



## Case Study



### Case 1 Copenhagen, Denmark

#### Why Copenhagen is building parks that can turn into ponds<sup>1</sup>

**Problem to resolve:** Climate change bring unexpeted flooding of the city of Copenhagen

**Response:** Transforming an existing public park into a huge spill-over tank for floods.

**Background:**

Planning for this future, Copenhagen had to make a choice between two very different paths. The first option was to expand the city’s existing subterranean sewer and drainage system — its “gray” infrastructure.” This would mean doubling down on the 20th-century notion that the city could handle higher volumes of rainwater as it falls by burying more and larger pipes to handle the runoff. The second option was more of a “green and blue” system. Rather than funneling all stormwater at once through underground pipes, this option envisioned dealing with water at street level through a network of parks, cloudburst boulevards and retention zones. Copenhagen opted for a Climate Adaptation Plan that relies mostly on the latter approach.



The city has recently been hit by two so-called “100-year flood” events, first in 2011 and then again in 2014. The Intergovernmental Panel on Climate Change predicts that this sort of extreme weather will become increasingly frequent in Denmark, with heavier downpours (as well as more periods of drought). Sea-level rise is a separate but related threat — according to research from the Niels Bohr Institute, the waters around Copenhagen could rise by up to 1.6 meters (more than 5 feet) in the next 100 years.

## **Preserving the Green Space<sup>2</sup>**

For the past 85 years, Enghaveparken has been an important green space in the neighborhood. It was a green space for the working class on the stone bridge, a part of the social experiment that is Vesterbro, where the socially challenged clash with the hipster generation and families that want to be urban farmers. Enghaveparken was established in 1928 in the ‘dark and poor’ Vesterbro as a strict neoclassical park with a reflecting pool, geometrical axes, a playground and a stage. Older residents of Vesterbro remember the ‘nicest girl of the summer’ competitions. In the 1990’s, the park lost its central role in the neighborhood because of the municipal neighborhood renewal project and their concentration on the greening of closed courtyards. We therefore ask the question: What kind of public green space does Vesterbo need today? There are record numbers of people moving to Copenhagen, and cloudbursts caused by climate change create a new consciousness, conditions, and limitations for wellbeing and growth. How can Enghaveparken create the framework for modern-day, fluid communities and still be the answer to climate challenges? How can the park contain a create diversity of interests, by still insist on being a common space, that can create new communities despite great differences? We have a simple recipe: Keep and enforce the framework and increase the amount and quality of the experiences to create a greater variety of experiences for recreation and interaction.

## **The transformation plan**

To make space for 24.000 m<sup>3</sup> of water in a park, which is under historic preservation consideration, initially may seem as opposing tasks. The teams does not wish to give the park an ‘extreme make-over’, nor be crippled by the historic considerations. We aim to use the natural, passive and robust techniques to visibly manage stormwater. Our main hydraulic concept uses the 1 meter terrain fall from west to east to create a ‘dustpan’ of 200 by 200 meters that can hold 14.500 m<sup>3</sup> of water. The concept is simple. By leading the water from Lyrsskovgade and Ny Carlsbergvej, the park acts as a retention basin to delay the water. The remaining 11.500 m<sup>3</sup> of water is managed in the excavated area inside the park and in a closed underground reservoir. This is carefully done without destroying the existing trees or structures of the park. The result is a multifunctional, visible intervention that has many recreational, relaxation and sensory experiences available.

## **THE ELEMENTS OF THE NEW PARK**

**LEVEE** – The primary stormwater management element is the levee along the park’s three lowest sides. The levee is formed as a wall with sitting spaces, pools of water, and interactive water elements such as a bulkhead and small openings, for play. The overall idea is to develop a new type of climate-based bench for Copenhagen, that can be scaled to context and used in many scenarios around the city and beyond.

**THE FOYER**- The main entrance towards Enghavevej is preserved and the Arne Jacobsen pavilions are integrated into the design.

**THE WATER GARDEN**- The central axis will be enforced with more common water elements. We maintain the reflecting pool, that will adapted for stormwater management. Between the reflecting pool and the stage area, there will be a water playground with fountains on the surface.



*The park before and after its transformation*

**ATER GUTTERS-** Along the primary paths, there will be open gutters, that move the water around in the park and move it to the top to the levees. The gutters are made of concrete, which will be covered in tiles- an ornamental part of the city's surface.

**100 GARDENS.** In the narrow space between the levee and the hedge out to the street, we propose 100 allotment gardens. Residents may grow vegetables and climate biotopes that create lush areas with urban nature. 'Anything goes' and the users of the park are in charge of creating the content.

**MULTI PITCH-** The pitch has a large hydraulic potential. The floor of the pitch is lowered by 3 meters and the edges are formed for sitting and recreational purpose, like floorball, roller hockey, cricket and football etc.

**PLAYGROUND-** The edge of the playground is formed to create a better visual connection to the other spaces in the park and where water is introduced as a recreation element.

**ROSE GARDEN-** The rose garden will offer small spaces on the lawn between the different types of roses. A 9 meter high grid structure of wood creates an experiential hanging garden and a backdrop for film events, poetry readings and tai-chi. The trellis will be planted with a variety of climbing plants and creepers that make the air smell good.

**IBRARY GARDEN-** The new entrance towards the cultural center will strengthen the direct connection between the park and cultural activities. This will be encouraged by urban inventory such as tables, tiles, and chairs for meetings.

### **Credentials:**

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### **Sources:**

<sup>1</sup> Source: Cathcart-Keays, A. 2017. Why Copenhagen is building parks that can turn into ponds. *Cityscope* 21 January 2016. [http://citiscopes.org/story/2016/why-copenhagen-building-parks-can-turn-ponds?utm\\_source=Citiscopes&utm\\_campaign=08723afb14-Mailchimp\\_2017\\_05\\_22&utm\\_medium=email&utm\\_term=0\\_ce992dbfef-08723afb14-118049425](http://citiscopes.org/story/2016/why-copenhagen-building-parks-can-turn-ponds?utm_source=Citiscopes&utm_campaign=08723afb14-Mailchimp_2017_05_22&utm_medium=email&utm_term=0_ce992dbfef-08723afb14-118049425)

<sup>2</sup> From here onwards text edited from: <http://tredjenatur.dk/en/portfolio/enghaveparken-now/>