



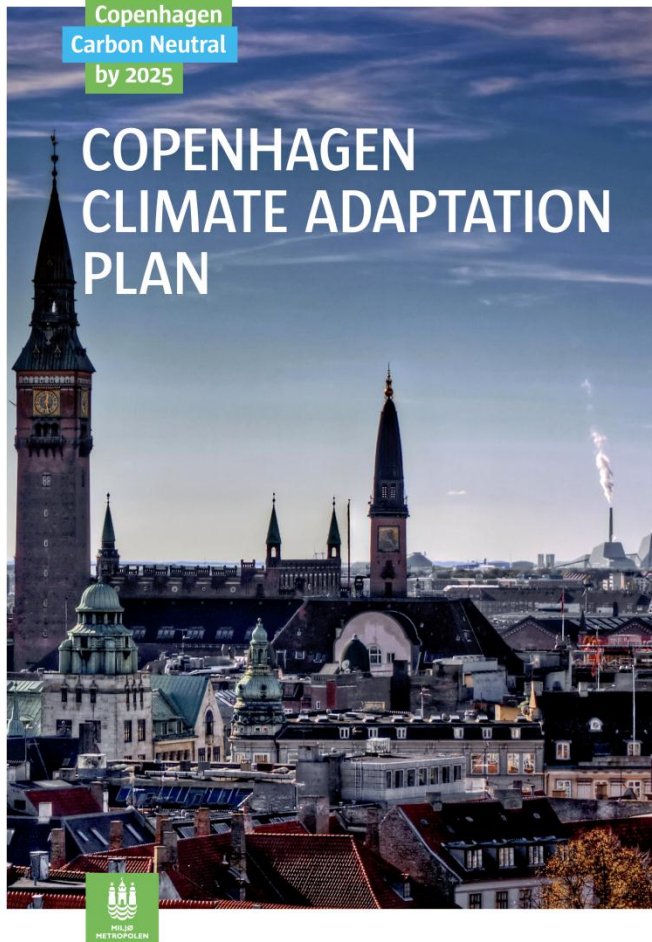
THE IMPLEMENTATION OF THE COPENHAGEN CLOUDBURST MANAGEMENT PLAN

COPENHAGEN CLIMATE ADAPTATION PLAN



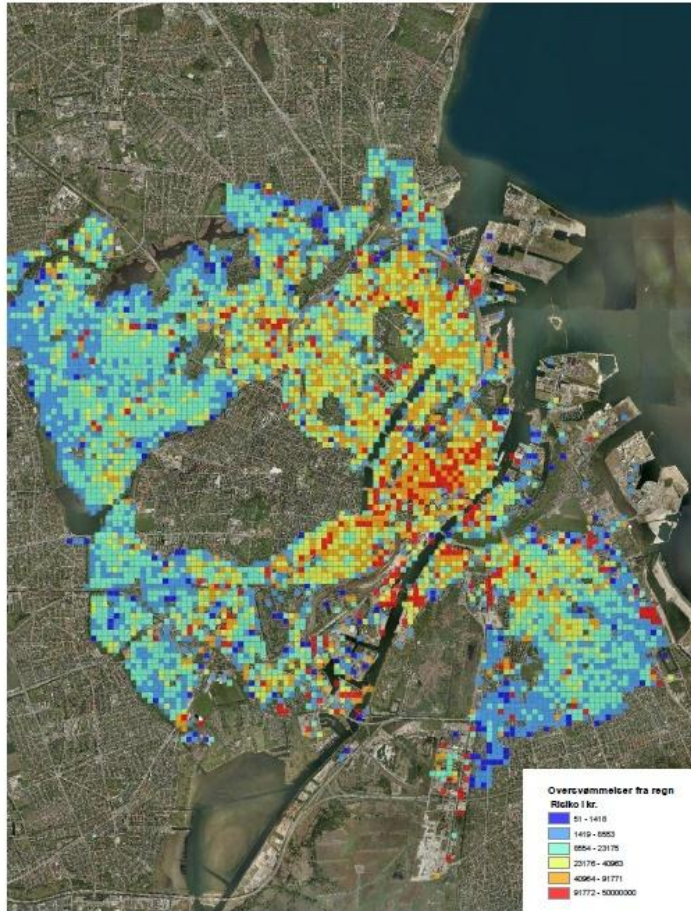
- Plan produced between 2009-10
- Approved by the City Council the 25. august 2011
- Identification of threats (rain, rising sea levels, heat)
- Determines an overall strategy and points to solutions - not just problem solving - also improving the life quality of the citizens
- We are now in the process of implementing
- www.kk.dk/english

CLIMATE ADAPTATION PLAN - AND CLOUDBURST MANAGEMENT PLAN

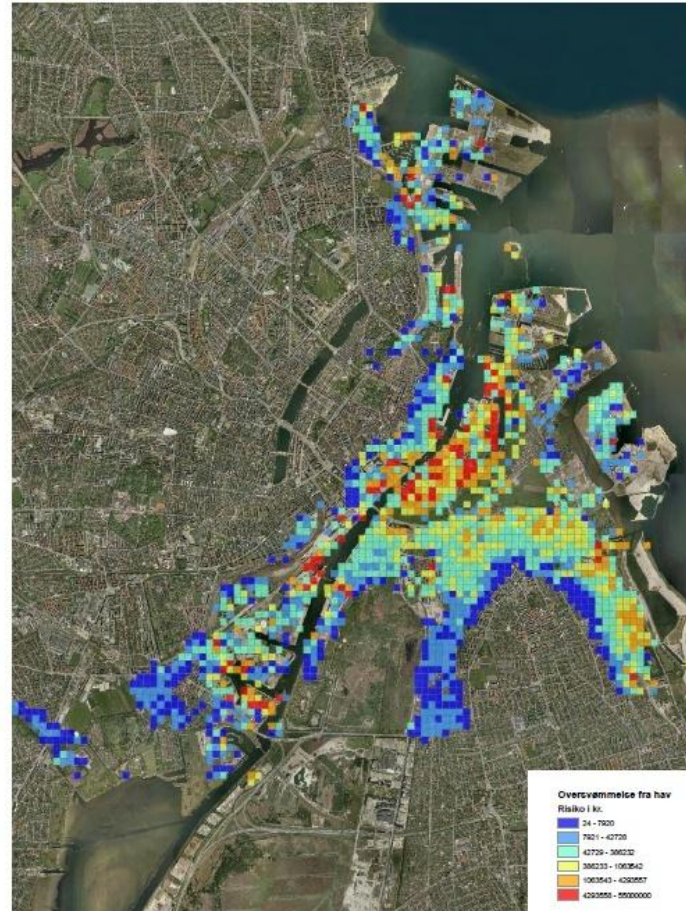


SHARING
COPENHAGEN 2014

RISK MAPPING



Risk map for flooding caused by rain in 2110



Risk map for storm surges from the sea in 2110

A GREEN AND BLUE CITY - ADAPTED TO A FUTURE CLIMATE = MORE QUALITY OF LIFE

- Adaptation is not just a negative measure
- We can increase the recreational area and create more quality of life for copenhageners
- We can help make copenhageners more healthy
- We can create synergy with other planning
- We can increase biodiversity.



THE GAME CHANGER - JULY 2ND 2011



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JULY 2011 - DAMAGES

- More than 150 mm rain within 2 hours
- Damages more than 1 billion dollars - just in insurance claims
- Damage to critical infrastructure
- Hospitals minutes from evacuation
- Emergency services threatened

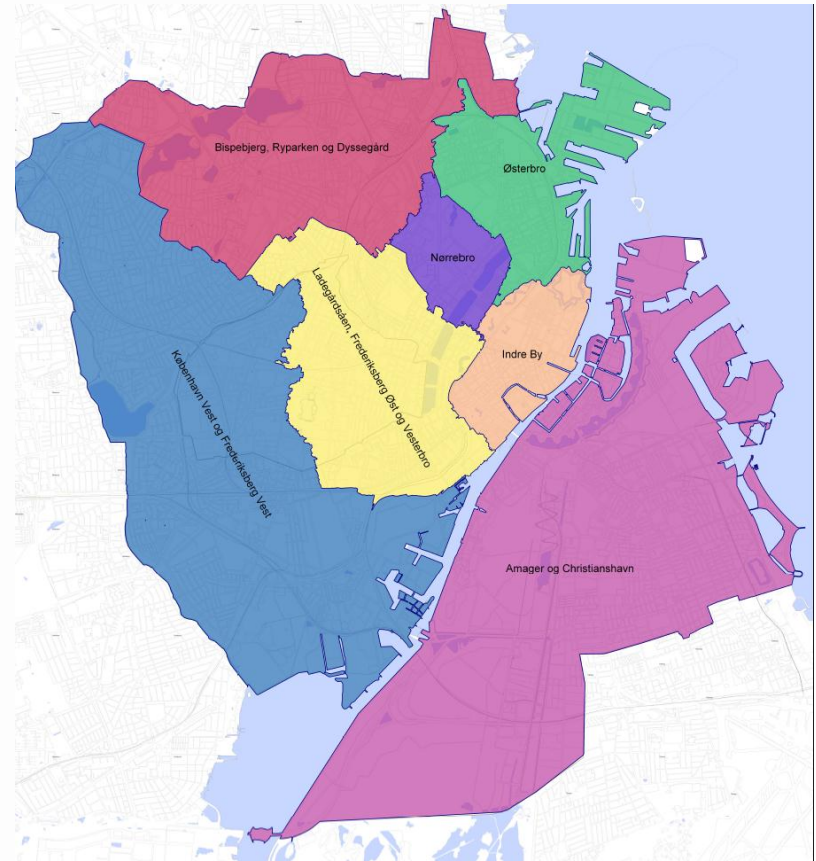


THE GAME CHANGER

- High political attention (nationally and local)
- More speed - and to hell with uncertainties
- Cloudburst Management Plan - new service level - planning for 100 year event
- Change in legislation - new finance mechanisms to enable surface solutions



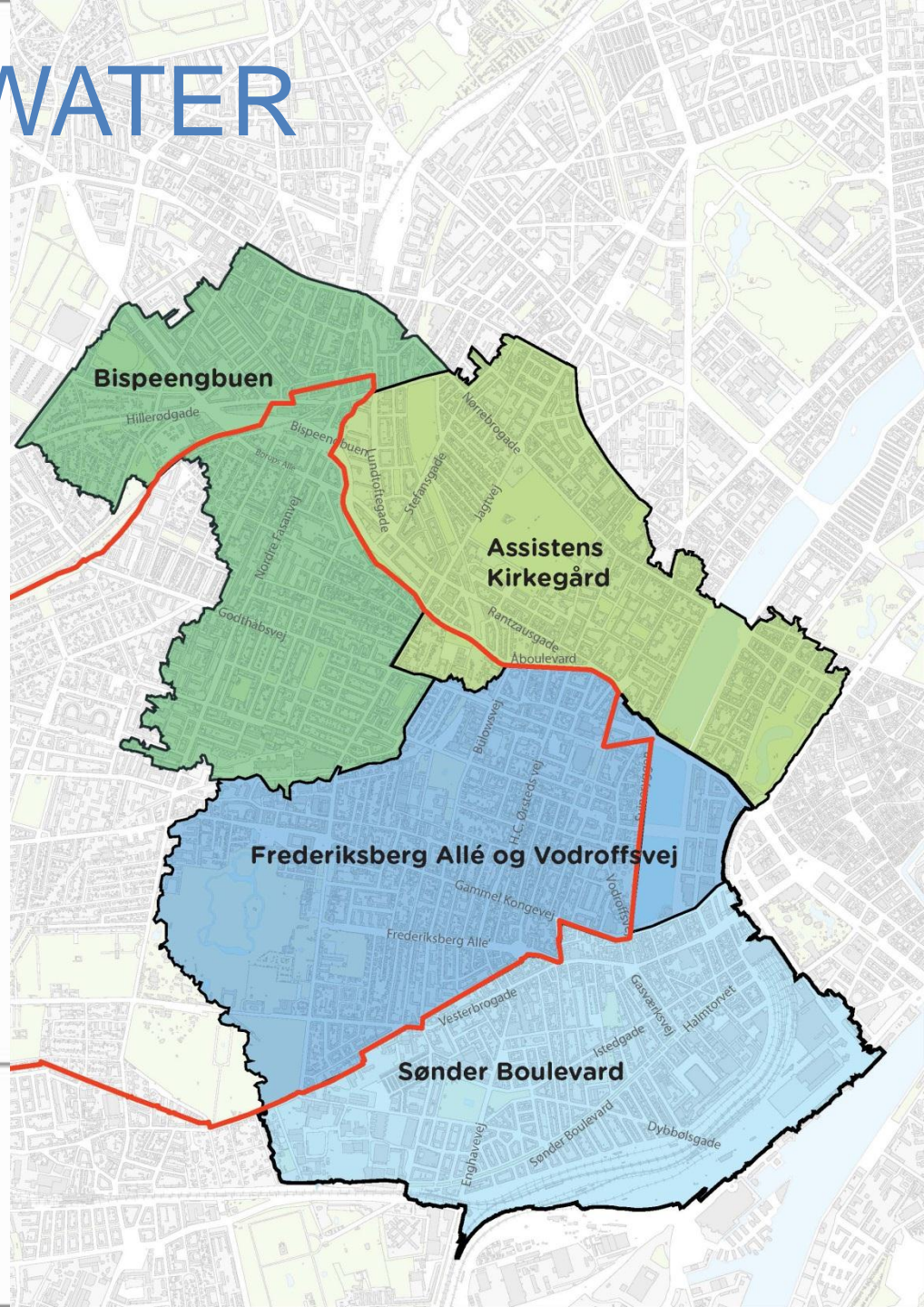
THE WATER CATCHMENTS OF COPENHAGEN



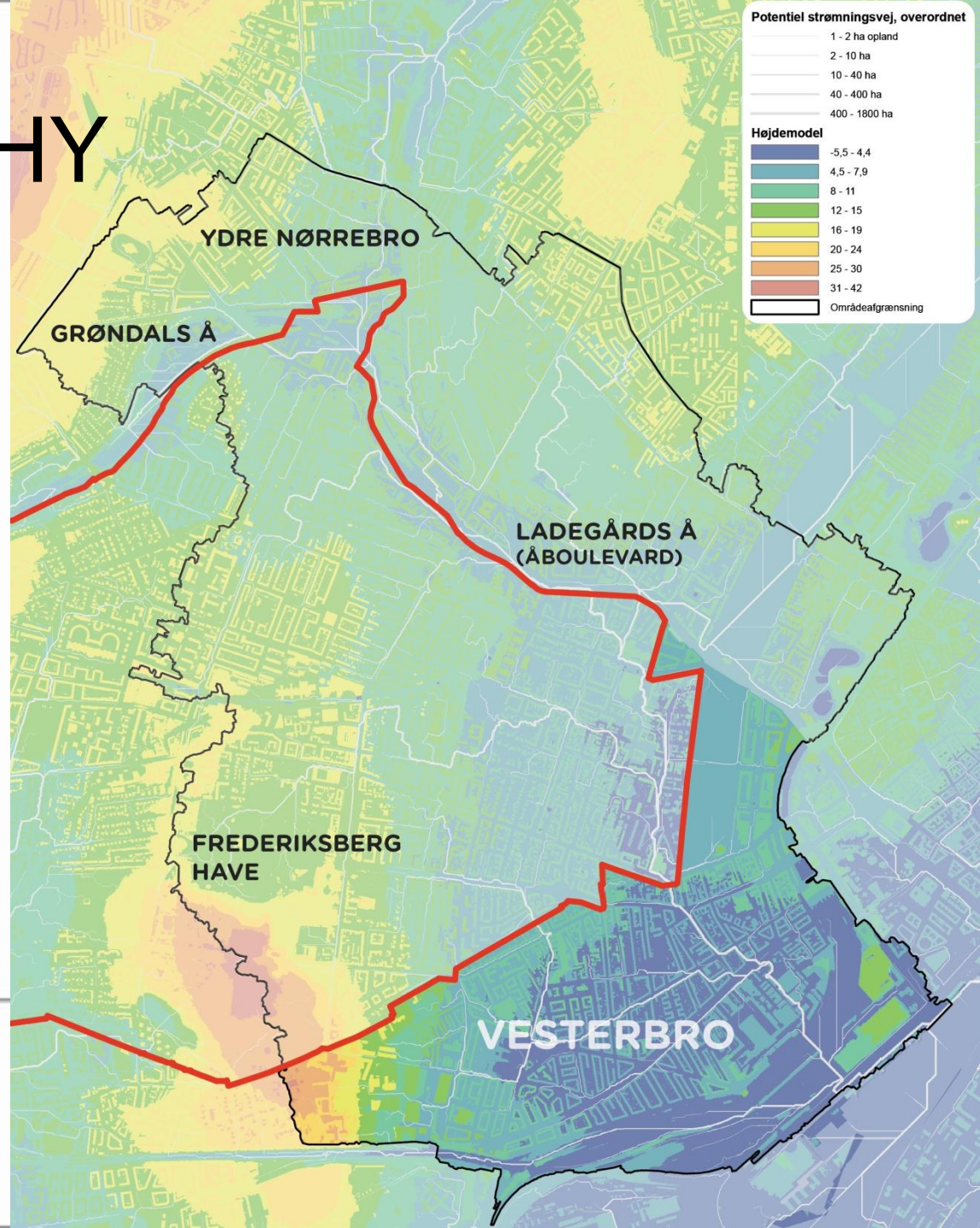
7 WATER CATCHMENT PLANS



EXAMPLE OF WATER CATCHMENT



TOPOGRAPHY



Oversvømmelses Kort

Senarie 2110 "do nothing"

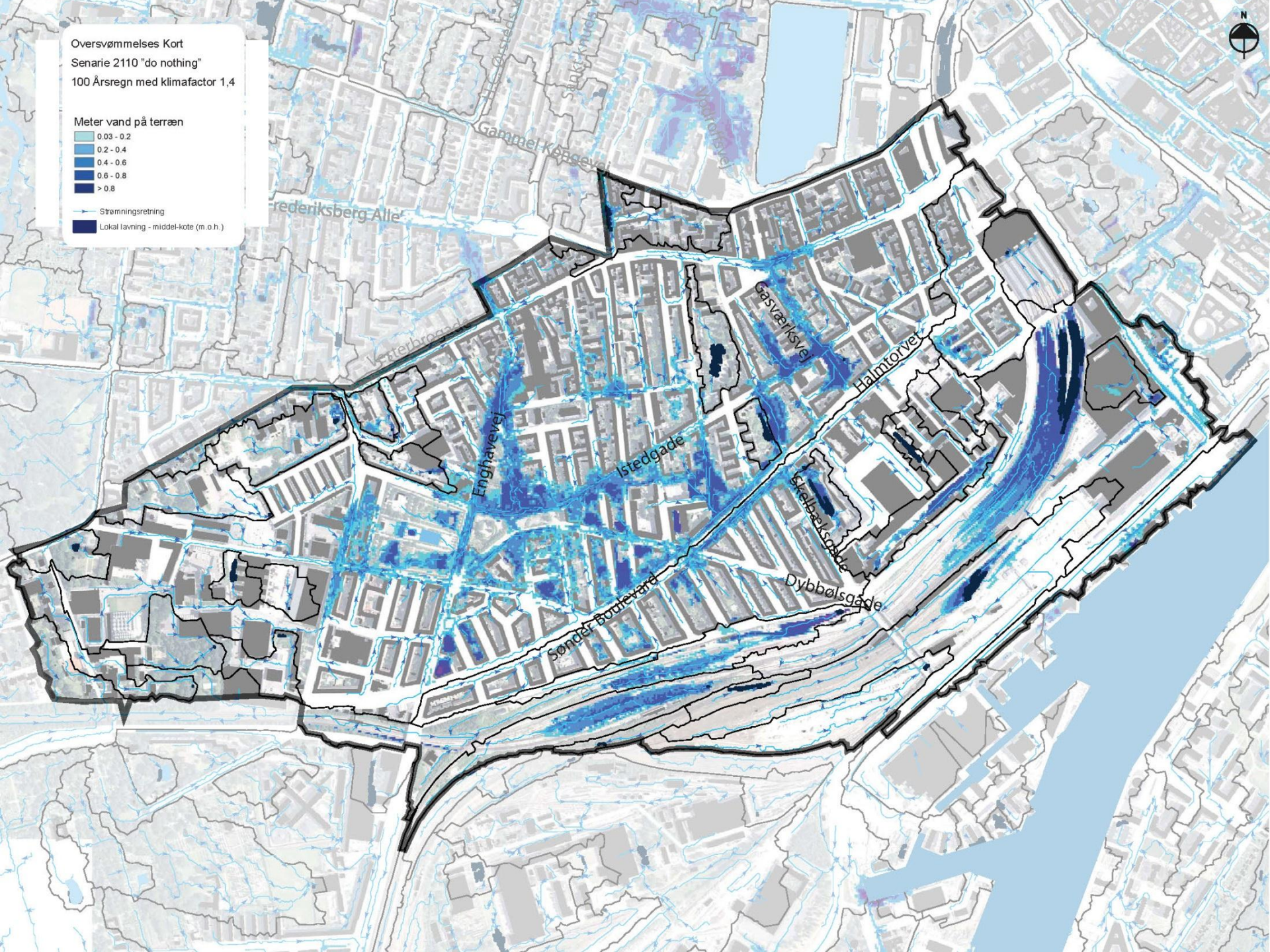
100 Årsregn med klimafactor 1,4

Meter vand på terræn

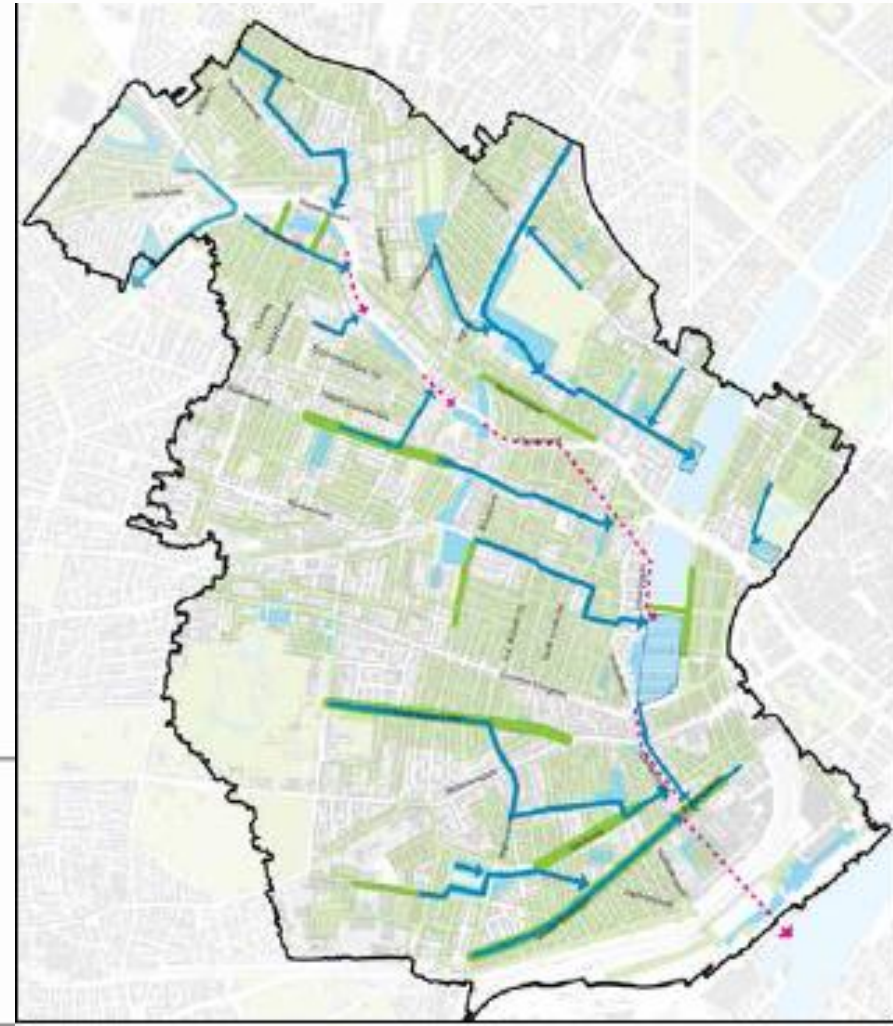
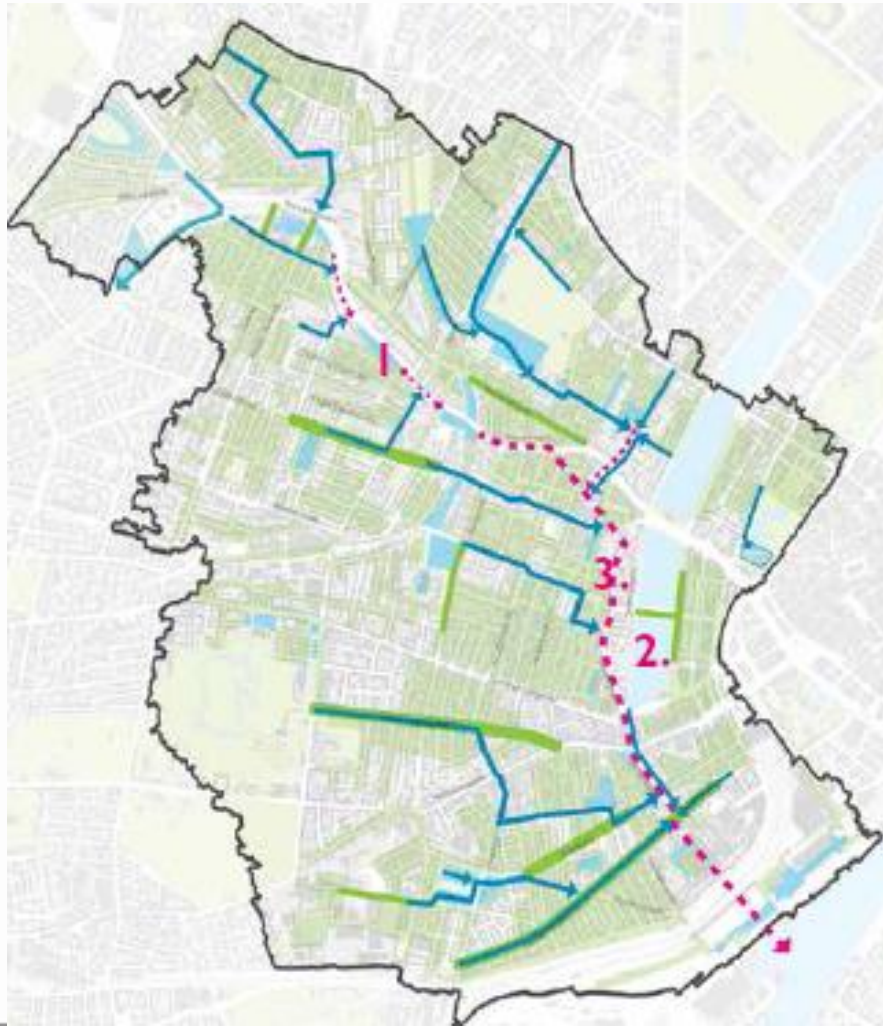
- 0.03 - 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- > 0.8

Strømningsretning

Lokal lavning - middel-kote (m.o.h.)



MORE THAN ONE SOLUTION FOR EACH CATCHMENT AREA



THE IMPLEMENTATION PLAN

- Break down of water catchments into projects – 470 in all
- Investment statement
- Organisation of implementation
- Prioritisation of projects
- Time-schedule
- Communication



THE PROJECTS

- Some will be traditional projects (underground reservoirs, pipes etc)
- Some will be surface solutions (cloudburst boulevards, parks, green roads etc). Here we want to have a number of signature projects highlighting the possibilities for improving the city through green and blue solutions



INVESTMENT STATEMENT

- Recalculation of the construction costs
- Cloudburst solution typologies
- Socio-economic figures – as part of the wider picture of the investment costs
- Synergies with other projects

TIME SCHEDULE AND PRIORITISATION OF PROJECTS

- Where do we start?
- Water management issues – combined with other issues (synergies with other projects, urban development other political priorities)
- We have to produce a plan to show the implementation of the 470 projects and especially the projects that we start up now.

POLITICAL PROCESS AND COMMUNICATION

- Implementation of the cloud burst management plan is one of the biggest political decisions in many years
- High investment costs
- Transformation of the city in many aspects
- Therefore the political process and the public communication has to be carefully planned

QUESTIONS WE ARE LOOKING FOR ANSWERS TO

- How can the city administration, their partners and stakeholders (utility company, citizens) secure that the adaptation plans is implemented during the next 5 to 10 years and beyond?



QUESTIONS WE ARE LOOKING FOR ANSWERS TO

- How can organization, management systems and technology etc. support the ongoing implementation of the adaptation and cloudburst plans?
- What tools can be used to manage the project? There will be a need to control several hundred projects, their interdependence, an overview of the overall economy and easy methods to monitor progress.



QUESTIONS WE ARE LOOKING FOR ANSWERS TO

- The city is looking for specific solutions as well as overall concepts, that alone or combined can support the administration and partners in the implementation process. The aim is to develop a more comprehensive project and program management and assessment system that is aligned with the visions and solutions of the adaptation plans.

