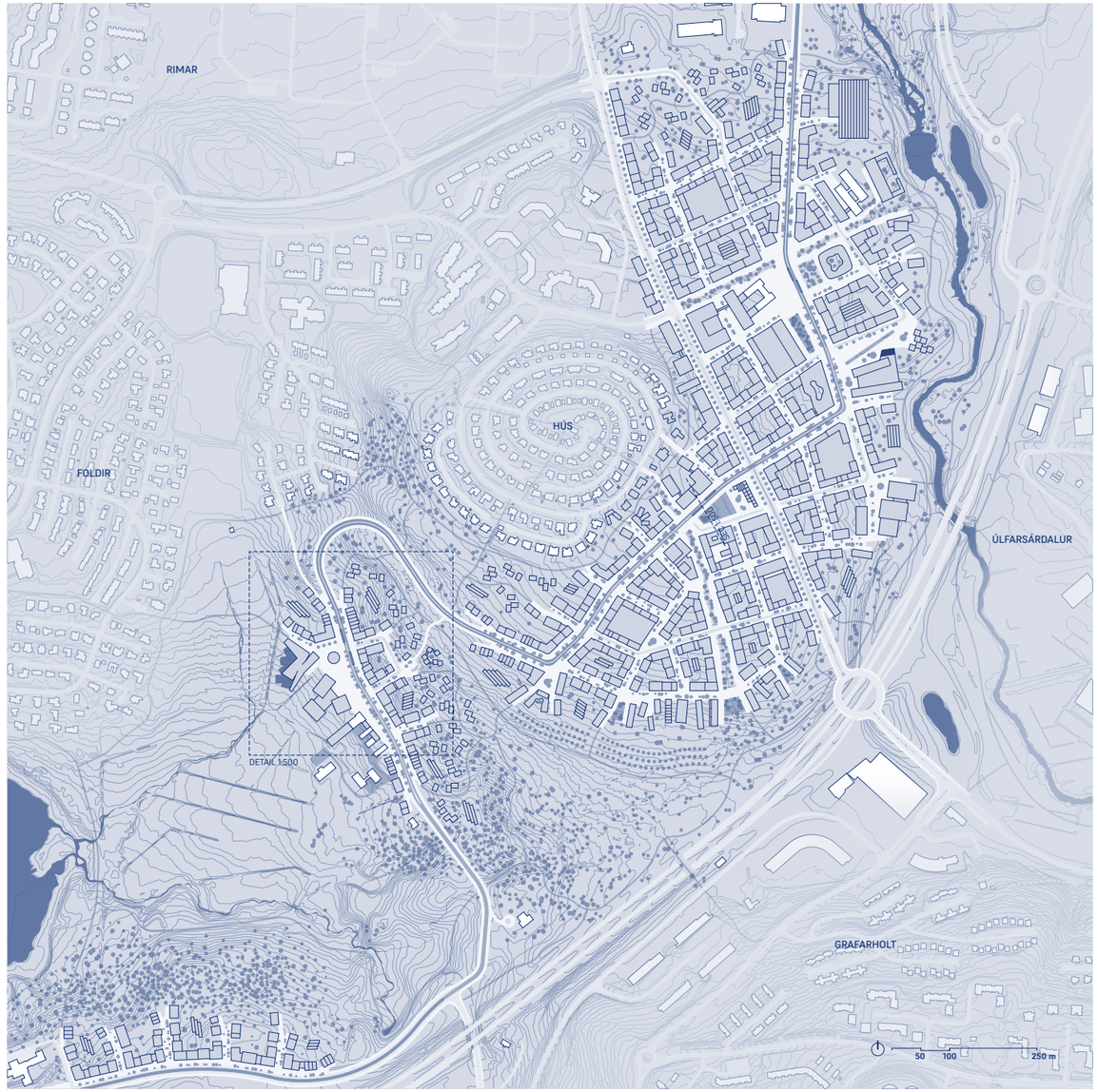
MH

WELL, FINALLY IT'S BLUE

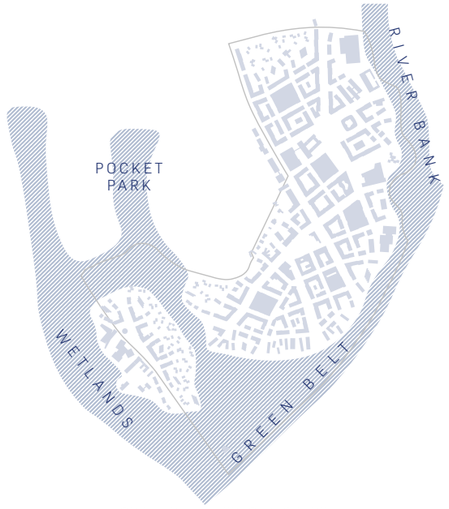
As more than 65 % of the Icelandic population already lives in the Reykjavík region, and the number continues to grow, coupled with accelerating climate changes, the city faces challenges in sustainably managing future growth. Should it prioritize expansion or densification? And what about public transportation? These are all questions that the city administration is currently grappling with, and Keldur is meant to be one of the potential solutions.

Connection, sustainability and diversity. Those three ideas shaped my project throughout the whole design process since the very beginning. Main goal was to create a new neighborhood, that will connect existing neighborhoods surrounding it and thus become a new urban center for the whole district.

The spine of the whole neighborhood is the BRT line, that connects three new stops with the Reykjavík's city centre. Along those stops, new local centers are created. Each of them with different characteristics, that reflect different design language and typologies in the three new districts. Their design is based on typical city blocks, that are further developed to better fit local needs. Blocks around the edges slowly disappear into the greenery. By contrast, block structure near the centers is getting bigger and bigger to use site potential.

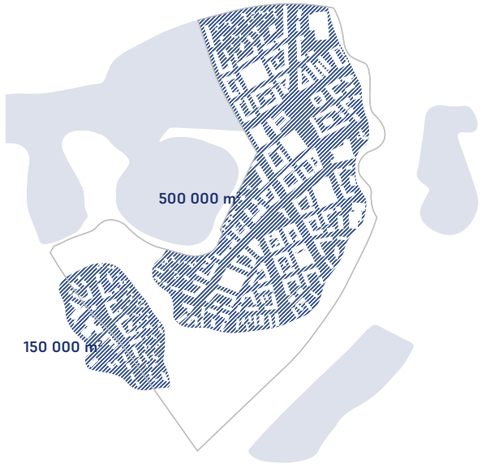



CITY CENTRE
HARBOUR
KELDUR
GREEN BELT



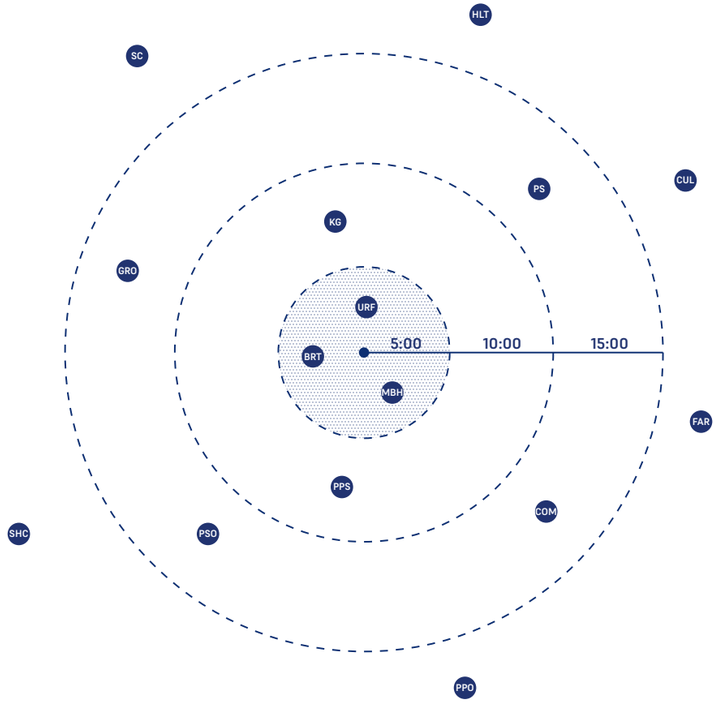
GREEN BLUE INFRASTRUCTURE

CAR STREET LOOPS



DEVELOPED AREA

MAIN PEDESTRIAN LINKS AND CENTERS



EDUCATION

- PS primary school (2)
- KG kindergarten (6)
- SC secondary school (1)

TRANSPORTATION

- BRT BRT station (3)
- MBH mobility hub (8)

RECREATION

- PPO public pool (2)
- PPS park, public square
- PSO public sport areas

PRODUCTION

- URF urban farm & greenhouse
- FAR sheep and horse farm

PUBLIC SERVICE

- HLT hospital/polyclinic
- COM community centre
- CUL cultural centre + library

SHOPPING

- GRO grocery shop (3)
- SHC shopping centre (1)

Connecting to the other built-up areas was not the only goal regarding connectivity. I wanted to create a space, where locals will have the opportunity to meet and "connect" with other inhabitants. This is supported by the concept of clusters, where larger groups of people always have some common areas where they can meet and organize leisure events. And last but not least, the development is seamlessly connected to the natural environment surrounding the neighborhood through linear parks and street openings.

Sustainability was implemented in the design not only in form of materials or energy supply. Whole district is designed to function self sufficiently in terms of amenities, working spaces and areas for recreation. Inhabitants will have all the opportunities nearby, so no unnecessary traffic will be created. Most of the services needed for daily life will be available within 15 minutes of walking distance, and all of them accessible within a 15 minutes cycling radius.

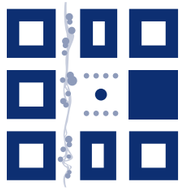
Diversity was important part not only for the dwelling typologies design but also for the public space. There are 6 street typologies, that create hierarchy based on the traffic on that street. The design itself creates opportunities for many variations, so no two streets will be similar.

SEMIPRIVATE COURTYARDS FOR RECREATION

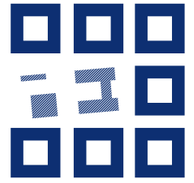
DIFFERENT HOUSING TYPOLOGIES

SMOOTH TRANSITION COMPACT<>GARDEN CITY

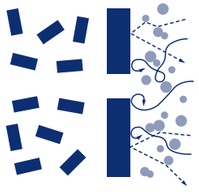
IN RELATION TO TOPOGRAPHY



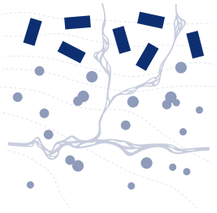
DIVERSE PUBLIC SPACE



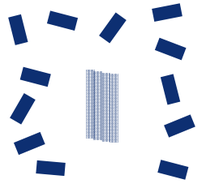
PRESERVING EXISTING BUILDINGS



WIND AND NOISE PROTECTION



WATER MANAGEMENT PART OF PUBLIC SPACE



INTEGRATED URBAN FARMING

HISTORY

City of Reykjavik is located along the cost of Faxaflói bay on the Reykjanes peninsula. The old city centre is at the most western part, about 8 km from Keldur, where at this time mostly agricultural land and sheep farms were located.

By 1980 the city had almost reached Keldur. But most of the buildings were related to industry and new harbour located in Elliðaárvogur bay.

During this era, Keldur was still agricultural land with sheep and horse farms.

At this time Grafarvogur neigbourhood, where Keldur is located, started being developed. It mostly consits of family houses or small apartment buildings.

Although it is the biggest district, current population numbers only 18 000 inhabitans with density of 1300 people per 1 km^2.

After biggest development boom in the 90s, Grafarvogur stagnated and only few new houses were built in this era.

The biggest project during this era was the office park along the main road to Reykjavik. Although it's right next to Keldur, the barrier created by the road separated it since the completion.

Keldur is the last missing link between developed mostly residential neighbourhoods in the eastern part of Reykjavik. Connecting existing parts will create functional partly independent district.

The site has potential to become new centre for this whole district, that is separated from the city centre by Elliðaárvogur.

Keldur
developed area

1945
1980
1990
2000
2024

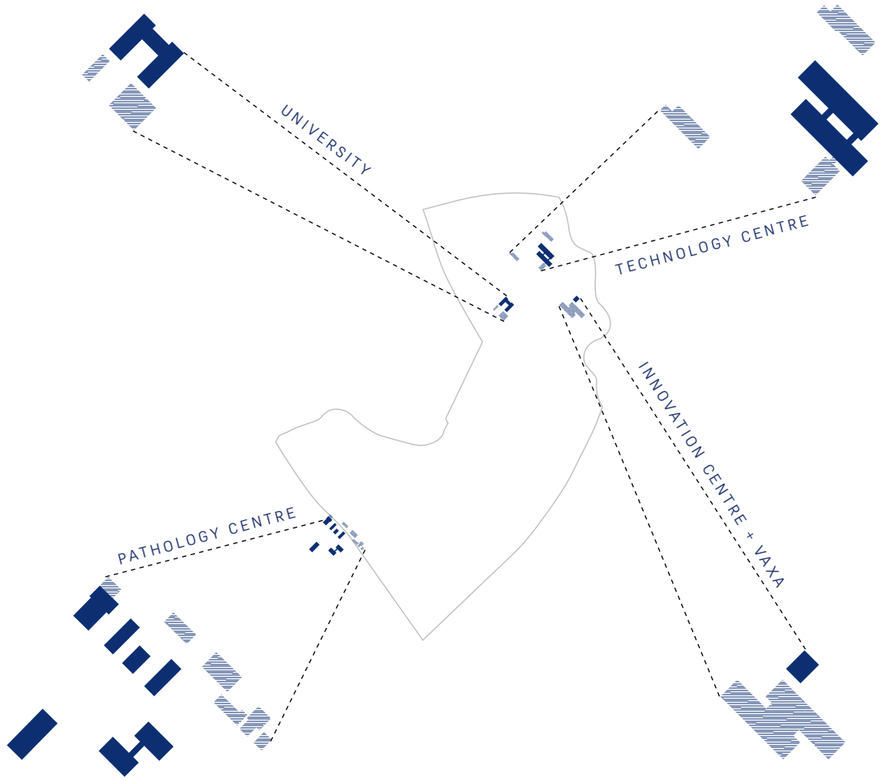
Throughout history, Keldur has been an undeveloped area. It used to be sheep pastures, and today it hosts horses. Over the years, only a few buildings have been constructed here, which remain to this day. However, many of them are empty and unused, so their preservation is not necessary.

University centre will be mostly preserved in its current form as the buildings are in use and in good condition. This area will be one of two new centres in new neighbourhood.

Technology centre will become part of new urban fabric within new development. However, two buildings, that are separated from the main complex will be demolished.

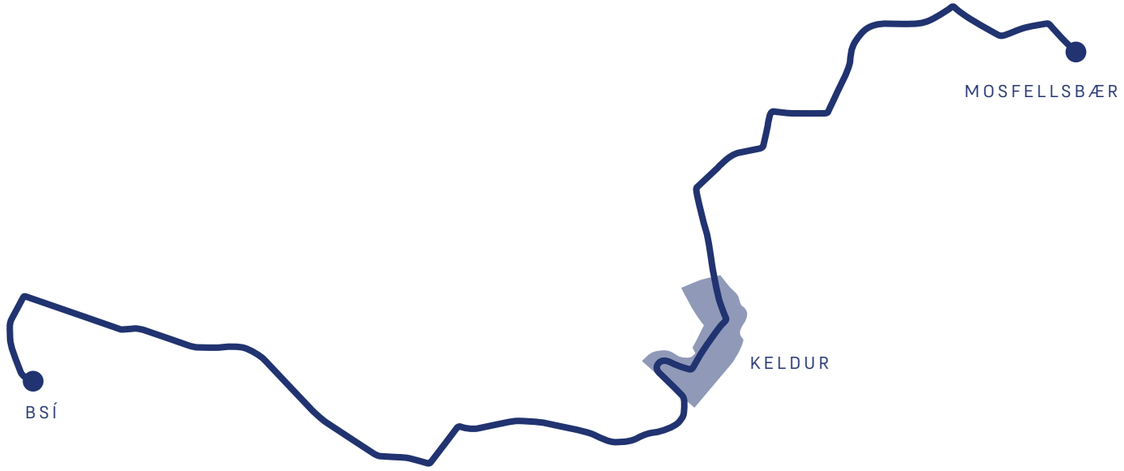
University centre of experimental pathology will be located on the edge of new development to preserve green areas needed for the animals. But older and partly unused building along the access road will be demolished.

The Innovation centre was shut down in 2021, so the building is no more in use. It's located in valuable place, therefor only building preserved will be VAXA research centre.



BORGARLÍNA

The Borgarlína is a proposed system for a new rapid bus transit system designed to connect not only Reykjavik itself but also its surrounding areas. One of the potential routes, Line E, is planned to pass directly through Keldur. This would significantly reduce travel time to the city center and is intended to compete with commuting by private vehicles.



USE

Mostly residential buildings for 15 000 residents are designed but also administrative buildings in the centres are important part of the new development.

Exept those, there are smaller green houses in the courtyards for the locals as well as large hydroponic farm with an area of almost 7000 m² in the north-east corner.

EDUCATION

- PS primary school
- KG kindergarten
- SC secondary school
- URC university research center
- USH university student housing

RECREATION

- PPO public pool
- PPS park, public square
- PSO public sport area

PUBLIC SERVICE

- HLT hospital/polyclinic
- COM community centre
- CUL cultural centre + library
- SEN senior house

SHOPPING

- GRO grocery shops
- SHC shopping centre
- MPL market place, food court

PRODUCTION

- URF urban farm (hydroponics)
- FAR sheep and horse farm
- ORC orchard

TRANSPORTATION

- BRT BRT station
- MBH mobility hub

- services
- residential
- administrative
- industry + agriculture

BUILDING HEIGHTS

The building height isn't constant. It increases closer to the centres. Highest buildings are in the middle, near the intersection of two main streets.

Higher buildings are administrative, as they are mostly located near busy streets that are not suitable for residential architecture.

- 10 + storeys
- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1

INFRASTRUCTURE

Connecting infrastructure was redesigned to suit better the character of this new development. The highway exit was reduced in size. Main street connecting whole new districts accommodates the BRT line with 3 stops at 3 squares.

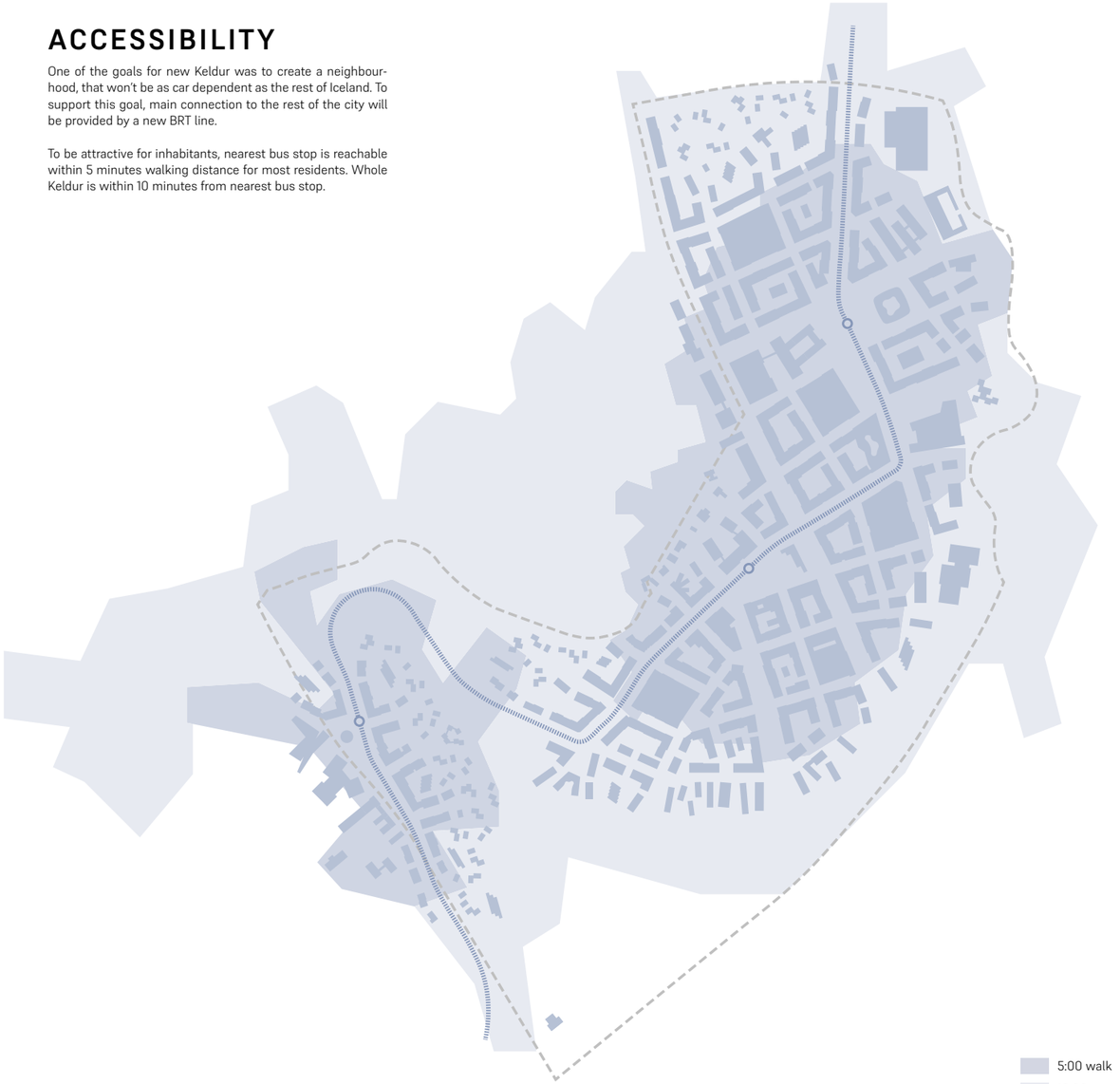
Transit for cars is not possible due to the design of the streets so mostly only residents will enter. For parking there are 8 mobility hubs with 2000 parking spots for cars. Parking for 15 000 bicycles is evenly distributed throughout the site.

For recreation and sports there are paths around whole neighbourhood suitable for walking, riding a bike, horse riding and in winter cross country skiing.

ACCESSIBILITY

One of the goals for new Keldur was to create a neighbourhood, that won't be as car dependent as the rest of Iceland. To support this goal, main connection to the rest of the city will be provided by a new BRT line.

To be attractive for inhabitants, nearest bus stop is reachable within 5 minutes walking distance for most residents. Whole Keldur is within 10 minutes from nearest bus stop.



WATER MANAGEMENT

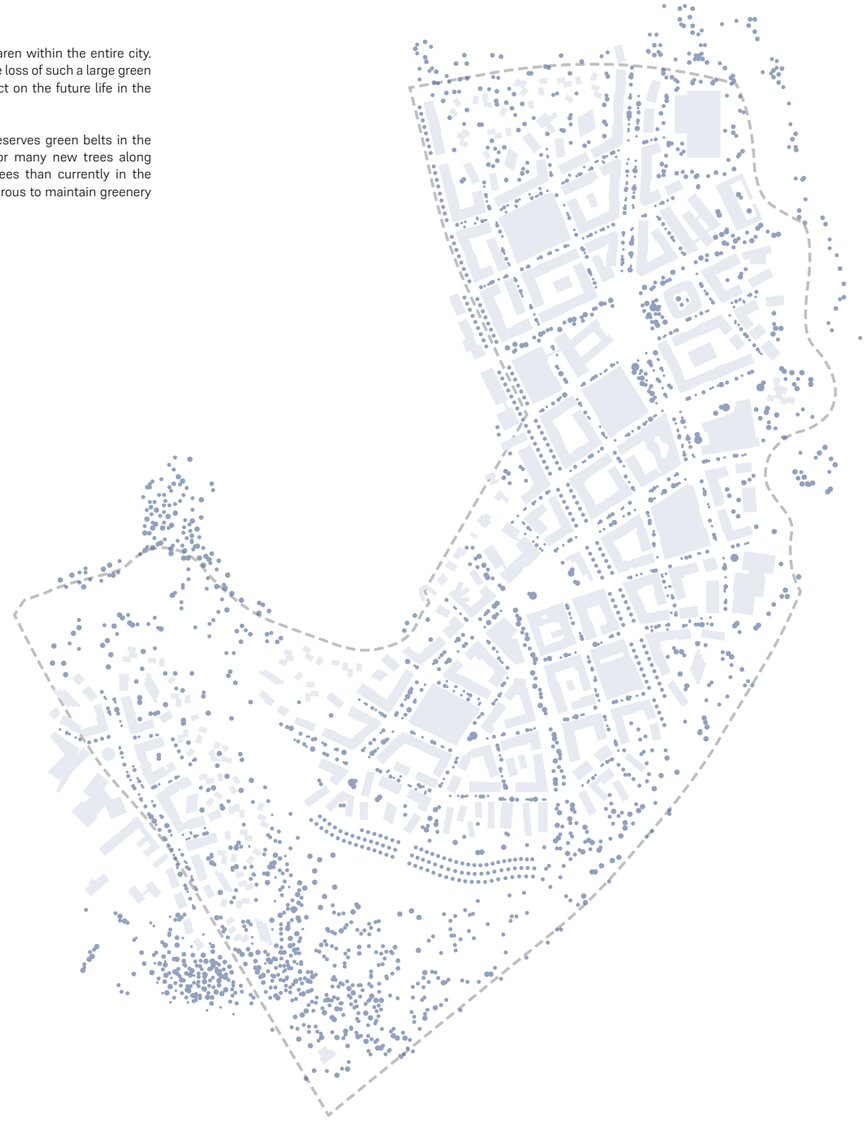
The combination of hilly terrain and high precipitation levels necessitates water management measures. Each street is designed with a green belt to channel water away. Most streets are directed towards adjacent rivers and then to the sea. To prevent potential flooding from the snail-shaped neighbourhood on top of the hill, new drainage system through two park streets is proposed.

In addition to water drainage, emphasis is placed on infiltration. Significant infiltration areas are on the main squares, while smaller ones are situated along houses in every street.

GREENERY

Keldur is one of the largest green aren within the entire city. While its development is logical, the loss of such a large green area could have a significant impact on the future life in the locality.

The new development not only preserves green belts in the vicinity but also provides space for many new trees along the streets. There will be more trees than currently in the area, with the majority being coniferous to maintain greenery throughout the year.



SECTION SE - NW

WETLANDS

Lowest part of Keldur is preserved in its current form of wetlands and meadows for nearby farm. New paths for recreation as walking, biking, horse riding and in winter cross country skiing are added to improve access for locals.

VILLAGE TOWN

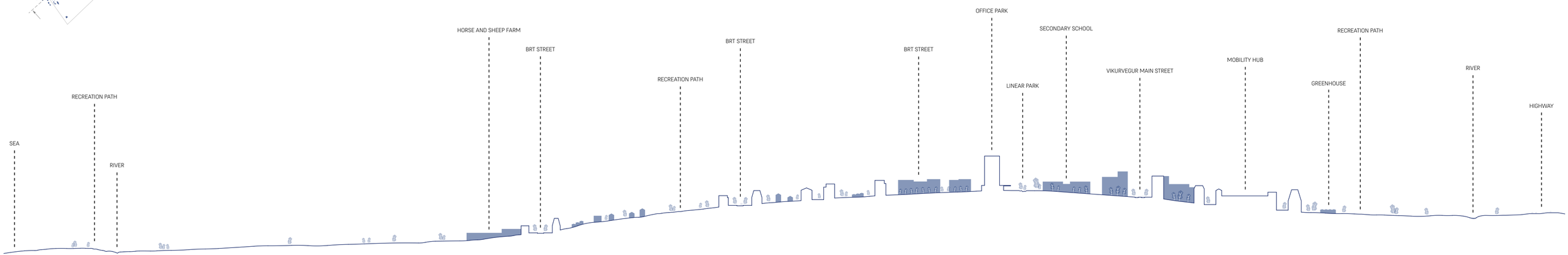
Smallest district located in the western lower part is mostly residential with not only block apartment houses, but also terrace houses and family houses with a great view over the bay and city centre. Otherwise, one of two primary schools, kindergarten and swimming pool is designed here near BRT stop in its centre.

HILLTOP DISTRICT

Residential and administrative office district consists mostly of block structure houses. It smoothly connects to existing snail neighbourhood on the top of the hill. This is also the only part of Keldur, where higher buildings than 6 storeys are designed. The highest with 13 storeys.

RIVER DISTRICT

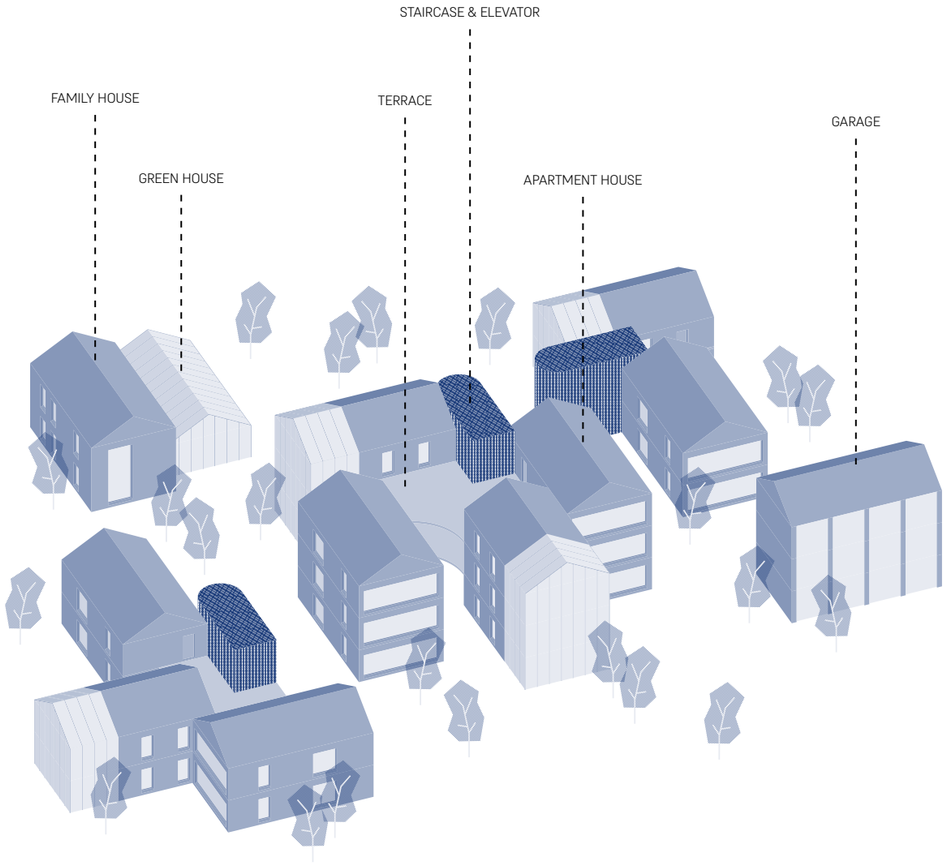
Biggest district out of the new 3 located in the eastern part of Keldur. In its centre there is a university with new park square and library. Along the river, there are public buildings as schools, senior house and public pool that can take advantage of nearby river park.



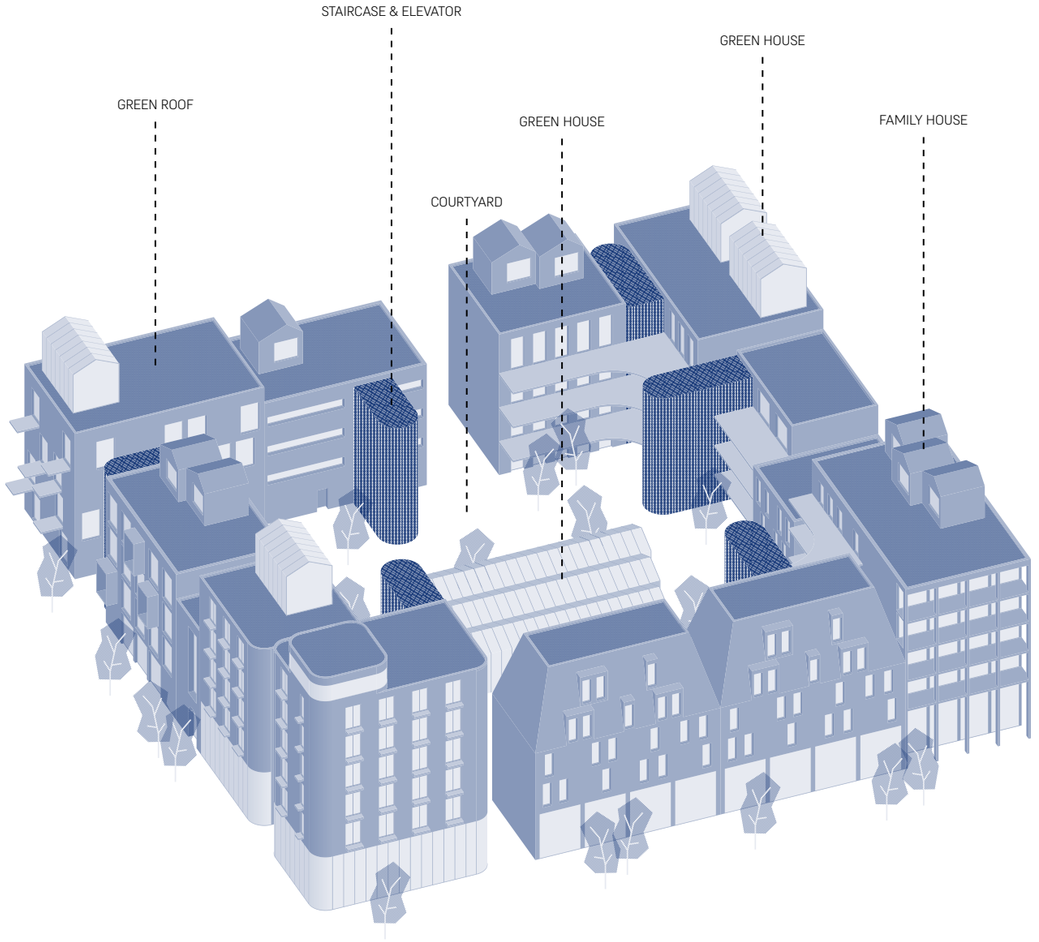
area	835 000 m²
developed area	205 000 m²
paved area	250 000 m²
unpaved area	380 000 m²
built up volume	2 700 000 m³
floor area combined	880 000 m²
residential	620 000 m²
administrative & services	240 000 m²
industry & agriculture	20 000 m²
residential floor area/person	41 m²
green area/person	25 m²
apartment buildings	350
apartments	5500
family houses/town houses	150
bike parking spaces	15 000
car parking spaces	2000
inhabitans	15 000
work spaces	5000


PUBLIC POOL
LIBRARY
MOBILITY HUB
KINDERGARTEN
SCHOOL FRONT YARD
PRIMARY SCHOOL
SCHOOL BACK YARD
MOBILITY HUB
10
20
50 m

VILLAGE CLUSTER

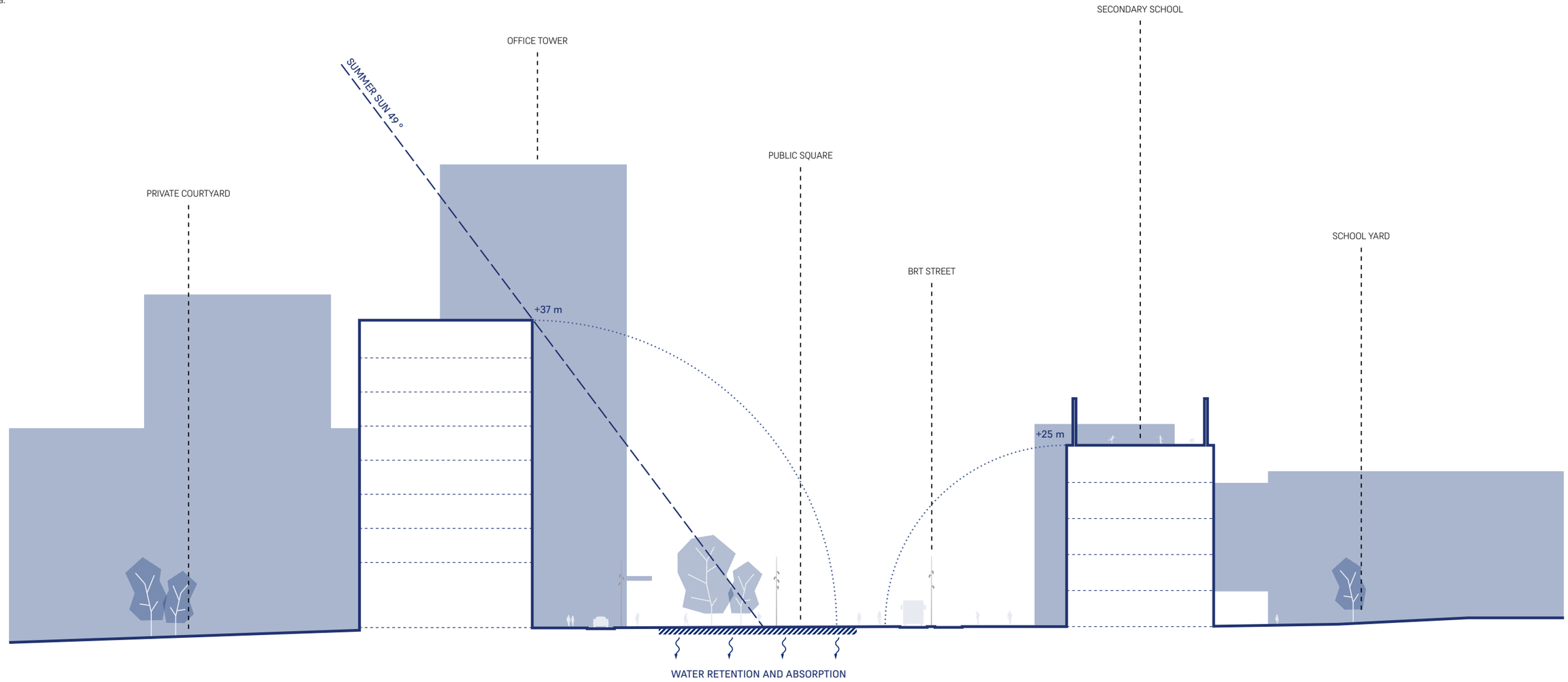


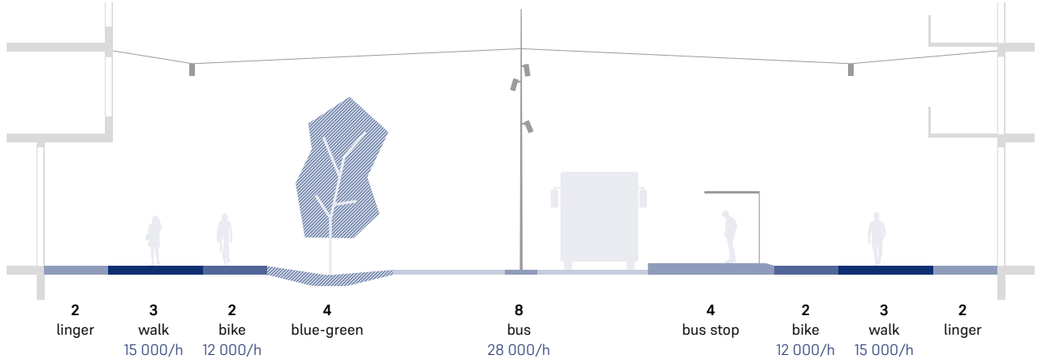
CITY CLUSTER



PUBLIC SQUARE SECTION

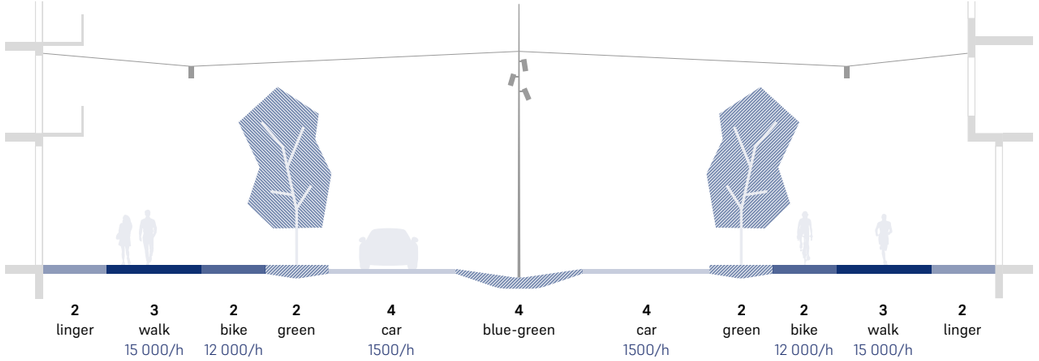
Hilltop district square is one of three public squares in new neighbourhood. It's surrounded mostly by administrative buildings, the tallest in this area.





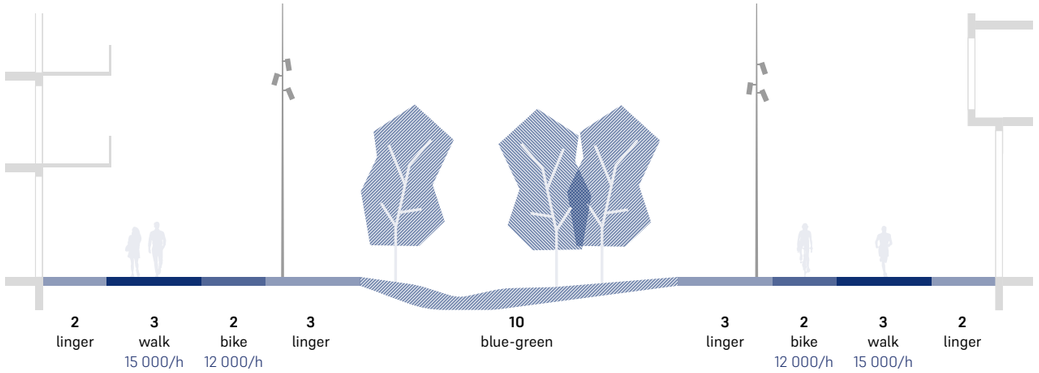
BRT STREET (30 m)

maximum people capacity 82 000/h | max building height 30 m | active ground floor | cars not allowed | max speed 40 km/h



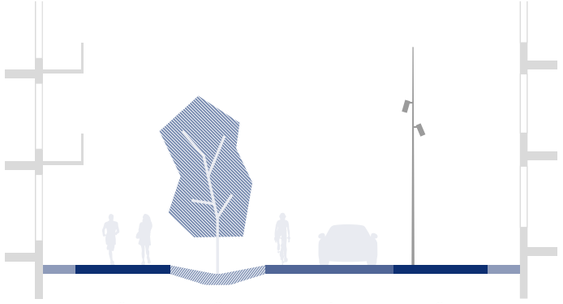
VIKURVEGUR MAIN STREET (30 m)

maximum people capacity 57 000/h | max building height 30 m | active ground floor | all types of transportation | max speed 40 km/h



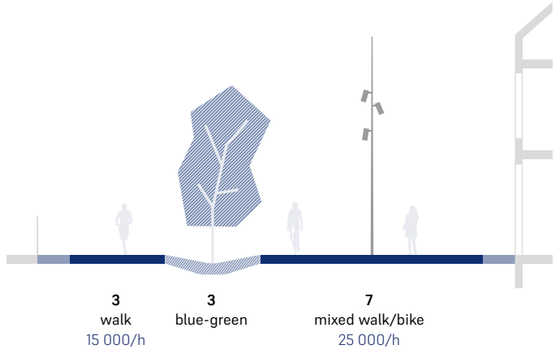
PARK STREET (30 m)

maximum people capacity 57 000/h | max building height 30 m | active ground floor | pedestrian street | max speed 20 km/h



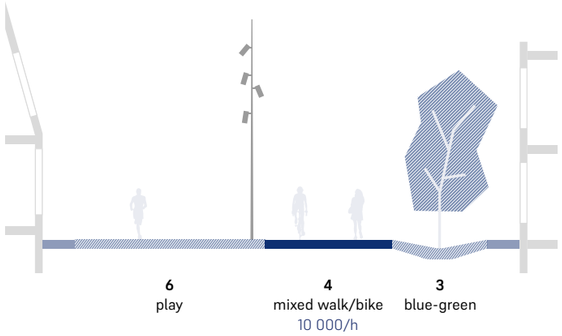
LOCAL MIXED STREET (15 m)

maximum people capacity 35 000/h | max building height 15 m | private/active ground floor | mixed street bike/cars | max speed 30 km/h



PEDESTRIAN STREET (15 m)

maximum people capacity 40 000/h | max building height 15 m | private/active ground floor | pedestrian street | max speed 20 km/h



PLAY STREET (15 m)

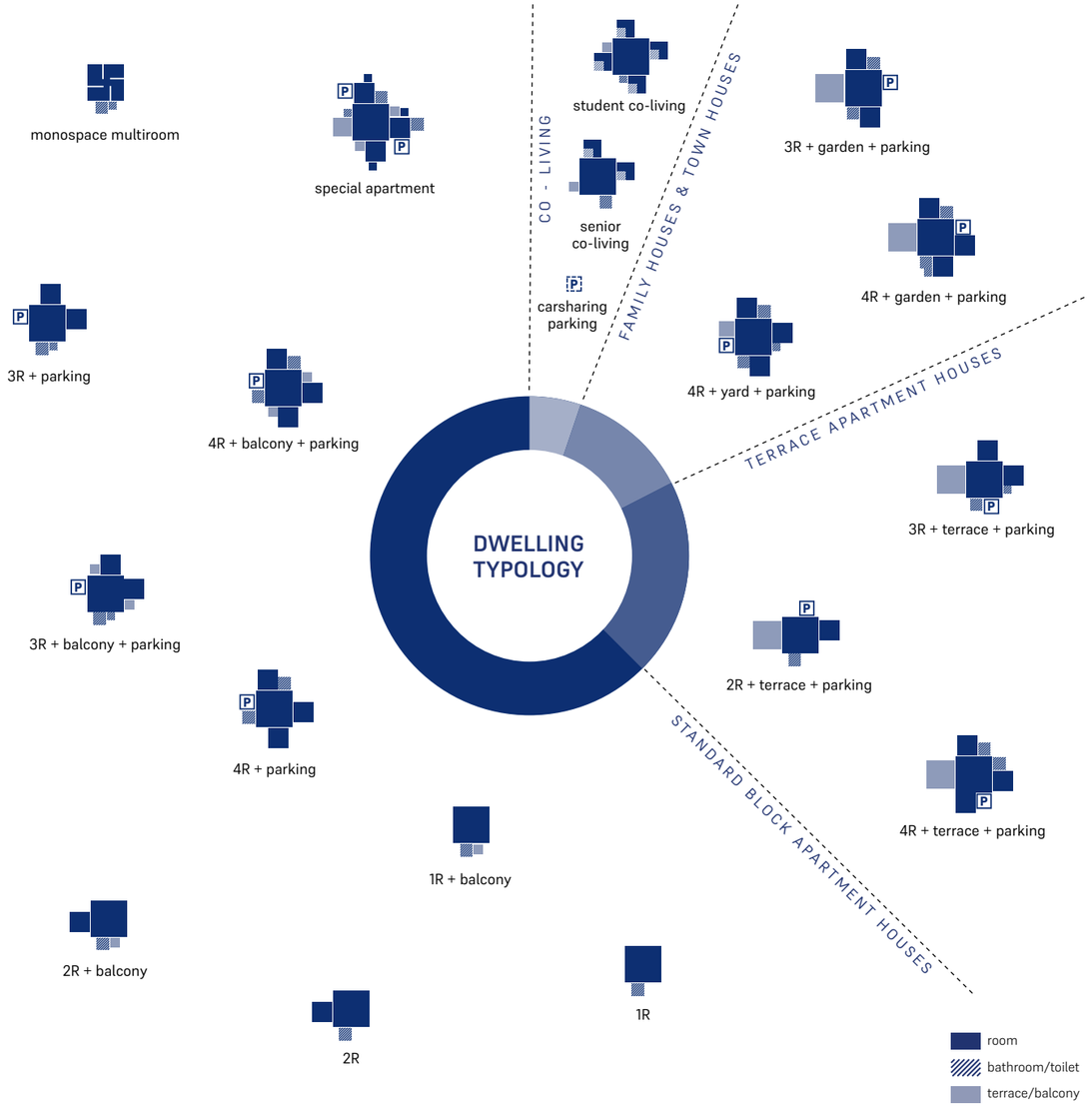
maximum people capacity 10 000/h | max building height 15 m | private ground floor | pedestrian street | max speed 20 km/h

Major part of new development is made out block structure and its variations, which are formed by standard apartment buildings. Inside, there are apartments ranging from small one-room typologies to large four-room layouts. Possible are also modern monospatial apartments with variable floorplan. Parking places for private vehicles are available only for the bigger apartments.

With the intention of smooth transition, smaller houses are proposed at the border between the new and existing residential structure. This transition area is mainly made of family houses and town houses. Each individual house also belongs garden or yard and parking place.

To make the change between living in a family house and in an apartment building easier, some buildings are designed as terrace houses. Apartments with access to large terrace will imitate living in a house with garden.

Last but not least new neighborhood should be designed for everyone. Therefor specially designed buildings for student and senior co-living are also part of new development. This type of dwelling doesn't require places for privately owned vehicles, but couple places for car sharing can be useful for its inhabitants.



PROCESS PLAN

Firstly, main road infrastructure will be redesigned to suit better the character of new city neighbourhood as well as new BRT road through the area.

Then, new structure starts to develop along this main road and in locations where new centres of the locality are planned. First will be the Village Town in the western part of Keldur and Hilltop District at the intersection of two main roads. After that, development of eastern River District surrounding the university.

Considering the size of the development, if the preparation phase started right now, the building phase could start in 2028 with completion in 2045.

PHASE 01

forming the centres of the new neighborhoods

PHASE 02

creating functional neighborhoods

PHASE 03

densifying and spreading

PHASE 04

forming the edges