Urban Interventions

Systems • Structures • Spaces
INTERNATIONAL STUDIO, COPENHAGEN, DENMARK

Master of Urban Design
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1596
Town was significantly enlarged under Christian IV, new city districts were developed with modern fortifications.

1817
Carlsberg was founded by the visionary brewer J.C. Jacobsen who pioneered the modern brewing industry.

1876
The Carlsberg Foundation is established.

1882
Old and New Carlsberg defined

1254
Copenhagen received its charter as a city under Bishop Jacob Erlandsen.

1648
Copenhagen became Denmark’s principle fortification and naval port and was also seen as center for trade in Northern Europe.
1905  The first and oldest cyclist foundation in Europe

1940  World War II conducive to cycling.

1950  Growth of car traffic coincides with significant decrease in bicycle traffic.

1970  Energy crisis and growing environmental awareness lead to traffic switching from cars to bicycles and public transportation, as well as an increasing demand for improved conditions for cyclists.

1982  Every budget contains funds allocated to the construction of cycle paths and improvements for conditions of cyclists until 2001.
Danish Culture has celebrated the liberty offered by bicycle transportation for decades. As a means to escape the cramped tenement housing for the early 1900’s, the bicycle became a symbol of individual freedom for men, women and children, rich and poor. When faced with development conflicts between automobiles and cyclists, the Danish people made their voices heard and have had a large impact on steering the continued development of the most bike-able city in the world.
Bikable = Livable

Bicycling supports the community as a whole by: increasing roadway capacity and user mobility; strengthening the economy and household afford-ability; improving the environment; and promoting an active healthy lifestyle. Yet the vast majority of Danish bikers do it because it is the simplest and fastest way to get around. Successful mobility addresses not only the physics, but also the psychology of transportation.

BEHAVIOR IS THE PRODUCT OF DESIGNS.

Image credit:
1. https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&ved=0ahUKEwi7cTcz9HQAhUhwVQKHQCICQjwAwUlFQFjGQIwCg&usg=AFQjCNEwPFW4mYFpZ2n1Lbt9VLxOg7Gesw&ust=1480634550927634
5. https://farm9.staticflickr.com/8432/7603348646_9e0d825a12_o.jpg
Founded by J.C. Jacobsen in 1847, Carlsberg Brewery has been not only a leader in brewing quality, but also a major contributor to the arts and sciences. The Carlsberg laboratory developed, patented and freely distributed isolated yeast cultures still used in the brewing process today.

Many notable art works in Copenhagen, such as the Little Mermaid statue, were donated by Carl Jacobsen. The architecture found at the almost 200 year old brewery stands as an artistic statement from the era. No detail was overlooked when constructing these landmarks, from the Elephant Gate and Star Gate, to the Laboratory and Brewery,

“...It should be a constant purpose, regardless of immediate gain, to develop the art of making beer, to the greatest possible degree of perfection.” J.C. Jacobsen
Today, the Carlsberg Foundation has donated over 30 million Euros to the arts and sciences. It is the fourth largest brewery in the world; with 45,000 employees in 150 countries selling 1,000,000,000 bottles of beer per day. With a clear social mission from its inception, the Carlsberg Group expands its community service from Denmark to the world.
COPENHAGEN

Copenhagen

Copenhagen, the capitol city of Denmark is located on the far eastern side of the country. Carlsberg is located southwest of the city center on a high hill. While originally developed as a brewery far outside the city walls, Copenhagen has grown around Carlsberg, turning grain fields into affluent neighborhoods. The industrial production of the brewery has since moved outside the city and the former brewere's 70 acres of developable land have been planned for a new mixed use development. It is this location that has been selected for our investigation and study its potential urban design issues.

Represented by Brandon Gossard, using data from Open Data Copenhagen
CONTEXT AND TRANSPORTATION

Regional Context
Inner City
- 45 minutes
- 15 minutes
- 27 minutes
- 15 minutes

Neighborhood Context
- Vesterbro
- Valby
- Frederiksberg
**CONTEXT & TRANSPORTATION**

**Transit Network**

- **Bus Routes:**
  - (1A, 3A, 6A, 10, 14, 26, 93N)

- **Train:**
  - (Lines B, BX, C, H)

**Bicycle Network**

- **Green Way**
- **Bike Paths**

Created by Madhu Jois and Caitlin Long
Nodes

1. Elephant Gate
2. JC Jacobsens Have
3. Enghaveparken
4. Søndermarken
5. Vestre Kirkegård
6. Carlsberg Station

Overall Site Analysis

- Districts
- Streets
- Transit
- Bike Paths
- Nodes
EQUINOX

The equinox brings with it even amounts of daylight and night in Copenhagen. However, the sun remains low, only rising to 23 degrees from the horizon.

- **07:55**
  - 109° ESE

- **12:54**
  - 180° S
  - Max Altitude 23°

- **17:52**
  - 251° WSW
109° ESE
180° S
Max Altitude 23°
251°  WSW
17:52
12:54
07:55
Seasonal descriptive text
SEASONAL DESCRIPTION

SUMMER SOLSTICE
During the long summer days Copenhagen receives up to 17 hours of daylight during a day. Due to the northerly latitude of the city, the sun never reaches directly overhead, but circles the horizon.

04:26  43° NE
13:12  180° S
   Max Altitude 58°
21:58  317° NW
SEASONAL DESCRIPTION

WINTER SOLSTICE

Copenhagen receives less than 8 hours of daylight a day during the depth of winter. With a northerly latitude of 55 degrees north, the sun rises and remains relatively low on the horizon, casting long shadows across the city.

08:38 133° SE
12:08 180° S Max Altitude 11°
15:39 227° SW
STRATEGIC URBAN FLOOD PLAN

1. Park
Hans Tavsens

5. Urban Canal
Vodrofsvej

2. Plaza
Hans Tavsens

6. Plaza
Hans Tavsens

3. Street
Korsgade

7. Retention Boulevard
Istegade

4. Green Street
Svend Trosts Vej

8. Boulevard
Sonderboulevard

Fredericksberg Municipality
Copenhagen Municipality
Carlsberg
Project Area
http://www.ramboll.com/projects/Germany/copenhagen-cloudburst
2. Plaza
Blågårds Plads

7. Retention Boulevard
Istgade

http://www.ramboll.com/projects/Germany/copenhagen-cloudburst
TOPOGRAPHY
CULTURE CONTEXT

ACCESSIBILITY WITHIN 10 MINUTES WALKING DISTANCE

Activities
- 🏛️
- 🎵
- 🌲

Drinks and Dining
- 🥈
- 🍷
- 🍺

Public Transportation and Schools
- 🚅
- 📚

Shopping
- 💰
- 🛒

LOCAL LANDMARKS

1. www.brewingschool.dk/
2. http://blanc.dk/
3. www.kea.dk/en/
5. http://www.enomania.dk/
7. https://irma.dk/

Created by Heidi Liu
Acer platanoides
(Norway Maple)
Mature Height: 50ft
Exposure: ○
Water Use: Medium
Soil pH Level: 6.1 - 7.8 pH

Robinia pseudoacacia
(Black Locust)
Mature Height: 40ft.
Exposure: ○
Water Use: Low
Soil pH Level: 6.1 - 7.8 pH

Tilia cordata
(Little Leaf Linden)
Mature Height: 50ft.
Exposure: ○ ○
Water Use: Medium
Soil pH Level: 6.1 - 7.8 pH
OPEN SPACE | QUALITY AND CHARACTER

Søndermarken
32.3 HA (79.8 AC)
Created 1699
Park in Frederiksberg with underground cistern

Enghave Park
4 HA (9.8 AC)
Created 1929
Public park with fountains, bandstand, sculptures and gardens

J.C. Jacobsens Garden
1.5 HA (3.7 AC)
Created 1849
Public garden with Hanging Gardens

Vestre Cemetery
54 HA (133 AC)
Established in 1870
Largest cemetery in Denmark

PUBLIC SPACE | WILD LIFE

Søndermarken
Old growth woodlands of beech, lime and chestnut trees; squirrels, foxes, bats

Enghave Park
Herbaceous borders
New plantings of acacia and lime trees; herons, gulls, pigeons, small birds.

J.C. Jacobsens Garden
74 different exotic plants and trees
Romantic landscape garden with “Philosopher’s Way”
Birds, insects

Vestre Cemetery
Exotic trees and elm, linden, beech, ivy
Squirrels, bats, foxes, frogs, toads, amphibians and newts
Mallard, Coot, Jay, Raven and Red Kit birds

PUBLIC SPACE| HUMAN HABITAT

**Søndermarken**
- Running the interactive ‘light hare’
- Hiking
- Exercise courses
- Playgrounds
- Dog park

**Enghave Plads**
- Central public square in Vesterbro
- The longest bench in Denmark
- Everyone is welcome here

**Ny Carlsberg Vej**
- Main street of Carlsberg
- Elephant Port

**Bubble Square**
- Climbing frames, ‘ball wall’, street basketball, ‘asphalt’ bubbles

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Created by Jamie Fogle
The Hub

Brett Meek, Heidi Liu, Jamie Fogle

Cultivating Connections

Caitlin Long, Madhu Jois, Haixu Li

Cistern City

Morgan Hoddes, Meenon Kastoori, Akshay Badwe

Convergence

Brandon Gossard, Frank Pendrell, Nikhila Ramineedi, Abdulaziz Alsharif
COLLABORATIVE INTERVENTIONS
THE HUB
A New Bike Paradigm
Brett Meek, Heidi QC Liu, Jamie Fogle
THEESIS
The HUB at Carlsberg Byen is a new paradigm for the integration of bicycling and architecture. Bicyclists and pedestrians can pass through the renovated Halmlageret building or circulate up and around the new community and retail spaces to the stylish rooftop bike patio with views of the surrounding neighborhood.

VISION
Imagine life at your new home in Carlsberg Byen where your daily ritual involves walking and bicycling to work, to the grocery, to meet friends on the weekend at a rooftop patio, or to pick up the kids from school.

GOAL
As the quintessential bike city, Copenhagen is a place where human health, happiness and an eye toward the future is prioritized over an individual’s car, air pollution and vehicular traffic flow. It is where young girls in stilettos travel by bike on their way to a party or businessmen in suits go to work. In Copenhagen 50% of all citizens commute by bike every day and there are more bikes than inhabitants. The relocated metro station at Carlsberg Byen supports the city-wide initiative to walk and bike instead of relying on the automobile.

OBJECTIVES
The QUALITY OF LIFE for Copenhageners will be further elevated through improved PEDESTRIAN AND BIKE CONNECTIONS to the existing neighborhood fabric around the Carlsberg site that results in improved INTERACTION and DWELL TIME. We will achieve this by working within the existing fabric of the site as well as creating a new community destination for Carlsberg Byen, and the Valby and Vesterbro districts.

> Leverage historical character of site through adaptive reuse of Halmlageret as a bike-centric facility for education, community events/ workshops and storage;
> Improve access to adjacent neighborhoods by removing barriers and connecting existing street network;
> Provide integrated design solutions for storm-water management within the public and private realm;
> Blur the line between the public and private realm for a flexible and welcoming transition zone to dwell and interact with the semi-public and semi-private uses.
VALUES

**CHOICE:** of destinations and access for pedestrians and bicyclists. This is a major determinant in quality of life for Copenhageners.

**SUSTAINABILITY:** of baseline social, environmental, and economic qualities and the ability to adapt them to changing circumstances.

**IDENTITY:** is preserving historical identity of Carlsberg while providing a framework within the current community identities can grow.

**ENERGY:** allows and invites engagement and participation in public life. It makes people wonder, explore, and investigate the neighborhood.

**FLEXIBILITY:** in programming that allows the community to envision the new design and leave their ‘fingerprints’ on the urban realm.
CARLSBERG BYEN
Over the next 15 to 20 years, Carlsberg City will be urbanized and rebuilt based on the plan of the Danish architectural firm Entasis.

The master plan is characterized by short, narrow streets and alleyways, unpredictability, and many large and small squares. Historically, the brewery campus had limited access on the west and east sides and the master plan area surrounded by walls and fences.
INTERVENTIONS
Extend existing row-house typology into the site.
Provide bicycle and pedestrian access from the adjacent neighborhood.
Re-locate the open space to be along the road and bicycle corridor.
The public and private realm is the canvas for year-round programming focused on young families, young professionals, active singles and new couples.

1. BIKE LANE THROUGH BUILDING GREEN ROOF  
2. BIKE PATIO  
3. NEIGHBORHOOD PLAZA  
4. RETAIL PATIO  
5. VEHICULAR ACCESS  
6. STORM-WATER INFRASTRUCTURE  
7. PLAY AREA  
8. COMMUNITY PLAZA  
9. PLAZA THRESHOLD
PLAZA INSPIRATION IMAGES

1 BIKE PATIO

2 ROOF GARDEN

3 BIKE LANE

4 COMMUNITY PLAZA

5 ROOFTOP SLIDE

6 ACTIVE PLAY

7 STORMWATER INFRASTRUCTURE

8 RETAIL PLAZA

9 NEIGHBORHOOD PLAZA

Photo Taken by Jamie Fogle

HALMLAGERET AKA ‘STRAW WAREHOUSE’

HISTORY
Halmlageret was built in 1949 and designed by architect Tyge Hvass. This unique building houses the entire 2,000m² (22,000sf²) and was originally used as the bottling hall, where you tapped in the region of 10,000 bottles per hour. Later, in the 1970s, the building was used as a truck school for the brewery workers and then as a straw depot for the many horses that Carlsberg has had, hence the name that Carlsberg has had the name Straw Warehouse.


Section created by Brett Meek
EXPO 2010 DANISH PAVILION
The Danish Pavilion was designed to exhibit Danish virtues and through vertical interaction, give the visitor an experience of the city bike, the harbor bath, the nature playground and ecological picnic.

CYCLE SPACE INTERNATIONAL
Cycle Space strives to optimize the mode of optimum benefit to our health, wealth and planet, and to dismantle the hegemony of car-centric planning that does more to hurt walking and public transport.

RIJKSMUSEUM AMSTERDAM
Bicyclists and pedestrians are allowed to pass under the building as a shortcut across the city. During the museum’s renovation, it was initially determined to remove the path. However, the local biking community lobbied for the path to remain as a major destination and experience for locals and visitors.
HALMLAGERET

CONCEPT
Adapting the existing 1949 structure to be the bicycling epicenter of the site supports the mission of Carlsberg Byen. Building penetrations allow for exterior ramps to access the roof and creates an interesting and desirable destination.

IMAGE REFERENCES
2. www.cycleracks.co
3. www.visitcopenhagen.dk
4. www.fillarifoorumi.fi
5. www.klassnik.com
6. www.denver.eater.com
7. Photo taken by Jamie Fogle
10. Photo taken by Jamie Fogle
12. Photo taken by Jamie Fogle
TRANSFORMATION

2 | MASSING PENETRATIONS

3 | RAMP CIRCULATION

6 | LEVEL ONE FLEX SPACE

7 | LEVEL TWO ROOF GARDEN AND PATIO
ARRIVAL EXPERIENCE
Cultivating Connections
Linking Places through Green Infrastructure
Caitlin Long, Mahdu Jois, Haixu Li
Access to parks and open spaces is vital to maintaining a healthy lifestyle.
In order to provide a more complete park and open space network to the current residents of Valby, Vesterbro, Frederiksberg, with a total population over 200,000, and the new residents of Carlsberg, we propose a clear green infrastructure connection that will link the 54 hectare Vestre Cemetery to the south of Carlsberg to the Frederiksberg Garden northwest.
Due to the unique hilltop location, one of the main challenges we seek to address in our proposal is the complex topography in our designed connection pathway.

Carlsberg lies at the southwestern edge of Copenhagen. Founded in 1847, it was located on an undeveloped hillside. Over time, development has come to surround the Carlsberg Brewery on all sides, and the population continues to increase in Copenhagen and the surrounding suburbs.
The Carlsberg Local Plan identifies this area for future development of several buildings, including one of the nine towers proposed throughout the site and a public passage through them. While we agree with the intent to densify the interior of Carlsberg with new residential and commercial development, we disagree with removing the existing open space along Olivia Hansens Gade and the significant trees identified within it in the Local Plan. Instead, we intend for this route to become a focal point within the new Carlsberg neighborhood, drawing people in from the bicycle green way and from the new train station.

Legend

- Existing Building
- Proposed Building
- Eliminated Master Plan Building
Green Infrastructure Benefits

Environmental Benefits
- Reduces flooding
- Improves water quality
- Provides habitat
- Reduces urban heat island effect
- Improves air quality
- Mitigates global warming
- Increases groundwater recharge

Social Benefits
- Improves public health
- Beautifies neighborhoods
- Calms traffic
- Builds communities

Economic Benefits
- Reduces landscape maintenance cost
- Increases groundwater resources
- Reduces water imports
- Reduces energy use
- Increased Land Values
Precedents

1. City of Philadelphia conducted a study and found that an increased tree canopy would reduce ozone and particulate pollution levels enough to significantly reduce mortality, hospital admissions, and work loss days. This study concluded that by increasing green infrastructure implementation by 50 percent, the City could save between $12.5 million and $20.5 million in total annual health costs as outlined by the U.S. Environmental Protection Agency (EPA).

2. American research has found that a yard tree can intercept 760 gallons (3455 liters) of rainfall in its crown, thereby reducing polluted storm-water runoff and flooding. (Report by Forest Research)

3. In Philadelphia, a green retrofit program that converted unsightly abandoned lots into resulting in economic impacts that exceeded expectations. Vacant land improvements led to an increase in surrounding housing values by as much as 30%. This translated to a $4 million gain in property values through tree plantings and a $12 million gain through lot improvements.
INSPIRATION

The form of the green infrastructure connection is inspired by the need to provide ‘flow’ vertically and horizontally, which would modulate with respect to topography of the site and gradually transition its way into the existing parks. The connection will utilize the proposed buildings as landforms upon which the pedestrian and bicycle path will flow at a more consistent slope than the underlying terrain. This creates opportunities for new multi-functional elevated public spaces along the route that take advantage of the sunlight and views. It is intended to be a gathering place as well as a platform for small temporary events which will flow onto and through buildings housing commercial and residential uses.
PROPOSAL

Starting point of green connection through JC Jacobsen Park

Transition of green connection along Klatreskoven
Green connection between buildings on J.C. Jacobsens Gade

Active spaces in Jacobsens Villa Gardens along the green connection

Created by Muhdu Jois
Storefronts and garden cafe spaces below the connection

Outdoor seating and gathering areas in JC Jacobsen park

Sculptures that retain the essence of Carlsberg brewery

Bicycle and pedestrian link between Vestre Cemetery and Frederiksberg park
Eliminating a building preserves existing tree canopy

Elevated pathways create a second storefront above the street

Vegetation visually links the path to the preserved trees below

Natural materials provide consistency throughout the site

Olivia Hansens Gade
ROOFTOP PUBLIC AMENITY ZONES

Protected gathering spaces on rooftop having access to connection

Green edge and pocket green spaces along pedestrian connection

Bridge connection between buildings

JC Jacobsens Gade
DESCENDING INTO JACOBSEN VILLA GARDENS

Sculptural elements that add to the essence of Carlsberg

Planting beds along bike and pedestrian connection

Smooth connection to the main street

Jacobsen Villa Gardens

Frederiksberg Park - 5 minutes
“In Denmark, people seem to be accountable for their actions so there aren’t a lot of safety requirements in the public realm (eg. railings). This also means they learn how to function properly and not blame others for their negligence.

Americans are very territorial and private lands are usually fenced or secured. The Danes are much more inviting and letting people use most of the exterior spaces for intended and unintended uses (e.g. distortion, pop-up markets, front yards at the Potato Rows).

Biking in the city is the easiest and healthiest way to travel. I didn’t ride in a car for an entire month and I survived!! There was a clear hierarchy of pedestrian first, bikes seconds, cars last. Civic leaders need to believe that the impossible is possible so the Market can execute that vision. Taking risks and learning from them.

It was a great experience. I want to go back!”
- Jamie

“Copenhagen was an opportunity to get a real view into what urban design work looks like in real applications in a different context than the USA. It is good to see how much was effected in our city planning in the suburban movement and how convenient urban density is compared to urban sprawl. We met some amazing people doing incredible work and get exercise on a bicycle all at once. Beautiful city to learn from!”
- Morgan

“It was really great to be in one of the most progressive parts of the world and understood historic buildings and contemporary urban form can coexist! The short trips explored the downtown area, canals, Carlsberg brewery, the industrial symbiosis plant and various types of housing. The interaction with the leading architects and urban designers helped to get insights of the current work and market trends in Copenhagen. I am definitely missing biking on the streets of Copenhagen. I also enjoyed time with my colleagues. Overall, it was a memorable learning experience!”
- Akshay
"It was the most memorable studio experience by merging myself in the culture. To respect the culture and life style, I manage to integrate a foreigner’s perspective to the project context via my team work. I was impressed by how well we collaborate and being creative as a team. The funniest thing for me is leaned to ride a bike in Copenhagen! I look forward to coming back."
- Heidi

"I had a really wonderful time in Copenhagen with instructors and classmates. Carlsberg is a very cultural and meaningful area in that neighborhood. Our group members have a lot of passion on this project. For other things, some famous Danish restaurant is too difficult to make a reservation. I will go back in the future."
- Haixu

"Study abroad in Copenhagen has been a great experience in terms of further refining my urban design and planning skills. All of us worked hard and had a lot of fun exploring the beautiful city!"
- Madhu
CARLSBERG BYEN - OUR CITY

“Our City” (Vores By) is a concept that is widely discussed but very complex and difficult to define. Architects, Landscape Architects, Urban Designers and Urban Planners struggle to implement design strategies and policies that effectively ‘give the city to the people who live in it’.

The concept behind Carlsberg is simply that: giving back space to the people of Copenhagen and allowing them to shape and fill their own environment.

This Urban Design Studio explored ways to design space that compliments the development’s purpose by designing space that allows people to participate in its formation and function. The four design proposals are rooted in the concept of “Vores By” (Our City) as well as design concepts of public participation in the design process, that are unique to the culture and tradition of Copenhagen.”

- Leila Tolderlund