

The Connected City

# OBEBILLWERDER MASTERPLAN

January 2019



IBA\_HAMBURG  
Building the city anew





## Client

Free and Hanseatic City of Hamburg  
State Ministry for Urban Development  
and Housing



## In agreement with

Bergedorf District Office



## Oberbillwerder project development

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Stand: 01/2019

# THE CONNECTED CITY - OBERBILLWERDER

NOTES ON THE MASTER PLAN

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# Oberbillwerder - Hamburg's 105th district

Covering around 124 hectares, Oberbillwerder is not only Hamburg's second-largest urban development project, but will also become the city's 105th district. It is set to be something quite special: liveable and attractive, inclusive and integrated, environmentally friendly and sustainable. Oberbillwerder aims to provide space and a home for different population groups, with plenty of diversity in terms of background, income, age and life situations. It seeks to create lively neighbourhoods through high-quality building projects by cooperatives, building groups, and private and public property developers. The area will include not only homes, but also a range of workplaces, educational institutions and social and recreational facilities.

Developing a new district of this size is of paramount importance for the Bergedorf area and the city as a whole. Against this backdrop, in September 2016 the Hamburg Senate tasked IBA Hamburg GmbH developing a master plan for the Oberbillwerder area.

This also included the creation of a cost and financing plan and considerable participation from local citizens. Following a planning process that lasted 2 years in total, an advisory panel chose 'The Connected City' by the international ADEPT planning team from Copenhagen, together with Karres + Brands from Hilversum and Transsolar Energietechnik from Stuttgart, as the winning design. The innovative design was then checked closely to ensure credibility and feasibility. Particular attention was given to technical aspects relating to transport, drainage and nature conservation.

The Oberbillwerder Master Plan was thus created with the close involvement of the Bergedorf District Office and the appropriate specialist authorities, and was approved by the Hamburg Senate on 26 February 2019.

## At a glance



Model district  
**Active City**



**124 ha**  
Surface



**28 ha**  
public green and open spaces



**approx. 7,000**  
housing units



**Hamburg-housing policy**  
three-way split



**Up to 5,000**  
jobs



**Educational and community centre**  
with district school and grammar school



**2**  
primary schools



**14**  
kindergartens



**14**  
social facilities



S ALLERHÖHE

Der Begleiter

FRISCH KOSMETIK

Steet-Grill House

# Location

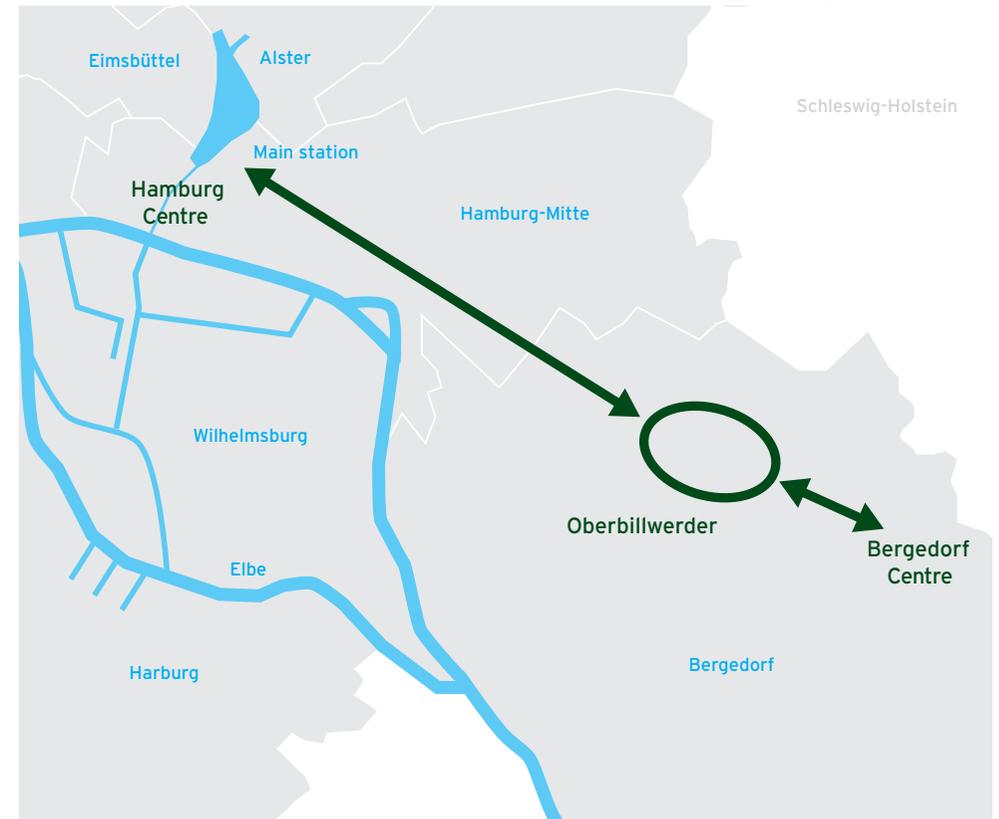
Oberbillwerder is located in the region of Bergedorf, 15 minutes from Hamburg city centre and only two stops on the suburban railway from the centre of Bergedorf. Bergedorf is the largest borough district of Hamburg in terms of area, but has the lowest population, with approx. 125,000 residents.

As it has the character of an independent town, Bergedorf also serves an important supply function for the wider Schleswig-Holstein area. The densely populated neighbourhoods of Bergedorf-West and Lohbrügge feature considerable urban diversity, with a range of different types of housing. This is complemented by large landscaped areas and access to open space, which gives Bergedorf the feel of living in the countryside. Overall, Bergedorf is a highly attractive and dynamic borough district that is becoming increasingly important within the city as a whole.

The land of the planning area for the new Oberbillwerder district is owned by the City of Hamburg and is part of the Bergedorf Marshlands, which comprise the cultivated Billwerder landscape and the former Billwerder ribbon farm. To the south of Oberbillwerder lie the residential areas of Neuallermöhe-West and Neuallermöhe-Ost, built in the 1970s and 1990s respectively. To the east, the new district will adjoin the large housing estate of Bergedorf-West. Oberbillwerder is located north of the Allermöhe suburban railway station. From here it is a 15-minute journey to Hamburg city centre. The centre of Bergedorf is only two stops away on the suburban railway.

The specific features of the planning area, in terms of location, topography, surface drainage, landscape zone, biotope, etc., are detailed from page 28ff of the tender documents for the competitive dialogue.

([www.oberbillwerder-hamburg.de/downloads](http://www.oberbillwerder-hamburg.de/downloads))



Naturschutzgebiet Boberger Niederung

Billwerder

S Mittlerer Landweg

OBERBILLWERDER

Lohbrügge

Bergedorf-West

S Allermöhe

S Bergedorf

Neuallermöhe-West

S Nettleburg

Bergedorf-Zentrum

Neuallermöhe-Ost

Nettelburg



# Towards the Oberbillwerder Master Plan

A transparent planning process with a number of different participation formats for civil society, professional experts, business, politics and administration, as well as the widespread involvement of local citizens was chosen for the creation of the Master Plan.

The journey towards the Master Plan began in late 2016 and was divided into four phases from the very beginning:

The first phase, **Collating and informing**, included a kick-off event that constituted a low-threshold opportunity for participation, additional online involvement and outreach surveys. The results were sorted, documented and fed into the second phase, among other actions.

The main component of the **Developing ideas** phase was the Ideas Workshop, a 2-day event at which experts from a wide range of disciplines developed ideas and suggestions for the new district, both together with local citizens and amongst themselves.

The results were also published and basis for the third phase, **Making plans**.

At this stage, the task was defined and the competitive dialogue process chosen for the development of the Master Plan design. This process was deemed particularly suitable because it did away with the need for anonymity that would otherwise apply to the planning procedure. The competitive dialogue started with 12 international planning teams. After nine months, numerous public events and a mix of participation formats, an advisory panel announced its approval of the design by ADEPT in conjunction with Karres + Brands and Transsolar Energietechnik. The details of the procedure and all of the designs have been summarized into a documentation and are available for download.

Following the competitive dialogue, the selected design was developed into the present Master Plan in phase four, **Shaping the future**.

([www.oberbillwerder-hamburg.de/downloads](http://www.oberbillwerder-hamburg.de/downloads))

	Phase		Period
1	<b>Collating and informing</b>	Kick-off event Online participation Opinions One-on-one interviews Documentation	October 2016 - February 2017
2	<b>Developing ideas</b>	Ideas workshop Evaluation Documentation	March 2017 - June 2017
3	<b>Making plans</b>	Competitive dialogue	June 2017 - May 2018
4	<b>Shaping the future</b>	Master planning	June 2018 - December 2018



Kick-off event,  
December 2016



Ideas Workshop,  
March 2017



Workshop with school pupils,  
December 2017



Closing event for dialogue phase 1,  
February 2018



Closing presentation,  
May 2018



Master Plan presentation,  
November 2018

# From the Master Plan to Hamburg's 105th district

The choice of the 'Connected City' concept by the working group comprising ADEPT, Karres + Brands and Transsolar Energietechnik also marked the choice of an ambitious master plan. Hamburg's 105th district of Oberbillwerder is intended to embody an Active City in all of its aspects, so that it is designed for sport, play and activity, while remaining, above all, liveable and lively, neighbourly, low-traffic yet mobile, land-saving, environmentally exemplary and affordable for all population groups.

This Master Plan thus set some ambitious targets, ranging from future-oriented mobility concepts to coping with periods of heavy rainfall, allocating multi-purpose areas, establishing resident-friendly workplaces and creating functioning neighbourhoods. But how can all of these forward-looking concerns be covered by the developing planning process without resulting in a loss of quality in the finished result?

Today, we are setting the course for the way in which people will live and experience the city anew in years to come.

As such, the ongoing development of the project up until the first residents move in and beyond must be seen as a process of learning and growth, a construction set of methods and concepts. New concepts and ideas require visionary strength and boldness from all of those involved, as well as an openness to further adjustments and specifications.

The five Quarters of Oberbillwerder will gradually grow over several phases of construction, thus ensuring that there is always room and scope for adaptation, further development and public input. The planning permission activities conducted by Bergedorf District Office will provide the basis for all this. Other urban and open space planning approval procedures for sub-areas or single buildings are envisaged in the interests of quality.

Oberbillwerder is being created on land that is currently used for agriculture, with a complex network of existing structures in the surrounding area. Over the next few years, connections will be created in the neighbouring Quarters, synergies for social and cultural opportunities will be established, and the necessary counterbalances ensured, all in line with the guiding principle of the Connected City.

These planning measures and the first fundamental development measures will take several years, so the first building construction activities cannot be expected until the mid 2020s. The planning horizon for the realisation of Oberbillwerder as a liveable, vibrant, affordable and sustainable district is well over a decade away. One of the most important factors in planning capability for ambitious goals is the early establishment of continuous and holistic management of the development process. In order to ensure this, the Hamburg Senate set up a new development compa-

ny, IBA-Projektentwicklungs GmbH & Co. KG (IPEG) in 2019, thus paving the way for the realisation of the city's second-largest urban development project.

In April 2019, the German Sustainable Building Council (Deutsche Gesellschaft für Nachhaltiges Bauen, DGNB) pre-certified the Oberbillwerder Master Plan with a Platinum Award, its highest honour.







# **Oberbillwerder Master Plan**

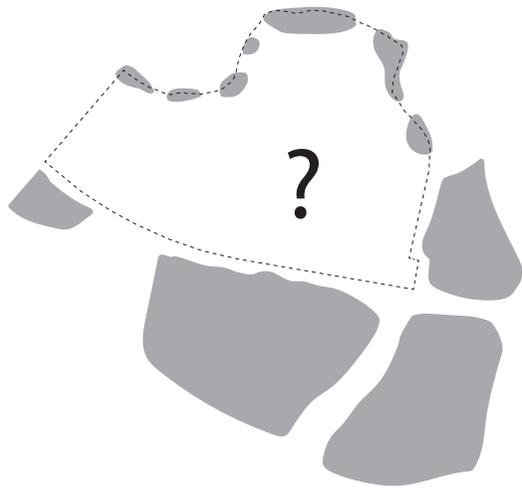
# The Connected City - Oberbillwerder

The Connected City is the guiding principle behind the city of tomorrow, connecting the new with the existing, combining past and future, strengthening present elements of quality and making these the starting point for a new, liveable city where urban life and the landscape are linked together.

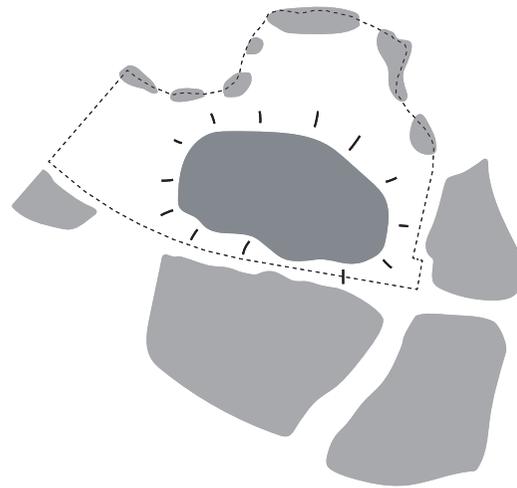
The Connected City is also a model district within an Active City - the City of Hamburg's strategy to enable its residents to live an active and health-conscious lifestyle. Sport, activity and social togetherness are thus key features that characterise the vitality of the new district of Oberbillwerder.

The Connected City boasts multiple use of spaces and buildings, thus contributing towards reducing landscape consumption. Green spaces and sports areas may be freely used both by schools and by organisations, while at the same time serving to retain rainwater and enhance the urban climate. Roofs capture energy and are also suitable for recreational activities. The Mobility Hubs are parking spaces as well as having functions that serve the common good.

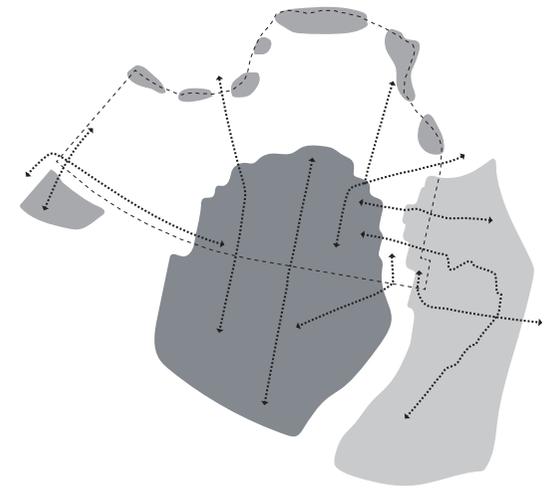
The Connected City also stands for integrative development. The neighbouring area of Neuallermöhe and the Bergedorf-West Quarter will be connected to the new district via new pedestrian and cycle paths. Oberbillwerder connects with the surrounding area via waterways and green axes, and this link between the cultivated landscape and the new district thus creates a Connected City - a place for everyone.



Agricultural land without reference to the surrounding residential areas



The district must not be an island



The Connected City - an integrative planning approach

# Development based on the location itself

The creation of Oberbillwerder marks the continuation of urban development in the Hamburg marshlands, while supplementing the neighbouring districts and Quarters. At the same time, the new district is embedded in the cultivated Billwerder landscape and Hamburg's overarching Green Network, made up of expanses of open landscape and green belt.

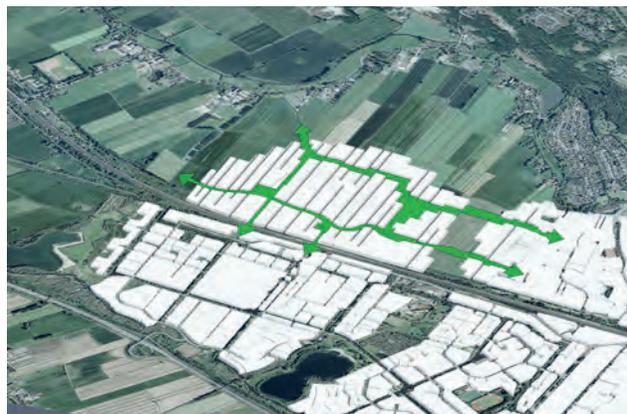
The basic structure of Oberbillwerder takes its cue from the landscape and is based on agricultural cultivation in the form of narrow, elongated parcels of land (Hufen) that run north to south, and the ditches that drain the water from them. This rigid structure is broken up by the vestiges of historic waterways, which run in an east-west direction. The interlocking of these two elements forms the Green Loop: a green ring that will interconnect the new district and take on a variety of functions.



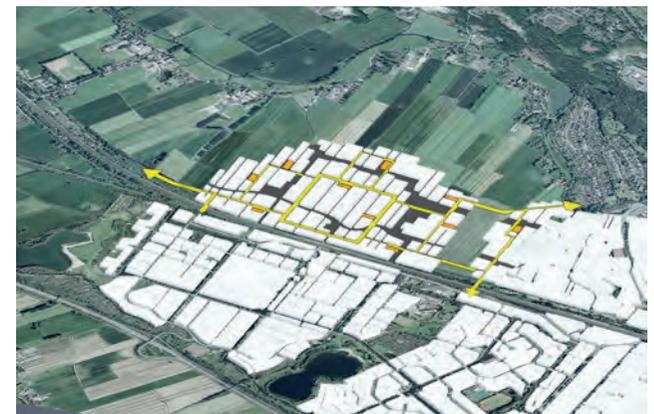
1. Existing view



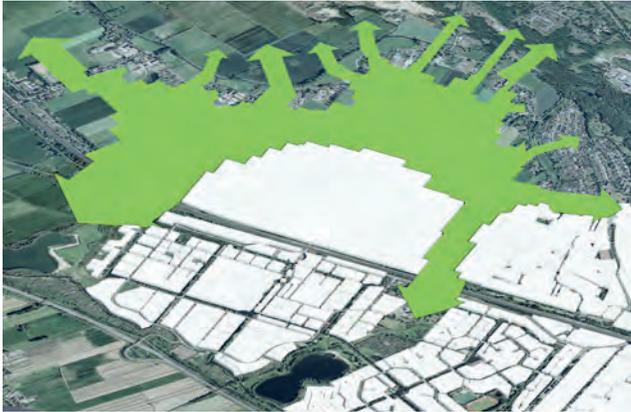
2. Expansion of the existing neighbourhoods



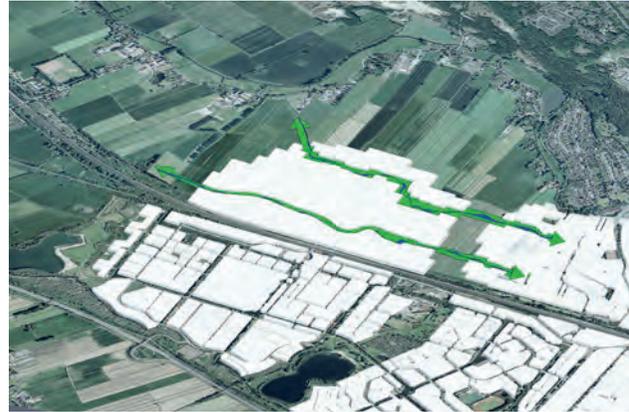
6. Formation of the Green Loop



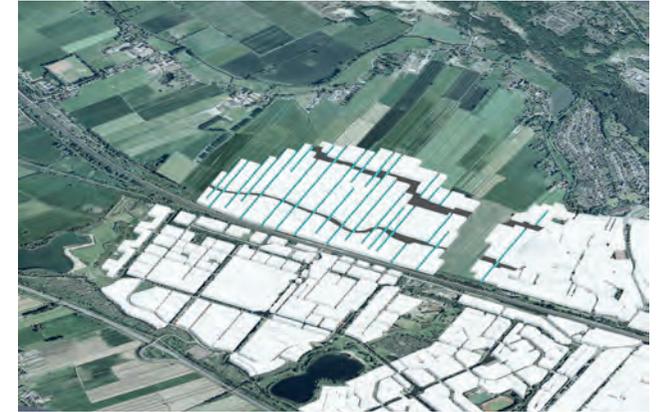
7. Integration of the main transport infrastructure



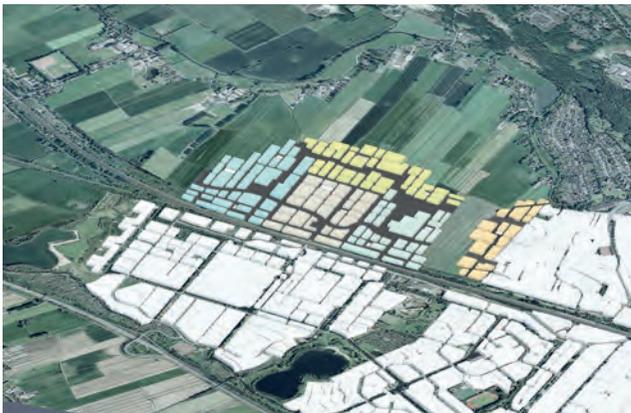
3. Preservation of the landscape loop



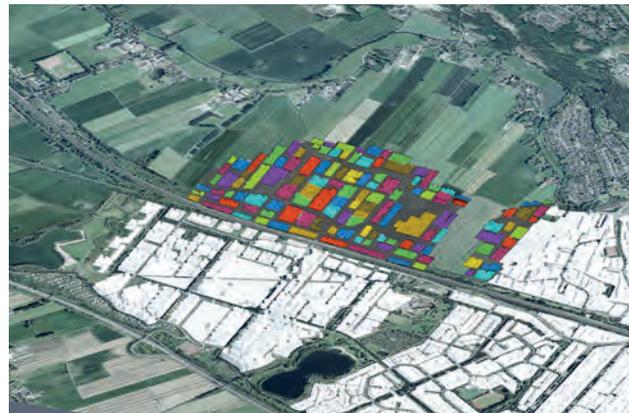
4. Inclusion of remnants of historic waterways



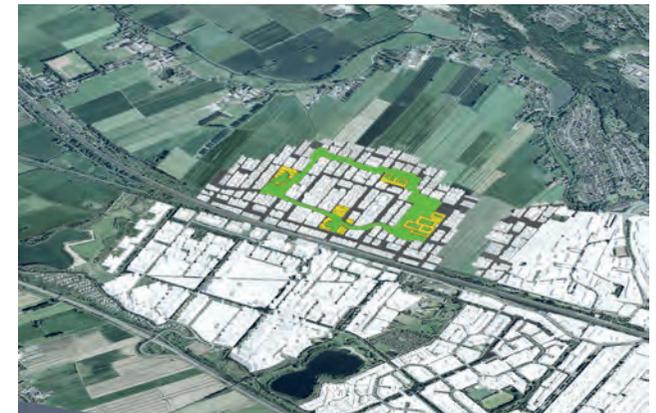
5. Extension of linear structures in the cultivated landscape



8. Division into Quarters and plots of land



9. Development of a detailed mix of various uses



10. Positioning of central facilities on the Green Loop

### Enhancing the neighbourhood

The adjoining district of Neualermöhe and the Bergedorf-West Quarter were built between the 1960s and 1990s. High-quality elements of the processes and spatial structures used back then will be retained in Oberbillwerder, while the neighbourhood will also be enhanced with new elements. This relates to both construction and the facilities available. The institutions created in this new district are not intended to compete with what is on offer already, but rather to expand upon it in a meaningful way. The residents of the neighbouring Quarters will be involved in the process of developing Oberbillwerder on an ongoing basis.

Such an approach is the only way to ensure that the new district can become a natural part of Bergedorf.

### Five new Quarters

The district of Oberbillwerder will consist of five Quarters with different features and local atmospheres. Each of the five Quarters is organised around a number of small squares, so that the overall district is made up of distinctive neighbourhoods.

### Multiple use as a key to synergies

A city spreading to somewhere new means building over land that has previously been used for a different purpose. In the case of Oberbillwerder, this affects agricultural land. The Connected City seeks to harness the potential and specific elements of the cultivated landscape and transform it into something new. In order to keep land usage as low as possible, many areas and buildings will be used for multiple purposes. The public green spaces in the Green Loop will incorporate open space, sports and play facilities, as well as cycleways and footpaths that also deal with rainwater retention, without one function interfering with the other.

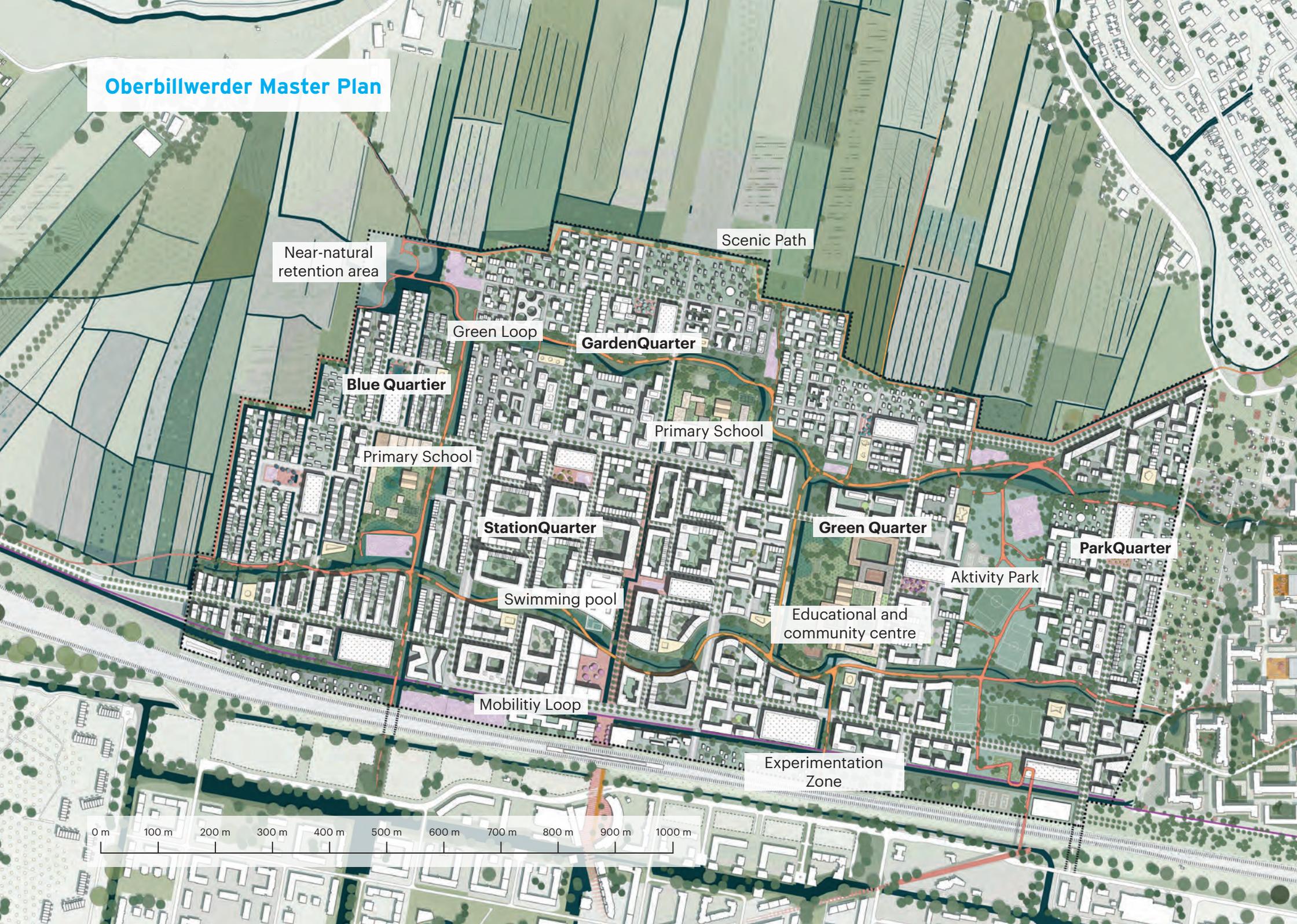
After school hours, in the evening and at the weekend, the outdoor premises of the three school sites

within the Green Loop will also be accessible to the public. The whole loop will help to keep the air clean and thus contribute towards a healthy urban environment, allowing nature to spread within little sub-areas. The water from the ditches alongside the agricultural land will not be simply diverted, but rather purified and washed into the ditches and canals of the Blue Quarter, where waterways define the character and feel of the area. The purifying facility could potentially serve as a wetland area, as well as a space for nature experiences and recreation.

The Mobility Hubs will house parking places with convenient integrated mobility services, along with a range of features including parcel pick-up, power and recycling stations, plus social and cultural facilities for joint activities and local gatherings. Depending on the location within the district, other functions are to be added, so that every Mobility Hub is a unique focal point for the respective Quarter centre, perhaps combining commercial and technical services.

Buildings can also serve a range of purposes. The roofs of the Mobility Hubs and public and private buildings provide common spaces and retention areas, while also generating energy and serving as a habitat for animals and plants, thus doing their bit to improve the urban climate.

# Oberbillwerder Master Plan



Near-natural retention area

Scenic Path

Green Loop

GardenQuarter

Blue Quartier

Primary School

Primary School

StationQuarter

Green Quarter

ParkQuarter

Swimming pool

Activity Park

Educational and community centre

Mobility Loop

Experimentation Zone



# Urban development

A diverse range of urban spaces are taking shape in Oberbillwerder, defined by an array of typologies, densities and open areas. The urban layout is based on the linear structures formed by agricultural land use, while the nature of development is informed by the surrounding districts, with the respective typologies taken from Neuallermöhe, Bergedorf-West and Billwerder Billdeich, reinterpreted and integrated into Oberbillwerder. This results in five Quarters in the form of urban units that together form the new district. Each Quarter is based on a simple basic structure that allows for different features and may vary in colour, height, roof shape or density. These underline the specific characteristics of the Quarters, while ensuring a high degree of diversity.

## StationQuarter

In the very centre, right beside the Allermöhe suburban railway station, is the StationQuarter, which is characterised by a high degree of mixed use, the densest development (FSI between 2.3 and 2.5) and the highest buildings.

The buildings will have an average of four floors, and up to six buildings

may stand out on the skyline at over six storeys high. The StationQuarter will predominantly have a block structure, with different heights, building depths, façade designs and prominent ground floor zones assisting with orientation and providing plenty of contrast within the built-up area. Restaurants, shops and other high-traffic ground-floor businesses will make this a bustling place, especially around the entrance to the S-Bahn (suburban railway) station, the central square and along the central axis. By contrast, the interior of the StationQuarter will largely be reserved for residential use. Townhouses integrated within the blocks will help to break up the effect even more.

## Blue Quarter

Life on and around the water is key to this Quartier. The Blue Quartier adjoins the StationQuarter to the west and extends all the way up to the landscape corridor. Little canals and naturalistic dykes make water part of the surrounding environment.

For the most part, this is an area defined by townhouses and concentrated areas of detached houses, strictly aligned with the "Hufen" structure

running north to south, and forming clean edges with the streets and the waterways and drainage ditches, some of which have an urban look, while others have a more naturalistic appearance. The FSI is between 0.9 and 1.9, spread over two to four storeys.

## GardenQuarter

The GardenQuarter forms the transition with the cultivated landscape on the northern edge of the district. It is made up of condensed areas of detached houses and townhouses, and, to a lesser extent, apartment buildings. Buildings on the outskirts tend to have just three floors. This means a relatively low density, with an FSI of between 0.7 and 1.5. The transition to pasture and arable land is clearly defined. The design of the streets and open spaces brings something of a rural feel to the district, with greenhouses and sheds reinforcing the thematic and typological relationship with agriculture.

## Green Quarter

The Green Quarter development will be relatively dense, with an FSI of between 1.3 and 2.2. Although the feel of it will be shaped by the

education and community centre at the heart of the Quarter, with extensive open spaces that protrude into the Green Loop. It will also be home to the large Activity Park, with a range of sports facilities. Along the edge, the residential buildings, which will have an average of four storeys, will offer sweeping views towards the east, while the block structures, which are open to the west, will shield them from the noise of sports activities and engender a wonderful sense of open space, with public and private green areas.

## ParkQuarter

The ParkQuarter acts as the connection with Bergedorf-West. The types of buildings are designed to offer a new interpretation of the Bergedorf-West area, which comprises building from the 1960s and 70s. In their new incarnation, the buildings will mostly have only three floors, while the FSI will be between 0.7 and 2.0.



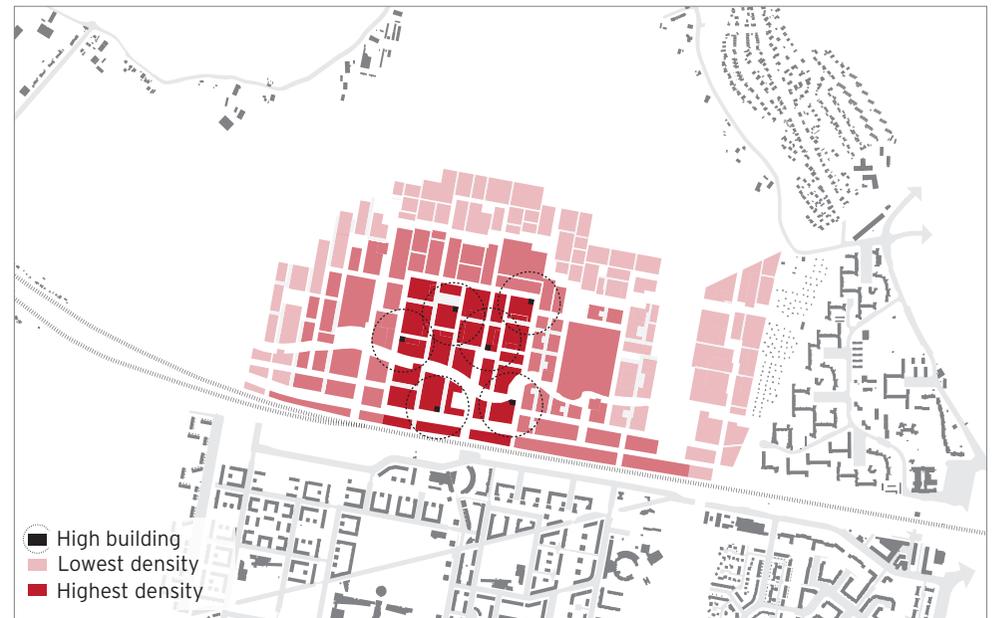
Five Quarters and the Experimentation Zone create distinctive areas



Different typologies and densities create diverse urban spaces



Simple layout typologies allow great flexibility and adaptability



Urban accents serve as landmarks, pinpointing special places and uses

The existing allotment garden will be extended with new plots and isolated buildings. Several new connections running east-west are being created at the interface between the Activity Park on the one side, and Bergedorf-West on the other. Clearly defined borders will be formed by the street and the Activity Park.

### Structure through height

In general, the development will be highest in the centre of the new district, and taper off towards the edges. Slightly higher buildings can create accents at particularly important places within the urban area. In this way, the StationQuarter has an urban feel, with special points within the urban layout that serve as highly visible landmarks.

These 'accent buildings' can also take on functions that cater to the public, and be invigorated by certain key users. At the same time, they also offer a space for combining all sorts of housing and workplaces.

### Experimentation Zone

The Experimentation Zone lies between the railway embankment and the Nördlicher Bahngraben. Noise and ground vibrations from the nearby long-distance and suburban railway, a sewage sluice and two drinking water pipelines present major challenges for the use and design of this area, making development difficult. In spite of these stringent conditions, a market hall and a bicycles-only Mobility Hub are planned for the space right next to the Allermöhe S-Bahn station. This should allow the access routes into the new district to be planned and revitalised through a functional approach to the construction. The rest of the area will be dominated by temporary buildings and intervention infrastructure until further notice: lightweight construction can be used to provide spaces for events, initiatives or pop-ups. The Experimentation Zone also opens up possibilities for spacious play areas and sport, allotments and other horticultural uses, or the high-profile display of different kinds of energy generation.

### Building typology flexibility

The building typologies are based on simple principles: in the StationQuarter, for instance, the structures are created from a dense city block development. The Blue Quarter is distinctive for its rows of housing along the waterways. The GardenQuarter makes use of point blocks, which form the transition to the cultivated landscape. The interplay of clean edges and open structures defines the Green Quarter. In the ParkQuarter, meanwhile, the large structures in Bergedorf-West - reinterpreted and rescaled, and later to be transformed - serve as points of reference.

These clearly defined basic typologies can all be developed very flexibly, allowing, for instance, either a somewhat basic form of the envisaged building typology to be created, according to demand, or something with a greater level of design detail. It is desirable to have a varied mixture that allows for housing rows in certain areas, on the one hand, while leaving room for a high degree of individuality, on the other. This allows the new district to provide housing types for everyone, regard-

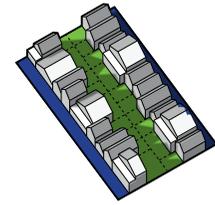
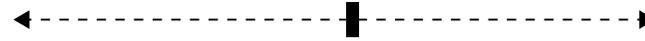
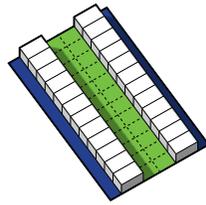
less of their financial situation. The development of Oberbillwerder is a long-term project.

The flexibility of the building typologies makes it possible to react to changes and adapt the process of creation to future developments.

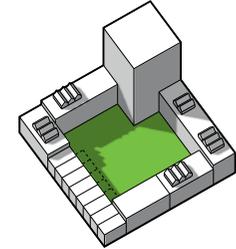
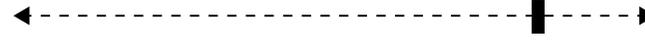
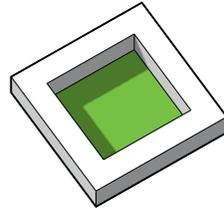
### Quiet residential areas

Active noise protection measures are indispensable in order to shield the residents towards the south of the district from noise from the long-distance railway, freight trains and the S-Bahn. At present, it is assumed that the noise barrier on the railway embankment will be approximately 5 metres high, and must be in place before the first residents move in. Even though the district is designed for a low level of car transport, the trunk roads and Mobility Loop are expected to result in a certain amount of traffic noise. The positioning of the buildings, the orientation of the floor plans and the glazing of recessed balconies is planned to ensure that every home has quiet, noise-free rooms. The same applies to the residential areas alongside the Activity Park.

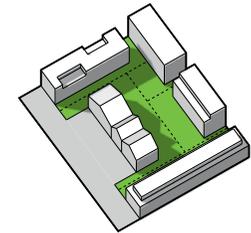
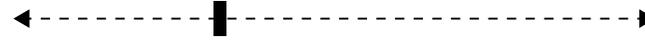
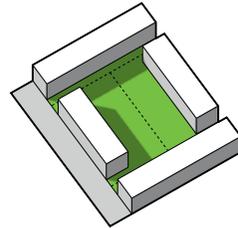
### Blue Quartier



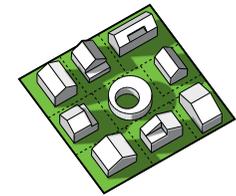
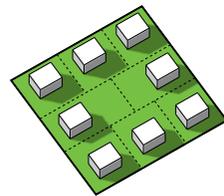
### StationQuarter



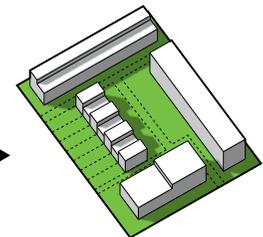
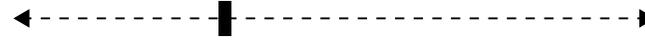
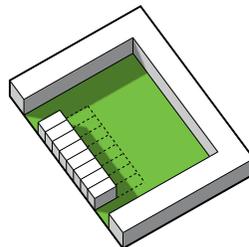
### Green Quarter



### GardenQuarter



### ParkQuarter



The individual Quarters are distinguished by different building typologies with a high degree of diversity



Central square in the StationQuarter



Blue Quarter

Visualisations: competitive dialogue



Green Quarter



ParkQuarter

# Open space

## Embedded in the cultivated landscape, connected to the neighbourhood

In the Connected City model, open space is the connecting element between regional and local spaces, as well as public and private areas. The central component is the Green Loop, which joins the five Quarters together. While the urban structure follows the linear elements of the landscape, the open space, especially in the form of the Green Loop, breaks this structure up with contrasting, meandering waterways. Oberbillwerder's five Quarters get much of their distinctive character from the structure of the landscape and open space, which connects the district with the cultivated environment.

## Connecting the Quarters: the Green Loop

Public, water-related spaces that act as connections between places, facilities and different types of use are an outstanding, high-quality feature of the open space. The Green Loop forms the centrepiece of this.

It is designed as a diverse outdoor space. Extending across approxi-

mately 15 hectares, it will enable the creation of safe and attractive connections between the Quarters and central facilities such as schools, kindergartens, the swimming pool and the activity park. The Green Loop will have numerous play areas and exercise options for people of all ages.

At the same time, as a highly appealing place to be, it encourages residents, workers and visitors to have a rest and relax. Together with the other open spaces, it is an important element in the quality of life of residents, as well as a outstanding hallmark for Oberbillwerder. In addition, the Green Loop plays an important role in rainwater retention.

## Vibrant, public urban spaces

Together with the green areas, public urban spaces also define the district. The entrance area to the north of the Allermöhe S-Bahn station will have an urban feel, grouping together retail and restaurants.

This central square corresponds with the Fleetplatz, located on the southern side of the S-Bahn station, and flows into the central axis that leads alongside the waterway into

the StationQuarter. Small shops, restaurants, cultural and social facilities will all encourage people to linger here.

Lively squares will be created at many points within each Quarter. These offer a range of locations for encounters between people within the community, and will bring together new forms of mobility, local services, areas for play, and cultural offerings. As such, there is space for a variety of areas, each with its own feel: water features in the Blue Quartier, orchards and allotments in the GardenQuarter, and a lively campus-style atmosphere in the Green Quarter.

## Allotments and urban gardening

Life in Oberbillwerder will be particularly shaped by the use and acquisition of the public green spaces.

Allotments are seen as an expression of creativity, as well as being hugely important for food production. The area of allotments run by Gartenfreunde Bergedorf-West e.V., lying between Bergedorf-West and the ParkQuarter, will be preserved

in its entirety. Around six hectares of land will be given over to allotments in the new district, either for 200 large new plots of around 300 square metres each, or a plethora of small plots for other types of urban gardening. Club premises can be integrated into the Mobility Hubs and the space used for further infrastructure, which will also be accessible to the existing allotment club.

## Transition to the cultivated landscape - the northern route

On the northern edge of the GardenQuarter is a clear dividing line with the cultivated landscape: a 3- to 6-metre-wide drainage ditch flanked by the northern Scenic Path, which also serves the purpose of a maintenance route. This establishes a respectful distance with the Billwerder Billdeich, with its partially listed buildings, while agricultural use can be continued in an area up to 800 m wide.

The creation of the new district will mean a loss of land leased within urban areas for agricultural use. Compensation will be provided according to the agricultural



Landscape loop as part of the cultivated landscape



The Scenic Path with parallel waterway ensures a respectful distance from land used for farming



Paths to attractive open spaces in the surrounding area



Environmental areas within the Green Loop promote diverse urban nature

concept approved by the Federal Ministry for the Economy, Transport and Innovation.

### Connected to the neighbourhood

The vision of the Connected City is based on good connections between Oberbillwerder, Neuallermöhe, Bergedorf-West, the village of Billwerder and the wider area. Residents should be encouraged to explore the new district and make the most of local possibilities for getting out and about and doing other things – and vice versa. To the south, it is important to be able to overcome the barrier of the railway embankment. Accordingly, the existing underpass at Allermöhe S-Bahn station will be upgraded with an attractive arrivals area in Oberbillwerder.

Two other routes across the railway line are also planned: a combined road, cycleway and footpath to the east, and the preservation of the pedestrian and cycle route to the west, which will serve as a connection between the northern and southern embankments. The resulting link with the network of waterways in Neuallermöhe will lead directly to the regatta course on the Dove Elbe and allow people to go as far as the

southern lakes. To the northwest and northeast, two pedestrian and cycle routes are planned to run from Oberbillwerder towards Billwerder and the Boberger Dunes, in line with the concept for Billwerder's cultivated landscape area.

### Maintaining the scenic corridor

The scenic corridor to the west will remain practically untouched for reasons of environmental protection. It is part of an overarching biotope network connecting the nature reserves of Boberger Niederung to the north and the Allermöhe Meadows and Die Reit Nature Reserve to the south. The western edge of the Blue Quarter development ends with the planned extension of the Felix-Jud-Ring and in the north turns abruptly back towards the east again, so as to have as little impact on the Landscape Corridor as possible. Having a western connection to the road network was simply unavoidable. Pedestrian, cycle and road routes will run alongside each other parallel to the railway embankment towards Mittlerer Landweg.

### Promoting urban nature

The land currently used for agricultural purposes is important for the protection of biotopes and species, as well as soil conservation. As a result of structural development, the biotopes and soils around the new district are largely being lost. Bird species found in open land and soil archives are a particularly important part of natural and cultural history. As a preventative measure, valuable soils are being preserved, in particular around the Green Loop. The natural design offers animals and plants new habitats, albeit within an urban setting. Such biotopes are able to exist in the quieter areas of the Green Loop, the near-natural retention area in the northwest and along the northern Scenic Path, or on greened roofs, or these can serve as stepping stones for animals crossing the Quarter.

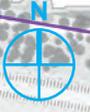
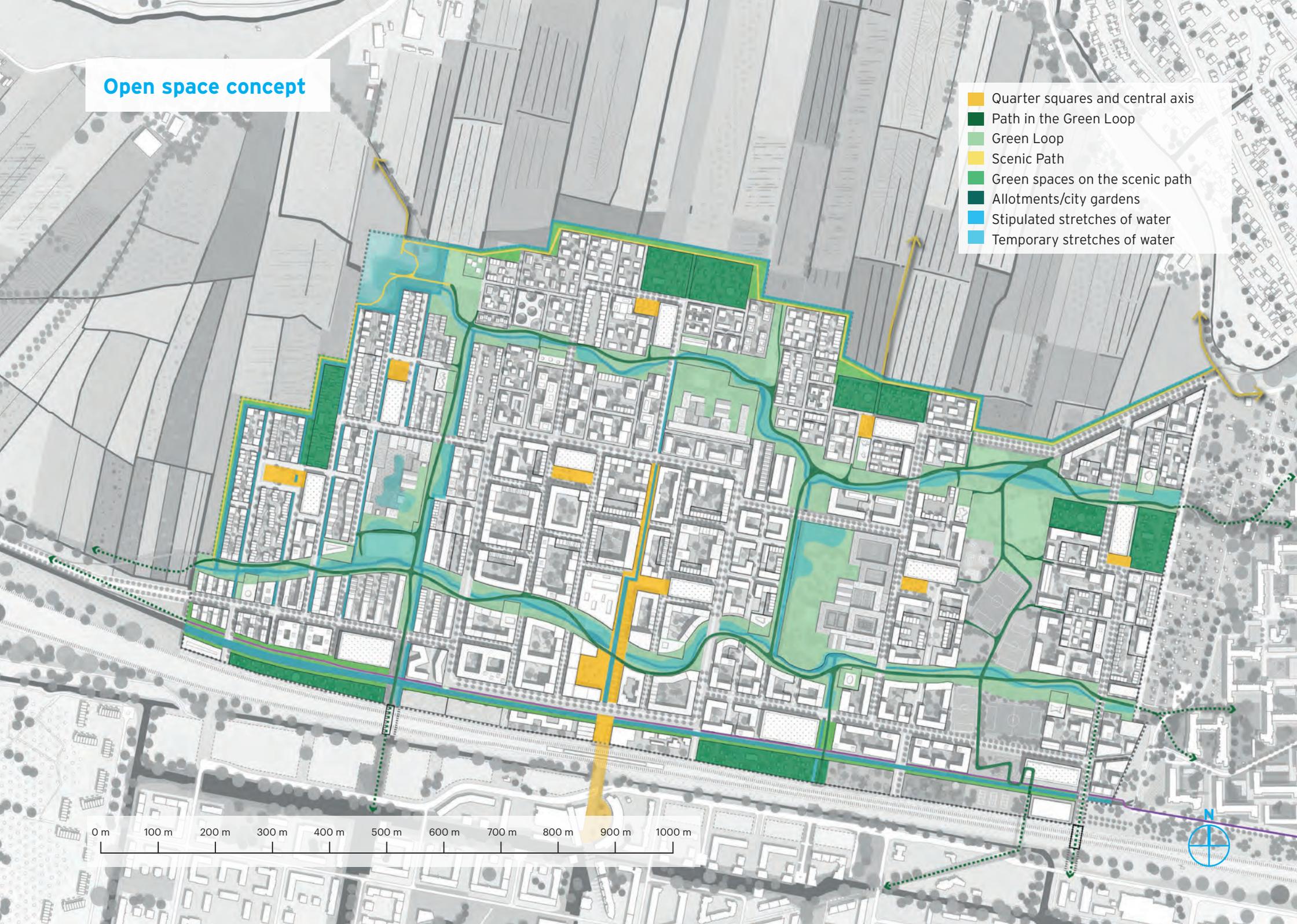
The Animal-Aided Design (AAD) concept offers other constructive approaches to creating valuable refuges for birds or mammals, and will be deployed early on when designing the green areas. The establishment of a nature experience space, for example, around the

near-natural retention area to the northwest of the district, should also be examined within this context.

As interference with nature and the landscape can only be compensated for to a limited extent within the project area itself, the Federal Ministry for the Environment and Energy has devised a balancing concept, setting out the necessary areas and measures within the expanded cultivated landscape region.

# Open space concept

- Quarter squares and central axis
- Path in the Green Loop
- Green Loop
- Scenic Path
- Green spaces on the scenic path
- Allotments/city gardens
- Stipulated stretches of water
- Temporary stretches of water





Transition to the landscape in the GardenQuarter



Green Loop



Activity Park



Quarter square in the StationQuarter

### Good initial conditions for the urban climate

The cultivated landscape is an important area for cold air generation. Gaps running north to south in the planned area allow the exchange of air even in still weather conditions. Connected green spaces of at least 0.5 hectares within the planned area will contribute towards the supply of cool air on hot summer days. As such, the wide green axis that is home to the Activity Park in the eastern part of the district is a potential air exchange zone for enhancing and increasing the climatic effect of the existing allotment area to the east. It adjoins the cultivated landscape to the north, while south of the railway embankment it extends into the allotment area, which is divided between the Neuallermöhe-Ost and -West Quarters. The location of the panel and the position of structures are planned to favour the inflow of cool, fresh air. This beneficial penetrability in terms of air exchange is the result of the way in which most of the access roads are interlinked.

Moreover, development at the edge of the project area is comparatively open and fragmented. Even on days with a high thermal load, the Green Loop will offer a high-quality climate. The specific climatic situation for each site is still being worked out in detail.



The Green Loop connects the Quarters together



New allotments and other types of urban gardening



The central axis picks up on routes from Neuallermöhe, while squares in the Quarter make attractive gathering places



North-south visual axes open up views of the landscape

# Housing and the neighbourhood

## Oberbillwerder – a district for everyone

Around 7,000 housing units will be created in Oberbillwerder. Most of them – approximately 85 per cent – will be apartment buildings. In addition, the remaining 15 per cent of housing is planned as townhouses and detached houses. The various housing types are aimed at people with a range of incomes and from different backgrounds, ages and situations in life.

Oberbillwerder consists of five Quarters that are intentionally different in character. The fact that they have different building types, developers, open spaces and uses makes it possible to meet almost all demands: a townhouse on the water, an apartment in the urban centre, and a detached house amidst greenery are just some of the examples of the array of homes on offer. This diversity enables Hamburg's typical three-way split of housing types across the different locations. In line with this ratio, around 20 per cent of the homes in each category are to be assigned to joint building ventures.

## Mobility Hubs as a starting point for multi-purpose neighbourhood centres

Encounters of people, public events and community use are all explicitly encouraged in Oberbillwerder, as a model district in an Active City. The multifunctional Mobility Hubs are of particular importance, being much more than just parking facilities in order to keep the streets free of parked cars. The ground-floor zones are intended for public or community use, and may offer basic infrastructure with a range of mobility and service options. There is also space for local shops providing necessities (supermarket, bakery, café), as well as libraries, a youth centre, day-care facilities, cultural institutions and other such offerings.

Private and car-sharing vehicles will park on the Mobility Hubs' upper floors. The greened flat roofs can serve as gardens, playgrounds, or sports and recreational facilities, as well as a habitat for animals and plants, and a space for rainwater retention, energy production and improving the urban climate.

Neighbourhood centres are created through the proximity of the Mobility Hubs to the Quarter squares and the grouping together of places for commercial and public use on the ground floor zones of the Mobility Hubs and the buildings that surround the squares. As transport converges at the Mobility Hubs and the bus stops are close by, many people living in the Quarter pass through here every day. The opportunity to partake of recreational activities or linger in the squares fosters vibrant encounters among the local community.

Depending on their location within the district, these centres are characterised by different focal elements. In the central, built-up area of the StationQuarter, for instance, studios, artists' workshops, social and cultural institutions and other public-use facilities will be in place. Community life will be encouraged through dispersed spaces for sport, exercise and gatherings. Along the main streets to the south, meanwhile, the focus is on workmanship, production and creative use. In the north and east, the Mobility

Hubs also have infrastructure for the nearby allotments and sports associations. In addition to club premises, storage areas and water connections, they may also accommodate community greenhouses or swap shops.

The well-attended neighbourhood centres act as collectors and distributors of types of use, as well as users. Giving particular places a specific emphasis gives rise to diverse, complementary meeting places, and ensures that these centres foster an active



The basic principle of building at different heights creates areas of transition with the cultivated landscape



Different typologies in different locations mean housing that is suitable for everyone



Mobility Hubs and Quarter squares create Quarter centres



Clear structures and small squares create a distinctive identity for each of the five Quarters

## Mixed usage

In future, everyday life will require a varied urban structure that facilitates and promotes mixing, transformability and swapping between different types of use. This will create a lively, functioning city where living, working, recreation, education and shopping take place in direct proximity, whether above, below or next to each other.

The greatest density of use and construction will occur near the Allermöhe suburban railway station in the StationQuarter. The retail concept devised by the Hamburg-Bergedorf District Authority envisages additional retail space of between 5,000 and 7,000 square metres for this area, in order for it to fulfil its intended function as a primary district centre.

Within the Quarters, the ground floor zones of the Mobility Hubs and the buildings on the Quarter squares will provide space for small-scale services, retail outlets, co-working spaces, and community, cultural and social institutions. Buildings that provide an optimal combination of living spaces and

offices for working from home are planned across the whole district.

### Workplaces - a carefully planned mix

Depending on future development, more than 4,000 jobs, mainly in types of work that will have no impact on residential use, will be created in Oberbillwerder using the basic principle of small-scale mixed use. In this case, the focus is on the effective distribution of different types of use to specific places, with an emphasis on the field of nutrition, health and exercise.

This strategy is future-proof, as it is based on a mix that can be flexibly adapted to requirements. Changes to the world of work and ways of working are also reflected in spatial working patterns. Such an approach takes account of workers who are not tied to a particular location by providing appropriate typologies in the form of co-working spaces, home office workstations and hybrid office/living space lofts. Up to 300 workstations for Oberbillwerder and its expected mix of residents may be created in co-working

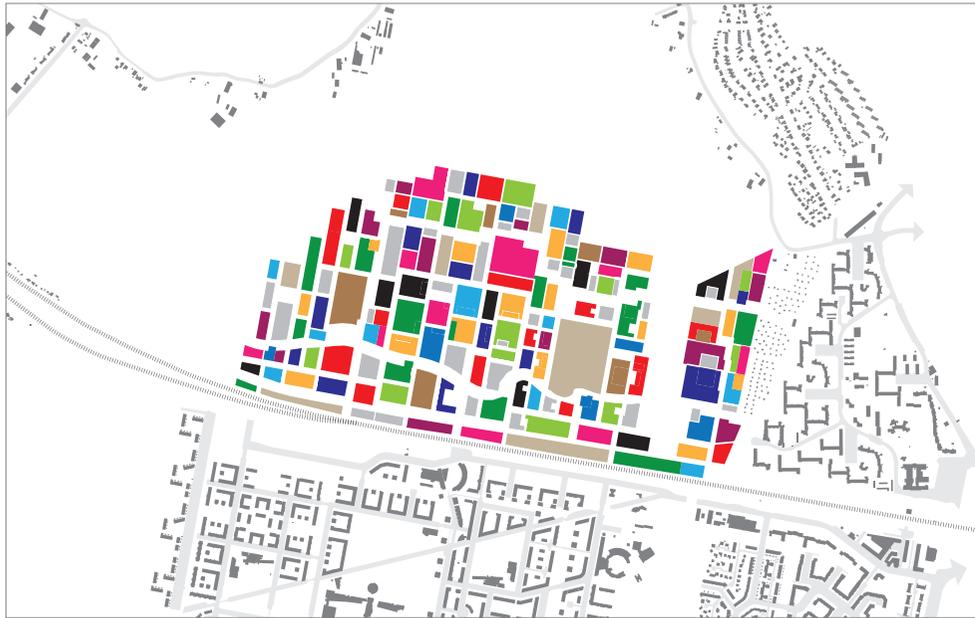
spaces around the Quarter squares or in the centre. In addition, 600 employees are expected to work from home. Around 500 jobs are expected to be created in education, healthcare and social services, with another 500 in Quarter-based services and retail. Personal services (especially in the home) may provide another 300 jobs.

Oberbillwerder is to be integrated into Hamburg's innovation ecosystem, in line with the Connected City philosophy. The cluster strategy adopted for business development in Hamburg comprises eight sectors. These include the life sciences north and the Hamburg health industry. Hamburg's renewable energy cluster could also have a place in Oberbillwerder. Assuming political and institutional support, the establishment of an anchor tenant from the nutrition, healthcare, exercise or even science and research sector may create around 1,500 jobs that can be flexibly integrated into the planned urban framework in a resident-friendly way. The portfolio of job opportunities is completed by craftsmen's comple-

xes with around 450 jobs. A high number of jobs in the district could significantly reduce commuter traffic to and from Oberbillwerder. However, it is to be expected that many people will still commute to work in inner-city Hamburg or the centre of Bergedorf, while commuter traffic to Oberbillwerder will also occur.

### Open education environments: Schools

The StationQuarter and Blue Quarter have one primary school each close to housing, each covering around 1.6 hectares of land accommodating the classrooms, adjoining rooms and hall spaces, as well as outdoor play areas and the necessary parking spaces. In addition, there is the approximately 4-hectare education and community centre in the Green Quarter. This combines two secondary schools, each with two large sports halls and various associated social and cultural or religious institutions.



The basic principle of small-scale mixing allows a high degree of flexibility



Concentration of jobs in the centre and on the Quarter squares



Publicly accessible ground-floor zones liven up Quarter squares and central places

A library, a space for parenting classes, and meeting points for senior citizens and other sections of the community are also possible. This large campus, particularly its extensive open areas, which stretch into the Green Loop, can be used by all residents of the district and visitors, as can the outdoor areas of the primary schools (mainly outside the school day). In addition to the sports halls and pitches on the school premises, the roofs offer further potential as sports facilities.

### Facilities integrated into city life – social, cultural and religious institutions

Social and cultural facilities are distributed flexibly throughout the Quarter in order to ensure a diverse urban environment, but they are directly linked to the education and community centre or close to the primary schools or Quarter centres. The ground floor zones around the Quarter squares are where essential neighbourhood life takes place, as explained in greater detail in the Housing and the neighbourhood chapter.

### Kindergartens

Up to 14 Kindergartens are planned, all located on the Green Loop. This makes travelling to them safe, while also linking them with one another and with other social facilities. Children will be able to use the other play facilities available in the Green Loop with ease. In this way, from a young age they will learn to discover the district, take part, and actively move around and get used to the urban space. The specific allocation of open space to the kindergartens will be expanded upon further into the process. In individual cases, this may mean relocating the building.



Schools form the core of the new district



Travelling to the kindergartens is safe thanks to their location on the Green Loop



The close proximity of the facilities encourages the community to come together

# Active City - getting around and getting together

Hamburg is a city of sport. Sport and exercise are of prime importance in Oberbillwerder: as a model district for the Active City. The focus is on ensuring active, dynamic everyday city life for residents. Sport and exercise are seen as an integral part of day-to-day life here. This means more than recreational sporting activities like jogging or playing football. It refers to active community life as a whole, so that people can get to where they need to be safely and effectively via bicycle or on foot, and cross paths in everyday life. Oberbillwerder is designed as an attractive, social, inclusive and movement-oriented urban space that offers largely barrier-free opportunities for all sections of the population. The educational institutions and various social and cultural facilities all play into this. Low-threshold, cross-generational initiatives to get people active act as catalysts for the surrounding neighbourhoods, too. Oberbillwerder will get people moving and connected.

## Sport, play and exercise in day-to-day city life

In line with the guiding concept of ensuring short distances, appealingly designed connections encourage residents to get active on a daily basis. Routes to the bakery, the S-Bahn station or the shops are faster by bicycle or on foot than they would be in a car. In addition, the design of the open space is all about movement.

The centre of sporting activity is the large 4.5 hectare Activity Park in the east of the district, between the Green Quarter and the Park-Quarter. The Activity Park includes two large sports fields and numerous small sports pitches, as well as open courts for a range of sports and exercise. During the day, the Activity Park will be used for school sports, as the school campus is only five minutes away. The Activity Park is open to everyone who wants to take part in sport, including clubs, in the evening and at the weekends. The exercise facilities also include a large playground.

Other large playgrounds are easily accessible in the south and west of the district, and there are also lots of smaller playgrounds scattered across the entire district, most of them in residential areas near the Quarter squares and, of course, in the Green Loop. As a result, about two hectares of public land have been set aside as play areas for different age groups of children and young people. In line with the Active City ethos, sports areas and little exercise islands for people of all ages, plus some that are specifically designed for senior citizens, are integrated throughout the urban area and can be used as part of one's everyday routine. The range of exercise options is also supplemented by a bridle circuit that runs through the surrounding area.

The swimming hall is planned to be constructed in the southern Station Quarter (subject to a review of economic feasibility). Located close to Allermöhe S-Bahn station,

it is easy to reach not only for school pupils from the district, but also for people living in the neighbourhood. According to current plans, this will cover a gross total area of 10,000 square metres, with five lanes and a separate rehabilitation pool. Other exercise options may be provided by using the roof areas.

## Compatibility between sports and residential areas

Games and sports are generally associated with noise, so noise protection is particularly important for the neighbouring areas of housing. Acoustic conflicts between the sports facilities in the Activity Park and school sports pitches and the surrounding housing must be kept to a minimum. In this model district of the Active City, the high usage rate of sports facilities plays an important role, not least in terms of benefiting from the advantages of multiple use. Restrictions on use intensity should be avoided by exploiting all opportunities for active sound insulation.



Central sports facilities as an essential part of the Active City



Reconciling sport and housing through a robust building structure around the Activity Park



Integrated exercise and play spaces make the Active City part of everyday urban life

The urban planning takes account of the special situation using building typologies that feature staggered ground plans and robust building edges.

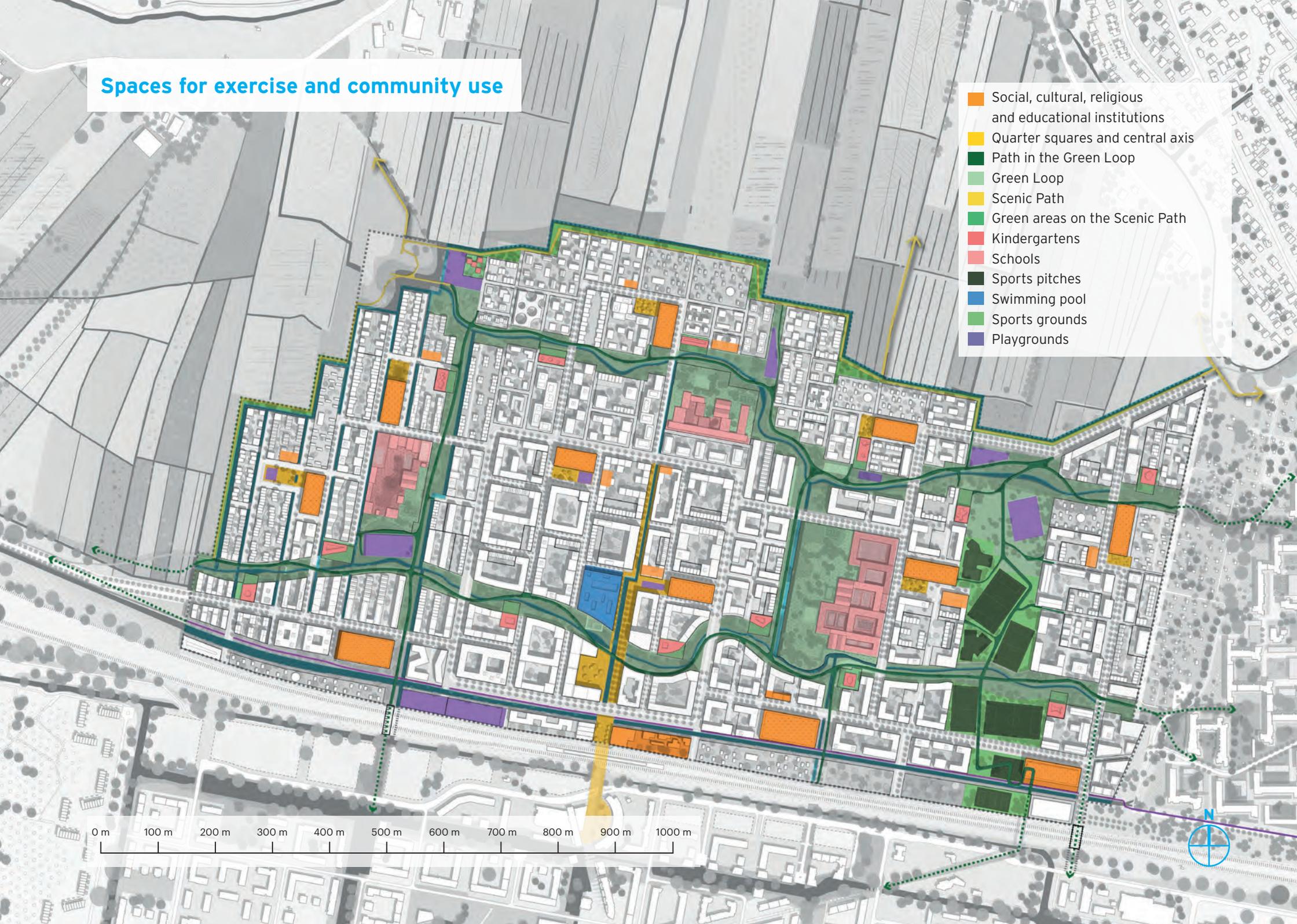
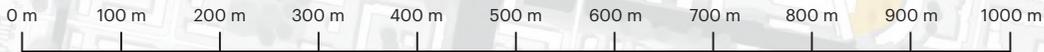
### Multiple use as a quality

Multiple use can act as an impetus for community spirit, as well as contributing towards the goal of the economical use of space. The aim of movement-oriented, community-based interaction is at the heart of Oberbillwerder as an Active City. Thanks to the willingness of individual players to cooperate, the sports areas at the Activity Park and the infrastructure facilities can be used for multiple purposes and will thus be very well utilised.

Alongside this space-saving aspect, there are further potential synergies with institutional and club-based use, not least as maintenance venues.

# Spaces for exercise and community use

- Orange: Social, cultural, religious and educational institutions
- Yellow: Quarter squares and central axis
- Dark Green: Path in the Green Loop
- Light Green: Green Loop
- Yellow-Green: Scenic Path
- Green: Green areas on the Scenic Path
- Red: Kindergartens
- Pink: Schools
- Dark Green: Sports pitches
- Blue: Swimming pool
- Light Green: Sports grounds
- Purple: Playgrounds



# Water management

Water management is crucially important to the development of a new district, as marshy soils allow hardly any seepage, while heavy rainfall events are occurring with ever-increasing frequency. The water management concept creates quality features when it comes to dealing with both everyday and unusual amounts of water. It is integrated into the urban and open space planning, while also equipping the district for storage and retention in the event of periods of exceptionally heavy rainfall. The requirements of the common rainfall infrastructure adaptation concept (RISA) set out by the State Ministry for the Environment and Energy with Hamburg Wasser are thus well and truly fulfilled.

## Height development

The creation of a suitable topography is the basis for water management. At present, ground levels are predominantly between 0.0 m NHN and +0.5 m NHN, with an average of +0.26 m NHN. Later, the Green Loop will lie at the lowest level of the district

(0.0 m to +0.30 m NHN), making it the central collecting point for water that accumulates within the area. The building land, meanwhile, will have a height increase (+0.60 m to +1.50 m NHN), so that the Quarters will lie on a higher level, with the exception of the Blue Quarter, where the signature feature is its proximity to the water. The open space created in the depression of the Green Loop, which stretches up to 40 m wide in places, is defined by stipulated water channels, which offer large areas for rainwater retention along their bank zones.

The mean water level in the area is based on the operating water level at the Allermöhe Pumping Station; as in the neighbouring district of Neuallermöhe, in Oberbillwerder this is roughly -0.8 m NHN. On the agricultural land, the water level is unchanged, at roughly -0.4 m NHN. As such, it can be assumed that the canals and ditches within the district will usually be water-bearing.

## Two systems with major benefits for the neighbourhood

In essence, the water management concept is divided into two systems: the water that accumulates on the agricultural land will be collected in a newly created watercourse (border ditch) between 3 and 6 metres wide, and conducted via a tipping weir into a wider waterway that acts both as a cleaning facility and a retention area.

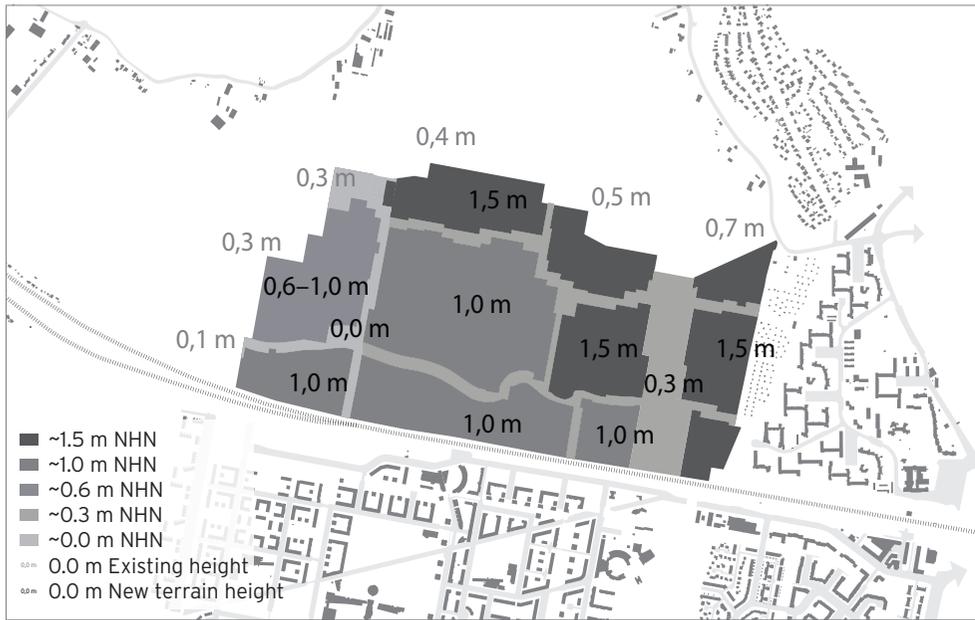
This system leads to less backwater on agricultural land in comparison with the current situation. In the event of heavy rainfall, the water is thus discharged from here much faster than is presently the case. The planned extension of the bodies of water will make the drainage system much more effective than it is today.

From the cleaning and retention area, the water will be fed into the canals and channels of the Blue Quarter, where it will be a design element of the open space. To the south of the Blue Quarter and

the education and community centre, the water will be specifically channelled to the Nördlicher Bahngraben and towards the Allermöhe Pumping Station.

The hydraulic capability of the Nördlicher Bahngraben will be significantly increased within the Oberbillwerder area as it is widened, thus creating a large storage volume. In the event of heavy rainfall, the water level in the Nördlicher Bahngraben would increase by a maximum of 4 centimetres above the current level. The system should completely empty within 24 to 48 hours, allowing subsequent rainfall to be accommodated as well.

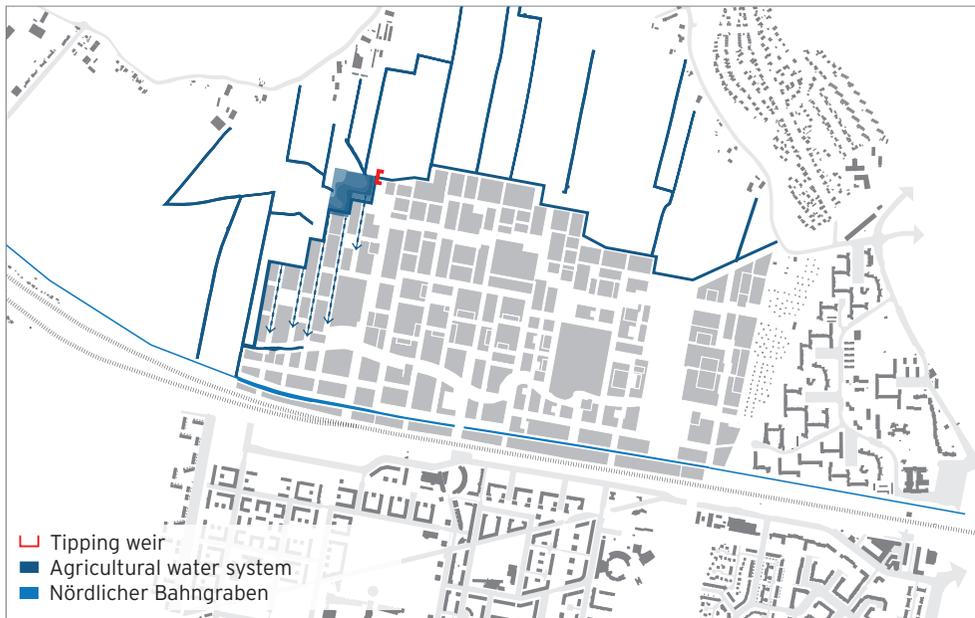
The key drainage element is the Green Loop. This collects and contains the accumulated water and feeds it into the Nördlicher Bahngraben. But drainage also becomes a visible, water-sensitive design feature of the Green Loop. The different water levels caused by such retention define the appearance and different feel of the open space.



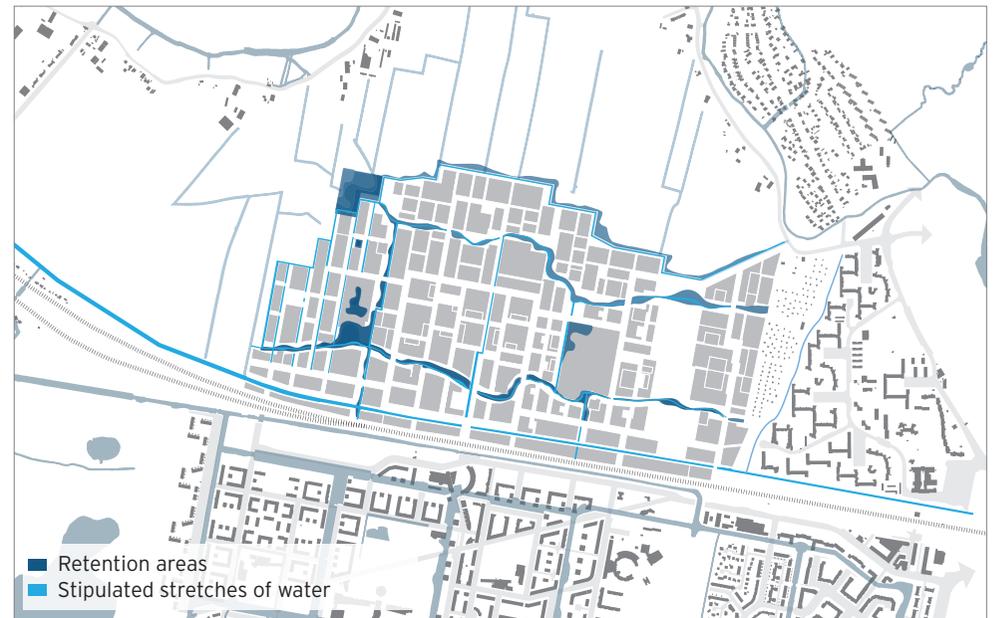
Different water usage due to differentiated topography



The inner water system with waterways creates quality features within the urban space



A separate system improves the outflow of water from agricultural land



Large retention areas enable the safe retention of water from heavy rainfall events

Another component of the drainage concept is rain retention on private land. This includes storage capacity on roofs, in underground infiltration ditches or above-ground troughs, as well as the shared use of private land. Most of the rainwater comes from private properties within the Green Loop via an open surface drainage system. Moreover, as many unsealed surfaces as possible need to be used to promote evaporation and decentralised, near-natural rainwater infrastructure. Greened roofs can serve the same function. According to Hamburg's green roof strategy, 70 per cent of all roofs larger than 100 square metres should be planted.

#### Large retention area

To protect the areas upstream and downstream, outflows from the district are to be kept to a maximum of 620 litres per second before the water is fed into the Nördlicher Bahngraben at 5 litres per second [5 l/(s\*ha)]. This flow regulation is maintained up to the level of a once-a-century heavy rainfall event, i.e. an amount of precipitation that statistically only happens once every 100 years. The drainage con-

cept is so robust that it can buffer more than the quantity of water unleashed by once-a-century heavy rainfall events. A retention volume of around 27,000 cubic metres in the public space is required to cope with a once-a-century heavy rainfall event, with approximately 13,600 cubic metres on private land (green roofs, troughs).

At the heart of the rainwater retention programme is the Green Loop, with a retention volume of around 25,000 cubic metres. In addition to this, retention in drainage ditches equates to around 7,800 cubic metres, with about 3,600 cubic metres in channels. Retention in depressions amounts to approximately 7,600 cubic metres, resulting in retention potential of around 44,000 cubic metres.

The activation of extra measures will enable the system to cope with rarer precipitation events, for instance via extra accumulation in the Green Loop and ditches and hollows, which can hold up to 20 centimetres. The unsealed sports grounds and Quarter squares also offer additional retention potential.

The provisions for heavy rain will be formalised in the later planning stages.

# Drainage concept

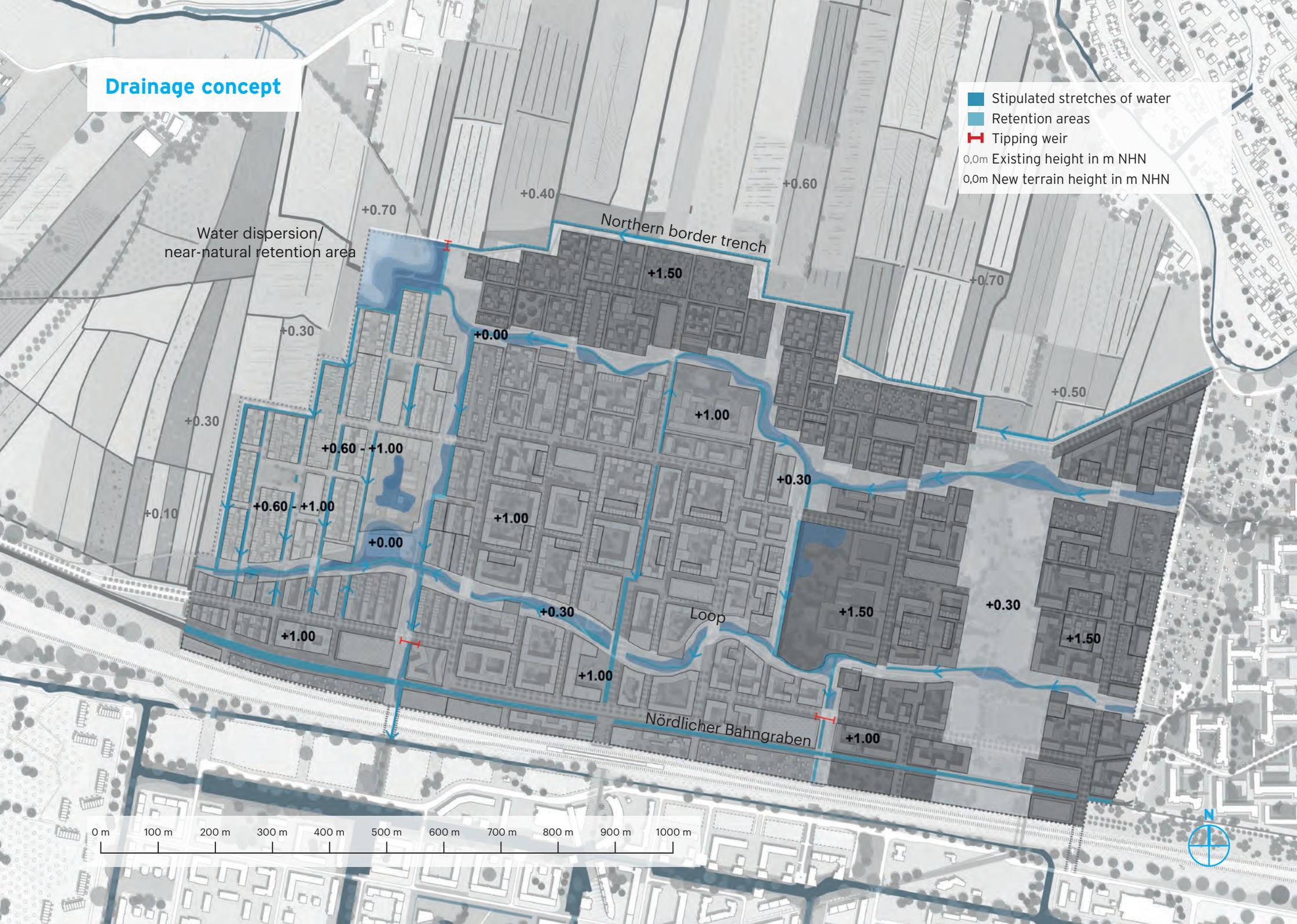
- Stipulated stretches of water
- Retention areas
- ⏏ Tipping weir
- 0,0m Existing height in m NHN
- 0,0m New terrain height in m NHN

Water dispersion/  
near-natural retention area

Northern border trench

Loop

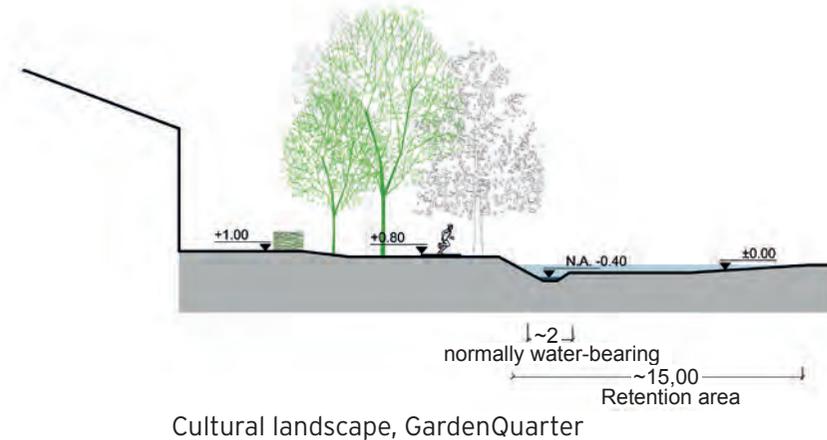
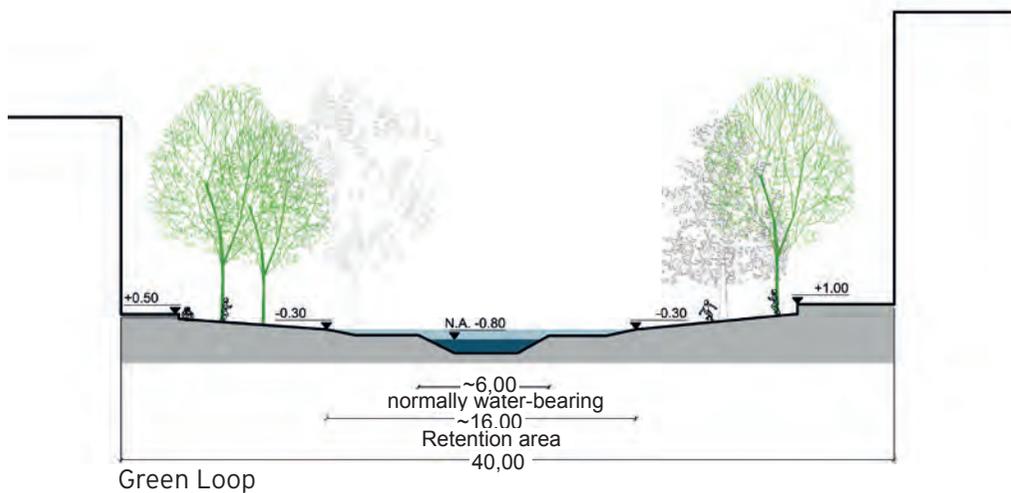
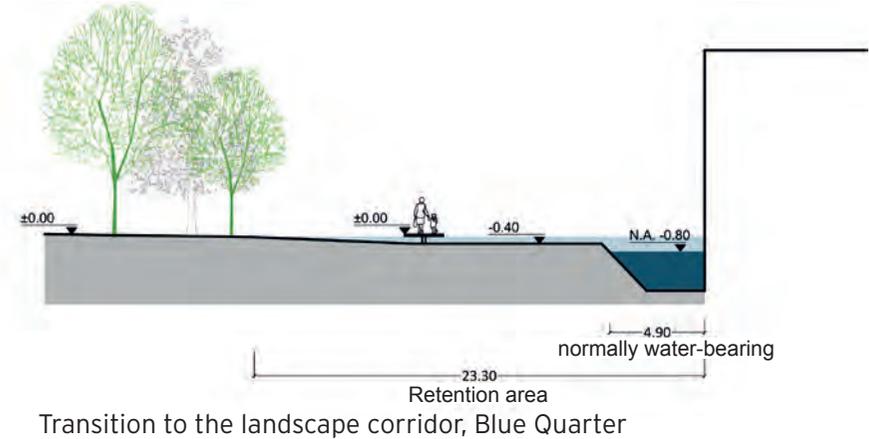
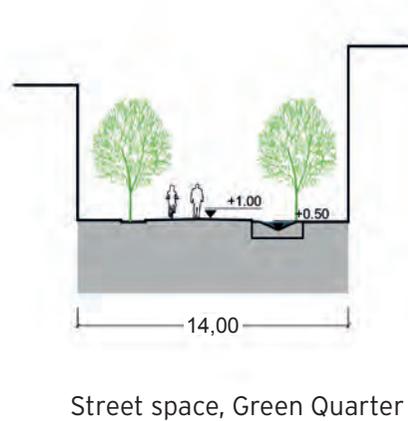
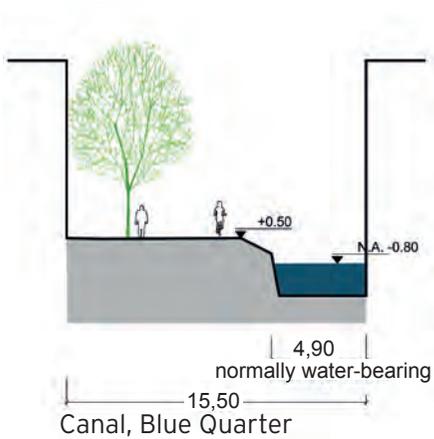
Nördlicher Bahngaben

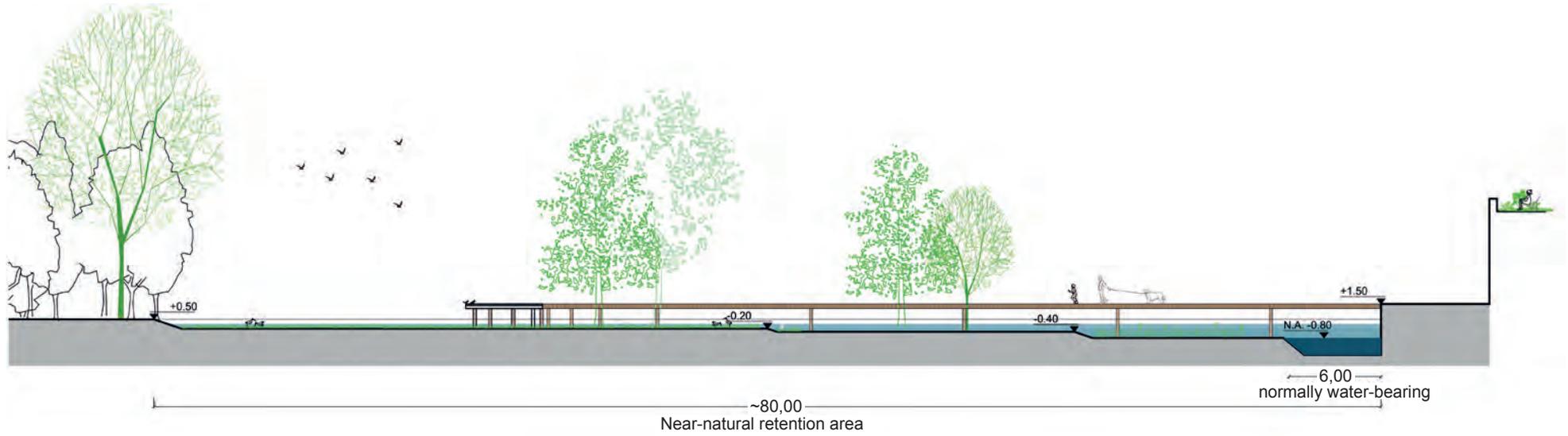


# Water management - water profile examples

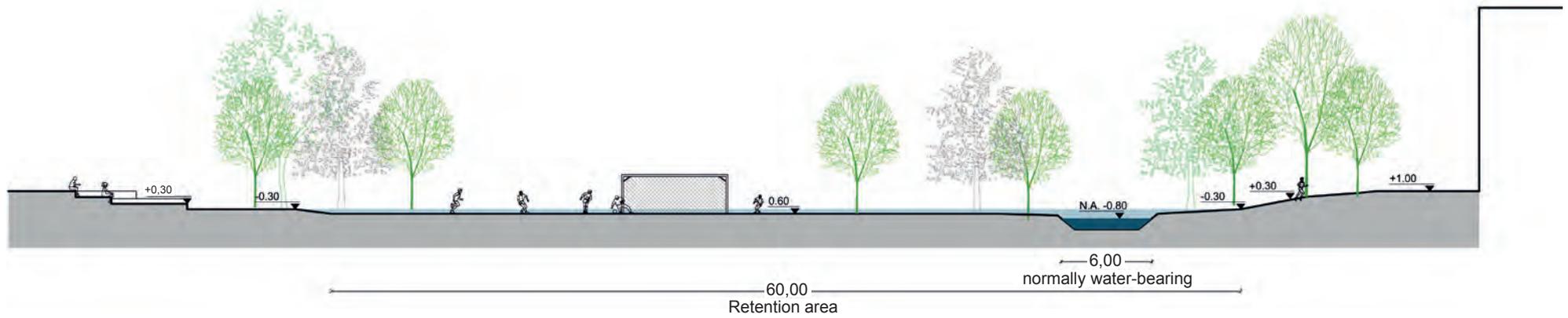
Height information in m NHN

Length information in m





Near-natural retention area in the northwest



Activity Park

# Mobility and transport - outer development

Oberbillwerder is distinguished by a mobility concept that is both forward-looking and convenient, focusing on the strengthening of public transport, a range of options for non-motorised transport and switch stations for transferring from one mode of transport to another. Other elements include attractive cycleways and footpaths within the district, plus the development of a cycle expressway. These features are intended to encourage a lower share of motorised private transport than elsewhere, at 20 per cent of the total traffic.

## Easy travel via train and bus - public transport connections

The Allermöhe S-Bahn station, which lies on the southern side of the area, offers prime conditions for the development of a district based on forward-looking mobility. The two lines that already run through there are well used. In order to make getting around via the suburban railway system appealing for new residents, too, additional capacity will be created for more passengers: the S 21 route will have six-carriage

trains, while S 2 will have longer trains (nine carriages). Bus connections will be ensured by the extension of lines 12 and 230/321, allowing the centre of Bergedorf and the surrounding districts and Quarters to be reached within a short space of time.

## Flexible mobility - by bicycle

Planning intensive use of bicycles in Oberbillwerder requires the district to be very effectively integrated into an efficient cycle network. The pedestrian and cycle path beside the S-Bahn line, which is currently on Veloroute 9 between Bergedorf and Hamburg city centre, will be enhanced to create a major connection and serve as a future cycle expressway between Geesthacht and Hamburg. There are also various options for continuing onwards towards the centre of Bergedorf. These include a branch off Veloroute 9 to the northeast, creating another good bicycle connection between the centre of Bergedorf and Oberbillwerder. Direct and attractive links with Veloroute 8, recreational routes 4 and 11, and Bergedorf's district cycle network are also considered priorities.

In the immediate vicinity, links will be created between Oberbillwerder and Neuallermöhe, as well as Bergedorf-West. A crossing over the railway embankment for car traffic is planned in the eastern area. A second crossing for bicycle traffic and pedestrians would make sense on the western side, especially as a shortcut to the main recreational facilities in Neuallermöhe. One long-term option is a cycle bridge over the railway embankment at the corner of Margit-Zinke-Straße and Sophie-Schoop-Weg.

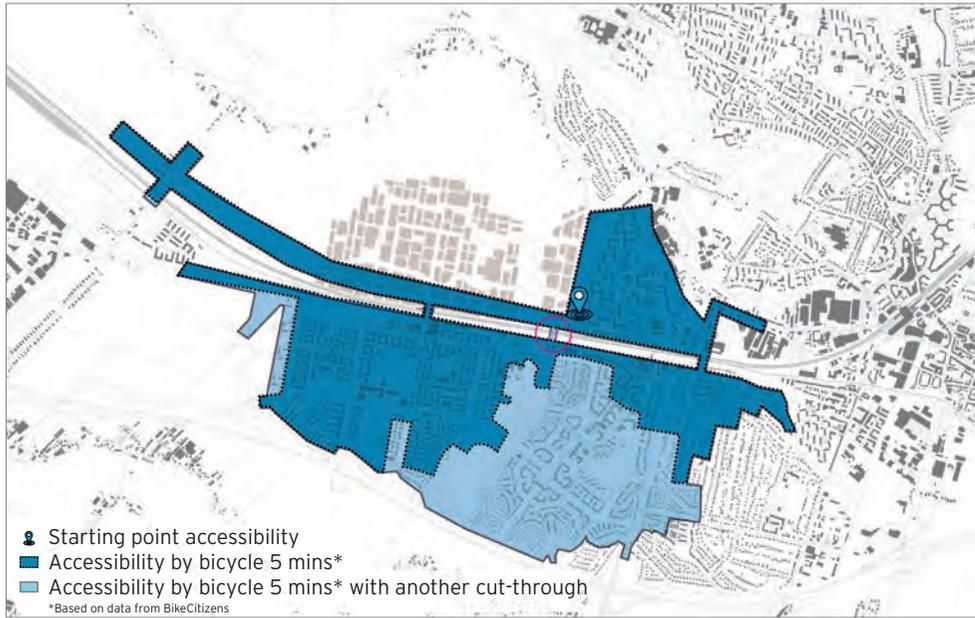
## Getting everywhere - on foot

Oberbillwerder will be linked to the neighbouring areas of Neuallermöhe and Bergedorf West predominantly via attractive footpaths. This means that many public facilities and much of the local infrastructure can be reached on foot. Social growth can also be achieved through the creation of sophisticated networks. For pedestrians, the eastern route across the railway embankment makes a coherent and handy way of getting to the neighbouring area of Neuallermöhe, which lies to the south.

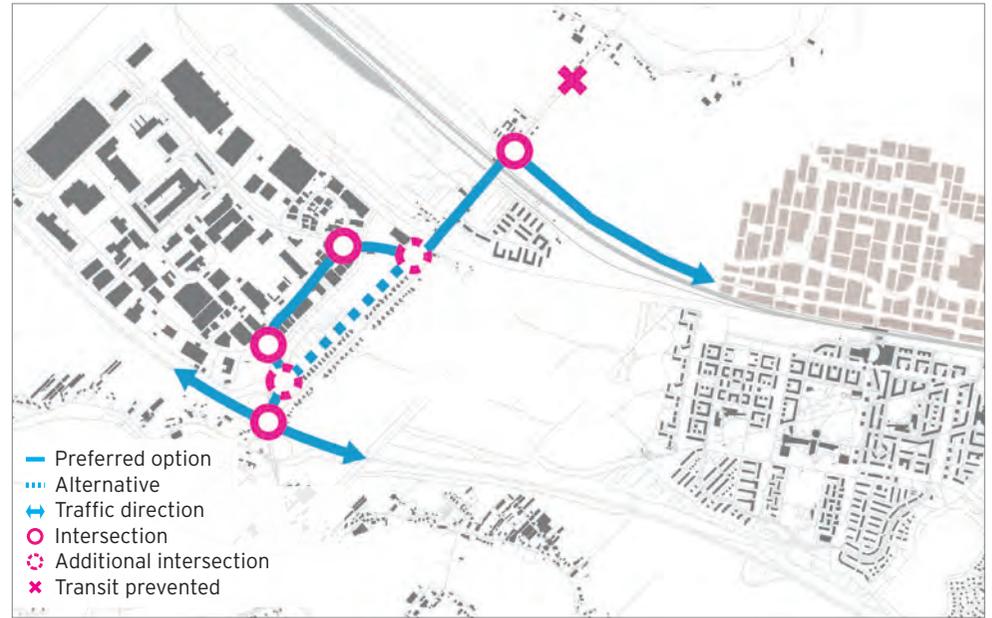
## Networked connections for car traffic

The plans aimed at achieving a 20 per cent share of car transport in the overall traffic. Subject to further investigations, a higher proportion of personal motorised transport is forecast (30 to 35 per cent), resulting in an assumed daily car traffic volume of around 25,000 trips from Oberbillwerder. Connections must be established for cars to reach the existing road network, as Oberbillwerder does not yet have any such connections.

During the planning stage, three connection points to the surrounding road network were shown to make sense. One of these is planned towards Mittlerer Landweg in the west, with an onward connection to the Hamburg-Allermöhe junction for Autobahn A25.



Accessibility of neighbouring districts by bicycle



Connections in the west



Connections in the southeast



Connections in the northeast

The construction of a new route is a possibility as an alternative to the existing route through the commercial area via the Rungedamm and Hans-Duncker-Straße. This would create a direct connection between Rungedamm and the southern end of Hans-Duncker-Straße, and thus a faster link to the A25.

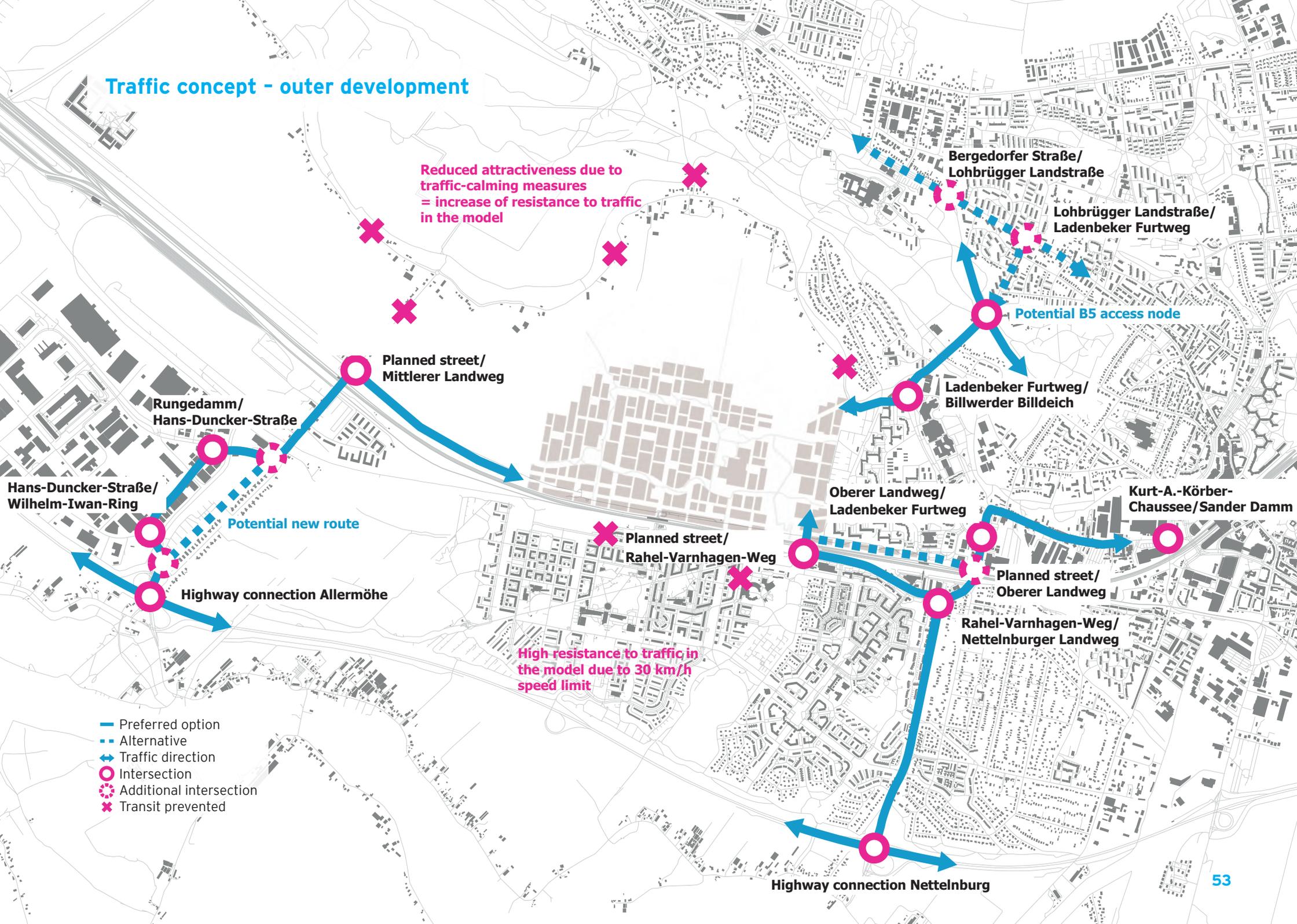
The southeastern connection also leads to the A25 and the link with the centre of Bergedorf. It runs through the southern part of the new district, crossing the railway embankment - with a pedestrian and cycle path on either side - to the east of Margit-Zinke-Straße and then joining Rahel-Varnhagen-Weg before continuing along the Nettelburger Landweg. One alternative to this connection runs north of the railway embankment through the green area in Bergedorf-West, towards the Nettelburg S-Bahn station, and from there either directly to Oberer Landweg or via Friedrich-Frank-Bogen or Ladenbeker Furtweg.

The third connection to the northeast, along the eastern Billwerder Billdeich and Ladenbeker Furtweg, creates a link with the B5 main road. In view of this, a newly created direct connection between the Ladenbeker Furtweg and the B5 could have several advantages over the existing route via Lohbrügger Landstraße in terms of traffic and urban design aspects.

The final decision on the versions outlined here, including the possible conversion of certain points to traffic junctions, is still pending.

One essential requirement for connecting Oberbillwerder's cars to the surrounding road network is to avert cut-through driving by providing effective special measures for streets like the Billwerder Billdeich, Boberger Furt or Margit-Zinke-Straße and Felix-Jud-Ring.

# Traffic concept - outer development



- Preferred option
- - - Alternative
- ↔ Traffic direction
- Intersection
- ⊗ Additional intersection
- ✗ Transit prevented

# Mobility and transport - inner development

## Right to the door - without a car

The inner development of Oberbillwerder consists of a robust yet flexible network, the backbone of which is the Mobility Loop. This channels traffic within the neighbourhoods and connects them with Allermöhe S-Bahn station. The majority of public transport and some non-motorised transport travel via the Mobility Loop. The residential streets will be largely free of parked cars. Residents and their guests will be able to park their cars in the Mobility Hubs and switch to alternative means of transport, such as bicycles, rental and delivery bicycles, or, in future, small, independent shuttle buses for the journey to their front door. Thanks to uniform coverage of the district with the Mobility Hubs, none of which is further than 250 metres from the residential locations, public transport and private cars will have almost the same access conditions.

The individual properties will be reached via narrow, largely

car-free paths. The Green Loop offers another safe and convenient link with central facilities and the Allermöhe S-Bahn station.

## Advantages of public transport

Together with the expansion of S-Bahn transport, a convenient bus connection with the surrounding districts is also hugely important. Today, metro bus line 12 connects the centre of Bergedorf, Nettelnburg and Neuallermöhe. In future, it will also be routed through the railway underpass at Allermöhe S-Bahn station to Oberbillwerder, and from there along the Mobility Loop. The bus route will serve important points such as the schools and swimming pool, before leading back to Neuallermöhe. An east-west connection will also be required, either by extending bus route 321 or line 230 from Mittlerer Landweg. Running the route via Bergedorf-West and from there on to Billstedt also offers the residents of the northeastern areas of Oberbillwerder a good

public transport connection. The bus stops are located near collector roads and the Mobility Hubs to facilitate quick transfers. An on-demand shuttle system is also conceivable in the future.

## Attractive routes on foot and by bike

Oberbillwerder is hugely attractive for non-motorised transport. Whether on foot or by bike, there are plenty of ways to reach destinations inside and outside the area. The consistent approach to the urban structures as part of the Connected City guiding concept drew upon the existing and expected routes to come up with an urban ground plan that responds to pedestrians' needs and their low tolerance for circuitous routes.

The urban structures have been designed in such a way that the route conditions between highly frequented facilities are optimised, and public spaces are as lively as possible. The aim of making Oberbillwerder a district with short

routes from one place to another is planned to be implemented in a consistent way.

## Convenient bicycle parking

One prerequisite for ongoing bicycle use is attractive parking spaces that are of sufficient size and accessible at ground level, for instance in residential buildings. They must be of sufficient size for delivery bikes and charging facilities for pedelecs and e-bikes to be easily manageable. Several city bike stations will be located around the district for flexible use of bicycles, usually near the Mobility Hubs or at public facilities.



Differentiated road network in the district, with three access connections



Good connection to the S-Bahn enhanced by two bus routes



A differentiated network of cycleways allows effective and attractive routes



Lots of paths for getting around on foot

# Mobility and transport - road cross-sections

## Differentiated urban areas

Oberbillwerder is defined by its high-quality urban spaces. The district is not car-free, but the look of the roads gives the impression that cars are just passing through, while children and adults getting around by bike or on foot are given precedence. In principle, cars can only be parked in the Mobility Hubs.

The three two-lane main routes that lead from outside into the district and end on the Mobility Loop at the heart of the area are designed as 30 km/h streets for cars and buses, with special cycle lanes. The Mobility Loop is also a 30 km/h zone with cars and bicycles moving in mixed traffic. In future, it may be possible to run an autonomous shuttle bus as part of the mixed traffic, without having to make changes to the road profiles. Current regulations for managing cycle traffic based on a 30 km/h principle are considered sufficient for the purposes of Oberbillwerder's extensive, road-independent network of cycleways.

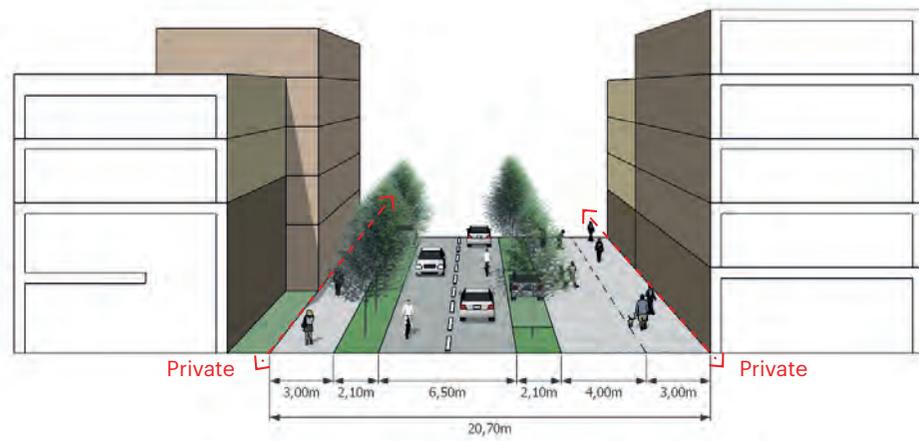
As a fallback option, the cross-sections of the Mobility Loop enable the integration of cycle lanes on the road itself.

The cross-section is significantly scaled back on residential streets. Each area has a distinctive character, depending on its location within the district (e.g. residential paths in the Blue Quarter run alongside the water). The cross-sections have been chosen in such a way that they allow access for cars and lorries, without allowing car traffic to dominate. To one side are parking zones, placed at large intervals. In order to prevent parking along the road, as permitted under the Road Traffic Act, no-parking zones and 30 km/h speed restrictions will be implemented here.

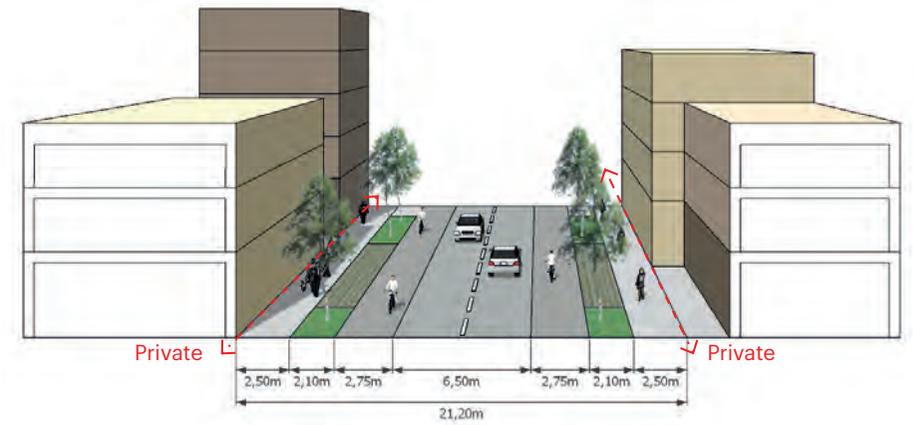
Cars can access the Mobility Hubs via the Mobility Loop and the residential streets, so that in principle there are hardly any cars seen in the residential areas, or they are there purely for deliveries and for the use of people with restricted mobility.

Here the road is limited to the size required by the fire brigade, i.e. a minimum of 5.50 metres, and is designated a mixed traffic area. The road space is geared towards the characteristics of the five Quarters, with 'obstacles' (bicycle stands, green islands, central drop-in points for underground rubbish receptacles) ensuring that high speeds are not possible. In addition, in some places, buildings have an approximately 1.5-metre-wide private front zone, where the residents can put flowers, tables or benches, thus creating a link between the private and public space.

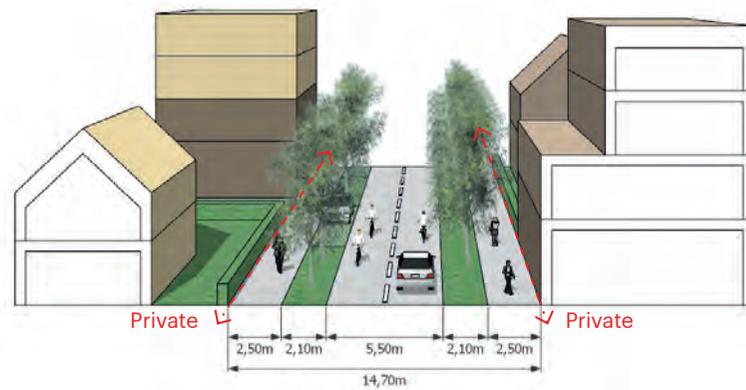
Mobility and transport - sample road cross-sections



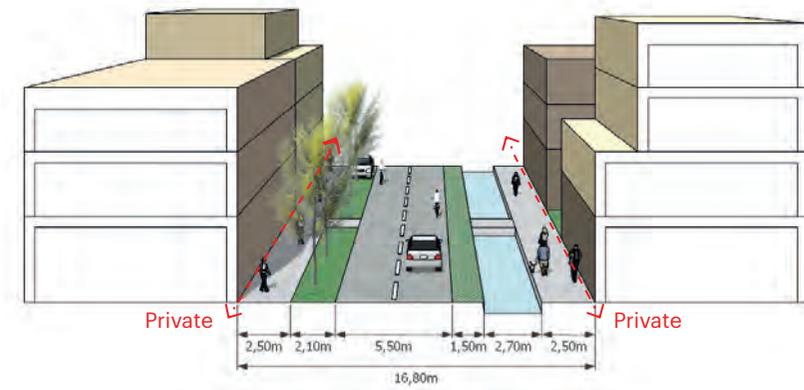
Collector roads - Mobility Loop



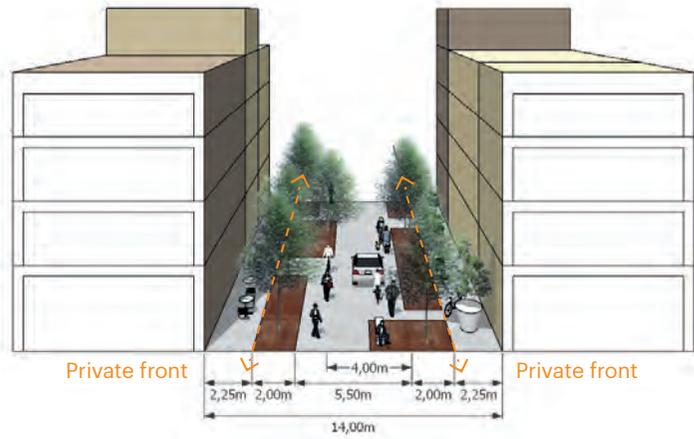
Collector roads - main roads



Residential streets - in the Quarters



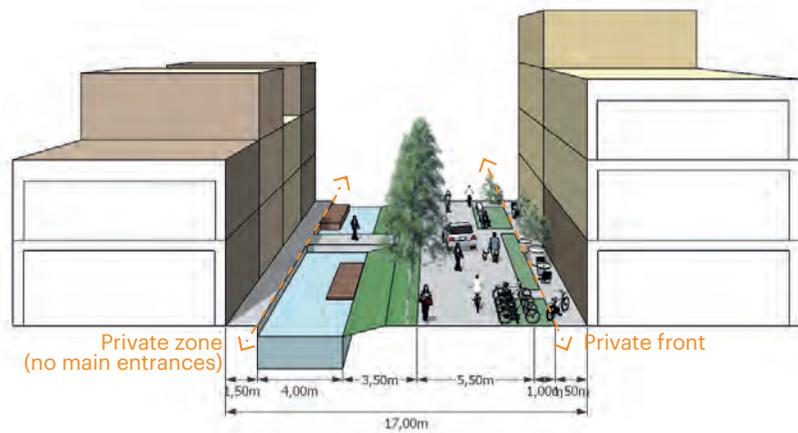
Residential streets - Blue Quarter



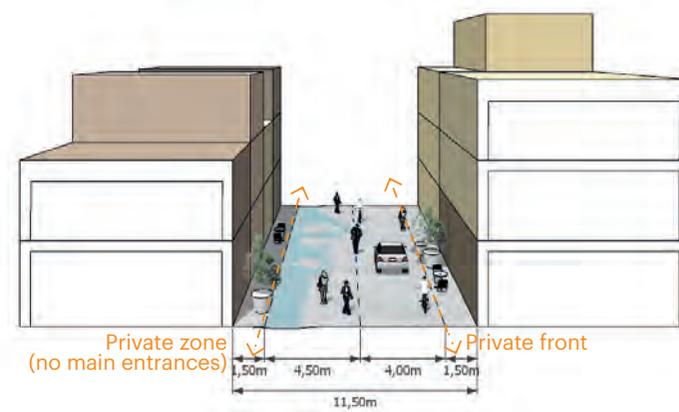
Residential path, StationQuarter



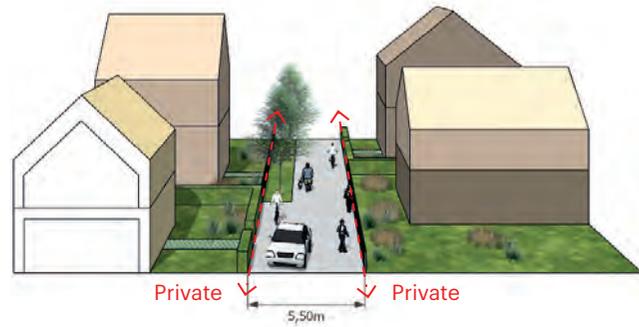
Residential path, Blue Quarter, version 1



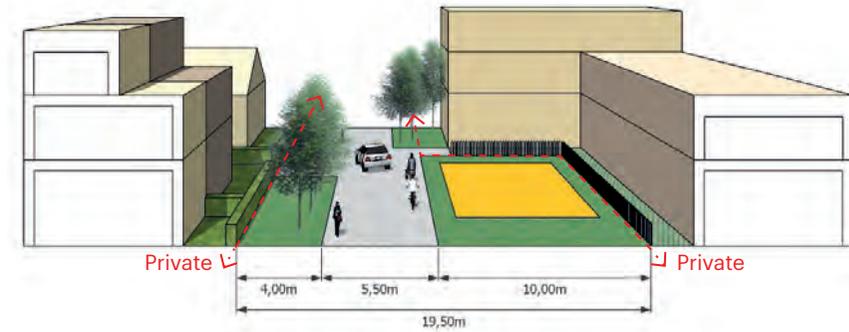
Residential path, Blue Quarter, version 2



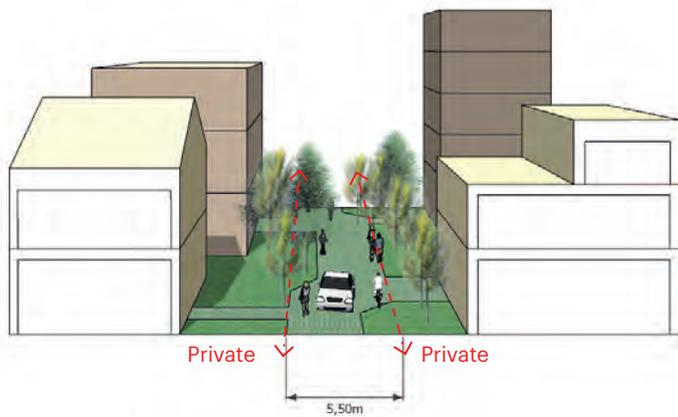
Residential path, Blue Quarter, version 3



Residential path, GardenQuarter



Residential path, Green Quarter



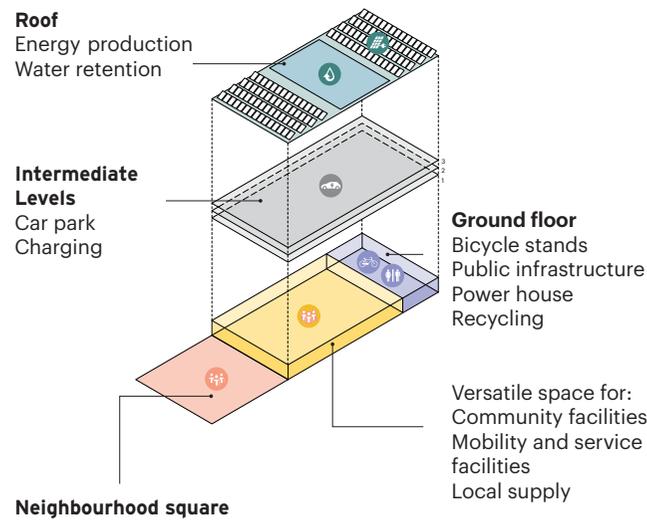
Residential path, ParkQuarter

### Free of parked cars

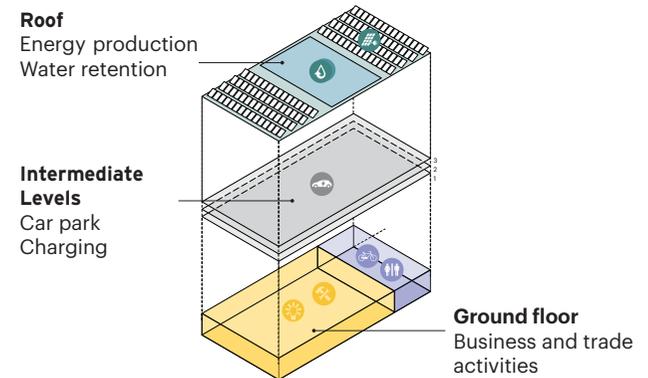
The Connected City is not completely car-free, but it is as free as possible of parked vehicles. One important factor in this is the parking space ratio of 0.6 cars per housing unit, including visitor parking spaces. Cars are parked in the eleven Mobility Hubs, which, with over 5,000 parking spaces, are designed not only to meet the parking needs of residents, guests, social institutions and kindergartens, but also to provide a place to park for local deliveries and commercial use. The educational institutions and the swimming pool have parking spaces on their respective premises.

In the course of drafting the Master Plan, the facilities set aside as garages for cars have morphed into important district centres. The Mobility Hubs therefore act as switching points and also offer a variety of additional mobility facilities and services such as car-sharing or parcel stations, as well as space for social, cultural and commercial facilities (see the 'Housing and neighbourhood' chapter).

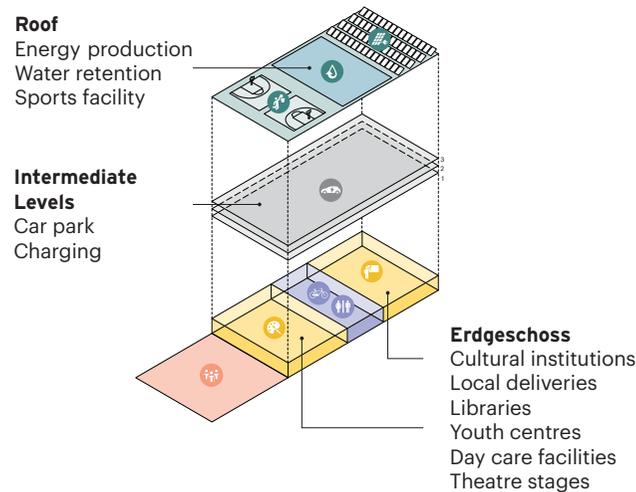
### Basic principle



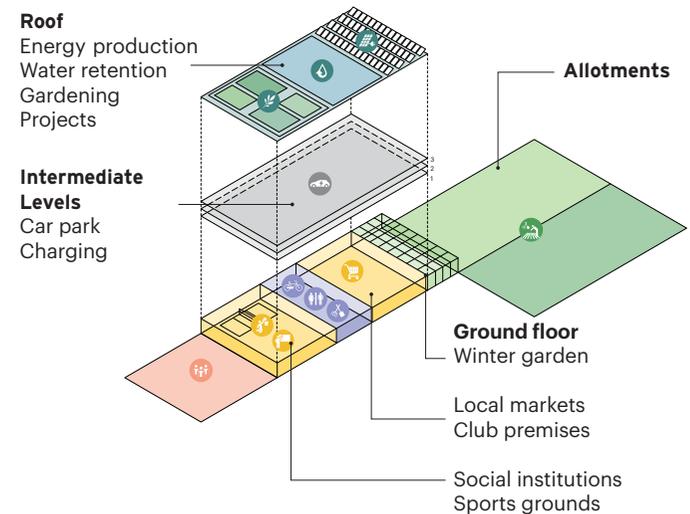
### Business activities



### Treffen und Aktivität

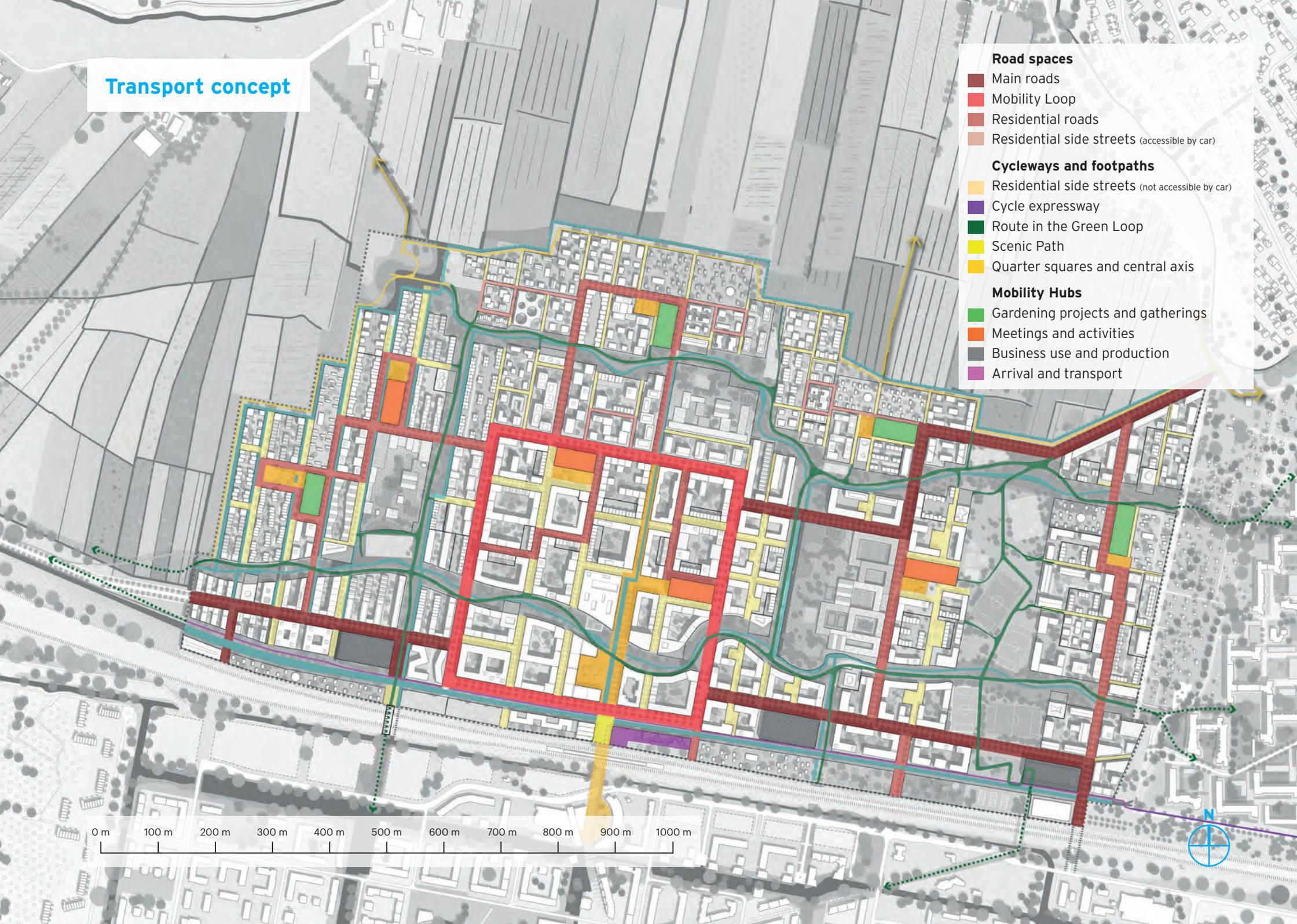
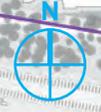


### Gärtnern und Zusammenkommen



# Transport concept

- Road spaces**
  - Main roads
  - Mobility Loop
  - Residential roads
  - Residential side streets (accessible by car)
- Cycleways and footpaths**
  - Residential side streets (not accessible by car)
  - Cycle expressway
  - Route in the Green Loop
  - Scenic Path
  - Quarter squares and central axis
- Mobility Hubs**
  - Gardening projects and gatherings
  - Meetings and activities
  - Business use and production
  - Arrival and transport



# Supply and disposal

## Energy concept

As far as possible, Oberbillwerder should provide its own energy. The urban design provides one important prerequisite for this, arranging the buildings in such a way that they can achieve a high passive solar use and daylight yield.

The energy concept shows ways in which the mostly carbon-neutral district can largely cover its energy requirement using local resources. Until now, when balancing local energy production, consideration has only been given to the energy required to run buildings (as per the Energy Saving Regulations, EnEV): room heat, heat for process water, cooling (for offices, industry and trade), light (electricity), ventilation (electricity) and auxiliary current (pumps). Not yet included in the balance is the electricity used by private households and workplaces, or the energy required for e-mobility. The electricity demand of the proposed central heat pump and the power-to-gas (P2G) system will be taken into account for the energy production balance.

## Energy concept

The building blocks of the energy concept, which is still to be developed, are as follows:

- eight to ten energy centres
- central heat pumps for room heating and hot water supply (e.g. heat extraction from ice storage, surface geothermal energy or environmental heat)
- decentralised photovoltaic units for electricity supply on the roofs of buildings and integrated into the façades
- one or more combined heat and power (CHP) plants for room heating, warm water and electricity supply, arranged in technical areas within the energy centres
- Power supply from the photovoltaic (PV) units to a power-to-gas system for producing gas used by the CHP systems, as well as waste heat recovery from the hot water production process
- large solar units along the railway lines, integrated into the noise protection barrier wherever possible
- large solar units outside the planning area

Two versions with different orientations are emerging for the energy concept. The decision as to which version should take precedence will be made after a more in-depth investigation during the subsequent planning stages.

The energy and space details contained in the schematic energy balance specifications depend on the planned energy requirement, which may also be subject to changes if there are alterations to the gross floor area and the insulation standard.

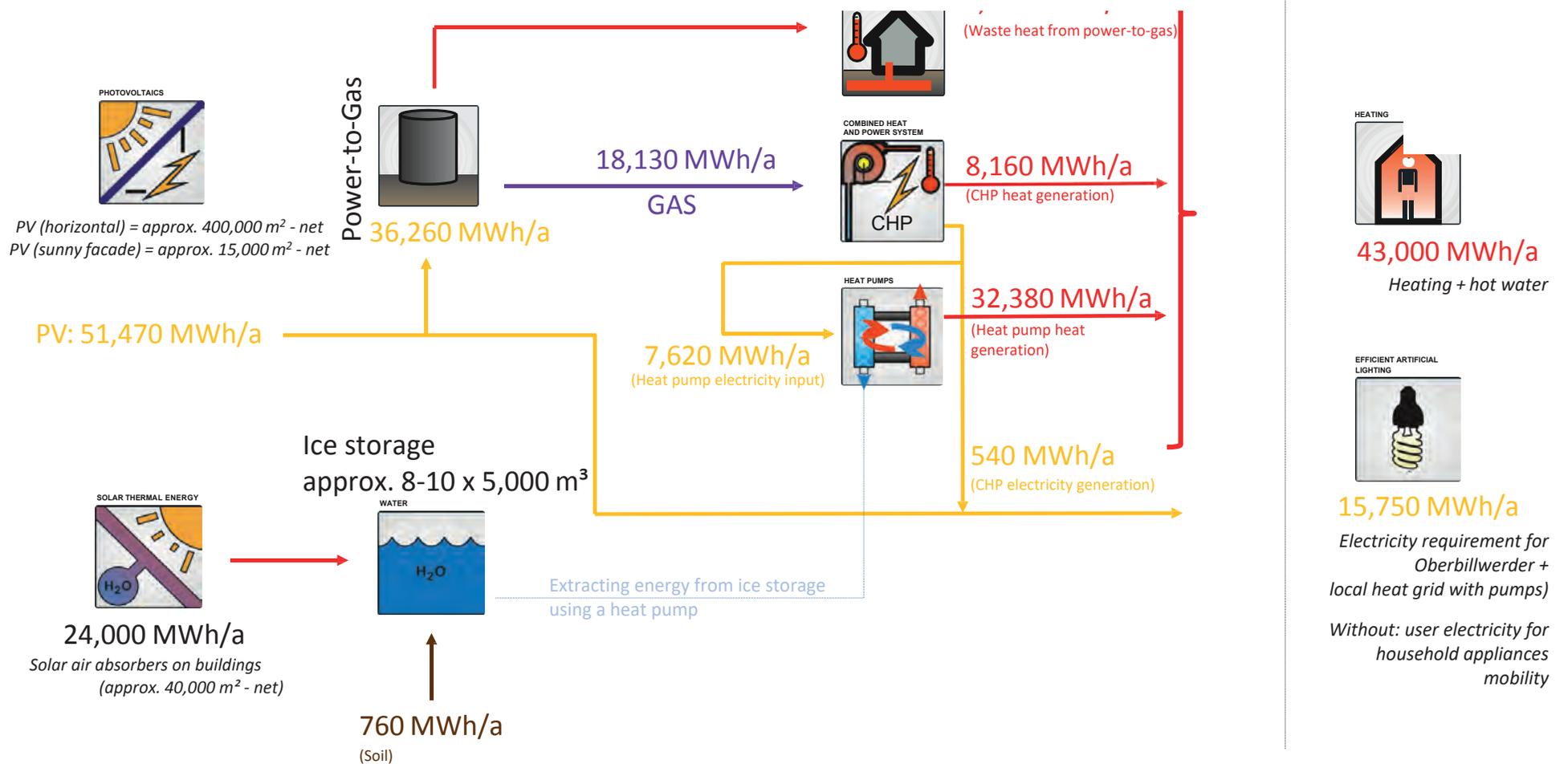
## Version 1: Local heat generation with solar energy, ice storage, heat pumps, CHP systems and power-to-gas

As renewable energy generation is usually characterised by strong daily and seasonal fluctuations, the energy concept has been developed to include a power-to-gas system. The gas produced via electrolysis and methanation can be used directly on site, but also fed into the public gas grid. Although the P2G process is subject to losses, feeding into the gas grid is much easier than feeding renewably generated

electricity directly into the public electricity grid.

This version combines different forms of technology. Central ice storage located beneath the Quarter squares is fed by local solar-air absorbers. These can take energy not only from solar radiation, but also from the air, as the low temperature of the storage medium makes this possible. This is vitally important, as heat also has to be transferred to the ice storage in winter using this system, although the four main months of winter (November to February) have solar radiation of only 140 kWh/m<sup>2</sup>.

# Energy balance version 1: Local heat generation with solar plant, ice storage, heat pumps, CHP systems and power-to-gas



The Mobility Hubs house energy centres for heat pumps and CHP systems that generate heat and feed it into a local heat grid, to be distributed to the individual buildings. For cooling requirements, local cooling networks are used to remove heat from buildings, while regenerating the ice storage at the same time. The number and temperature level of such networks will be reviewed at a later stage in the planning process, in conjunction with the installation costs. The CHP systems also supply some of the district's electricity. Large heat buffer storage in the energy centres and small substations with buffer storage in buildings will be used to cover peak loads.

If the photovoltaic areas are created, they will generate around 52,000 MWh per year for the district. Together with the CHP systems, this will result in power generation of around 60,000 MWh per year. Most of the electricity is intended for the generation of gas in a power-to-gas plant with 50 per cent efficiency. The gas is fed into the public gas grid and removed in winter. A solar air absorber system

covering a total area of 40,000 square kilometres will be installed on roofs, providing heat of around 24,000 MWh per year to the eight to ten ice storage units.

### Version 2: Local heat supply using solar thermal energy, geothermal probes and heat pumps, CHP systems and power-to-gas

The second version of local heat supply from solar thermal energy, geothermal probes, heat pumps, CHP systems and power-to-gas envisages direct on-site heat generation via solar thermal collectors as a key building block. Some of the roofs in the urban area and places outside the planning area will be used for the installation of solar thermal collectors. The heat generated by the solar thermal collectors can, if necessary, be fed into the ground probes so that the heat can be removed again from there using heat pumps, with a time delay. CHP systems support heat generation. Gas for the CHP systems will also be produced using power-to-gas. The public grid provides gas storage, as the majority of the gas generation will take place in summer. Local PV units on roofs

and façades will produce regenerative power.

Together with the CHPs, this will result in power generation of around 57,000 MWh per year. Most of the power is intended for the generation of gas in a power-to-gas plant with 50 per cent efficiency. The gas is fed into the public gas grid and removed in winter. Some 25 per cent of the heat is produced via solar thermal energy (around 11,000 MWh/a), up to 50 per cent from heat pumps (around 21,000 MWh/a) and up to 25 per cent from a combination of CHP and power-to-gas (around 11,000 MWh/a).

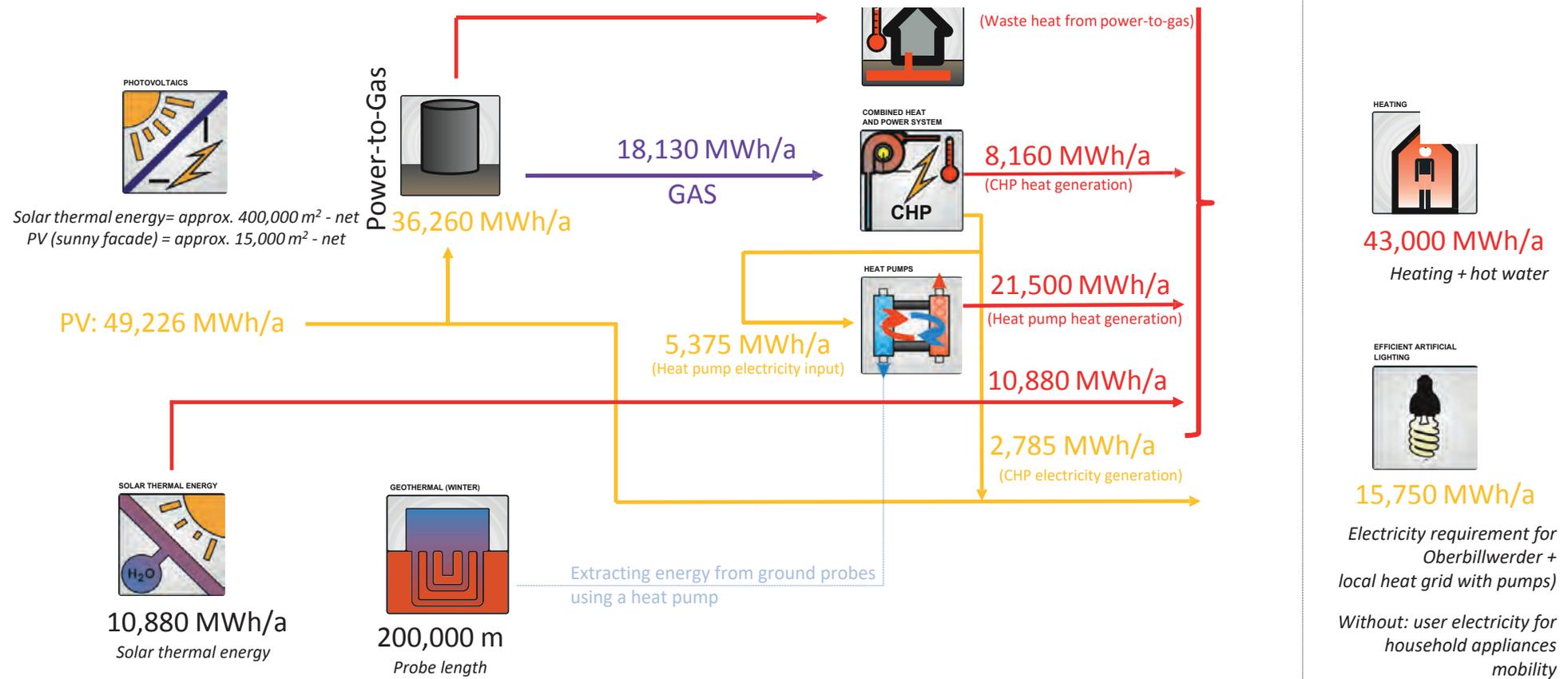
### Additional options

In the event of insufficient energy production, there would also be discussions about whether a specific power-to-gas plant would be cost-effective and appropriate, particularly as there is already an existing test plant close to Reitbrook. In addition, there are other issues relating to planning permission aspects, such as the stipulations in the development plan, rules regarding distances and the like. As such, the power-to-gas plant can be

seen rather as an add-on pilot project and a research proposal. In this case, the use of CHP systems would have to be re-evaluated in the light of the desired CO<sub>2</sub> neutrality.

As neither version is aimed at complete self-sufficiency, integration into the overarching distribution grids is a given. A link with the Allermöhe local heat grid should also be considered within this context. Connecting to the public power supply remains necessary in any case in order to compensate for peak loads and scale the CHPs in an appropriate way. It would also make sense to connect with the public gas grid in order to avoid the cost of a gas storage facility.

# Energy balance version 2: Local heat generation with solar thermal energy, ground probes, heat pumps, CHP systems and power-to-gas



It is also worth noting that the additional offshore and onshore wind farms that are currently being expanded and the large photovoltaic plants in northern Germany are already generating surplus power now and in the medium term, and would need to be reviewed for inclusion if necessary.

If energy generation via photovoltaics or solar thermal energy outside the planning area and along the railway embankment is not possible, or only possible to a limited degree, green electricity generated by the wind turbines can be bought in. Alternatively, two wind turbines for the district could be erected elsewhere.

### Building standards

The energy standard for the buildings should be in line with Standard 55 of the Kreditanstalt für Wiederaufbau (KfW). This not only allows greater freedom of design for buildings with KfW 40, but also makes the goal of affordable housing more readily attainable. If KfW Standard 40 were applied consistently, however, the heat requirement would be reduced by

around another 5,000 MWh per year. Combining both standards may be possible.

The heat requirement (heating and hot water) of a KfW Efficiency House 55, including grid losses, amounts to around 43,000 MWh per year, while the power consumption of the buildings is around 15,500 MWh per year. This also includes the power requirement for operating the local heating network and the substations in the individual buildings. Households are expected to consume 5,800 MWh per year.

### Hot water supply

Decentralised fresh water stations (service water heating according to the throughflow principle in individual homes) are urgently recommended, as this is the only way to limit the supply temperature to the district heating grid to 55 °C. This almost halves grid losses and also makes it possible to integrate the central heat pumps for domestic hot water.

At the same time, thermal disinfection in line with the regulations of

the German Gas and Water Association (Deutscher Verein des Gas- und Wasserfaches e. V. (DVGW)) can be dispensed with, while the cost of circulation (in buildings) is significantly reduced.

### Systems technology

In order to achieve a high degree of self-sufficiency within the district, it is vital for the entire systems technology to have excellent hydraulic planning so as not to negate the advantage afforded by central technology through excessive costs for pump current or faulty systems technology. It is also crucial to ensure that the systems components are scaled correctly.

Dividing them up into several energy centres is useful, as this allows the construction phases to be taken into account. At the same time, the proposed ice storage facilities must be of an appropriate size.

### Local power production

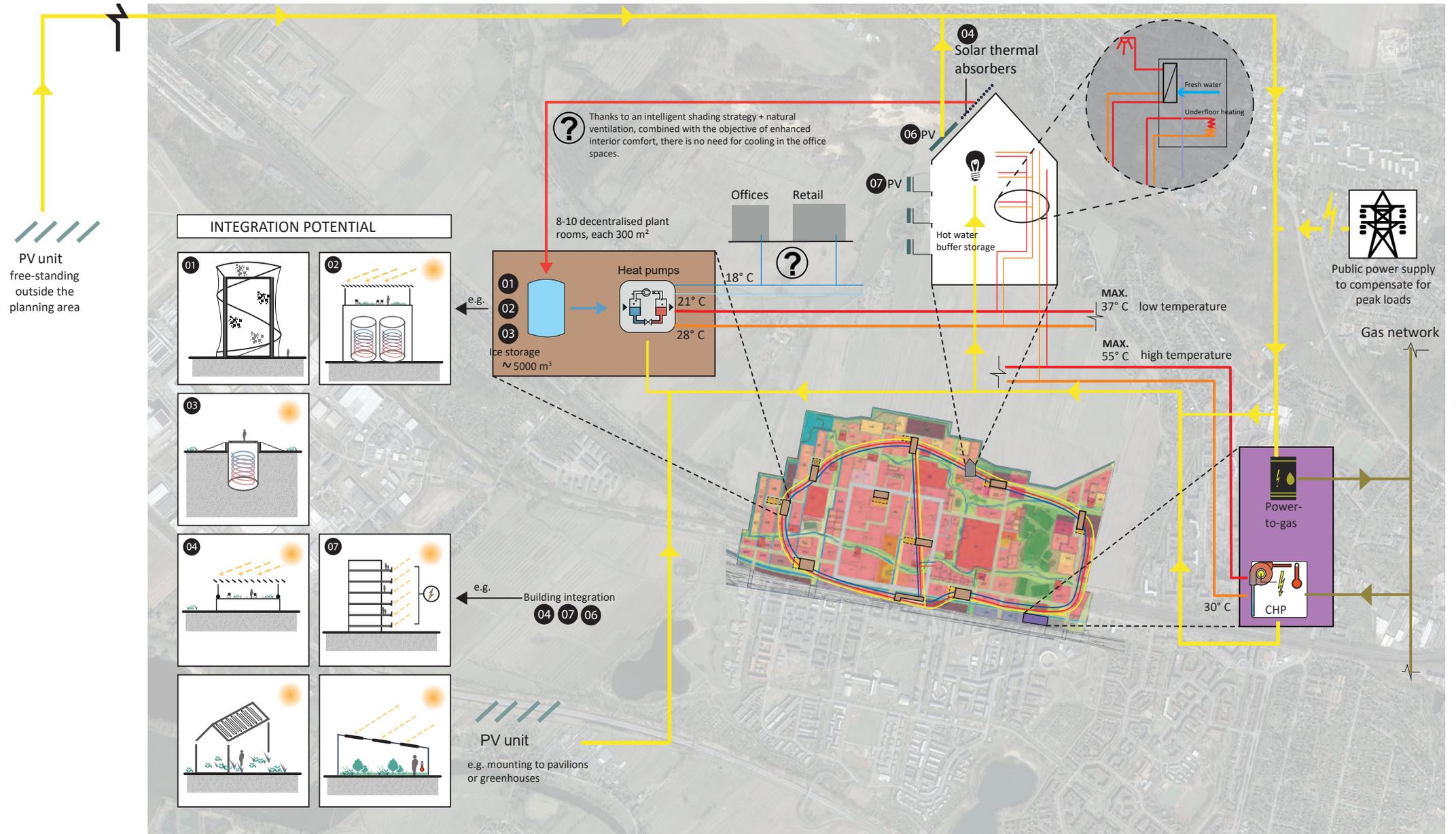
As part of further work on the plans, the versions that have already been outlined should be supplemented with as high a proportion as possible of owner, tenant, coope-

rative and district power models, with an exemption from network charges. Alongside organisational issues, the possibilities and limitations of free use of power generated through photovoltaics and CHP systems in the power-to-gas plant should also be checked within this context.

### Waste disposal

Convenient waste disposal should form part of the plans for Oberbillwerder. Underfloor receptacles for household waste will be available in private properties and in the public space along the main routes used by residents. Recycling stations will be located on the ground floor of the Mobility Hubs, and a recycling centre is planned for the edge of the district.

# Integrating the energy concept into the urban area



# Key figures

Planning area: 123.7 ha

Green and open spaces: 28 ha

Areas of water: 5.7 ha

traffic areas: 15 ha

Community use: 13 ha

Net building land: 62 ha

Gross total area: 1,020,000 m<sup>2</sup>  
including housing: 700,000 m<sup>2</sup>  
including commerce, trade and  
services: 110,000 m<sup>2</sup>

Number of homes: approx. 7,000

Proportion of housing units in  
apartment buildings: 85 %

Proportion of townhouses and  
detached houses: 15 %

## Key figures for the Blue Quarter:

Size: 25 ha

Gross total area: 170,000 m<sup>2</sup>  
including housing: 115,000 m<sup>2</sup>

Number of housing units: 1,200  
average FSI: 1.2

## Key figures for the GardenQuarter:

Size: 27 ha

Gross total area: 180,000 m<sup>2</sup>  
including housing: 140,000 m<sup>2</sup>

Number of housing units: 1,300  
average FSI: 1.0

## Key figures for the StationQuarter:

Size: 22 ha

Gross total area: 330,000 m<sup>2</sup>  
including housing: 205,000 m<sup>2</sup>

Number of housing units: 2,100  
average FSI: 2.3

## Key figures for the Green Quarter:

Size: 30 ha (inc. sports park)

Gross total area: 200,000 m<sup>2</sup>  
including housing: 140,000 m<sup>2</sup>

Number of housing units: 1,400  
average FSI: 1.6

## Key figures for the ParkQuarter:

Size: 14 ha

Gross total area: 140,000 m<sup>2</sup>  
including housing: 100,000 m<sup>2</sup>

Number of housing units: 1,000  
average FSI: 1.3

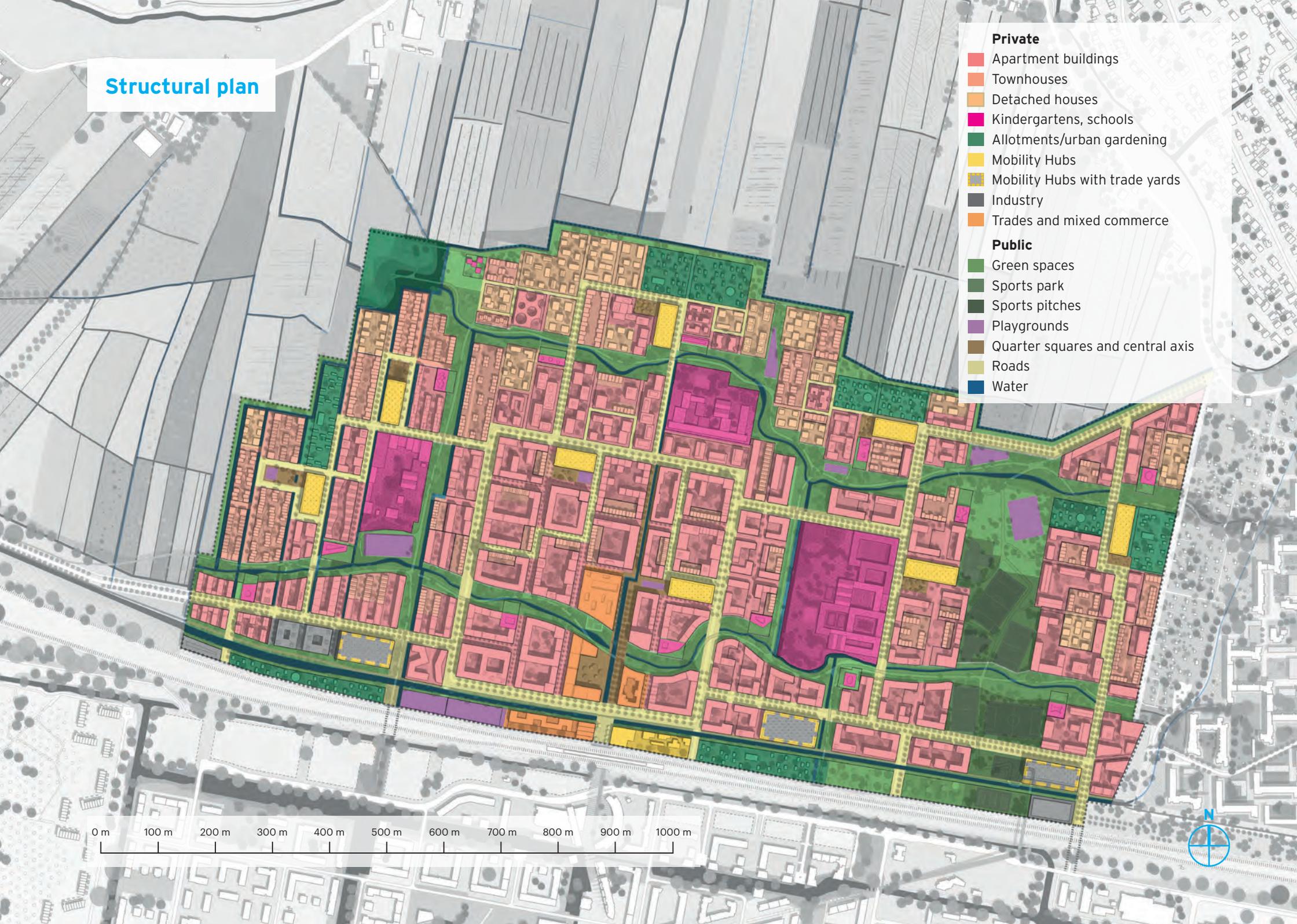
## Key figures for the Experimentation Zone:

Size: 6 ha

All figures have been rounded.

# Structural plan

- Private**
  - Apartment buildings
  - Townhouses
  - Detached houses
  - Kindergartens, schools
  - Allotments/urban gardening
  - Mobility Hubs
  - Mobility Hubs with trade yards
  - Industry
  - Trades and mixed commerce
- Public**
  - Green spaces
  - Sports park
  - Sports pitches
  - Playgrounds
  - Quarter squares and central axis
  - Roads
  - Water



# List of abbreviations

BSU	Behörde für Stadtentwicklung und Umwelt (State Ministry for Urban Development and the Environment (up until 30 June 2015)	kWh/m <sup>2</sup>	kilowatt hour per square metre
BSW	Behörde für Stadtentwicklung und Wohnen (State Ministry for Urban Development and Housing (since 1 July 2015)	l/(s*ha)	litres per second and hectare, calculation of rainfall
BUE	Behörde für Umwelt und Energie (State Ministry for the Environment and Energy (since 1 July 2015)	l/s	litres per second
CO <sub>2</sub>	Carbon dioxide	m NHH	metres above Normalhöhennull null (elevation reference used in Germany)
CHP	Combined heat and power	MWh	megawatt hour
DVGW	Deutscher Verein des Gas- und Wasserfaches e. V. (German Gas and Water Association)	MWh/a	megawatt hour per year
EEG	Erneuerbare-Energien-Gesetz (Renewable Energy Act)	NHN	Normalhöhennull (elevation reference used in Germany)
EnEV	energy-saving regulations (see Glossary)	P2G	power-to-gas
FSI	floor space ratio	PV	photovoltaic system
GFA	gross floor area	RISA	Rainwater Infrastructure Adaptation (see Glossary)
GWHH	Gesundheitswirtschaft Hamburg (healthcare management in Hamburg)	StVO	road traffic regulations
IFB	Hamburg Investitions- und Förderbank Hamburg		
IWES	Fraunhofer Institute for Wind Energy and Energy Systems Technology		
KfW	Kreditanstalt für Wiederaufbau (German state-owned development bank)		
kW	kilowatt		
kWh	kilowatt hour		

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### Soil management

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# Glossary

## Active City Master Plan

The Active City Master Plan was published in June 2016 and is based on a decade-long strategy, as well as ideas and concepts developed as part of the candidature for the 2024 Olympic and Paralympic Games, commissioned by the Planning Staff of Hamburg Senate Office. The overarching aim is to enable as many Hamburg residents as possible to access sport, with an emphasis on mass and competitive sports.

## Animal-aided design

The concept of animal-aided design (AAD) integrates into planning from the very beginning the needs of animals whose habitats within the city are dwindling due to the development of green areas or fallow land. The aim is to protect or resettle native species by creating suitable replacement habitats.

## Billwerder cultivated landscape area

Resolution by the Hamburg Senate Commission for Urban Development and the Environment in 2001: a concept involving management of the area and measures for the cultivated landscape.

## Car sharing

Car sharing means several users travelling in one or several cars. The vehicles are provided by a single supplier, and there are station-based (fixed parking place) and free-floating (random parking within the area of use) car-sharing models. Besides these established types, there are also privately organised car-sharing platforms.

## Energy Saving Ordinance

The Energy Saving Ordinance (Energieeinsparverordnung, EnEV) is part of the German Federal Government's energy and climate protection policy. It is embedded in German commercial administrative law and primarily stipulates requirements for certain buildings.

## Gesundheitswirtschaft Hamburg GmbH

The aim of Gesundheitswirtschaft Hamburg GmbH (GWHH) is to connect participants in order to promote Hamburg as a location for quality healthcare.

## Green Network Hamburg

One aim of Hamburg's landscape programme is the interlinking of parks, playgrounds, sports areas, allotments and cemeteries via green links to a green network, so that people can move through the city on footpaths and cycleways, without having to mingle with the road traffic. The Green Network Hamburg consists of two green rings and various landscape axes.

## Guiding concept: Short Routes within the City and Region

On behalf of the Federal Environment Agency, the guiding concept 'Short Routes within the City and Region' was drawn up in 2011 as part of the expert report on biodiversity strategy. This was based on the basic requirement that everyday tasks (routes to work and training, supply channels or journeys to school or nursery) should be able to be carried out without the need for a car.

## Hamburg Green Roof Strategy

The Hamburg Green Roof Strategy is intended to provide incentives for the creation of planted roofs over a five-year period (up to 31 December 2019).

## Hamburg-Bergedorf retail and local supply concept

GMA Gesellschaft für Markt- und Absatzforschung mbH, 2018: retail and local supply concept on behalf of Bergedorf District Council

**KfW Efficiency House standards**

A building's energy standard determines how high its energy requirement should be per m<sup>2</sup>/a.

Based on the EnEV (Energy Saving Ordinance), the Kreditanstalt für Wiederaufbau (KfW) has developed different Efficiency House standards. The Federal Government is promoting energy-oriented refurbishment and the energy-efficient construction of new buildings as KfW efficiency houses through the KfW Förderbank.

**Life Science Nord Management GmbH**

Life Science Nord is a cluster of companies engaged in innovative medicine in Hamburg and Schleswig-Holstein.

**On-demand shuttle system**

The system allows customers within the catchment area of a provider (whether a local transport association or a private company) to call a six-seater shuttle vehicle via an app as required. If several people request similar routes at the same time, these are grouped together into a car pool.

This provides an attractive complement to public transport.

**Power-to-gas**

A power-to-gas system uses technology that produces gas by means of water electrolysis using surplus electrical power from renewable energy sources.

**Rain infrastructure adaptation**

Rain infrastructure adaptation (RISA) is a joint project conducted by the Hamburg Ministry for Urban Development and the Environment with Hamburg Wasser, with the aim of developing future-oriented rain-water management for Hamburg. The objective is to develop suitable solutions for preventing flooding and further water pollution.

**Switch points**

Switch points pool a large number of transport options in one place, allowing convenient switching between different types of mobility. Bike stands or cages, space for car-sharing, delivery bikes and electric scooters, park and ride parking spaces, public transport stops (metro, S-Bahn, bus) and electric charging stations could all form part of such places.

**Tenant electricity**

Tenant electricity (or Quarter electricity) is an offer for tenants relating to locally generated power. The tenant electricity model is funded in line with the Renewable Energy Act (Erneuerbare-Energien-Gesetz, EEG) and is set out in a specific tenant electricity contract.

**Three-way split: Hamburg housing policy**

Through its 'Drittelmix' policy, the Hamburg City Senate pursues the goal of large construction projects (30 homes or more) having at least one-third earmarked for socially subsidised housing. Another third can be reserved for privately financed rental properties, and the remaining third for owner-occupied homes.

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