Copenhagen City

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Program director

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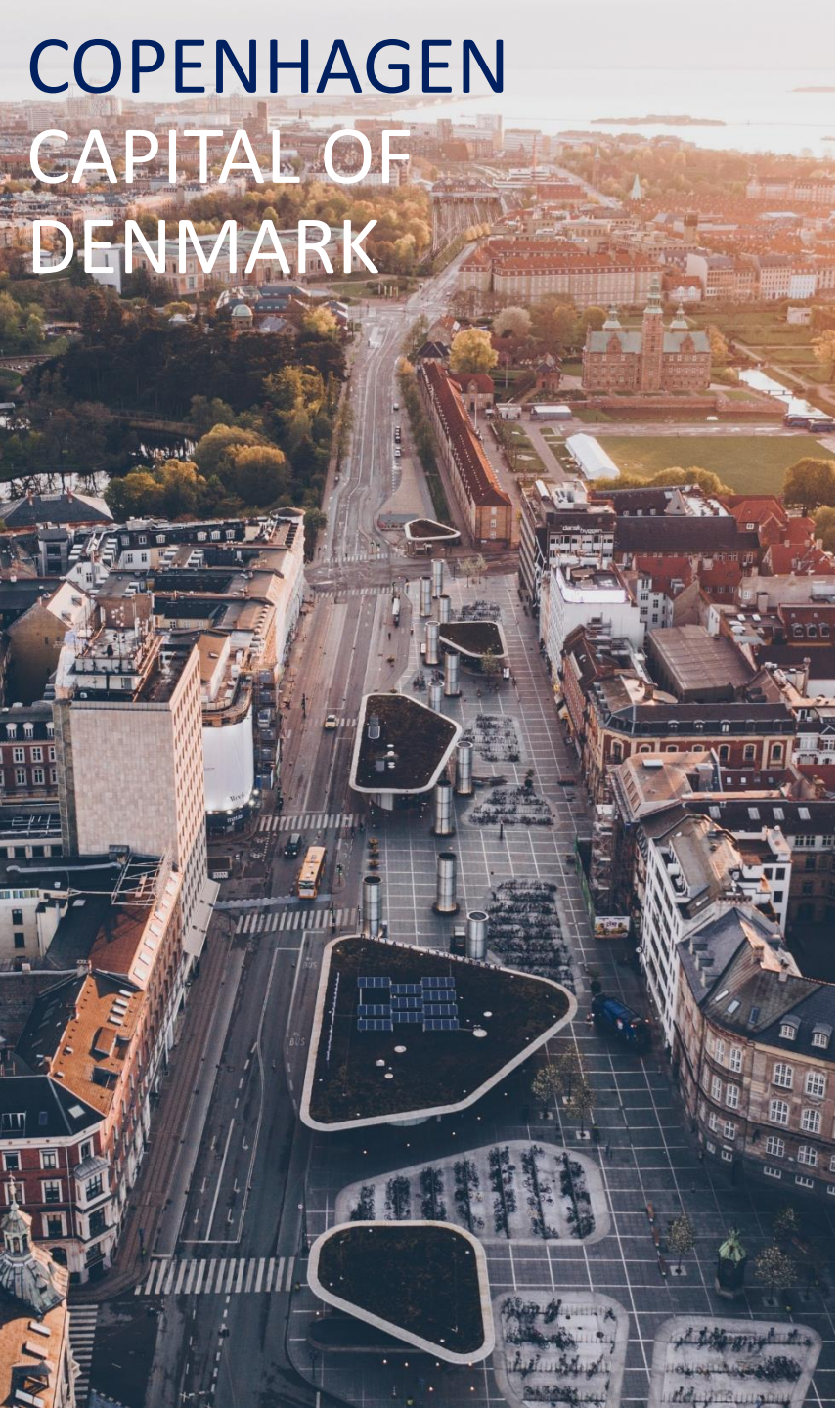
#meetcopenhagencity

COPENHAGEN CAPITAL OF DENMARK



INHABITANTS

City of Copenhagen
662.200

The metropolitan area
1.916.575

Greater Copenhagen
4.400.000

New inhabitants per month in Copenhagen
600

Average age
37 years

AREA

City of Copenhagen
92,4 km2

Inhabitants / km2
7.167

HOUSING

Homes
343.498

NON-PROFIT HOUSING
19,1 %

Apartments
90%

Housing per capita
41,1 m2

Islands Brygge 1970's

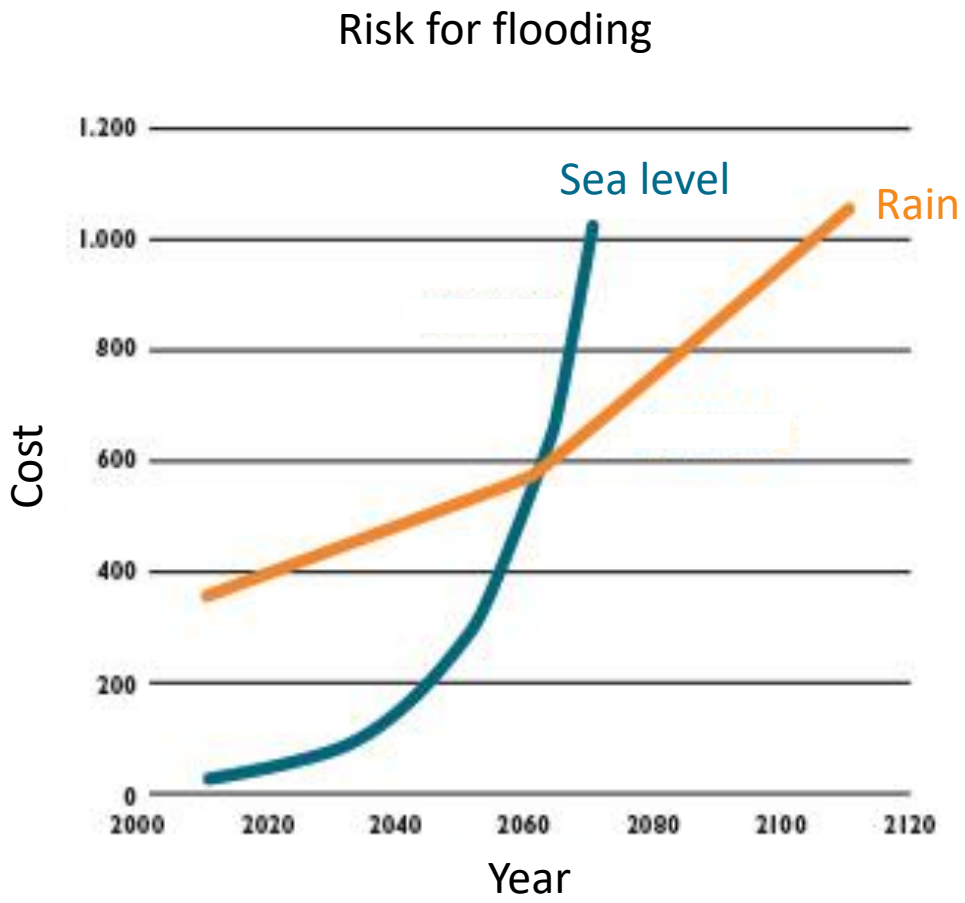
Islands Brygge

Today


Consider urban life before urban space
... and urban space before buildings
... Planetary boundaries

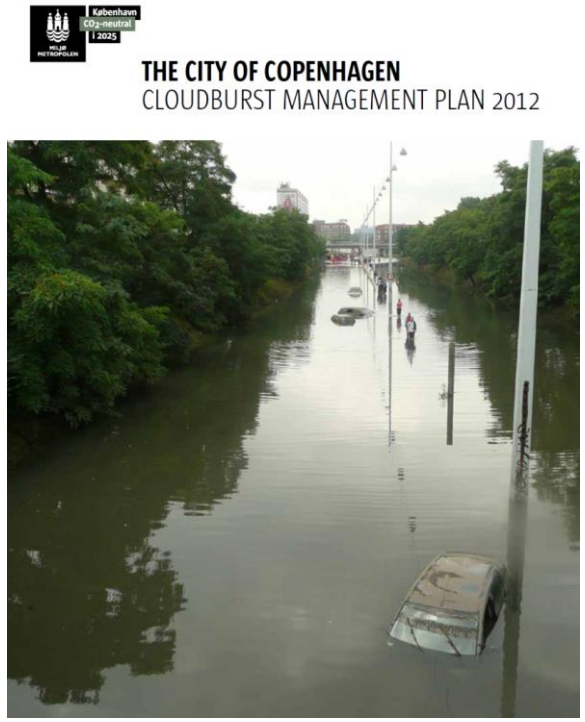
More Extreme Weather

The adaptation plan



2. July 2011

Following the natuaral flow of water



Measures connected

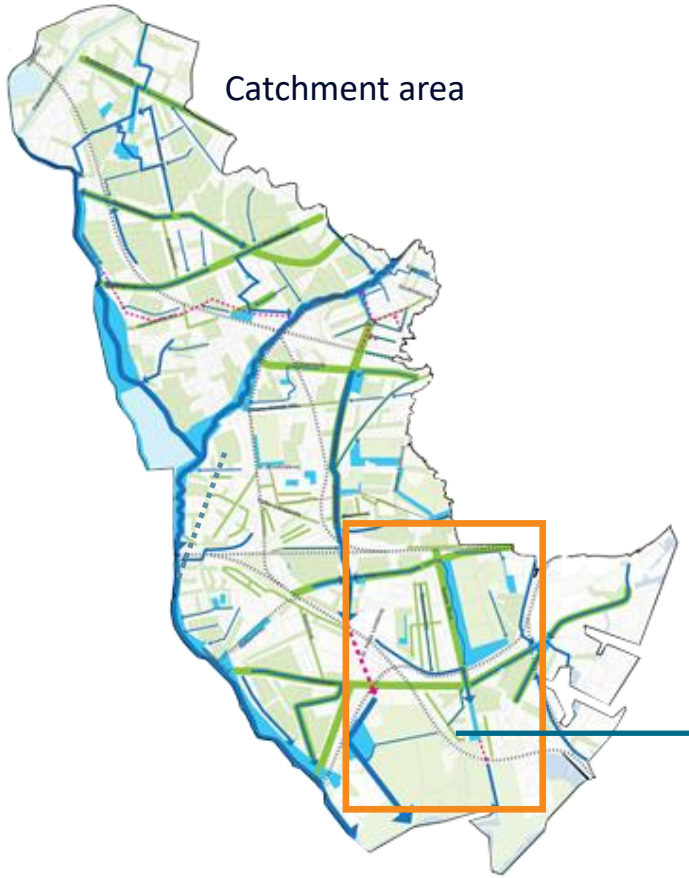
Connected individual projects

Implementation period: 20-30 Years

Total cost: 1.8 billion dollars

From catchment to project

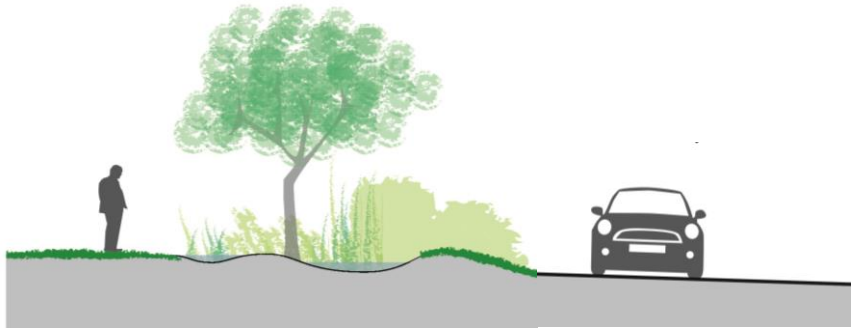
Catchment area



Masterplan

Cloudburst branch

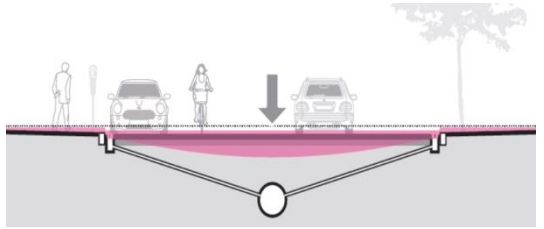
Cloudburst projekt



5 types of solutions

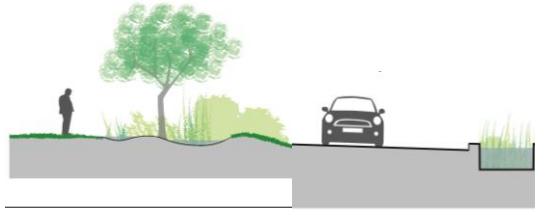
1. Cloudburst boulevards – transporting water

2. Pipes transportation under ground

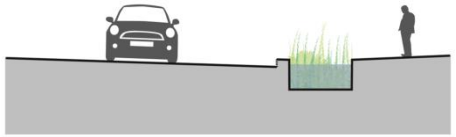


3. Retention boulevards – delaying water

4. Central delays – for storing water



5. Green roads – transport and delay of water on small roads



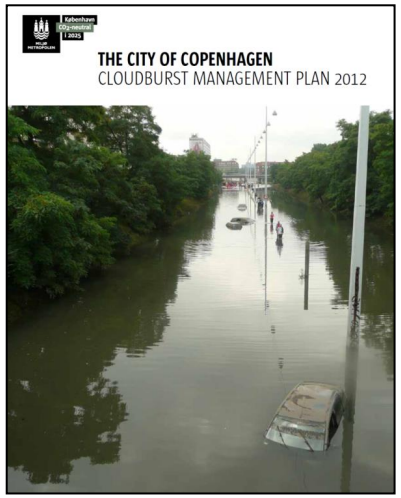
Time line of adaptation proces in Copenhagen

August 2011

Plan approved by City Council

December 2012

Plan approved by City Council



2013-2014

Preparation af plan for each water catchment area

November 2015

Political decision for implementation

Adaptation with co-benefits

- Recreational value
- Biodiversity
- Meeting places – social resilience
- Health
- Improved microclimate (UHI)
- Synergy with urban renewal
- Rainwater recycling
- Accessibility and safety
- Economic growth
- Architecture and local identity








Resident involvement

Cloudburst project at Taasinge Square

Retention and infiltration of rainwater at the square

Cloudburst project at Husum Vænge

Retention of rainwater in the park

Cloudburst project at Skt. Kjelds Square

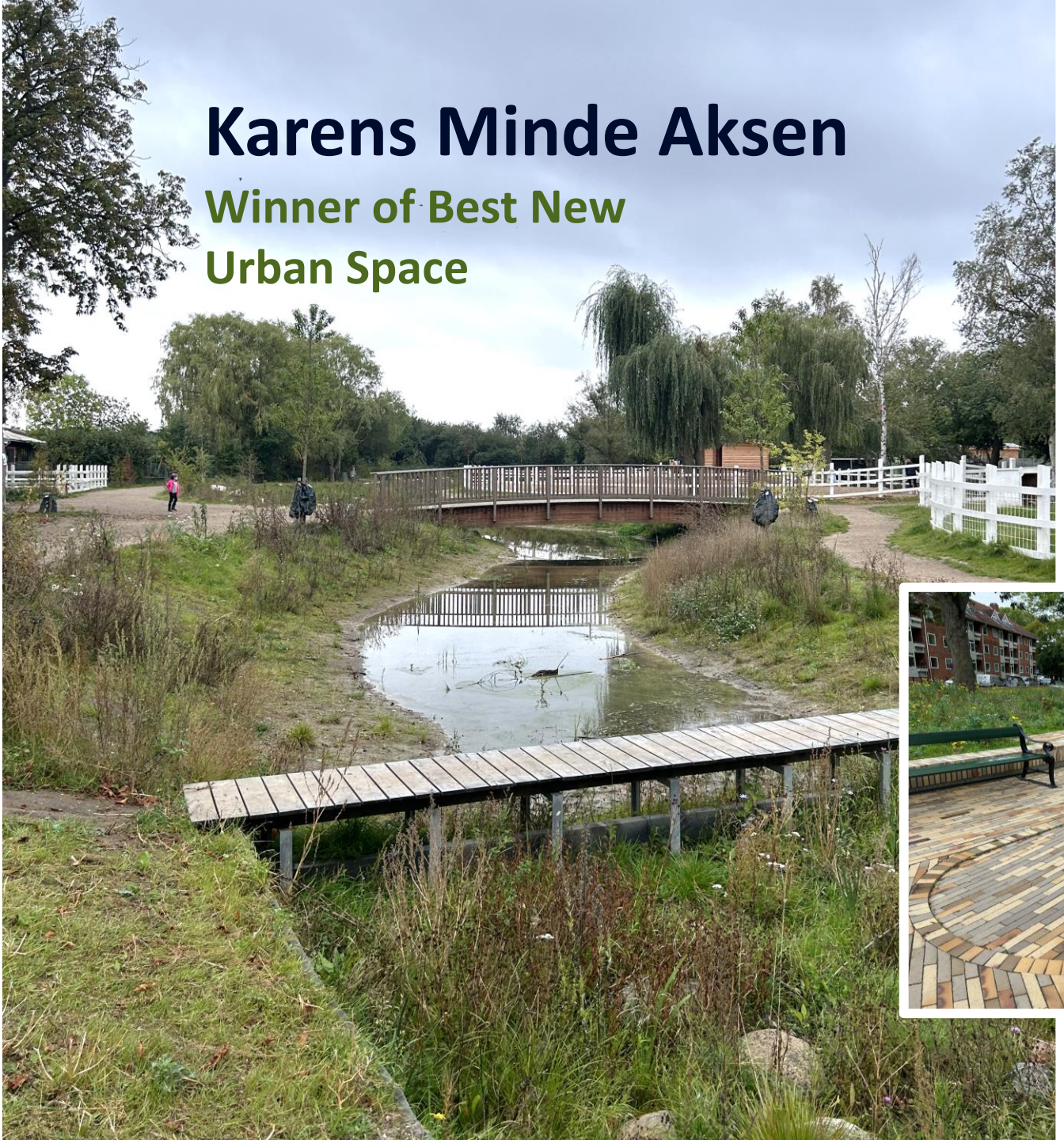
Retention, infiltration and transport of rainwater

Cloudburst project at Karens Minde

Retention of rainwater in green area

Karens Minde Aksen

Winner of Best New Urban Space



Karens Minde Aksen

Winner of Best New Urban Space

Cloudburst project Enghave Park

Retention of rainwater in the park

Cloudburst project Enghave Park

Retention of rainwater in the park

Cloudburst project Scandiagade

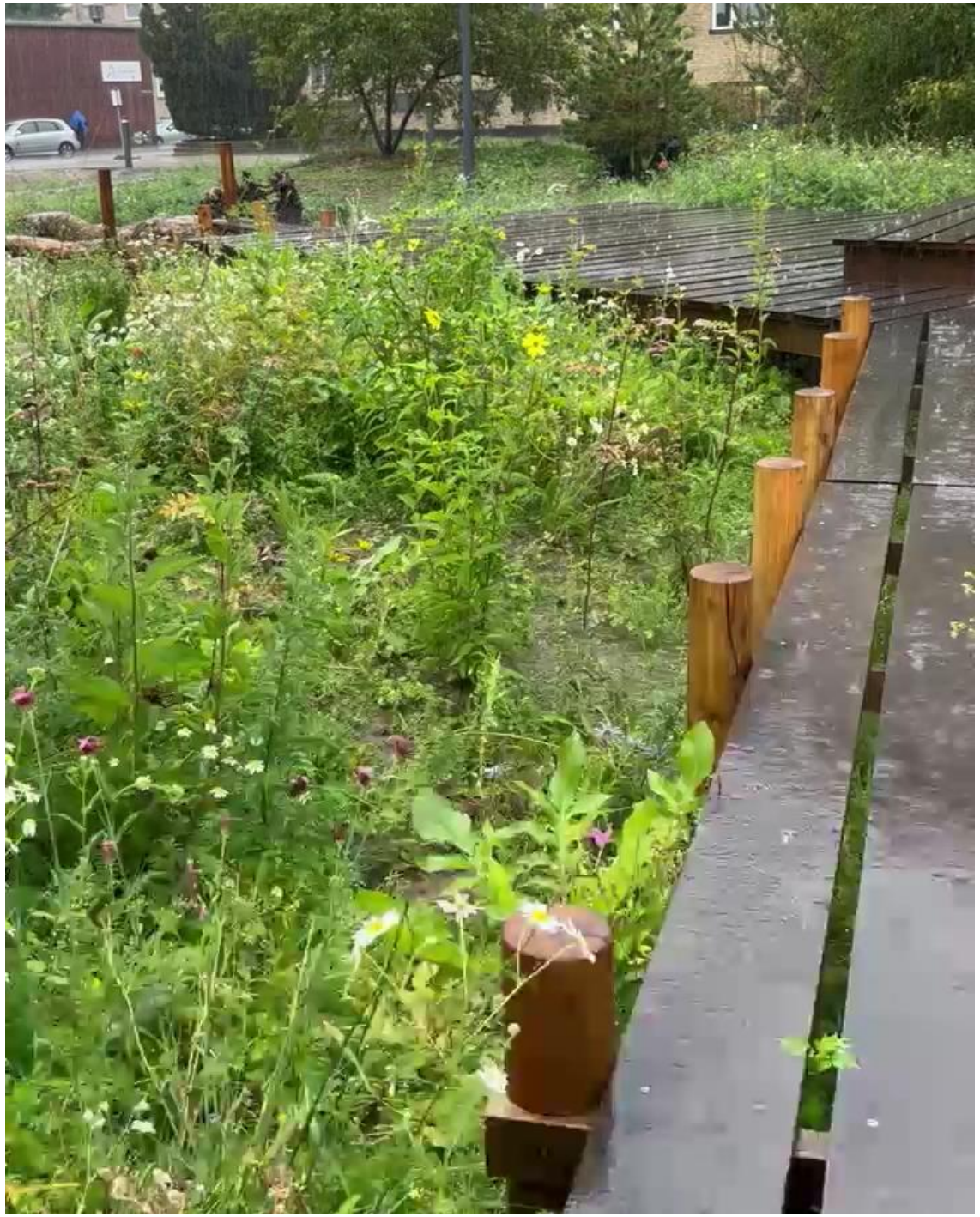
Eight sunken gardens with different themes – total volume of 1,500 m3

Cloudburst project Scandiagade

Eight sunken gardens with different themes – total volume of 1,500 m3

Cloudburst project Remiseparken

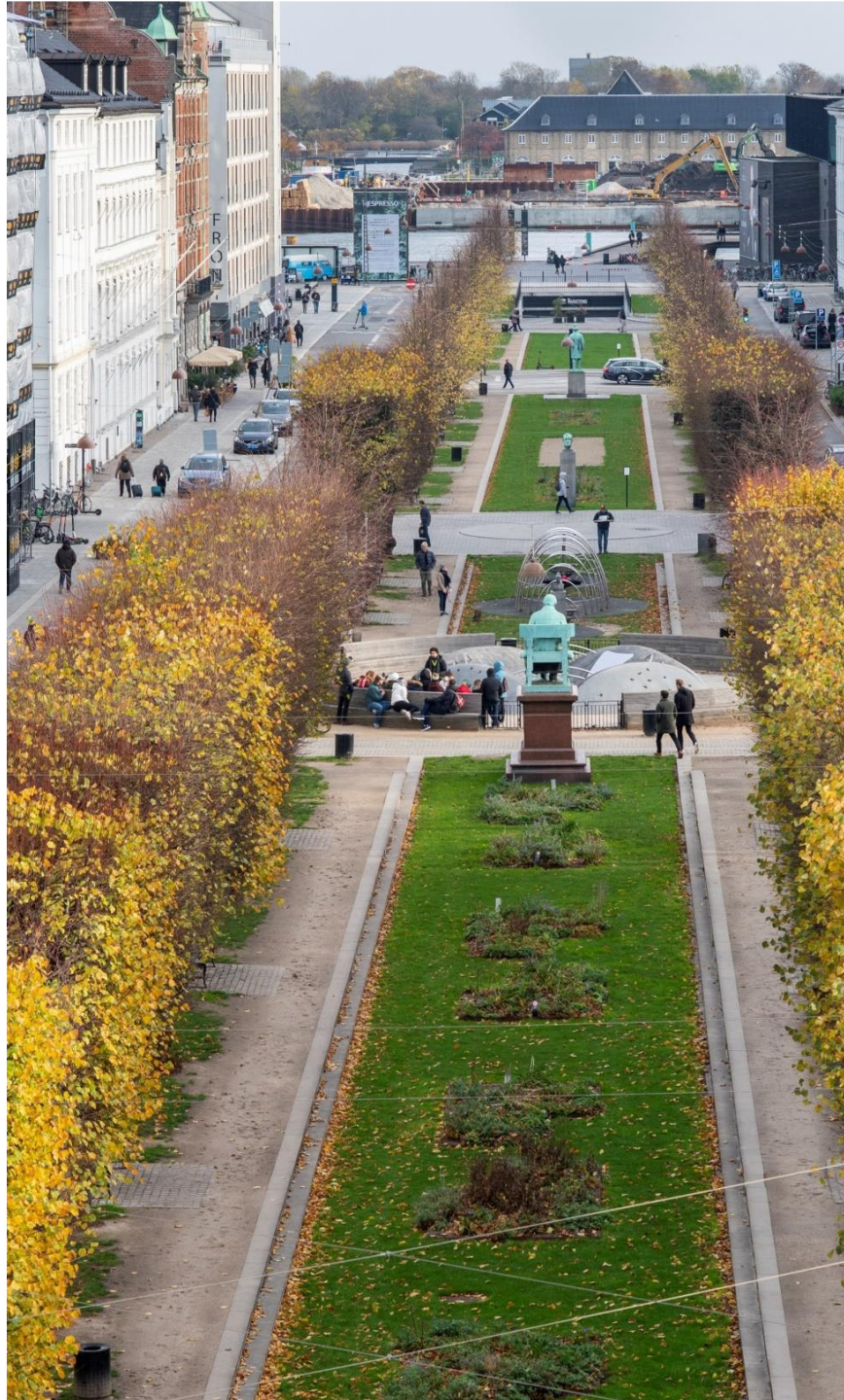
Cloudburst project Remiseparken

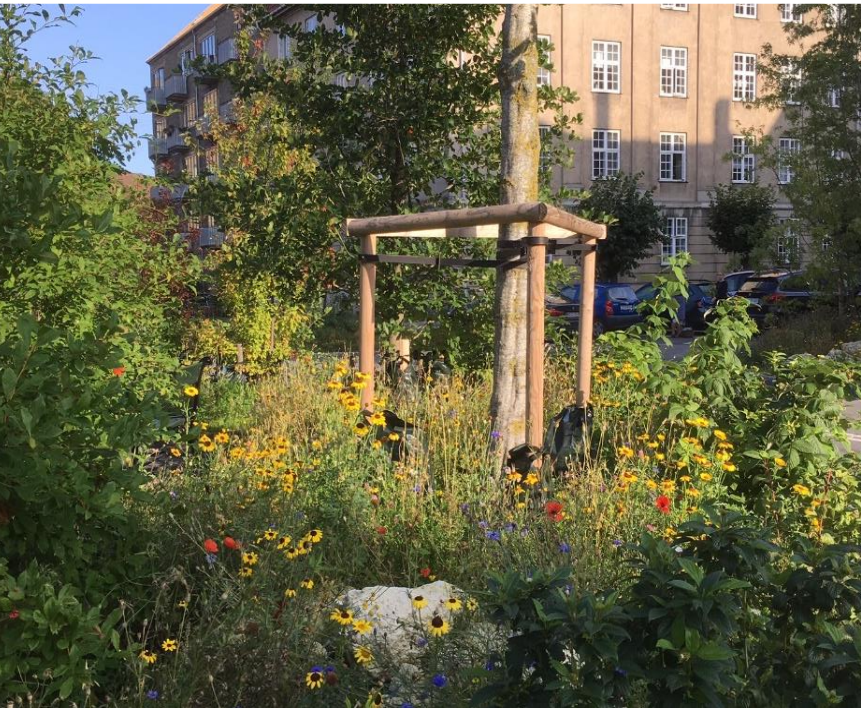


Video by Marie Damgaard and SLA

Strategy for Biodiversity

- Preserve
- Enhance
- Educate





Planning challenges

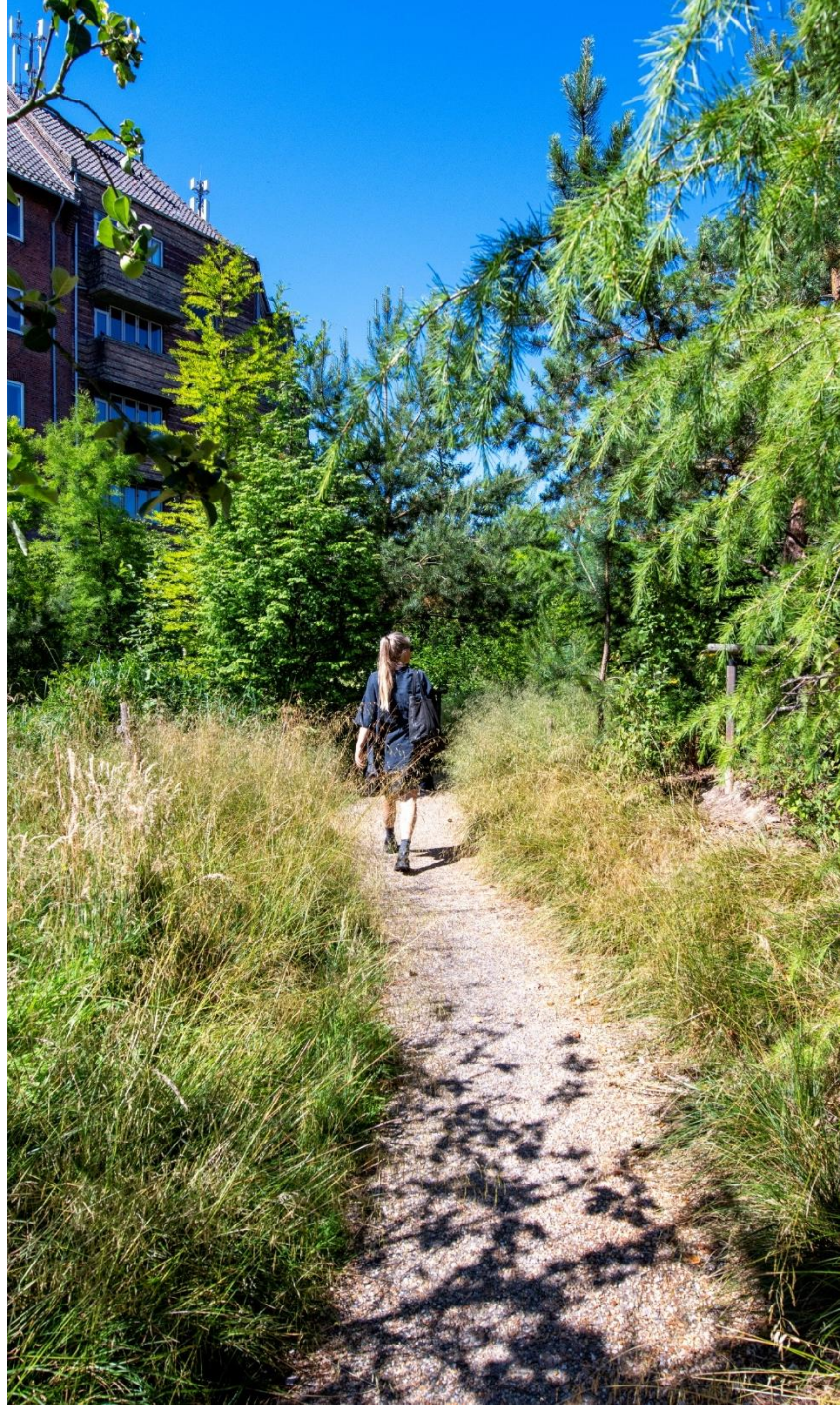
- Adaptive planning
- Different wishes to urban life – how do we fit in?
- We need to work within the existing infrastructure in the city
- Clash of professions

Governance challenges

- Involve all city agencies from the beginning!
- Internal an external stakeholders
- Constant organizational and political backup
- Changing legislation

Lessons learned and needs

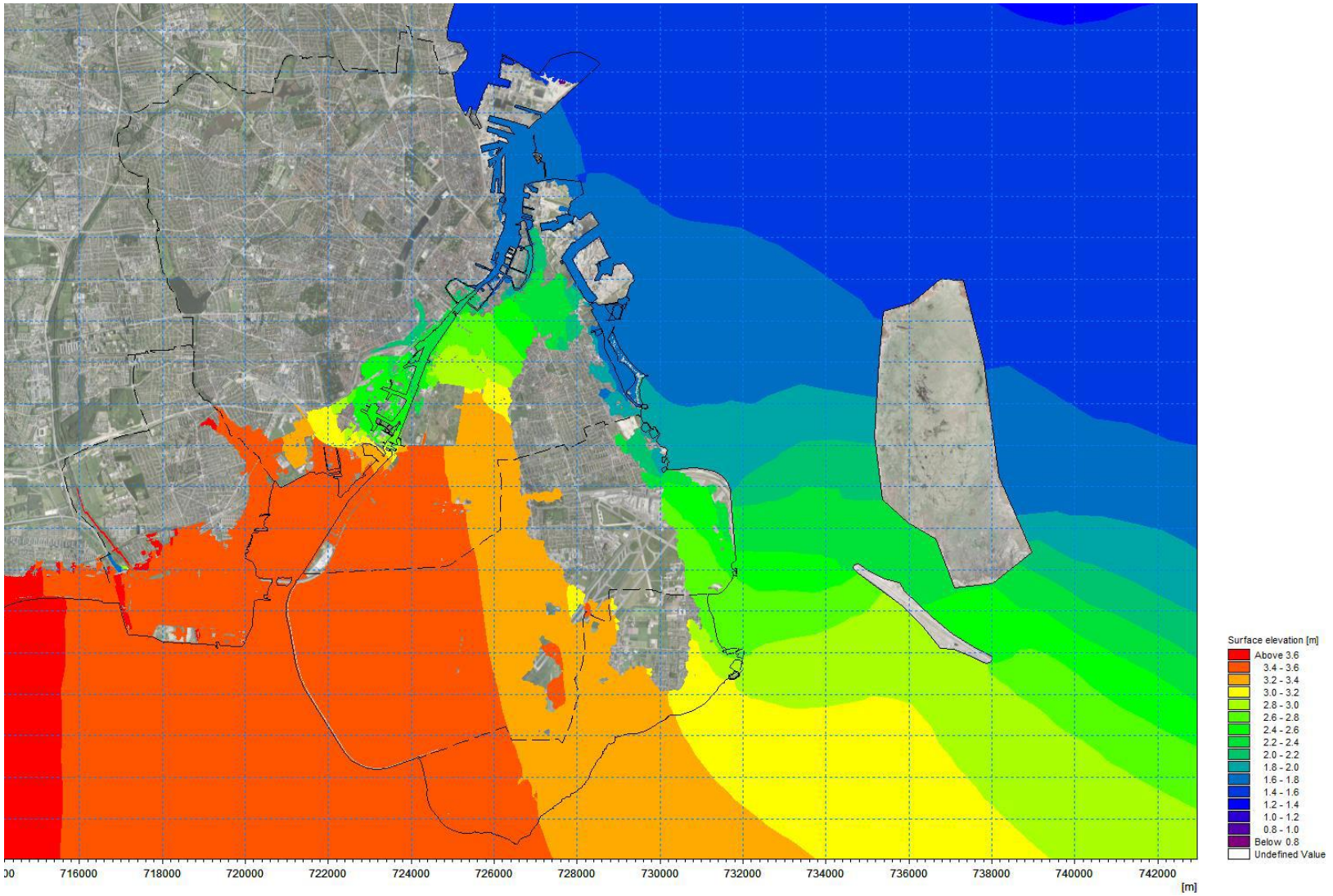
- Multidisciplinary collaboration is essential
- Projects have a high complexity
- Challenges existing practices
- Need for innovative solutions
- We need to rework the plans from 2013-14 further before starting construction of individual projects.
- Knowledge of hydraulic connections between projects is crucial to the framing of each project
- Urban space potential depend on knowledge of water management.



Storm surge

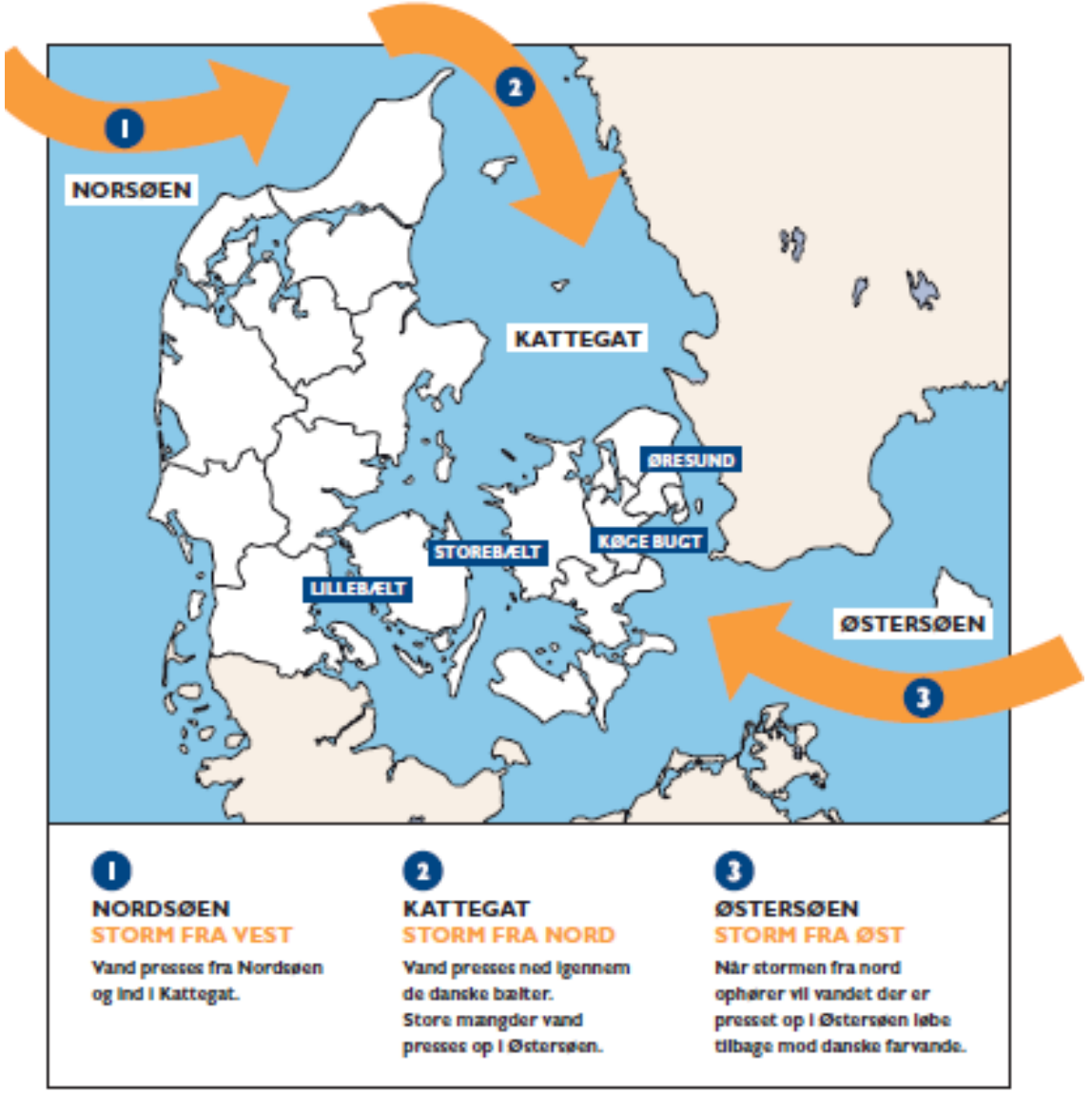
Storm surge

- 1000 years storm surge
- From south
- 3,76 meters at Avedøre



Storms in the Baltic

- Storm from the north – presses water into the Baltic
- Storm from the South/East pushes water out of the Baltic
- Dangerous combination:
- A storm from the North, and a wind change to the South/East.

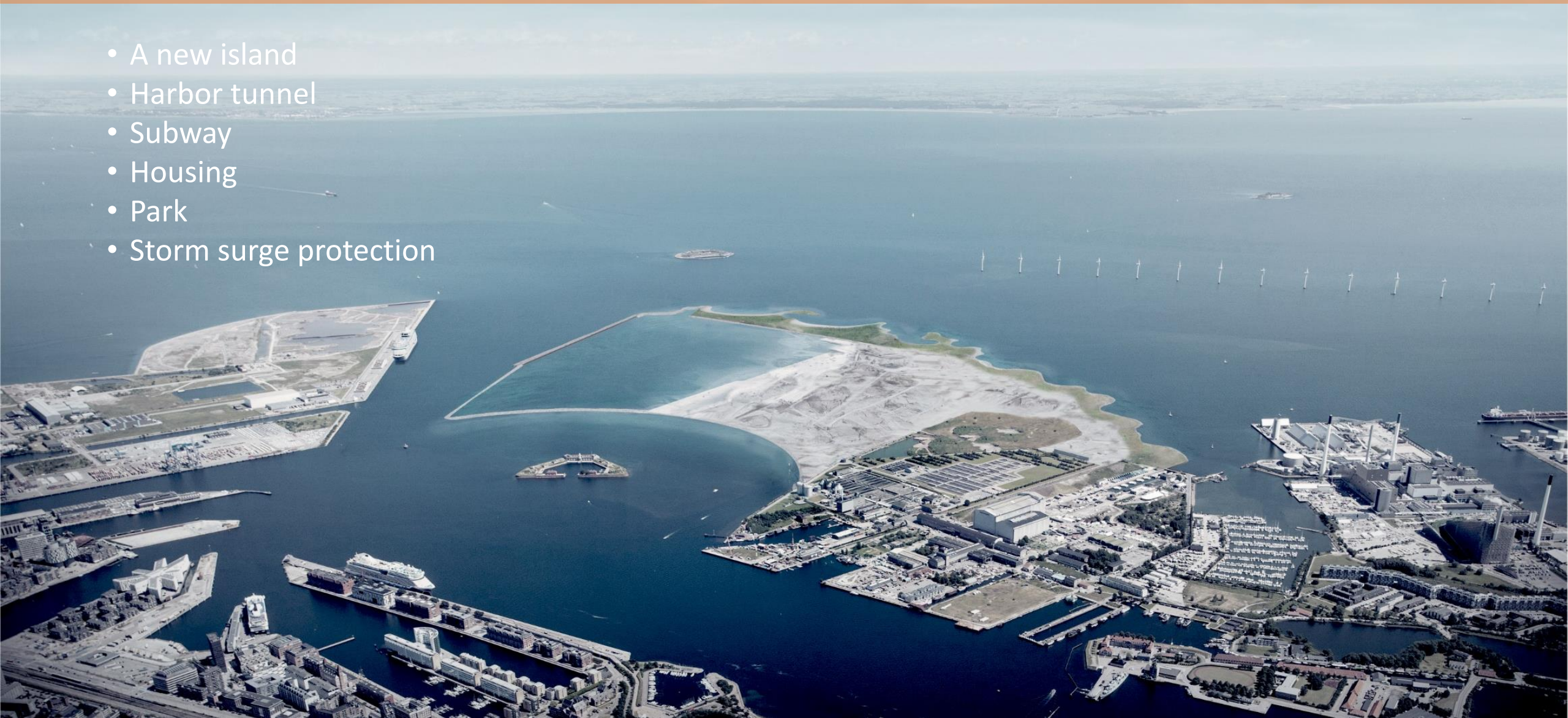


Main solution – an external barrier

Lynetteholm

Storm flood protection as part of urban development

- A new island
- Harbor tunnel
- Subway
- Housing
- Park
- Storm surge protection

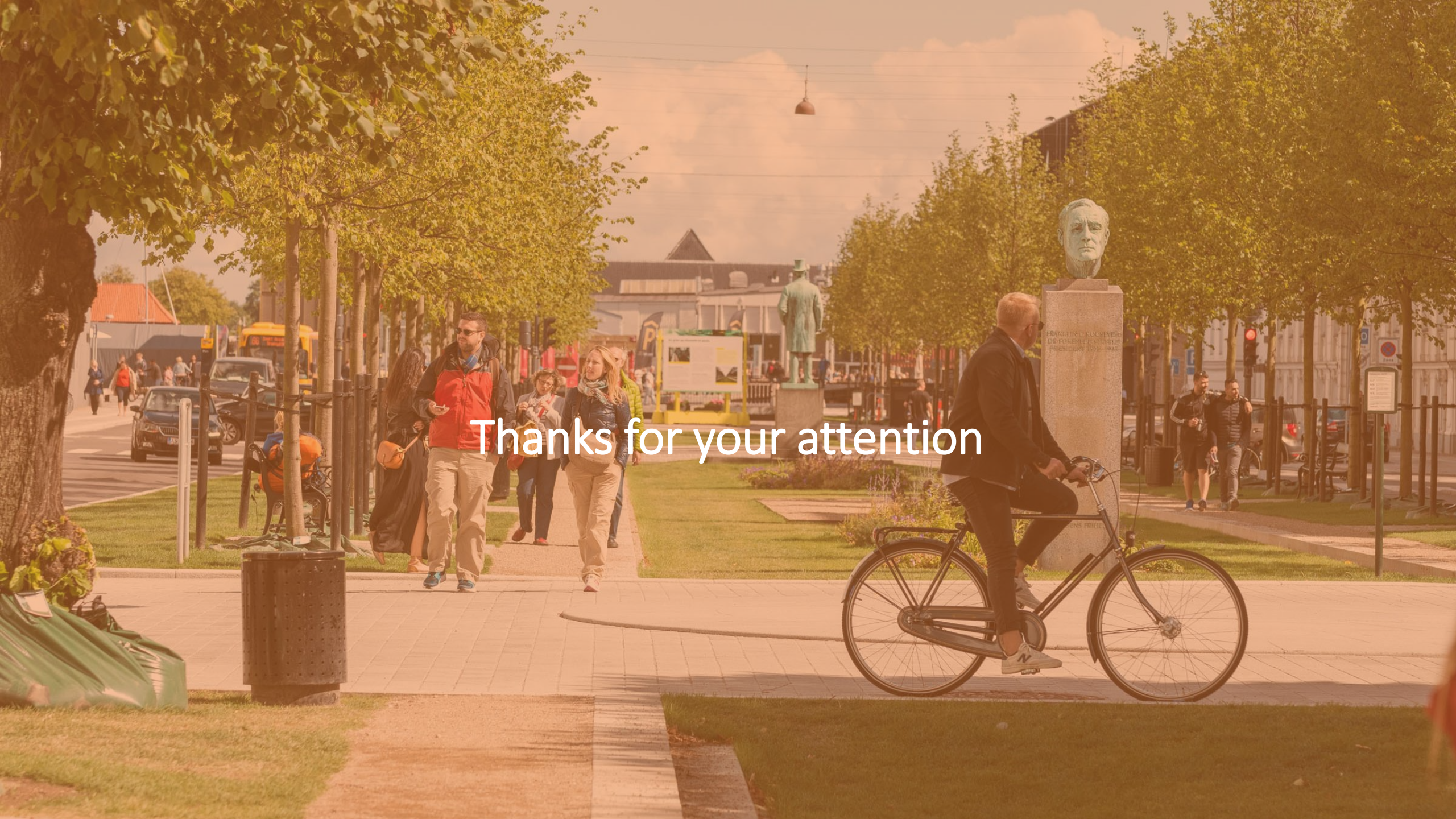


Lynetteholm – securing the northern part

- Storm surge management plan – securing the city with an outer protection
- Lynetteholmen is an artificial island and part of this protection. Size 2.8 km^2
- Construction started at the end of 2021 – and continue until 2070. A flood gate will be added at some point
- Purpose:
  - Contributes to securing northern Copenhagen from a storm surge
  - New urban development – up to 35.000 new residents.
  - Soil deposit
  - Can contribute to financing investments in ring road and more metro

Forward looking approach

Integrated solution –involves 5 municipalities


Thanks for your attention