



NTNU

THE ADAPTABLE CAMPUS



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Supervisor: Prof. Kerstin Höger

The Brief

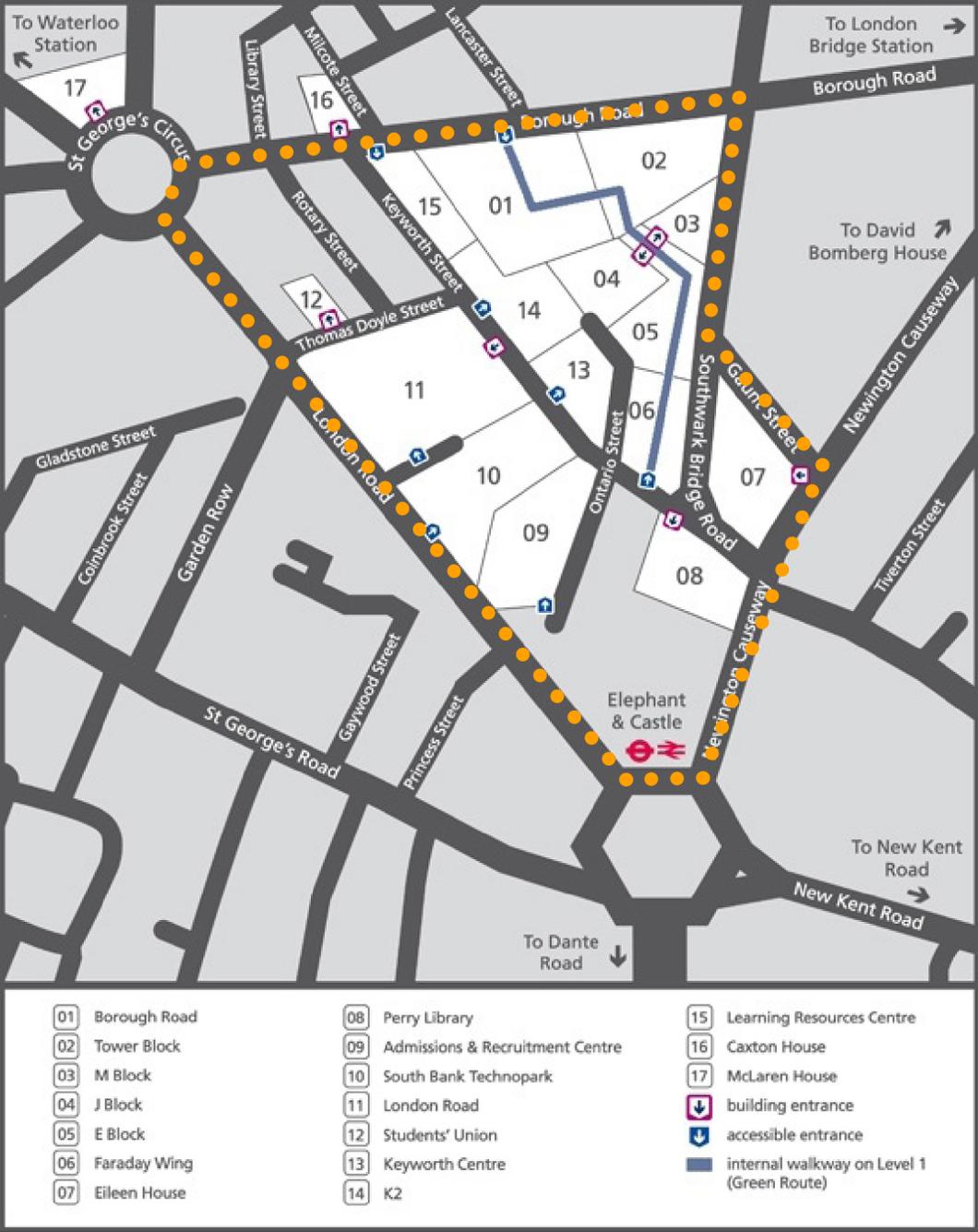
This project aims at developing the existing NTNU campus at Gløshaugen in order to house the faculties and facilities at Dragvoll, and other NTNU facilities around the city, into one central city campus.

The focal point of this concept is to develop and enhance NTNU by taking advantage of the potential spaces on Gløshaugen as well as seeing the possibility of redeveloping the existing building mass on campus.

Background

London South Bank University

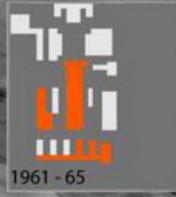
- ≈ 73'000m² GTA
- 17'600 students
- Much higher density
- +/-5m² per student



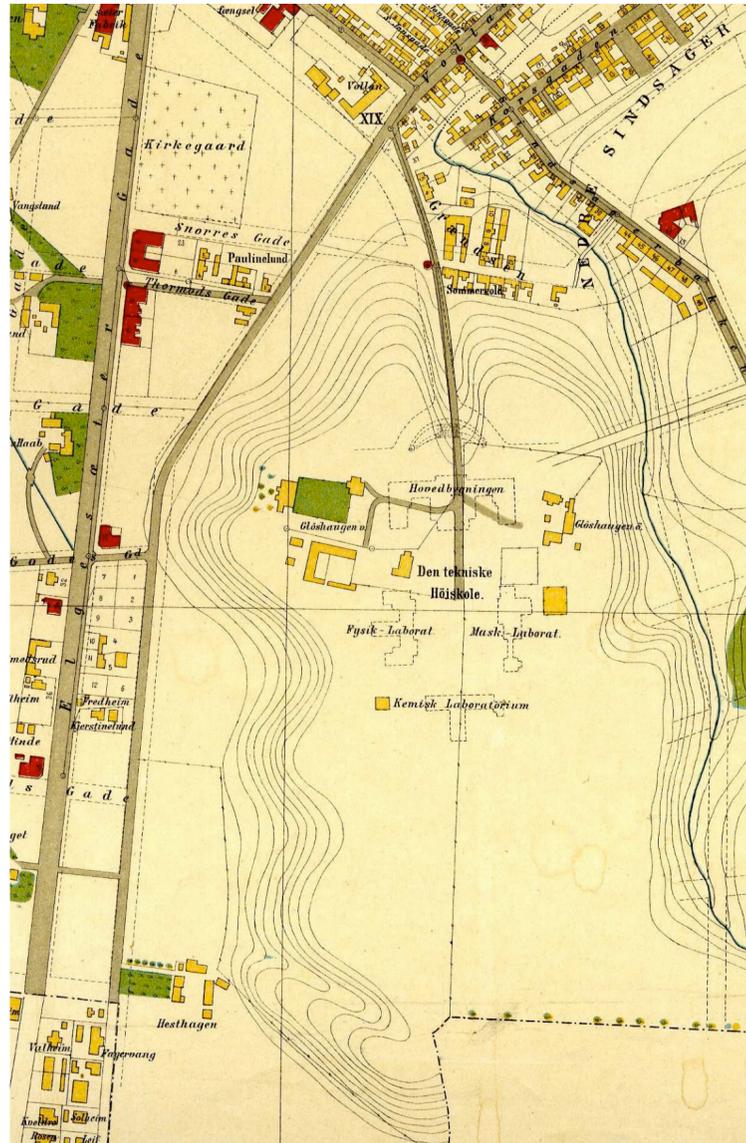
NTNU Gløshaugen

- ≈ 196'000m² GTA
- 9000 students
- Low density
- +/-10m² per student



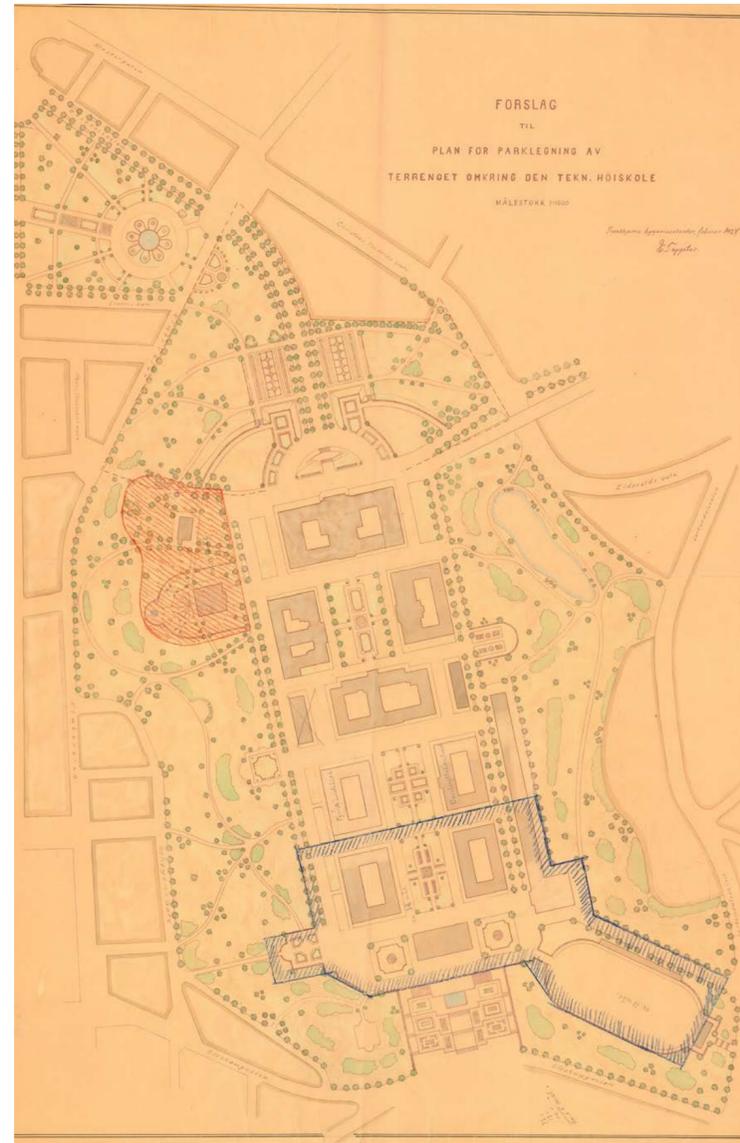


Original plan



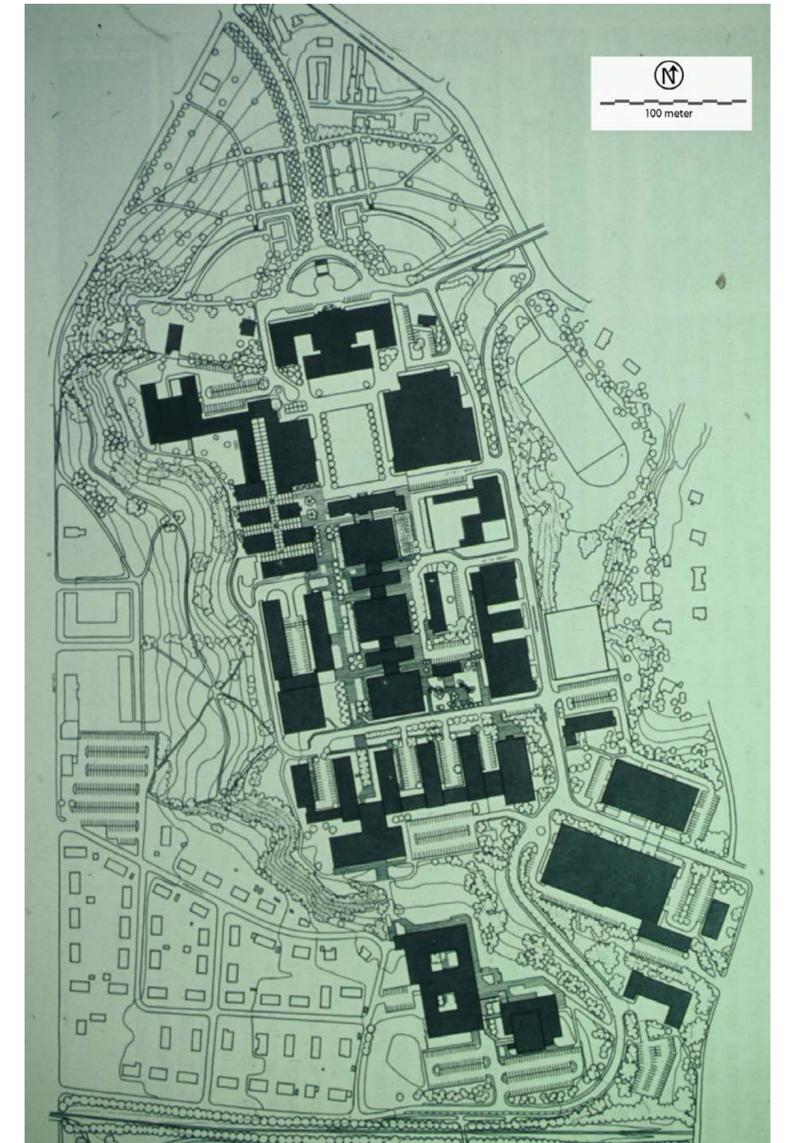
Segment of a map of Trondheim from 1904. The planned buildings of NTH, The Norwegian Institute of Technology were not yet built. They are drawn in a hatched line in the area which is now known as Campus NTNU Gløshaugen.

Universitetsbiblioteket i Trondheim (UBiT), Trondheim Kommune



Plan for the park and plants on and around what is now known as Campus NTNU Gløshaugen, Trondheim.

Citygardener E. Trygstad, February 1927, Trondhjems bygartnerkontor / NTNU Universitetsbiblioteket



Landscape architect Aasen's plan for treatment of the park and outdoor areas at NTH, now known as Campus NTNU Gløshaugen, Trondheim. This plan was drawn in 1970 - and was followed for the next 15-20 years until the park was well established.

Landskapsarkitekt Bjarne Aasen

Quality Principles

Unifying - The campus contributes to the community

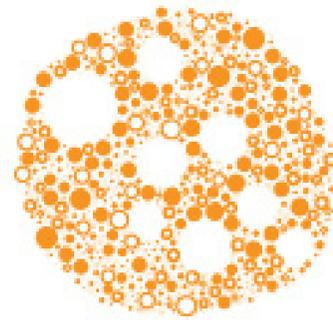
Efficient - Usability and space efficiency contributes to good work processes

Urban - The campus is open, attractive and alive

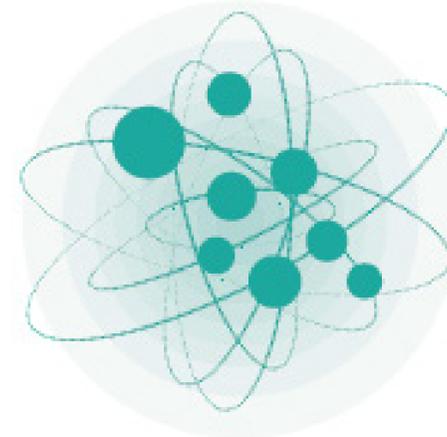
Connection hub - Campus features profiled hubs which are closely connected to each other

Sustainable - The campus is at the forefront of sustainable solutions

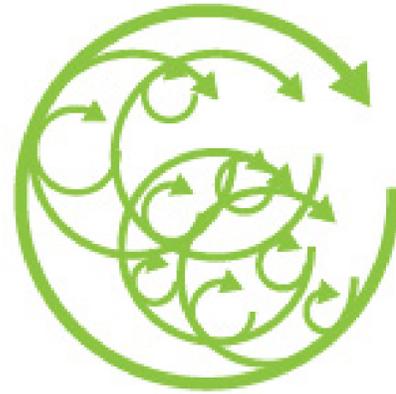
Living lab - The campus is THE place for explorations and research



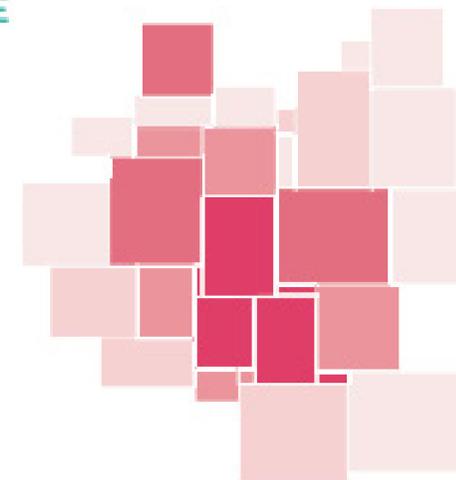
LEVENDE
LABORATORIUM



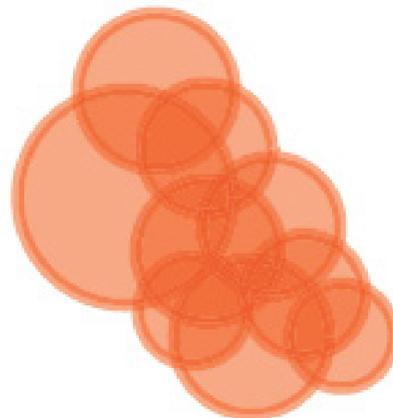
SAMLENDE



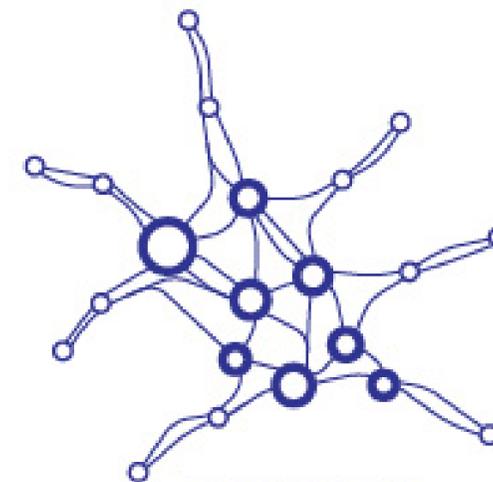
BÆREKRAFTIG



URBAN

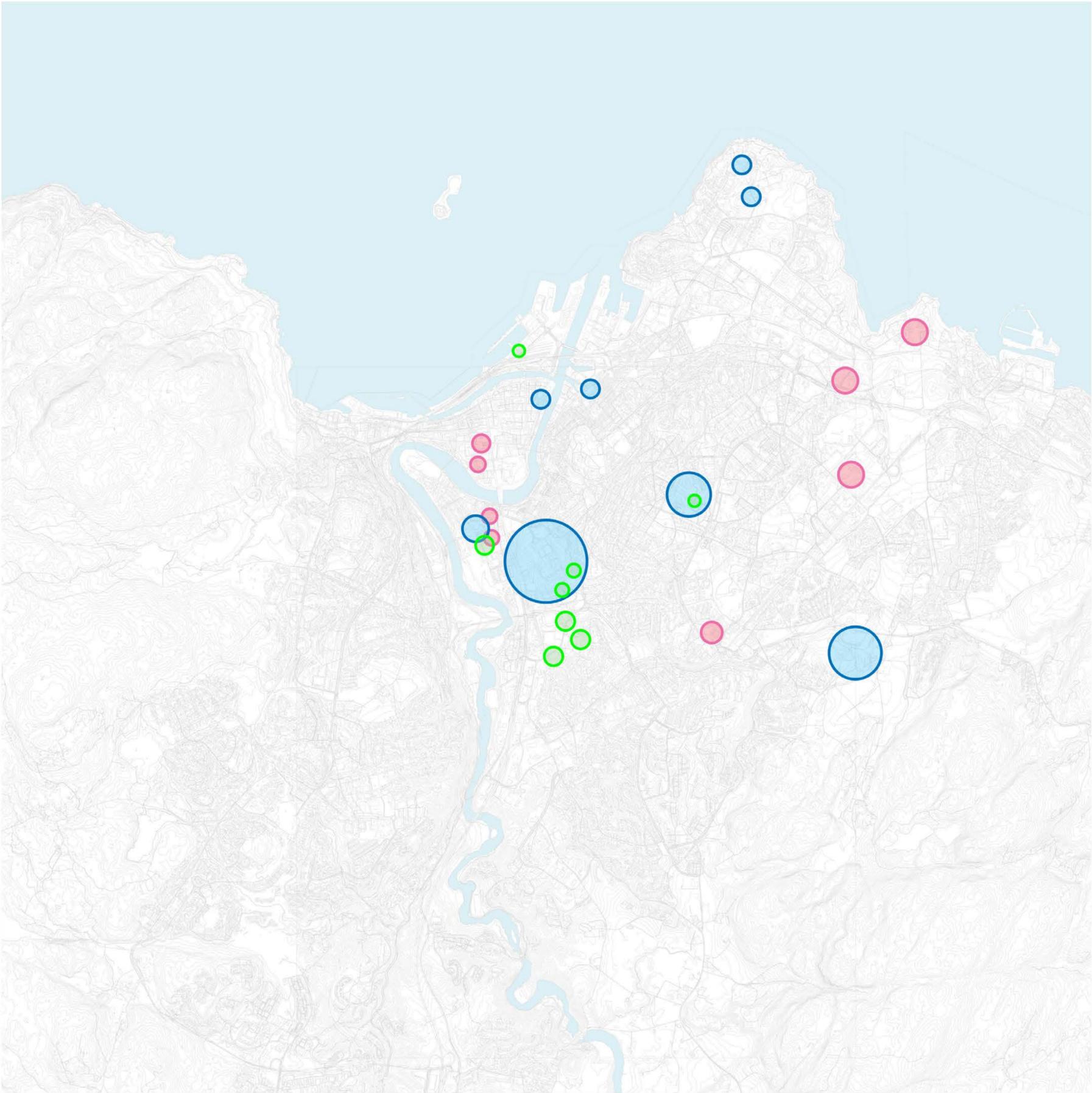


EFFEKTIV



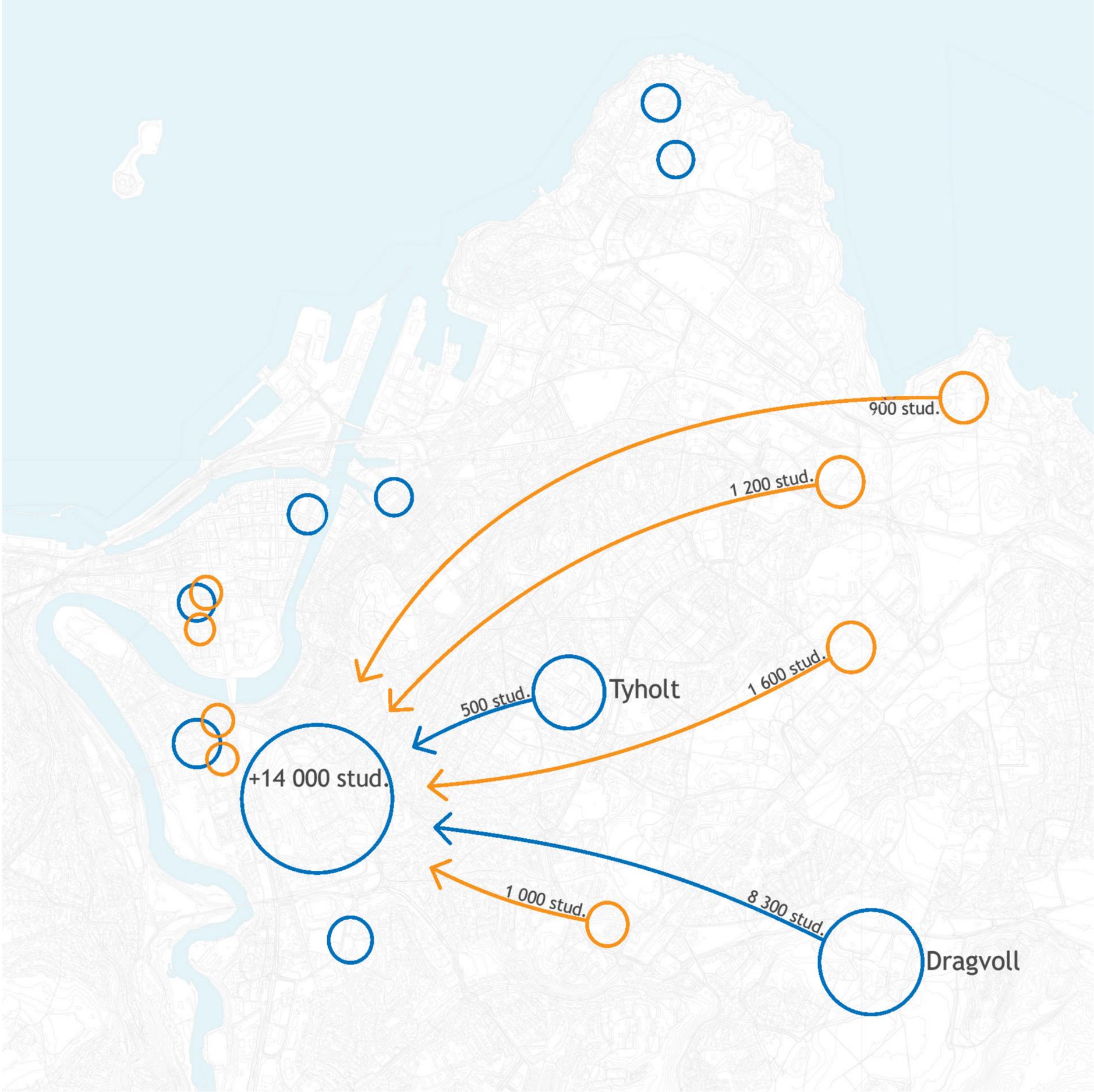
NETTVERK AV
KNUTEPUNKT

Current Situation

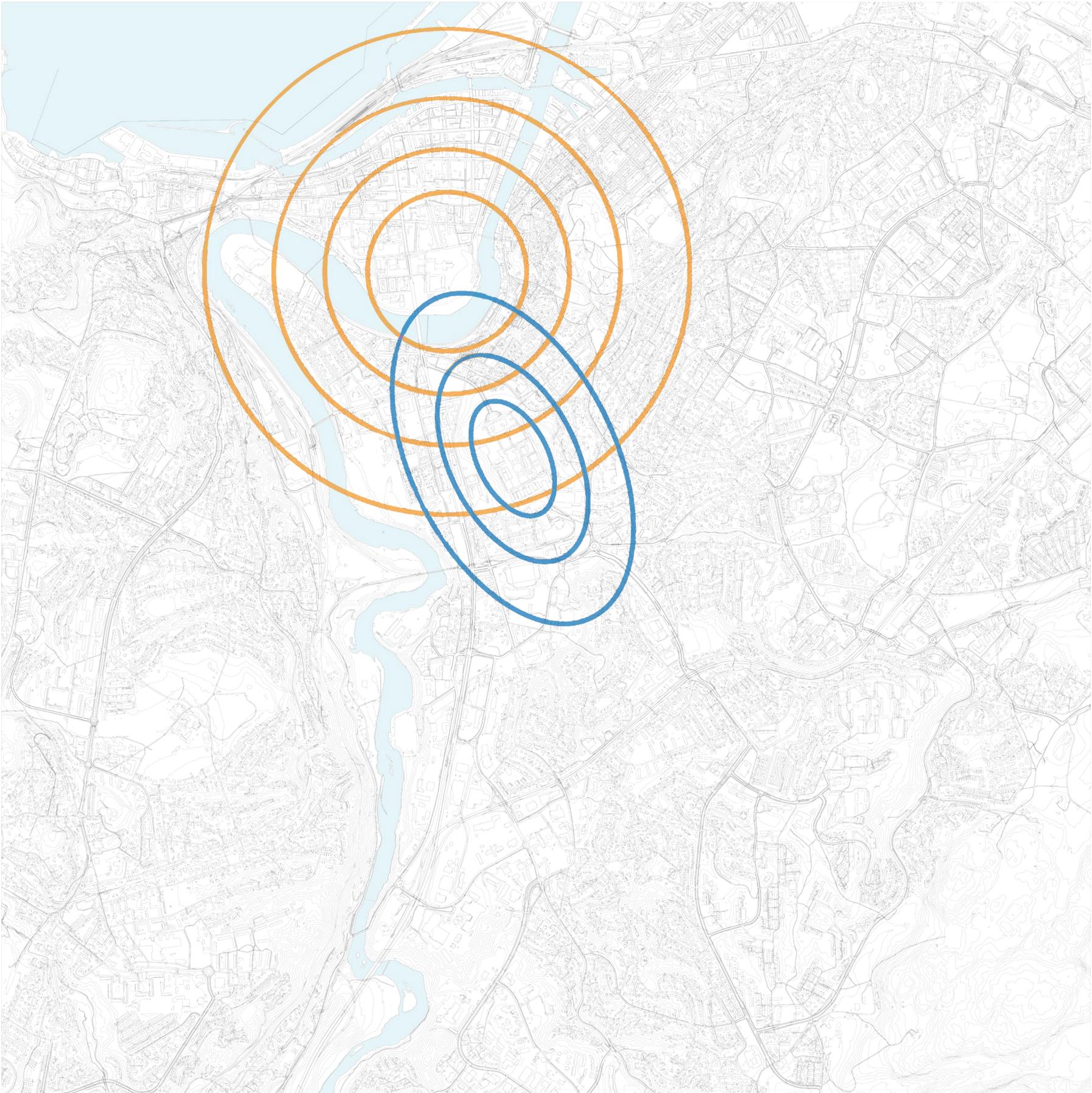


- NTNU 
- HIST 
- SINTEF 

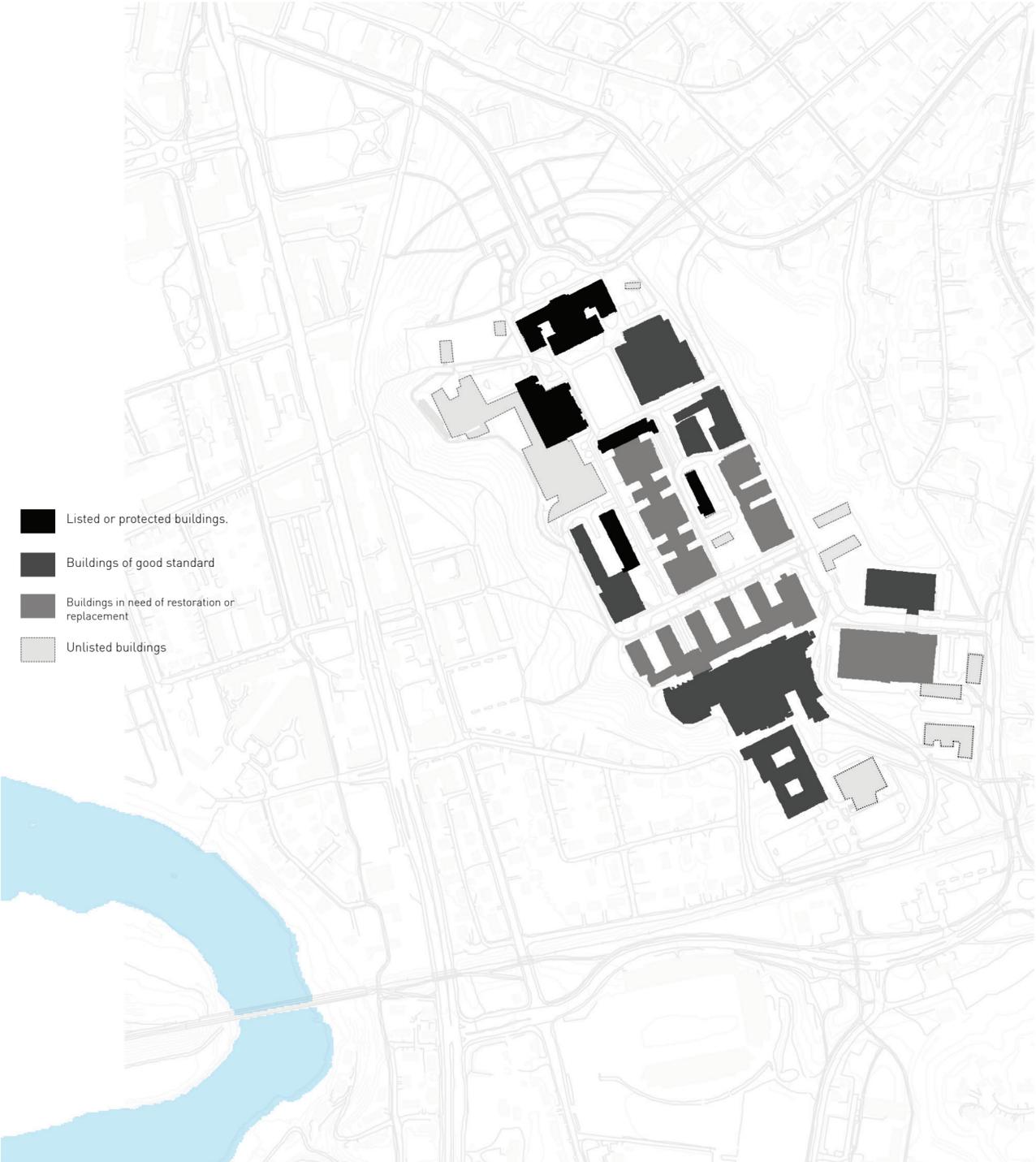
Fusion Plan

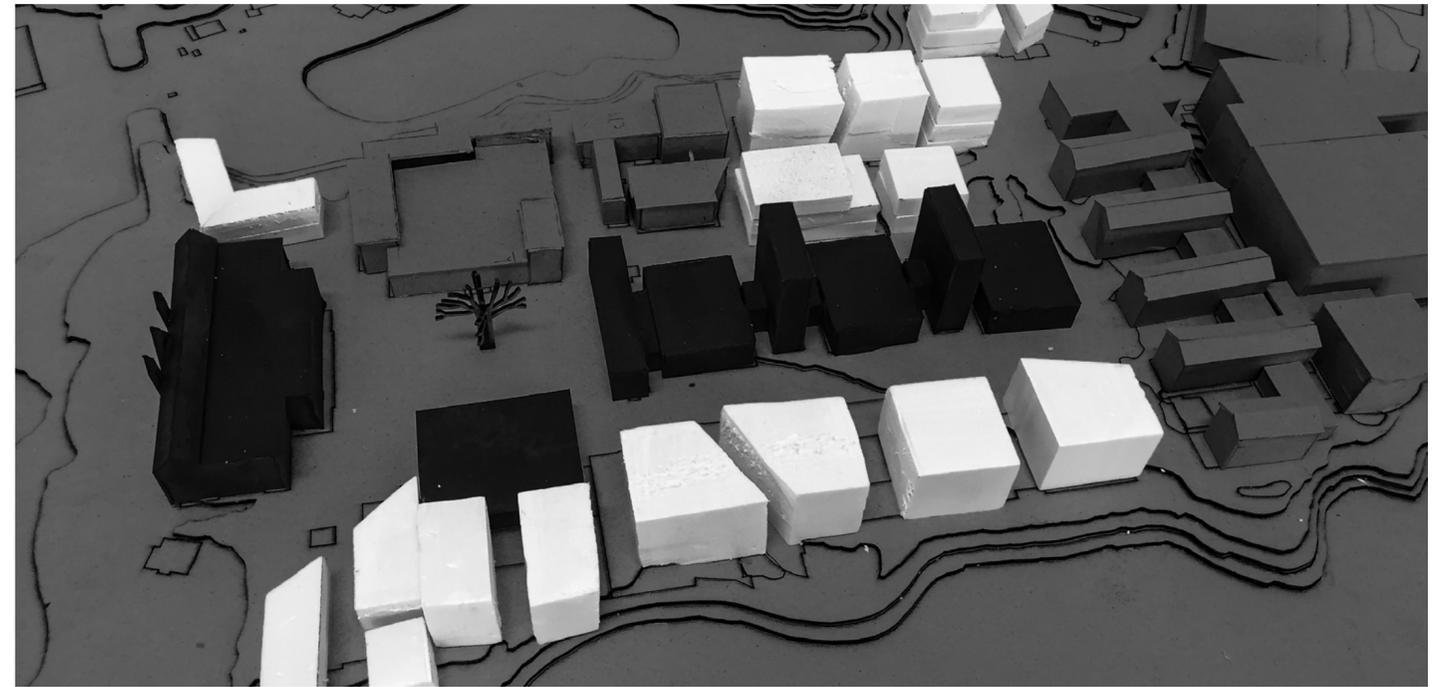
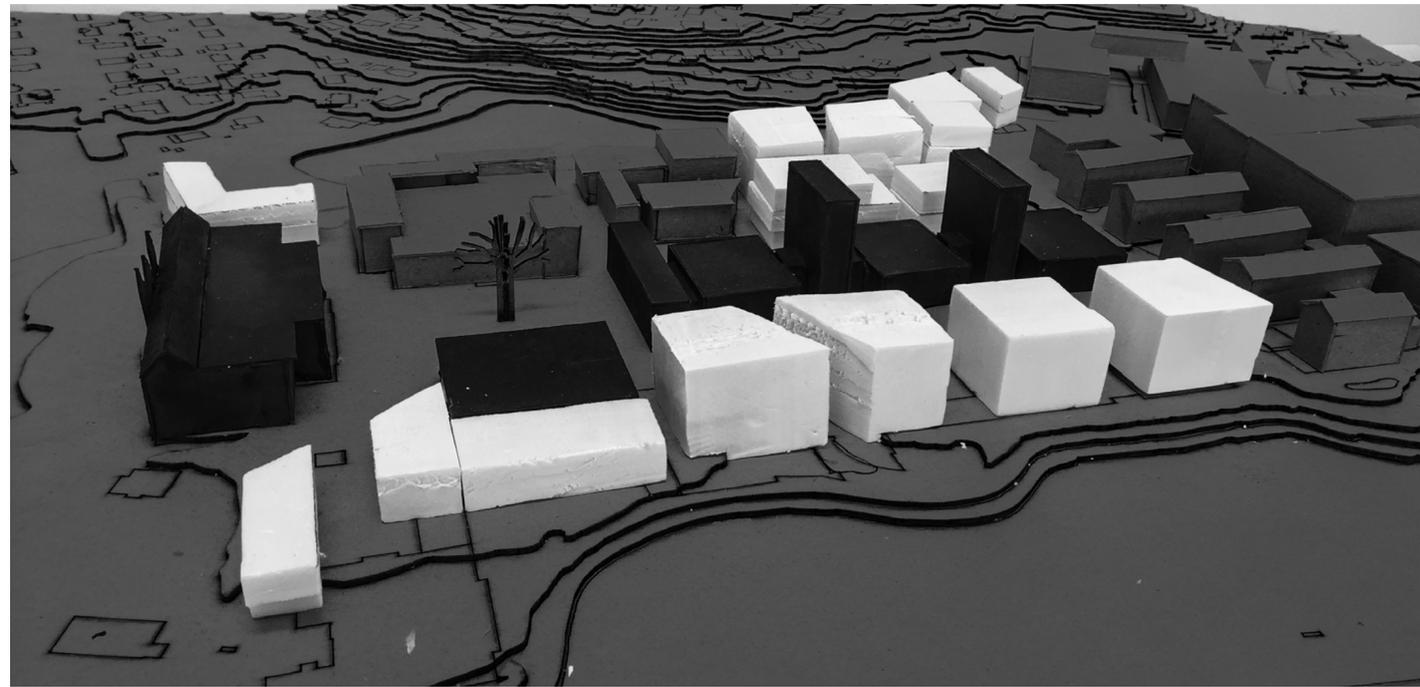


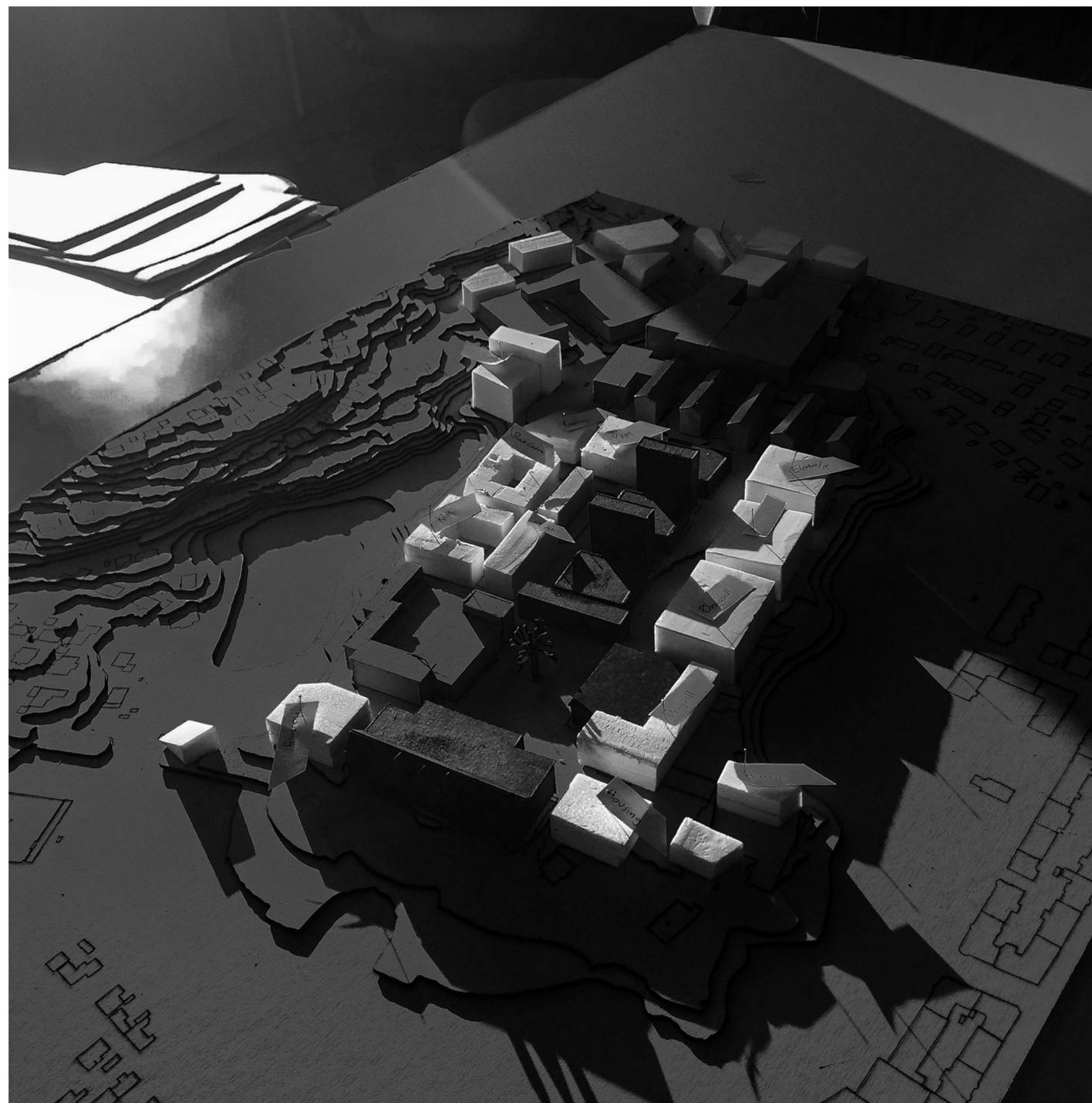
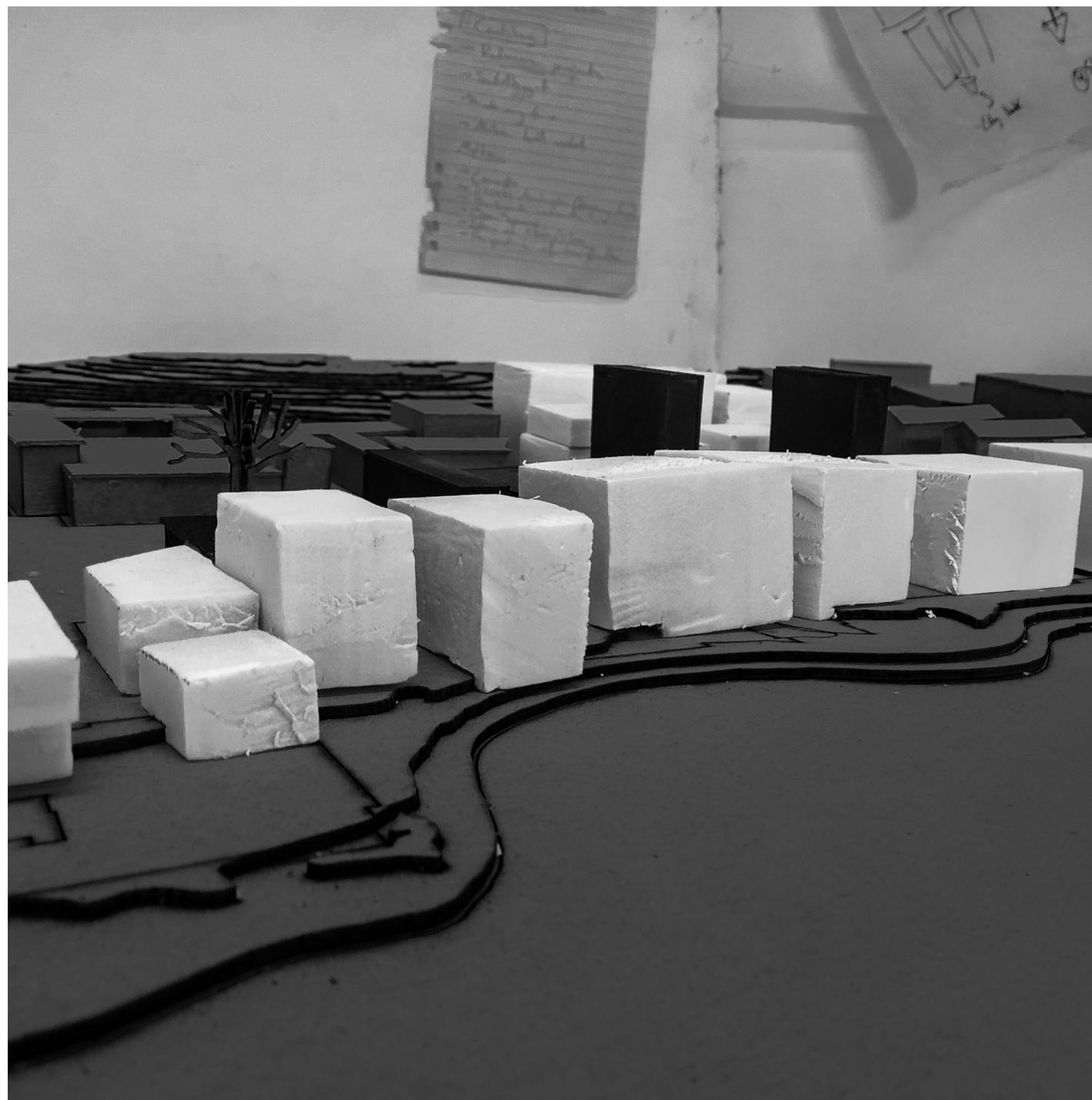
Campus fusing with the city



Building Evaluation

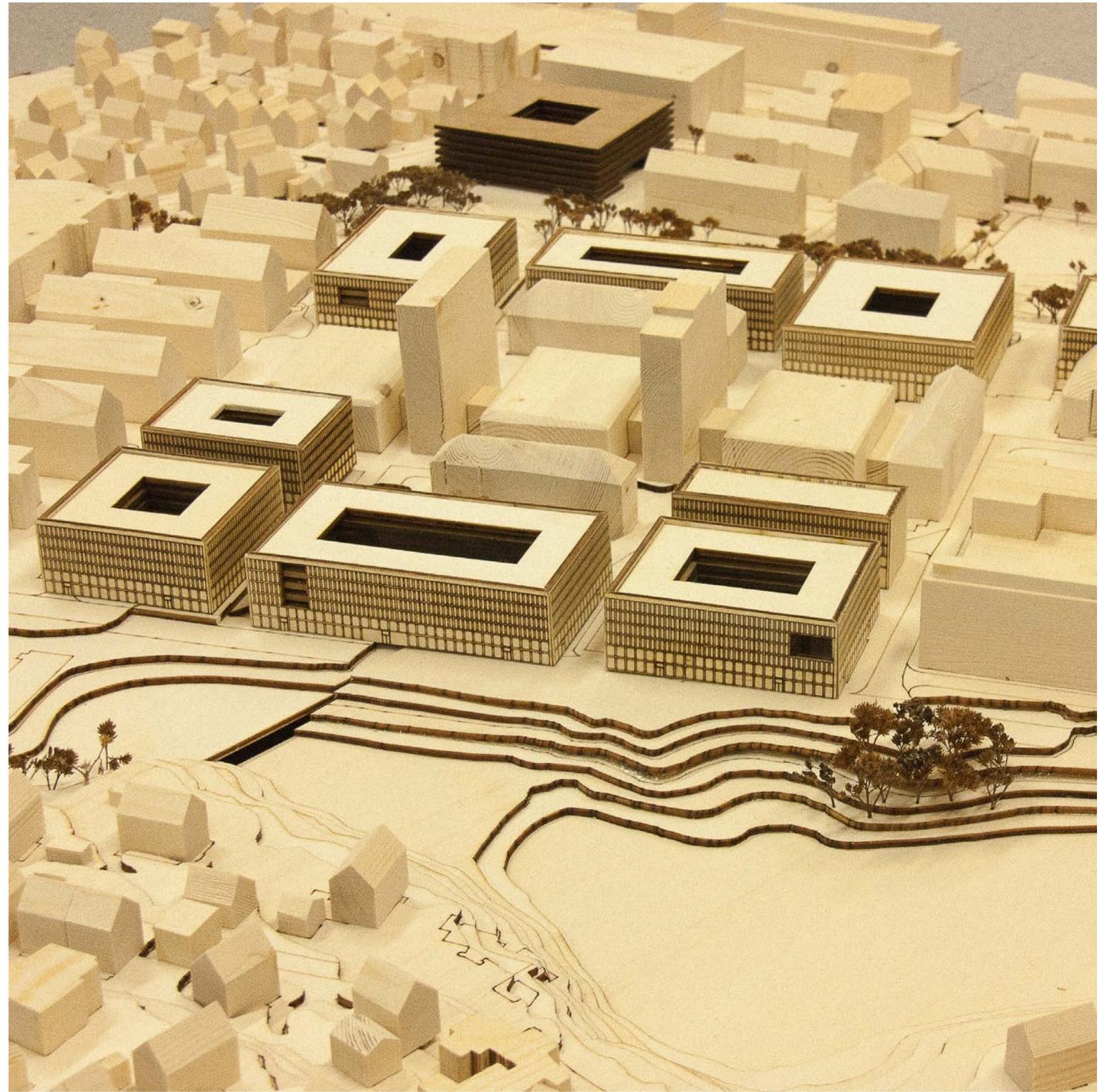








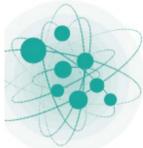




Masterplan



LEVENDE
LABORATORIUM



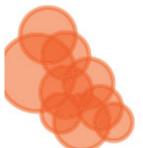
SAMLENDE



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KNUTEPUNKT



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Development plan



Living lab - The campus is THE place for explorations and research

- With a forward thinking development scheme the university can make adjustments for future expansions in response to new conditions and technologies.



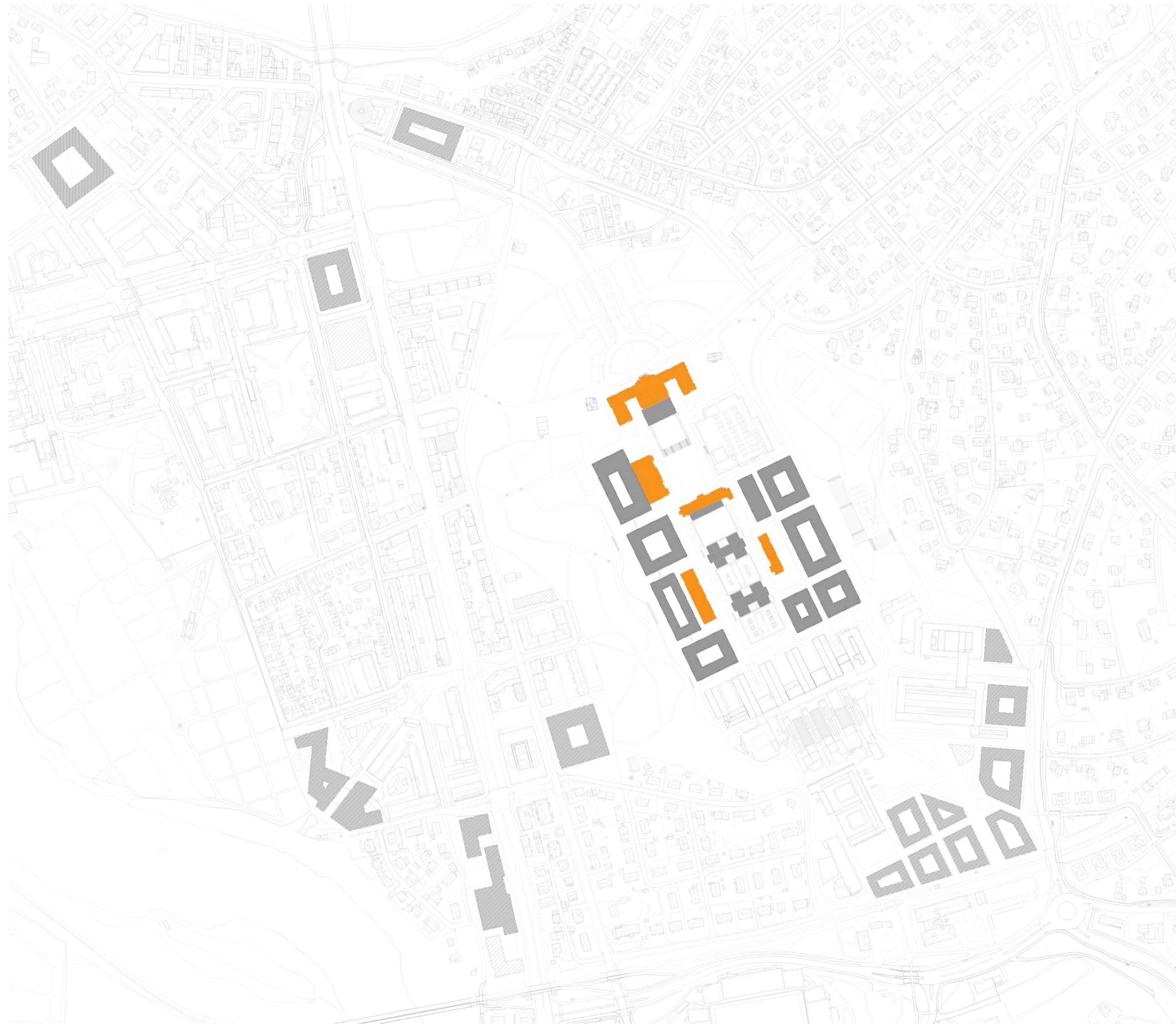
NTNU 2020
NTNU 2040
NTNU 2060

Historic buildings



Unifying - The campus contributes to the community

- By keeping the original campus buildings still alive on campus we take care of the cultural history of the campus.
- Developing the original site rather than looking at development at other sites enforces the already existing relationship with the city
- Better links and connections to a strong urban campus should be priority rather than letting existing structures decay and develop elsewhere.



Park and green space



Sustainable - The campus is at the forefront of sustainable solutions

- The park should NOT be touched by future development, the park should rather be enhanced and increased to encircle the campus completely with a green belt.

- Sustainable solutions should be promoted not only in active systems but in passive solutions, e.g. building standards should be high to promote longevity in the building mass.

- Green roofs and solar solutions should be explored to lower the heat signature on the campus and increase the public green space on campus.



Logistics



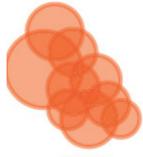
Urban - The campus is open, attractive and alive

- By defining clear links with the urban fabric of the city and creating inviting pathways up and around the campus, we can promote more interaction with the public which is non-existent today.

- The campus should be more than just for students.



New area



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Efficient - Usability and space efficiency contributes to good work processes

- The current situation has the respective departments enclosed in their own "bubbles" of activity with little influence from the rest of the campus.

- By densifying the campus and combining all student activities into one building we can promote a closer interdisciplinary community on campus.

- 134'000m² of new builds on the Gløshaugen plateau

- 60'000m² increase from current situation

- 70'000m² dedicated to Dragvoll

- 64'000m² to ICT, Geology and Electrical engineering.

- 234'000 m² proposed in total masterplan.

with an additional 75'000 m² as buffer space at Gløshaugen Sør.



Connections

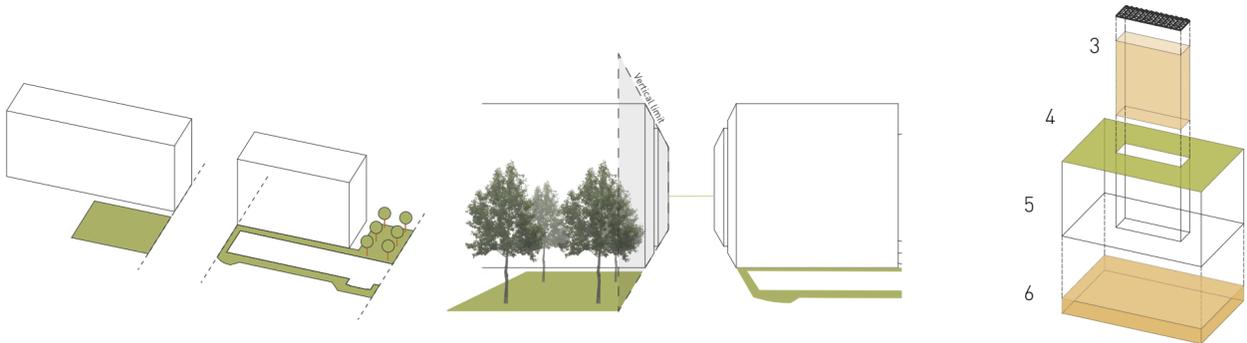


Connection hub - Campus features profiled hubs which are closely connected to each other

- Strong connection links already exist on campus but are in need of rejuvenation.
- By making Sentralbygget into the new student hub we create a new more attractive space for students to gather and interact.
- Gløshaugen is in a unique position in the city with close links to public arenas such as Lerkendal and Samfundet.
- Development of these connections should be priority rather than looking elsewhere for new connections.



Building Rules



#1 - Respect the grid

The grid, inspired by the Sverre Pedersen plan, is sometimes pertubated by existing building that we preserve. In these cases, the regularity of the grid has to remain, using systems like squares.

New buildings have to be built within the building lines

#2 - Virtual wall

The grid should also be perceived from the site. The gaps should be filled so the continuity of the perpesctive is not disturbed.

#3 - Atriums

The atrium contributes to the light distribution in the heart of the building.

#4 - Roof terraces

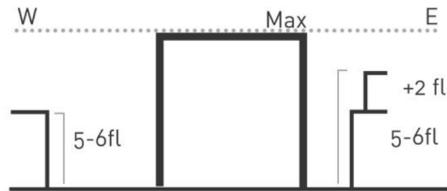
The roof of the building should be considered as the fifth facade. Thus, this space will be used as a green roof that can be accessible if needed.

#5 - Vertical circulation

The distribution of the building is carried by this volume to allow the other fionction of the building to be in direct connection with the external facades.

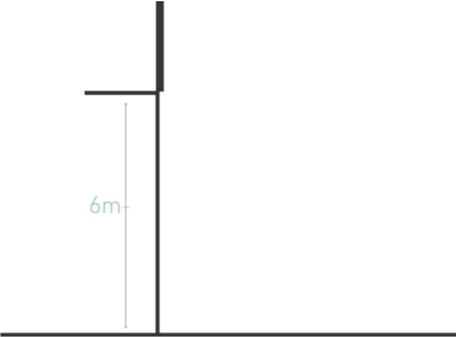
#6 - Adaptable ground floor

The ground floor has to be fried from any obstacle to allow different uses of the space according to the teaching discipline of the building, such as laboratories, auditorium, classroom, etc.



#6 - Building heights

New buildings should have an eave height of at least 20m and an average of 5-6 floors on the western parts of the plateau and an additional 2 floors set back on the eastern parts. Building heights should not exceed the towers.



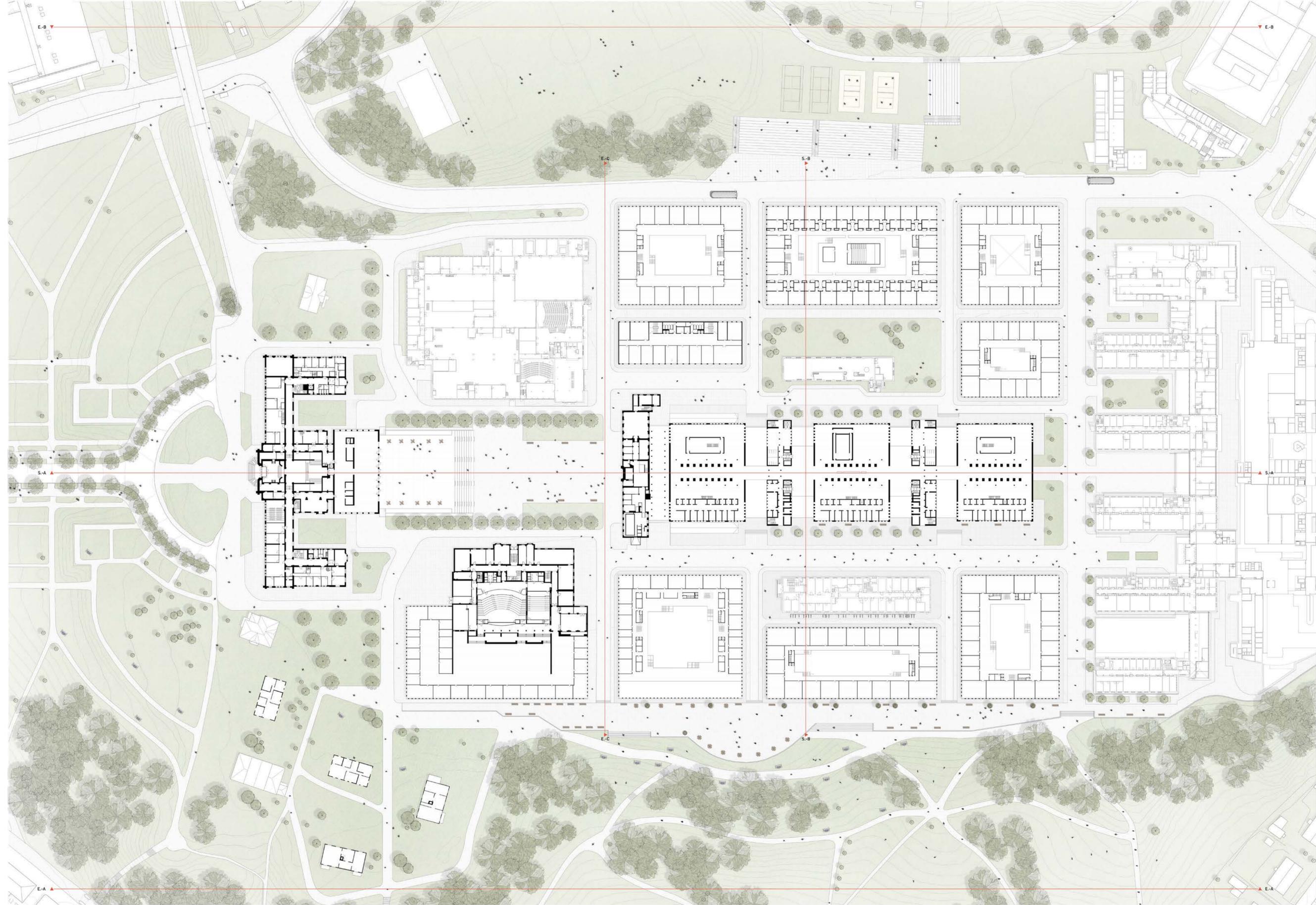
#7 - Public ground floors

The ground floors of new buildings along the western side of the campus should be double height spaces for entrance lobbies, and urban services like; cafeterias, café-bars, shops, lounges, etc



#8 - Materiality

Facades should show unicity in their materiality and complement the context and atmosphere of the site. Materials should be chosen locally and sustainably. Public Ground floor facades should be glass in order to show openness and portray the activities on campus 24/7. As the plan is homogeneous, the materiality should reflect as such. The materials chosen should be the same throughout the campus, with the exception of student housing.

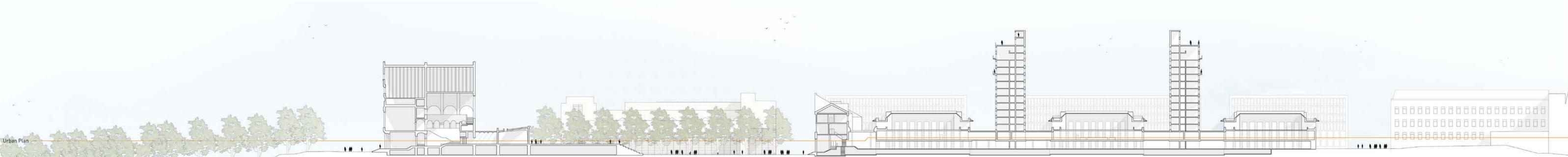


Facade West, Hesthagen/Høgskoleparken



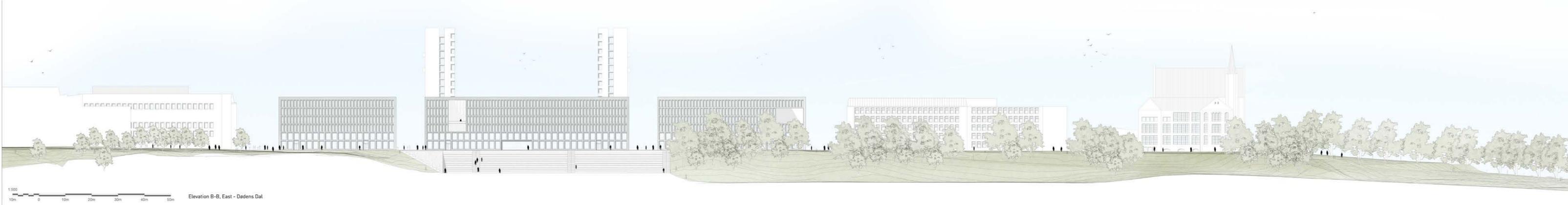
0 10m 20m 30m 40m 50m
Elevation A-A, West, Hesthagen/Høgskoleparken

Longitudinal section, Ceremonial axis

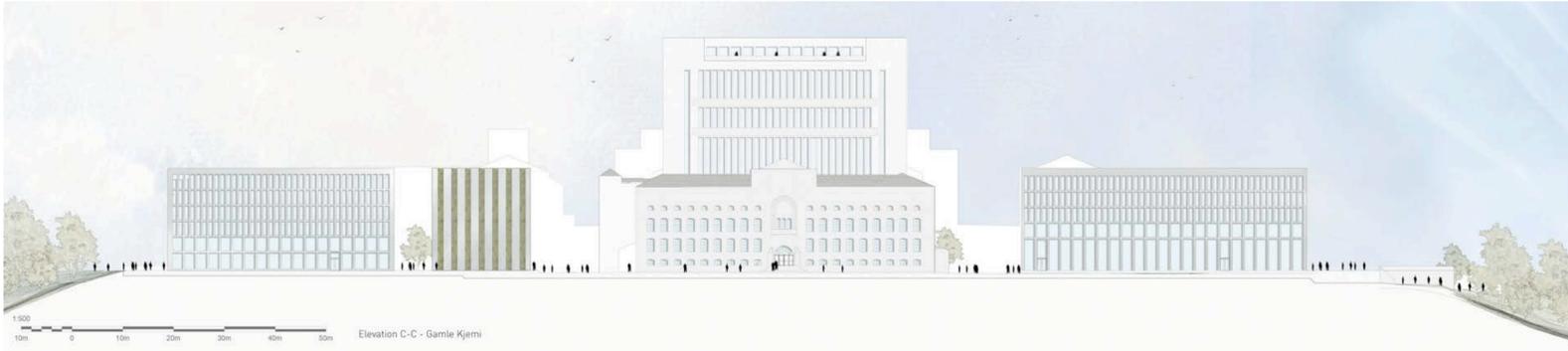


Urban Plan
1:500
0 10m 20m 30m 40m 50m
Longitudinal section A-A

Facade East, Dødens Dal



Facade South, Gamle Kjemi



Cross section, Plateau





Phase 0 - Existing Situation, Off-site buildings

- Construction of off-site buildings:
 - KAM(P)
 - Entra/KLP Office development (rental space)
 - Innovation Center
 - Center for Mental Health



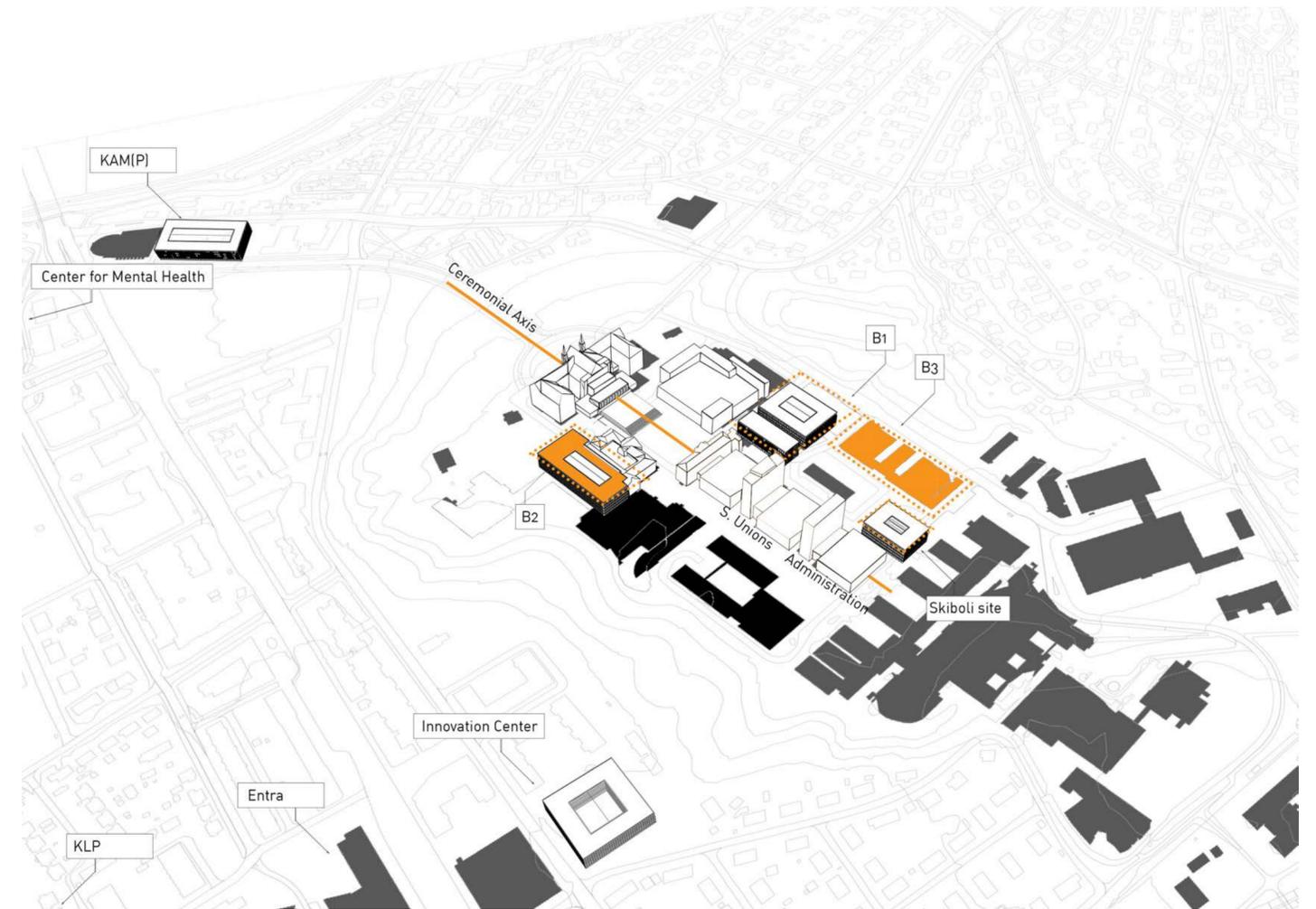
**Phase 1 - Relocations of students to off-site buildings
(Prerequisite - Completion of off-site buildings)**

- Relocation of faculties and students to designated off-site buildings:
 - AD + Music to KAM(P) building at Samfundet
 - Mathematics faculty relocated to Realfagsbygget.
 - Electronics to Skiboli site.
 - Administration services moved to temporary locations at KLP and Entra's office space in Teknobyen.
- Renovation of Sentralbygget into new main library and Student Center.
- Demolition of the Product Design and Workshop buildings (B1 site).



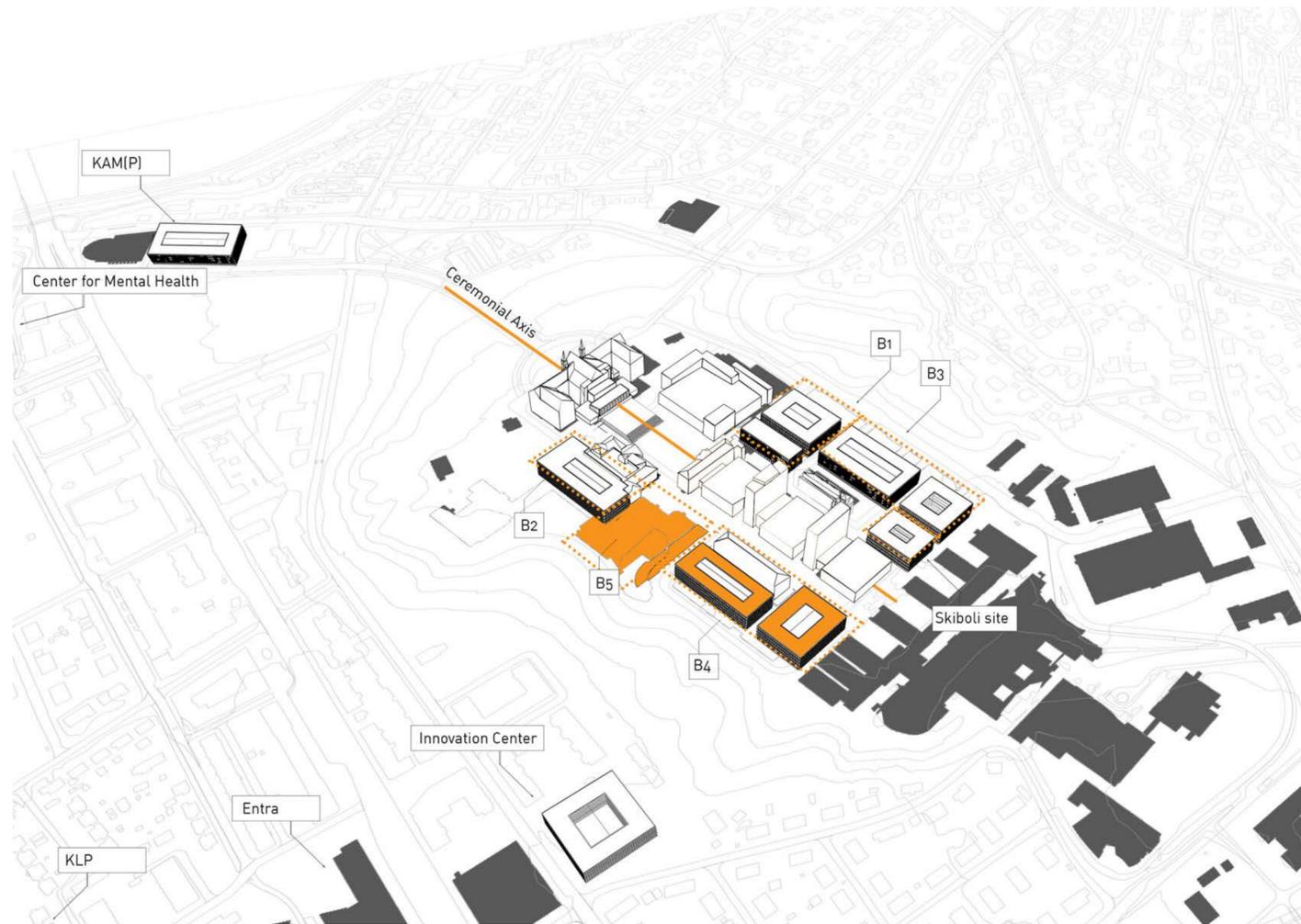
Phase 3 - Dragvoll + B2

- Relocation starts of humanities faculties from Dragvoll to new buildings at building site B2.
- Demolition of existing and construction of new buildings commences at building site B3.



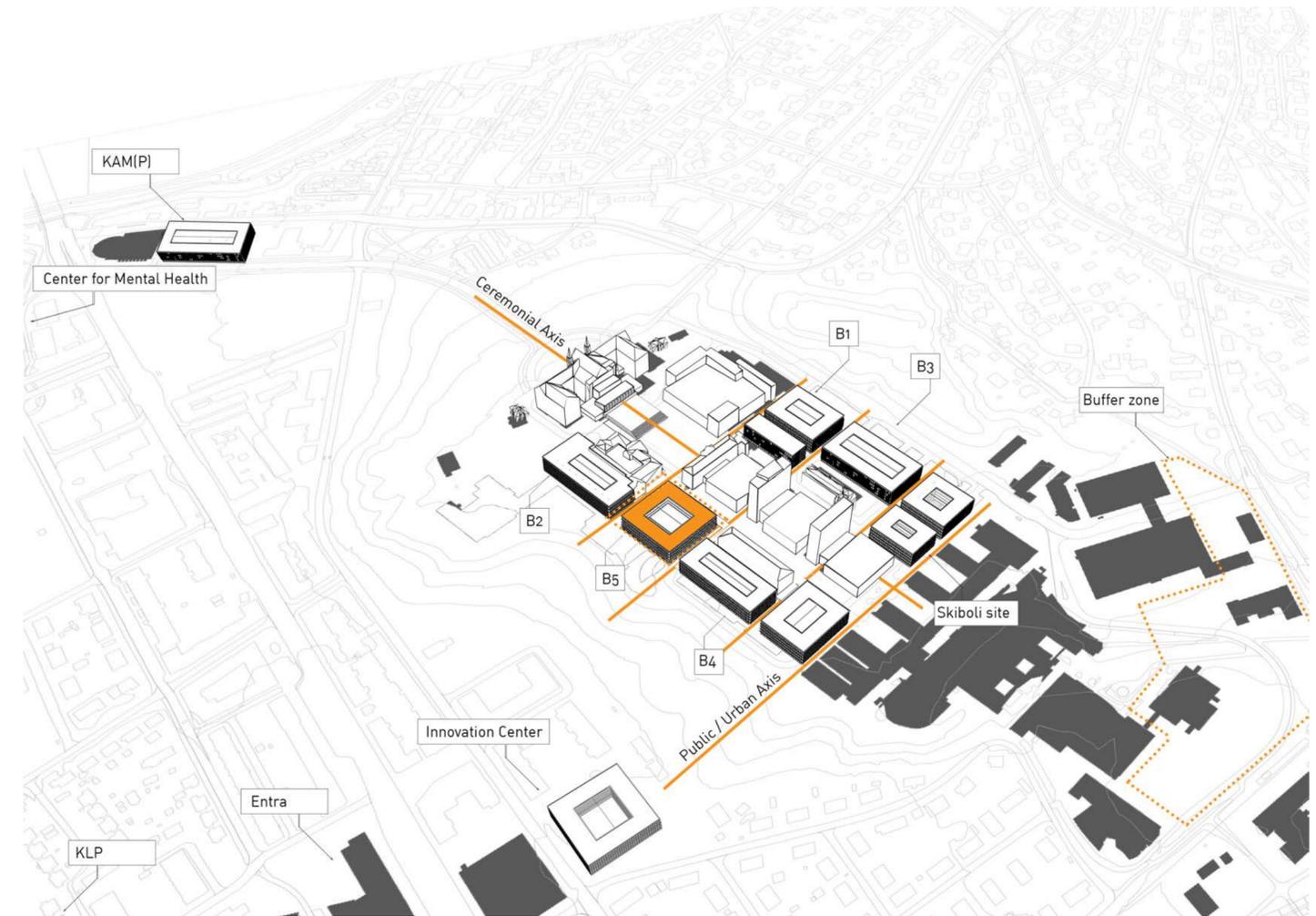
Phase 4 - B3

- Relocation of remaining engineering departments + geology to new buildings on the B3 building site and the Skiboli building site respectively.
- Demolition of existing and construction of new buildings commences at building site B4.



Phase 5 - B4

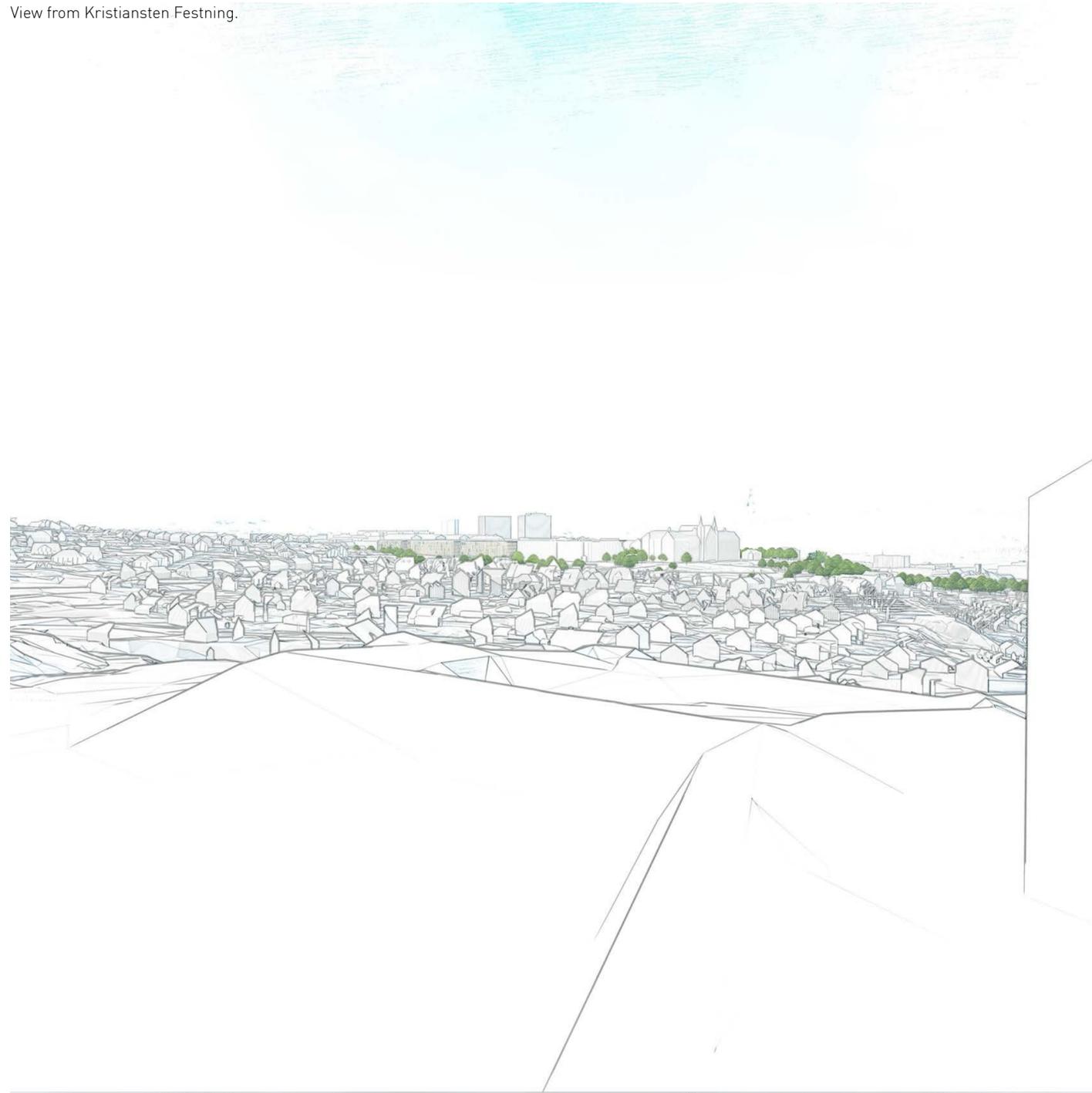
- Remaining humanities departments from Dragvoll to be relocated to their new buildings at building site B4.
- Demolition of existing and construction of new buildings commences at building site B5.



Phase 6 - NTNU 2040

- All new structures on the plateau have been completed.
- Remaining faculties are redistributed to their respective buildings, administration.
- NTNU Gløshaugen is now ready to house an additional 5000 students.
- The buffer zone at Gløshaugen Sør is available for further development of an additional 75'000m² if necessary at this point.

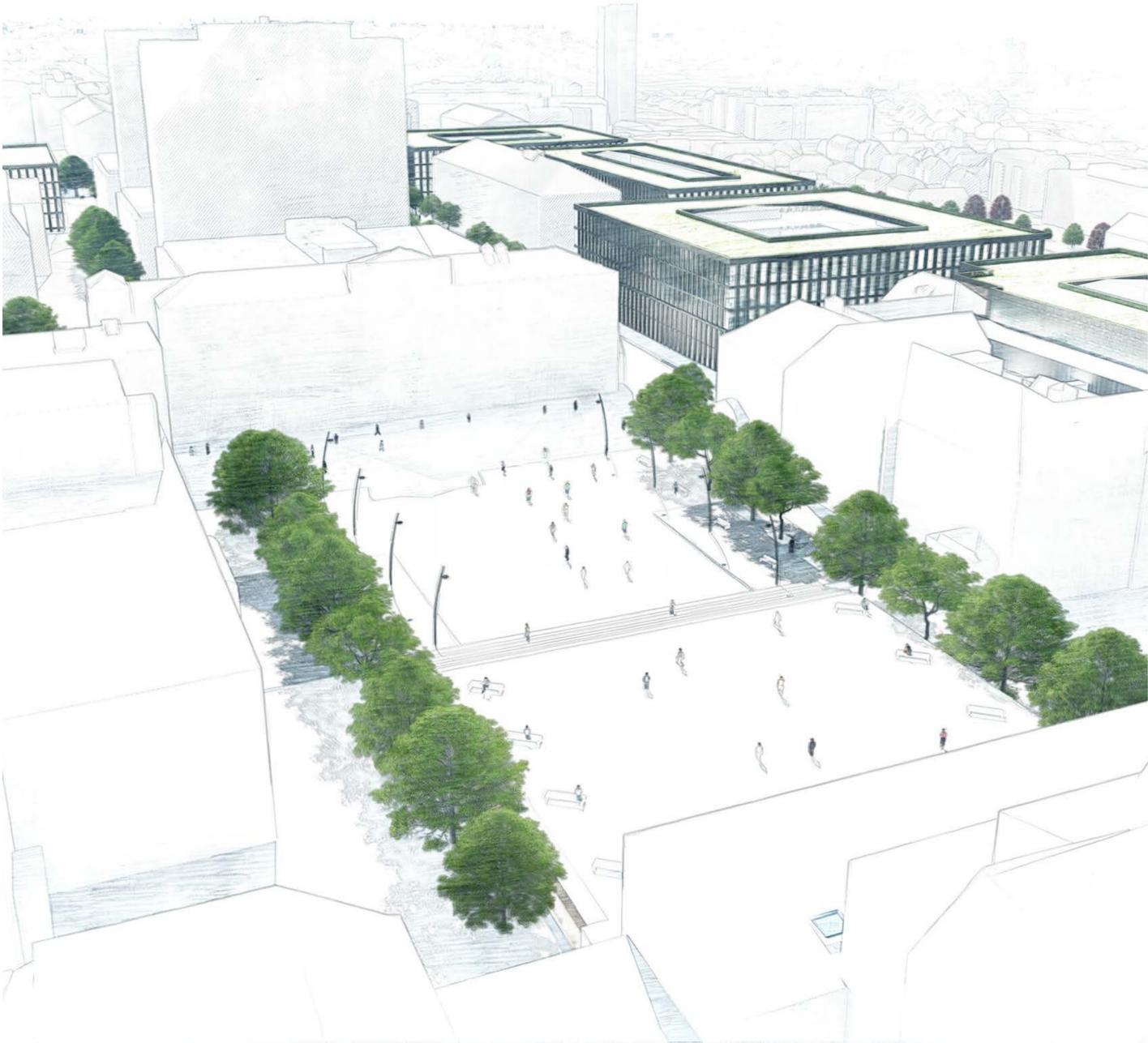
View from Kristiansten Festning.



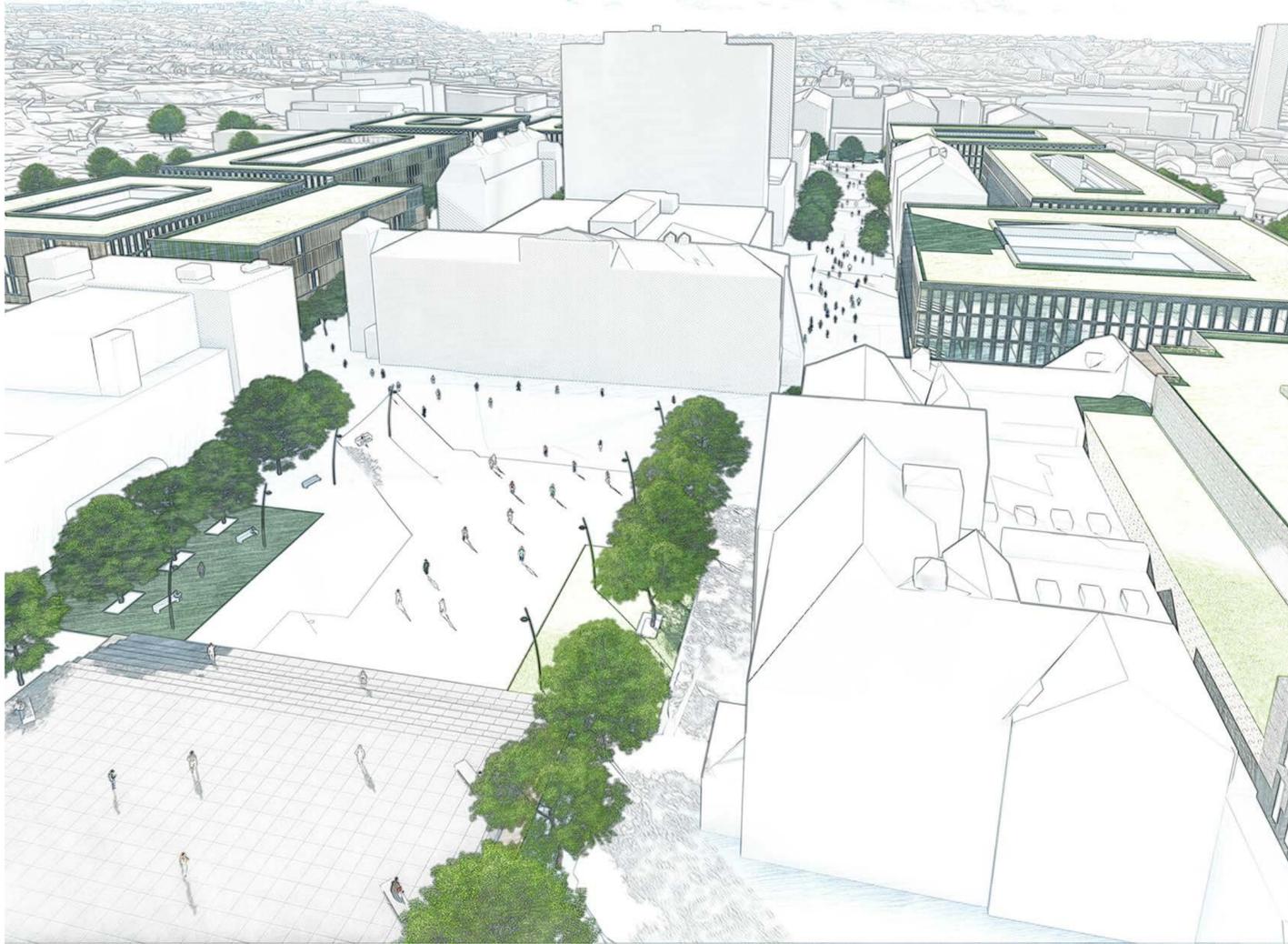
View from Samfundet and Elgeseter up to Høgskolebakken and the plateau.



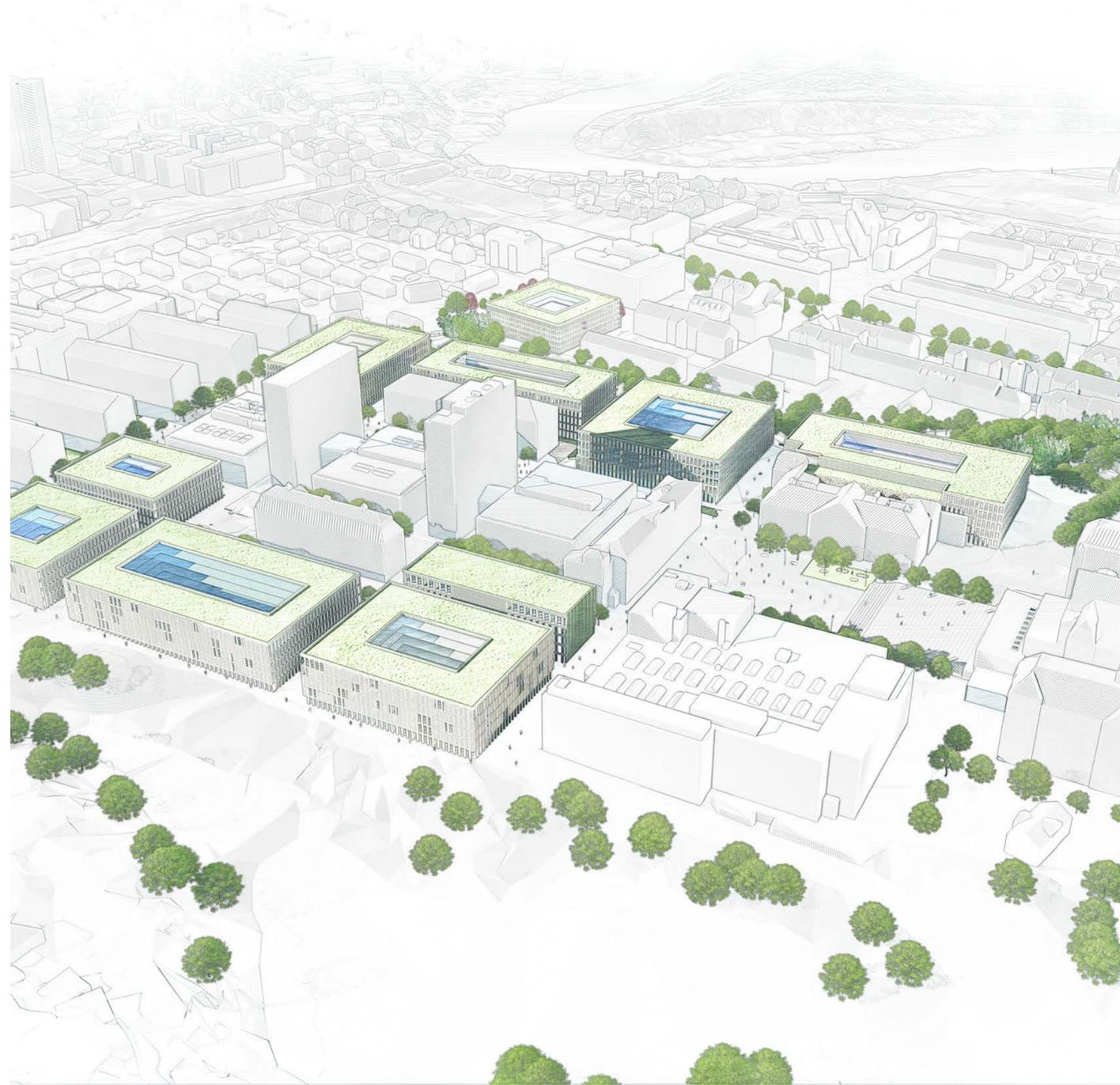
View of Square in front of Gamle Kjemis and towards the West.



View of Square in front of Gamle Kjemis and towards the East..



View of Dødens Dal and the East facade of Gløshaugen.



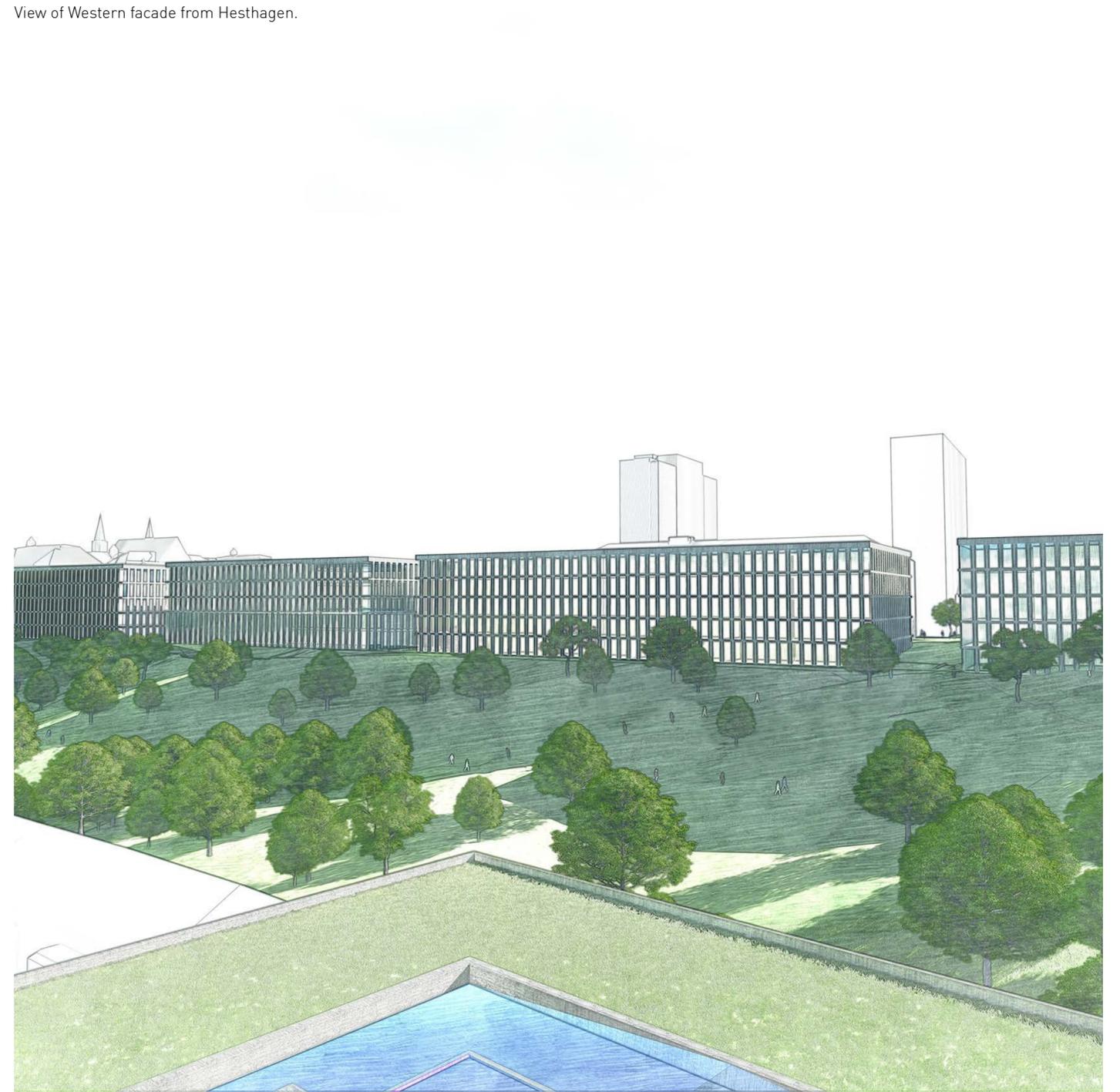
View of new axis through East through West of Gløshaugen plateau



View of Innovation Center at Hesthagen.



View of Western facade from Hesthagen.



Inspirerende & innovativ
- felles masterplan for Trondheims bycampus



Oppdragsgiver
Kunnskapsdepartementet

Forfatter
Konseptvalgutredning

2014-03-26

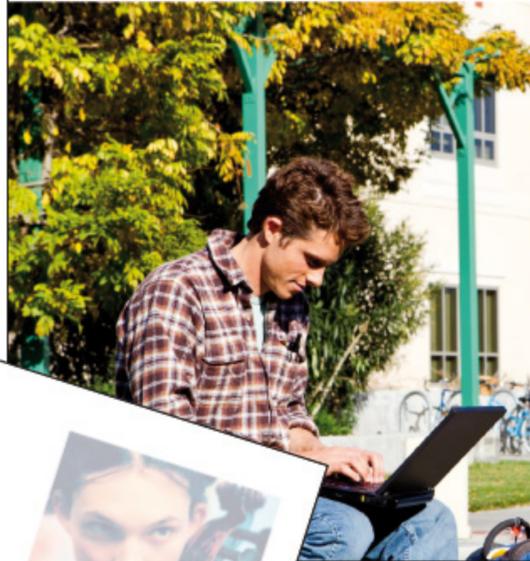
**KVU FRAMTIDIG
LOKALISERING AV
CAMPUS NTNU
KONSEPTVALGUTREDNING**



RAMBØLL

MØREFORSKING
HOLDE

metier®



Lokalisering NTNU Campus
NTNUs campusutvikling 2016 - 2025
Høringsversjon 8. juli 2016

NTNU
Kunnskap for en bedre verden

References

The vision and aims of this project are ultimately founded on the decisions and research found in the existing documentations made by the 'NTNU Campus development group'.

Specifically 'Visjonsrapporten NTNU 2060' which looks at NTNU's own ambitions and aims for the socioeconomical assessment of the localisation concepts. Other documentation taken into consideration are:

- Rambølls konseptvalgutredning (2014)
- Metier & Møreforskings eksterne kvalitetssikringsrapport (2015)
- Lokalisering NTNU Campus Trondheim (2016) - NTNUs campusutvikling 2016 - 2025 -Høringsversjon 8. juli 2016

