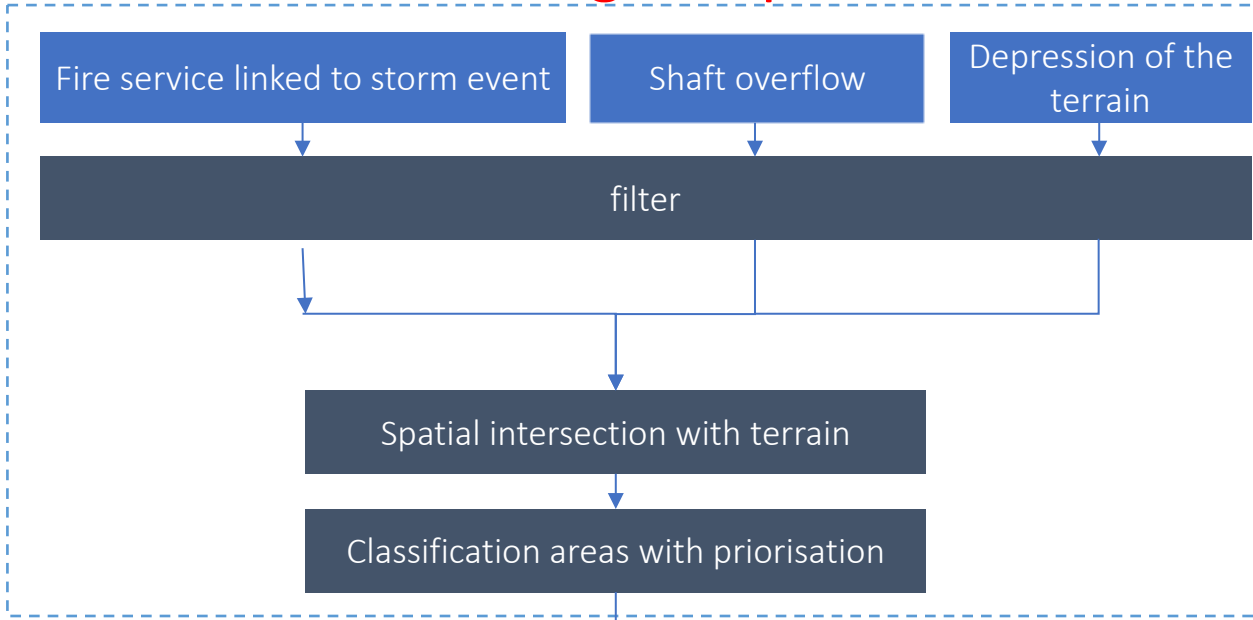
- 1. Identification of **flooding hotspots**
- 2. Identification of **potential multifunctional areas**
- 3. Linkage of both information

Information to be considered by urban development processes

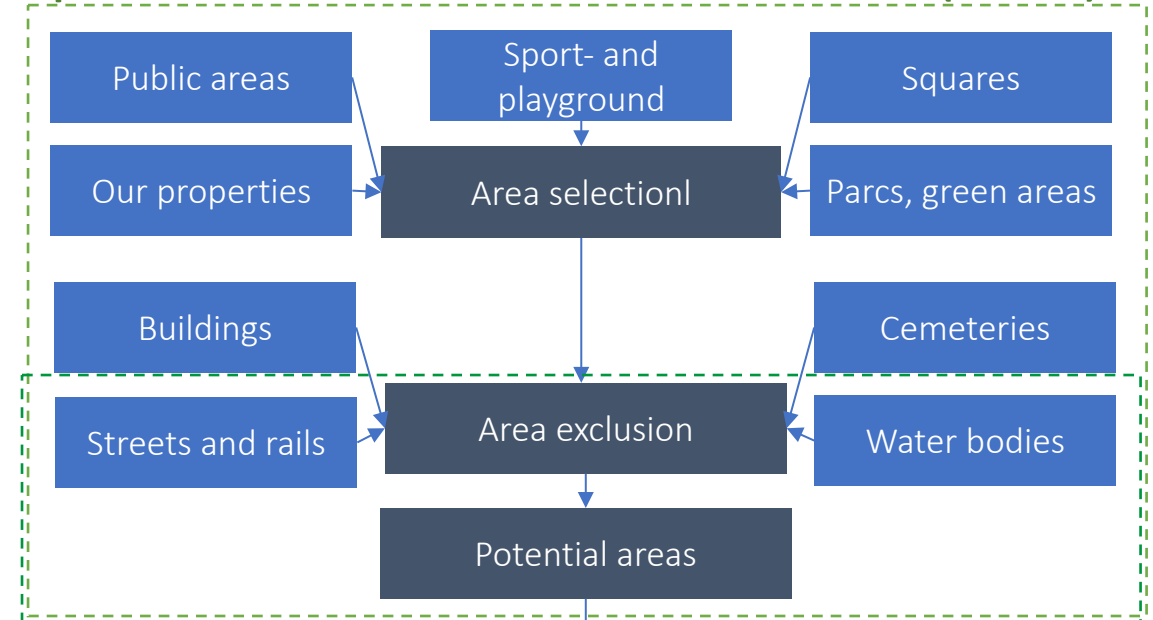


GIS Project

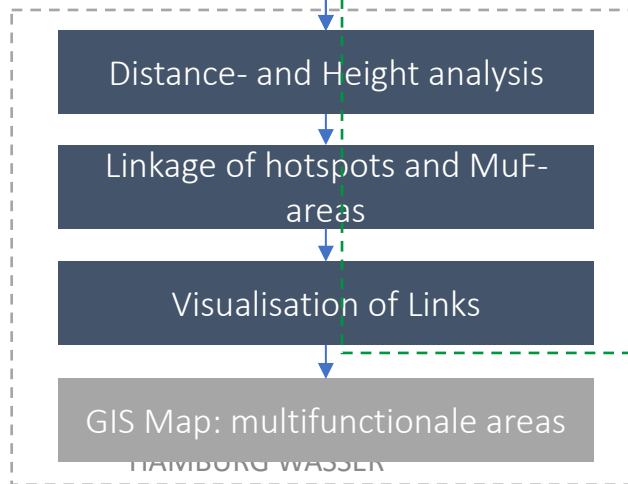
flooding hotspots



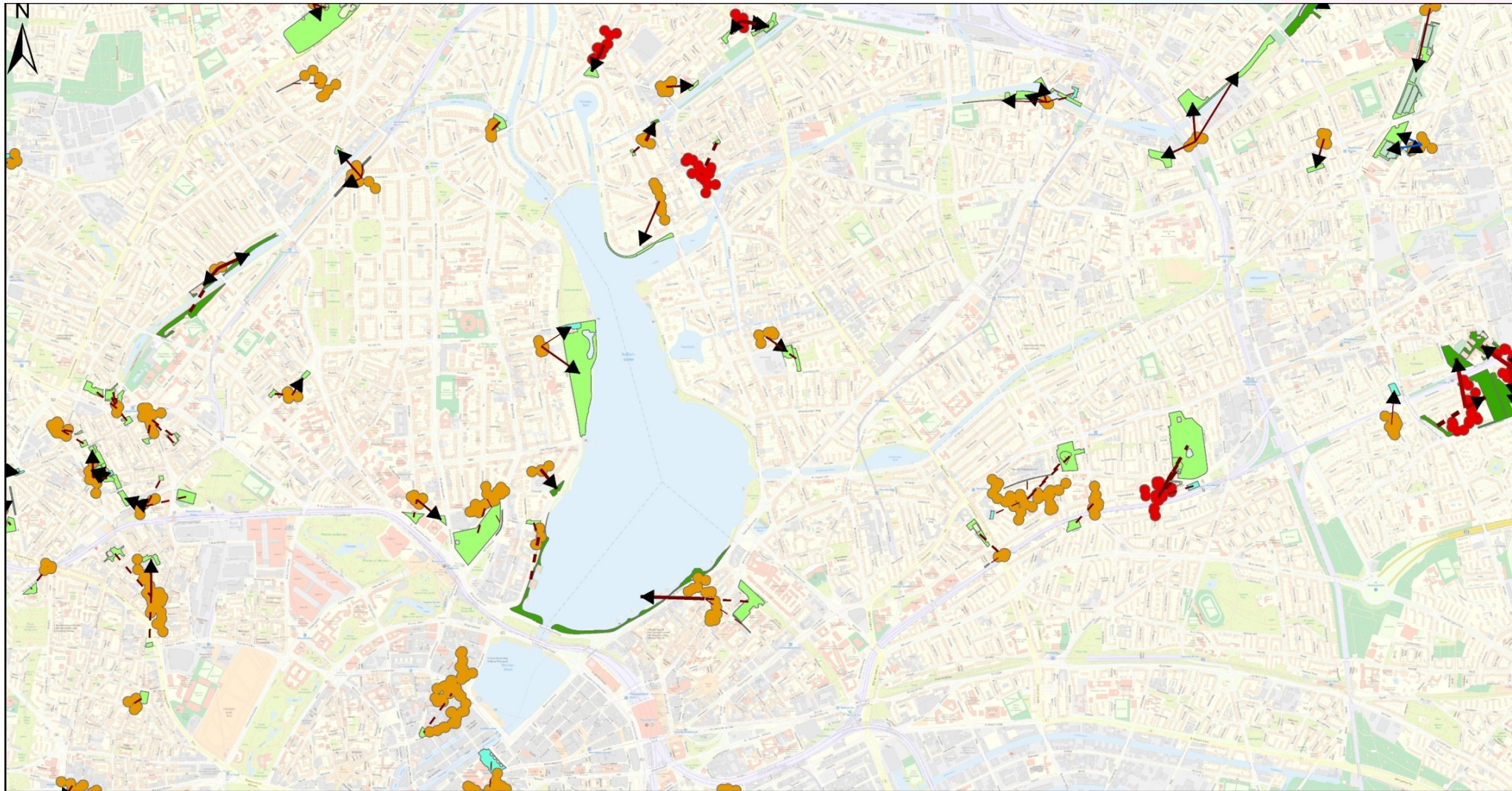
potential multifunctional areas (MuF)



Linkage



~ 270 Projects identified



Legende

potmuF

- gering
- mäßig
- hoch

ÜSP

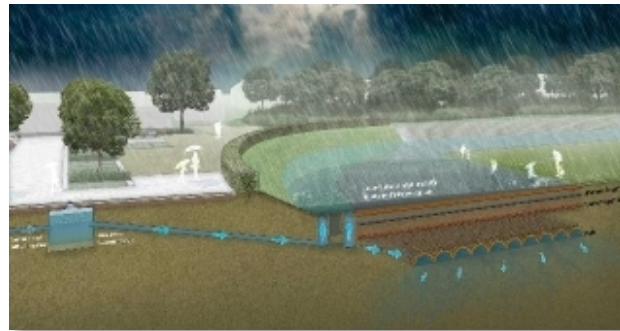
- gering
- mäßig
- hoch

Part of the GIS map: multifunctional areas (Methodology: max. distance 100 m)

Project Examples: Flood protection by multifunctional use of areas



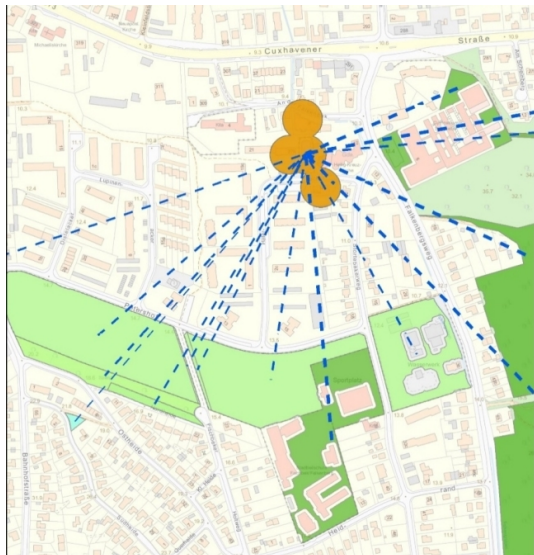
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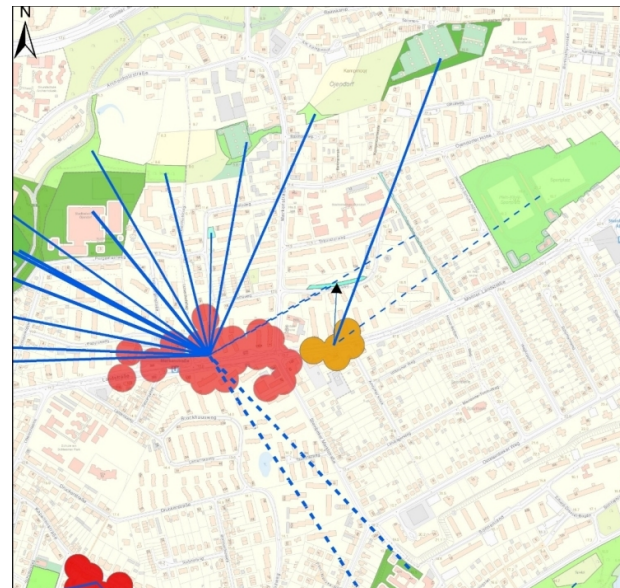
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A sports facility (2020)

- Regular flooding of a subway station
- No authorization for higher discharge into the receiving water (small river)
- Looking for opportunities for surface disconnection or unsealing
- A sport facility identified as a part of the solution



A sports facility (2020)

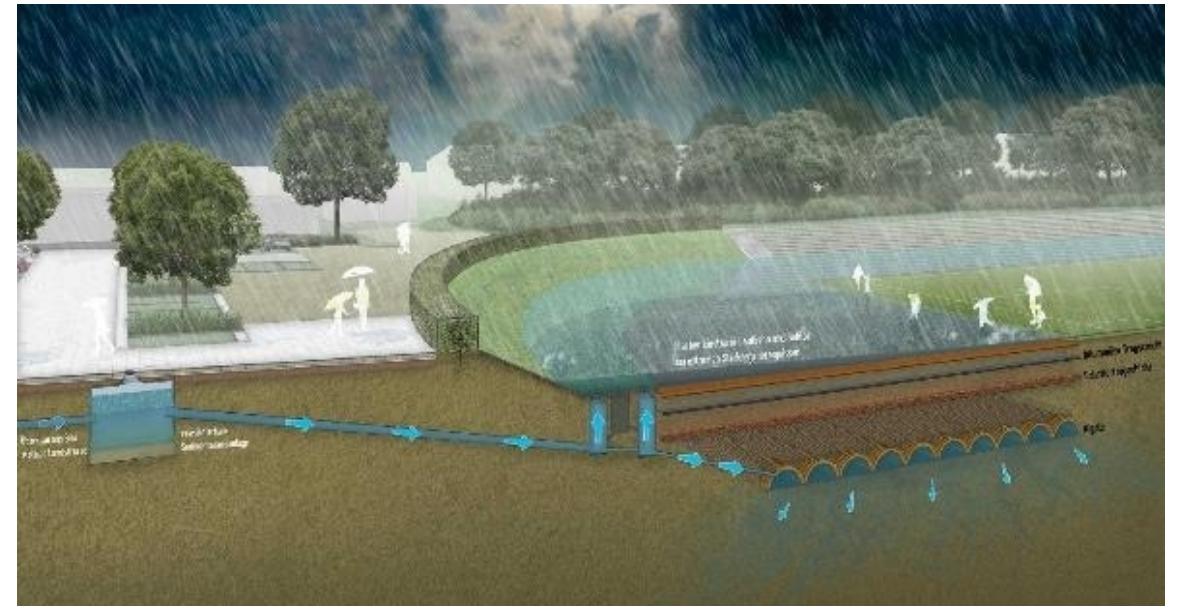


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A sports facility

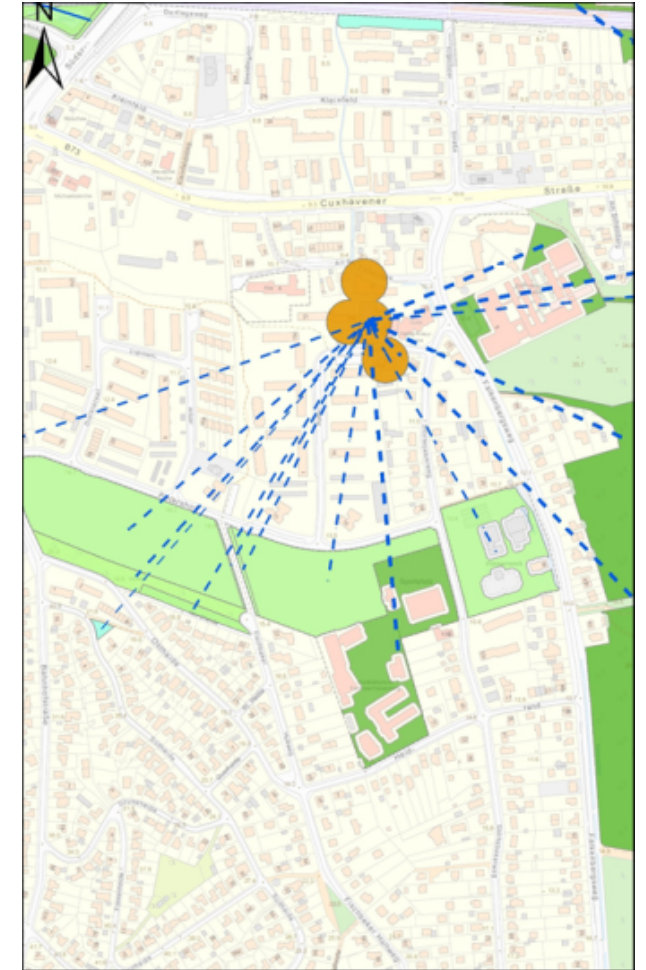
- First treatment for solids/ suspended and floating matters
- Infiltration ditch with 500 m³ retention volumina
- Discharge through infiltration
- Further volumina for stronger rain events at sports facility surface
- Events 2 times / year



© Naumann Landschaft

Children's Playground

- Regular flooding of a school close to the playground
- No possibility to extend the stormwater retention basin
- Idea: Combination infiltration trench and Playground as temporary flooding area



Children's Playground construction



© Hamburg Wasser

Infiltration trench



© Hamburg Wasser

Flooding area

Playground Before and after construction



© Hamburg Wasser

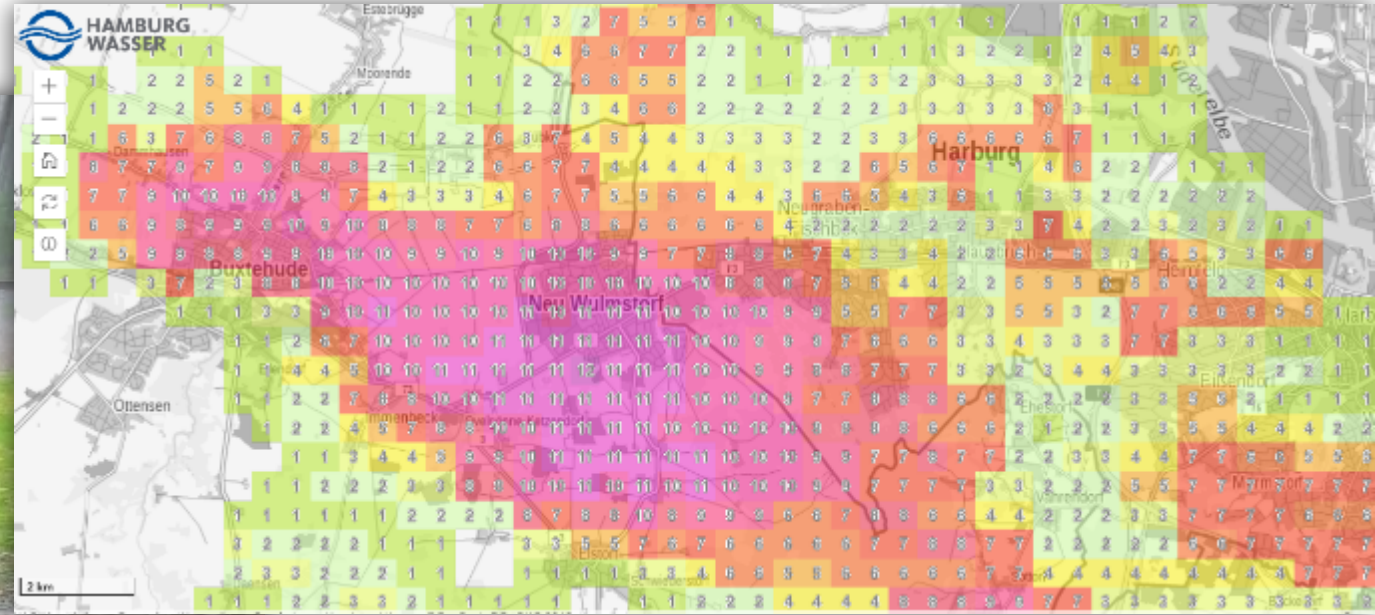


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Rain event 18. of June 2020



Source: Wolkenhauer (local resident)



Source: Hamburg Wasser

Public Parc

- Frequent flooding of street and underground parking in the past
- Idea: Emergency flow path for drainage from street surface to public park
- Additional retention volume in the park: 330m²
- Construction 2016
- Water can infiltrate without causing damages



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Implementation of multifunctional use



© Hamburg Wasser



Park after completion in 2016



Source: HAMBURG WASSER



Source: LGV

Take home messages

- GIS methodology is good for first screening of multifunctional areas
- Demonstrations for implementation was successful
- Important to clear responsibilities for and after the construction
- Important to know the interesting spots and identify the opportunity for a project / an implementation
- Hamburg intends to develop a city wide strategy for implementation of multifunctional areas

Thank you!

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