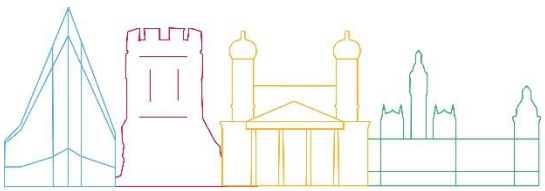
D3.3 ARCH city baseline report - Hamburg

2 October 2020



Deliverable No.	D3.3
Work Package	WP3
Dissemination Level	PU
Author(s)	Uta K. Mense (FHH)
Co-Author(s)	Bernd Paulowitz (FHH) Eleanor Chapman (ICLEI) Daniel Lückerath, Katharina Milde, Erich Rome (Fraunhofer) Sonia Giovinazzi, Ludovica Giordano (ENEA)
Due date	2020-03-31
Actual submission date	2020-10-02
Status	For submission
Revision	1
Reviewed by (if applicable)	-

This document has been prepared in the framework of the European project ARCH – Advancing Resilience of Historic Areas against Climate-related and other Hazards. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 820999.

Contact

arch@iais.fraunhofer.de

www.savingculturalheritage.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 820999.

Table of Contents

1. City profile

This section profiles the Free and Hanseatic City of Hamburg in general terms, and introduces the local areas where the ARCH focus sites are located. Information is provided at a city-wide level, in terms of land use, population demographics and economy, followed by a closer look at the area(s) in the immediate vicinity of the focus sites.

The *Free and Hanseatic City of Hamburg*, one of the 16 states of the German federation, is the second largest city in Germany with 1.8 million inhabitants. In terms of formal governance, it is both a municipality and a city-state within the Federal Republic of Germany. There is no distinction between these administrative levels, meaning that the city-wide government of Hamburg is organised at the state-level. Furthermore, the city consists of seven districts with their own local parliaments who decide over questions of local importance to the districts (see Figure 1 below).

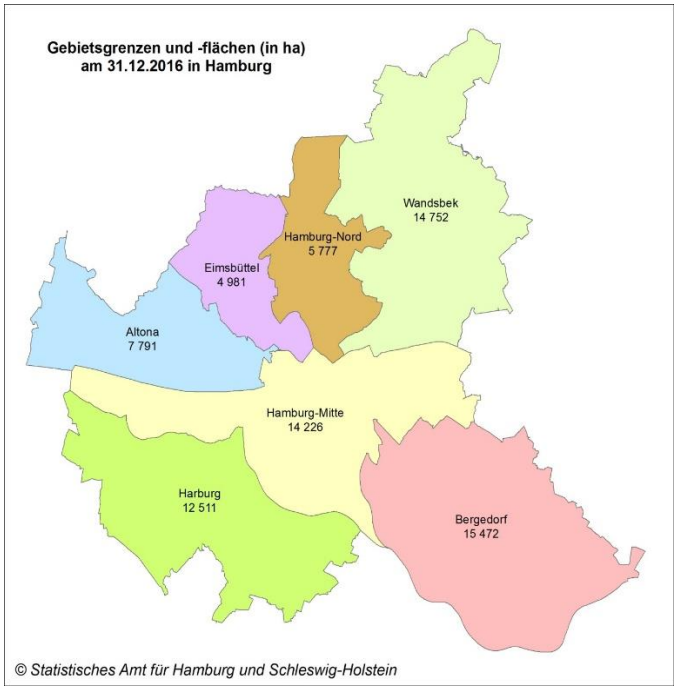


Figure 1. The seven districts of Hamburg (above map indicates size in hectares). Source: Bodenflächen in Hamburg am 31.12.2018 nach Art der tatsächlichen Nutzung; Published Oct. 2019; Statistisches Amt für Hamburg und Schleswig Holstein (https://www.statistik-nord.de/fil)

1.1. Land use

In total, Hamburg covers a surface area of 755.09 km². The size of the city is continuously growing.

In 2018, 46.4% of Hamburg's land area consisted of settlement areas, of which the largest part, 22.2%, is used for housing. Industrial and commercial areas account for 8.9% in Hamburg, while recreational areas in the city as a whole account for 6.6% and sports and leisure areas for 1.8%. Cemeteries account for 1.1% of Hamburg's total land area, the largest being the Ohlsdorf Park Cemetery. The remaining vegetation covers a total area of 24,833

hectares and accounts for 32.9% of the total area. These are primarily agricultural areas with 23%, forests with 5.3% and woody plants with 2.6%.

At a total of 9447 hectares, transportation routes in Hamburg account for 12.5% of the total land area. General roads accounts for 8.8% and other transport routes for a further 0.8%, while public squares account for 0.22%. Rail lines take up 1.41% of the space, airports 1.26%, and shipping infrastructure outside the waterways 0.01%.

A significant proportion of Hamburg is made up of water bodies, with 6157 hectares of the total area, a total of 8.1%. Of this, 5.7% is all watercourses and just under 1% is the harbour basin. Standing water accounts for just under 1% and the share of the sea is just over 0.5%.[1]

1.2. Demographic features

1.2.1. Population growth

The population of Hamburg had fallen from 1.7 million in 1939 to about 1.0 million by the end of the Second World War, but climbed up to 1.5 million already again until the end of 1948. This rapid growth was caused by refugees from the east German territories, returning evacuees from the countryside and former prisoners of war.[2] By 1970, just under 1.8 million inhabitants were living in Hamburg again. In the years that followed until the mid-1980s, the population fell to around 1.6 million, and from then on grew steadily (including a significant increase in foreign residents in 2016), reaching 1,841,179 in total in 2018.[3]

A further increase in population is forecast for the future. The estimated growth of the population until 2040 depends on different calculation models. With low immigration, it is estimated that 1.949 million people will be living in Hamburg by 2040, with moderate immigration up to 1.988 million, and with a high immigration rate 2.051 million. Beyond 2040 the future prospects are declining for all scenarios due to a lower birth rate than cases of death.

The rate of growth of the population is different depending on the groups of age, so that the structure of ages among the population is expected to change for the future. While more young and elderly people are expected, the number of people who are able to work will decline in the scenarios for low and moderate immigration. [4]

---

[1] Bodenflächen in Hamburg am 31.12.2018 nach Art der tatsächlichen Nutzung; Published Oct. 2019; Statistisches Amt für Hamburg und Schleswig Holstein *(https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/andere_statistiken/A_V_1_H_gebiet_flaeche/A_V_1_j18_HH.pdf)*

[2] Geschichtsbuch Hamburg; Nachkriegszeit und Fünfziger Jahre; https://geschichtsbuch.hamburg.de/epochen/nachkriegszeit/

[3] Handelskammer Hamburg: Entwicklung der Bevölkerung in Hamburg; https://www.hk24.de/produktmarken/beratung-service/konjunktur-statistik/hamburger-wirtschaft-zahlen/bevoelkerung-3676958

[4] Homepage Statistikamt NordSource: https://www.statistik-nord.de/fileadmin/Dokumente/Presseinformationen/SI19_089.pdf, last visited Jan. 15, 2020

1.2.2. Age and sex

Hamburg's growing population of roughly 1.8 million is made up of slightly more females than males (902,048 male and 939,131 females as of August 2019).

The map in figure 2 illustrates where people aged 65 and over were living in Hamburg in 2014. Most were located on the outskirts of Hamburg in the north and west parts of the city. The number of people aged 80 and over is predicted to grow between 2017 and 2040 from 99,000 (about 5.34% of the population) up to 135,000 people, i.e. roughly an increase of a third (corresponding to a slight proportional increase to make up 6.92% of the overall population, based on the conservative growth scenario outlined above), which can be partly attributed to expected increases in life expectancy (i.e. among newborn boys by 3.4 and among girls by 2.8 years).[5] The life expectancy of boys born in Hamburg increased since a previous calculation from 1986/1988 up to 5.8 years until 2011. It increased for girls who were born in Hamburg up to 4.1 years within the same period (1986/1988 – 2011). In 2011 (latest update in Hamburg) the life expectancy for newborn boys was 77.6 years and for newborn girls 82.7 years.[6]

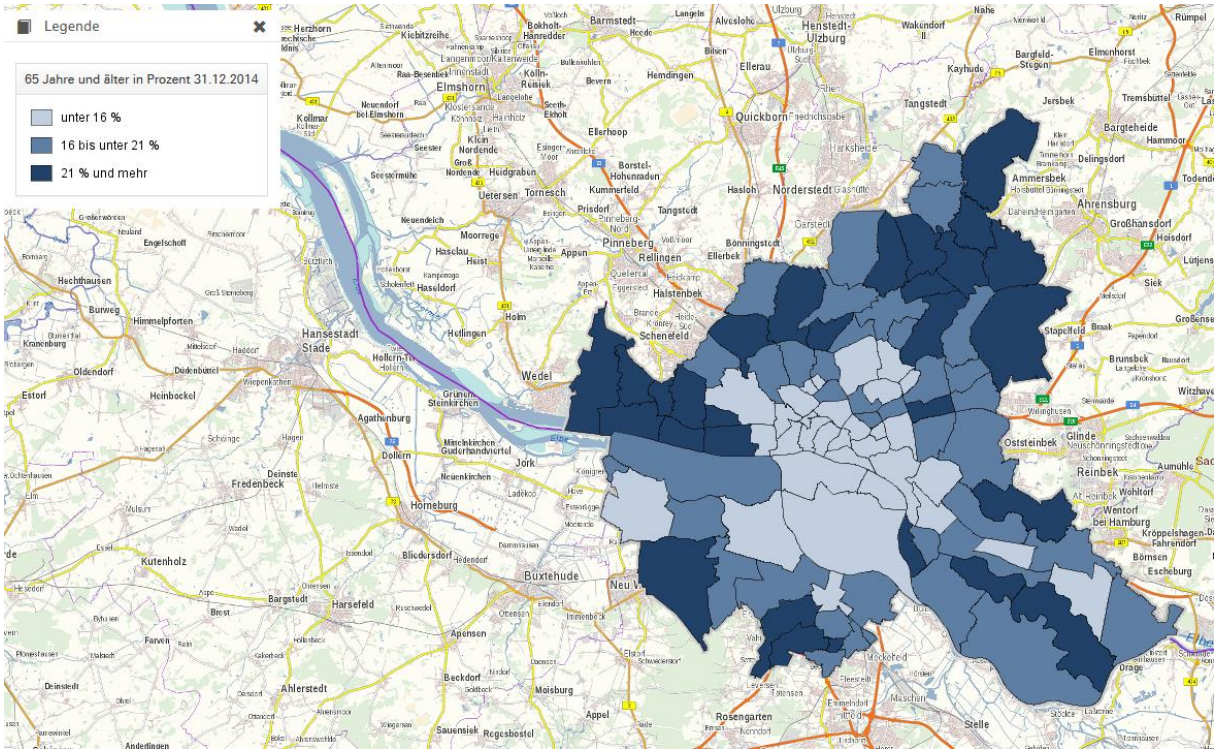


Figure 2 Population distribution of people 65 years old and over; Geoportal Hamburg https://geoportal-hamburg.de/Geoportal/geo-online/#)

[5] Homepage Statistikamt NordSource: https://www.statistik-nord.de/fileadmin/Dokumente/Presseinformationen/SI19_089.pdf, last visited Jan. 15, 2020

[6] Source: Statistikamt Nord 2015 based on Census 2011

Inhabitants in 2019			Age bracket									
Districts	Sex	In total	0 -3	3 - 6	6 - 12	12 - 18	18 - 20	20 – 30	30 – 45	45 – 60	60 – 65	65 - <
District	male	158 250	5 133	4 428	7 893	7 735	2 988	26 381	41 871	34 441	8 048	19 332
Hamburg-Mitte	female	143 296	4 785	4 305	7 313	7 138	2 705	24 570	35 002	26 893	7 085	23 500
	All	301 546	9 918	8 733	15 206	14 873	5 693	50 951	76 873	61 334	15 133	42 832
Percentage rate	%	15.9										
District	male	133 004	4 573	4 625	8 432	7 805	2 619	16 000	30 710	30 503	6 812	20 925
Altona	female	142 261	4 396	4 374	7 932	7 439	2 495	16 394	32 647	31 084	7 264	28 236
	All	275 265	8 969	8 999	16 364	15 244	5 114	32 394	63 357	61 587	14 076	49 161
Percentage rate	%	14.5										
District	male	127 671	4 338	4 065	6 780	6 043	2 169	16 925	31 168	28 170	6 425	21 588
Eimsbüttel	female	139 382	4 028	3 800	6 339	5 710	2 148	19 411	33 060	28 807	7 363	28 716
	all	267 053	8 366	7 865	13 119	11 753	4 317	36 336	64 228	56 977	13 788	50 304
Percentage rate	%	14.0										
District	male	151 279	5 237	4 279	6 811	6 020	2 240	23 723	41 783	32 851	7 215	21 120
Hamburg-Nord	female	163 316	4 968	4 150	6 561	5 623	2 134	27 836	42 237	32 248	7 975	29 584
	all	314 595	10 205	8 429	13 372	11 643	4 374	51 559	84 020	65 099	15 190	50 704
Percentage rate	%	16.5										
District	male	213 697	6 894	6 861	12 725	12 620	4 482	26 198	43 693	47 232	12 399	40 593
Wandsbek	female	227 318	6 563	6 685	12 309	11 655	4 319	25 180	45 082	47 770	13 310	54 445
	all	441 015	13 457	13 546	25 034	24 275	8 801	51 378	88 775	95 002	25 709	95 038
Percentage rate	%	23.2										
District	male	64 184	2 198	2 238	3 946	3 946	1 380	8 623	13 593	14 036	3 762	10 462
Bergedorf	female	66 076	2 030	2 072	3 743	3 728	1 371	7 712	13 435	14 081	4 025	13 879
	all	130 260	4 228	4 310	7 689	7 674	2 751	16 335	27 028	28 117	7 787	24 341
Percentage rate	%	6.8										
District	male	85 553	3 022	2 829	5 136	4 800	1 943	13 920	19 498	17 044	4 315	13 046
Harburg	female	83 873	2 886	2 793	4 736	4 653	1 722	11 917	17 297	16 221	4 525	17 123
	all	169 426	5 908	5 622	9 872	9 453	3 665	25 837	36 795	33 265	8 840	30 169
Percentage rate	%	8.9										
Hamburg	male	933 638	31 395	29 325	51 723	48 969	17 821	131 770	222 316	204 277	48 976	147 066
In total	female	965 522	29 656	28 179	48 933	45 946	16 894	133 020	218 760	197 104	51 547	195 483
	all	1 899 160	61 051	57 504	100 656	94 915	34 715	264 790	441 076	401 381	100 523	342 549
Percentage rate	%	100	3.2	3.0	5.3	5.0	1.8	13.9	23.2	21.1	5.3	18.0

Table 1 Population figures staggered by districts, age groups and sex in Hamburg (2019) (Source: Statistikamt Nord, Statistischer Bericht AI / S 1 – j 19 HH; S. 4ff.; (https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/bevoelkerung/A_I_S_1

1.2.3. Population density

The population density is distributed very differently among the seven districts and 105 quarters of the city of Hamburg. The district of Wandsbek in the north-west is the most densely populated containing 23.2% of the total population (see Figure 3 below). In terms of land area, Wandsbek is the second largest of Hamburg's seven districts after Bergedorf. As Figure 3 shows, according to the colour gradation of grey, Wandsbek is much more densely populated than Bergedorf in the south-west, where only 6.8% of all Hamburg residents live and where most of the agricultural activity in the state is carried out. The map also shows the port area of Hamburg along the Elbe. There, correspondingly, large industrial areas along the waterways predominate, which is why in the large southern district of Harburg only 8.9% of all Hamburg residents live.[7]

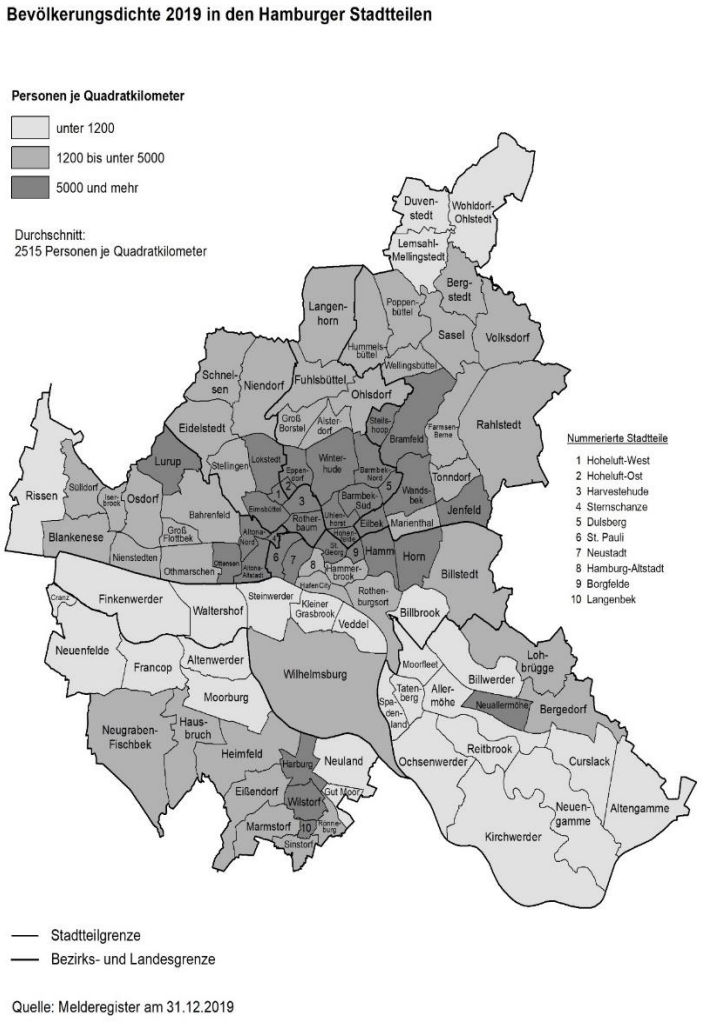


Figure 3 Population density distribution in the 105 Hamburg city quarters (2019); Statistikamt Nord, Statistischer Bericht AI / S 1 – j 19 HH; S. 3 ; https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/bevoelkerung/A_I_S_1_j_H/A_I_S1_j19.pdf)

[7] Statistikamt Nord, Bevölkerungszahlen Hamburg vom 31.12.2019; https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/bevoelkerung/A_I_S_1_j_H/A_I_S1_j19.pdf

1.2.4. Vulnerable groups

In Germany, the poverty rate in 2018 averaged 15.5% of the total population. If we look at Hamburg in the chart comparing the individual federal states (Table 2 below), the city with a rate of 15.3% is thus in the top third of those federal states with the lowest poverty rate. However, this positive picture conceals the fact that Hamburg, compared with the other federal states, has seen the third-highest increase in the poverty rate over the past ten years from 2008 to 2018 (after Hesse and North Rhine-Westphalia), at over 16%. According to the 2019 Poverty Report of the Paritätischer Gesamtverband, the following groups in society in general are particularly threatened by poverty in Germany:

"These are children and young adults under 25 years of age, women, single-person households, single parents, couple households with three or more children, unemployed persons, pensioners, persons with low qualification levels as well as persons without German citizenship and persons with migration background"[8]

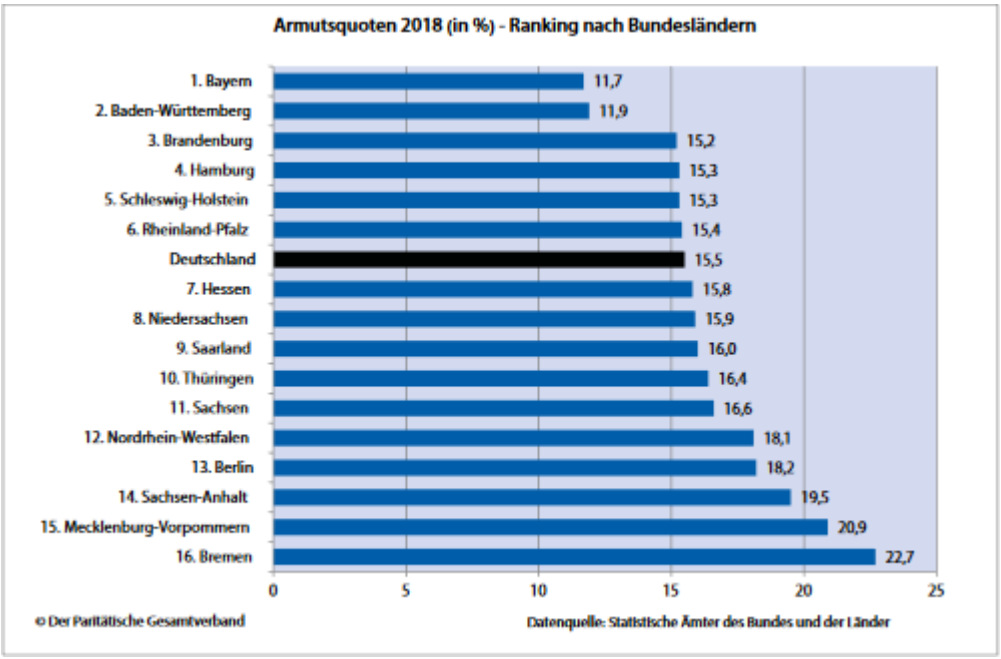


Table 2 Poverty Index Ranking of all federal states in Germany 2018: Der Paritätische Gesamtverband - Armutsbericht 2019, P. 9 http://www.der-paritaetische.de/armutsbericht/

By the end of 2019, 4% more senior citizens in Hamburg were also dependent on so-called "basic social security" than in the previous year. This basic provision is intended to enable senior citizens who have reached statutory retirement age to cope with the daily costs of living by means of additional state benefits, if the individual old-age pension alone does not make this possible. At the end of 2019, this age was 65 years and 8 months. It will be increased by one month every year. According to the Northern Statistical Office, it was primarily women

[8] Pieper, Schneider, Schröder, Stilling: Der Paritätische Gesamtverband - Armutsbericht 2019, P. 34 http://www.der-paritaetische.de/armutsbericht/

(54%) who were dependent on a basic pension. More than half of the men and women in Hamburg who were dependent on basic social security were previously unemployed.[9]

According to the dissertation of Giedrion Kaveckis ([Hamburg], 2017) vulnerable population groups from the perspective of climate impacts can be defined in many different ways. People in a community may be exposed to the risk of an environmental hazard (e.g. a landslide, or air pollution) or a climatic hazard (e.g. flooding or extreme heat). However, not everyone is vulnerable to the same extent. A range of factors affect a person's vulnerability, including access to support networks (e.g. friends, family, social services), income (especially risk of poverty), age, ability, health and gender – some of which may in turn determine where someone lives, as restrictions on financial freedom or mobility are likely to limit options. Where one lives, and the particular characteristics of that area (e.g. the degree to which it is protected from extreme weather such as flooding or heat), can in turn be a key determinant of vulnerability, even if they spend the day at other locations.[10] In the case of the ARCH focus areas, Speicherstadt and the Kontorhausviertel, housing is not permitted at all, and only a low number of households are located in close proximity, suggesting that the climatic and environmental risks of relevance to this area, as well as any measures planned to address these, are unlikely to impact directly upon vulnerable groups. Nonetheless, both areas are in regular use by people working in commercial buildings, as well as visitors to public spaces who access and use these spaces in different ways, and their needs warrant consideration. In addition, impacts and associated risk mitigation measures within this area may have significant indirect consequences for other parts of the city, e.g. redirection of stormwater to prevent flooding in Speicherstadt may cause flooding elsewhere. Taking a broader view of these sites in the context of the wider city itself, made up of a number of inter-linked systems, can help to recognise these connections and aim for more holistic and integrated planning.

Kaveckis defined the vulnerable areas of the city of Hamburg according to a range of indicators, including population characteristics and access to healthcare facilities: "In most of the cases, the eastern areas of Hamburg City would experience the highest relative vulnerability, mainly due to higher concentration of older population and welfare recipients. Along the outskirts of Greater Hamburg, the eastern and southern areas would also be vulnerable, because of higher monthly average minimum, maximum temperatures and the long distance to the closest healthcare facility. The sensitivity analysis has shown that climate data from other global climate model would cause 225% higher average vulnerability, meanwhile the increase of older population by 0,5 of standard deviation would cause higher average vulnerability by only 18%."[11]

[9] Statistikamt Nord: https://www.statistik-nord.de/fileadmin/Dokumente/Presseinformationen/SI20_109.pdf

[10] Kaveckis, G.: Modelling future population's vulnerability to heat waves in Greater Hamburg; (2017), pg. 7; http://ediss.sub.uni-hamburg.de/volltexte/2017/8738/

[11] Kaveckis, G.: (2017), pg. iii of the abstract; http://ediss.sub.uni-hamburg.de/volltexte/2017/8738/

Aside from scientific studies such as Kaveckis's dissertation above, and a vulnerability study concerning storm surges, inland flooding and heavy rains by the Hamburg Institute of International Economics (HWWI) in 2015 (http://hdl.handle.net/10419/119458), no official information or spatial mapping concerning specific vulnerable population groups in relation to climate change hazards or effects on the city of Hamburg was identified for this study. But especially concerning any kind of flooding events Hamburg provides a huge range of information.

1.2.5. Income structure in Hamburg

In Hamburg there is a much greater gap in the distribution of income among the population than in other major German cities. This is reflected less clearly in a calculated poverty quotient than in the morphology of the different city districts / quarters. According to the Statistics Office North, there was an annual taxable income discrepancy between the city districts "from 13 777 euros to 120 716 euros per taxable person"[12] in 2013 (a married couple assessed jointly for tax purposes is deemed to be one taxable person). "As the map shows, the five city districts with the highest values each have an average income of at least 93 310 euros per taxpayer. These are the three Elbe suburbs Nienstedten (120,716 euros), Blankenese (117,139 euros) and Othmarschen (108,258 euros) as well as Harvestehude (111,088 euros) and Wohldorf-Ohlstedt (94,234 euros)".[13] The city districts with the apparently lowest incomes are located in the city centre and belong to the major districts of Hamburg-Mitte and Harburg. Some of them are directly adjacent to our study area, which for the most part belongs to the HafenCity district.[14] However, the city districts of Kleiner Grasbrook, Steinwerder and Veddel also have either very few residents or none at all due to their industrial character.

[12] Statistikamt Nord; https://www.statistik-nord.de/fileadmin/Dokumente/Statistik_informiert_SPEZIAL/SI_SPEZIAL_VIII_2017.pdf
[13] Statistikamt Nord; https://www.statistik-nord.de/fileadmin/Dokumente/Statistik_informiert_SPEZIAL/SI_SPEZIAL_VIII_2017.pdf
[14] Statistikamt Nord; https://www.statistik-nord.de/fileadmin/Dokumente/Statistik_informiert_SPEZIAL/SI_SPEZIAL_VIII_2017.pdf

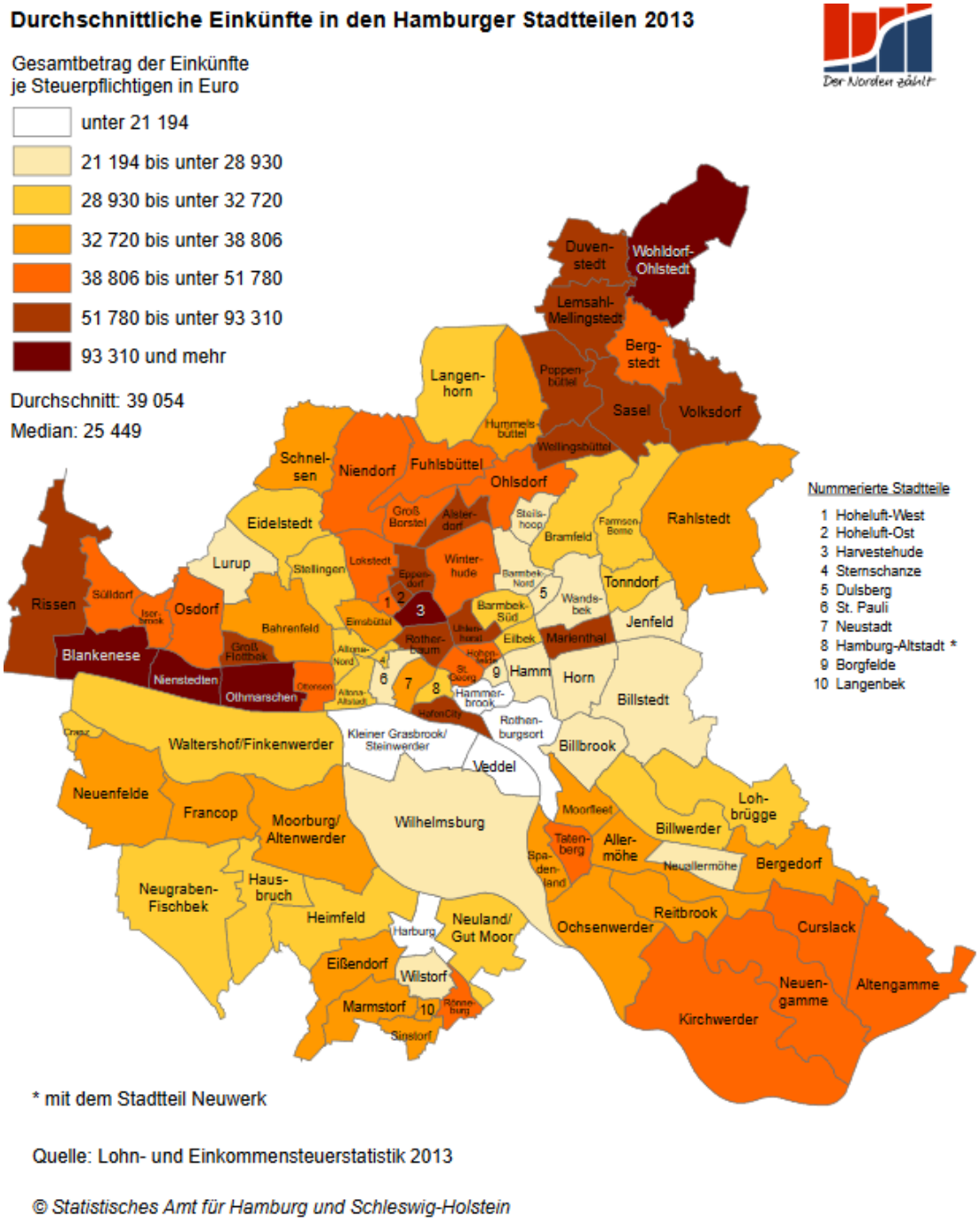


Figure 4 Average income in the Hamburg city districts; Statistikamt Nord 2013; https://www.statistik-nord.de/fileadmin/Dokumente/Statistik_informiert_SPEZIAL/SI_SPEZIAL_VIII_2017.pdf

1.2.6. Economic features

The gross domestic product of Hamburg in 2018 was around 118.91 billion euros.[15] The average annual economic growth rate in Hamburg was rounded 2.8%, based on calculations of the Ministry of Economy, Transport and Innovation.[16] Gross value added at market prices for the year 2018 was composed of the following economic sectors:

o Trade, transport, hospitality, information and communication

o Financial and business services, real estate

o Public and other services, education and health care system

o Manufacturing industry excluding construction.[17]

Services in Hamburg make by far the largest contribution to gross value added (as of 2018) with 12.2%. Overall, the share of services in the total gross value added in current prices in HH amounts to 73.6%.[18]

Employed persons in 2018 in Hamburg (per 1000 persons)

Employed persons in total:	1260.1	100%
Self-employed persons:	117.4	9.32%
Employees:	1142.6	90.68%
Whereof marginal employed persons:	109.7	8.71%
Agriculture and Forestry, Fisheries:	1.7	0.13%
Production industry without construction industry:	119.7	9.50%
Whereof manufacturing industries:	105.4	8.36%
Construction Industry:	40.0	3.17%
Trade, transport, hospitality industry, information and communication:	408.7	32.34%
Financial and corporate service providers, real estate sector:	319.4	25.35%
Public and other service providers, education, health:	370.6[19]	29.41%

[15] Homepage Statista: https://de.statista.com/statistik/daten/studie/5014/umfrage/entwicklung-des-bruttoinlandsprodukts-von-hamburg-seit-1970/

[16] Homepage Statistische Ämter des Bundes und der Länder: https://www.statistik-bw.de/VGRdL/tbls/tab.jsp?rev=RV2019&tbl=tab01&lang=de-DE#tab02

[17] https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/wirtschaft_und_finanzen/P_I_1_j_H/P_I_1__2__j18_HH.pdf page 6

[18] Arbeitskreis "Volkswirtschaftliche Gesamtrechnungen der Länder" im Auftrag der Statistischen Ämter der 16 Bundesländer, des Statistischen Bundesamtes, Statistik und Wahlen: Bruttoinlandsprodukt, Bruttowertschöpfung in den Ländern der Bundesrepublik Deutschland 1991 bis 2019, Reihe 1, Länderergebnisse Band 1, Frankfurt a.M., März 2020; from data sheet 2.4 onwards. https://www.statistik-bw.de/VGRdL/tbls/RV2019/R1B1.zip

[19] Source: https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/wirtschaft_und_finanzen/P_I_1_j_H/P_I_1__2__j18_HH.pdf

In 2019 the city of Hamburg had in total an unemployment rate of 6.1%.[20] In the specific area of the World Heritage Site, which belongs partly to the so called HafenCity, it was in 2014 less than 4.11%.

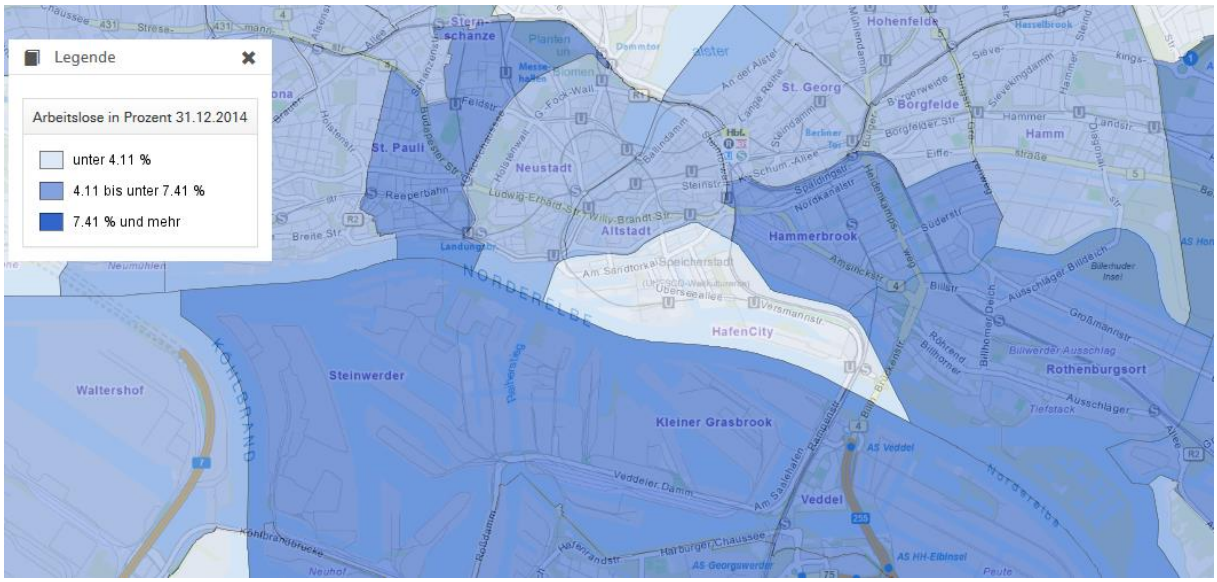


Figure 5 Rate of unemployment is less than 4.11% in the HafenCity quarter (centre of the figure) and comparably low to the surrounding. Map: https://geoportal-hamburg.de/Geoportal/geo-online/#

In June 2020 the youth unemployment rate of young people from 15 to under 25 years old was 8.7% in Hamburg. It is unclear whether this rate is already influenced by the Covid-19-pandemic impacts on the economy of the city.[21]

1.3. Around the focus sites: Speicherstadt and Kontorhausviertel

The historic areas in focus for the ARCH project are UNESCO World Heritage Sites the Speicherstadt and the Kontorhausviertel. The Speicherstadt, which borders the Hamburg city centre, is a former warehouse complex of the port of Hamburg, and has been part of the newly developed HafenCity district since 2008. Overall, this area is characterised by retail and offices, gastronomy and cultural facilities, and it is one of the most important areas in the entire city, particularly in terms of tourism.

The public space is mainly characterised by the water of the port of Hamburg and the numerous canals that run through the city and this area. Green areas exist only in very small numbers in this urban environment. Park-like zones do not exist in this district.

[20] Homepage Statista https://de.statista.com/statistik/daten/studie/762326/umfrage/arbeitslosenquote-in-hamburg/

[21] Agentur für Arbeit, Monthly report, June 2020, page 14 https://www.arbeitsagentur.de/datei/arbeitsmarktbericht-juni-2020-_ba146561.pdf

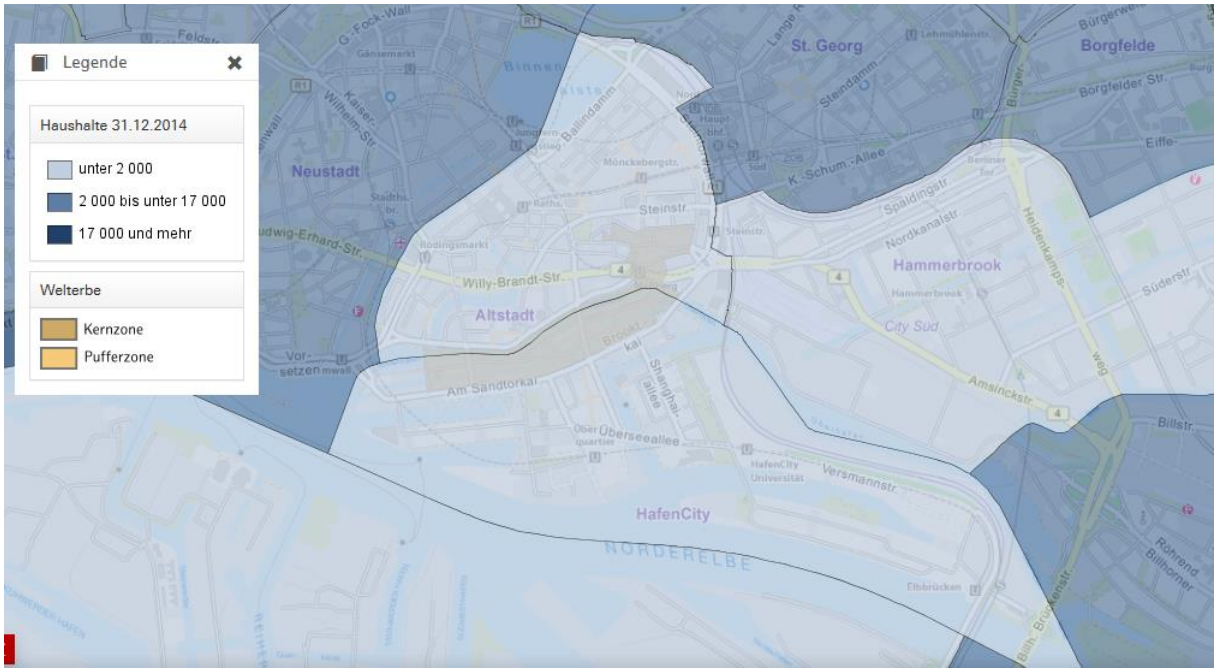


Figure 6 The number of households surrounding our research area are less than 2000. The inscribed World Heritage Site (Kontorhausviertel and Speicherstadt) are in the centre of the figure marked as a light brown coloured layer. Map: https://geoportal-hamburg.de/

In neighbouring HafenCity, there were a total of 2121 households with 4592 inhabitants as of December 31, 2018. Of these, 47.6% of residents were female and 52.4% male. According to estimates, 45.8% have a migration background, while the number of residents with dual citizenship was 1,326 in 2018.

The population structure of HafenCity is made up as follows: The group of people up to 17 years of age comprises 908 (19.8%), the 18-24 year olds make up 405 (8.8%) and the 25-29 year olds 468 (10.2%).

The population structure of HafenCity is dominated by the 30 - 49 year olds, who make up 1736 (37.8%), which means that the average age of the population in this part of town is 35.7 years. The 50 - 64 year olds make up 651 inhabitants (14.2%) and the over 65 year olds make up 424 inhabitants (9.2%).

This means that in 2018 the birth rate in this district, with 68 live births, was significantly higher than the death rate of 9 deceased people overall.[22]

Less than 10% of the residents of the HafenCity quarter are older than 65 years and about twenty percent of the households are with children up to 17 years.

[22] Homepage Regionaldaten für HafenCity: http://region.statistik-nord.de/detail/10000000000000/2/1715/227679/

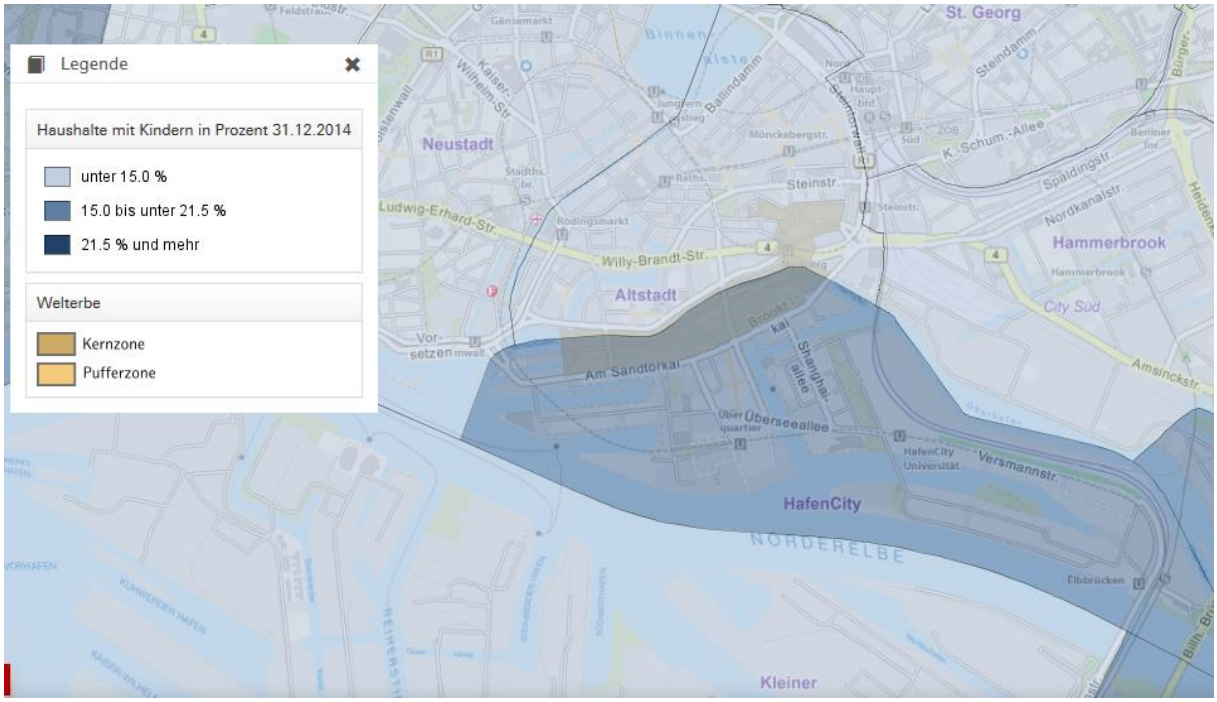


Figure 7 Households with children in the near surrounding of our focus area are about 20% of all households. Map: https://geoportal-hamburg.de/Geoportal/geo-online/#

Beside the small number of residents living in the vicinity, these historic sites receive many visitors on a daily basis. Among them are also people of all ages, including seniors and children, but there are no numbers available. The whole area is open and free to enter for everybody. Regular daily visitors include employees working in the area.

1.4. Overview of existing local framework for disaster risk reduction, climate adaptation and cultural heritage management

The boxes ticked below provides a preliminary overview of the local policy framework in regard to disaster risk reduction, climate adaptation and cultural heritage management (specifically, which information has already been mapped), which will be expanded on in Chapters 3, 4 and 5.

☒ *Emergency response procedures and responsibilities in the city*

☒ *Existing adaptation measures, strategies and key legislation in the city*

☒ *Existing cultural heritage protection measures, strategies and key legislation in the city*

☒ *Existing databases on climate risk information for the city*

☒ *Decision-making structures in the city regarding adaptation*

☒ *Decision-making structures in the city regarding cultural heritage protection*

☒ *Inventory of heritage assets and their condition*

2. Target historic areas identified for ARCH

2.1. Overview

Speicherstadt and the adjacent Kontorhausviertel, the two target historic areas that have been identified for focus as part of the ARCH project, are two densely-built, central urban areas.

2.1.1. Description of the physical area

Speicherstadt, originally developed on a 1.1-km-long group of narrow islands in the Elbe River between 1885 and 1927 (and partly rebuilt from 1949 to 1967), is one of the largest unified historic port warehouse complexes in the world, at a total area of 300,000 m^2. The adjacent Kontorhausviertel is a cohesive, densely-built area made up mainly of eight very large office complexes that were built from the 1920s to the 1950s to house businesses engaged in port-related activities. Together, these neighbouring districts represent an outstanding example of a combined warehouse-office district associated with a port city. Speicherstadt, the “city of warehouses,” includes 15 very large warehouse blocks that are inventively historicist in appearance but advanced in the technical installations and equipment that they house, as well as six ancillary buildings and a connecting network of streets, canals and bridges. Anchored by the iconic Chilehaus, the Kontorhausviertel massive office buildings stand out for their early Modernist brick-clad architecture and their unity of function. The Chilehaus, Messberghof, Sprinkenhof, Mohlenhof, Montanhof, former Post Office Building at Niedernstrasse 10, Kontorhaus Burchardstrasse 19-21 and Miramar-Haus attest to architectural and city-planning concepts that were emerging in the early 20th century. The effects engendered by the rapid growth of international trade at the end of the 19th century and the first decades of the 20th century are illustrated by the outstanding examples of buildings and ensembles that are found in these two functionally complementary districts.[23]

The design of the Speicherstadt is a uniform structure with slight differences between individual building structure types, long stretches of brick and clinker buildings with landside access and waterside access via canals. The foundation consists of approximately 1.2 million pine piles with a depth of up to 12 metres in the ground. The construction is mostly based on a skeleton construction, initially iron grid structure, changed to wooden beam structure with oak supports due to danger of collapse in the event of fire. During the third phase of construction concrete-encased iron pillars were used, while in reconstruction and new construction after World War II reinforced concrete was used.[24] For an entire overview of the physical area please visit https://welterbefest.hamburg/.

[23] Homepage UNESCO: https://whc.unesco.org/en/list/1467/

[24] Homepage Hamburg World Heritage Site with Press releases: https://www.hamburg.de/welterbe/10055086/presse-unesco/

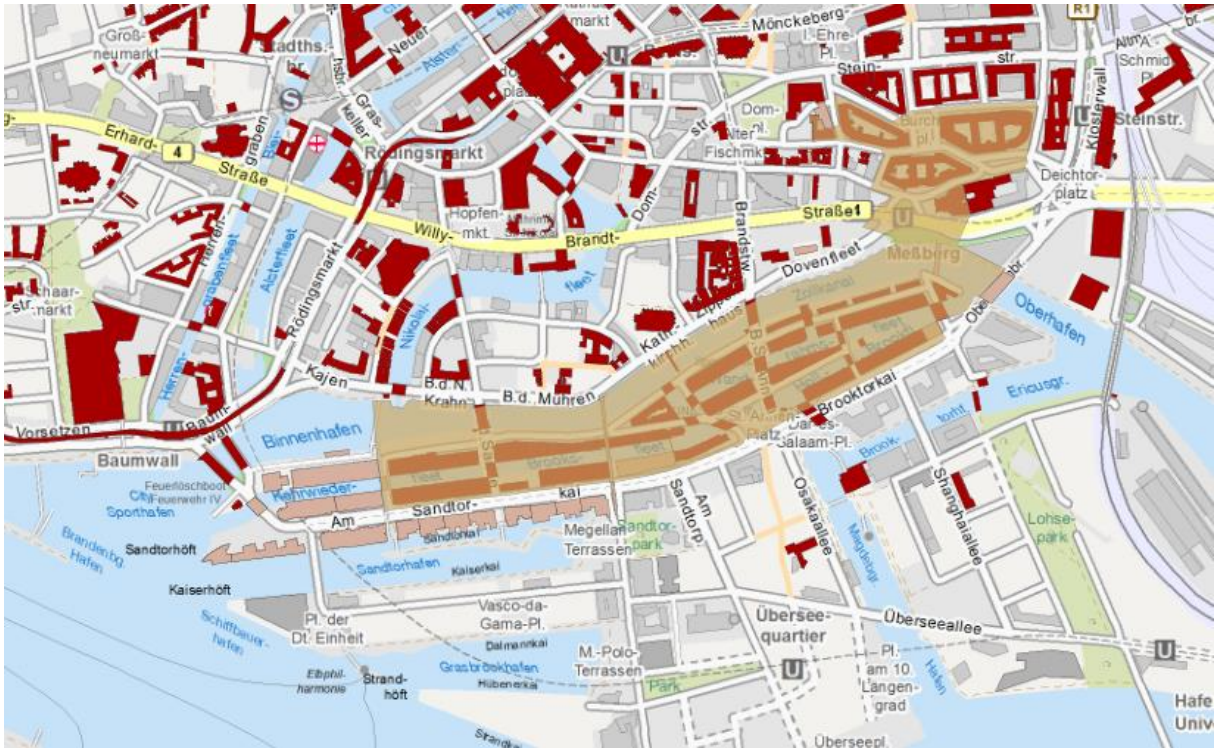


Figure 8 Official World Heritage Site area with Kontorhausviertel, canals and Speicherstadt marked by brown coloured layer. Source: https://geoportal-hamburg.de/Geoportal/geo-online/#

Dark red: Buildings of heritage value

Light brown area: Inscribed UNESCO World Heritage Site (ARCH-relevant zone)

Figure 9 Impression of the illuminated Speicherstadt with Wasserschlösschen in the middle (source: City of Hamburg, Heritage Preservation Department)

2.2. Stakeholders

There are various stakeholders involved in different and/or overlapping aspects concerning the maintenance of the World Heritage Site with its buildings and infrastructure, including:

- Department of Heritage Conservation / Urban Heritage Conservation, City of Hamburg
- Ministry of Urban Development and Housing, City of Hamburg
- Ministry of Environment and Energy, City of Hamburg
- Ministry of Economy, Transport and Innovation, City of Hamburg
- Ministry of Internal Affairs and Sports, City of Hamburg
- Projekt – Realisierungsgesellschaft mbH (city owned company)
- Owner of most of the warehouse district buildings: HHLA (Hamburger Hafen und Logistik AG)
- Borough of Hamburg Mitte
- Hamburg Port Authority
- Agency for Roads, Bridges and Waters in Hamburg, Germany

These and other key stakeholders have been mapped by the authors (see Table 3 below) and more detail will be provided in forthcoming report Local Partnership and Work Plan (D3.2).

INTEREST/INFLUENCE MATRIX

Interest

High Interest / Low influence Clever Cities - Ministry of Environment and Energy Institute for Hygiene and Environment Air Observation Network GERICS BIM Control Centres (geoinformation, civil engineering, building construction) University of Hamburg Light Art Association Cultural Quarter Association (IG Kulturquartier) ICOMOS national World Heritage Sites Augsburg and Regensburg	**High Interest / High Influence** Heritage Preservation Department Agency of Roads, Bridges and Waters City Participatory Workshop Agency for Property Management and Real Estate (LIG) Hamburg Harbour and Logistics AG (HHLA) Agency for Geoinformation
IG Kontorhausviertel Hamburg Port Authority **Low Interest / Low Influence**	ReGe – Realisierungsgesellschaft mbH Bezirk Mitte **Low Interest / High Influence**

Influence

NB: In this grid we assess respective stakeholders' level of interest in the project theme and their ability to influence the outcome.

Adapted from the URBACT II Local Support Group Toolkit (2017). Available at: https://urbact.eu/urbact-local-groups

Table 3 Local Stakeholder matrix for the city case Hamburg

2.3. Hazards affecting the site

The particular hazards faced by the World Heritage Site result on the one hand from its geographical location and on the other from the consequences of climate change in Hamburg. The Speicherstadt, which was built at the end of the 19th century on wooden piles into the Hamburg port area on the Elbe, may be threatened by the expected general rise in sea level. In the period from October to March every year, the area is also threatened by severe storms and storm surges, which can also lead to an increased occurrence of flooding in the inner city area, which can also affect the Kontorhausviertel.

The average temperature went up between 1881 and 2013 by about 1.4°C in the Metropolregion of Hamburg. In future, rising temperatures and more "tropical nights", especially within the inner city centre, are expected during the summer period. Depending on the future CO_2 emission rate, the average temperature throughout the year may increase by 1°C, or as much as 5°C. Extremely dry summer periods and heat waves may have a long-term effect on the building construction and the building materials used, which are sometimes exposed to a constant change between humid and dry environments.

In winter, more frequent (and heavier) rainfall is expected. A specific research study regarding vulnerability towards storm surges, inland flooding and heavy rainfall has been done by the Hamburg Institute of International Economics (HWWI) in 2015[25].

Moreover, as a metropolis on the waterfront, Hamburg is confronted with the effects of sea level rise. At the level Cuxhaven Steubenhöft (German Bight) measurements have been carried out from 1981 – 2019 and the results already show a sea level rise of 20 cm per century. The *IPCC-special report on the ocean and the cryosphere within a changing climate* (SROCC) predicts a "continue as before emission scenario" of major sea rise on a global level. This suggests corresponding increases in the risk of storm surges as well as the upstream directed transport of sediment, with implications for flood protection and future sediment management. Moreover, the brackish water zone, the mixed zone of saltwater and fresh water, will move further upstream as well.

Therefore, Hamburg needs to prepare for the inescapable consequences of climate change. Along with that, Hamburg is developing a monitoring programme to document the effects of climate change and to assess in how far adaptation measures undertaken so far have been effective.[26]

With respect to the effect of these climatic changes on the Speicherstadt and Kontorhausviertel, and corresponding measures to address these effects, limited information was found in the course of developing this report. In the past years, various investigations have been carried out by building owners and operators with regard to preservation and maintenance in general, however details were not available at the time of writing, and it is believed that these did not specifically concern the impacts of climate change. In general, the

[25] Rose, Julia; Christina B. Wilke: Climate change vulnerability in cities: The case of Hamburg; HWWI Research Paper 167, 2015 http://hdl.handle.net/10419/119458

[26] Erste Fortschreibung Hamburger Klimaplan, S. 6f (First revision of the Hamburg Climate Plan.; https://www.hamburg.de/klimaplan/nofl/13278658/c-7-downloads/

authors believe that several different local stakeholders would be interested in addressing this knowledge gap.

2.4. Gaps, needs and actions

Due to the complex situation in Hamburg, gaps and needs in the city administration's ability to support the resilience of the Kontorhausviertel and Speicherstadt – and corresponding supporting actions – can only be fully understood in direct exchange with the various project participants. However, based on the information available at the time of writing, the following scenarios for possible support from the ARCH scientific partners are conceivable in principle:

- Screening and monitoring of possible decomposition or corrosion effects acting on building masonry, supporting pile foundation or bridge abutments.
- Monitoring of the pile foundation and the subsoil with regard to the permanent load-bearing capacity of the foundation.
- Long-term measurements regarding facade structure and possible long-term changes such as cracks in the masonry, which can be caused by a variable load distribution of horizontal and vertical loads and changes in the foundation.
- Almost 50 bridges exist within this district. Many of them are currently in a bad condition. Maybe a specific kind of monitoring might help to identify methods for an adequate bridge refurbishment in the historical district and in how far the climate change impact might be partly responsible for the current state of the bridge construction (e.g. acceleration of decomposition processes).
- There is already a city administration-led plan to build a 3D-model of an important historic bridge in another location, with help of BIM (Building Information Modelling). Although outside the ARCH target historic area, the application of this method is relevant for the further management of the Speicherstadt and Kontorhausviertel, and hence the opportunity for ARCH scientific partners to integrate their tools and methodologies with this planned project should be explored. Collecting relevant data on building deterioration in connection with climate change might be a very valuable support for long-term analysis and anticipation of future impacts.

Monitoring of the weather conditions with respect to an increased UV-/ or CO_2-level at the public squares of the World Heritage Site may also be useful, with a view to providing relevant advice to people visiting these areas. These aspects can possibly be addressed with the help of the various scientific institutions and their experts involved in the ARCH project. Furthermore, the ARCH project can hopefully serve as a catalyst for raising awareness of the basic topic in Hamburg. It would also be desirable for the project to play a coordinating role between the various stakeholders involved in the co-creative process.

3. Governance framework for cultural heritage management

The cultural heritage values of the Speicherstadt and Kontorhausviertel are protected through binding legal regulations, and the city administration observes several regional, national and international recommendations and regulations. These are outlined below. This chapter draws heavily on the Nomination Dossier (2014) and Management Plan therein (2013)[27], edited by the City of Hamburg as part of the nomination of the Speicherstadt and Kontorhausviertel for World Heritage status. Both can be found here: http://whc.unesco.org/en/list/1467 and http://welterbe.hamburg.

3.1. International

3.1.1. World Heritage Convention

The Speicherstadt and the Kontorhausviertel were designated World Heritage status in 2015, and therefore the **World Heritage Convention in an important tool in the safeguarding of the site.** The Convention is based on the idea that "parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of [hu]mankind as a whole" (preamble to the World Heritage Convention).

An important step towards achieving this was made when the new Heritage Protection Act of Hamburg came into force in 2013, stating that:

> *„All measures and plans must take into account the obligation to protect the cultural heritage in accordance with the Convention Concerning the Protection of the World Cultural and Natural Heritage of 16 November 1972 (German Federal Law Gazette (BGBl), 1977 II, p. 215)"*
>
> *(Heritage Protection Act of 5 April 2013 of the Free and Hanseatic City of Hamburg, Official Hamburg Gazette, p. 142).*

The **Operational Guidelines** for the Implementation of the World Heritage Convention, 8 July 2015, are an essential basis for achieving these objectives. They aim to facilitate the implementation of the World Heritage Convention. For this purpose, the procedures for the following operations were determined in particular:

- the inscription of World Heritage sites on the World Heritage List and the List of World Heritage sites in danger;
- the protection and conservation of World Heritage sites;

[27] Kloos, M.; Ritscherle, M.; Wachten, K. et al: UNESCO World Heritage Management Plan: The Speicherstadt and Kontorhaus District with Chilehaus (2013), http://whc.unesco.org/en/list/1467 and http://welterbe.hamburg, and hendrik Bäßler verlag, Berlin, 2017.

- the granting of International Assistance under the World Heritage Fund;
- the mobilisation of international support in favour of the World Heritage Convention.

The Operational Guidelines are periodically revised to reflect the decisions of the World Heritage Committee. They define the principal approaches towards managing the World Heritage site.

3.1.2. Charters and Declarations

The following international charters and documents issued by UNESCO and ICOMOS are of particular relevance to the “Speicherstadt and Kontorhausviertel with Chilehaus” (for more information on these charters and conventions please refer to www.icomos.org) :

- the Venice Charter,
- the Florence Charter
- the Washington Charter,
- the Nara Document on Authenticity,
- the Burra Charter and the more recent
- Recommendation on the Historic Urban Landscape.

Of these, the Recommendation on the Historic Urban Landscape (HUL), adopted in 2011, is of particular interest for urban environments and hence for the ARCH focus areas. The approach adopted by the Recommendation is based on existing declarations and charters, and takes account of the fact that World Heritage sites in urban areas are part of a larger ‘urban ecosystem’ and subject to continuous change. It also recognises the role of communities living in and around urban World Heritage sites in the preservation and sustainable development of these places. By extension, people in these communities must be fully involved in developing and implementing strategies to protect and manage World Heritage sites in the interest of ongoing sustainable development. This approach is well-aligned with the ARCH project’s thematic intersection of cultural heritage management, disaster risk reduction and climate adaptation – since understanding the risks faced by sites of cultural heritage significance demands attention to a broader landscape of risk and vulnerability, and in the case of Hamburg, recognition that these sites are part of a complex wider city system.

3.2. National level

Alongside the above international guidelines, general frameworks for urban development and construction are provided for at both national and regional level.

Due to the federal set-up of Germany, many regulations and laws, that are normally found on a national level, are delegated to the *Länder* (states). Hamburg, being a City-state, is therefore responsible for heritage legislation

For Speicherstadt and the Kontorhausviertel, legislation at national and regional levels, along with urban planning, landscape planning, and monument conservation instruments all play a role in their protection and sustainable further development. Supporting legislation includes the Construction Code (*Baugesetzbuch*), the Federal Nature Conservation Act (*Bundesnaturschutzgesetz*, BNatSchG), the Hamburg Act for the Implementation of the Federal Nature Conservation Act (*Hamburgisches Gesetz zur Ausführung des Bundesnaturschutzgesetzes*, HmbNatSchG) the Landscape Programme (*Landschaftsprogramm*), the Zoning and Land-use Plan (*Flächennutzungsplan*) and the Local Development Plan (*Bebauungsplan*).

3.2.1. Federal Construction Code

The Construction Code of the Federal Republic of Germany (*Baugesetzbuch*), last amended on 28 March 2020, forms the legal basis of urban development planning in Hamburg. The provisions of the Construction Code therefore also play a decisive role in regulating urban building development in Speicherstadt and the Kontorhausviertel, and surrounding buffer zone. At the same time, the Construction Code appoints the instruments for their protection: i.e. urban development planning, ordnances on conservation and design, and further levels of action.

Significant for the ARCH target historic areas are the zoning and land-use plans (preparatory urban development planning) and the local development plans (binding urban development planning). Unlike the area states, the city state Hamburg does not have a spatial plan. Here, the zoning and land-use plan instead have the direct functions of the (usually) higher-ranking land use planning.

3.3. Regional level

Being a City-State, Hamburg is a regional authority and has ministerial competences. The *Ministry of Culture and Media (BKM)* holds the responsibility for the “Speicherstadt and Kontorhausviertel”, UNESCO World Heritage site. In doing so, the BKM organises and coordinates all measures in this area, starting from communication activities, holding a “Heritage Preservation Office” and most importantly: coordinating all activities planned and/or implemented there. Activities are governed by a management plan, which anticipates possible risks to the cultural heritage values of the area, as well as possible measures to deal with them, and provides guidance to the city administration on appropriate responses.

3.3.1. Hamburg Building Code

The most relevant regulation for all buildings in the area (protected and non-protected) is the Hamburg Building Code of 14 December 2005 (as last amended on 15 December 2009). The code establishes the legal rules governing plots of land and their development, and contains general building regulations as well as provisions on design and construction products and methods, e.g. walls, ceilings, roofs, escape routes and technical building equipment. It also stipulates the purposes for which buildings may be used.

3.3.2. Zoning and Land-use Plan

In accordance with Section 1, Paragraph III, and Section 5, Paragraph ff, of the Federal Construction Code, the Free and Hanseatic City of Hamburg has produced a zoning and land-use plan for the entire city (including the Speicherstadt and Kontorhausviertel and surrounding buffer zone) as part of a general development and construction framework. This plan establishes the essential guidelines for land use and building developments for the entire city centre. The most recent version of the zoning and land-use plan for the Free and Hanseatic City of Hamburg, which was published on 22 October 1997 (Official Hamburg Gazette, p. 485), still classifies the Speicherstadt area as part of the “port”. The zoning and land-use plan is being amended in parallel with the relevant local development plan, and in future the area concerned will be classified as “mixed-use development”.

3.3.3. The Hamburg Heritage Protection Act

The Heritage Protection Act of the Free and Hanseatic City of Hamburg protects architectural monuments, ensembles, garden monuments and archaeological monuments, as well as movable heritage assets.

Both the Speicherstadt and Kontorhausviertel are protected under this act.

Heritage Council: The Regional Ministry of Culture is assisted by a Heritage Council which acts as an independent advisory board on heritage protection and preservation.

3.3.4. The Management Plan for the Speicherstadt and Kontorhausviertel

A Management Plan aimed at safeguarding the potential Outstanding Universal Value of the Speicherstadt and Kontorhaus District with Chilehaus, its authenticity, and its integrity, and protecting its proposed buffer zone, entered into force on 28 May 2013.

The Plan manages the property under market economy conditions (as a living heritage, the preservation of the buildings should be self-sufficient), as this is vital for the preservation of the large number of buildings, according to the nomination dossier. The objective of the Plan is therefore “to reconcile safeguarding the ‘outstanding universal value’ of the World Heritage site on the one hand, with taking the necessary measures to provide for its sustainable further development, on the other.” The Plan is a strategic document that defines objectives for preservation and sustainable development, assesses the work that needs to be done, identifies areas of conflict and potential synergies, and establishes priority measures and projects (see Figure 10 below). Parts of the plan will be updated in the years to come (scheduled for 2025 at the time of writing) and there is an opportunity for the ARCH project to contribute to this update by proposing the inclusion of climate change related measures that have played only a small part in the current version (e.g. discussion of flood risk). (see https://www.hamburg.de/bkm/unesco-speicher-kontore/10531874/praktisches-download-bereich-en/)

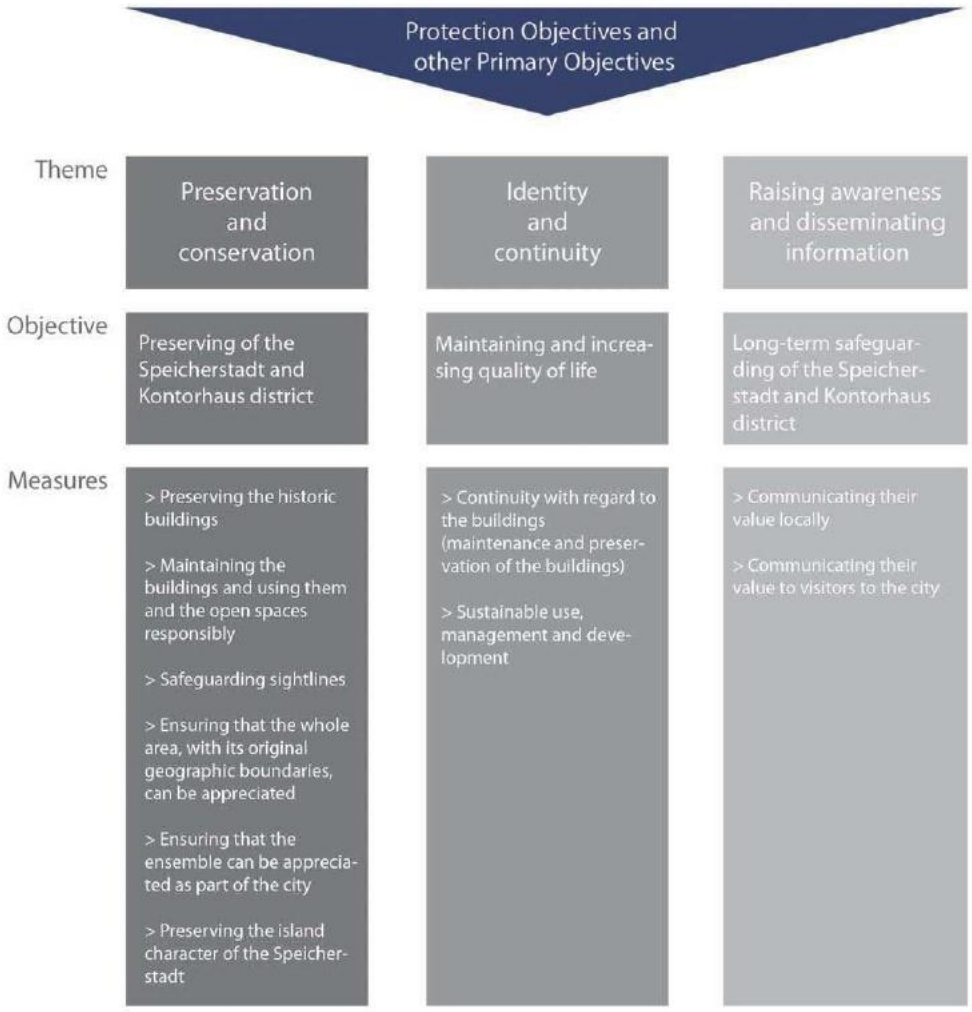


Figure 10 Three-pillar model of the protection objectives – and corresponding measures – planned for the "Speicherstadt and Kontorhaus district with Chilehaus". Source: M. Kloos, M. Ritscherle, and K. Wachten, "Management Plan: The Speicherstadt and Kontorhaus District with Chilehaus," 2015.Local (district level)

3.3.5. Land use plans (Flächennutzungsplan)

Land use plans are prepared on the basis of the zoning and land-use plan and regulate the type and extent of constructional and other use of the ground or the properties. Their preparation follows a process in accordance with the Federal Construction Code (BauGB).

The Speicherstadt was removed from the scope of the Port Area Development Act (Hafenentwicklungsgesetz) on 10 October 2012, paving the way for the development plan (concept) specific to the Speicherstadt to be drawn up (see Part 3.5.1 below).

3.3.6. City Centre Concept[28]

For the larger area of the Hamburg inner city, a local development concept is in place since 2010 (revised 2014) that outlines future use and development priorities for public spaces, transport, housing et. al. This concept is the main guidance tool for the overall social and infrastructure lay-out of the inner city (Hamburg Mitte).

The City Centre Concept seeks primarily to integrate the new HafenCity development, which lies to the south of the city centre, in the neighbouring city centre district.

The City Centre Concept is intended to enable Hamburg's historic core and its new maritime district to grow together. Given the location of the Kontorhausviertel and Speicherstadt, with the city centre immediately to the north, and the HafenCity immediately to the south, it is clear that these historic areas play an important role in the City Centre Concept. For more information on the City Centre Concept and the guiding principles see: https://www.hamburg.de/innenstadtkonzept/ (only available in German).

3.4. Site level (Speicherstadt)

3.4.1. Speicherstadt Development Concept (2012)[29]

The Development Concept (*Entwicklungskonzept*) for Hamburg's Speicherstadt, hereinafter referred to as the Speicherstadt Development Concept, was drafted by the then Regional Ministry of Urban Development and the Environment (BSU, today BSW) in cooperation with the HHLA, other ministries in Hamburg and the district authorities and came into force in 2012. One of the main reasons for drafting it was the Speicherstadt's nomination for inscription on the World Heritage List. In addition, the Speicherstadt Development Concept is intended to serve as a basis for a local land use plan for the Speicherstadt (currently under development – see above), given that the Speicherstadt has been removed from the scope of the Port Area Development Act (*Hafenentwicklungsgesetz*). The Speicherstadt Development Concept is therefore of central importance, and complements the Management Plan mentioned earlier (see Part 3.3.4 above), because it summarises the facts, general conditions and guidelines, which are essential for fulfilling the preservation and sustainable development of the Speicherstadt..

When the new HafenCity development is completed, the Speicherstadt will constitute a link between it and the city centre. One of the challenges presented by this new status is that the Speicherstadt has hitherto been separated from the rest of the city and was built on an east-west axis. Historically, north-south through-routes played a subordinate role, but they are now becoming increasingly important and will be more actively used, presenting risk to the historical integrity of the Speicherstadt area.

---

[28] Only available in German (most recent edition 2015, original text 2010: Innenstadtkonzept - https://www.hamburg.de/konzepte-strategien/

[29] Entwicklungskonzept Speicherstadt (only available in German): https://www.hamburg.de/contentblob/4056088/42fc628d89757fee90432b0b23cb224c/data/download-konzept.pdf

Additional challenges which are identified in the Speicherstadt Development Concept include recent changes in how the warehouses are used, specifically:

- A decline in transhipment and logistics, while an increasing number of service companies, trade operations and cultural attractions are establishing themselves there.
- Increased interest in living in the Speicherstadt. Large-scale residential use is, however, only possible if there is comprehensive flood protection[30].
- A need to maintain the quality of public spaces.
- A need to ensure that the heads of the wooden piles on which the Speicherstadt is built remain structurally stable.

While taking appropriate account of the Speicherstadt's World Heritage value, the Speicherstadt Development Concept also seeks to highlight any opportunities for change and further development, without threatening the area's existing character. A concept has been drafted for the transport infrastructure and the design of public spaces within the Speicherstadt, however at the time of writing there were no designs yet completed.

The Speicherstadt Development Concept contains planning and design guidance on the following aspects relevant to future development (bearing in mind that all changes require the permission of the heritage protection authorities):

- Allowed uses and changes of use (storage and trade, services, residential use, cultural institutions)
- Flood protection
- Safeguarding the wooden piles supporting the quay walls and warehouses
- Transport (access, parked vehicles, design of parking areas, bridges)
- Open spaces and their design
- Lighting
- Existing flora and fauna

[30] As part of the process of drafting the Development Concept for the Speicherstadt, a flood protection concept was also produced. However, it has not yet been assessed for its impact on heritage protection (Internal Memorandum 20/4388, p. 4). And the solution was abandoned due to the technical complexity of the implementation.

3.4.2. Ordinance on the Design of the Speicherstadt (2008)

The Ordinance on the Design of the Speicherstadt stipulates that any alterations to warehouses must be compatible with heritage protection. It contains provisions on

- façades
- roofs
- building technology
- advertising and vending machines
- the design of the surrounding external space

3.4.3. Design Manual for the Speicherstadt (*Gestaltungshandbuch Speicherstadt*) (2002)

The Design Manual is not legally binding, however it is regularly used by the Hamburger Hafen- und Lagerhaus- Aktiengesellschaft (HHLA), which owns all property in the Speicherstadt, to guide design and development decisions. Gaps, needs and actions

Overall, the management of the Speicherstadt and Kontorhausviertel works well based on the procedures, guidelines, charters, legal provisions et. al. outlined above. Nevertheless, climate change and the effects of hazards were not a main priority in the current Management Plan (with the exception of some provisions for flooding), nor in the different ordinances. Gaps and needs (along with possible corresponding actions of relevance to the ARCH project) can be summarised as follows:

- Integration of climate change and related hazards as an integral part within the future revised Management Plan and associated periodic reporting to UNESCO in the years to come. A related objective is to identify the different plans the City has in this respect, as well as to examine the Management Plan for gaps with respect to resilience-building and propose potential actions and strategies for inclusion in a future update of the Plan.
- Tools and procedures already exist to support management of data about the existing historic built fabric, and ongoing remedial or development measures, but these could be expanded and improved. For example, by constructing digital 3D models of existing structures using Building Information Modelling (BIM).
- Cooperation with archaeological department concerning research about remains of the industrial heritage of the late 19th/ early 20th century is currently limited and could be strengthened.
- Greater awareness-raising in the community of the relevance of climate change to the Speicherstadt and Kontorhausviertel is desirable, and there is an opportunity to design and implement events in the context of the ARCH project.

4. Governance framework for disaster risk reduction

4.1. International

At international level, there are three main types of governance frameworks for disaster risk reduction: global, European, and other bi- or multilateral frameworks of several nations.

4.1.1. Global frameworks

Global frameworks for disaster risk reduction are implemented by international organisations like the United Nations (UN) and the World Health Organisation (WHO)[31]. Most relevant for inclusion in this report is the United Nations Office for Disaster Risk Reduction (UNDRR, formerly UNISDR). The mission of UNDRR is to "bring[s] governments, partners and communities together [to] reduce disaster risk and losses to ensure a safer, sustainable future".

UNDRR supports:

- coordination mechanisms like the Global Platform for Disaster Risk Reduction[32] and the National Platforms for Disaster Risk Reduction,
- the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030[33], and
- other institutions, including governments and civil society.

For Europe, the European Forum for Disaster Risk Reduction 2015-2020 published a Roadmap for the Implementation of the Sendai Framework in 2016[34].

The Sendai Framework is based on four priorities:

(1) Understanding disaster risk,
(2) Strengthening disaster risk governance to manage disaster risk,
(3) Investing in disaster risk reduction for resilience, and
(4) Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and construction.

A tool for supporting implementation of the Sendai Framework is the disaster resilience scorecard for cities[35]: a set of assessments that allow staff working in local government to monitor and review progress and challenges in the implementation of the Sendai Framework, and assess their city's disaster resilience. The Scorecard is structured around UNDRR's Ten

[31] World Health Organisation: https://www.who.int (last visited 13.5.2020)
[32] UN Global Platform for Disaster Risk Reduction, a biennial multi-stakeholder forum: https://www.unisdr.org/conference/2019/globalplatform/about (last visited 13.5.2020)
[33] Sendai Framework: https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030 (last visited 13.5.2020)
[34] Roadmap for the Implementation of the Sendai Framework: https://www.undrr.org/publication/european-forum-disaster-risk-reduction-efdrr-roadmap-2015-2020 (last visited 13.5.2020)
[35] UNDRR Disaster resilience scorecard for cities: https://www.undrr.org/publication/disaster-resilience-scorecard-cities (last visited: 13.05.2020)

Essentials for Making Cities Resilient and is also being used in the ARCH project's city cases (also see preliminary assessment using the Scorecard at Part 7 below).

4.1.2. European frameworks

At the level of the European Union, the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) is in charge of actions in the domains of civil protection and humanitarian aid. The overview of the legal framework[36] lists over 30 elements. Here, we will focus on the most important ones.

The **European Civil Protection Mechanism** is an instrument for strengthening the collaboration between the EU member states, six other participating countries, and the United Kingdom during its transition phase, in the domain of civil protection. If a disaster or emergency exceeds the response capacity of a participating country, it may ask for assistance via this Mechanism. The delivery of such assistance is coordinated via another element, the Emergency Response Coordination Centre (ERCC). The resources for the disaster assistance come from the European Civil Protection Pool, the European Medical Corps, and the new rescEU element. The latter provides firefighting planes and helicopters, medical evacuation planes, as well as a stockpile of medical equipment and field hospitals that can respond to health emergencies, and chemical, biological, radiological, and nuclear incidents. DG ECHO is also active in the domain of preparedness and prevention.

4.1.3. Multilateral frameworks

Support for civil protection for European countries is provided by North Atlantic Treaty Organisation (NATO), a multilateral military alliance between 30 European and North American countries. This is done both in the areas of prevention and preparation and in operations. NATO's principle is not to develop parallel structures to existing civilian capacities (e.g. of the UN and EU). In the field of civil protection, NATO works closely with its partner nations. The responsible operative divisions at the NATO headquarters in Brussels are "Civil-Military Planning and Support" (CMPS) and "Euro-Atlantic Disaster Response Coordination Centre" (EADRCC). Civil protection prevention and preparedness are mainly the responsibility of CMPS, while the EARDCC takes care of operational issues like joint international trainings of emergency responders.

NATO partner countries also collaborate in the area of civil emergency planning. For that purpose, NATO has established the Committee for Civil Emergency Planning (CEPC) and several subordinate planning groups: Civil Protection, Transport, Public Health, Food and Water, Industrial Resources and Communications.

Directive on the assessment and management of flood risks (2007/60/EC) The Directive on the assessment and management of flood risks (2007/60/EC) or the Flood Risk Management Directive establishes a common framework for dealing with flood risk within the EU, with the

[36] DG ECHO Legal Framework: https://ec.europa.eu/echo/who/about-echo/legal-framework_en (last visited: 13.05.2020)

aim of reducing the adverse consequences of floods for four protected areas: human health, environment, cultural heritage, economics.

This risk is particularly high in Hamburg, where the metropolis' close ties to water meet with the metropolitan agglomeration of residential, commercial and industrial areas.

The EC directive also requires that not only frequent and medium, but also rare or extreme flood events be considered. Their possible effects should be shown in hazard and risk maps.

As a third step, the EC directive requires the development of a transnational management plan for dealing with the hazards and risks of floods.

This framework is implemented in Hamburg through a flood management plan, with associated risk assessment (including mapping of flood risks) updated every 6 years. The first cycle was completed with the preparation of the management plan in December 2015. The second implementation cycle started with the review of the risk assessment, the results of which were published on December 22, 2018. The updated hazard and risk maps were published on December 22, 2019.[37]

4.2. National

In Germany, civil protection is a shared responsibility at several levels of the national governance structure. A unique feature of this shared responsibility is the distinction between civil protection on one hand and disaster management and prevention on the other hand. These shared responsibilities are ruled by a single German national law: the Civil Protection and Disaster Assistance Act. Civil protection in its meaning of civil defence is a sub-area of the overall defence of the Federal Republic of Germany and thus a focus task at the national level. The responsible agency is the Federal Office of Civil Protection and Disaster Assistance (BBK)[38], established in 2004 within the remit of the Federal Ministry of the Interior. Disaster management and prevention in peacetime, on the other hand, are duties of the federal states, carried out under federal contract administration. Since the Free and Hanseatic City of Hamburg is a federal state, it is thus responsible for disaster management and prevention in its territory, as explained in the next section.

The BBK's duties at national level are ruled by the national Law on the establishment of the Federal Office of Civil Protection and Disaster Assistance. Its tasks include, but are not limited to, informing residents living in Germany on aspects of disaster preparedness (including issuing warnings as needed), protecting cultural heritage, implementing measures for health protection, and providing an emergency supply of drinking water. For conveying warnings and other official information, the BBK has launched the warning app NINA for mobile devices. This app, for instance, can be used to read about current rules for behaviour regarding the Covid-19 pandemic. The BBK also conducts training for crisis managers and first responders in its academy for crisis management and national cooperation: AKNZ. Also, the BBK has

[37] Homepage of City of Hamburg: https://www.hamburg.de/hwrm-rl/2102808/hochwasserrisikomanagement/ (last visited 26.08.2020)
[38] Home page of BBK: https://www.bbk.bund.de/EN/Home/home_node.html (last visited 12.05.2020)

established a Joint Reporting and Situation Centre, the GMLZ (Gemeinsames Melde- und Lagezentrum von Bund und Ländern) which gathers situation information from distributed situation centres at national level (federal ministries and agencies) and federal state level (state ministries and agencies) and redistributes the combined information to all sources.

Practical disaster assistance is provided by national organisation Bundesanstalt Technisches Hilfswerk (THW), Federal Agency for Technical Relief, which is ruled by national THW Law (see Annex 10.2). For disasters involving fire, the national Fire Service regulation FwDV 100 ensures a certain uniformity of this important response capacity across all federal states and municipalities in Germany.

Last but not least, disaster prevention and management may also refer to non-binding guidelines such as "Flood and heat prevention through urban development" and the "Implementation plan CRITIS of the National Plan for the Protection of Information Infrastructures". Critical infrastructure protection (CIP), which overlaps with disaster risk reduction, is addressed by German sector-specific laws such as the IT Security Act (IT-Sicherheitsgesetz[39]).

4.3. Regional

Civil defence at state level comprises the preparation and implementation of all civil defence measures for the Free and Hanseatic City of Hamburg. The Ministry of the Interior and Sport is responsible for implementation at state level. The legal basis is found in the Basic Law, supplemented by the provisions of the Emergency Constitution, the Federal Benefits Act, the Security Acts (e.g. on food and drinking water supply, transport organisation), the Civil Protection and Disaster Relief Act (ZSKG) and the implementing ordinance to the ZSKG. There are also numerous contracts and agreements in the NATO area.

The tasks of these bodies include in particular

- civil defence,
- maintenance of state and government functions (including civil alert planning),
- supply of essential goods and services to the civilian population, and
- support of the armed forces.

The regulatory framework for disaster protection in Hamburg is the respective state law, the Hamburg Disaster Protection Act (Hamburgisches Katastrophenschutzgesetz[40], last revised on 24.01.2020). The framework is compliant with national and EU law. The Hamburg Disaster Protection Act specifically mentions several EU directives, including DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently

[39] IT-Sicherheitsgesetz, information at BSI: https://www.bsi.bund.de/DE/Themen/KRITIS/IT-SiG/it_sig_node.html (last visited 13.05.2020)

[40] Hamburg Disaster Protection Act (in German): http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&doc.id=jlr-KatSchGHArahmen&st=lr (last visited 12.05.2020)

repealing Council Directive 96/82/EC. In case of a major disaster, Hamburg may receive support from the national level, including more than 110 supplemental disaster protection vehicles and 1,400 trained staff for manning these vehicles, provided by relief organisations such as Arbeiter-Samariter-Bund (ASB), Deutsche Lebensrettungsgesellschaft (DLRG), Deutsches Rotes Kreuz (DRK), Johanniter Unfallhilfe (JUH) and Malteser Hilfsdienst (MHD).

Beside the more general Hamburg Disaster Protection Act, Hamburg as a sea harbour city has also adopted several specific acts and regulations that contribute to prevention and management of disasters (also see Annex 10.2). These include:

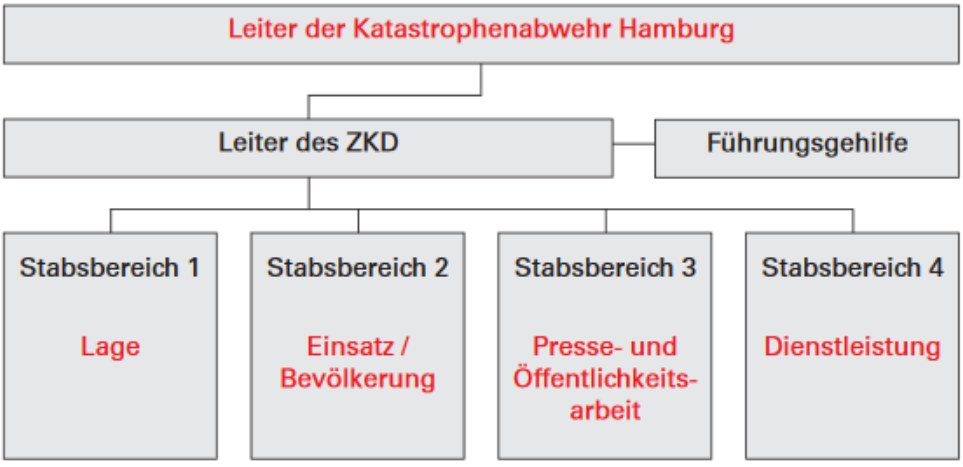
- Hamburg Water Act,
- Hamburg Dyke Regulation,
- Hamburg Polder Regulation,
- Flood Protection Ordinance HafenCity, and
- Storm surge protection in the Hamburg harbour.

4.4. Local

4.4.1. Organisation

Civil protection is the task of all ministries and departments of the Free and Hanseatic City of Hamburg. A special position in civil protection is held by the Ministry of Internal Affairs. Its State Councillor, as the head of the entire disaster management unit, is responsible for the uniform control of all defensive measures in the city. Its task is to set tactical, political and administrative goals.

In case of need, the State Councillor is authorised to issue instructions to all Hamburg Ministries and has the authority to issue Senate resolutions by way of disposition. This enables the Councillor to take necessary measures (e.g. driving ban) immediately and with minimal administrative delay In the interest of effective hazard prevention, this deviates from the rule laid down in the Hamburg constitution that the Senate makes decisions in its entirety (collegial principle). The Head of Disaster Management is supported and advised by the Central Disaster Service Staff (ZKD) of the Ministry of Internal Affairs.



Stabsorganisation des ZKD

Figure 11 Organisation of the Central Disaster Management of the Ministry of Internal Affairs, Hamburg: Overall management is the responsibility of the State Councillor, who is advised by the head of the central disaster management unit. The four staff divisions 1 - 4 (situation, operation/population, press and public relations and services) are coordinated from there. The head is supported by a management assistant.

Source: https://www.hamburg.de/contentblob/104268/c7b87c1603af71835412577d0f902830/data/broschuere-katastrophenschutz.pdf

The Central Disaster Management Unit (ZKD in German):

- coordinates the Hamburg-wide measures of all participants,
- prepares decision bases and solution proposals for the head of disaster control,
- controls the orders placed and monitors their execution,
- makes additional resources accessible if required,
- maintains contact with the bodies involved and any neighbouring federal states (Lower Saxony and Schleswig-Holstein) that may be affected,"
- undertakes central press and public relations work
- initiates nationwide information provision, including the issue of warnings, e.g. through radio reports, the establishment of a personal information centre, and the operation of a public hotline.

In addition to the Ministry of Internal Affairs, other Ministries are involved, including those responsible for:

- Urban development / Building
- Environment
- Health
- Economics

The competent port authorities and the district authorities also perform special tasks both during operation and in the context of planning.

4.4.2. Specialist staff and regional disaster service staff

Specialist staff are formed at the competent authorities in the event of an emergency. They advise the ZKD on the following areas of responsibility:

- Dike construction and flood protection
- Operation of bridges, tunnels and roads
- Water and environmental protection
- Nuclear Technology

- Dangerous goods in producing, handling and storing companies
- Healthcare, Hospitals
- Supply and disposal
- Shipping and air traffic

The regional disaster service units formed at the district departments are responsible for all planning and measures relating to the population. They guarantee issue of regional warnings and information; and the accommodation, care and support of the population during evacuation.

4.4.3. Fire brigade and Police

The General Guideline for Civil Protection also regulates the distribution of tasks and responsibilities at the site of damage.

All defensive measures required at the site of the damage are directed or carried out by the fire brigade until the primary hazards (e.g. major fire, explosion hazard) have been eliminated.

The fire brigade provides the overall emergency response manager at the site of the damage. If necessary, representatives of the police and / or other specialists are added. In this way, the specialist knowledge required to deal with the damage situation is bundled on site.

The police take over the command of the operation in the vicinity of the place of damage. Here, they take on all tasks for the protection of the population and enable the forces working on the scene to work unhindered.

4.4.4. Force potential

With around 8,000 employees, the forces of the daily service of the fire brigade and police form the basis for effective emergency response in the Free and Hanseatic City of Hamburg.

These task forces are supported by experts from other disaster control authorities as well as by volunteers from voluntary fire brigades, aid organisations, the Federal Agency for Technical Relief, the Hamburg Dike Guard and the German Federal Armed Forces.

Up to 5,800 volunteers are available to the Hamburg Disaster Control Department when needed. The volunteers are an integral and indispensable part of Hamburg's disaster response and are integrated into existing planning accordingly.

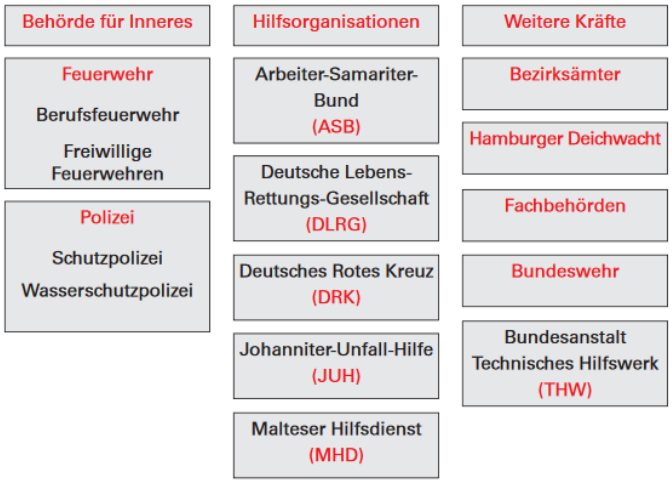


Figure 12 Overview of all parties which are involved into disaster risk management in Hamburg; Left column, order from the top: Ministry of Internal Affairs > Fire Brigades and volunteering Fire Brigades > Police subdivided into Security Police and Water Security Police; Column in the middle: different Aid Organisations; Right column, order from the top: Further Forces > District Offices > Dike Guardiancy > Ministries of the City state > German Armed Forces

Source: https://www.hamburg.de/contentblob/104268/c7b87c1603af71835412577d0f902830/data/broschuere-katastrophenschutz.pdf

4.4.5. Tasks of the emergency services on site

The diverse range of tasks of the emergency services includes: Dike defence; Warning and information of the population; Provision and operation of shelters, Support and care of the population; Registration; Information on persons; Health protection / Vaccinations; Rescuing people; Recovering objects; Technical damage control; Firefighting; Measuring and sensing; Decontamination; Traffic control and – guidance; Harbour pilotage and lockage; Investigation of causes[41].

4.4.6. Specific Disaster Scenario Planning

The Hamburg authorities have prepared themselves for the following possible scenarios and have drawn up guidelines that regulate the cooperation of all parties involved in an emergency:

- Storm surges;
- Oil spill;
- Emergencies in establishments whose facilities may pose hazards (e.g. refineries);
- Aircraft accident;

[41] Brochure on the organisation of disaster control in Hamburg, in German: https://www.hamburg.de/contentblob/104268/c7b87c1603af71835412577d0f902830/data/broschuere-katastrophenschutz.pdf page 4 - 9

- Railway accident;
- Genetic engineering;
- Toxic gas;
- Biohazards

Of course, existing plans for certain events cannot cover all conceivable dangers. They are therefore based on the risk potential defined for Hamburg and the probability of its occurrence. All measures to be initiated by the civil protection authorities in the event of a storm surge are planned in particular detail. Graduated according to expected possible water levels of the Elbe, the existing plans range from dike defence, traffic control and regulation to measures for warning and protection as well as evacuation, care and supply of the population if necessary.

For example, in the event of a very severe storm surge with a water level of 7.30 m above sea level, the deployment of more than 3,000 helpers and the evacuation of about 20,000 people is planned. This occurrence is unlikely, but cannot be ruled out.

4.4.7. General disaster planning

In addition to planning for specific disaster events, there are also guidelines that apply to all such events. The guidelines include preliminary planning for measures to be taken regardless of the type of loss event.

According to the Staff Directive, the disaster control authorities have each appointed a head of disaster control, set up disaster service staff according to uniform guidelines and defined their availability and reporting channels in dedicated alarm calendars. The evacuation and care guidelines include detailed planning to protect the population. They regulate the course of possible evacuations as well as the accommodation, care and support of evacuees in the district emergency shelters (usually schools). The pre-planning ensures that people in the affected area can be evacuated promptly if necessary. The Directive on the establishment and operation of a Person Information Office (PAST) defines its tasks and functions. All information on the whereabouts of people who have been evacuated, or are missing, injured or deceased, can be recorded in the system. The PAST receives enquiries about missing persons and provides information to their relatives. Overall, Hamburg has a comprehensive crisis management system that has proven its worth in numerous missions and exercises in recent years. It has been shown that the existing plans for concrete damage events meet the special requirements of the city state. The pre-planned procedures and the cooperation of all parties involved are optimally adapted to the existing structures.

Administration and politics cannot prevent the occurrence of a disaster. The authorities responsible in Hamburg are, however, optimally prepared for an emergency. They continually update their plans and adapt them to current requirements.[42]

[42] Brochure on the organisation of disaster control in Hamburg, in German; page 11f.

4.4.8. Informing the public

The storm surge information sheet of the Department of the Interior contains important information for the population in the Elbe tidal area.[43] A total of eight regional editions provide information on the correct behaviour in the event of a storm surge: for the areas Altona; Hamburg-Mitte; Innenstadt; HafenCity; Finkenwerder; Wilhelmsburg; Harburg, Süderelbe and harbour; Bergedorf and Vier- und Marschlande.

The information sheets are available from the district departments. With the exception of the regional editions for Altona and HafenCity, the leaflets are also available there in the following foreign language translations: Polish; Turkish; Serbo-Croatian; English; Russian.[44]

5. Governance framework for climate change adaptation

5.1. International

The international community recognised early on the need for adapting to the consequences of climate change: in the 1990s, under the UN Framework Convention on Climate Change (UNFCCC) the global community - Germany included - committed to initiate measures for adaptation to climate change.

Adaptation to climate change is a relevant topic at European level too, and has been integrated into the further development of the European Climate Change Programme. On 29 June 2007, the European Commission published the Green Paper "Adapting to Climate Change in Europe - options for EU action" (external PDF, 362 KB), which makes suggestions for first approaches to address the impacts of climate change. Following a comprehensive public consultation on the Green Paper, the European Commission has compiled proposals for joint action in a White Paper. The White Paper Adapting to climate change: Towards a European framework for action (external PDF, 79 KB), published on 6 April 2009, proposes laying the groundwork for a Europe-wide adaptation strategy in a first phase up to 2012, and implementing it as from the beginning of 2013.

The aim of the White Paper is to specify in a step-by-step process an adaptation strategy which will allow decision makers to react to the consequences of climate change in a timely manner all over Europe and to thus mitigate them.

[43] Brochure on the organisation of disaster control in Hamburg, in German: https://www.hamburg.de/contentblob/3425452/45daab7ca53950c90e21de9c8bc49400/data/sturmflut-download-sturmflutschutz.pdf

[44] Brochure on the organisation of disaster control in Hamburg, in German; page 16

The White Paper advocates action in four areas:

Creating a knowledge base. The focus is on gathering knowledge about the consequences of climate change and the costs and benefits of potential measures. For this purpose, a Clearing House Mechanism is envisaged which will provide structured access to information, data and examples from Member States and EU institutions. Another aim is to develop, by 2011, methods, models, data sets, prediction tools and indicators to monitor the consequences of climate change.

Integrating the aspect of adaptation into important policy areas of the EU, for example by means of appropriate infrastructural measures in coastal or marine areas and changes to agricultural and forestry practices.

Ensuring an effective implementation of the adaptation process by making use of market-oriented instruments and public-private partnerships.

Intensifying international cooperation of the adaptation process by making use of market-oriented instruments and public-private partnerships.[45]

5.2. National

In 2008 the German Federal Cabinet adopted the *German Strategy for Adaptation to Climate Change:* a national framework for adapting to the impacts of climate change[46]. The German Adaptation Strategy (DAS) aims to reduce vulnerability to climate change impacts, sustaining or enhancing the adaptive capacity of natural, societal and economic systems. In Germany, adaptation to climate change is a permanent task established along an agreed and politically-adopted institutional and methodological framework. Scientific research programmes, participation and consultation processes as well as the establishment of ongoing reporting systems are set up. On the national level, nearly all federal ministries are represented in the "Inter-ministerial Working Group on Adaptation to Climate Change" (IWG Adaptation), led by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. To coordinate adaptation activities with the federal states, the Conference of Environmental Ministers established in June 2009 a standing committee for adaptation to climate change impacts.

An Adaptation Action Plan (APA) has followed on from the DAS, and specifies how the Strategy will be implemented: i.e. current and future measures on the federal level to adapt to climate change, as well as links with other national processes. The implementation of the measures described in the APA is in the responsibility of the relevant ministries.

The APA is informed by a **climate impact and vulnerability analysis (KWVA)**, which identifies in which fields of action, which climate impacts exist and which regions are particular

[45] German Federal Ministry of the Environment: https://www.bmu.de/en/topics/climate-energy/climate/adaptation-to-climate-change/

[46] German Federal Ministry for the Environment: https://www.bmu.de/en/topics/climate-energy/climate/adaptation-to-climate-change/

affected, with a corresponding strong need for preventive action. The first KWVA was developed in 2015. An update is planned every 6 years. The Strategy and its implementation are evaluated every four years, according to a methodology adopted by the inter-ministerial working group on adaptation, and results in a monitoring report. The APA is updated every five years.[47] In 2015, the Federal Government of Germany adopted the first progress report of the DAS. This report gives an overview of the primarily federal activities since the adoption of the DAS in 2008 and the Adaptation Action Plan APA I (2011).

5.3. Regional and local

In July 2013, Hamburg adopted the first Action Plan on Adaptation to Climate Change in the Senate and brought it to the community's attention (Bürgerschafts-Drucksache 20/8492).

In 2015, a dedicated Climate Plan was published, bringing together both climate mitigation and climate adaptation measures.

A climate impact monitoring framework for Hamburg is being developed on an ongoing basis. It consists of indicators in three categories: state, impact and response. The first set of 'impact' indicators have been defined and the results are available online at https://www.hamburg.de/klimafolgen-monitoring/. Climate impact monitoring is being continuously expanded and is currently being supplemented by definition of the first 'response' indicators.

[47] Climate ADAPT, Sharing Adaptation Information Across Europe: https://climate-adapt.eea.europa.eu/countries-regions/countries/germany , country profile of Germany last updated Nov. 2019

In December 2019, an evaluated version of the 2015 Climate Plan was published and sets even higher requirements for a reduction of the CO2 emission until 2030 and 2050. As an extract of the climate plan reflects:

> *"Goals for reducing emissions were already adopted by the Hamburg Senate in the 2015 Climate Plan. This stated that Hamburg's CO2 emissions should be halved by 2030 in comparison with 1990 and reduced by at least 80 per cent by 2050.17 In light of the current findings of the Intergovernmental Panel on Climate Change, these goals must be developed further based on an appropriate contribution by Hamburg. The Senate takes its lead on this from the German Federal Government's national goals in order to achieve the 1.5 °C target. The Senate has therefore set the following new CO2 reduction targets for Hamburg:*

Time axis	CO2 reduction targets (with reference to the consumption account and the reference year 1990)	
	Previous target (2015 Climate Plan)	New target (2019 revision)
2030	50% CO2 reduction	55% CO2 reduction
2050	Minimum 80% CO2 reduction	Climate neutral i.e. min. 95% CO2 reduction

Table 4 New CO2 reduction targets for 2030 and 2050 in Hamburg.

> *To reach these ambitious targets is a task for the entire city and only possible for the Senate as a collaborative effort in a process involving all Hamburg's citizens. The methodology for implementing the transformation paths and their measures described in the annex will be elaborated in the following section. The calculations for the CO2 reduction targets in the sectors and transformation paths presented below show the reductions that it is currently possible to define. In some areas, reliable calculations on the CO2 savings to be achieved can only be made in the course of implementation and further development. In terms of the long-term nature of the measures, these predictions also contain uncertainties. Assuming that additional measures will be introduced at Federal Government level, and that additional innovative benefits will arise from technical progress, the implementation of further research results and the scaling of projects which so far have only been feasible as pilots, then the proposed measures will be enough to reach the stated reduction targets."*[48]

[48] First revision of the Hamburg Climate Plan; p. 14 (English version is attached) https://www.hamburg.de/contentblob/13899086/749a6e50662c96eee81d370f1b0cb631/data/d-first-revision-hamburg-climate-plan.pdf

Key messages regarding the Climate Plan include:

Since 1881, **temperatures** in the Hamburg metropolitan region have risen by about 1.4 degrees Celsius, of which about 1.2 degrees are attributable to the period after 1951. Depending on the success of global climate protection policy, by the end of the century (2071-2100) the temperature in Hamburg and northern Germany will have risen by a further one to five degrees Celsius compared with today (1961-1990).

The **amount of precipitation** has increased in Hamburg and northern Germany, especially in winter, and dry periods in spring now last longer than a few decades ago. For the future, significantly increased precipitation is expected, especially in the winter months. Heavy precipitation and rainy days may also increase.

So far, there is no evidence of systematically **stronger storms** throughout the year. Since the 1960s, a slight increase in storm frequency and intensity has been observed. In the long-term context (100 years), however, this is within the range of natural fluctuations.

In the **urban area of Hamburg,** it is on average about 0.1 degrees Celsius warmer than in the surrounding area, with local peaks of 1.2 degrees in the city centre. This urban effect is hardly changed by climate change. However, temperature limits are exceeded more quickly, so that hot days occur more frequently in the city than in the surrounding area. In addition, heavy precipitation can increase. This should be taken into account in future urban planning.

On the **German coasts**, the water surface temperature has risen in recent decades and the sea level has risen by 15 to 20 centimetres in the last century. The water on German coasts will continue to warm up in the future and sea levels may rise by a further 20 to 80 centimetres by 2100. As a result, slight storm surges may occur more frequently. In the Elbe, the consequences of climate change have so far been difficult to detect due to hydraulic engineering measures and natural dynamics.

In **terrestrial ecosystems** it is expected that beech will continue to be the predominant tree species in the North German forests. However, oak and spruce may become more prevalent if summer precipitation is significantly lower. In addition to climate change, the **aquatic ecosystems** are particularly affected by fishing.

Energy supply and climate change are interrelated. Currently, 82 percent of Hamburg's electricity is generated from fossil fuels. In response to climate change and in view of the Paris Climate Agreement, an expansion of renewable energies is to be expected. This would increase dependence on prevailing weather conditions (duration of sunshine, wind strengths, cloud formation, swell). These can change as a result of climate change, which in turn has an impact on energy production. Power plants on rivers can be affected by low water levels and high water temperatures.

In Hamburg, **drinking water** is obtained exclusively from groundwater. During prolonged periods of drought, the groundwater level can drop. It then becomes more difficult to obtain drinking water. In addition, heavy precipitation can impair water quality. Drainage systems should be geared to higher precipitation levels in future.

Hamburg's **sustainability policy** with a 20-year history offers approaches to link climate change and sustainable development. These can be further developed on the basis of scientific proposals.[49]

Among four 'transformation paths' there is a path on climate adaptation with a particular focus on *RegenInfraStrukturAnpassung* (Rain InfraStructure Adaptation or RISA), and a table of corresponding measures in the following areas :

- Planning instruments: water plan and water management support plan
- Comprehensive implementation of tried and tested RISA measures
- Storm surge protection
- Inland flood protection
- Operational capability / disposal capacity of wastewater removal
- Security of supply in the drinking water supply
- Security of supply in the energy infrastructure
- Civil protection: disaster reduction and disaster management
- Green networking (with a focus on heat island prevention and the promotion of natural water cycles)
- Roof and façade greening
- Trees in the city
- Building-related measures
- New functions for public services

5.3.1. Responsibilities

The Ministry for Environment and Energy with its Centre for Climate Issues was charged by the Senate to assume a coordinating and controlling function over all ministries. This includes the compilation and evaluation of measures and financial controlling, and climate impact and CO2 monitoring. The progress of the measures, details of funding and any CO2 reduction achieved are reported annually. Reports with detailed information are required for measures which have been funded from the central programme of the Hamburg Climate Plan.[50]

[49] Source of the Key Messages in German: https://link.springer.com/book/10.1007/978-3-662-55379-4
[50] First revision of the Hamburg Climate Plan; p. 12

5.3.2. Flood risk in Hamburg

Inhabitants of Hamburg are aware of flooding, especially during the period from September – April. But Hamburg is also confronted with storm surges – or rather storm tides – which cause substantial damage. Flooding turns into a storm tide in Hamburg when the level St. Pauli exceeds 3.40 metres above normal zero (NN). A level from 4.50 metres above NN upward is known as a heavy storm tide, and from 5.50 metres above NN, as a very heavy storm tide. Approximately 109,000 households and businesses belong to the areas of Hamburg affected by flooding. In the hanseatic city belongs disaster risk management to the tasks of all ministries and departments. A special position holds nevertheless the ministry of internal affairs and sport. In case of catastrophes, this ministry is responsible for any coordination of all defence measures.[51]

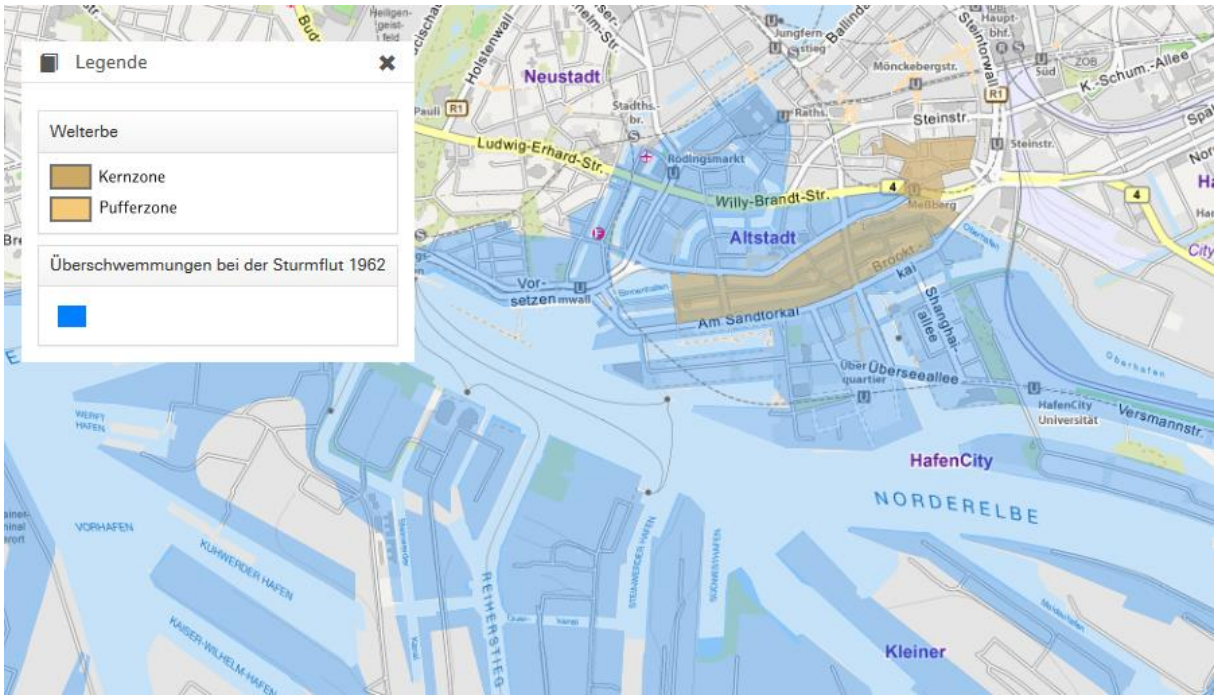


Figure 13 Storm flood from 1962 and its impact on the City of Hamburg and WHS with warehouse district (here marked in beige colour). https://geoportal-hamburg.de/Geoportal/geo-online/#

A storm tide from 1962 did not only shape personal fates of many people, but also marks a turning point concerning the flood water protection of Hamburg. Because of the catastrophe, the topic became an issue of high priority for the city: many new structures were implemented and long-term running programmes were set up. Up to that night of February 16, 1962, inhabitants felt save behind the dykes: the last extreme storm tide was 107 years ago. Since then no damage occurred by storm surges. This deceptive security led that far, that the dykes were not maintained properly and in a bad shape 1962. Moreover, it became usual, that existing buildings got the priority to be preserved instead of erecting or enhancing the dyke. For some parts on the dykes themselves, buildings were erected or used as farming land.

[51] Source: https://www.hamburg.de/sturmflut-1962/4357752/hochwasserschutz/

The storm tide catastrophe from 1962 led to a massive investment and reorganisation of high water protection in Hamburg. All tasks concerning the public high water protection took the city over completely. During the past 50 years Hamburg worked almost constantly on the reinforcement of the public high water protective systems. Thanks to these efforts the threat from storm tides is as little as never before in the history of the city. Since the year 1962 there were eight more storm tides with peak water levels higher than the one of February 16, that year. Yet no serious damage occurred at the main dyke line. Therefore, Hamburg has nowadays an effective protection against flooding events of all kinds. The public-owned flood protection line with a length of 103 km and many buildings forms the backbone of flood protection of Hamburg.

After a building period of more than 25 years the “building program flood protection for a measured water level of NN+ 7,30 metres at the level St. Pauli” was finished in 2018: the high water protective line was enhanced after new measured water levels were determined in 1991. A long building period like this describes how intensive and permanent the task is for Hamburg. Climate change and the expected sea level raise will keep the challenges high and make it a permanent job for the city for the future. This future task becomes even more important as city development makes progress in inner city close and lower areas. With projects like HafenCity and “Jump across the river Elbe” residential areas get into the focus of the department for city planning, which have to be protected constantly against consequences of climate change.[52]

5.3.3. Flood risk management – spatial mapping

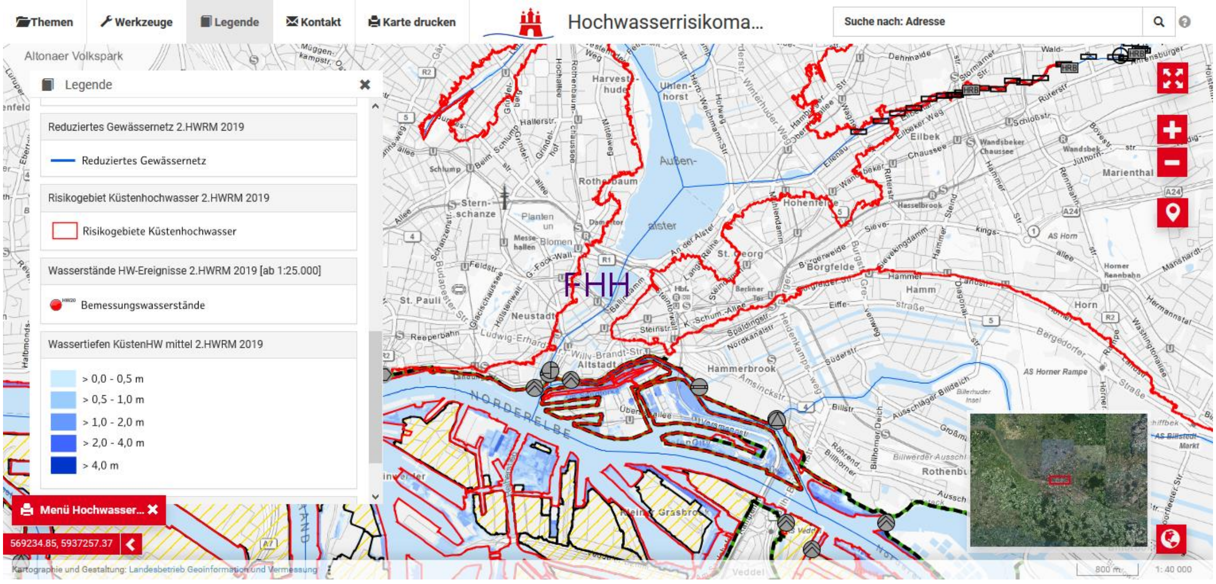


Figure 14 Example scenario that shows the effect of middle heavy coastal flooding on the inner city.

[52] Source: https://www.hamburg.de/sturmflut-1962/4357752/hochwasserschutz/

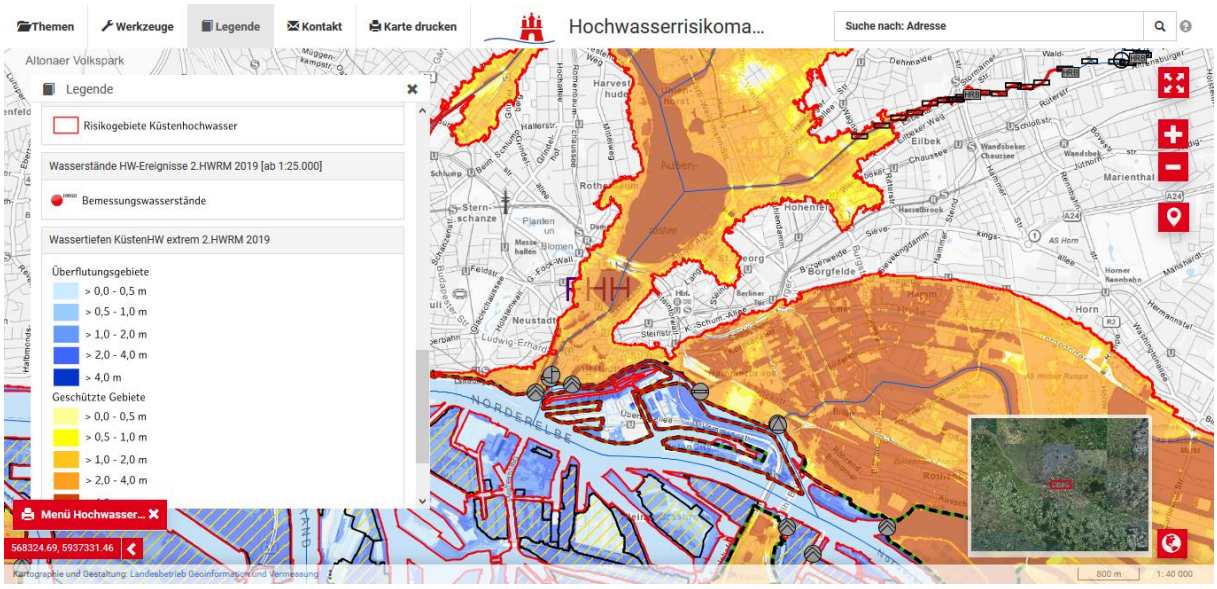


Figure 15 Example scenario that shows the effect of extreme coastal flooding on the inner city.

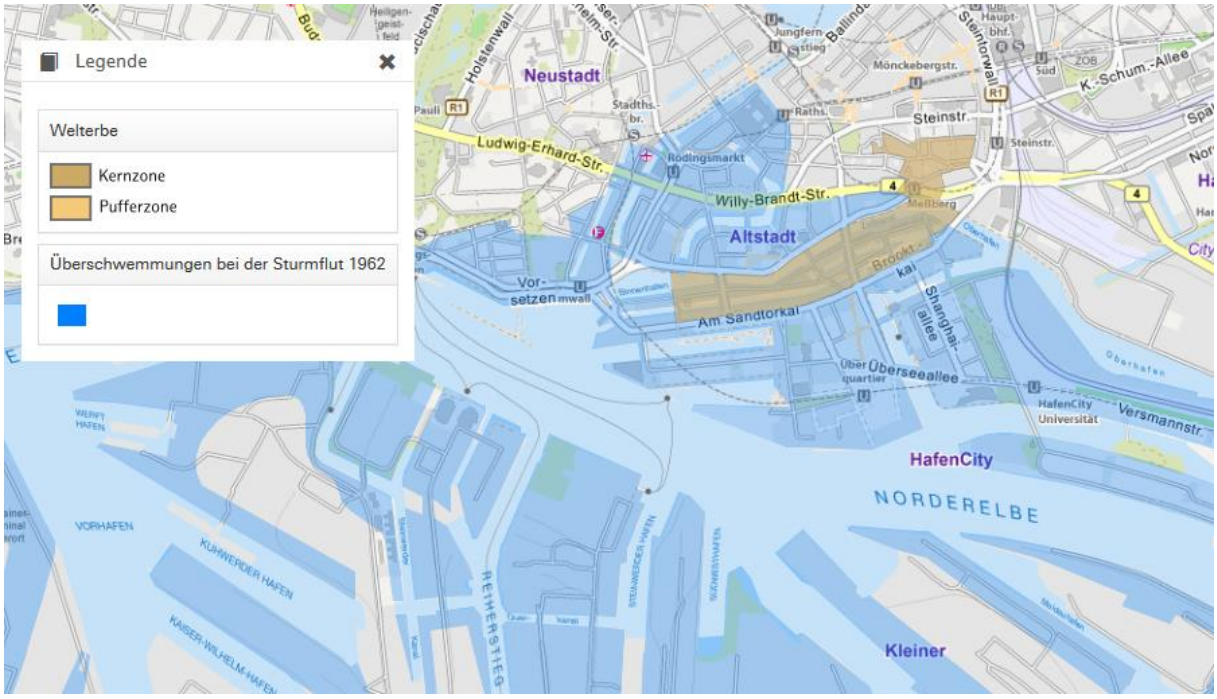


Figure 16 Storm flood from 1962 and its impact on the City of Hamburg and WHS with warehouse district (here marked in beige colour). All maps, if not otherwise indicated, come from: https://geoportal-hamburg.de/Geoportal/geo-online/#

Scenarios like the examples above can be created and modified individually at https://geoportal-hamburg.de/hochwasserrisikomanagement/# which is based on recent scientific models (2019) and launched in January 2020. These hazard maps describe the impact of flooding events in its expansion throughout the city and the occurring depth of water. The risk maps display in which way the affected areas are normally in use, where industrial businesses and protected goods (Schutzgüter) are located as well as the number of potentially affected inhabitants. Both maps display moreover the built flood protection systems (e.g. dykes, private owned polder and flood protection walls) and their effect. For detailed

background information about this online map portal see the PDF (German only) which can be downloaded here (https://www.hamburg.de/gefahren-risiko-karten/).

Furthermore, to raise more awareness among tourists and inhabitants a simulation program has been developed. People standing or sitting on the newly-built dyke at Baumwall can use the program on their mobile devices and better appreciate the impact of flooding water events directly at that site. (https://moinzukunft.smartvr.de/smartvr.html)

5.4. Gaps and needs

In the context of Hamburg's governance framework for climate adaptation, the need to protect cultural heritage from climate change impacts is not adequately recognised, either by ministries or by scientific institutes that deal with one or the other topic mainly.

A comparable conclusion can be read in the latest conference publication of Fraunhofer IWM:

"However, in-depth interdisciplinary and transdisciplinary research on how to adapt [cultural heritage] to climate change on local, regional, national and European levels continues to be lacking." [53]

This issue is not unique to Hamburg, but reflects a broader situation at other levels of governance and also in other European cities. Nevertheless, it has to be stated that cultural heritage preservation is neither mentioned as topic nor as a challenge for the future within the revised Hamburg Climate Plan from 2019. Clearly there is potential for cultural heritage sites to receive greater attention in terms of the City's specific plans to adapt to climate change.

[53] "However, in-depth interdisciplinary and transdisciplinary research on how to adapt [cultural heritage] to climate change on local, regional, national and European levels continues to be lacking." Editorial; Fraunhofer IMW: Cultural Heritage in Crisis – Cultural Heritage Research at European Level – Challenges in Times of Climate Change and Digitalization; April 2020, p.6; online accessible: https://www.imw.fraunhofer.de/content/dam/moez/de/documents/innovationsakzeptanz/Konferenzband_Villa_Vigoni_2020.pdf#page=14

6. Expected impacts of climate change and environmental hazards

The purpose of this section is to report and review the preliminary collection of relevant information about hazards, exposed elements, as well as impacts provided by ARCH city partners in collaboration with their local research partners, in order to offer an initial overview on the risks that might affect the selected historic areas and their communities. This section is structured as follows: a description of the methodology is provided, followed by a Risk Profile Table, outlining hazards, exposed elements, impacts, and corresponding resilience-building measures already planned or implemented to date. Next follows a review, interpretation, and validation of the information provided in the Risk Profile Table. Finally, an outlook is provided concerning further risk analysis work in the context of the ARCH project.

6.1. Methodology

In order to elicit relevant information for risk analyses from city partners, ENEA, Fraunhofer, ICLEI, and Tecnalia developed a Risk Profile Table template (see Part 6.2 below) based on the central risk components identified in the 5th Assessment Report of the Intergovernmental Panel on Climate Change[54]: hazards, exposed elements, impacts (physical, societal, functional, economic, and intangible), as well as corresponding resilience-building measures already planned or implemented to date. This template was filled out by city partners and provides a starting point from which to conduct more detailed risk analyses. Furthermore, it allows to provide a useful starting point for the data, models, methods, and tools to be developed during the project.

The information provided in the Risk Profile Table was reviewed and harmonised by ENEA in order to provide a comparable description across all city cases and ensure relevance to (and validity for) similar on-going and/or future initiatives and projects in the field of disaster risk reduction, climate change adaptation, and cultural heritage preservation.

The following standards, reference material, and tools were identified as most suitable for this exercise:

- The C40–city Climate Hazard Taxonomy for classification of hazards[55];
- The UNDRR QRE Tool[56] and ISO standard 37120[57] for the classification of exposed elements and impacts; and

[54] C40 Cities and Arup, “City climate hazard taxonomy,” 2015, [Online]. Available: http://www.c40.org/researches/city-climate-hazard-taxonomy
[55] C40 Cities and Arup, “City climate hazard taxonomy,” 2015, [Online]. Available: http://www.c40.org/researches/city-climate-hazard-taxonomy
[56] UNDRR, “Quick Risk Estimation (QRE) Tool.” https://www.unisdr.org/campaign/resilientcities/toolkit/article/quick-risk-estimation-qre (accessed Jul. 20, 2020)
[57] ISO, “ISO 37120:2018 - Sustainable cities and communities — Indicators for city services and quality of life.” 2018, Accessed: Jul. 20, 2020. [Online]. Available: https://www.iso.org/standard/68498.html

- The ICOMOS CCHWG classification[58] and INSPIRE directive[59] [6] for the classification of heritage assets;

Based on the harmonised information, initial proposals for risk analysis focus actions (e.g. which methods and tools to apply for which part/issue of a historic area) were formulated by ENEA. The initial proposals will be further defined during the co-creation process and in exchange with the relevant local stakeholders.

[58] Climate Change and Cultural Heritage Working Group International Council on Monuments and Sites, "The Future of our Pasts: Engaging cultural heritage in climate action," I*nternational Counc. Monum. Sites*, pp. 1–96, 2019, [Online]. Available: https://indd.adobe.com/view/a9a551e3-3b23-4127-99fd-a7a80d91a29e

[59] INSPIRE Thematic Working Group Building, "Infrastructure for Spatial Information in Europe D2 . 8 . I . 2 Data Specification on Geographical Grid Systems – Technical Guidelines," 2011

6.2. Risk profile table

Heritage site (historic area)	**Hazard**[60]	**Exposed element** [61] (e.g. buildings, people, intangible or tangible cultural heritage, road network, natural environment)	**Impacts** (Describe all impacts in the relevant category)					**Corresponding resilience-building measure undertaken** (planned or implemented. This may be a specific measure planned to address a specific hazard, e.g. construction of a flood protection barrier, or a general one that indirectly addresses the hazard, e.g. greening of paved surfaces)	**Notes/Evidence** (including source of the information e.g. historical data on previous hazardous events related to the damages and impacts caused, climate projections, risk assessment.)
			Physical	Societal	Functional	Economic	Intangible	Description **(please indicate specific S or general G)**	
Speicherstadt	Tidal changes / prolonged low water	Tangible cultural heritage / Quay walls	Damage to wooden poles at the base of the buildings due to intrusion of wood destroying fungi; associated damage to buildings			Loss of tourism revenue and loss of business income due to damaged premises	Loss of cultural heritage value resulting from physical damage	S: Restoration of the wooden poles, barrages	Prolonged low water might result in (part of) the poles not being saturated with water anymore, which might result in built-up of wood destroying fungi. →This needs more examination.
Speicherstadt	Flooding	Tangible cultural heritage / Buildings (storehouses)	Damage to buildings;			Loss of tourism revenue and loss of business income due to damaged premises	Loss of cultural heritage value resulting from physical damage	S/G: Early warning system, disaster risk management plan for flooding,	
Speicherstadt	Flooding	Transport network	Damage to infrastructure	Loss of access to workplace or public space for leisure	Disruption of transport services	Loss of salary due to inability to work			
Speicherstadt	Flooding	Electricity network	Damage to infrastructure	Loss of use of workplace	Disruption of electricity services	Loss of business income			No emergency electricity system in Speicherstadt
Speicherstadt	Flooding	Communications network	Damage to infrastructure as a cascading effect of damage to electricity system						

[60] Note: the UN Office for Disaster Risk Reduction (UNDRR)'s Resilience Scorecard defines 'hazard' as 'a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation'. Of these, the ARCH project is addressing natural and climatic hazards.

[61] Note: the UN Office for Disaster Risk Reduction's Resilience Scorecard defines 'exposure' as 'the situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas'.

Heritage site (historic area)	**Hazard**[60]	**Exposed element** [61] (e.g. buildings, people, intangible or tangible cultural heritage, road network, natural environment)	**Impacts** (Describe all impacts in the relevant category)					**Corresponding resilience-building measure undertaken** (planned or implemented. This may be a specific measure planned to address a specific hazard, e.g. construction of a flood protection barrier, or a general one that indirectly addresses the hazard, e.g. greening of paved surfaces)	**Notes/Evidence** (including source of the information e.g. historical data on previous hazardous events related to the damages and impacts caused, climate projections, risk assessment.)
			Physical	Societal	Functional	Economic	Intangible	Description **(please indicate specific S or general G)**	
Speicherstadt	Flooding	People		Injuries and/or death Health impacts due to interior mould growth Loss of livelihood (if materials/equipment/goods destroyed)		Loss of business income due to higher number of employees not able to work		S/G: Early warning system, disaster risk management plan for flooding,	
Speicherstadt	Storm surge	Tangible cultural heritage / Buildings	Damage to buildings;			Loss of tourism revenue and loss of business income due to damaged premises	Loss of cultural heritage value resulting from physical damage	S/G: Early warning system, disaster risk management plan for flooding,	No emergency electricity system in Speicherstadt
Speicherstadt	Storm surge	Transport network	Damage to infrastructure		Disruption of transport services				
Speicherstadt	Flooding	Electricity network	Damage to infrastructure		Disruption of electricity services				No emergency electricity system in Speicherstadt
Speicherstadt	Flooding	Communications network	Damage to infrastructure as a cascading effect of damage to electricity system						Communication emergency network in place
Speicherstadt	Storm surge	People		Injuries and/or death				S/G: Early warning system, disaster risk management plan for flooding,	
Speicherstadt	Sea level rise	Tangible cultural heritage / Buildings	Damage to buildings; Damage to critical infrastructure (e.g. electricity system)			Loss of tourism revenue and loss of business income due to damaged premises	Loss of cultural heritage value resulting from physical damage	S/G: Early warning system, disaster risk management plan for flooding,	For this instance, a long term solution with a barrage system is in planning (see Entwicklungskonzept Speicherstadt and Management Plan)
Speicherstadt	Extreme temperatures	Tangible cultural heritage / Copper roofs of the buildings	Damage to materials due to extreme heating						Question: Do copper roofs have an intensifying effect for heatwaves?

Heritage site (historic area)	**Hazard**[60]	**Exposed element** [61] (e.g. buildings, people, intangible or tangible cultural heritage, road network, natural environment)	**Impacts** (Describe all impacts in the relevant category)					**Corresponding resilience-building measure undertaken** (planned or implemented. This may be a specific measure planned to address a specific hazard, e.g. construction of a flood protection barrier, or a general one that indirectly addresses the hazard, e.g. greening of paved surfaces)	**Notes/Evidence** (including source of the information e.g. historical data on previous hazardous events related to the damages and impacts caused, climate projections, risk assessment.)
			Physical	Societal	Functional	Economic	Intangible	Description **(please indicate specific S or general G)**	
Speicherstadt	Extreme temperatures	People		public spaces become hostile and abandoned		public spaces become hostile and abandoned	public spaces become hostile and abandoned		
Kontorhaus district	Flooding	Tangible cultural heritage / Buildings	Damage to buildings; Damage to critical infrastructure (e.g. electricity system)			Loss of tourism revenue and loss of business income due to damaged premises	Loss of cultural heritage value resulting from physical damage	S/G: Early warning system, disaster risk management plan for flooding,	
Kontorhaus district	Flooding	Transport infrastructure	Damage to infrastructure		Disruption of transport services			S/G: Early warning system, disaster risk management plan for flooding,	
Kontorhaus district	Flooding	People		Injuries and/or death				S/G: Early warning system, disaster risk management plan for flooding,	
Kontorhaus district	Storm surge	Tangible cultural heritage / Buildings	Damage to buildings; Damage to critical infrastructure (e.g. electricity system)			Loss of tourism revenue and loss of business income due to damaged premises	Loss of cultural heritage value resulting from physical damage	S/G: Early warning system, disaster risk management plan for flooding,	
Kontorhaus district	Storm surge	Transport infrastructure	Damage to infrastructure		Disruption of transport services			S/G: Early warning system, disaster risk management plan for flooding,	
Kontorhaus district	Storm surge	People		Injuries and/or death				S/G: Early warning system, disaster risk management plan for flooding,	
Kontorhaus district	Extreme temperatures	People		public spaces become hostile and abandoned		public spaces become hostile and abandoned	public spaces become hostile and abandoned		

6.3. Preliminary classification of hazards, exposed elements and impacts

The purpose of this section is to review, interpret, validate, and harmonize the information provided in the Risk Profile Table as a sound basis for the project to address Hamburg's risks for the two historical districts that will be examined, i.e. Speicherstadt and Kontorhaus district. This screening covers:

a) hazards,

b) elements exposed to those hazards, and

c) impacts that the identified hazards might cause on the exposed elements.

A related purpose is to identify possible data gaps, and proposals for focus project actions in the context of the city case.

6.3.1. Hazards

The different hazard types recognised in the Risk Profile Table are classified in Table 5 according to the *C40 City Climate Hazard Taxonomy* that identifies 6 main hazard categories and breaks them down further into hazard types, and hazard sub-types.

Different hazards identified for Kontorhausviertel, i.e. extreme temperature, extreme precipitations and storm surges, are grouped under the meteorological category in Table 5 while flooding under the hydrological one; the same hazards are a concern for the Speicherstadt, and further than these, sea level rise and tidal changes are recognised as possible hazards and have been identified in Table 2 under the Climatological category.

Hazard categories	Hazard Types	Hazard sub-type
Meteorological	Extreme precipitation	Heavy rain
	Storm surges	Convective storms, rainstorm
	Extreme hot	Heatwave, drought
Climatological	Sea-level rise	Sea flooding, saline intrusion,
Hydrological	Flooding	coastal flood and flash floods
Biological	Pests and plagues	Bacteria, fungi

Table 5 Hazard categories, types identified for Speicherstadt and Kontorhaus district.

During the Hamburg meeting the bacteria attack to the timber-pile foundations, oak logs, of the Speicherstadt buildings (Figure 17), possibly worsened by the sudden and frequent tidal changes and/or by the polluted water of the channels (due to the numerous tourist boats) was mentioned as a possible concern. To reflect that Table 5 includes also the biological hazard category.

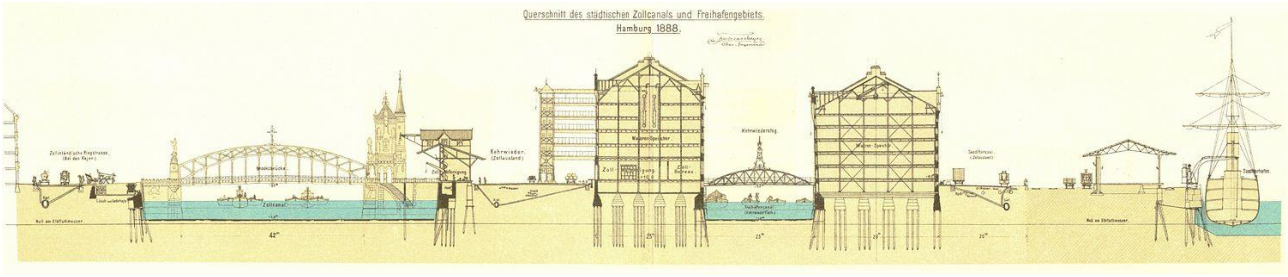


Figure 17 A cross-section view of the Speicherstadt from 1888 (source Wikipedia)

6.3.2. Exposed Elements

The elements exposed to the aforementioned hazards, identified within the Risk Profile Table for Speicherstadt and Kontorhausviertel have been reorganised in Table 6, according to the following categories:

- *Natural Environment*
- *Built Environment: critical Infrastructures and Buildings;*
- *Cultural heritage;*
- *Services (essential or basics and productive);*
- *Human and social aspects.*

In Table 6, the cultural heritage category subsumes all exposed elements that are in themselves heritage, i.e. exposed elements declared as heritage are only categories as such and not as any of the other.

Exposed Element Categories	Exposed Element Types
Natural Environment	Ecosystem
Built Environment	Buildings
	Road, railroad and other transport infrastructures (loading canals (German: *Fleete*).
	Electricity network
	Communications network
Cultural Heritage	Tangible and Intangible elements (see Table 4)
Services, essential and productive	Warehouses
	Offices
	Museums
	Touristic services (Boats and Launcher [Barge])
Human and Social Aspects	External people (e.g. tourists,)
	Local people

Table 6 Exposed elements identified for both Speicherstadt and Kontorhausviertel

Table 7 reports in further detail the exposed elements categorised as cultural heritage. Here, reference has been made to the six categories identified by the ICOMOS Climate Change and Cultural Heritage Working Group, CCHWG (2019). For Speicherstadt and Kontorhausviertel, four out of the six CCHWG categories are of particular relevance, i.e.: **Archaeological resources**, **Building and Structures, Cultural Landscapes and Intangible Heritage**. These cultural heritage categories have been broken down further into cultural heritage types (i.e.

Archaeological heritage and Associated and Traditional Communities) to provide a more detailed picture.

Exposed Cultural Heritage Categories	**Exposed Cultural Heritage Types**
Archaeological resources	archaeological materials (e.g. lifting tools for the warehouses)
	archaeological sites
	archaeological monuments (archaeological industry, archaeological electric power plant)
Buildings and structures	buildings, quay walls, warehouses, canals,
Cultural landscapes	combined works of nature and humankind
Intangible heritage	knowledge and skills to produce traditional crafts
	social practices
	cultural heritage value
	performing arts
	festive events
	knowledge and practices concerning nature and universe

Table 7 Categories and sub-categories of the cultural heritage exposed elements identified for Speicherstadt and Kontorhausviertel.

6.3.3. Impacts

Table 8 reports, in a succinct way, the different impacts identified for Speicherstadt and Kontorhausviertel under the five categories of impacts, included in the Risk Profile Table for the different exposed elements categorised according to the classification reported in Table 6.

		Impacts				
Exposed Elements		***Physical***	***Functional***	***Societal***	***Economic***	***Intangible***
Natural Environment	Ecosystem	Increase in existing pests /diseases. Costal Erosion. Physical damage to banks and quay walls. Evapotranspiration & eutrophication of canal water				
Built Environment	Buildings	Physical Damage			Direct Economic loss due to physical damage	
	Road, railroad, canal	Physical Damage	Loss/ disruption of service	Loss of access to key services		
	Electricity and communication network	Physical Damage	Loss/ Disruption of service	Loss of access to key services		
Cultural Heritage	Tangible and Intangible elements	Physical Damage	Loss/ Disruption of service	Loss of access to culture	Direct Economic loss due to physical damage and LoR* from Tourism sector	Loss of cultural heritage values
Services, essential and productive	Offices and Warehouses	Physical Damage	Loss/ Disruption of service	Loss of access to services	Direct economic loss & LoR*	
	Museums	Physical Damage	Loss/ Disruption of service	Loss of access to services	Tourism Sector: direct economic loss & LoR	Loss of traditional attraction
	Boats & Jetties	Physical Damage	Loss/ Disruption of service		Tourism Sector: direct economic loss & LoR	Loss of Traditional leisure activity
	Warehouse Equipment	Damage to Traditional lifting equipment				Loss of Traditional lifting practices and values
Human and Social Aspects	External	Illness (e.g. heatstroke), injury and mortality		Loss of Tourism	LoR from tourism sector	
	Local	Illness (e.g. heatstroke), injury and mortality		Loss of Jobs	Impact on Local Economy	

Table 8 Physical, Functional, Societal, Economic and Intangible impacts identified for the different exposed elements in the Speicherstadt and Kontorhausviertel.

Risk analyses, implemented with different methods and levels of complexity (depending on the available data, knowledge, time, and personnel) will be needed to quantify the likelihood, level and extent of the expected impacts, as briefly indicated in the following section.

6.4. Outlook and implications for further risk analyses within ARCH

Based on the information provided in the Risk Profile Table and building on the joint meetings between Hamburg and the research partners, ARCH work for Hamburg is envisaged to be conducted at different levels of analysis (Table 9).

Study Areas/Buildings	Possible Analysis	Possible Tools
Municipality Scale	Impact Chain Analysis to assess interrelation and interdependencies between Speicherstadt and Kontorhaus districts and the surroundings (both natural and built environment)	IVAVIA impact chain creator (Adapted for ARCH) ARCH DSS (i.e. CIPCast)
Speicherstadt and Kontorhaus district.	Scenario simulations Damage identified in the buildings of Speicherstadt and Kontorhaus district may be caused by geological problems, due to: Geological and anthropic subsidence Burial of the canals (that are however continuously dredged to allow for the circulation touristic boats and jetties.	ARCH DSS Satellite Images and and/or survey supported by drones
Prototypical Building Scale - identified within Speicherstadt and Kontorhaus districts	Continuous data collection integration and processing from sensors and images acquired from drones or laser scanner	Sensors Survey supported by drones Photogrammetry laser scanner and/or survey supported by drones
Two buildings of interest – (one for Speicherstadt and one for Kontorhaus district)	3D Building model with identified damage pattern and dynamic monitoring of damage Finite element analysis of the buildings to support retrofitting interventions	Sensors installation of low-cost and traditional structural health monitoring sensors (e.g. MEMS, optic fibre and accelerometers) ; Chemical and mechanical characterisation of constructive materials; 3D models

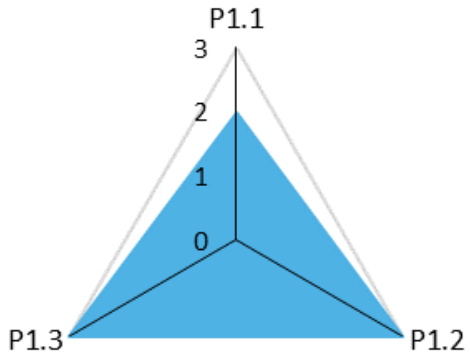
Table 9 Possible analysis and possible tools to be implemented for ARCH work in Hamburg City

Table 9 provides initial ideas of possible examples of the work that can be undertaken in Hamburg as part of ARCH project. What proposed in Table 6 will need, of course, to be discussed and agreed with Hamburg City and ARCH research partners; it is also strictly influenced by data availability.

7. Preliminary assessment of the resilience of historic areas selected for the local activities in Hamburg

The following resilience assessment was developed using the preliminary version of the UNDRR Disaster Resilience Scorecard for Cities[62]. The preliminary assessment was conducted during a webinar between the municipality of Hamburg, ICLEI, and Fraunhofer on February 11, 2020. As the original Scorecard is aimed at city-level, not all questions were immediately applicable on the level of historic areas or single heritage assets. Wherever possible, answers were provided for the historic areas under examination (e.g. with regard to hazard scenarios). For all other questions, answers were provided on city-level (e.g. with regard to city masterplans). The results give a first indication of the overall resilience of the city with some – but not exclusive – focus on the historic areas examined by ARCH. In addition, the application of the Scorecard will be used as input for the development of the ARCH Resilience Assessment Framework specifically focused on historic areas. Lastly, the preliminary resilience assessment results presented in the baseline reports should not be employed to develop resilience action plans, as not all necessary stakeholder groups were involved in the assessment process.

7.1. Essential 01: Organize for resilience



P1.1	Does the City master plan (or relevant strategy/plan) adopt the Sendai Framework?	2
P1.2	Is there a multi-agency/sectoral mechanism with appropriate authority and resources to address disaster risk reduction?	3
P1.3	Is resilience properly integrated with other key city functions / portfolios?	3

Figure 18: Results for Essential 01.

Regarding Essential 01, Hamburg achieves a resilience score of 8/9. The city has a stand-alone disaster risk reduction plan complying with national strategies and laws (score of 2 for P1.1). The city also has a well-established multi-agency mechanism to address disaster risk reduction. Specifically, the Ministry of Interior and Sports is responsible for coordinating all disaster risk reduction measures and is authorised to issue instructions to all other Hamburg

[62] UNDRR, "Disaster Resilience Scorecard for Cities." https://www.unisdr.org/campaign/resilientcities/toolkit/article/disaster-resilience-scorecard-for-cities (accessed Jun. 19, 2020)

authorities in case of an emergency (score of 3 for P1.2). Lastly, although no information is publicly available, the city includes resilience (semi-) explicitly in all the decision-making processes (score of 3 for P1.3).

7.2. Essential 02: Identify, understand and use current and future risk scenarios

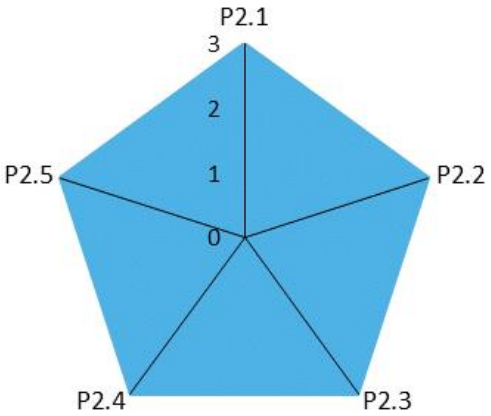


Figure 19: Results for Essential 02.

P2.1	Does the city have knowledge of the key hazards that the city faces, and their likelihood of occurrence?	3
P2.2	Is there a shared understanding of risks between the city and various utility providers and other regional and national agencies that have a role in managing infrastructure such as power, water, roads and trains, of the points of stress on the system and city scale risks?	3
P2.3	Are their agreed scenarios setting out city-wide exposure and vulnerability from each hazard, or groups of hazards (see above)?	3
P2.4	Is there a collective understanding of potentially cascading failures between different city and infrastructure systems, under different scenarios?	3
P2.5	Do clear hazard maps and data on risk exist? Are these regularly updated?	3

For Essential 02, Hamburg achieves the maximum resilience score of 15/15. The city understands its main hazards, and updates related information regularly (score of 3 for P2.1). There is also a shared understanding of risks between the city and its utility providers, although information on this process is not publicly available (score of 3 for P2.2). Related to P2.1, the city also maintains a set of agreed disaster scenarios (score of 3 for P2.3) and understands the resulting cascading effects (score of 3 for P2.4). Lastly, the city has detailed hazard maps and data for the most relevant hazards and updates them regularly (score of 3 for P2.5).

7.3. Essential 03: Strengthen financial capacity for resilience

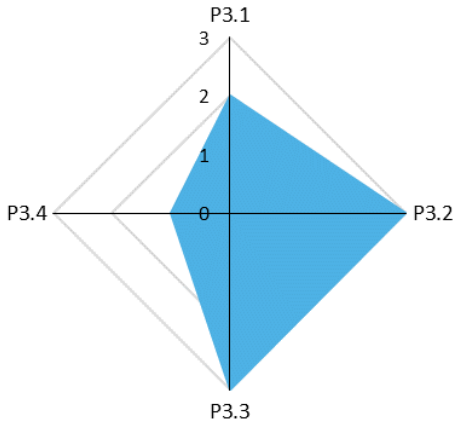
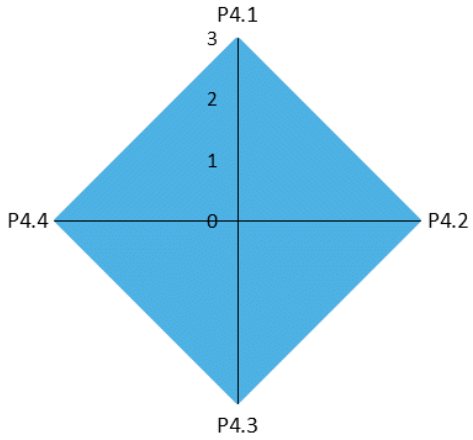


Figure 20: Results for Essential 03.

P3.1	The city / lead agencies understand all sources of funding, and the "resilience dividends", are well connected, understand all available routes to attract external funding and are actively pursuing funds for major resilience investments.	2
P3.2	Does the city have in place a specific 'ring fenced' (protected) budget, the necessary resources and contingency fund arrangements for local disaster risk reduction (mitigation, prevention, response and recovery)?	3
P3.3	What level of insurance cover exists in the city, across all sectors – business and community?	3
P3.4	What incentives exist for different sectors and segments of business and society to support resilience building?	1

For Essential 03, Hamburg achieves a resilience score of 9/12. The city is aware of different funding streams for Disaster Risk Management (DRM); these are organised by the Ministry of the Interior and Sports (score of 2 for P3.1). In addition, the city's financial plan has a specific section for DRM that describes in detail, which resources are to be used for which DRM area (score of 3 for P3.2). Insurance coverage in the Speicherstadt is high across all sectors, because the Hamburger Hafen und Logistik AG, as owner of the warehouse district, requires insurance coverage as part of its rent contracts (score of 3 for P3.3). Lastly, as the information about resilience incentives is limited, it is assumed that only some incentives exist (score of 1 for P3.4).

7.4. Essential 04: Pursue resilient urban development

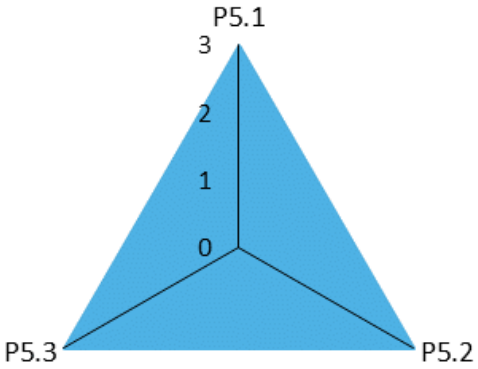


P4.1	Is the city appropriately zoned considering, for example, the impact from key risk scenarios on economic activity, agricultural production, and population centres?	3
P4.2	Are approaches promoted through the design and development of new urban development to promote resilience?	3
P4.3	Do building codes or standards exist, and do they address specific known hazards and risks for the city? Are these standards regularly updated?	3
P4.4	Are zoning rules, building codes and standards widely applied, properly enforced and verified?	3

Figure 21: Results for Essential 04.

Regarding Essential 04, Hamburg achieves the maximum resilience score of 12/12. The city is zoned according to existing risk maps and this zoning plan is updated regularly (score of 3 for P4.1). In addition, there exists a clear development plan for the Speicherstadt and the Office for City Development is developing city-wide plans (score of 3 for P4.2). Lastly, there exist strict local codes and standards (score of 3 for P4.3), which are always enforced (score of 3 for P4.4).

7.5. Essential 05: Safeguard natural buffers to enhance the protective functions offered by natural ecosystems



P5.1	Beyond just an awareness of the natural assets, does the city understand the functions (or services) that this natural capital provides for the city?	3
P5.2	Is green and blue infrastructure being promoted on major urban development and infrastructure projects through policy?	3
P5.3	Is the city aware of ecosystem services being provided to the city from natural capital beyond its administrative borders? Are agreements in place with neighbouring administrations to support the protection and management of these assets?	3

Figure 22: Results for Essential 05.

For Essential 05, Hamburg reaches the maximum score of 9/9. There exist city-wide public zoning plans and flood maps that take ecosystem services into account. In addition, there exist several habitat systems within the city limits (score of 3 for P5.1). However, with regards to the Speicherstadt, there is a clear conflict between increasing ecosystem services and heritage preservation. This is also the case for the city-wide integration of green and blue infrastructure. Hamburg implements the latter measure by conducting local workshops and providing guidance material on how to integrate blue / green infrastructure (score of 3 for P5.2). Lastly, the city is well aware of the natural capital beyond its administrative borders; multiple habitat systems of the city reach across its administrative borders (score of 3 for P5.3).

7.6. Essential 06: Strengthen institutional capacity for resilience

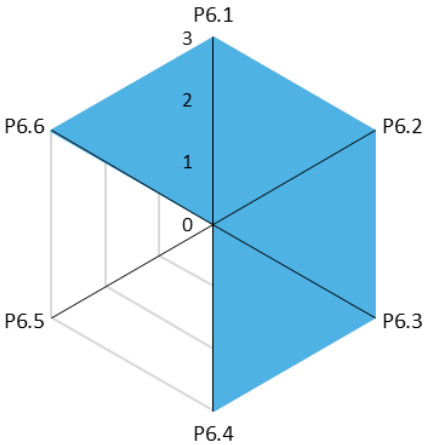
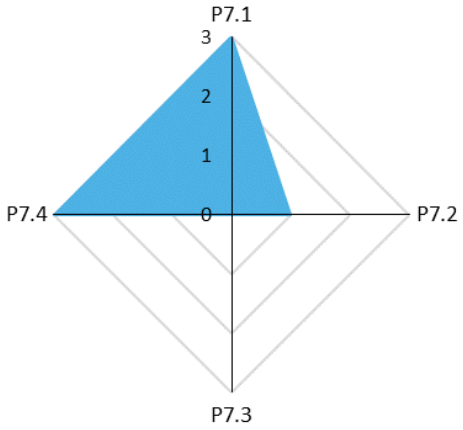


Figure 23: Results for Essential 06.

P6.1	Does the city have clear access to all the skills and experience it believes it would need to respond to reduce risks and respond to identified disaster scenarios?	3
P6.2	Does a co-ordinated public relations and education campaign exist, with structured messaging and channels to ensure hazard, risk and disaster information (that can be understood and used) are properly disseminated to the public?	3
P6.3	Extent to which data on the city's resilience context is shared with other organizations involved with the city's resilience.	3
P6.4	Are there training courses covering risk and resilience issues offered to all sectors of the city including government, business, NGOs and community?	3
P6.5	Are training materials available in the majority of languages in common use in the city?	0
P6.6	Is the city proactively seeking to exchange knowledge and learn from other cities facing similar challenges?	3

Regarding Essential 06, Hamburg achieves a score of 15/18. The city has established multiple partnerships with professional and volunteer first-responders and there exists a national mechanism for assistance between federal states in case of an emergency (score of 3 for P6.1). The city also conducts regular coordinated public relations activities, which reach most households (score of 3 for P6.2). With regards to data sharing, the city hosts a public geo portal, an open data hub, and a portal for risk reduction (score of 3 for P6.3). The different ministries within the city provide training courses covering risk and resilience. In addition, the Hafenstab – the coordinated crisis management unit for the Hamburg harbour – conducts regular trainings for all involved parties (score of 3 for P6.4). However, training material is mostly provided in German (score of 0 for P6.5) and partly in German sign language. Lastly, Hamburg is part of multiple city networks and research projects to share experiences and best practices (score of 3 for P6.6).

7.7. Essential 07: Understand and strengthen societal capacity for resilience



P7.1	Are “grassroots” or community organizations participating in risk reduction and post-event response for each neighbourhood in the city?	3
P7.2	Are there regular training programmes provided to the most vulnerable populations in the city?	1
P7.3	What proportion of businesses have a documented business continuity plan that has been reviewed within the last 18 months?	-
P7.4	How effective is the city at citizen engagement and communications in relation to DRR?	3

Figure 24: Results for Essential 07.

Hamburg achieves a score of 7/12 for Essential 07. For the Speicherstadt, community organizations are included in risk reduction and post-event response activities (score of 3 for P7.1). While the city knows its most vulnerable population groups, there is no publicly available information about specific regular training programs. In addition, information about vulnerable population groups is harder to come by for the Speicherstadt, because there are no residents living there, as it is mostly a tourism and business area (score of 1 for P7.2). With regards to business continuity plans, there was no information available during this preliminary resilience assessment (score of “-“ for P7.3). Lastly, the city uses multiple channels to engage citizens for disaster risk reduction (score of 3 for P7.4).

7.8. Essential 08: Increase infrastructure resilience

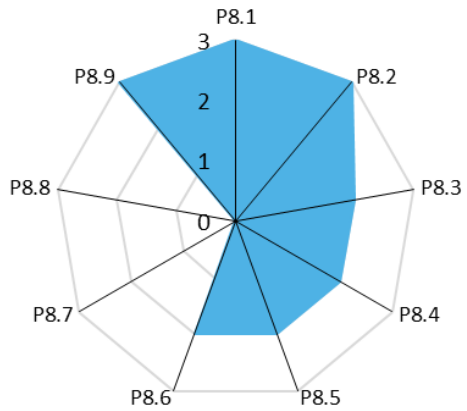


Figure 25: Results for Essential 08.

P8.1	Is critical infrastructure resilience a city priority, does the city own and implement a critical infrastructure plan or strategy?	3
P8.2	Is existing protective infrastructure well-designed and well-built based on risk information?	3
P8.3	Would a significant loss of service for these two essential services be expected for a significant proportion of the city under the agreed disaster scenarios?	2
P8.4	Would a significant loss of service be expected for a significant proportion of the city in the 'worst case' scenario event? In the event of failure would energy infrastructure corridors remain safe (i.e. free from risk of leaks, electrocution hazards etc.)?	2
P8.5	Would a significant loss of service be expected for a significant proportion of the city in the 'worst case' scenario event? In the event of failure would transport infrastructure corridors remain safe (i.e. free from risk of flood, shocks etc) and passable?	2
P8.6	Would a significant loss of service be expected for a significant proportion of the city in the 'worst case' scenario event?	2
P8.7	Would there be sufficient acute healthcare capabilities to deal with expected major injuries in 'worst case' scenario?	-
P8.8	% of education structures at risk of damage from "most probable" and "most severe" scenarios	0
P8.9	Will there be sufficient first responder equipment, with military or civilian back up as required?	3

For Essential 08, Hamburg reached a score of 17/27. The city, as well as the Speicherstadt, have a critical infrastructure protection plan (score of 3 for P8.1), and there exists protective infrastructure for the most relevant risks (score of 3 for P8.2). It is assumed that water, energy, transport, and communication services will exhibit some loss of services under the "most severe" scenario, which is a storm surge event (scores of 2 for P8.3, P8.4, P8.5, and P8.6). Healthcare capabilities are not a relevant issue for the Speicherstadt (score of "-" for P8.7) and under the "most probable" scenario – a flood – most of the Speicherstadt would be shut down, including teaching facilities (score of 0 for P8.8). Lastly, all first-responders would be sufficiently equipped in case of an emergency (score of 3 for P8.9).

7.9. Essential 09: Ensure effective disaster response

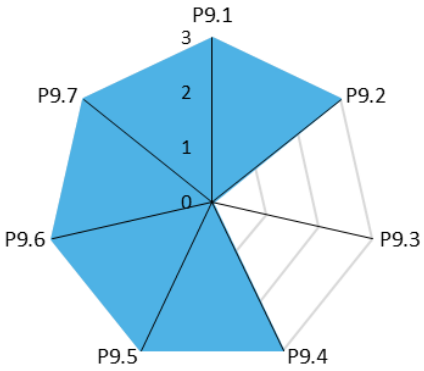
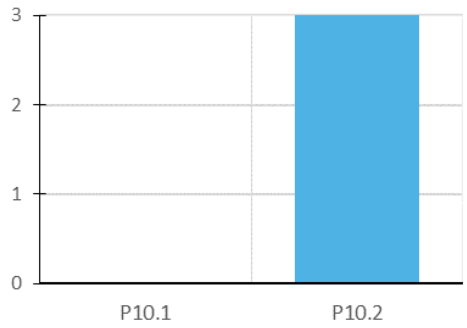


Figure 26: Results for Essential 09.

P9.1	Does the city have a plan or standard operating procedure to act on early warnings and forecasts? What proportion of the population is reachable by early warning system?	3
P9.2	Is there a disaster management / preparedness / emergency response plan outlining city mitigation, preparedness and response to local emergencies?	3
P9.3	Does the responsible disaster management authority have sufficient staffing capacity to support first responder duties in surge event scenario?	-
P9.4	Are equipment and supply needs, as well as the availability of equipment, clearly defined?	3
P9.5	Would the city be able to continue to feed and shelter its population post-event?	3
P9.6	Is there an emergency operations centre, with participation from all agencies, automating standard operating procedures specifically designed to deal with “most probable” and “most severe” scenarios?	3
P9.7	Do practices and drills involve both the public and professionals?	3

For Essential 09, Hamburg achieves a resilience score of 18/21. The city estimates that it will reach over 90% of its population with its early warning systems, which stretch across multiple channels – from smartphone apps, to TV and radio, as well as sirens and other measures (score of 3 for P9.1). As already discussed for P1.2, there is a well-established DRM plan (score of 3 for P9.2). No answer for P9.3 could be given as this issue is too specific for the Speicherstadt and is regulated at the national level (score of “-“ for P9.3). As concerns equipment and supply needs, the city and the Speicherstadt are well stocked (scores of 3 for P9.4 and P9.5). There is also a sufficiently resilient operations centre, although no public information is available (score of 3 for P9.6). Lastly, the different ministries in the city conduct annual drills together with professional and volunteer first-responders (score of 3 for P9.7).

7.10. Essential 10: Expedite recovery and build back better



P10.1	Is there a strategy or process in place for post-event recovery and reconstruction, including economic reboot, societal aspects etc.?	0
P10.2	Do post-event assessment processes incorporate failure analyses and the ability to capture lessons learned that then feed into design and delivery of rebuilding projects?	3

Figure 27: Results for Essential 10.

For Essential 10, Hamburg achieves a score of 3/6. There is no public information available on the existence of a strategy or process for post-event recovery (score of 0 for P10.1).

However, there are clear processes in place to capture lessons learned from post-event failures (score of 3 for P10.2)

7.11. Overall resilience of Hamburg

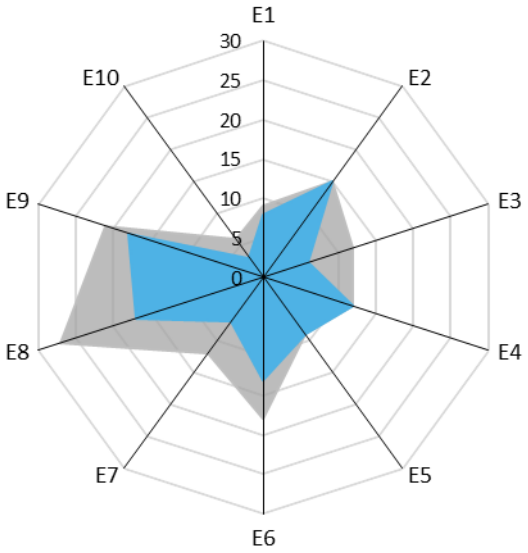


Figure 28: Combined results for Essential 01-10 for Hamburg.

Overall, Hamburg achieves a resilience score of 113/141, with full scores in Essentials 02, 04, and 05. The city understands the present and future risks it is facing very well, with significant information about disaster scenarios available and shared among different stakeholders. In addition, the city – and the Speicherstadt specifically – follows a strict zoning plan that considers risks scenarios and enforces building codes and standards. Lastly, the city is well aware of the functions that natural buffers within and outside its borders provide.

The most room for improvement can be found in Essentials 03, 07, and 08. There is a need for better information about incentives for resilience building measures and training programs for vulnerable population groups. In addition, it is assumed that at least some loss of service would be expected for most infrastructures under the “most severe” scenario. At the same time, there was not enough information available during the preliminary assessment to fully score Essentials 07, 08, and 09, i.e. the low scores for these has to be considered carefully.

8. Conclusion

The results of the initial investigation presented here correspond to the priorities and expectations that were already formulated during the preparation of the project. Discussions held in the meantime with local authorities, owners, companies and other stakeholders have confirmed and, in some cases, further substantiated the need for such investigations. As a result, some planned actions can be identified even more clearly as priorities.

With regard to any actions planned for Hamburg's target historic areas, it is advisable for the long-term success of the project to adapt to existing practices and regulations in Hamburg. This is especially true for the processing of digitally collected values and data in the city's topic-specific information and modelling systems.

The present initial investigation has shown that in Hamburg there are only very limited links between the governance frameworks described (management of cultural heritage, disaster risk management and climate adaptation). Only disaster risk management against floods after storm surges has been elaborated in great detail for the defined project area: the Speicherstadt and Kontorhausviertel.

Discussions with various responsible parties have shown that there is a further need for coordination to improve linkages and transparency between the frameworks, and that local stakeholders consulted so far view the integration of various information positively.

The following strategies and actions should therefore be priorities for the ARCH project:

- Integration of climate change and related hazards as an integral part within the future revised Management Plan and associated periodic reporting to UNESCO in the years to come. A related objective is to identify the different plans the City has in this respect, as well as to examine the Management Plan for gaps with respect to resilience-building and propose potential actions and strategies for inclusion in a future update of the Plan.

- Tools and procedures already exist to support management of data about the existing historic built fabric, and ongoing remedial or development measures, but these could be expanded and improved. For example, by constructing digital 3D models of existing structures using Building Information Modelling (BIM).

- Cooperation with archaeological department concerning research about remains of the industrial heritage of the late 19th/ early 20th century is currently limited and could be strengthened.

- Greater awareness-raising in the community of the relevance of climate change to the Speicherstadt and Kontorhausviertel is desirable, and there is an opportunity to design and implement events in the context of the ARCH project.

In Hamburg, the annual monitoring by ICOMOS Germany will be carried out for the relevant project area as a milestone, and periodic reporting to UNESCO will also begin in 2022.

The authors hope that the main changes for the project area will be the integration of analysis and proposed actions for climate adaptation and disaster prevention into the management plan

for the World Heritage Site, to support the implementation of future measures. Furthermore, it would be desirable to increase the transparency and visibility of the interdependencies between the respective governance frameworks, so that the consequences of climate change are also addressed in the Hamburg Climate Plan with regard to regional cultural heritage in the future.

Although both the Management Plan for the Speicherstadt and Kontorhausviertel, and the Hamburg Climate Plan, are not planned to be updated until ca. 2025/24 (respectively), preparation for their revision will begin well in advance. In this regard, there is potential for the ARCH project team to contribute advice on suggested additions for future integration in the plan, based on the analysis to be undertaken in coming months.

9. Bibliography

[1] J. Günther, „Statistisches Amt für Hamburg und Schleswig-Holstein; Statistik informiert...; Nr. 89/2019," 27 Juni 2019. [Online]. Available: https://www.statistik-nord.de/fileadmin/Dokumente/Presseinformationen/SI19_089.pdf. [Zugriff am 15 Januar 2020].

[2] J. Pieper, U. Schneider, W. Schröder und G. Stilling, „Der Paritätische Gesamtverband: Der Paritätische Armutsbericht 2019," Dezember 2019. [Online]. Available: http://www.der-paritaetische.de/armutsbericht/ . [Zugriff am 16 Juli 2020].

[3] Statistisches Amt für Hamburg und Schleswig-Holstein, „Statistisches Amt für Hamburg und Schleswig-Holstein; Bodenflächen in Hamburg am 31.12.2018 nach Art der tatsächlichen Nutzung," 11 Oktober 2019. [Online]. Available: https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/andere_statistiken/A_V_1_H_gebiet_flaeche/A_V_1_j18_HH.pdf. [Zugriff am 13 Mai 2020].

[4] C. S. (. f. Zeitgeschichte), „Digitales Hamburg Geschichtsbuch," Freie und Hansestadt Hamburg; Behörde für Schule und Berufsbildung, [Online]. Available: https://geschichtsbuch.hamburg.de/epochen/nachkriegszeit/. [Zugriff am 01 Juli 2020].

[5] Handelskammer Hamburg, „Hamburger Wirtschaftszahlen: Bevölkerung," [Online]. Available: https://www.hk24.de/produktmarken/beratung-service/konjunktur-statistik/hamburger-wirtschaft-zahlen/bevoelkerung-3676958 . [Zugriff am 01 Juli 2020].

[6] T. Gregor, „Statistisches Amt für Hamburg und Schleswig-Holstein; Statistische Berichte A I / S 1 - j 19 HH; Bevölkerung in Hamburg am 31.12.2019," 28 Mai 2020. [Online]. Available: https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/bevoelkerung/A_I_S_1_j_H/A_I_S1_j19.pdf. [Zugriff am 16 Juli 2020].

[7] T. Erdmann, „Statistisches Amt für Hamburg und Schleswig-Holstein: Statistik informiert... Nr. 109/2020; Grundsicherung im Alter in Hamburg 2019," 04 August 2020. [Online]. Available: https://www.statistik-nord.de/fileadmin/Dokumente/Presseinformationen/SI20_109.pdf. [Zugriff am 11 August 2020].

[8] D. M. Haberhauer, „Statistisches Amt für Hamburg und Schleswig-Holstein; Statistik informiert... Nr. VIII/2017 SPEZIAL; Lohn- und Einkommenssteuerstatistik in Hamburg 2013," 11 Oktober 2017. [Online]. Available: https://www.statistik-nord.de/fileadmin/Dokumente/Statistik_informiert_SPEZIAL/SI_SPEZIAL_VIII_2017.pdf. [Zugriff am 20 Mai 2020].

[9] G. Kaveckis, „Modeling future population's vulnerability to heat waves in Greater Hamburg," tp://ediss.sub.uni-hamburg.de/volltexte/2017/8738/, Hamburg, 2017.

[10] Behörde für Stadtentwicklung und Umwelt, „Prävention Hochwasserschutz in Hamburg heute," [Online]. Available: https://www.hamburg.de/sturmflut-1962/4357752/hochwasserschutz/. [Zugriff am 16 Juni 2020].

[11] Statista, „Statista: Bruttoinlandsprodukt von Hamburg von 1970 bis 2019,“ 2019. [Online]. Available: https://de.statista.com/statistik/daten/studie/5014/umfrage/entwicklung-des-bruttoinlandsprodukts-von-hamburg-seit-1970/. [Zugriff am 13 Mai 2020].

[12] Statistische Ämter des Bundes und der Länder, „Volkswirtschaftliche Gesamtrechnungen der Länder VGRdL,“ 2019. [Online]. Available: https://www.statistik-bw.de/VGRdL/tbls/tab.jsp?rev=RV2019&tbl=tab01&lang=de-DE#tab02. [Zugriff am 13 Mai 2020].

[13] D. A. Vogel, „Statistisches Amt für Hamburg und Schleswig-Holstein: Statistische Berichte P I 1 (2) - j/18 HH: Bruttoinlandsprodukt, Arbeitnehmerentgelt und Erwerbstätige 1991 bis 2018, Arbeitsvolumen 2008 bis 2018 in Hamburg,“ 28 Juni 2019. [Online]. Available: https://www.statistik-nord.de/fileadmin/Dokumente/Statistische_Berichte/wirtschaft_und_finanzen/P_I_1_j_H/P_I_1__2__j18_HH.pdf. [Zugriff am 13 Mai 2020].

[14] d. S. B. S. u. W. Arbeitskreis "Volkswirtschaftliche Gesamtrechnungen der Länder" im Auftrag der Statistischen Ämter der 16 Bundesländer, „Bruttoinlandsprodukt, Bruttowertschöpfung in den Ländern der Bundesrepublik Deutschland 1991 bis 2019, Reihe 1, Länderergebnisse Band 1, Frankfurt a.M.,“ März 2020. [Online]. Available: https://www.statistik-bw.de/VGRdL/tbls/RV2019/R1B1.zip. [Zugriff am 05 Juli 2020].

[15] Statista, „Monatliche Arbeitslosenquote in Hamburg von Juli 2019 bis Juli 2020,“ Juli 2020. [Online]. Available: https://de.statista.com/statistik/daten/studie/762326/umfrage/arbeitslosenquote-in-hamburg/. [Zugriff am 04 August 2020].

[16] Bundesagentur für Arbeit, „Berichte: Blickpunkt Arbeitsmarkt; Monatsbericht zum Arbeits- und Ausbildungsmarkt,“ Juni 2020. [Online]. Available: https://www.arbeitsagentur.de/datei/arbeitsmarktbericht-juni-2020-_ba146561.pdf. [Zugriff am 13 Juli 2020].

[17] Statistisches Amt für Hamburg und Schleswig-Holstein, „Regionaldaten für HafenCity,“ 31 Dezember 2019. [Online]. Available: http://region.statistik-nord.de/detail/10000000000000/2/1715/227679/. [Zugriff am 27 Juni 2020].

[18] UNESCO, „Speicherstadt and Kontorhaus District with Chilehaus Inscription,“ 2015. [Online]. Available: https://whc.unesco.org/en/list/1467/. [Zugriff am 15 Januar 2020].

[19] Stadt Hamburg, Behörde für Kultur und Medien, „Downloadbereich Presse,“ [Online]. Available: https://www.hamburg.de/welterbe/10055086/presse-unesco/. [Zugriff am 15 Januar 2020].

[20] J. Rose und C. B. W. C. C. V. i. C. T. C. o. Hamburg, „ECONSTOR,“ 2015. [Online]. Available: http://hdl.handle.net/10419/119458. [Zugriff am 13 Juli 2020].

[21] Stadt Hamburg, „Offizielles Stadtportal für Hamburg - Downloads,“ Fortlaufend. [Online]. Available: https://www.hamburg.de/klimaplan/nofl/13278658/c-7-downloads/. [Zugriff am 20 Juli 2020].

[22] „World Health Organization,“ [Online]. Available: https://www.who.int . [Zugriff am 13 Mai 2020].

[23] „UN Global Platform for Disaster Risk Reduction,“ [Online]. Available: https://www.unisdr.org/conference/2019/globalplatform/about . [Zugriff am 13 Mai 2020].

[24] U. N. O. f. D. R. Reduction, „Sendai Framework for Disaster Risk Reduction 2015 - 2030,“ [Online]. Available: https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030 . [Zugriff am 13 Mai 2020].

[25] UNDRR, „European Forum for Disaster Risk Reduction (EFDRR) Roadmap 2015 - 2020,“ [Online]. Available: https://www.undrr.org/publication/european-forum-disaster-risk-reduction-efdrr-roadmap-2015-2020. [Zugriff am 13 Mai 2020].

[26] E. Commission, „European Civil Protection And Humanitarian Aid Operations: Legal Framework,“ [Online]. Available: https://ec.europa.eu/echo/who/about-echo/legal-framework_en . [Zugriff am 13 Mai 2020].

[27] Stadt Hamburg, „Hochwasserrisikomanagement,“ [Online]. Available: https://www.hamburg.de/hwrm-rl/2102808/hochwasserrisikomanagement/ . [Zugriff am 26 August 2020].

[28] Federal Office of Civil Protection and Disaster Assistance, „Federal Office of Civil Protection and Disaster Assistance,“ [Online]. Available: https://www.bbk.bund.de/EN/Home/home_node.html. [Zugriff am 12 Mai 2020].

[29] Bundesamt für Sicherheit in der Informationstechnik, „Kritische Infrastrukturen: Das IT-Sicherheitsgesetz,“ [Online]. Available: https://www.bsi.bund.de/DE/Themen/KRITIS/IT-SiG/it_sig_node.html . [Zugriff am 13 Mai 2020].

[30] Stadt Hamburg, „Hamburg Disaster Protection Act,“ [Online]. Available: http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml/screen/JWPDFScreenBSInt. [Zugriff am 12 Mai 2020].

[31] Freie und Hansestadt Hamburg, Behörde für Inneres, „Katastrophenschutz,“ [Online]. Available: https://www.hamburg.de/contentblob/104268/c7b87c1603af71835412577d0f902830/data/broschuere-katastrophenschutz.pdf. [Zugriff am 12 Juli 2020].

[32] Stadt Hamburg, Behörde für Inneres, „Sturmflutschutz: Hinweise für die Bevölkerung,“ [Online]. Available: https://www.hamburg.de/contentblob/3425452/45daab7ca53950c90e21de9c8bc49400/data/sturmflut-download-sturmflutschutz.pdf . [Zugriff am 12 Juli 2020].

[33] Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, „Adaptation to climate change,“ [Online]. Available: https://www.bmu.de/en/topics/climate-energy/climate/adaptation-to-climate-change/. [Zugriff am 12 Juli 2020].

[34] Climate ADAPT: Sharing Adaptation Information Across Europe, „Country Profiles: Germany,“ [Online]. Available: https://climate-adapt.eea.europa.eu/countries-regions/countries/germany. [Zugriff am 16 Juli 2020].

[35] H. v. Storch, I. Meinke und M. Claußen, „Hamburger Klimabericht - Wissen über Klima, Klimawandel und Auswirkungen in Hamburg und Norddeutschland,“ [Online]. Available: https://link.springer.com/book/10.1007/978-3-662-55379-4. [Zugriff am 03 Juli 2020].

[36] Fraunhofer IMW, „Cultural Heritage in Crisis: Cultural Heritage Research at European Level - Challenges in Times of Climate Change and Digitalization," April 2020. [Online]. Available: https://www.imw.fraunhofer.de/content/dam/moez/de/documents/innovationsakzeptanz/Konferenzband_Villa_Vigoni_2020.pdf#page=14. [Zugriff am 05 Juli 2020].

[37] Geschichtsbuch Hamburg; Nachkriegszeit und Fünfziger Jahre https://geschichtsbuch.hamburg.de/epochen/nachkriegszeit/.

[38] C. Strupp, „Digitales Hamburg Geschichtsbuch: Nachkriegszeit und Fünfziger Jahre," [Online]. Available: https://geschichtsbuch.hamburg.de/epochen/nachkriegszeit/.

[39] M. Kloos, M. Ritscherle, K. Wachten, C. Hero, R. Lange, D. Schubert und A. Seemann, UNESCO World Heritage Management Plan: The Speicherstadt and Kontorhaus District with Chilehaus, Berlin: hendrik Bäßler verlag, 2013 (2017).

[40] UNDRR, „Disaster Resilience Scorecard for Cities," [Online]. Available: https://www.undrr.org/publication/disaster-resilience-scorecard-cities. [Zugriff am 19 Juni 2020].

[41] United Nations, „UNDRR - Quick Risk Estimation (QRE) Tool," [Online]. Available: https://www.unisdr.org/campaign/resilientcities/toolkit/article/quick-risk-estimation-qre. [Zugriff am 20 July 2020].

[42] ISO, „ISO 37120:2018 - Sustainable cities and communities — Indicators for city services and quality of life," 2018. [Online]. Available: https://www.iso.org/standard/68498.html. [Zugriff am 20 July 2020].

[43] I. Climate Change and Cultural Heritage Working Group, „The Future of our Pasts: Engaging cultural heritage in climate action," [Online]. Available: https://indd.adobe.com/view/a9a551e3-3b23-4127-99fd-a7a80d91a29e.

[44] C. C. a. Arup, „C40; City climate hazard taxonomy," 2015. [Online]. Available: http://www.c40.org/researches/city-climate-hazard-taxonomy.

[45] I. Thematic Working Group Building, Infrastructure for Spatial Information in Europe D2 . 8 . I . 2 Data Specification on Geographical Grid Systems – Technical Guidelines, 2011.

10. List of Figures

11. List of Tables

12. Annexes

12.1. Key documents for cultural heritage management (See Chapter 3)

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
UNESCO World Heritage Convention	Convention	International	binding		1972	The United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. This is embodied in an international treaty called the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by UNESCO in 1972.	n.a:	whc.unesco.org

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter)	Charter	International	Non binding	ICOMOS	1964	Key document for Conservation and Restoration of Monuments and sites	n.a.	https://www.icomos.org/en/resources/charters-and-texts
European Charter of the Architectural Heritage	Charter	International	Non binding	Council of Europe	1975	Key document for Conservation and Restoration of Monuments and sites	n.a.	https://www.icomos.org/en/resources/charters-and-texts
Washington Charter	Charter	International	Non binding	ICOMOS	1987	Key document for Conservation and Restoration of Monuments and sites	n.a.	https://www.icomos.org/en/resources/charters-and-texts
Nara Document on Authenticity	Declaration	International	Non binding	ICOMOS	1994	Key document for Conservation and Restoration of Monuments and sites	n.a.	https://www.icomos.org/en/resources/charters-and-texts
Burra Charter	Charter	International	Non binding	ICOMOS	1981 (2013)	Key document for Conservation and Restoration of Monuments and sites	n.a.	https://www.icomos.org/en/resources/charters-and-texts

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Florence Charter	Charter	International	Non binding	ICOMOS	1981	Key document on management of historic gardens	n.a.	https://www.icomos.org/en/resources/charters-and-texts
Recommendation on the Historic Urban Landscape	Recommendation	International	Non binding	UNESCO World Heritage Committee	2011	Key document for Conservation and Restoration of Monuments and sites	n.a.	https://www.icomos.org/en/resources/charters-and-texts
Federal construction Code	Law	National	binding	Germany	1960 (most recent update Mar 2020)	Construction Code		https://www.gesetze-im-internet.de/
Hamburg Building Code	Law	Federal State / regional	binding	Hamburg	2005 (updated Feb 2020)	Construction Code		http://www.landesrecht-hamburg.de/
Heritage Protection Act	Law	Federal State / regional	binding	Hamburg	2013	Key legal provision for Conservation and Restoration of Monuments and sites	n.a.	http://www.landesrecht-hamburg.de/
Management Plan: The Speicherstadt and Kontorhaus District with Chilehaus	Ordinance	Federal State / regional	binding	Hamburg	2013	Management of the property	2025	www.Hamburg.de/welterbe

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Zoning and Land-Use plan	Legal provision	Federal State / regional	binding	Hamburg	1997	Legal provision on the land use	continuously	www.hamburg.de
Hamburg 2010 City Centre Concept	Guideline?	Federal State / regional	Binding		2010 (updated 2014)	The Hamburg 2010 City Centre Concept seeks primarily to integrate the new HafenCity development, which lies to the south of the city centre, in the neighbouring city centre district. The HafenCity development, coverings 157 hectares, is currently underway.		https://www.hamburg.de/contentblob/4374074/264f74889d6ecd358e255a71abb42fd6/data/download-innenstadtkonzept-2014.pdf
Speicherstadt Development Concept	Guideline?	Federal State / regional	Binding		2012	An informal planning programme that serves as a framework for managing the future development of the Speicherstadt. The Speicherstadt Development Concept is intended to serve as a basis for a local development plan for the Speicherstadt (currently under development),		https://www.hamburg.de/contentblob/4056088/42fc628d89757fee90432b0b23cb224c/data/download-konzept.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Ordinance on the Design of the Speicherstadt	Ordinance	Federal State / regional	Binding		2008	The Ordinance stipulates that any alterations to the warehouse buildings must be compatible with heritage protection. Contains provisions on façades, roofs, building technology, advertising and vending machines, and the design of the surrounding external space.		
Design Manual for the Speicherstadt	Guideline	Federal State / regional	Non-binding		2002	Defines essential model components and explains the design principles which apply to buildings and advertising. It also contains design principles for the transitional areas between the Speicherstadt and the HafenCity, and recommendations on aspects of urban architecture, and recommendations on the design of open spaces, buildings, façades, roofs and entrance areas.		

12.2. Key documents for disaster risk reduction (See Chapter 4)

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Sendai Framework	Policy	International	Non-binding	United Nations Office for Disaster Risk Reduction (UNDRR)	2015	Establishment of a global framework for action to prevent new and reduce existing disaster risks, based on 7 targets, 4 priorities for action with supporting rationale and 13 guiding principles.	Valid until 2030. UNDRR is in charge of follow-up and review of the Sendai Framework by preparing periodic reviews on progress, among other actions.	http://www.unisdr.org/we/inform/publications/43291

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Decision No. 1313/2013/EU	Policy / strategy	International (EU)	Binding	The European Parliament and The Council of The European Union	2013	Decision no. 1313/2013 / EU define the various mechanism that should promote solidarity and should support, complement, and facilitate the coordination of Member States' actions in the field of civil protection with a view to improving the effectiveness of systems for preventing, preparing for and responding to natural and human-made disasters. Prevention is of key importance for protection against disasters and requires further action.		https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0924:0947:EN:PDF
Decision 420/2019/EU	Policy / strategy	International (EU)	Binding	The European Parliament and The Council of The European Union	2019	Decision (EU) 2019/420 of the European Parliament and of the Council of 13 March 2019 amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism		https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D0420&from=EN

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Directive 2007/60/ EC of the European Parliament and of the Council on the assessment and management of flood risks	Guideline	International (EU)	Binding for the federal states in Germany since 2010	The European Parliament and The Council of The European Union	2007	Directive 2007/60 / EC of the European Parliament and of the Council on the assessment and management of flood risks and Act no. 7/2010 Coll. on flood protection establish a framework for Community action in the field of water policy requires river basin management plans to be developed for each river basin district in order to achieve good ecological and chemical status, and it will contribute to mitigating the effects of floods		https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32007L0060

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Managing Disaster Risks for World Heritage	Guideline	International	Non-binding	ICCROM, ICOMOS, IUCN, UNESCO World Heritage Centre	2010	The key objectives of this Resource Manual are to help the managers and management authorities of cultural and natural World Heritage properties to reduce the risks to these properties from natural and human-made disasters; to illustrate the main principles of Disaster Risk Management (DRM) for heritage and a methodology to identify, assess and mitigate disaster risks; to explain how to prepare a DRM plan based on this methodology; to demonstrate that heritage can play a positive role in reducing risks from disasters and so help to justify the conservation of World Heritage properties; and finally, to suggest how DRM plans for heritage properties can be integrated with national and regional disaster management strategies and plans.		https://whc.unesco.org/en/managing-disaster-risks/

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Law on the establishment of the Federal Office of Civil Protection and Disaster Assistance	Law	National	Binding	Ministry of Justice and Consumer Protection	2004 / (amended 2009)	This law establishes the Federal Office of Civil Protection and Disaster Assistance		https://www.gesetze-im-internet.de/bbkg/BJNR063010004.html
Civil Protection and Disaster Assistance Act	Law	National	Binding	Ministry of Justice and Consumer Protection	1997 / 2009	This law establishes the foundations for the German national civil protection		https://www.gesetze-im-internet.de/zsg/ZSKG.pdf
THW Law	Law	National	Binding	Ministry of Justice and Consumer Protection	1990 / 2013	This law establishes the operating protocol for the Federal Agency for Technical Relief	Update planned in 2020	http://www.gesetze-im-internet.de/thw-helfrg/
Flood and heat prevention through urban development	Guideline	National	Non-binding	C. Becker, S. Hübner (bgmr Landschaftsarchitekten); H. Sieker, S. Gilli, M. Post (Ingenieurgesellschaft Prof. Dr. Sieker mbH)	2015	This document contains strategies and instruments for water-sensitive urban development at the local level.		https://www.bbsr.bund.de/BBSR/DE/Veroeffentlichungen/Sonderveroeffentlichungen/2015/DL_UeberflutungHitzeVorsorge.pdf?__blob=publicationFile&v=3

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Implementation plan CRITIS of the National Plan for the Protection of Information Infrastructures	Guideline	National	Not-binding	Ministry of the Interior, Building and Community	2007	This document describes of to implement the National Plan for the Protection of Information Infrastructures		https://www.bmi.bund.de/SharedDocs/downloads/DE/publikationen/themen/it-digitalpolitik/umsetzungsplan-kritis.html
Fire Service regulation FwDV 100	Regulation	National	Non-binding	Committee on Firefighting, Civil Protection and Civil Defence	1999	This regulation establishes the necessary uniformity in the fire service and to ensure this in the future. It applies to deployment and training and is implemented into binding law by each Federal State.		https://www.bbk.bund.de/SharedDocs/Downloads/BBK/DE/FIS/DownloadsRechtundVorschriften/Volltext_Fw_Dv/FwDV%20100.pdf?__blob=publicationFile
Hamburg Disaster Protection Act	Law	Regional	Binding	Hamburg Senate	1978 / 2020	This law establishes the fundamentals and responsibilities of disaster risk management in the Federal State of Hamburg		http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&st=lr&doc.id=jlr-KatSchGHArahmen&doc.part=X&doc.origin=bs

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Hamburg Water Act	Law	Regional	Binding	Hamburg Senate	2005 / 2012	This document defines flood protection systems and their ownership, obligations and rights with regard to preventive flood protection, and general (ownership) rights and obligations with regard to water bodies in Hamburg		http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&doc.id=jlr-WasGHA2005rahmen&doc.part=X&doc.origin=bs&st=lr
Hamburg Dyke Regulation	Law	Regional	Binding	Hamburg Senate	2003	This documents defines the fundamentals for all dykes in Hamburg (e.g. required dimensions, maintenance, monitoring, etc.)		http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&doc.id=jlr-DeichOHA2003rahmen&doc.part=X&doc.origin=bs&st=lr

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Hamburg Polder Regulation	Law	Regional	Binding	Hamburg Senate	1977	This document covers the fundamentals for privately owned flood protection systems		http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&doc.id=jlr-PolderOHArahmen&doc.part=X&doc.origin=bs&st=lr
Flood Protection Ordinance HafenCity	Law	Local	Binding	Hamburg Senate	2002	This document establishes the fundamentals for storm surge protection in the HafenCity district of Hamburg		http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&doc.id=jlr-FlSchuVHArahmen&doc.part=X&doc.origin=bs&st=lr

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update	Link (if available)
Storm surge protection in the Hamburg harbour	Guideline	Local	Non-binding	Hamburg Port Authority	2018	This document indicates who / what in the Hamburg harbour is at risk in case of a storm surge, which preventive measures are available, how warnings and evacuations take place, and which emergency measures will be conducted		https://www.hamburg-port-authority.de/fileadmin/user_upload/Broschuere_Sturmflutschutz_Ansicht.pdf

12.3. Key documents for climate adaptation (See Chapter 5)

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
EU Greenbook and Framework for Climate and Energy Policy to 2030.		international	Binding		2013	On 27 March 2013, the European Commission adopted a Green Paper entitled "A Framework for Climate and Energy Policy to 2030". This Green Paper launches a public consultation. The framework for climate and energy policy until 2030 includes EU-wide targets and policy objectives for the period 2021 to 2030.	The framework for climate and energy policy was adopted by the European Council in October 2014. In 2018, the targets for renewable energy sources and energy efficiency were revised upwards compared to the 2013 version.	https://ec.europa.eu/clima/policies/strategies/2030_en

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
EU adaptation strategy to climate change	strategy	international	Binding		2013 (evaluated 2018)	In 2013, the European Commission adopted an EU strategy on adaptation to climate change. The strategy aims to make Europe more climate-resilient. By taking a coherent approach and providing for improved coordination, it aims to enhance the preparedness and capacity of all governance levels to respond to the impacts of climate change.	Updated strategy expected 2021	http://ec.europa.eu/clima/policies/adaptation/what/documentation_en.htm

German Strategy for Adaptation to Climate Change	strategy	national	Binding		2008 (evaluated in 2015 and 2019)	The German Adaptation Strategy (Deutsche AnpassungsStrategie, DAS) creates a framework for adaptation to the consequences of climate change in Germany. This strategy primarily represents the contribution of the Federal Government and thus provides guidance for other stakeholders. It lays the foundations for a medium-term process in which, in cooperation with the Federal Länder (federal states) and societal groups, risks will be progressively identified, action needs ascertained, appropriate objectives defined and developed and potential adaptation measures implemented.		https://www.bmu.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/das_gesamt_bf.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Climate Adaptation Action Plan (I + II)	National Adaption Plan	national	Binding		2011	On 31st August 2011 the Federal Cabinet adopted an action plan for the German Strategy for Adaptation to Climate Change (DAS) of December 2008. The progress report on the German Strategy for Adaptation to Climate Change of the end of 2015 takes stock of the nationwide activities and informs about the work programme for the coming years (Action Plan II).		https://www.bmu.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/aktionsplan_anpassung_klimawandel_bf.pdf https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimawandel_das_fortschrittsbericht_bf.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Monitoring Report: Climate Adaptation Action Plan	report	national	n.a.		2015	This is the most comprehensive report by the German government on adaptation to climate change to date and shows that rising temperatures, wetter winters and more frequent weather extremes are having an increasing impact on German society. The areas affected include energy supply, agriculture and health care. Using data from 15 different sectors of society, the report shows which changes can already be identified as a result of climate change and which counter-measures are already taking effect.		https://www.umweltbundesamt.de/publikationen/monitoringbericht-2015

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Monitoring Mechanism Regulation	Regulation	national	binding		2019	Information on Member States' national adaptation planning and strategies, outlining their implemented or planned actions to facilitate adaptation to climate change. That information shall include the main objectives and the climate-change impact category addressed, such as flooding, sea level rise, extreme temperatures, droughts, and other extreme weather events.	Reporting period every 48 months.	http://cdr.eionet.europa.eu/de/eu/mmr/art15_adaptation/envxl78ma/

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Impacts, vulnerability and adaptation assessments	Assessment	national	n.a.		2015	For the progress report on the German Adaptation Strategy and the further development of German adaptation policy, such a cross-sectoral and consistent vulnerability analysis for Germany has therefore been prepared from 2011 to 2015. Vulnerability analyses are an important step in adaptation planning to identify adaptation needs, develop a strategy for adaptation to climate change or an action plan with concrete measures. They answer the question of where a country or region is particularly vulnerable to climate change - both spatially and thematically.		https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/climate_change_24_2015_kurz_vulnerabilitaet_deutschlands_gegenueber_dem_klimawandel_6.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Handbook on good practice for adaptation to climate change	Guideline	national	Non-binding		2014	The "Handbook on Good Practice in Adaptation to Climate Change" presents a set of criteria developed within the research project "Good Practice in Adaptation to Climate Change" to evaluate adaptation activities. In addition to the criteria for good adaptation, several practical examples for different fields of action are presented. The handbook is intended to inspire actors to develop their own adaptation measures and to support them in overcoming obstacles on their way.		https://www.umweltbundesamt.de/sites/default/files/medien/364/publikationen/uba_handbuch_gute_praxis_web-bf_0.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Action plan: Adaptation to Climate Change (German only)	Plan	Regional - Local	binding		2013	After the first Hamburg Action Plan for Adaptation to Climate Change was adopted in 2013, the Hamburg Climate Plan now includes both adaptation to climate change and climate protection. Measures to adapt to climate change have been taken in areas such as port management, coastal protection, water management, health and urban planning. Climate impact monitoring helps to observe climate change and its effects and to manage adaptation. The adaptation strategy primarily contains measures with which the state fulfils its task of ensuring services of general interest.		https://www.hamburg.de/contentblob/4052864/e1b7549bfc46806b9cafa9d89963bd62/data/aktionsplan-anpassung-an-den-klimawandel.pdf;jsessionid=22A53BA42099686A637FDAD24415F6E5.liveWorker2

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Hamburg Climate Plan	Plan	Regional - Local	binding		2015 (revised 2019)	As planned, with the first revision of the Hamburg Climate Plan, the Senate is further developing the content and methods of the Hamburg Climate Plan from December 2015 and is setting new climate targets for Hamburg in the light of current developments. With this revision of the Hamburg Climate Plan, the Senate also informs the Hamburg Parliament on the development of the framework conditions for Hamburg and the targets in the Hamburg Climate Plan that have already been achieved.		https://www.hamburg.de/contentblob/4658414/b246fbfbbf1149184431706972709508/data/d-21-2521-hamburger-klimaplan.pdf 2019 revision: https://www.hamburg.de/contentblob/1389908/6/749a6e50662c96eee81d370f1b0cb631/data/d-first-revision-hamburg-climate-plan.pdf

Official Monitoring tool	Monitoring System	Regional - Local	Not applicable			The City of Hamburg is setting up a climate impact monitoring system to monitor the long-term effects of climate change on the city of Hamburg and to assess whether the adaptation measures implemented are effective. This should help in the long-term management of adaptation measures and make it possible to determine whether Hamburg has taken sufficient precautions against the consequences of climate change. The first indicators (IMPACT indicators) have now been developed for the following central fields of action of the Hamburg Climate Change Adaptation Strategy, which illustrate the		https://www.hamburg.de/klimafolgen-monitoring/

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
						consequences of climate change for Hamburg: - Inland flood - Health - Coastal flood protection - Agriculture - Urban and landscape planning		

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
RISA Strukturplan Regenwasser	report	Regional - Local				The Regen Infrastruktur Anpassung (RISA) project is a joint project of the Ministry of Urban Development and Environment of the Free and Hanseatic City of Hamburg and HAMBURGWASSER. The project was launched in 2009 in response to the increasing conflict of objectives between further sealing tendencies, potential consequences of climate change, demands on quality of life and infrastructural requirements.		https://www.risa-hamburg.de/fileadmin/risa/Downloads/BUE_HSE_2015_RISA_Strukturplan_Regenwasser_2030.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Hamburger Gründachstrategie	strategy	Regional - Local	Non-binding		Information not available	Until 2024, the Federal Office for the Environment and Energy is making three million euros available for a support programme for green roofs. The Hamburg Green Roof Fund supports voluntary measures of intensive or extensive green roofs for residential and non-residential buildings in Hamburg.	From June 2020, the Hamburg green roof funding will be supplemented by the funding opportunities for green walls.	http://www.hamburg.de/gruendach

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Digital evaporation potential map	Map	Regional - Local				Geographic Information Systems (GIS) were used for the development of the evaporation potential map. These make it possible to combine soil information that is available nationwide at the Department of the Environment and Energy in such a way that a classification of Hamburg's soils with regard to their expected cooling capacity in the summer months (evaporation potential) becomes possible. The boundary condition for this was unsealed soil.		https://www.hamburg.de/kuehlleistung-von-boeden/8753652/verdunstungspotentialkarte/

Construction programme for flood protection	programme	Regional - Local	binding			Hamburg is 100 km away from the North Sea. The metropolis is endangered by storm surges due to its location on the tidal Elbe. The tasks include the determination of basic principles for the design of flood protection systems as well as the planning of construction and maintenance measures. A total of 108 km of public main dike lines (including the new dike) and numerous crossing structures - sluices, barrages, pumping stations, dike banks and barrage gates - must be continuously adapted to the increasing loads and changing urban boundary conditions, modernised and brought up to the state		https://lsbg.hamburg.de/planung-und-entwurf-hochwasser/

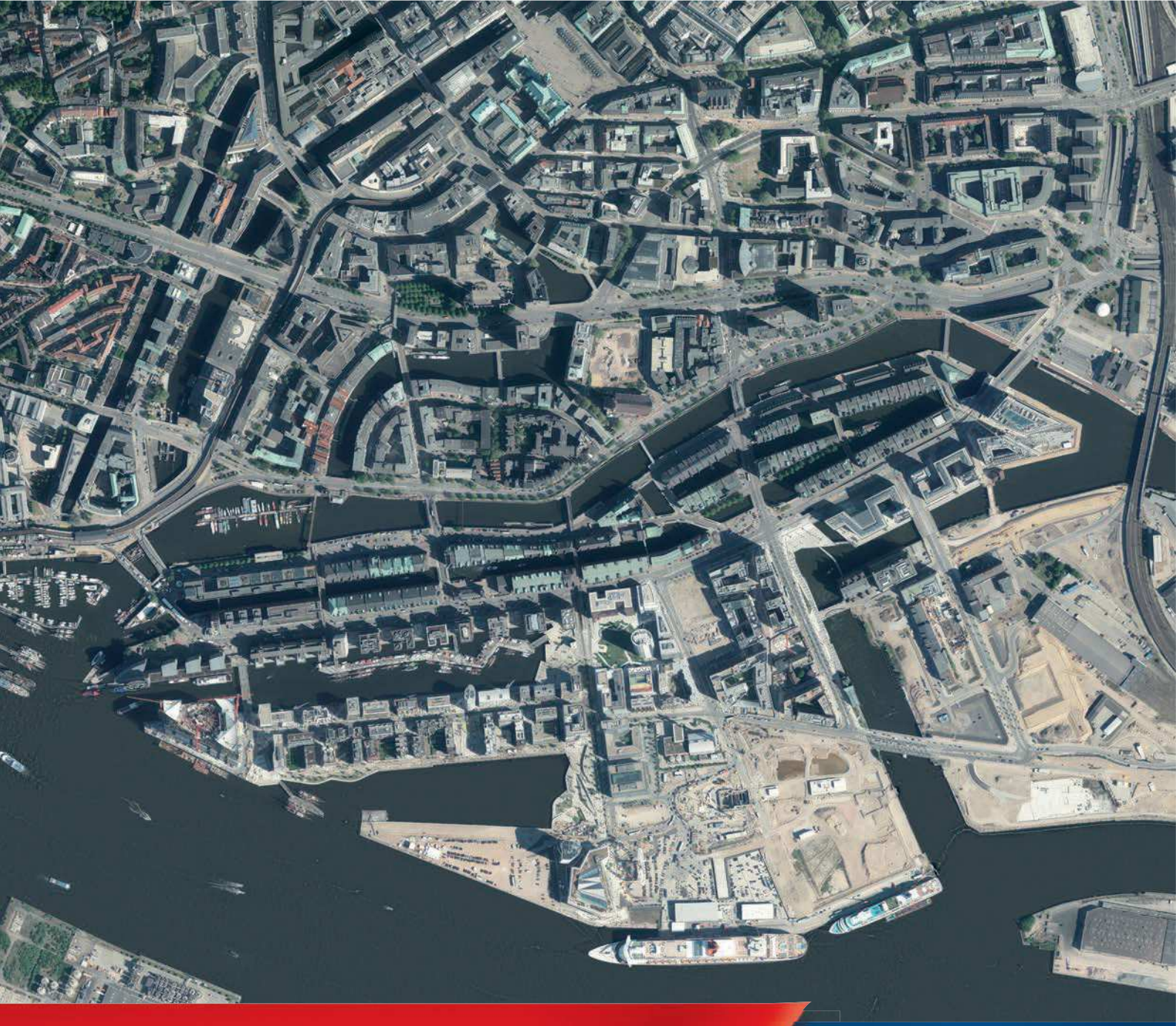
Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
						of the art. The new dimensioning water levels for Hamburg were published on 09.08.2013 in the Official Gazette (p. 1282).		

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
Climate Change impact information for Companies situated in Hamburg	brochure	Regional - Local	Non-binding		2018	This brochure aims to encourage entrepreneurs to deal with the consequences of climate change. It shows which climate changes are to be expected in Hamburg, how companies can be affected and what the Free and Hanseatic City of Hamburg is already doing to protect its citizens and companies from climate change-related risks. Possible risks, opportunities and measures to adapt to climate change consequences are named for individual, central Hamburg industries.		https://www.hamburg.de/contentblob/4846394/4bf69fd7edf5cb9fdac5935874f25a71/data/d-info-broschuere-klimawandel-wirtschaft.pdf

Name of document	Type of document	Level	Binding / non-binding	Author(s)	Year of publication	Summary of content	Timeline for future revision/update)	Link (if available)
KLIQ – Climate impact adaptation of inner-city high-density quarters (in German)	report		Non-binding	REAP; Behörde für Umwelt und Energie Hamburg	02.06.2017	Climate-relevant adaptation measures should be developed and discussed together with local actors. As there is a rather low potential for flood protection measures on private land, these measures will be combined with concepts for public space. At the building level, the possibilities for passive air conditioning of rooms in existing buildings will be examined and - if possible and reasonable - coupled with active cooling by rainwater.		https://www.hcu-hamburg.de/index.php?id=8361 Checklist risk analysis: https://www.hcu-hamburg.de/fileadmin/documents/REAP/files/Wissensdokument_KLIQ_UEberflutungs-_und_Hitzevorsorge_Checkliste.pdf Full documentation: https://edoc.sub.uni-hamburg.de//hcu/volltexte/2017/365/

12.4. Speicherstadt Development Concept (2012)

12.5. Management Plan for the Speicherstadt and Kontorhausviertel (2013)



Nomination for the UNESCO World Heritage List
Management Plan

The Speicherstadt and Kontorhaus District with Chilehaus

Hamburg

Imprint

» Publisher:
Free and Hanseatic City of Hamburg
Ministry of Culture/ Department for Heritage Preservation
Große Bleichen 30, D-20354 Hamburg
Tel./ Fax: +49 (0)40/ 42824-750/ 42731-0008

» Authors:
Dipl.-Ing. Michael Kloos with
Dipl.-Ing. Martin Ritscherle and
Prof. Kunibert Wachten

scheuvens + wachten
Friedenstraße 18, D-44139 Dortmund

Institute for Urban and Regional Planning,
UNESCO Chair in World Cultural and Urban Landscapes
RWTH Aachen University
Wüllner Str. 5b, D-52062 Aachen

» in cooperation with:
Dr. Agnes Seemann
Free and Hanseatic City of Hamburg
Ministry of Culture/ Department for Heritage Preservation
Project-coordinator World Heritage
Große Bleichen 30, D-20354 Hamburg
Tel./ Fax: +49 (0)40/ 42824-750/ 42731-0008

» Translation:
Niels Hamdorf, Hamburg
Louise Jarvis, Oxford

» Layout
scheuvens + wachten (Dortmund)

» Print
elbblut, Hamburg

NOMINATION FOR THE UNESCO WORLD HERITAGE LIST

THE SPEICHERSTADT AND KONTORHAUS DISTRICT WITH CHILEHAUS

MANAGEMENT PLAN

TABLE OF CONTENTS

1. Introduction

1.1 Objective of the Management Plan

The Free and Hanseatic City of Hamburg intends to nominate the "Speicherstadt and Kontorhaus district with Chilehaus" for UNESCO's World Heritage List. Once inscribed on that list, the ensemble would, in accordance with the World Heritage Convention, become the property of mankind as a whole. At the same time, the Free and Hanseatic City of Hamburg has an obligation to do all it can to preserve the future World Heritage site for coming generations, as stipulated in the World Heritage Convention. The decision to nominate the "Speicherstadt and Kontorhaus district with Chilehaus" for the World Heritage List therefore places far-reaching obligations on the Free and Hanseatic City of Hamburg. However, nomination for UNESCO's World Heritage List also represents a significant opportunity: By safeguarding a unique testimony to Hamburg's cultural and historical development, it should be possible to maintain or even increase the quality of life of the people of Hamburg, while at the same time making the city a more attractive tourist destination. It was with this in mind that the Free and Hanseatic City of Hamburg drafted this Management Plan, the objective of which is to define the main guidelines, instruments and organisational structures, which will be required in the future to successfully accomplish the tasks associated with the World Heritage nomination.

Hamburg is a dynamic, constantly changing city. In recent years, the area around the Speicherstadt and Kontorhaus district has undergone significant change, and is expected to be further transformed in the future. These changes will also affect the traffic planning. The intention is for the area nominated for UNESCO World Heritage status to be managed under market economy conditions, which requires flexibility. In that sense, the "Speicherstadt and Kontorhaus district with Chilehaus" represents a "living protected asset". The objective of this Management Plan is therefore, in particular, to reconcile safeguarding the "outstanding universal value" of the future World Heritage site on the one hand, with taking the necessary measures to provide for its sustainable further development, on the other. In this context, the Management Plan serves as a strategic instrument, defining objectives for preservation and sustainable development, assessing the work that needs to be done, identifying areas of conflict and potential synergies, and establishing priority measures and projects.

The Free and Hanseatic City of Hamburg has entered into a legal obligation to protect its cultural heritage and has been working to safeguard and

Fig. 1: Aerial view of the Speicherstadt

Fig. 2: Aerial view of the Kontorhaus district

preserve the "Speicherstadt and Kontorhaus district with Chilehaus" for many years. The Speicherstadt and the Kontorhaus district have been listed under the Hamburg Heritage Protection Act since 1991 and 1983 respectively. The vast majority of the Speicherstadt buildings are owned by the Hamburger Hafen und Logistik AG (HHLA). Together with the handful of other Speicherstadt owners and the various owners of the properties in the Kontorhaus district, it is supporting the city in its efforts to preserve those areas by contributing expertise and experience. Since that experience is of prime importance for the successful management of the future World Heritage site, it is also taken into account in this Management Plan.

A further major objective of the Management Plan is to tie in the preservation of the future World Heritage site with the other planning objectives of the Free and Hanseatic City of Hamburg. The City has already produced planning guidelines at various levels for the future development of the World Heritage area. The Management Plan builds on those guidelines and seeks to ensure that they are compatible with the international requirements for World Heritage sites. The guidelines and organisational channels, which are required to achieve this, are also identified. In addition, it is important to take account of the various interests of users, residents and the growing number of visitors to the future World Heritage area in the management of the World Heritage site. The Management Plan indicates how these various institutions, planning instruments, stakeholders and levels of action fit in with UNESCO's Operational Guidelines and its Advisory Bodies, ICOMOS and ICCROM.

Overall, the Management Plan for the future World Heritage site is addressed to all those who have a stake or interest in the protection and sustainable future development of the "Speicherstadt and Kontorhaus district with Chilehaus": administrators, property owners, residents, commercial and private ten-

ants, those involved in business or tourism and the public.

The nomination of the "Speicherstadt and Kontorhaus district with Chilehaus" for UNESCO's World Heritage List is a project which was initiated jointly by the Free and Hanseatic City of Hamburg and the owners of the properties concerned. Together with the Federal Republic of Germany, the Free and Hanseatic City of Hamburg and the owners are making every possible effort to reconcile far-reaching protection with the sustainable development of the future World Heritage site and, in so doing, to comply with the requirements of the World Heritage Convention. The nomination is being followed with great interest at political level and by the public as a whole, and enjoys unreserved support.

1.2 The Idea of World Heritage and the World Heritage Convention

UNESCO works worldwide to preserve the cultural and natural heritage and promote cultural diversity. Its "Convention concerning the Protection of the World Cultural and Natural Heritage" (World Heritage Convention) is the most extensive international treaty which has ever been adopted by the international community to preserve its common cultural and natural heritage. It was adopted by the 17th General Conference of UNESCO on 16 November 1972 and entered into force on 17 December 1975. To date, it has been ratified by more than 185 States, which means that the World Heritage Convention can be regarded as applying worldwide. The Federal Republic of Germany acceded to the Convention on 23 August 1976. In Section 7, Paragraph 8, of its Heritage Protection Act, the Free and Hanseatic City of Hamburg undertook to take account of its obligation under the Convention to preserve the cultural heritage when adopting measures and plans. By signing the World Heritage Convention, the States Parties recognise their international obligation to protect the World Heritage sites situated on their territory and to preserve them for future generations. Today the World Heritage List includes more than 900 cultural and natural sites in all the regions of the world. In 2012, Germany had 36 World Heritage sites on the list.

The World Heritage Convention is based on the idea that "parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole" (preamble to the World Heritage Convention). In accordance with that Convention, cultural monuments and natural heritage sites such as the pyramids of Giza, the Taj Mahal, the ruins of ancient Olympia in Greece, Ayers Rock and the Grand Canyon do not therefore belong solely to the State on whose territory they are located. Rather, they are, conceptually, the property of mankind as a whole. If any one of these extremely precious sites were to become dilapidated or destroyed, its loss would diminish the heritage of all the peoples of the world. Consequently, the international community must also take joint responsibility for the world's heritage. Since recognition as a World Heritage site does not involve any financial assistance from UNESCO, the governments and local authorities concerned undertake to fund the protection and preservation measures independently.

The World Heritage Committee selects World Heritage sites on the basis of criteria which are laid down in the World Heritage Convention. The most important selection criterion is that the cultural or natural heritage be of "outstanding universal value". Other essential criteria are the uniqueness, authenticity (historical genuineness) and integrity (intactness) of the site. Key instruments for preserving World Heritage sites are international appeals, resolutions, recommendations and charters. The primary objective of this Management Plan is to guarantee that the features of the "Speicherstadt and Kontorhaus district with Chilehaus" that make it of unique universal value are safeguarded, and that the measures envis-

aged to achieve this are in accordance with the Operational Guidelines for the Implementation of the World Heritage Convention.

1.3 Coordination of the Nomination Process

Within the Free and Hanseatic City of Hamburg, it is Hamburg's Regional Ministry of Culture, led by Senator Prof. Barbara Kisseler, which has overall responsibility for the nomination. The Heritage Protection Agency, which is responsible for coordinating the nomination, is part of that Regional Ministry. The contact details of the colleagues concerned in the Heritage Protection Agency are as follows:

Free and Hanseatic City of Hamburg
Heritage Protection Agency
Grosse Bleichen 30, D-20534 Hamburg

Andreas Kellner, Director
Tel: 0049-(0)40-42824-701
e-mail: andreas.kellner@kb.hamburg.de

Dr. Agnes Seemann, World Heritage Project Manager
Tel: 0049-(0)40-42824-750
e-mail: agnes.seemann@kb.hamburg.de

The same staff in the Heritage Protection Agency are also responsible for liaising with UNESCO's international Advisory Bodies, in particular ICOMOS, and with the World Heritage Centre, which is the Secretariat of the World Heritage Committee and will ultimately decide whether or not to include the site on the World Heritage List.

1.4 Legal Status of World Heritage Sites and of this Management Plan

UNESCO World Heritage sites are nominated by States Parties to the World Heritage Convention for inscription on UNESCO's World Heritage List. Officially, then, it is the Federal Republic of Germany which is responsible for nominating the "Speicherstadt and Kontorhaus district with Chilehaus". However, given that Germany's federal system devolves cultural affairs to the individual federal Länder, the nomination and management of UNESCO World Heritage sites require close cooperation between the Federal Government and the Länder. UNESCO World Heritage sites are situated on the territory of individual States, which pledge to preserve them for future generations. Legally, then, they are subject to international law. The result is that international, national and regional laws overlap. That is precisely why UNESCO's Operational Guidelines call for "Management Plans" to be drawn up.

In principle, Management Plans do not have the same legal status under German planning law as traditional building and planning legislation. However, given the complex legal and organisational context, and in the light of the technical expertise required to safeguard and sustainably develop complex sites such as the "Speicherstadt and Kontorhaus district with Chilehaus", particularly in terms of coordinating and integrating the different implementing bodies involved, this Management Plan is extremely important. If it is to be workable, it is vital that it dovetails perfectly with the existing laws, planning regulations and planning guidelines of the Free and Hanseatic City of Hamburg, and in particular with the Heritage Protection Act and the existing general development and construction frameworks. At the same time, it is very important for there to be optimal coordination between the Management Plan and existing sets of plans and planning objectives of the Free and Hanseatic City of Hamburg. In that sense, the Management Plan seeks to serve as a reference point for all stakeholders.

1.5 Structure of the Management Plan

The structure of the Management Plan is as follows:

» Part I – Description:

History and description of the site; proposed assessment of the site's significance; explanation of how the World Heritage area has been defined; main protection objectives and other key goals, and legal instruments for the preservation and sustainable development of the future World Heritage site.

» Part II – Administration and Management:

Details of administration and management; key objectives for the development of the nominated property and potential threats.

» Part III – The Future of the nominated property:

Details of essential plans and implementation pathways for the preservation and sustainable development of the nominated property.

Fig. 3: View from the east to the Speicherstadt and the Kontorhaus district

Part I Description

2. Description of the Site

2.1 Characteristics of the Site and its Surroundings

» Name:
"The Speicherstadt and Kontorhaus District with Chilehaus"

» State, province or region:
Federal Republic of Germany / Free and Hanseatic City of Hamburg

» Location:
The World Heritage area lies in the north of Germany in the Free and Hanseatic City of Hamburg, immediately to the south of the historic city centre. The World Heritage area measures around 1.5 km from west to east.

» Coordinates:
UTM 32N: East 56605; North 593343

» Extension:
Nominated property: 26.08 hectares
Buffer Zone: 56.17 hectares

2.2 History and Description of Hamburg's Speicherstadt and Kontorhaus District

In the 19th century, the pace of globalisation in business and trade began to accelerate. This development not only had a major impact on the world economy, but also on the urban development of port and trade cities. In the late 19th and early 20th centuries, new kinds of cities began to be formed in metropolises the world over. This process affected the centres of more and more cities and increasingly led to their becoming functionally segregated. The concomitant expansion of the services sector drove residents and other users out of the city centre.

Within just a few decades, Hamburg became one of the most important port cities in the world. This expansion led to a radical restructuring and systematic transformation of the city centre. Two events at the end of the 19th century were critical here: Hamburg's accession to the German Customs Union in

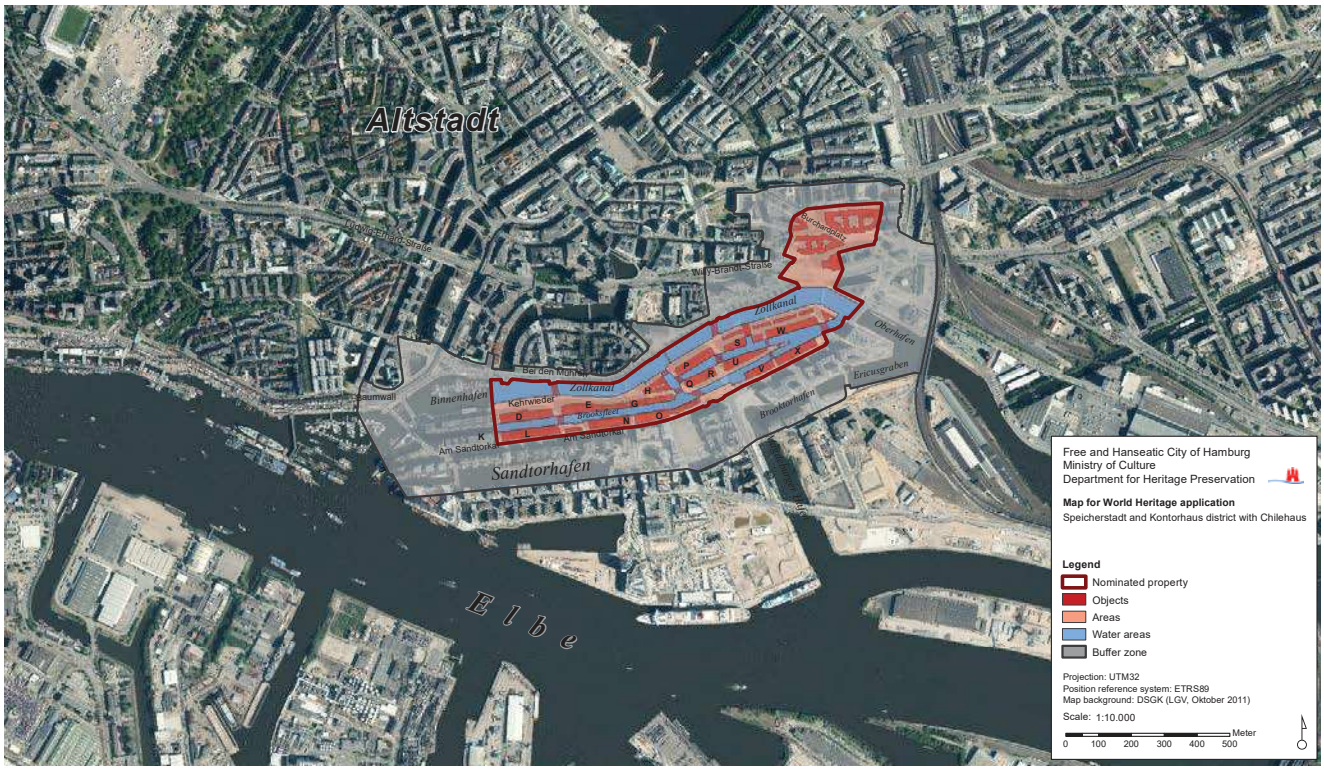


Fig. 4: Location of the nominated property in Hamburg

1888 and the devastating cholera epidemic of 1892.

Even before full integration into the German Customs Union, the Speicherstadt project led to the displacement of the 16,000 inhabitants of the Brookinseln (Brook islands), to make way for the new warehouse district. The cholera epidemic claimed some 8,600 lives and provided the impetus for the rehabilitation of large parts of the city centre. The Hamburg Senate systematically bought up land, had most of the buildings on the acquired plots demolished and, after adopting a comprehensive urban restructuring programme, put the land back on the market. The plots were purchased by private investors, who built new buildings on them. Nearly 50,000 inhabitants were affected by these rehabilitation measures.

In other words, within only a few decades at the end of the 19th and the beginning of the 20th centuries, Hamburg's city centre changed from a pre-industrial town into a modern city with monofunctional districts, which exclusively served the economic needs of the metropolis, more particularly those of global trade and Hamburg's international port. Two of these districts, one in Hamburg's old town and the other immediately to the south of it, are of major historical and economic importance for Hamburg as a port and trading city. These complementary districts, which are closely related both physically and functionally, are:

- Hamburg's Speicherstadt, a district of warehouses for the storage, processing and transhipment of goods imported through the port.

- The Kontorhaus district to the north of the Customs Canal, with the offices of companies engaged in shipping and port-related activities.

2.2.1 Historical Background to the Building of the Speicherstadt

The Speicherstadt was built in the context of Hamburg's integration into the Customs Union of the German Empire. In 1866, Prussia annexed both Schleswig-Holstein and the Kingdom of Hanover, making it Hamburg's direct neighbour and interlocutor. Hamburg joined the North German Confederation and became part of the German Empire in 1871. Initially, this unification policy had a positive impact on the Free and Hanseatic City: A treaty with Prussia on the transfer of certain waterway and port management rights (Köhlbrandvertrag) enabled the port to be modernised and extended to the islands in the River Elbe (the Sandtorhafen was built in 1866 using the southern section of the city moat; it was Hamburg's first artificial port basin). Three hitherto unconnected railway lines were also linked up in Hamburg in the years following 1866, making the city the most important transport hub in the north. But the protectionist measures introduced by Otto von Bismarck, in response to the economic depression and competition from England, threatened Hamburg's privileged free trade position and with it the very basis of Hamburg's trade. A compromise was struck, which granted Hamburg the privilege of continuing to operate a limited free port.

2.2.1.1 The Origins of the Speicherstadt

A large number of new warehouses had to be built to store goods which were exempt from customs duties. The technical master plan for the free port, which was drawn up in 1882, drew a distinction between two types of goods handling. Quick transhipment was to be performed on the quays themselves, where seagoing vessels could moor. On these quays there would be long rows of large, mainly one-storey, sheds designed for sorting goods, ready for distribution and onward transport. However, goods which required longer-term storage and processing were to be stored in a complex of large multi-storey warehouses, which would be built alongside narrow canals, which

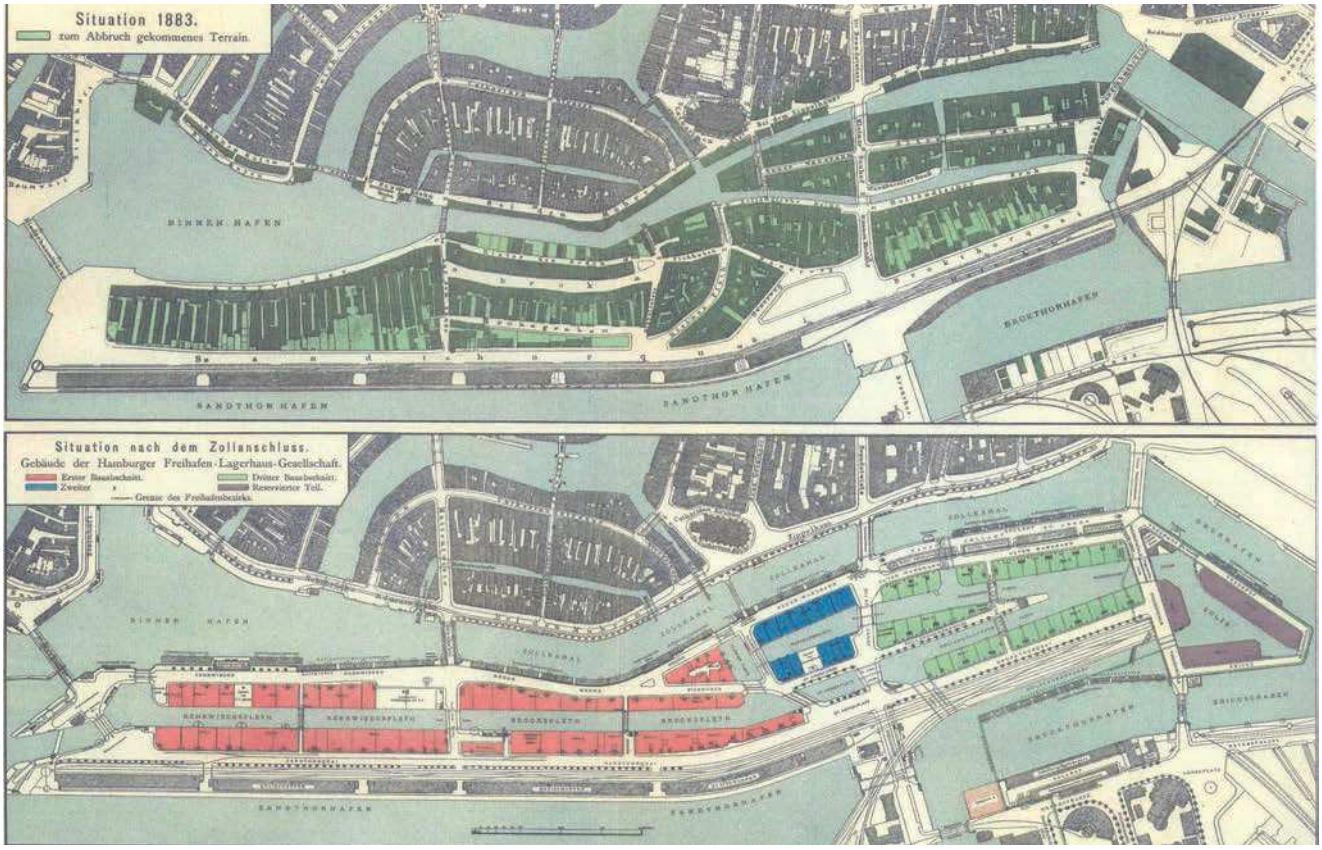


Fig. 5: The Brookinseln (Brook islands) before and after the Speicherstadt was built

would be navigable only by barges. This type of handling necessitated a two-stage loading and unloading process, but this was deemed acceptable: for these goods careful handling rather than speed was of the essence.

After a prolonged debate about various alternative locations, a decision was made about where best to site the new complex of warehouses. Mindful of the fact that trading companies and the stock exchange were keen to have the Speicherstadt close by, the southernmost part of the city centre was chosen: the Brookinseln (Brook islands), a narrow strip of islands running from east to west, immediately to the north of the Sandtorhafen, which was the most modern part of the port at the time. In 1883, the western part of the district as far as Kannengiesserbrücke was demolished. The existing waterways were straightened and dredged to create permanently navigable canals. The first section of the Speicherstadt was constructed here between 1885 and 1888; the second between 1891 and 1896, and the third between 1899 and 1912. The only later addition was the eastern section of warehouse block W which was not built until 1927, when the first office buildings in the Kontorhaus district were being erected, also in a comparatively progressive style.

After 1883, some 1,000 houses in the Kehrwiederviertel and Wandrahmviertel districts were cleared and demolished to make way for the new warehouse blocks. 16,000 people were evicted from their homes, and the historic topography of a whole area, dating from the 17th and 18th centuries, was obliterated.

2.2.1.2 Owners and Users of the Speicherstadt

On 7 March 1885, the Hamburg Free Port Warehouse Association (HFLG) was founded to raise private funding for the building of the Speicherstadt and other

warehouses in the Free Port. However, the land on which the Speicherstadt was to be built remained in state hands. It was leased to HFLG on the condition that the city would get a share in the proceeds. Also, the city was authorised successively to acquire all of the shares in the HFLG joint stock company. This objective was not reached until 1928, but in practice the HFLG acted as a state-owned enterprise right from the outset. For instance, it was obliged to submit cost estimates and development plans to the Senate and was not even allowed to fix the level of rents independently. In 1935 the HFLG was merged with the Administrative Agency for Quays (Staatlichen Kaiverwaltung) and in 1939 it was renamed the Hamburg Port and Warehouse Association (HHLA). In 2005, its name was changed again to Hamburg Port and Logistics plc. Before the initial public offering in 2007 the HHLA was split into two separate enterprises, one for port logistics and the other for real estate. The Speicherstadt shares belong to the real estate group and have remained the property of the city. In other words, the Speicherstadt has practically never changed hands.

2.2.1.3 The Building of the Speicherstadt

Building the Speicherstadt was an outstanding achievement in terms of the technical, urban planning and architectural challenges it presented. This achievement was mainly credited to Franz Andreas Meyer, Chief Engineer in the Parliamentary Consultative Committee for City Development (Baudeputation), who was regarded as having masterminded the project and held in high esteem as a result, even during his lifetime. In reality, Franz Andreas Meyer only drew up the plans for the publicly funded part of the Speicherstadt, namely the bridges, the two state-owned warehouses and the buildings housing technical facilities. But it is safe to say that the Speicherstadt's specific qualities would have been quite inconceivable without his influence.

When designing the warehouse blocks, Franz Andreas Meyer drew on traditional models of Hamburg warehouses: Storage was arranged over several storeys, to and from which goods were lifted and lowered with the help of winches, as they had been for centuries. The winch wire cables were attached to the top of the warehouse façades. Each storage space was equipped with hinged or sliding wooden loading doors on both the water and land sides, known as Luken (hatches). These loading doors were arranged one above the other, terminating in gables at roof level. The winch derricks were protected by copper-covered pediments.

But that is where the similarities between the old warehouses and the new Speicherstadt ended: The new Speicherstadt warehouses were modern constructions equipped with innovative technical systems such as electric lighting and hydraulic systems for driving the winches and platform lifts. The ware-

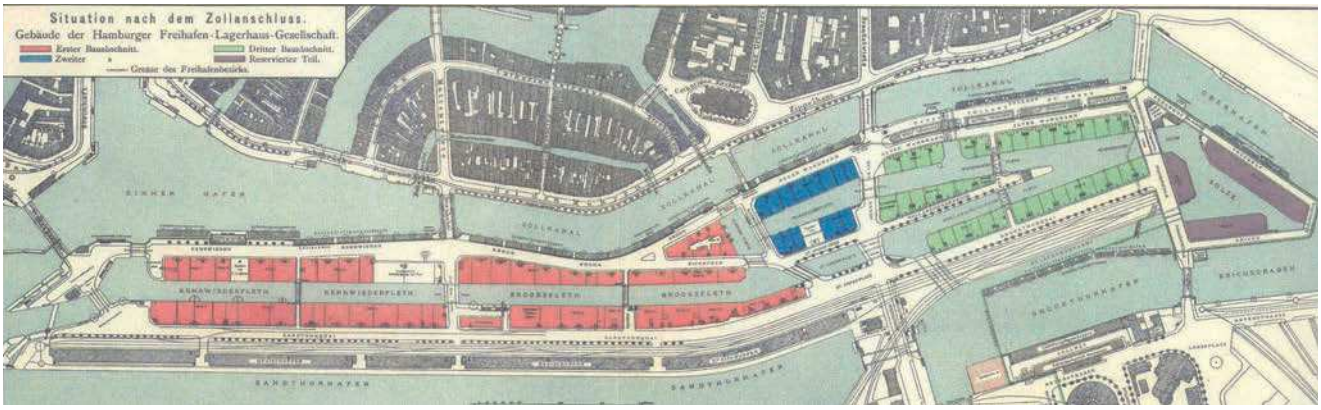


Fig. 6: Construction phases of the Speicherstadt

houses also featured improved fire protection. In addition, the floor plans were designed for maximum efficiency, giving the Speicherstadt an almost proto-modern character.

The first construction phase, during which blocks A to O were built, was already completed in time for the opening of the Free Port on 15 October 1888, and covered an area of some 250,000 square metres, i.e. about two thirds of the total Speicherstadt area. In order to cope with the sheer volume of construction in the three years prior to accession to the Customs Union in October 1888, the builders had to use prefabricated construction modules and standardised floor plans, and had to streamline many other parts of the process. While considerations of economic efficiency were strictly observed, no compromises were made when it came to craftsmanship and the technical quality and sturdiness of the buildings.

The second construction phase from 1891 until 1896 encompassed blocks P and Q/R, while the third included blocks S to X. It lasted from 1899 till 1927, but most of the construction was complete by 1912.

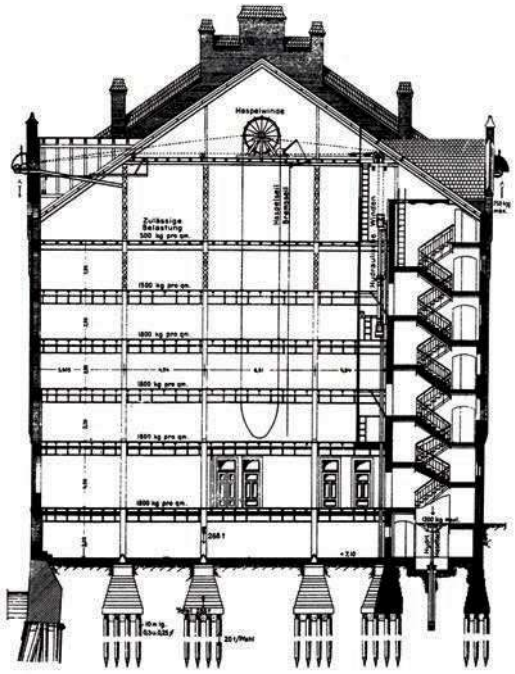


Fig. 7: Cross-section through a warehouse building (block D)

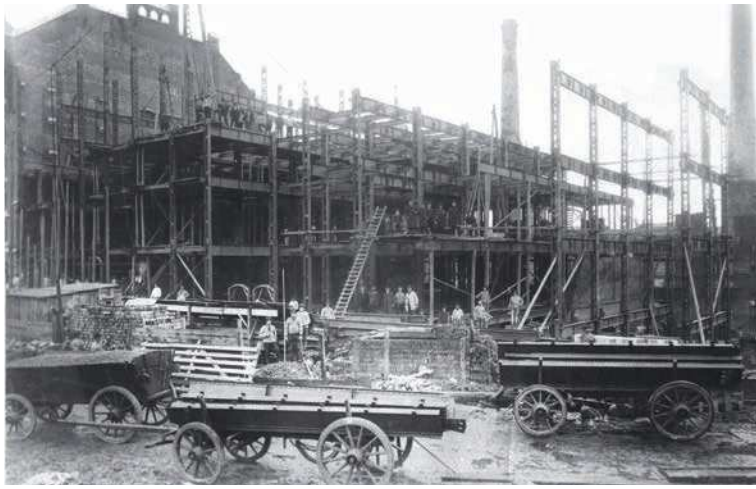


Fig. 8: Block E under construction

The eastern half of block W was an exception, since it was built after World War I (1925-1927). It is likely that plans for the fourth construction phase (blocks Y and Z) had been conceived by 1914, but their implementation was thwarted by World War I and the economic crises that ensued during the Weimar Republic. The Ericusspitze in the south-east of the Speicherstadt therefore remained undeveloped until very recently.

The entire Speicherstadt was built on wooden foundation piles. The warehouses, which were separated into fire sections by transverse walls, were built as skeleton constructions to enable large, undivided, and therefore flexible storage spaces to be produced. The wrought-iron skeleton structures from the first construction phase had proved not to be fire-resistant, which is why wooden skeleton constructions were used from 1892. From 1903 onwards, concrete floors and clad cast iron support pillars were used, and later sheathed steel skeletons were employed. Buildings which have been reconstructed since World War II have generally used concrete skeletons.

Most skeleton constructions were erected independently of the outer walls so that the latter do not really have any load-bearing function. Rather, they provide the outer shells for the warehouses, keep-

Fig. 9: Overall view of the Speicherstadt and the Customs Canal

Fig. 10: Historical photograph block O

ing their indoor temperature constant, an important precondition for the storage of sensitive goods.

By 1927, 17 large warehouse complexes with between five and seven storeys had been built. In addition, there were a total of six free-standing individual buildings or groups of buildings, which were part of the technical infrastructure of the Speicherstadt or served other purposes directly connected with the warehouses. Among these were the Central Power House, the Boiler House and buildings used for administrative and customs purposes.

The Design of the Historic Warehouse Blocks

All the blocks in the first construction phase, plus block P from the second, had the same structure. The water and land side façades were very similar in design: The base of the buildings, consisting of one or two storeys, had large windows, since these lower storeys were designed to house the offices of storage and trading companies, but could also be used for storage. There were three or four upper storeys, which were intended exclusively for storage, which is why they had smaller windows. All the blocks were built with hipped, steeply pitched roofs, whose large surface areas were punctuated by the gables of the winch dormers. In most blocks the vertical loading door axes extended from the ground floor to the pedimented winch dormers thus conferring an architectural unity on these three heterogeneous zones of the façades. The ends of the blocks and other exposed parts were given prominence through gables and towers, making the Speicherstadt visible from afar.

Blocks N, O and H feature variations on this structural schema. Blocks N and O were reserved for cof-

Fig. 11: Historical photograph Speicherstadt with blocks O, G, Q und Rd R

fee trading companies. Their three lowest storeys were exclusively reserved for office space, which is why they had large windows throughout. The three upper storeys were for storage only, something that again was indicated by the difference in window sizes and the existence of loading doors (there were no loading doors on office floors). Because of its trapezoid floor plan, block H was particularly suitable for use as office space. It did not offer much storage space, though, which is why it only had loading doors on the interior courtyard façade, and why all the storeys had large windows.

Blocks Q and R from the second construction phase and blocks S, T, U, V, W (its western half) and X from the third phase were designed in the same way. However, in contrast to the older blocks, which all had steeply pitched roofs, these warehouses were built with flat gable roofs. This offered the advantage of being able to increase the number of standard storeys from five to seven. On their water side, these blocks have Westphalian Towers: round tower bays containing spiral stairways, which served as emergency escape routes.

All the façades were faced in red brick and lavishly decorated with friezes, cornices, dripstones, blind arcades, bays, consoles, thin risalto projections and tower bays, as interpreted by the Hanover School. The upper-storey window axes were also generally set back into the compact brickwork, creating a powerful relief effect thanks to the different façade layers. There were decorative strips made of coloured ornamental bricks, some of them glazed, clinkers or, in a few cases, small wall sections containing tiles and dark green glass bricks. These decorative elements accented the red brick façades, thus adding to the impression that the Speicherstadt warehouses really were the treasure chest of Hamburg merchants containing their most precious wares. Except for the administrative buildings of the HFLG, cut stone was not widely used in the Speicherstadt, being reserved only for certain exposed parts of the buildings such as their entrance portals. Thus, the choice of material reflected the status of the buildings.

The two administrative blocks of the HFLG (now Hamburg Port and Logistics plc) were built on the ends of blocks O and U respectively. They were thus fully integrated into the block structure of the Speicherstadt. However, in contrast to the other blocks, their façades were ennobled by prestigious structural effects and decorative sandstone

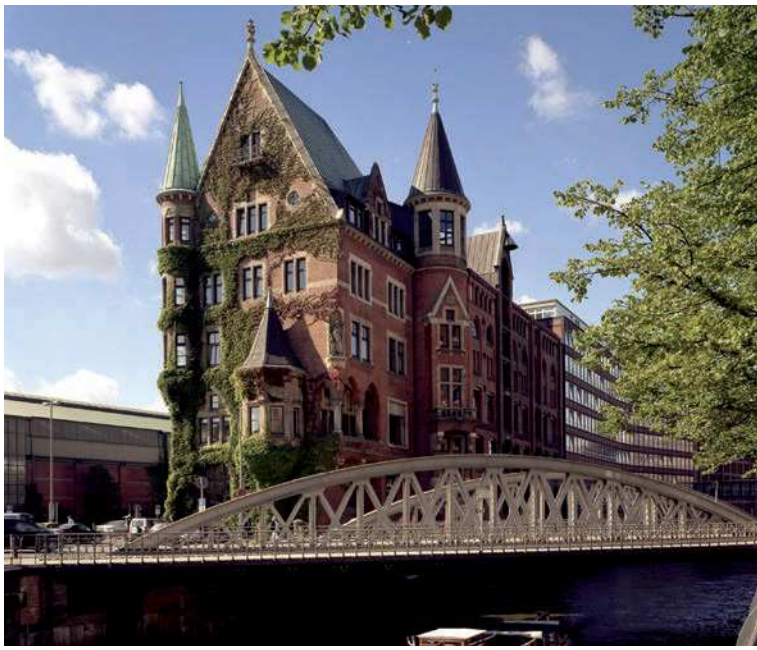


Fig. 12: First administration building of the HFLG

features. Whereas the first administration building had been designed to respect the neo-Gothic character of block O, in the second administration building these decorative elements were executed as a mix of Renaissance and late Gothic styles. As both administration buildings were built on the end of existing blocks, they were free to display their full potential on three sides, which gave them a greater presence in the Speicherstadt than their relatively small size warranted. This prominence was further enhanced by their rich roofscapes, featuring gables, tower bays, pedimented dormers and small transverse gables.

Fig. 13: The "town hall of the Speicherstadt", now the head office of HHLA, and block U

The present head office of HHLA, which was designed by Johannes Grotjan and Hanssen & Meerwein, is much more ostentatious than the uniform rows of warehouses. This lavishly structured end-of-row building between Holländischer Brook and Wandrahmsfleet (1, Bei St. Annen) is often referred to as the "town hall of the Speicherstadt".

The building of block X (1908-1912) and the eastern half of block W (1925-1927) marked the arrival of Modernity in the Speicherstadt. Under the eaves, block X was admittedly decorated with arched friezes featuring historical motifs, but for the remaining surfaces abstract geometrical shapes were chosen, in line with the general trend in German architecture towards more rational designs, a trend which was emerging around 1910. The brickwork in the upper storeys was unstructured and there were no coloured accents or decorative strips. The eastern half of block W, by contrast, is clearly different from the earlier warehouse blocks in that it has very expressive pillared facades made of dark red clinker and features much simpler forms. However, it does incorporate some of the characteristic motifs of earlier blocks, such as the loading door axes, the Westphalian Towers and the distinctive division of the façades into the base storeys and upper storage floors.

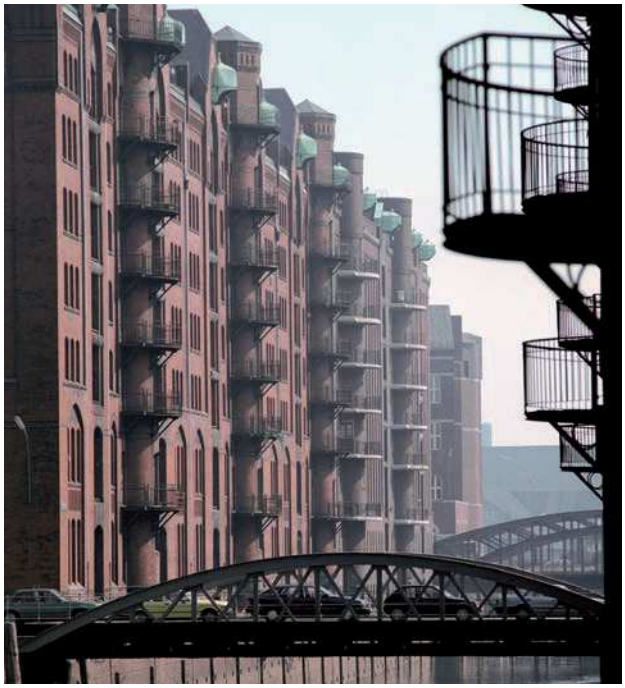


Fig. 14: Speicherstadt block W

The Historic Customs Buildings

For functional reasons, or because the ownership structure was different, some buildings in the Speicherstadt were not part of the block structure. Prime examples are the customs buildings on the Customs Canal and in the Binnenhafen, the southern bank of which marked the boundary of the Free Port until 2003. Originally, the customs buildings and the large

Fig. 15: Customs buildings on the Customs Canal and block W

sheds for clearing the goods ready for release to the Oberländer Kähne formed an almost uninterrupted row of single- or two-storey buildings on both sides of the canal. As a result, from the city centre the Speicherstadt looked as though it was almost hermetically sealed.

On Alter Wandrahm, a total of four very similar individual buildings were erected, three of which housed customs clearance halls on their ground floors, with administrative offices above, while the fourth exclusively served administrative purposes. This group of buildings was designed by the architects of the Baudeputation, more particularly of its Department of Hydraulic Engineering and Construction. Its lavish design was typical of the Hanover School and reflected Hamburg's position as a sovereign city state: As explained above, within the Free Port the city state did in fact have a claim to sovereignty.

The Winch Operators' House (Wasserschlösschen) and the Manned Fire Alarm Station (Fleetschlösschen)

Other individual buildings are the manned fire alarm station on St. Annenbrücke and the so-called Winch Operators' House on Dienerreihe. The latter contained the official apartments for the technicians who were responsible for maintaining and repairing the hydraulic winches, but also a garage and workshop on the ground floor. This compact building with a hipped roof, a clock turret and bays was built on a peninsula between Wandrahmsfleet and Holländischbrookfleet. It is a "point de vue", which explains its sophisticated design elements such as decorative strips of glazed green bricks and cut stone features, which accentuate the neo-Gothic brick façades.

Because of its very exposed position, the design of the small, single-storey neo-Gothic gable roof building housing the manned fire alarm station is more elaborate than might be expected from its function: It rests on two round granite pillars and overlooks

Fig. 16: Winch Operators' House (Wasserschlösschen)

Fig. 17: Manned Fire Alarm Station (Fleetschlösschen)

Holländischbrookfleet.

The infrastructure of the Speicherstadt

In addition to its buildings, it is in particular the infrastructure of the Speicherstadt that still gives it its distinctive appeal.

a) The Waterways

Traditionally, goods were transported around Hamburg Port by barges, the so-called Schuten. To enable them to access the Speicherstadt, three 20 to 25-metre-wide canals were built. The main canal extended the entire length of the Speicherstadt from the Kehrwiederspitze in the west to the Oberhafen in the east. Parallel to it, Wandrahmsfleet was built providing access to the warehouses from the second and third construction phases only. Kleines Fleet connected the two. The main canal was not named as one, but its designations matched the respective streets to which it ran parallel: Kehrwiederfleet, Brooksfleet, St. Annenfleet and Holländischbrookfleet. The Speicherstadt is separated from the city centre by the 45-metre-wide Customs Canal, its continuation to the west, the Binnenhafen, and the adjoining the Oberhafen to the east. Together they constitute the former boundaries of the Free Port.

b) The Streets

With the exception of the streets on the quays in the Sandtorhafen and later in the Brooktorhafen, which just had to be widened, the entire street network in the Speicherstadt had to be built from scratch. In the east-westerly direction, three streets were built which, wherever possible, ran parallel to the canals. The objective was to produce regular plots for the proposed blocks, although the irregular topography of some parts of the Brookinseln meant that this was not always possible. These three long streets were intersected by seven smaller ones running from north to south and by 10 bridges linking the Speicherstadt with the city centre. All the streets were paved with rows of granite cobbles.

Next to the roads, cobbled pavements were built, which were separated from the carriageway by granite kerbstones. Since the warehouses did not have loading ramps, the pavements were also used to place goods which had either just been lowered to street level or were waiting to be lifted up and into the warehouses. In the 1950s, the warehouse blocks were equipped with basement hatches, which were inserted into the pavements and covered by steel doors.

c) Bridges

As well as the street and canal network, all the bridges in the Speicherstadt had to be newly built. The only exception was Wandrahmsbrücke at the Oberhafen, which was built in 1859 and not replaced until 1909.

The bridges were designed by Franz Andreas Meyer and his successors Eduard Vermehren and Friedrich Sperber. By World War I, no fewer than 19 bridges had been built, 22 if you include the ones providing access to and from the Ericusspitze, although no warehouses were built there.

The sheer magnitude of the Speicherstadt project meant that it could only succeed if there was a degree of standardisation in terms of both construction and design. This explains why nearly all of the Speicherstadt bridges were arched bridges made of riveted profiled iron with low carriageways. The bridges built during the first and second construction phases, including Wandbereiterbrücke, were all designed by Franz Andreas Meyer and feature elaborate wrought-iron railings. In contrast, the later bridges are equipped with simple railings consisting of horizontal and vertical round bars.

Fig. 18: Kornhaus bridge across the Customs Canal

The basic construction of the bridges over the Customs Canal – Brooksbrücke and Jungfernbrücke (both built in 1886/87) – and Grosse Wandrahmsbrücke (1907-1909) is essentially no different from that of the other Speicherstadt bridges. However, they were made more prominent by the addition of towers and gate buildings at their ends. These additions are reminiscent of medieval fortifications and thereby complete the image of a "city of warehouses". Combined with the water of the Customs Canal, these bridges also helped to create a vivid backdrop to the Free Port boundaries.

The fourth bridge across the Customs Canal, Kornhausbrücke (1887/88), is a special construction of an arched bridge: The carriageway of this bridge is suspended by tie rods from steel trusses resting on four granite plinths. The bridge has no gate; instead Kornhausbrücke was adorned with four larger than life red sandstone sculptures, which were placed on the plinths: Christopher Columbus and Vasco da Gama on the north side (sculpted by Carl Boerner and Hermann Husaeus respectively) and Thomas Cook and Ferdinand Magellan on the south side (the sculptor of these figures is unknown). The sculptures were created in 1903.

The bridge abutments were faced in brick and are richly ornamented with cut stone details such as consoles and balustrades and imitation stone work at the edges. Inserted into some of the abutments are stairways leading to the water. At Kannengiesserortbrücke and Kornhausbrücke these stairways provide access to public toilets, whose cut stone window and door frames were designed to blend in with the overall appearance of the bridge. At St. Annenbrücke the stairways were combined with the Speicherstadt's manned fire alarm station.

2.2.1.4 War Time Destruction and Reconstruction

Despite the damage sustained during WW II and the recent trend (over the last one-and-a-half decades) to use the warehouse blocks for other purposes, the Speicherstadt has retained its unique urban and architectural character, and boasts a high degree of integrity and authenticity. Its original function as the storage centre of Hamburg's port is still obvious today. What is more, purpose-built buildings such as the Coffee Exchange and the customs buildings on Alter Wandrahm provide physical evidence of

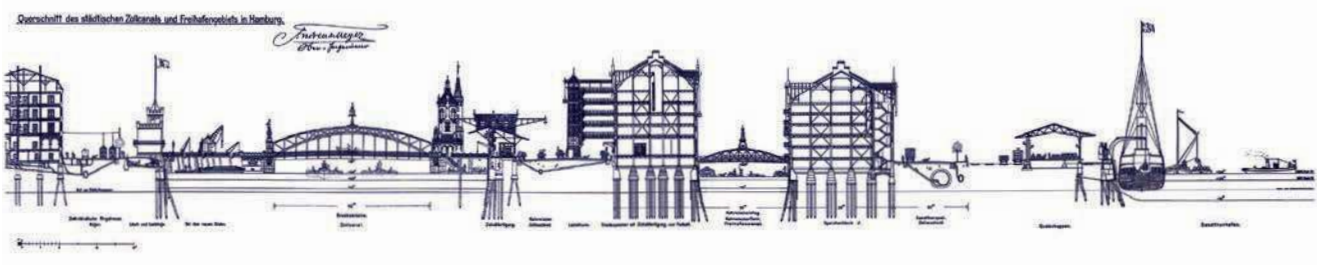


Fig. 19: Cross-section of the Speicherstadt

Fig. 20: Speicherstadt, block L after restoring

Fig. 22: Speicherstadt, Brooksfleet with block M/N and E

the Speicherstadt's erstwhile importance as a trading centre and its former affiliation to the Free Port. This is in no small measure thanks to The Hamburg Port and Warehouse Association (HHLA), which has owned the vast majority of the Speicherstadt's buildings ever since it was constructed. This continuity of ownership is one of the key factors which has enabled the authenticity of this great ensemble to be preserved – despite the damage caused during the war and recent changes of use.

The network of streets and canals within the prospective World Heritage area remains as originally constructed. No major changes have been made to the profiles of either the streets or canals. The clinker-faced quay walls, cobbled streets and pavements have also largely been preserved in their original state. The only exceptions are Am Sandtorkai and Brooktorkai along the southern edge of the Speicherstadt, which were tarmacked after World War II. Of the original 14 historic bridges in the area nominated for World Heritage status, 12 remain completely or predominantly in their original condition, so that the Speicherstadt infrastructure is virtually the same as it was when it was first built. However, some modifications were made to the surviving historic bridges during the post-war period. In the early 1950s, Brooksbrücke and Jungfernbrücke had to sacrifice the bridge-end gates which had been damaged during the war, as their carriageways had to be raised to improve the navigability of the Customs Canal.

Fig. 21: Speicherstadt, Pickhuben Bridge

The technical equipment of the warehouse blocks is also largely intact, and continues to constitue one of the characteristic features of the Speicherstadt to this day: the operating rods for the winches, attached to the outer walls next to the loading doors, the winch bay roofs and the steel wire winch cables with their integrated round counterweights. On the

land side of the warehouses all the counterweights are still intact, while on the canal side most of them were removed when the winches stopped being used more than 20 years ago. Most of the electrical motors driving the winches have been preserved, however, and a large proportion are still operational.

Of the 15 warehouse blocks in the nominated Speicherstadt area, eleven suffered severe damage during World War II. However, most of the blocks were not affected in their entirety: Often, only single fire sections were damaged while the adjoining sections were left almost intact. In some of the severely damaged fire sections only parts of the façades collapsed, while others remained completely intact and were integrated into reconstructed buildings. The wood pile foundations of the Speicherstadt, too, only sustained minor damage in World War II and, together with the old quay walls, they were re-used when the Speicherstadt was reconstructed.

The two administrative buildings of the Hamburg Free Port Warehouse Association, the Winch Operators' House (Wasserschlösschen), the Manned Fire Alarm Station (Fleetschlösschen) at St. Annenbrücke and the four customs buildings on Alter Wandrahm, are among the most prestigious of all the buildings in the Speicherstadt and contribute significantly to its specific urban and architectural character. Fortunately, they suffered only minor damage during World War II. However, one of the four customs buildings was modified during the 1950s: Additional storeys were added and a drive-through passage was incorporated. The former Boiler House is also in its original condition, with the exception of its two chimneys, which were lost. In 2002, the Boiler House was modernised in a way that was compatible with its status as a listed heritage asset: Two lattice constructions modelled on the two original chimneys were erected and the characteristic outline of the building was thus restored.

As described above, most of the warehouse blocks which had been damaged during the war were faithfully reconstructed to their original design. Blocks M and R 3 were so badly damaged that only their street-side facades could be reconstructed. These were integrated into new buildings. While the rebuilt façade of block R 3 largely resembled the original, except for the roof area, which was simplified, the façade of block M was reinterpreted and given a heightened facade and modern winch gables.

In some cases, such as with the western sections of block O and the eastern sections of blocks G and R, this approach was impossible due to the extent of the damage and a desire to reorder storage and office areas. The ruins of these warehouse blocks

Fig. 23: Speicherstadt, restored block M / N

Fig. 24: Speicherstadt, new eastern section block R

were therefore demolished to the level of the foundations and the gaps left by the ruins were filled with suitable buildings. Of all the buildings within the area nominated for the World Heritage site only block T was so severely damaged that, except for the foundations, hardly any of the original building fabric remains. In the place of this small block, a new building was erected.

Werner Kallmorgen developed a new contemporary type of grid facade for the new office buildings in block T and the eastern sections of blocks R and G. However, while they were modern in design, they featured some of the characteristics of the historic warehouses, such as almost uninterrupted red-brick facing and detailed craftsmanship in the shape of brick-on-edge rowlock lintels, which gave them a traditional feel. The precision with which all the façade details were crafted from standard brick sizes is reminiscent of the aesthetics of the Hanover School as far as the materials are concerned. Both the new façade of block P and the dome-shaped windows of blocks R and T recall the historic Speicherstadt architecture.

The new coffee exchange, which was built to designs by Kallmorgen and Schramm & Elingius in 1955/6, is the only building to depart from that approach in terms of both the architectural language and the materials used. This underlines the importance of the coffee trade in the Speicherstadt.

The new buildings from the post-war period are almost entirely original. The only exceptions are the two western sections of block O, which were demolished in 2003 and replaced by a multi-storey car park of a sympathetic size and design.

The historic wooden pile foundations, complete with the quay walls, were all re-used when the Speicherstadt was restored and new buildings were erected. To this day, therefore, with the sole exception of the new car park, the entire Speicherstadt rests on its original foundations.

2.2.1.5 The Development of the Speicherstadt from 1945 to the Present

While some of the Speicherstadt buildings continue to be used for storage, since 2000 many blocks have been converted into offices and a few now house retail shops and catering outlets on their ground floors. Other warehouses have become the homes of cultural attractions, such as the Speicherstadt Museum, the Miniature Toy Train Wonderland and the Dialogue in the Dark. Apartments are few and far between.

Fig. 25: The new coffee exchange

Fig. 26: Speicherstadt, Modernisation block U

Any modifications to buildings can only be carried out in close cooperation with the heritage protection authorities.

As far as possible, the historic building fabric is only altered to accommodate new sanitary facilities and to improve access, e.g. by installing lifts, and to fit room partitions, which are made of glass so that it is still possible to appreciate the full extent of the spacious warehouses. The outer appearance of the buildings remains largely unchanged and inside they are still characterised by their original steel skeleton constructions, with wooden or cast iron pillars. The original access routes to the different parts of the building are also respected. Blocks D, P, Q, R, S, U and the western half of block W have already been revitalised in accordance with these criteria.

The second HFLG administration building in block U was also modernised in keeping with heritage protection requirements. It was amalgamated with the adjoining warehouse block and now houses the headquarters of Hamburg Port and Logistics plc (HHLA). To achieve this, the atrium of the administration building immediately adjacent to block U was given a filigree glass roof and this area now serves as lobby for both buildings. A lift with a glass tower was also added in the interior courtyard, providing barrier-free access to all offices.

Since 2010, efforts have also been underway to rehabilitate and modernise some of the Speicherstadt's post-war buildings, also in keeping with heritage protection guidelines, in some cases making it possible to use them for new purposes. They are predominantly office buildings with reinforced concrete skeletons. While their interiors are upgraded, the facades, the skeleton constructions and the internal access routes are retained. The former office complex operated by the coffee trading companies in block O is currently being converted into a hotel. The former Coffee Exchange, which is connected to the hotel by a glass walkway, is being annexed by the hotel to function as its catering and event complex.

New uses have also been found for other special-purpose buildings in the Speicherstadt. For example, the former customs building at 15 – 16, Alter Wandrahm, which, as well as having offices upstairs, boasts a large former customs clearance hall on the ground floor, was ideally suited for the German Customs Museum. The workshops of the former Winch Operators' House on Dienerreihe now house a restaurant.

In recent years, cultural and tourist activities have become established in the Speicherstadt. Each year they help to attract millions of visitors to the Speicherstadt, visitors who are looking not only for the standard popular tourist attractions but also want to experience the authentic atmosphere of Hamburg as a port and trading city.

In a bid to preserve this authentic character in the future, a Development Concept for the Speicherstadt was recently drawn up and has been agreed by all the parties involved.

2.2.2 The History and Development of the Kontorhaus District

In the wake of the devastating cholera epidemic of 1892, the Senate decided to rehabilitate large areas of the so-called old and new town (Alt- und Neustadt). The latter was the first area to be tackled.

Since the redevelopment area in the old town city was very extensive, the project was carried out in several phases. First, the area to the north of Steinstrasse was redeveloped, which also involved the construction of the around 750-metre-long Mönckebergstrasse (1908-13), which was reserved exclusively for offices and retail outlets. The next area to be tackled was the south-eastern part of Hamburg's Altstadt district, between Steinstrasse and the Messberg, the area of the present Kontorhaus district.

The south of the Kontorhaus district borders the Speicherstadt, and is only separated from it by the Customs Canal. Grosse Wandrahmsbrücke, which was replaced by a footbridge in 1962, originally provided a direct connection between the two ensembles. The Kontorhaus district's favourable location, with good transport links, was a decisive factor in its success. It was primarily used by companies involved in trade and shipping, which benefitted from the district's proximity to the eastern part of the Free Port, and the fact that it was within walking distance from the warehouses of the Speicherstadt.

The Kontorhaus district was constructed at a time of political and economic upheaval. The first buildings were erected during the inflation years, when there was a chronic shortage of capital. However, soon after the end of the war, the port and traders benefitted from the German economy's strong focus on exports, particularly since the steady decline in the German currency gave German exports a competitive advantage. The port was able to recover quickly after the period of hyperinflation in 1923.

Progress on the construction of the Kontorhaus district reflects this historical context. The Chilehaus, Messberghof and Miramar-Haus were built during the period of high inflation (all 1922-24). After the end of the inflation period, the following buildings were constructed: the Montanhof (1924/25), Haus Gülden Gerd (1924/25), the Post Office Building in Niedernstrasse (1924-26), the Mohlenhof (1927/28), the first two sections of the Sprinkenhof (1927-30), Haus Hubertus (1930/31) and the Rodewaldthaus (1930/31).

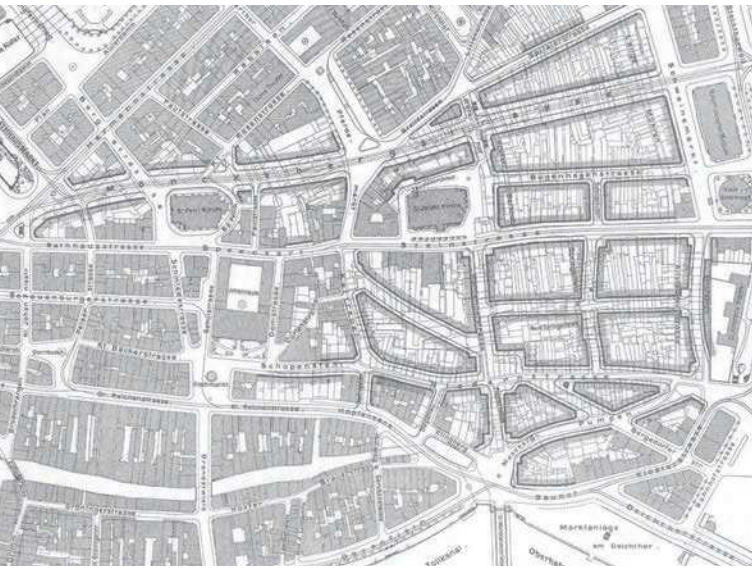


Fig. 27: Urban renewal area old town district

Fig. 28: Chilehaus and Old Wandrahms Bridge

The Bartholomay-Haus (1937/38), the Pressehaus (1938/39) and the third section of the Sprinkenhof (1939-43) were constructed during the Nazi period. The two residential complexes on Steinstrasse (1935/36 and 1936/37 respectively) were a special case. They were planned soon after the global depression of the 1930s, when there was clearly no demand for more office space. After World War II, any undeveloped plots were again used for office buildings.

2.2.2.1 The Infrastructure of the Kontorhaus District

Once the original buildings had been demolished, the road network was improved and extended. Some of the existing streets, such as Niedernstrasse, Mohlenhofstrasse and Fischertwiete, were simply widened and straightened. However, others were re-designed completely, including Altstädter Strasse, the central Burchardplatz and Burchardstrasse, which cut diagonally across the entire district, and formerly led to Bergedorfer Strasse, which no longer exists today. It was this radical redesign of the original road infrastructure that produced the oblique-angled plots, which so challenged the architects' creativity. The Chilehaus is a particularly good example of the outcome.

To this day, the unaltered parts of the road network still feature the original large granite cobble setts, which are arranged in rows with tar in the gaps between them. The granite kerbstones are also original. At that time, trees were a rare sight in Hamburg's city centre streets. Neither were there any fountains, monuments or other decorative features, with the exception of the square in front of the Messberg. As a result, Burchardplatz and the south-eastern end of Burchardstrasse, which is like a square, are still used as car parks today. However, it was precisely this austere design, which has only been softened in the last 20 years by the addition of trees and plants, which gave the Kontorhaus district its particular character. Thanks to that, the Kontorhaus buildings could completely dominate the urban space.

2.2.2.2 The Nominated Property of the Kontorhaus District with Chilehaus, Messberghof, Sprinkenhof and Mohlenhof

The Kontorhaus district is striking in its architectural consistency. The buildings constructed before 1931 are predominantly large-scale edifices, which in some cases fill entire blocks. They have clinker façades, white lattice windows, flat roofs and stepped-back upper storeys. The buildings from the Nazi period follow the same pattern except that they have pitched roofs, apart from the Pressehaus which, when it was rebuilt after World War II, was also given stepped-back upper storeys.

The buildings in the Kontorhaus district which are being nominated for the World Heritage List – the Chilehaus, Messberghof, Sprinkenhof and Mohlenhof – stand out from the other buildings in the Kontorhaus district because of the exceptional quality of their architecture. These buildings, which were constructed between 1922 and 1930, under the Weimar Republic – with the exception of the third section of the Sprinkenhof, which was only completed in 1943 – are amongst the most significant office block designs of the period. But these edifices broke new ground not only in qualitative, but also in quantitative terms: The Chilehaus offered 36,000 m^2 of gross floor space; the Sprinkenhof, which for a time was one of the largest office buildings in Europe, as much as 52,000 m^2. Even the Messberghof managed 18,200 m^2 in 1924. In comparison, the Mohlenhof, with 7,800 m^2, was merely a medium-sized office building by the standards of the time in Hamburg. The Kontorhaus architecture in Hamburg was virtually without precedent, not only in Germany but also in Europe, a fact which was already recognised at the time. In 1914, for example, the Deutsche Bauhütte magazine wrote: "The demands of this commercial city have presented the private construction industry

Fig. 29: The Messberg (around 1950)

Fig. 30: Chilehaus

[in Hamburg] with an extraordinary task, the like of which is otherwise only seen in London and in the major cities of the United States – to construct office buildings."

2.2.2.3 Fritz Höger and the Chilehaus

Fritz Höger, the creator of the Chilehaus and, in cooperation with Hans and Oskar Gerson, the Sprinkenhof, is one of the most renowned German architects of the 20th century, whose work also attracts significant international interest. Like Hans and Oskar Gerson, Höger was one of the generation of reformers who, in the years just before World War I, prepared to breathe new life into architecture, without denying tradition. The result was a regional version of the modern, whose functionalism was softened by conventional structural elements, traditional – often traditionally crafted – materials, and sparse decoration. Brickwork was the order of the day, particularly using clinker bricks. In Höger's case, this objectivism emerged particularly clearly in his Kontorhaus designs, which increasingly sought to achieve a harmony of line, culminating in the verticalism of the Chilehaus.

Höger justified this uniformity primarily by economic reasons, as he explained in 1925 in the Zentralblatt der Bauverwaltung magazine: "The only correct choice for a building which, after completion, will be leased by the square centimetre and for which maximum freedom is required when dividing the space into rooms, is the single rhythmic pattern. A double pattern or any irregularity on the fronts of the buildings, regardless of whether it is the result of errors in the construction or misunderstood architecture, is an irreparable mistake." However, there were also aesthetic reasons. The façades were more severe more homogeneous, and above all more dynamic as a result, corresponding to the expressionist style of decoration which became current at the beginning of the 1920s.

The Chilehaus, a major work by Fritz Höger, was built between 1922 and 1924. It was commissioned by Henry Brarens Sloman, who owned saltpeter mines in Chile and therefore had a ready supply of foreign currency, which is why he was able to construct the building during the inflation years. Only parts of the planning history can be pieced together, since the majority of Höger's archive was destroyed by fire in an air raid. Designs were also submitted by Hans and Oskar Gerson and by Puls & Richter, who competed with Höger for the commission.

The idea of spanning Fischertwiete, which split the plot in two and led across the Wandrahmsteg to the Speicherstadt, thus providing a direct connection between the two districts, featured in Höger's design from the outset, whereas the building's distinctive silhouette and the characteristic structure of the façades only emerged gradually. This is suggested by the only one of Höger's early draft designs to have survived, which is dated 19 January 1922 and has been deposited in the building's official documentation archive. It shows a view of the northern façade, whose square corner pillars, oriel windows and historically inspired forms on the gateway to Fischertwiete are reminiscent of his Rappolthaus. The only hint of the building's final appearance in this early sketch was the stepped-back upper storeys.

Alongside the shape of the main body of the building, Höger was particularly concerned with the detail on the façades, although here it is striking that he has reined in his sometimes over-exuberant imagination when working with clinker bricks and has restricted himself to one single structural motif. In front of the pillars on the façades, buttress-like supports jut out at an angle of 45 degrees to the building, so that they look like tapered ridges. When viewed from a particular angle, they appear to be so close together that the windows are no longer visible, and the façades appear to be homogeneous, uniform brick surfaces. Or, as Höger himself put it in 1925 in the Zentralblatt der Bauverwaltung: "The

Fig. 31: Chilehaus, entrance hall A

main feature of the Chilehaus's aesthetic quality is its single, rhythmic pattern. The many windows on the façades cause the building to lose its solidity, but the single, repeated pattern restores the façades to tranquil surfaces, which, in their uniformity, again reveal the monumental body of the building."

The Chilehaus did not sustain any substantial damage in World War II and, with the exception of the loss of a few minor features in the entrance area of gate B and the terracotta decoration on gate C, to the south, it has remained virtually unchanged, with its sculptures, its countless white painted lattice windows and its sumptuously decorated hallways and staircases. Only the shop windows were no longer original and were therefore replaced with windows designed as a free interpretation of the originals, as part of a project to modernise the entire complex (1990-93). The project was carried out by the architects WGK Planungsgesellschaft mbH in collaboration with the Hamburg Heritage Protection Agency, in line with heritage protection guidelines. At the same time, Fischertwiete was pedestrianised, and the original paving replaced by granite slabs.

2.2.2.4 The Messberghof

The Messberghof was constructed between 1922

and 1924 to a design by Hans and Oskar Gerson. It was funded by a limited liability company, Ballinhaus GmbH, which had been formed by a group of several different firms.

In contrast to its neighbour, the Chilehaus, the Messberghof has smooth façades, which are largely without decoration. The focus is on the workmanship in the technically demanding brickwork, which lends the building its particular quality. This purist aesthetic based on materials is in fact a general characteristic of the designs of Hans and Oskar Gerson, who were able to formulate their design creed in an article about clinker brickwork, which appeared in the Tonindustrie-Zeitung in 1925: "The interplay between the many slightly different bricks with their various different hues and the joins between them gives the surface its distinctive aesthetic appeal. We find it so appealing that, as a rule, we do not try to enliven the surfaces with anything else and, if possible, avoid fragmenting the structures [of the buildings]."

In World War II, the Messberghof sustained only relatively minor damage. The roof and part of the stepped-back storeys on Pumpen street were destroyed in an air raid in 1945 and rebuilt in a simplified design soon after the end of the war. The building was given a flat roof, with the original tower rising straight out of it. In another change, two large shop windows were fitted into the ground floor of the western façade. In addition, the sandstone sculptures by Ludwig Kunstmann, which had been placed on the pillars of the main façade, were removed in 1968 because of severe weather damage and were then misplaced, so that it was no longer possible to reconstruct them. Otherwise, the Messberghof remained in its original condition, both externally and internally.

All of the detrimental changes were remedied by the architects Schweger & Partner, in consultation with the Hamburg Heritage Protection Agency, as part of a project to modernise the building in line with heritage protection guidelines (1995/96). The original curvature of the roof area was restored, with a conscious decision made to use modern structures and materials such as titanium zinc sheeting. The lost sculptures were replaced in 1997 with abstract bronze statues by Lothar Fischer.

Fig. 32: Messberghof

2.2.2.5 The Sprinkenhof and Mohlenhof

The majority of the Sprinkenhof was a joint project by Fritz Höger and Hans and Oskar Gerson, who together were responsible for the first two phases of its construction, from 1927 to 1928 and from 1929

Fig. 33: Messberghof, stairwell

to 1930 respectively. The third section of the building, which was constructed between 1939 and 1943, was designed by Höger alone. Apart from the third phase, we will never know the relative contributions of each architect to the plans. Only the spiral staircases in the main stairwells of the first two sections of the building can be safely attributed to Hans and Oskar Gerson, who had already designed a similar staircase for the Messberghof.

The first section of the Sprinkenhof emerged relatively unscathed from World War II and is therefore entirely in its original condition, but the other two sections of the building were damaged. The damage to the original building fabric was, however, relatively minimal, particularly given that the reinforced concrete structure suffered no serious damage and the façades also remained intact. Even inside the buildings many historic details remain, including even historic paternoster lifts in the second and third sections.

The first and second sections of the Sprinkenhof were rehabilitated by the architects Kleffel, Köhnholdt and Partner, in consultation with the Hamburg Heritage Protection Agency and in line with heritage protection guidelines (2000-03). As part of the project, the entrance to the underground car park on Springeltwiete was closed, so that it could be used to accommodate the air conditioning units, and the car park in the interior courtyard of the second section of the building was covered with a glass roof. In addition, Springeltwiete was closed to motor vehicles, but retained its original appearance.

The Mohlenhof, which was constructed between 1927 and 1928, was designed by the architects Klophaus, Schoch and zu Putlitz. The developer was the Mohlenhof-Gesellschaft mbH, which was founded by Paul Hammer's building company. Our knowledge of the history of the planning of the Mohlenhof is also rather sketchy. The preliminary design dates from August 1927. The architects originally planned

Fig. 34: Sprinkenhof

a skeleton façade with the expressionist triangular motifs which were popular at the time, but this design also had to be revised at the instigation of the Building Commission. It wanted a façade that was as neutral as possible, due in part to the proximity of the Chilehaus.

Instead, the building was given a series of façades punctuated with narrow windows and was largely free of structural and decorative elements, with the exception of the ledge clad in artificial stone above the base of the building and the two friezes which decorated the main building on Burchardplatz and continued around the stepped-back upper storeys, where they formed parapets. The Mohlenhof suffered no serious damage in World War II and is to a very large extent in its original condition. Such changes as have been made mainly concern the façades on the lower floors. In the post-war period, the entrance hall was remodelled, with travertine stone-clad walls and a marble floor, and most of the staircases on the upper floors were modernised, although many of the original art deco features were retained.

The fact that these individual, heterogeneous buildings formed a harmonious and homogeneous whole is thanks to the Building Commission, which was es-

Fig. 35: Mohlenhof

Fig. 36: Mohlenhof, entrance hall

tablished in 1912, and which had to be consulted on all plans for new buildings, but also on any alterations and extensions to existing buildings in those parts of the city which were deemed to be particularly worthy of protection. In the Kontorhaus district, the influence of the Building Commission is clear to see in the uniform facing of the buildings with clinker, the stepped-back upper storeys and the flat roofs. In addition, it wished the Sprinkenhof and Mohlenhof to be built in a more restrained style, so that they would not detract from the Chilehaus, which, even at the time, was highly prized. So much so that the city's then Director of Engineering and Construction, Fritz Schumacher, created the open area to the east of the Chilehaus precisely to ensure that the spectacular pointed tip of that building could be sufficiently appreciated. The fact that there was a body overseeing the design of an entire city centre district was something unique at the time, unparalleled even at international level.

Given their exceptional cultural, architectural and historical significance, all of the component buildings of the ensemble which is being nominated for the World Heritage List are legally protected under the Heritage Protection Act of the Free and Hanseatic City of Hamburg. The entire Speicherstadt with its buildings and all its attendant features, including the plots of land, streets and open spaces, together with the Customs Canal and the Binnenhafen, and including its canals and water basins, quay walls, bridges and other objects and parts which contribute to its image were listed under the Hamburg Heritage Protection Act in 1991. The buildings and open spaces in the Kontorhaus district which are being nominated for the World Heritage List were listed in 1983, with the exception of the Mohlenhof, which was listed in 2003. The two ensembles were included on Germany's Tentative List for nomination for the World Heritage List in 1998 and 2005 respectively.

3. World Heritage Characteristics

In order to be inscribed on the World Heritage List, sites are assessed on the basis of certain criteria: their "outstanding universal value", their "integrity" and their "authenticity". These criteria are also of key importance for defining the primary protection guidelines and for the sustainable future development of the future World Heritage site.

3.1 Proposed Statement on the Site's Significance

In the southern part of Hamburg's old town are two complementary, monofunctional districts, which are closely related, both physically and functionally: firstly, the complex of warehouses for goods imported through the port and, secondly, the Kontorhaus district with the offices of the companies engaged in port-related activities, including shipping.

The Speicherstadt was constructed in three phases between 1885 and 1927 under the direction of Franz Andreas Meyer. It was damaged in World War II, and reconstructed in the post-war period by Werner Kallmorgen, in keeping with the historic design; high-quality buildings were added in the 1950s. The Speicherstadt stands out for the exceptional homogeneity of both its architecture and its urban development. It consists of 15 five- to seven-storey warehouses and a series of individual buildings, the vast majority of which are constructed in brick with neo-Gothic and neo-Romanesque forms, and features a specific functional and physical structure, and a particular style of urban development, with cobbled streets, waterways, bridges and railway tracks.

The adjacent Kontorhaus district to the north of the Customs Canal, is comparably homogeneous. This district, which dates mainly from the 1920s and 1930s, consists predominantly of large-scale edifices, some of which fill entire blocks, with clinker façades in expressionist or sober designs, flat roofs and stepped-back upper storeys. The dominant feature of the prospective World Heritage area is the Chilehaus, which was constructed between 1922 and 1924 by Fritz Höger. This 10-storey office building is constructed on a reinforced concrete frame and the outer walls are made of the typical dark-red to violet fired clinker bricks that are characteristic of the brick expressionist style. Other striking buildings in the nominated property are the Messberghof, built between 1923 and 1924 by the brothers Hans and Oskar Gerson; the Sprinkenhof, built in three sections between 1927 and 1943 by the architects Hans and Oskar Gerson and Fritz Höger, and the Mohlenhof, which was constructed in 1928 to plans by the architects Rudolf Klophaus, August Schoch and Erich zu Putlitz.

From a historical point of view, the architecture of the functionally complementary districts is a striking and unique microcosm, on a unique scale, of the development of European architecture in the late 19th century and the first third of the 20th century, and reflects the new ideas of the time about reorganising cities along functional lines, a key milestone in the emergence of modern urban development. The two districts were optimally located to meet the new logistics requirements for goods transhipment, and provide office space for organising trade. Moreover, the high quality of the districts' design testifies to the internationally renowned status of Hamburg Port and the local export business at the time.

3.2 Outstanding Universal Value

The following criteria are proposed as a basis for inscribing the "Speicherstadt and Kontorhaus district with Chilehaus" on the World Heritage List. They are intended to define the unique universal value of the protected property:

» (i) represent a masterpiece of human creative genius:

Fritz Höger's Chilehaus, with its eastern tip recalling the prow of a ship and the characteristic detail of its façades, is regarded as an iconic work of expressionist architecture, which no standard work of reference on 20th century architecture fails to mention. By combining a reinforced concrete skeleton with traditional brickwork, executed with barely surpassable virtuoso design and craftsmanship, Höger created a modern style of office building architecture, the like of which the world had never seen.

» (ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design:

The cultural-historical significance of the Speicherstadt and the Kontorhaus district, particularly the core area consisting of the Chilehaus, Messberghof, Sprinkenhof and Mohlenhof, lies in the fact that they document the changes in urban development, architecture and technology, as well as the functional changes, which resulted from the rapid expansion of international trade in the second half of the 19th century. The two monofunctional, functionally complementary districts present a globally unique microcosm, on a unique scale, of the ideal of a modern, city with functional zones, and document the concept of city formation.

» (iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared:

Thanks to their scale, the quality of their design, their materials and their architectural forms, both the Speicherstadt and the Kontorhaus district, in particular the core area consisting of the Chilehaus, Messberghof, Sprinkenhof and Mohlenhof, bear exceptional testimony to the building tradition in Hamburg, as a Hanseatic port city, and to the self-image of its business people, as well as to their own adaptability, which ensured their success.

» (iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history:

The two neighbouring, monofunctional, but functionally complementary districts, both contain outstanding examples of the types of buildings and ensembles which epitomise the consequences of the rapid growth in international trade in the late 19th and early 20th centuries respectively. Their uniform design and high-quality, functional construction, in the guise of Historicism and Modernism respectively, make them unique examples, the world over, of ensembles of maritime warehouses and modern office buildings of the 1920s.

Hamburg's Speicherstadt, with its numerous warehouses and functional buildings, its specific functional and physical structure, its particular style of urban development, and with its cobbled streets, waterways, bridges and railway tracks, was constructed at the end of the 19th century, and today it is still the largest cohesive and integrated ensemble of warehouses anywhere in the world. Thanks to careful reconstruction following damage sustained in the last war, it has been possible to restore it to its original uniform appearance. It stands out not only for its

high degree of architectural homogeneity, resulting from the uniform red brick façades, predominantly in the neo-Gothic forms of the "Hanover School", and its consistent urban planning, but also for its evocative setting, which underlines its prestigious style, unusual in such functional buildings.

The Kontorhaus district is characterised by both its considerable homogeneity and its remarkable scale, which can still be experienced today. As the first dedicated office district on the European continent, it showcases previous experience in office block design and illustrates the shift in focus of economic activities in continental Europe from the secondary to the tertiary sector. Its office buildings, particularly the Chilehaus, Messberghof, Sprinkenhof and Mohlenhof broke new ground in the development of office building architecture, and are amongst the most significant achievements of their kind post-World War I. The high quality of their design was unrivalled at the time, except in the United States. However, while international office block architecture of the time was still influenced by the Beaux-Arts style and other forms of Historicism, Hamburg's buildings already displayed modern clinker façades in expressionist forms, which, in the Chilehaus and Sprinkenhof were barely surpassable in the virtuosity of their design and craftsmanship. The Messberghof, whose decorative and structural features are more restrained, was one of the first buildings anywhere in the world to pave the way for the New Objectivism movement. The Mohlenhof, with its relatively simple, smooth façades, can even be regarded as an early example of New Objectivism architecture. The buildings in the core area of the Kontorhaus district are therefore amongst the most significant office buildings of the 1920s. What is more, as works of important architects, they are also of high artistic merit.

Alongside their architectural forms, which were modern compared with other contemporary office buildings from around the world, Hamburg's office buildings were also characterised by the high quality of their design, which continues inside the buildings, in the hallways and staircases.

3.3 Statement of Integrity

The Hamburg ensemble comprises two mono-functional districts in direct neighbourhood to one another, which have been preserved intact in adequate size in almost unchanged historical form and design. On a unique scale and in unparalleled concentration, the ensemble documents the change from a mixed-use city to a modern city with mono-functional zones, which were established at the end of the 19th and the beginning of the 20th century.

The Speicherstadt has all the elements and structures necessary to underline its importance as the largest, uniform molded warehouse complex and most modern logistics centre of the world of the late 19th century. The Kontorhaus district, in particular the buildings of its core zone consisting of Chilehaus, Messberghof, Sprinkenhof and Mohlenhof comprises all the elements and structures that document its importance for the development of the modern office building architecture of the 1920s and 1930s.

3.4 Statement of Authenticity

The Hamburg ensemble Speicherstadt and Kontorhaus district with Chilehaus, two mutually complementary, directly neighbouring mono-functional districts in largely unchanged historic design with functionally shaped buildings of high quality in the style of historicism and of modernity, document the change of the mixed-use town to a modern city with mono-functional zones at the end of the 19th and in the early 20th century with a concentration and degree of preservation and on a scale, which are unique in the world.

Despite the damage suffered during the World War II and the successive changes of use during the course

of the last one-and-a-half decades, the Speicherstadt has largely retained its form and design in terms of building materials and substance, all of which are determined by their high degree of architectural and urban planning concentration, by the ambitious link between architectural design of the buildings and their technical facilities, by the effective composition of their prestigious red-brick construction in neo-Gothic architectural forms from the Hanover School and by their functional and aesthetic structure. These constants lend it the incomparable look as a "city of warehouses" ("Speicherstadt") with an unusually prestigious character for that kind of building task. The original function of the Speicherstadt as a centre for storage and warehousing has largely been retained. In those cases where it has not, this function is still clearly traceable.

The Hamburg Kontorhaus district, whose buildings continue serves their original purposes, is still largely unchanged characterised in terms of form and design as well as regards materials and substance. It consists of modern office buildings with reinforced steel constructions from the 1920s and 1930s. The carefully designed and in some cases very complex and detailed clinker brick facades feature expressionist and functional architectural forms. Also, the artistic decorative elements and the prestigious decoration of building entrances and staircases are largely unchanged in terms of material and substance. This also applies to the Chilehaus, its characteristic detailing of the brick facades and its significant form including the overbuilding of the Fischertwiete, the S-shaped facade on Messberg, and applies above all to its eastern tip which is reminiscent of a ship's prow.

3.5 Protection and Administration Plan

Given their outstanding significance, both the Speicherstadt and the Kontorhaus district are listed under the Hamburg Heritage Protection Act. Any repairs or alterations to the buildings, and building work of any consequence, have to be discussed with the Heritage Protection Agency of the Free and Hanseatic City of Hamburg, and are subject to its approval. The Speicherstadt also has its own Design Ordinance and a Development Concept for the Speicherstadt has been drawn up, too.

It is intended to draft a Design Ordinance for the Kontorhaus district as well. In addition, a local development plan is currently being produced for the Speicherstadt (local development plan HafenCity no. 12/Hamburg- Altstadt district no. 48).

A management plan has been formulated to safeguard the preservation and proper management of the ensemble „Speicherstadt and Kontorhaus district with Chilehaus.

The Heritage Protection Agency will be responsible for coordinating the management of the prospective World Heritage site and will be affiliated a department from the Ministry of Culture.

4. The Protected Property, Protection Objectives and Legal Instruments for the Preservation and Sustainable Development of the Nominated Property

The main requirements for safeguarding the "Speicherstadt and Kontorhaus district with Chilehaus", which is being nominated for the World Heritage List, derive from the World Heritage Convention, which underpins the application of the World Heritage Programme, the "Operational Guidelines for the Implementation of the Convention concerning the Protection of the World Cultural and Natural Heritage" (hereinafter: Operational Guidelines) and the various charters, recommendations and declarations, which have been drafted by UNESCO and ICOMOS in recent years.

At national level and at the regional level of the federal State of Hamburg, three key pieces of legislation guarantee protection and sustainable development: the Federal Construction Code (Baugesetzbuch), the Hamburg Building Code and the Heritage Protection Act of the Free and Hanseatic City of Hamburg. Further planning guidelines for the future World Heritage area are also available in the form of the Hamburg City Centre Concept (Innenstadtkonzept), the Development Concept for the Speicherstadt of April 2012 and the Design Manual for the Speicherstadt (Gestaltungshandbuch Speicherstadt) of July 2002.

The Operational Guidelines stipulate that when management plans are drawn up, it is vital to ensure that the national and federal planning systems of the Federal Republic of Germany and the Free and Hanseatic City of Hamburg are compatible with the Guidelines in the World Heritage Convention. The same applies to the legal status of the designated buffer zone for the World Heritage area, since its purpose is to guarantee the protection of the surrounding area. It is therefore not only about preserving the built heritage itself; in fact, safeguarding the overall setting and the visual experience which it has to offer also plays a crucial role. The following section therefore provides an explanation of the key objectives set out in the UNESCO World Heritage Convention and how they relate to Germany's planning systems and objectives at both national and regional (Land) level.

In the interests of maximum transparency and in accordance with the Operational Guidelines, the intention is to enable international players, agencies, building developers, residents, property owners and other interested parties quickly to find comprehensive information about the requirements in the nominated property and the buffer zone under international, national and regional (Land) law. To achieve this, efforts are underway to make all of the relevant texts, objectives and statements in the instruments introduced below accessible on the Internet, because they provide the basis for ensuring the protection and sustainable development of the future World Heritage site of the "Speicherstadt and Kontorhaus district with Chilehaus".

4.1 The Protected Property

Pursuant to Article 1 of the World Heritage Convention, the "Speicherstadt and Kontorhaus district with Chilehaus" ensemble falls into the "cultural heritage" category. Within that category it falls into the sub-category of "groups of buildings", which the Word Heritage Convention describes as: "groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science".

4.2 Protection Objectives and other Primary Objectives

The World Heritage Convention regards both the conservation and presentation of World Heritage sites as important and therefore requires both to be respected. Particular attention has to be paid to ensuring continued compliance with the criteria which justified the inscription on the World Heritage List in the first place: the "outstanding universal value", authenticity and integrity of the World Heritage site. Since, in this case, the ensemble is in the centre of the city of Hamburg, where people live and work, and since the area will continue to be managed under

market economy conditions, even after its inscription on the World Heritage List, it is necessary to reconcile these needs with the sustainable development of the World Heritage site. With this in mind, the essential protection objectives and measures to be taken are formulated within the following three pillars:

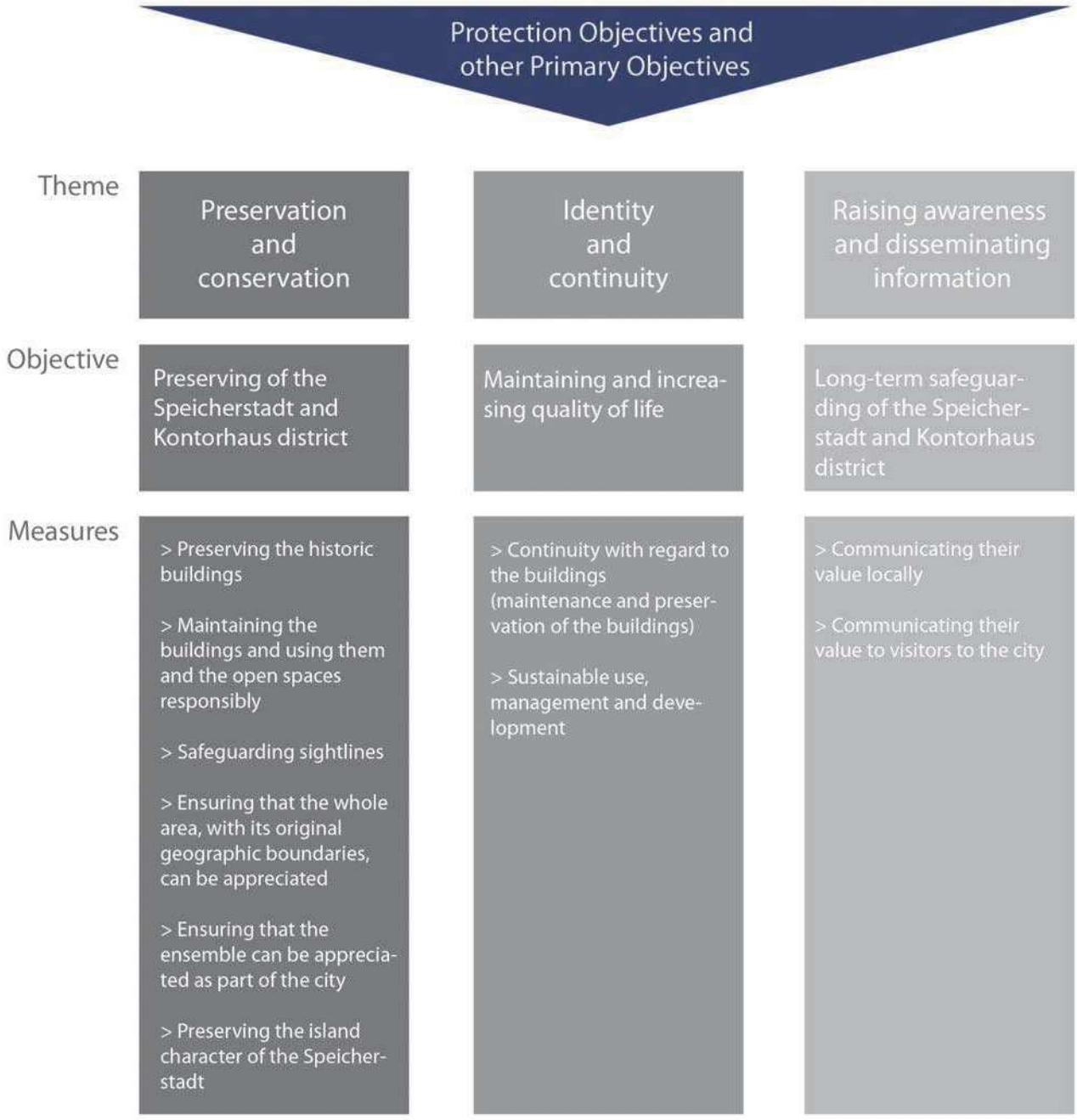


Fig. 37: Three-pillar model of the protection objectives of the "Speicherstadt and Kontorhaus district with Chilehaus", which is being proposed for nomination

1. Preservation and conservation: Preserving the historic buildings, the characteristic overall impact of the Speicherstadt and Kontorhaus ensembles and their typical appearance within the cityscape by:

- Maintaining the buildings and using them and the adjoining open spaces responsibly;

- Safeguarding the visual integrity of the ensembles in the cityscape by preserving existing sight lines so that they can be enjoyed as part of Hamburg's cityscape;

- Ensuring that the area from the Kehrwiederspitze to Poggenmühle can continue to be appreciated as an original part of the Speicherstadt;

- Ensuring that the specific structure of the Speicherstadt, which is a "town" with streets, waterways and bridges, and the fact that it is an island, can continue to be appreciated;

- Preserving the specific character of the Speicherstadt and Kontorhaus district and ensuring that the different purposes for which they were designed can continue to be appreciated.

2. Identity and continuity: Maintaining or even increasing the quality of life of the residents of Hamburg by safeguarding a unique testimony to Hamburg's cultural and historical development, which played a key role in establishing its identity, by:

- Pursuing a policy of continuity, as hitherto, with regard to the historic buildings (maintenance and preservation of the buildings);

- Ensuring the sustainable use, management, preservation and development of the future World Heritage site.

3. Raising awareness and disseminating information: Providing for the long-term and sustainable safeguarding of the Speicherstadt and Kontorhaus district by:

- Communicating to representatives of business and politics and to the people of Hamburg the value which the nominated property represents;

- Communicating to visitors to the city the value which the nominated property represents.

4.3 World Heritage Convention and International Agreements

Key to achieving these objectives are the vision and primary objectives of the World Heritage Convention, the Operational Guidelines for their implementation, the internationally valid charters and other guidelines.

4.3.1 The World Heritage Convention

The World Heritage Convention is based on the idea that "parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole" (preamble to the World Heritage Convention). The World Heritage Convention does not therefore regard cultural or natural heritage sites as belonging solely to the State on whose territory they are located. Rather, they are, conceptually, the property of mankind as a whole. By signing the World Heritage Convention, the States Parties recognise their international obligation to protect the World Heritage sites situated on their territory and to preserve them for future generations.

By signing the World Heritage Convention, the States Parties have undertaken, in particular:

- to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes;

- to develop scientific and technical studies and research and to work out such operating methods as will make the State capable of counteracting the dangers that threaten its cultural or natural heritage; and

- to take the appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage.

The World Heritage Convention was ratified by the Federal Republic of Germany in 1976, but it has not yet been incorporated into national law. It is therefore crucial for the preservation, sustainable development and management of the future World Heritage area to ensure that the planning systems at national and regional (Land) level are compatible with the aims of the World Heritage Convention.

An important step towards achieving this was made when the new Heritage Protection Act (of 5 April 2013) of the Free and Hanseatic City of Hamburg came into force on 1 May 2013. Section 7, Paragraph 8 of this piece of legislation explicitly mentions the World Heritage requirements, stating that: „All measures and plans must take into account the obligation to protect the cultural heritage in accordance with the Convention Concerning the Protection of the World Cultural and Natural Heritage of 16 November 1972 (German Federal Law Gazette (BGBl), 1977 II, p. 215)" (Heritage Protection Act of 5 April 2013 of the Free and Hanseatic City of Hamburg, Official Hamburg Gazette, p. 142).

4.3.2 Operational Guidelines

The "Operational Guidelines for the Implementation of the World Heritage Convention" (hereinafter referred to as the Operational Guidelines) provide an essential basis for achieving these objectives. They aim to facilitate the implementation of the World Heritage Convention. In particular, they set forth the procedures for:

- the inscription of properties on the World Heritage List and the List of World Heritage in Danger;

- the protection and conservation of World Heritage properties;

- the granting of International Assistance under the World Heritage Fund; and

- the mobilisation of national and international support in favour of the Convention.

The Operational Guidelines are periodically revised to reflect the decisions of the World Heritage Committee. They define the principal approaches towards managing World Heritage sites. References to the Operational Guidelines in this Management Plan are to the 2011 version.

4.3.3 Charters and Declarations

Contrary to the planning legislation at both national and regional levels, which is listed below, the charters, declarations and recommendations issued by UNESCO and ICOMOS are purely advisory in nature. However, they provide a detailed explanation of the tasks involved in protecting monuments, cultural properties and world heritage. The practical objectives which they set with regard to implementing the World Heritage Convention are therefore of key importance, as are the objectives for the preservation, use and sustainable development of World Heritage sites. The following charters and documents are of particular relevance to the "Speicherstadt and Kontorhaus district with Chilehaus": the Venice Charter, the Washington Charter, the Nara Document on Authenticity, the Burra Charter and the more recent Recommendation on the Historic Urban Landscape. It is intended to make these international guidelines available on the Internet, so that all of those involved

in safeguarding the future World Heritage site and all other interested parties can gain easy access to them.

Since this nomination for the World Heritage List concerns a group of buildings within an urban setting, which is closely intertwined with its urban surroundings both physically and in terms of present city development objectives, the Recommendation on the Historic Urban Landscape, which was adopted by the World Heritage Committee in 2011, is of particular significance. The approach adopted by the Recommendation on the Historic Urban Landscape is based on existing declarations and charters, and takes account of the fact that World Heritage sites in urban areas are subject to continuous change. It also recognises that the social communities living in and around urban World Heritage sites play a key role in their preservation and sustainable development. They must therefore be fully involved in implementing the preservation and sustainable development strategies.

Against this background, the Recommendation on the Historic Urban Landscape recommends that efforts to preserve cultural heritage in urban areas should no longer be made in isolation, but should rather be considered in a broader context, which also takes account of dynamic processes within society. Historic areas should therefore be identified and protected as an integral part of their urban context. Management thereof should also take full account of the overall urban context and should therefore be in tune with overarching urban development objectives. All of those involved in urban planning processes should, as far as possible, participate in the management of the site. Close cooperation with private stakeholders and interest groups is also recommended.

4.4 Legislation and Planning Systems at National and Regional Level

Alongside these international guidelines, the general development and construction frameworks provided for at both national and regional level include the following pieces of legislation and planning instruments, which are relevant to the future World Heritage area:

4.4.1 Federal Construction Code

The provisions of the Construction Code of the Federal Republic of Germany play a decisive role in regulating building development in both the World Heritage area and the buffer zone. At the same time, they provide the means to protect the future World Heritage site, through instruments such as the general development and construction framework, and ordinances on conservation and design, and by stipulating other levels at which it is possible to intervene.

4.4.2 Hamburg Building Code

The Hamburg Building Code of 14 December 2005 (as last amended on 15 December 2009) contains general building regulations, establishes the legal rules governing plots of land and their development, and contains provisions on design and construction as well as building products and methods, walls, ceilings, roofs, escape routes and technical building equipment. It also stipulates the purposes for which buildings may be used.

In addition, the Hamburg Building Code defines the tasks and competences of those involved in construction projects, including building monitoring authorities, and contains provisions on preventive monitoring, inspection measures, administrative offences and statutory instruments.

4.4.3 Zoning and Land-Use Plan

In accordance with Section 1, Paragraph III, and Section 5, Paragraph ff, of the Federal Construction Code, the Free and Hanseatic City of Hamburg has produced a zoning and land-use plan for the entire city, including, obviously, the nominated property and the buffer zone, as part of a general development and construction framework. The most recent version of the zoning and land-use plan for the Free and Hanseatic City of Hamburg, which was published on 22 October 1997 (Official Hamburg Gazette, p. 485), still classifies the planning area as part of the "port", and that description is included for information purposes. The zoning and land-use plan is being amended in parallel with the relevant local development plan, and in future the area concerned will be classified as "mixed-use development". This plan establishes the essential guidelines for land use and building developments for the entire city centre.

4.4.4 Local Development Plan

On the basis of the 1938 Ordinance on the Building Inspectorate, an old-style district development plan was initially drawn up, covering the entire Hamburg city centre, including the Kontorhaus district. The most recent version of this dates from 14 January 1955 (Official Hamburg Gazette, p. 61). In large parts of the city centre, this planning document has now been superseded by numerous local development plans under the former and present versions of the Federal Construction Code.

In terms of planning legislation, the area of the Kontorhaus district nominated for UNESCO World Heritage List has been classified as an urban core area where residential use can be approved by way of exceptional permission (Ordinance on the Use of Buildings, Section 7, Paragraph 3). The relevant local development plans are Hamburg-Altstadt 30 of 14 June 1994 and Hamburg-Altstadt 47/ Neustadt 49 of 5 July 2011.

The Speicherstadt was removed from the scope of the Port Area Development Act (Hafenentwicklungsgesetz) on 10 October 2012, paving the way for a local development plan to be drawn up. The official decision to do this was made on 17 October 2012 (see 4.4.5 and 7.1.5).

4.4.5 The Speicherstadt's removal from the Scope of the Port Area Development Act (Hafenentwicklungsgesetz) and the Drafting of a Speicherstadt local development plan

Until 2012, the Speicherstadt fell within the scope of the Port Area Development Act (Hafenentwicklungsgesetz) of 25 January 1982, as last amended on 19 April 2011 (Official Hamburg Gazette, p. 123). Changes to logistics operations in the port (including a shift from groupage to container transport) and the development of the HafenCity had a significant impact on the Speicherstadt. It saw a decline in port-related activities, and a subsequent increase in demand from city users, and underwent radical structural change. As a result, the Speicherstadt was removed from the Port Area Development Act on 10 October 2012.

In administrative terms, the Speicherstadt, complete with its waterways, the Customs Canal and the Binnenhafen from Kehrwiedersteg as far as Oberbaumbrücke, is now part of the HafenCity district. Its removal from the port area is intended to pave the way for its development as an attractive link between the city centre and the HafenCity, and for it to be used for city-related purposes.

Since plans could not be established under the Federal Construction Code in the areas covered by the Port Area Development Act, no local development plan has yet been drawn up for the Speicherstadt. However, now that it has been removed from the scope of the Port Area Development Act, the legisla-

tive picture has changed, such that it is now possible for a local development plan to be drawn up. This process will also have to take due account of the requirements of World Heritage sites. At present, under the Order on Competences relating to the Building Code of 8 August 2006 (Official Hamburg Gazette, p. 2085), the Regional Ministry of Urban Development and the Environment (BSU) is responsible for implementing the Hamburg Building Code in the Speicherstadt (cf. 7.1.5).

Within the Regional Ministry of Urban Development and the Environment, the Office for the Building Code and Construction is competent to grant planning permission in the Speicherstadt. The Hamburg Port Authority will continue to be responsible for maintaining the bodies of water and quay walls. The bridges and streets fall within the remit of the district of Hamburg-Centre. Other tasks, such as improvements of the access infrastructure to the Speicherstadt, on the request of the financial authorities, are carried out by the Regional Ministry of Economic Affairs, Transport and Innovation (BWVI), which is aided in the performance of these tasks by the Land's Agency for Roads, Bridges and Open Waters (LSBG).

4.4.6 The Hamburg Heritage Protection Act

The Heritage Protection Act of the Free and Hanseatic City of Hamburg (as last amended on 05.04.2013) directly protects architectural monuments, ensembles, garden monuments and archaeological monuments, as well as movable heritage assets whose protected classification has become final (Section 4). Under Section 9, open spaces, streets, bodies of water, quay walls and bridges in the World Heritage area and its immediate surroundings may not be partially or completely destroyed, restored, significantly improved, removed from their location or changed in any other way, without a permit from the competent authority.

The Speicherstadt: In both urban planning and architectural terms, the Speicherstadt constitutes the most significant ensemble of listed buildings in Hamburg. The "Speicherstadt ensemble, with its buildings and all its attendant features, including the plots of land, streets and open spaces, together with the Customs Canal and the Binnenhafen, and including its canals and water basins, quay walls, bridges and other objects and parts which contribute to its image" have been listed under the Hamburg Heritage Protection Act since 1991.

The Kontorhaus district: The buildings in the Kontorhaus district which are relevant to the World Heritage nomination are listed under the Hamburg Heritage Protection Act as part of the Kontorhaus district. The Mohlenhof was added in 2003; all of the other buildings nominated for World Heritage status had already been listed as monuments under the Hamburg Heritage Protection Act since 1983. The adjoining streets and open spaces are also protected under the Act as part of the Kontorhaus district ensemble.

Protection of the surrounding area: The areas immediately surrounding the listed entities of the Speicherstadt and the Kontorhaus district are protected under Section 8 of the Hamburg Heritage Protection Act. "To the extent that the immediate surroundings of a heritage asset are of formative significance for its appearance or continued existence, a permit is required from the competent authority before such surroundings may be changed by the erection, alteration or elimination of structural elements, by the development of unbuilt public or private spaces, or by any other means, if such change significantly detracts from the character and appearance of the heritage asset."

Heritage Council: The competent Regional Ministry of Culture is assisted by a Heritage Council, consisting of 12 members, which acts as an independent advisory board on matters relating to heritage protection and preservation. It is comprised of expert representatives from the fields of heritage preservation, history

and architecture, together with citizens and institutions of the Free and Hanseatic City of Hamburg that are active in the area. It advises the competent authority and takes positions on issues of principle and topical questions relating to heritage protection and preservation.

In the future, the Heritage Council will devote particular attention to the requirements of the prospective World Heritage site. Its expertise will be drawn on to address issues relating to the inclusion of the future World Heritage site in the development of the city as a whole, the forthcoming regeneration projects in the World Heritage area and the new construction projects in its buffer zone, as well as other matters connected with heritage preservation. The objective is to achieve consistently high quality when making decisions about the fabric of the buildings and the public spaces.

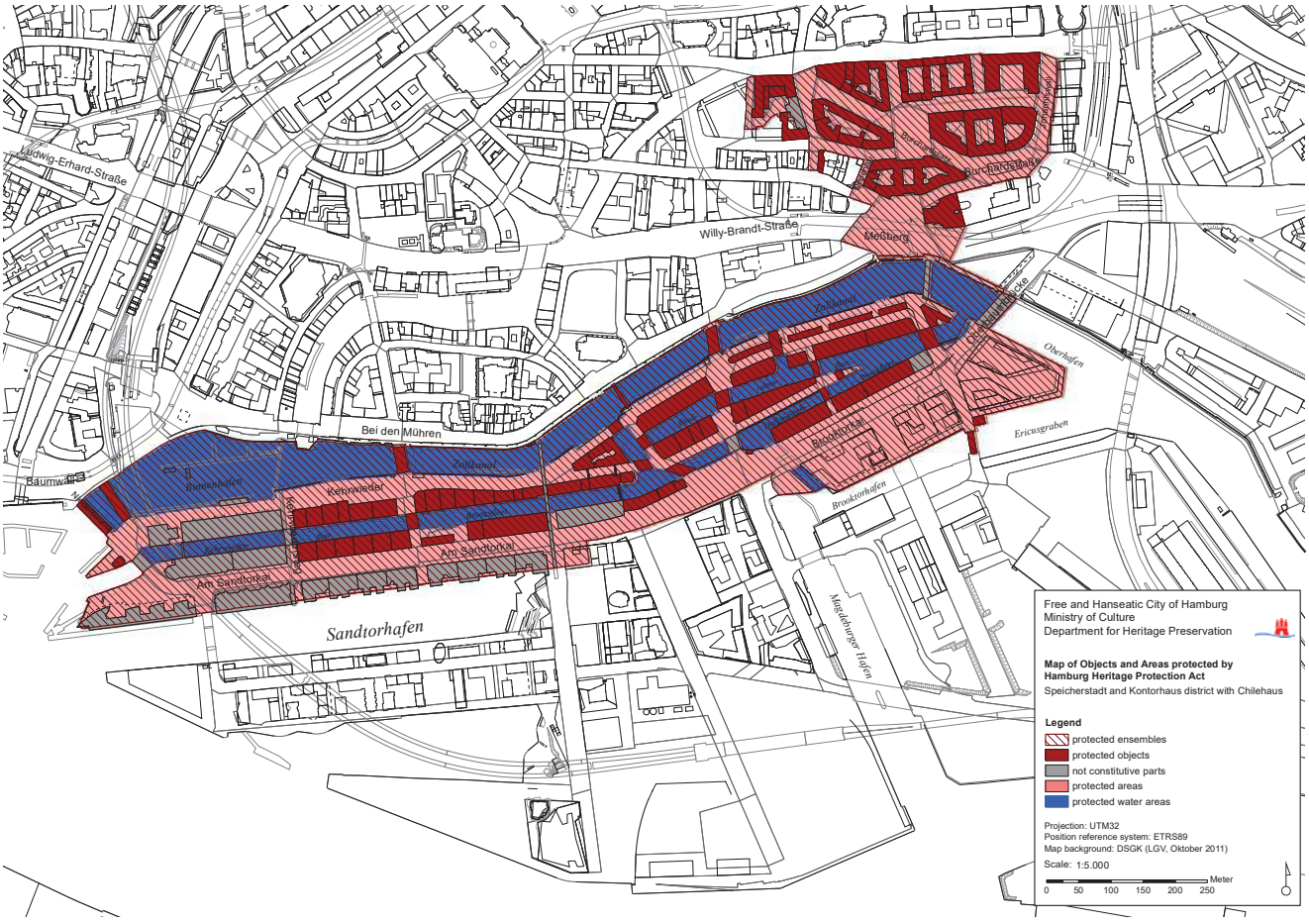


Fig. 38: Heritage protection map of the Speicherstadt and Kontorhaus district

5. Protected Property

The proposed World Heritage area of the "Speicherstadt and Kontorhaus district with Chilehaus" comprises two neighbouring, functionally complementary districts. The precise boundaries of both the nominated property and the buffer zone, which serves to protect the integrity of the nominated property, are described below. The boundaries encircle all of the features which make an essential contribution to the property's "outstanding universal value".

The boundaries of the nominated property are drawn in such a way as to guarantee, in particular,

- that the nominated ensemble, thus defined, together with all of its valuable features, can be preserved for future generations, without its "outstanding universal value", "authenticity" or "integrity" being damaged in any way,

- that the visual experience offered at present by the nominated ensemble, including important sight lines, is also preserved for the future,

- that it is possible to manage the nominated property efficiently.

The boundaries of the nominated property lie within the protected area which already enjoys legal protection under the Hamburg Heritage Protection Act. This ensures that there is maximum consistency between existing regional (Land) legislation and the abovementioned objectives.

In order to safeguard the nominated property, it is vital that its boundaries (World Heritage area and buffer zone) can easily be identified by all user groups and all those involved in planning processes in and around the proposed World Heritage site. In the interests of ensuring maximum transparency for all stakeholders, and in accordance with Section 5, Paragraph 4, of the Federal Construction Code (Baugesetzbuch), it is intended to include the proposed World Heritage area and its protected zones ("buffer zone") in the zoning and land-use plan "for information purposes". The proposed World Heritage area and its buffer zone will therefore be marked as such in the zoning and land-use plan. With the exception of a few sections of the buffer zone, all of the areas in question are listed under the Heritage Protection Act of the Free and Hanseatic City of Hamburg.

The precise boundaries of the proposed World Heritage area (red outline), its buffer zone (grey) and the areas protected under the Hamburg Heritage Protection Act (yellow outline) are shown in figure 39.

5.1 Protected Property

The protected property comprises the relevant parts of the adjoining, functionally complementary districts of the Kontorhaus district and the Speicherstadt. Starting from its most north-easterly point, and proceeding anti-clockwise, its boundary runs along the following points and plots of land:

District 1: Kontorhaus district: In the Kontorhaus district, the boundary runs along the central reservation of Altstädter Strasse from Johanniswall street to Burchardplatz, along the north side of Burchardplatz, and diagonally across Burchardstrasse to the western boundary of the Mohlenhof (plot 224). It then runs diagonally across Niedernstrasse to the intersection of Niedernstrasse and Depenau street, along the western side of Depenau street as far as the southern side of Klingberg street, and along that southern side as far as the eastern boundary of plot 1650. Moving further to the south, the boundary runs along the western edge of plot 1914 (Messberg) as far as the northern side of the Customs Canal. It then runs in a north-easterly direction across Willy-Brandt-Strasse as far as the south-east corner of the Messberghof, before heading northwards along the eastern boundary of the Messberghof as far as the southern edge of

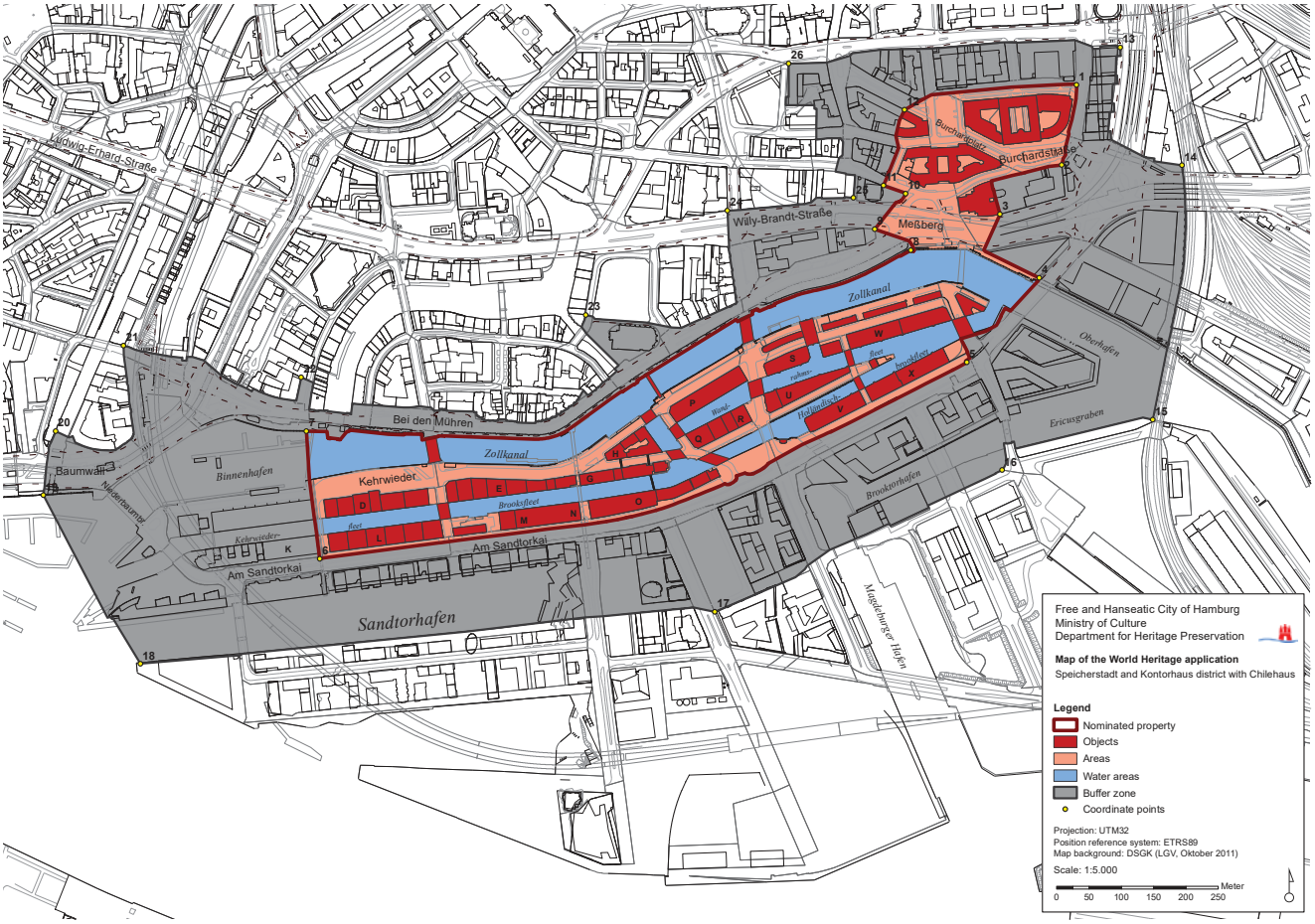


Fig. 39: Protected property (red outline), buffer zone (coloured grey),

Pumpen street. It then runs eastwards along the southern edge of Pumpen street and Burchardstrasse to the north-eastern corner of the building at 1, Burchardstrasse, and diagonally across Burchardstrasse in a northerly direction as far as the western side of Johanniswall street. Finally, it continues northwards until it reaches the central reservation of Altstädter Strasse.

District 2: Speicherstadt: The boundary around the Speicherstadt runs westwards along the north side of the Customs Canal as far as the Kehrwiedersteg bridge across the Binnenhafen. The western boundary of the proposed World Heritage area is marked by the Kehrwiedersteg bridge over the Binnenhafen and Kehrwiedersteg itself, and runs as far as the intersection of Kehrwiedersteg and Am Sandtorkai. It then heads eastwards along the northern side of the streets Am Sandtorkaii and Brooktorkai as far as the corner of Poggenmühle street, northwards along the eastern side of warehouse block X as far as Holländischbrookfleet waterway, and eastwards across Poggenmühle street along the southern side of Holländischbrookfleet waterway as far as Oberbaumbrücke. It then runs westward along the western side of Oberbaumbrücke to the north of the Oberhafen and westwards along the northern side of the Oberhafen to the south-east corner of plot 1914 (Messberg).

5.2 Buffer Zone

As stipulated in Paragraphs 103 and 104 of the "Operational Guidelines", a buffer zone has been identified for the proposed World Heritage area. The buffer zone makes an essential contribution to

safeguarding the proposed World Heritage site, by ensuring that the visual experience that it offers remains intact. The buffer zone is the area surrounding the World Heritage area and extends as far as physical or carefully selected boundaries. It is thus in line with the Hamburg Heritage Protection Act, which provides that if the area in the immediate vicinity of a listed property makes a significant contribution to its appearance, it too should be protected. The buffer zone also takes account of open spaces and bodies of water, which play an important role in enhancing the setting of the nominated ensemble and the surrounding cityscape. Even lines of sight and areas further afield, which are key to ensuring the (visual) integrity of the proposed World Heritage site, have been taken into account when designating the buffer zone. The buffer zone also seeks to integrate areas which have a historical connection with the proposed World Heritage area. These include, in particular, the western tip of the Speicherstadt and the areas to the south of the streets Am Sandtorkai and Brooktorkai, which sustained severe damage in World War II and now feature a number of new buildings. They have therefore not been included in the nominated property, but are important for understanding the original design of the Speicherstadt. In the first district, to the north of the Speicherstadt, the buffer zone includes not only key buildings such as the Chilehaus, Messberghof, Sprinkenhof and Mohlenhof, but all the buildings in the entire Kontorhaus district, including the Cityhof high-rise buildings of the post-war period.

Within the buffer zone, construction projects have to be assessed for their compatibility with the proposed World Heritage site, particular attention being paid to height and size considerations. When implemented, they have to take account of sensitive views and sight lines of the proposed World Heritage ensemble. As a general rule, planning projects have to be agreed with the World Heritage Coordinator.

5.3 Protection of Visual Connections, Silhouettes and Panoramas

The various visual connections with the proposed World Heritage site are of crucial importance: From these vantage points, the proposed World Heritage site can be fully appreciated and experienced, and it is possible to gain a better understanding of how it fits in with its surroundings, and vice versa. The existing sight lines are particularly important, given that the area surrounding the proposed World Heritage ensemble has seen major changes in recent years as a result of the construction of the HafenCity. This has significantly detracted from the views of the west and south of the Speicherstadt from the Elbe and from the Sandtorhafen. The purpose of defining the sight lines is therefore to preserve the remaining visual connections between the city and the proposed World Heritage area.

The sight lines can be divided into the following categories:

1. Visual connections from the city centre to the nominated property,

2. Visual connections within the nominated property,

3. Visual connections from the HafenCity to the nominated property.

5.3.1 Visual Connections from the City Centre to the Nominated Property

A mark of the quality of the visual connections from the centre of Hamburg and the HafenCity to the proposed World Heritage area is that they are also an integral part of existing or planned transport routes, linking the city centre with the HafenCity. As a result, these visual connections not only enhance the visual experience

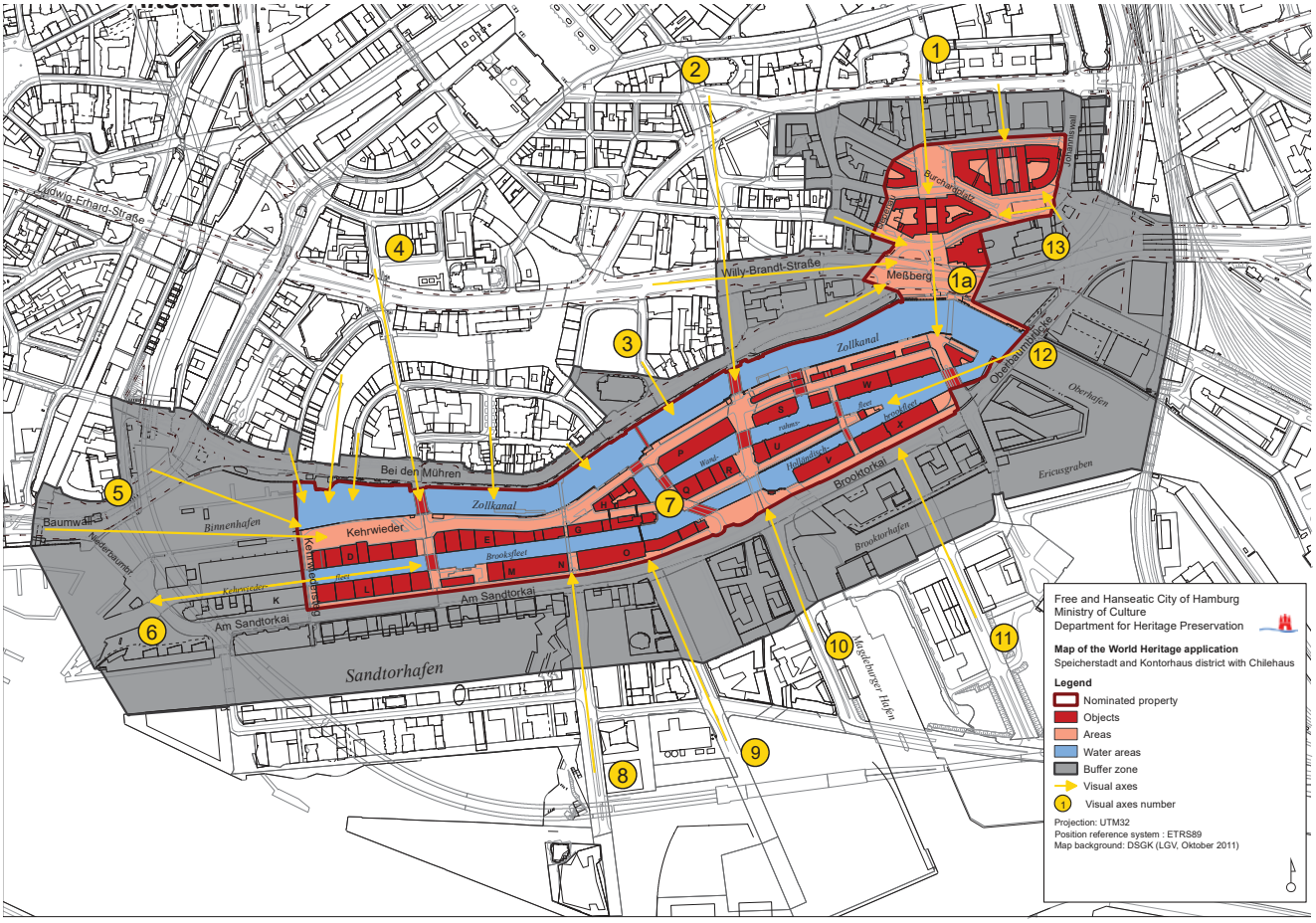


Fig. 41: Visual connections between the nominated property and the surrounding district

offered by the proposed World Heritage area when viewed from the city centre, but are also very important for the physical connection of the two districts.

» 1 and 1a St Jacobi – Burchardplatz – Fischertwiete – Wandrahmsteg – Speicherstadt

The St Jacobi - Burchardplatz - Speicherstadt sight line is important for two reasons: Firstly, it provides a visual experience of the Kontorhaus district from the city centre and, secondly, it is crucial for understanding the functional and physical connection between the Kontorhaus district and the Speicherstadt. It is also an integral part of the Ballindamm – Baakenhöft transport route, which will become important for linking the city centre with the eastern part of the HafenCity.

The sight line from Fischertwiete, which runs through the Chilehaus, towards Wandrahmsteg and the Speicherstadt, is also of great historical importance, since it demonstrates how the Kontorhaus district and the Speicherstadt were linked both functionally and visually.

» 2 Domplatz – Speicherstadt

The Domplatz - Speicherstadt sight line is of considerable importance for appreciating the Speicherstadt, since it constitutes one of the three visual connections between the centre of Hamburg and the proposed World Heritage area. Moreover, the view encompasses the "centre" of the Speicherstadt with its many important historic buildings. Foremost among them is the HHLA's administration building, also known as the "town hall of the Speicherstadt",

Fig. 42: Current view through the Fischertwiete towards the Customs Canal and the Speicherstadt

Fig. 43: View from the „Town Hall" of the Speicherstadt on the Domplatz to the St. Petri Church

a building which has always been a striking landmark in the Speicherstadt, because of its particularly sumptuous design and because it continues to be the head office of the HHLA. This visual connection is also an integral component of the future transport link from the Binnenalster to the Magdeburger Hafen, envisaged in the Hamburg 2010 City Centre Concept (Innenstadtkonzept).

» 3 Willy-Brandt-Strasse – Messberg

The sight line from Willy-Brandt-Strasse to the Messberg is of central importance for experiencing the Kontorhaus district. Willy-Brandt-Strasse runs right up to the stepped façade of the Messberghof. This view is particularly important because it is experienced by thousands of car drivers every day.

» 4 Hopfenmarkt - Cremoninsel - Speicherstadt

The Hopfenmarkt - Cremoninsel - Speicherstadt sight line is of particular importance for experiencing the western part of the Speicherstadt. Here, the HHLA

Fig. 44: View down Willy-Brandt-Strasse to the Messberg

plans, as far as possible, to continue to use the existing warehouses for storing carpets, which means that the historic view of the Speicherstadt also conveys an image of how it was originally used for storing groupage. It also derives particular importance from the fact that this part of the Speicherstadt, south of Brooksbrücke, is home to the Speicherstadt's most popular museums and cultural attractions, which means that for many visitors it constitutes a "main entrance" to the area. In addition, this visual connection is also an integral component of the future transport link from Hopfenmarkt to Sandtorkai, as envisaged in the Hamburg 2010 City Centre Concept (Innenstadtkonzept). The historic, functional links between the Speicherstadt and Sandtorkai are still clearly visible. This sight line concludes with the harbour for traditional ships in the HafenCity.

» 5 Baumwall - Kajen - Speicherstadt / Overhead railway - Speicherstadt

The western part of the Speicherstadt can be experienced thanks to the visual connection from Baumwall or Kajen, across the Binnenhafen and the Customs Canal, to the Speicherstadt. There is also pedestrian access to the Speicherstadt across the Niederbaum bridges, a route which will become increasingly important once the Elbphilharmonie Hamburg is complete. In addition, the visual connection forms an integral component of the future transport link from the Binnenalster to the new Elbphilharmonie. Already, the stretch of the existing overhead railway at the Baumwall stop offers a panoramic view of the northern face of the Speicherstadt, which is enjoyed every day by the many passengers using this form of public transport.

5.3.2 Visual Connections within the Speicherstadt

The visual connections within the Speicherstadt are, in general, extremely significant. The various

Fig. 45: Visual connection from Baumwall to the Speicherstadt

different bridges, in particular, offer unique vantage points from which to experience the homogeneous nature of the ensemble, and the combination of warehouses, streets and waterways, quay walls and stairs, which form an organic whole. It is these existing views of the Speicherstadt that become etched on visitors' memories.

» 6 From the Speicherstadt to the old police building

The visual connection from the Speicherstadt to the old police building offers a particularly striking insight

Fig. 46: Visual connection from the Speicherstadt to the old police building

into the internal configuration of the Speicherstadt, with its warehouses, bridges and waterways. It is also of great historical significance, since from there it is still possible to see how the Speicherstadt originally extended further towards the west.

» 7 Views within the Speicherstadt

There are two sharply contrasting groups of views in the Speicherstadt, the first from north to south and the second from east to west. The east-west views extend over long distances, whereas the north-south views establish visual connections between the old town and the port areas or offer views through the Speicherstadt itself, cutting right through the entire district. The north-south views are regularly punctuated by buildings, bridges or vegetation, whereas most of the views from east to west stretch uninterrupted far into the distance.

The Speicherstadt owes much of its distinctive appeal to the uniformity of its waterways, which are characterised by vertical quay walls, with staircases set into them, and warehouses built directly on top of the quay walls. Another typical feature of the waterways is that they are uncluttered by jetties or pontoons, which would have obstructed the delivery and transhipment of goods. Once again, it is the bridges in the Speicherstadt which provide particularly good vantage points from which to experience the district.

Fig. 47: Views from south to north and from west to east within the Speicherstadt

5.3.3 Visual Connections from the HafenCity to the Nominated Property

» 8 Magellan-Terrassen – Speicherstadt

The area around the Magellan-Terrassen is one of the most lively and bustling parts of the HafenCity. The view of the Speicherstadt from this point is particularly important, as it links the two parts of the city and affords a good view of the southern side of the Speicherstadt.

Fig. 48: Historic view of the waterways and view down Brooksfleet as it is today

» 9 Sandtorpark – Speicherstadt

A further view of the southern aspect of the Speicherstadt can be enjoyed from Überseeallee. This constitutes one of the most important vantage points in the HafenCity from which to experience the Speicherstadt, and it is therefore important for the sight line to be safeguarded for the future.

» 10 Osakaallee – Speicherstadt

The view from Osakaallee to the Speicherstadt is another highly significant visual connection between the south of the city and the Speicherstadt. It will become even more important in the future, because it links the centre of the HafenCity around the Magdeburger Hafen with the Speicherstadt both visually and functionally.

» 11 Shanghaiallee – Brooktorkai

The Shanghaiallee - Speicherstadt sight line now also constitutes a significant visual link to the Speicherstadt from the south.

» 12 Oberbaumbrücke – Brooktorkai – Speicherstadt

The Oberbaumbrücke - Brooktorkai - Speicherstadt sight line plays a significant role in enhancing people's everyday experience of the Speicherstadt, since Brooktorkai is not only a very busy road, but also elevated, with makes it possible for drivers to see the eastern side of the Speicherstadt in context. It also offers a view of the „Wasserschlösschen" (Little Water Castle), one of the most well-known images of the Speicherstadt. The view has suffered somewhat as the result of the recent construction of a hydrogen filling station directly between Oberbaumbrücke and the Speicherstadt, but is still of note. There are plans to demolish the filling station in the not too distant future.

13 Burchardstrasse – Kontorhaus district

The continuation of Burchardstrasse offers one of the most important vantage points for views of the Kontorhaus district. This view is characterised by the tapered eastern side of the Chilehaus, making it one of the most well-known images of the Kontorhaus district. As a result, it is of outstanding significance for the visual experience of the proposed World Heritage site.

Fig. 49: View from Osakaallee to the Speicherstadt

Fig. 50: The view of the so-called "Wasserschlösschen" (Little Water Castle) is one of the most well-known images of the Speicherstadt

5.3.4 Other Visual Connections

There are a whole series of other visual connections with the proposed World Heritage area, which enable it to be experienced from afar. Of particular note are the adjoining districts immediately to the north of the Customs Canal, which offer numerous glimpses of the proposed World Heritage area along waterways or down smaller streets across the Customs Canal. These visual connections have also been marked on the map. They form an integral part of the designated buffer zone and therefore also need to be safeguarded.

In addition, the streets surrounding the Kontorhaus district also offer many glimpses of the future World Heritage area, allowing that ensemble to be experienced on a day-to-day basis. Those important sight lines also need to be preserved.

Fig. 51: View from the continuation of Burchardstrasse towards the eastern tip of the Chilehaus and the Kontorhaus district

Fig. 52: Visual connections from Springeltwiete to the Sprinkenhof from Niedernstrasse to the Chilehaus and across the Customs Canal towards the Speicherstadt

PART II ADMINISTRATION AND MANAGEMENT

6. Administration of the Proposed World Heritage Site – Coordination and Organisation

The ensemble which is being nominated for World Heritage List, the "Speicherstadt and Kontorhaus district with Chilehaus", straddles two of Hamburg's urban districts: the Kontorhaus district is part of Hamburg's Altstadt district, while the Speicherstadt lies in the new urban district of the HafenCity. It is thus an integral component of the physical structure of one of the liveliest parts of Hamburg. An efficient and well-integrated management system is therefore crucial to ensuring that the proposed UNESCO World Heritage site is effectively preserved in the long term.

This chapter contains a detailed description of how the World Heritage management system will work and the tasks that it will perform. It also lists the key players who will be involved in the management of the site.

6.1 Coordination

The Heritage Protection Agency will be responsible for coordinating the management of the proposed World Heritage site. Should the nomination of the "Speicherstadt and Kontorhaus district with Chilehaus" for inscription on the World Heritage List be successful, then the Regional Ministry of Culture intends to appoint a World Heritage Coordinator, who will be responsible within the Heritage Protection Agency for coordinating the management of the proposed World Heritage site. The required funding has already been secured.

The World Heritage Coordinator's role is to facilitate communication with the regional ministries, property owners and other stakeholders listed below, and to liaise with national and international institutions, so as to safeguard the quality of the future World Heritage site. In the event of overlapping interests, the World Heritage Coordinator will also play an important role in conflict management.

The scope of the World Heritage management explicitly covers not only the World Heritage area itself, but also its buffer zone and any areas impacting on the sight lines described in Chapter 5 which lie outside the buffer zone. This is important in the interests of facilitating communication and enabling any potential conflicts to be identified at an early stage, so that the quality of the World Heritage site can be effectively safeguarded. To protect the visual integrity of the proposed World Heritage site, it is particularly important for all the relevant projects in this area to be assessed for their impact on the World Heritage site and agreed with the World Heritage Coordinator.

6.1.1 World Heritage Coordination and the Inter-Ministerial Steering Group

The World Heritage Coordinator will work closely with those responsible in other ministries, as well as with the property owners and other relevant stakeholders. For this purpose, it is proposed to set up an inter-ministerial steering group, which will meet at regular intervals. Given the range of functional responsibilities, it is planned to include representatives of the Heritage Protection Agency, the Regional Ministry of Urban Development and the Environment (BSU), the district authority for Hamburg-Centre and the Regional Ministry of Economic Affairs, Transport and Innovation (BWVI) in the inner circle of the steering group. The idea is for the competent authorities each to appoint an individual, who will be responsible for dealing with all matters relating to World Heritage management, and for communicating relevant issues within their own institution.

To enable communication to be as direct and easy as possible, the intention is also to include a representative from the HHLA and a representative of the owners of the Kontorhaus district in the inter-ministerial steering group. Representatives of other authorities and interest groups will be invited if required.

The World Heritage Coordinator will also facilitate

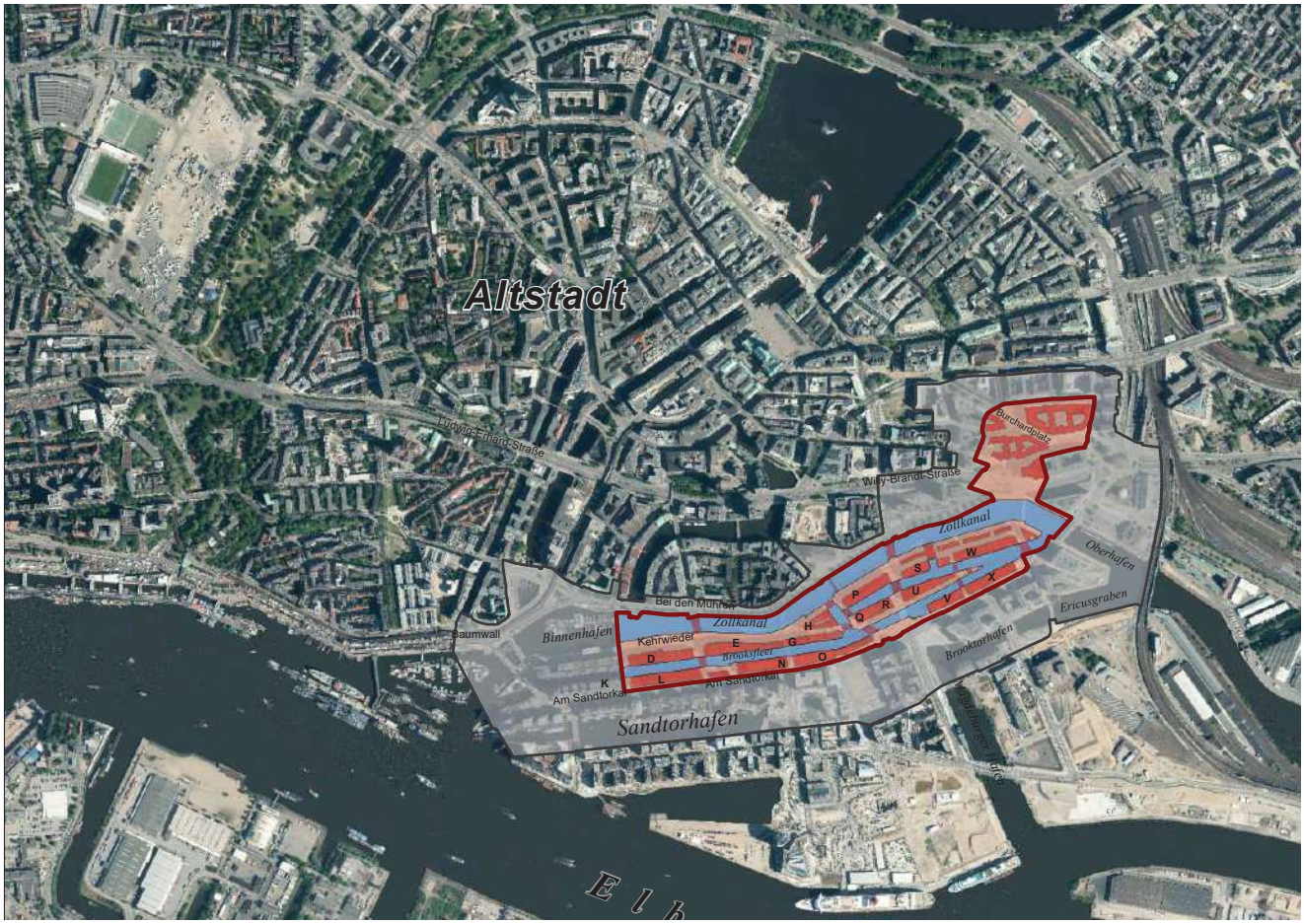


Fig. 53: The area covered by the proposed World Heritage site, the "Speicherstadt and Kontorhaus district with Chilehaus", its buffer zone and the surrounding area

close communication with the World Heritage Committee, through its secretariat, the World Heritage Centre. Similarly, he/she will also liaise closely with the Advisory Bodies of the World Heritage Committee, in particular ICOMOS. If necessary, the World Heritage Coordinator will also brief bodies at national level, such as the Federal Foreign Office or the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (abbr.: Standing Conference).

A further task of the World Heritage Coordinator will be to liaise with representatives of various local and regional interest groups, as well as the general public, about

Fig. 54: World Heritage management principles

the management of the World Heritage site. This will involve, in particular, coordinating and implementing educational projects and tourist offerings in and around the proposed World Heritage site (cf. Section 9.3).

6.1.2 Stakeholders, Ministries, Authorities and Interest Groups

The tasks of protecting and managing the proposed World Heritage site overlap with the competences of the following ministries, property owners, institutions and interest groups:

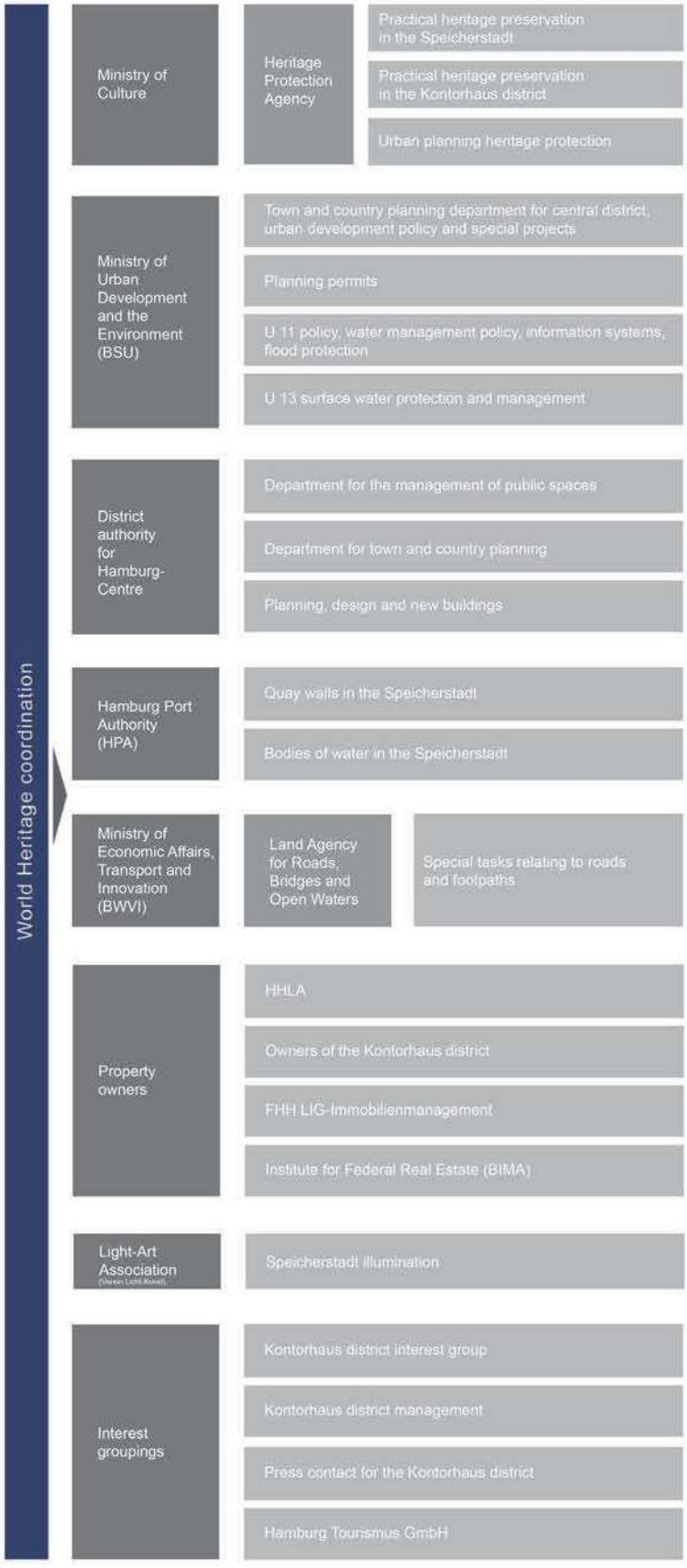


Fig. 55: Those involved in World Heritage management, and their competences

6.1.3 Ownership Structure

The following table lists all the owners of properties within the nominated property. The ownership of the Speicherstadt is not expected to change in the future.

Property	Owner
Speicherstadt	
Plots of land on which the buildings stand, streets, squares, bridges, parking areas, bodies of water	Free and Hanseatic City of Hamburg
Customs buildings 2, 3, 4, "Little Water Castle" (Wasserschlösschen)	Free and Hanseatic City of Hamburg (LIG-Real Estate Management)
Customs Museum and former customs administration building on Poggenmühle street	Federal Republic of Germany, Institute for Federal Real Estate (Bundesanstalt für Immobilienaufgaben (BIMA))
All other properties	Hamburger Hafen und Logistik AG (HHLA)
Kontorhaus district	
Streets, squares, parking areas	Free and Hanseatic City of Hamburg
Chilehaus	Union Invest Real Estate GmbH, Hamburg
Messberghof (former Ballinhaus)	Heinrich Bauer Verlag KG, HH
Sprinkenhof 1	Objekt Burchardplatz GmbH & Co. KG
Sprinkenhof 2	alstria office REIT-AG
Mohlenhof	Grundstücksgesellschaft Theodor Wille GmbH&Co

6.2 Monitoring and Quality Assurance

The World Heritage Coordinator will also be responsible for carrying out regular monitoring and quality assurance activities in the proposed World Heritage site. These will include, in particular:

6.2.1 Regular Reporting

In accordance with Article 29 of the World Heritage Convention and Paragraphs 169 to 176 of the Operational Guidelines (2011 version), in which the States Parties to the World Heritage Convention undertake to submit regular reports, the World Heritage Coordinator will prepare a report on the state of conservation of the proposed World Heritage site.

6.2.2 Reactive Monitoring

In the event of exceptional circumstances, in particular if there are specific threats to the proposed World Heritage site's outstanding universal value, authenticity and integrity – for example, due to new constructions affecting the cityscape – the World Heritage Coordinator will ensure that special reports are submitted to the World Heritage Committee, as required under Paragraph 172 of the Operational Guidelines. These have to be submitted to the World Heritage Centre at the latest by the 1 February following the occurrence of the exceptional circumstances concerned.

Should reports be submitted to the World Heritage Centre from sources other than the State Party, pursuant to Paragraph 174 of the Operational Guidelines, raising questions about the state of conservation, then the World Heritage Coordinator will support the World Heritage Committee in its investigations. If the World Heritage Committee so requests then ICOMOS, as the competent Advisory Body, will also be involved in that procedure.

6.2.3 Preventive Monitoring

The German national ICOMOS committee has set up a monitoring group, which has oversight of World Heritage sites in Germany. The members of the monitoring group observe current developments in the World Heritage sites, carry out on-site visits and draft annual reports, which may, if appropriate, trigger the "reactive monitoring" procedure, as outlined in Section 6.2.4.

The monitoring group's primary objective is to contribute to avoiding conflict in World Heritage sites. The World Heritage Coordinator is therefore encouraged to cooperate closely with the German national ICOMOS committee and in particular the competent members of the monitoring group.

6.2.4 Conflict Management

The World Heritage Coordinator takes the lead on conflict management and is responsible for facilitating coordination between the various different players, and, if necessary, seeking advice from the World Heritage Centre and the Advisory Bodies. Nevertheless, the overriding objective should still be to resolve any conflicts of interest at local level.

Over and above these mechanisms and institutions, it is also possible to draw on the experience and expertise of the Heritage Council if required, in order to avoid conflicts in and around the future World Heritage site.

PART III THE FUTURE OF THE NOMINATED PROPERTY

7. Planning Systems and Policy Frameworks

The objective of PART III of the Management Plan is to list the main guidelines for the preservation and sustainable development of the proposed World Heritage site. In this regard, particular account must be taken of the outstanding universal value, authenticity and integrity of the "Speicherstadt and Kontorhaus district with Chilehaus", which are the criteria used to assess the significance of the site (cf. Chapter 3) and on the basis of which it may be included on the World Heritage List. It is important to ensure that Hamburg's current urban development objectives are brought into line with those criteria. Similarly, it is essential to ensure that this set of guidelines for managing the buildings are in tune with the World heritage criteria.

This chapter first lists the relevant planning systems and policy frameworks. It then goes on to define the key objectives for the preservation and sustainable development of the proposed World Heritage site, in line with the World Heritage Convention, under which there is an obligation to, "adopt general policies to give the heritage a function in the life of the community" and "integrate heritage protection into comprehensive planning programmes" (Operational Guidelines, Paragraphs 15 b and c).

7.1 Planning Systems and Policy Frameworks

The following planning systems play an essential role in this context.

7.1.1 Hamburg 2010 City Centre Concept (Innenstadtkonzept)

The Hamburg 2010 City Centre Concept (Innenstadtkonzept) is based on the City of Hamburg Programme Plan of 1981, which sought to open up Hamburg's city centre to the Elbe, improve the quality of the urban environment and mitigate the segregation and depopulation of the city centre. In addition, it sought to promote the city centre as a place to live.

The Hamburg 2010 City Centre Concept seeks primarily to integrate the HafenCity, which lies to the south of the city centre, in the city centre district. The HafenCity covers 157 hectares and, once completed, will increase the size of the city centre by almost 40%. This leads to structural shifts of emphasis in the city centre, changing its functionality, and impacting on the status of different areas and the importance of the connections between them. A new balance therefore needs to be sought for the entire city centre, both now and in the years to come.

As an integrated policy framework, the Hamburg 2010 City Centre Concept focuses on various different areas and links them together to form a whole. Particular emphasis is placed on cultivating public spaces, promoting the city centre for residential use and boosting retail trade. Other thematic areas covered in the Hamburg 2010 City Centre Concept are: establishing a central business/ district with a focus service; developing the area as a cultural centre; giving even more prominence to the Gestalt qualities of the area, focusing in particular on converting postwar sites in urban areas, and managing traffic in a way that is compatible with urban living. By establishing a dialogue between the new attractive waterside areas and the established centre of Hamburg, the objective was to define the urban boundaries more sharply and to create a dense network of connections within the city. The goal is to make Hamburg's city centre the city's prime retail destination.

In general, the Hamburg 2010 City Centre Concept is a tool to enable Hamburg's historic core and its new maritime district to grow together. Given the location of the Kontorhaus district and the Speicherstadt, with the city centre immediately to the north, and the HafenCity immediately to the south, it is clear that they play an important role in the Hamburg 2010 City Centre Concept. This is particularly true of the Speicherstadt, which is an island, characterised by its east-west orientation and separated from the mainland by the Customs Canal and the Binnen-

hafen. Now, however, it is an integral component of the cross-city routes highlighted in the City Centre Concept, routes along which pedestrian and traffic flows will be redirected, and thanks to which the area bordered by Mönckebergstrasse, Jungfernstieg and the Magdeburger Hafen is set to be radically revitalised as a new shopping triangle. The benefits and drawbacks of the various different routes have been identified.

Since 2012, intensive public consultations have been underway on the statements made in the 2010 City Centre Concept. This wide-ranging process is an opportunity for the public to discuss, ask questions about and contribute their own ideas to the proposals and objectives documented in the City Centre Concept. At the heart of the consultation exercise have been several rounds of moderated thematic workshops, guided tours of the city and public information events.

The workshops were on four different thematic areas:

- Architecture / Urban culture / Heritage protection
- Residential use
- Public spaces
- Retail / Office market

Participants included both the general public and individuals with specific expertise.

Two rounds of workshops were held, which were attended by a wide range of experts and a large number of private individuals. A report has been produced summarising the outcome of the workshops and the recommendations made by the workshop participants and speakers. These will be taken into account in a revised version of the City Centre Concept, which will be presented at a public event.

7.1.2 The Development Concept for Hamburg's Speicherstadt

The Development Concept (Entwicklungskonzept) for Hamburg's Speicherstadt, hereinafter referred to as the Development Concept for the Speicherstadt, was drafted by the Regional Ministry of Urban Development and the Environment (BSU) in cooperation with the HHLA, other ministries in Hamburg and the district authorities. In April 2012, it was given legal effect by the Senate and was noted by the Hamburg Parliament. The Development Concept for the Speicherstadt is an informal planning programme and serves as a framework for managing the future development of the Speicherstadt. One of the main reasons for drafting it was the Speicherstadt's nomination for inscription on the World Heritage List. In addition, the Development Concept for the Speicherstadt is intended to serve as a basis for a local development plan for the Speicherstadt, work on which has begun now that the Speicherstadt has been removed from the scope of the Port Area Development Act (Hafenentwicklungsgesetz). The Development Concept for the Speicherstadt is therefore of central importance, both for the preservation and sustainable development of the Speicherstadt, which is being nominated for World Heritage List, and for this Management Plan, because it summarises the facts, general conditions and guidelines, which are essential for fulfilling this task.

When completed, the HafenCity, the Speicherstadt will constitute a link between it and the city centre. One of the challenges presented by this new status is that the Speicherstadt has hitherto been separated from the rest of the city and was built on an east-west axis. Historically, north-south through-routes played a subordinate role, but they are now becoming increasingly important. Change is therefore necessary, but at the same time it is important to retain the Speicherstadt's historic buildings, appearance and characteristic infrastructure.

Additional challenges which are identified in the Development Concept for the Speicherstadt include the current changes in how the warehouses are used. Specifically, there has been a decline in transhipment and logistics, while an increasing number of service companies, trade operations and cultural attractions are establishing themselves there. There is also increased interest in living in the Speicherstadt. Large-scale residential use is, however, only possible if there is comprehensive flood protection. As part of the process of drafting the Development Concept for the Speicherstadt, a flood protection concept was also produced. However, it has not yet been assessed for its impact on heritage protection (Internal Memorandum 20/4388, p. 4). Another key challenge for the future is maintaining the quality of public spaces. Ensuring that the heads of the wooden piles on which the Speicherstadt is built remain structurally stable is a further important task.

While taking appropriate account of the Speicherstadt's historic heritage and its proposed nomination for World Heritage List, the Development Concept for the Speicherstadt also seeks to highlight any opportunities for change and further development, without threatening the area's existing character. It sets out relevant criteria for this, while at the same time describing the existing technical and legal constraints. A concept has been drafted for the transport infrastructure and the design of public spaces within the Speicherstadt.

The Development Concept for the Speicherstadt contains detailed information on the following aspects, bearing in mind that all changes require the permission of the heritage protection authorities:

- Uses and changes of use (storage and trade, services, residential use, cultural institutions)
- Flood protection
- Safeguarding the wooden piles supporting the quay walls and warehouses
- Transport (access, parked vehicles, design of parking areas, bridges)
- Open spaces and their design
- Lighting
- Existing flora and fauna

7.1.3 Ordinance on the Design of the Speicherstadt

In order to facilitate compliance with heritage protection requirements, particularly as far as the external appearance of the Speicherstadt is concerned, the Senate adopted an ordinance on 5 August 2008 containing specific rules for the Speicherstadt. The Ordinance on the Design of the Speicherstadt (Official Hamburg Gazette, p. 285) stipulates that any alterations to the warehouse buildings must be compatible with heritage protection and contains provisions on

- façades
- roofs
- building technology
- advertising and vending machines
- the design of the surrounding external space

These provisions are based on the existing historic buildings and are therefore an important instrument for preserving the appearance of this part of the proposed World Heritage site. Since it is listed under the Heritage Protection Act, any changes to the external appearance of the Speicherstadt are subject to approval by the competent authorities.

7.1.4 Design Manual for the Speicherstadt (Gestaltungshandbuch Speicherstadt)

In 2002, the Hamburger Hafen- und Lagerhaus-Aktiengesellschaft (HHLA), which owns all the property in the Speicherstadt, commissioned a Design Manual for the Speicherstadt. The manual has not been adopted by the Hamburg Parliament and is therefore not legally binding. Nevertheless, the HHLA has used it as a design guideline for years, and it is therefore very important for safeguarding the quality of the Speicherstadt.

The Design Manual for the Speicherstadt defines essential model components and explains the design principles which apply to buildings and advertising. It also contains design principles for the transitional areas between the Speicherstadt and the HafenCity, and recommendations on aspects of urban architecture, and on the design of open spaces, buildings, façades, roofs and entrance areas. In addition, it sets out the rules and restrictions with which its tenants must comply, in accordance with their rental contracts under private law.

7.1.5 The Local Development Plan for the Speicherstadt

A local development plan is currently being prepared for the Speicherstadt, which was removed from the scope of the Port Area Development Act (Hafenentwicklungsgesetz) on 10 October 2012. Since the Original use of the Speicherstadt more and more disappears the local development plan refers mainly on the determination of the type of use. Further the local development plan envisages moving Wandrahmsteg back to its original position (although no date has yet been set for this to happen).

Under the decision to draft a local development plan, there are two ways in which any undesired developments can be prevented pending its approval: by postponing them and by imposing a development freeze (§§ 15 and 16-18 BauGB).

7.1.6 International References and Policy Documents

Under this heading it is important to mention once again the policy documents and recommendations described in Section 4.3, which are also a crucial reference point for the development of the proposed World Heritage site.

8. Possible Threats to the Conservation of the Nominated Property

The planning systems described above and, in particular, the Development Concept for the Speicherstadt, adopted by the Senate, provide an extensive foundation on which to base all future plans and decisions affecting the proposed World Heritage site. Nevertheless, questions remain, questions which, while not necessarily directly related to the nomination of the Speicherstadt and Kontorhaus district for UNESCO's World Heritage List, will in any case need to be resolved in the future. In identifying appropriate solutions, due consideration will need to be taken of the interests of all stakeholders, so as to avoid conflicts of interest.

This chapter describes some of the questions which have arisen in connection with the key objectives identified above, and which will require further clarification in the future.

8.1 Pace of Development and Changes of Use

Whereas at present changes of use are uncommon in the Kontorhaus district – apart from the possibility of converting the stepped-back upper storeys into apartments – it is a different matter entirely in the Speicherstadt. Here, a conversion process has been underway for some considerable time, prompted by the fact that many of the warehouses are no longer needed for port-related purposes. The nature of the goods, which are still stored and transhipped in the Speicherstadt, has also changed radically in recent decades. Whereas previously coffee, tea, cocoa, dried fruits, nuts and spices were stored, processed and transhipped in the Speicherstadt, in the last few decades the storage of oriental carpets has dominated the warehouses. However, in the last few years, this segment has also declined, and it is therefore safe to assume that in future only about a third of all the warehouses will continue to be used for their original purpose.

There is at present a consensus that the activities of storage and distribution should not disappear from the Speicherstadt entirely, because they are part and parcel of its typical character. At present, of the around 300,000 square metres of usable floor space in the Speicherstadt, around 96,000 square metres are still used for storage, and it is predicted that around a third of the total space available will continue to be required for storage purposes. About a third of the remaining buildings have already been converted to new uses, and the Speicherstadt now hosts several companies from the fashion and textiles industries, who use the space for both storage and to showcase their collections, thus building on traditional warehouse activities. In addition, around 81,000 square metres of the available space is occupied by offices. Another recent addition to the mix are cultural institutions, leisure facilities and restaurants, which have moved into the Speicherstadt in greater numbers since the removal of its Free Port status. Cafés, restaurants and venues for cultural and leisure activities now occupy some 25,000 square metres in the Speicherstadt. They make a significant contribution to the liveliness and attractiveness of the district and will therefore continue to be encouraged in the future. The atmospheric historic buildings and the generous open spaces in the warehouses also make the Speicherstadt attractive to artists and others from the creative industries. It is therefore proposed to earmark around 10,000 square metres of space in the Speicherstadt for artists' studios, around 5,000 square metres of which will be offered at very reasonable prices so that they are within the reach of younger artists.

Since the ensemble is listed under Hamburg's Heritage Protection Act, all of these changes of use, and any related alterations to warehouse buildings, have been carried out in close cooperation with the Hamburg Heritage Protection Agency, and have been subject to the granting of a permit. The objective is to minimise intervention in the fabric of the buildings. As a result of this approach, which is set to continue in the future, a great deal of valuable experience has

Fig. 56: Historical and current use of the buildings in the warehouse district

been accumulated in converting buildings in the Speicherstadt. At the same time, it is important to bear in mind that changes of use not only have an impact on the design and the fabric of the buildings, but also require public footpaths to be adapted.

8.2 Living in the Speicherstadt

In the context of present and future changes of use, particular attention needs to be paid to one point in particular: the possible conversion of warehouse buildings for residential purposes. Since one of Hamburg's top urban development priorities is to promote inner city living and to prevent a one-sided development to a city office, the possibility, in the future, of integrating more apartments into the Speicherstadt has been mooted. However, converting existing warehouse buildings into apartments requires relatively major alterations to be made to the original buildings, at least in comparison with other conversion projects. The buildings are relatively deep, and to fulfil the requirements for natural light, access and domestic installations, significant structural alterations need to be made, for example to create atria, add more windows and to comply with fire safety requirements.

In 2012, to sound out how best to go about enabling people to live in the Speicherstadt, the Regional Ministry of Urban Development and the Environment (BSU), together with the HHLA, launched a competition and invited people to submit their ideas on the subject. In the interests of ensuring an appropriate housing mix, apartments ranging in size from 50 to 180 square metres had to be considered. The organisers drew the following conclusions: If apartments are to be created in the Speicherstadt, then both the exterior and interior of the buildings must be preserved so that they reflect the spirit of the place. With this in mind, they recommended that the desire for a mix of larger and smaller apartments should be regarded as secondary, and that the priority should be to create typical loft apartments with minimal modifications and new installations, although this could mean restrictions on apartments facing just one way, and difficulties complying with the rules on lighting. Excluding the typical storage floors of the warehouses, the jury recommended creating maisonette-style apartments and studios on the upper and attic floors, retaining the historic supporting structures and roof timbers. Particular care would have to be taken with the roofscape, and in particular the impact on views from the waterways and from Sandtorkai.

A further prerequisite for living in the Speicherstadt is flood protection. Either there needs to be a com-

prehensive system of flood protection (cf. Section 8.3) or direct access from the warehouses to elevated escape routes. So far this is only the case in the warehouses with direct access to Kibbelstegbrücke, for example block N, a small part of which already houses a combination of offices and apartments.

8.3 Flood Protection

Since the Speicherstadt lies outside the public main dyke system, between the city centre, which is protected by a system of flood defences, and the HafenCity, which is built on plinths that raise it above the reference water level, there is currently no comprehensive system of flood defences, such as a closed network of dykes, to prevent the Speicherstadt from flooding. The Speicherstadt lies between 4.50 m and 5.50 m above sea level (NN = tidal reference level), i.e. considerably lower than the present reference mean water level of 7.30 m above sea level, which is set to rise still further in future to 8.10 m above sea level (Internal Memorandum 20/5561). As a result, the Speicherstadt has suffered frequent flooding in the past. The floods do not pose a risk to the fabric of the Speicherstadt buildings, however, and no substantial flood damage has been found so far.

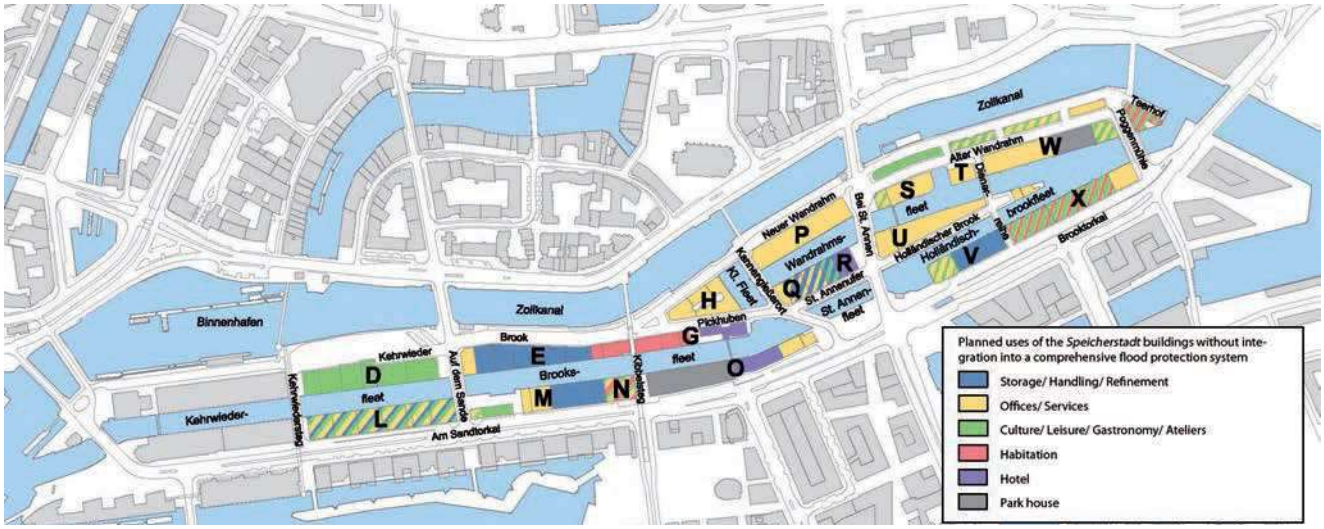


Fig. 57: Planned uses if the Speicherstadt is not integrated into the comprehensive flood protection system

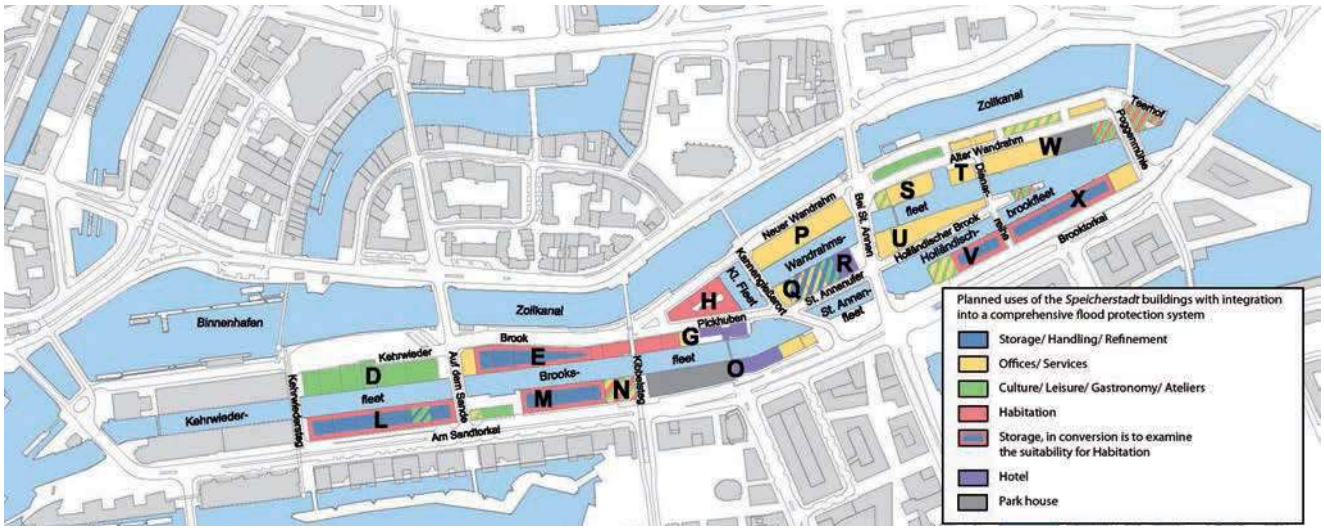


Fig. 58: Planned uses if the Speicherstadt is integrated into the comprehensive flood protection system

Some of the warehouse buildings, which are being used for storage or as commercial or office space, have taken steps to prevent flooding. Some have individual flood defences, which can prevent the basements and ground floors of individual buildings from being flooded.

However, if warehouses were to be converted into apartments or hotels, it would be absolutely vital for there to be a comprehensive flood protection system and appropriate escape routes, which would be safe in the event of flooding. For this reason, as part of the process of drawing up the Development Concept for the Speicherstadt, a study was carried out on constructing a flood protection system, and two main variants were looked at. The study concluded that it is technically feasible to construct a comprehensive flood protection system, but that given the substantial cost of such a system, it would be a very long-term project and that further, more in-depth investigations are necessary.

Of course, if a comprehensive flood protection system is implemented in the Speicherstadt, it will be necessary to ensure that any new flood defences do not detract from the historic buildings or the historic appearance of the Speicherstadt. In particular, the marked contrast between older and more recent buildings in the Speicherstadt should not be exacerbated. The proposed World Heritage management, but also ICOMOS, as an Advisory Body of the World Heritage Committee, should therefore be closely involved in future plans to implement such a flood protection scheme.

8.4 Existing Flood Defences and the Quality of the Speicherstadt Experience

Regardless of whether or not comprehensive flood defences are constructed for the Speicherstadt, it is also important to consider the impact of existing flood defences on its historic appearance. This is of particular relevance to the area to the north of the Customs Canal, which on the one hand affects the view of the Speicherstadt from the city centre, but on the other also serves as part of the flood defence line. As far as possible, the quality of the experience offered by the Speicherstadt should be preserved in the future.

There are already some good examples of how the requirements of flood protection can be reconciled with ensuring that the Speicherstadt can continue to be experienced as part of the Hamburg cityscape and complying with heritage protection imperatives, for example by using existing flood defences as viewpoints. In order to identify consensus-based solutions to changing flood protection requirements, any future measures should also be agreed in close consultation with the Heritage Protection Agency and/or the future World Heritage management.

Fig. 59: Existing flood defences on the Customs Canal and the use of flood defences on the Customs Canal as a vantage point from which to view the Speicherstadt

8.5 The Structural Safety of the Quay Walls under the Warehouses and Streets

In recent years, the Speicherstadt's 120-year-old quay walls have begun to show signs of wear and tear, both at the water's edge and in the warehouse buildings themselves, particularly in the basements. As a result, the HHLA commissioned a report assessing the structural safety of the quay walls, which concluded that repairs definitely needed to be carried out to the quay walls and that the heads of the foundation piles also needed to be rehabilitated.

A second report, this time commissioned by the Free and Hanseatic City of Hamburg, came to a different conclusion: that the damage was localised and that only certain sections of the quay walls were at risk. No immediate action was necessary, and the repairs could be done in the medium (3 to 5 years) to long term (10 to 15 years).

Ensuring the long-term structural safety of the quay walls is vital for the conservation of the Speicherstadt. Since the two reports are not unanimous, in the future it will be necessary to produce an appropriate rehabilitation concept for the quay walls, which has the full support of all those involved.

8.6 Traffic

Before the special rules applying to the Free Port were relaxed and eventually abolished, nearly all of the traffic in the Speicherstadt either originated or terminated there. The only exceptions were the roads Bei St. Annen and Am Sandtorkai/ Brooktorkai, which served as through-routes, carrying traffic across Freihafenbrücke to the southern parts of the port and to Harburg. Since then, the Speicherstadt has seen a sharp increase in traffic as well as greater numbers of cyclists and pedestrians. Further changes of use in the Speicherstadt and the continued development of HafenCity in the future will also impact on the streets and footpaths. Hitherto, the Speicherstadt's infrastructure has remained virtually unchanged, and is therefore one of its characteristic features, which needs to be preserved (see Chapter 2). As the Speicherstadt develops, it will therefore be necessary to be aware, on the one hand, that new demands are being placed on the streets and footpaths but, on the other, that it is important to preserve the historic infrastructure in accordance with the principles of heritage protection.

8.7 Barrier-free Access

Barrier-free access is particularly important for the proposed World Heritage area, which must remain inclusive and accessible to all. In this context, the provisions of the UN Convention on the Rights of Persons with Disabilities and the associated action plan of the Free and Hanseatic City of Hamburg must be respected. In the future, it will also be necessary to identify solutions which enable elderly and disabled people to use the footpaths safely, while preserving the historic materials in the streets. This requirement needs to be reconciled with protecting the heritage of the streets and footpaths in the Speicherstadt and the Kontorhaus district.

8.8 Effects from visitors / tourists

The Speicherstadt, the Kontorhaus district and the Chilehaus are integral parts of the tourism marketing of the Free and Hanseatic City of Hamburg. Together with other tourist attractions, they form an integral part of existing tourism products. This applies particularly to the Speicherstadt itself as well as memory for specific tourist attractions lying there like the „Miniatur Wunderland" or the „Hamburg Dungeon", which attract many tourists every year and are among the main attraction points of Hamburg. At present, not visible, that from the impact of tourism arise specific threats or attacks for the nominated World Heritage Ensemble „Speicherstadt, Kontorhausviertel and Chile House". Yet it is vital to ensure through constant

monitoring, that a balance of tourist use is assured with the requirements of conservation practice and use of the buildings and of the public spaces.

8.9 Careful rearrangements of areas and buildings in the buffer zone

In the coming years, additional areas in the buffer zone will be reorganized. This will also be accompanied by some new buildings. This is especially true in the area of Cityhof skyscrapers on the eastern edge of the Kontorhaus district, in the area between Willy-Brandt-Strasse and customs channel west of the Messberg and for a single as yet undeveloped field in the neighboring port city. The new buildings, which are here in planning, also need to be very carefully considered and tailored to their compatibility with the nominated property.

8.10 Key Indicators for Assessing the State of Conservation

The issues outlined above were used to define the following key indicators, which will be assessed at regular intervals, so as to avoid conflicts of interest:

Factor / Indicator	Periodicity	Who is responsible / Location of Recors
Cityscape / City silhouette	Ongoing	Heritage Protection Agency / BSU
Public spaces	Ongoing	Heritage Protection Agency / BSU / District Hamburg-Centre
Preservation of the building structure	Ongoing	HHLA / Owners of the Kontorhaus district / Heritage Protection Agency
Structural safety Quay walls an buildings of the Speicherstadt	Ongoing	Hamburg Port Authority / BSU / Heritage Protection Agency
Uses and changes of use	Ongoing	HHLA / Owners of the Kontorhaus district / Heritage Protection Agency
Traffic and changes in traffic	Annually	BWVI / Heritage Protection Agency
Development of tourism	Annually	Hamburg Tourismus GmbH / Heritage Protection Agency/ HHLA/ Owners Kontorhaus district/ BSU
Developments in the buffer zone	Annually	Heritage Protection Agency / BSU/ District Hamburg-Centre

9. Strategic Measures and Priority Projects

In order to ensure the conservation of the proposed World Heritage site, with reference to the criteria for inclusion on the World Heritage List, which are listed in Chapter 3, and the protection and other primary objectives for its preservation and sustainable development, which are defined in Chapter 4, it is necessary to translate the existing planning systems and policy frameworks into tangible project steps. The three thematic strands used in Chapter 4 to define the protection objectives and other primary objectives can serve as a basis here:

- Preservation and conservation
- Identity and continuity
- Raising awareness and disseminating information

9.1 Preservation and Conservation

The World Heritage Convention regards both the conservation and presentation of World Heritage sites as important and therefore requires both to be respected. Preserving the fabric of the buildings in the World Heritage area together with the surrounding open spaces is therefore a top priority. In support of this objective, the following measures are envisaged:

9.1.1 Design Concept for the Kontorhaus District

At present, the public spaces around the Kontorhaus district are not of optimal quality, and this detracts from the experience offered by the future World Heritage ensemble. One such example is Burchardplatz, which was admittedly designed as a parking area already in the original plans for the construction of the Kontorhaus district, but whose quality is at present diminished by the parked vehicles there. The extension of Burchardstrasse, to the south-west of the Kontorhaus district, presents a similar problem. This street is dominated by the characteristic and impressive shape of the south-western tip of the Chilehaus. Here too, however, parked cars prevent this unique space from being experienced to the full. Efforts are therefore being made to enhance the quality of public spaces in the Kontorhaus district by introducing new parking arrangements.

Fig. 60: Burchardplatz and Burchardstrasse are at present used for parking

Fischertwiete also needs to be upgraded, since it has lost its original character as a through road and is now more akin to a courtyard or square. In the medium term, it should once again be restored to its original condition, so that the functional and physical connections between the Speicherstadt and the Kontorhaus district are again made more explicit.

Another issue to be addressed in the Kontorhaus district concerns the design of the bases of buildings and external spaces, which should be made more uniform. While the façades of the buildings' bases are generally impressive, the advertising boards affixed to them need to be of a uniform design that complies with the principles of heritage protection, and of a standard that befits a World Heritage site. The same applies to the street furniture used in the Kontorhaus district.

In order to coordinate and implement these measures in accordance with heritage protection and world heritage principles, it is envisaged that a design concept be developed for the Kontorhaus district. This should make it possible to safeguard and improve the quality of the external spaces in the Kontorhaus district, as is already the case today in the Speicherstadt.

Fig. 61: Fischertwiete today

9.1.2 Strengthening the Connection between the Kontorhaus District and the Speicherstadt

The physical and visual connections between St. Jacobi, Burchardplatz and the Speicherstadt are important because they provide a visual experience of the Kontorhaus district from the city centre. However, they also bear eloquent testimony to the functional and physical link between the Kontorhaus district and the Speicherstadt, and thus play a key role in fostering public understanding of how the two areas are related. The quality of the area between the Kontorhaus district, Willy-Brandt-Strasse, the Customs Canal and the Speicherstadt therefore needs to be enhanced.

Plans for Willy-Brandt-Strasse, an east-west link road, date back as far as 1910, although it was not actually constructed until after the war. It now forms a physical barrier between the two districts, which is visually accentuated by the road signs positioned there. Wandrahmsteg was shifted from its historical position which adds to the impression of a hiatus between the Kontorhaus district and the Speicherstadt. Since the "Speicherstadt and Kontorhaus district with Chilehaus" have been nominated for World Heritage status on the basis that the two ensembles are interdependent, both functionally and physically, and given that evidence needs to be provided of the proposed World Heritage site's outstanding universal value, it is desirable to strengthen this (visual) connection. Since this area also contributes to consolidating the route from Ballindamm to Baakenhöft, which will be important for connecting Hamburg city centre to the eastern part of the HafenCity, reference was already made to these shortcomings in the Hamburg 2010 City Centre Concept (Innenstadtkonzept Hamburg 2010, 105-107).

It is a particular challenge to identify a solution which, on the one hand, takes account of city centre traffic flows – the Ost-West-Strasse - Willy-Brandt-Strasse

Fig. 62: Chilehaus and Fischertwiete from the south, as it is today; advertising boards and signs on the base of the Sprinkenhof building and next to it

Fig. 63: Past and present connections between the Speicherstadt and the Kontorhaus district: Historic Wandrahmsbrücke across the Customs Canal, view through Fischertwiete towards the Speicherstadt and view from the Speicherstadt or rather the exit of the Messberg underpass towards the Chilehaus

- Deichtorplatz route is an important access route into the city centre and plays a significant role in the road network in general – while, on the other hand, improving the existing situation, so that the historical connection between the Kontorhaus district and the Speicherstadt is made more explicit than it is at present.

9.1.3 Strengthening and Maintaining Other Visual Connections

Over the last few years, the construction of the HafenCity has radically altered the area around the Speicherstadt. This makes it all the more important to preserve the existing visual connections and – where necessary – to improve their quality.

The Oberbaumbrücke - Brooktorkai - Speicherstadt sight line plays a significant role in enhancing people's everyday experience of the Speicherstadt, since Brooktorkai is not only a very busy road, but also elevated, which makes it possible for drivers to see the eastern side of the Speicherstadt in context. It also offers a view of the "Wasserschlösschen" (Little Water Castle), one of the most well-known images of the Speicherstadt. The view has suffered somewhat as a result of the recent construction of a hydrogen filling station directly between Oberbaumbrücke and the Speicherstadt. The hydrogen filling station only has a 10-year permit, and will then be moved to another site, thus restoring the uninterrupted visual connection between Oberbaumbrücke and the Speicherstadt.

9.1.4 Preserving the Wooden Pile Foundations of the Warehouses and Quay Walls

The Speicherstadt's wooden pile foundations were originally driven to a depth such that the heads were approximately 0.50 m below sea level (tidal reference level), which at the time was the mean low-water level. This ensured that the piles were nearly always submerged and thereby protected from rot. Over the last two centuries, the tidal range in Hamburg's port has continually increased, and as a result the mean low-water level has now fallen to 1.60 m below sea level (tidal reference level), which means that the pile heads are dry twice daily for several hours at a time, with consequent risks of damage to their load-bearing capacity.

So far, the wooden pile foundations in the Speicherstadt have suffered minimal damage as a result of the fall in the low-water level. However, since the tid-

Fig. 64: View of the "Wasserschlösschen" (Little Water Castle)

Fig. 65: View from Oberbaumbrücke to the Speicherstadt as it is at present, blocked by the construction of a new hydrogen filling station

al range is continuing to increase, the pile heads are becoming more and more exposed. Further clarification is now needed about the risk of the foundations becoming unstable as a result of damage to the pile heads caused by their becoming dry. Although the pile heads do not dry out entirely, they could be exposed to harmful bacteria because of the influx of oxygen.

Regardless of the Speicherstadt's nomination for World Heritage status, when it comes to preserving the structural safety of the buildings, no risks should be taken. In the future, therefore, it will be necessary to carry out a thorough examination of the wooden pile foundations and to develop a concept for safeguarding the structural stability of the warehouses and quay walls in the long term. The city of Hamburg, which is responsible for the structural stability of the quay walls, has undertaken to provide the necessary funding (Internal Memorandum 20/4388).

9.1.5 Sensitive Reordering of Traffic and Access to the Speicherstadt

As explained in Section 8.6, the changes in and around the Speicherstadt have already had a significant impact on traffic, a trend which is set to continue in the future.

Hitherto, the Speicherstadt's infrastructure has remained virtually unchanged, and is therefore one of its characteristic features which needs to be preserved (see Chapter 2). As the Speicherstadt develops, it will be necessary to be aware, on the one hand, that new demands are being placed on the streets and footpaths but, on the other, that it is important to preserve the historic infrastructure in accordance with the principles of heritage protection.

With this in mind, the Development Concept for the Speicherstadt contains a summary of the consequences of these developments and the measures to be taken in response, based on the "Scenario 2025" traffic study of the Speicherstadt and the HafenCity. The Development Concept also describes in detail the measures proposed for the public spaces in the Speicherstadt and contains information about the present and future design of the streets, and the materials to be used.

On the basis of the requirements set out in the Development Concept for the Speicherstadt, the BWVI and the BSU are now drafting an access plan.

9.2 Identity and Continuity

The Operational Guidelines for the Implementation of the World Heritage Convention state that World Heritage properties can be used for a wide range of purposes, provided that such purposes are ecologically and culturally sustainable. Agenda 21, which was adopted in 1992 at the Earth Summit in Rio de Janeiro, and under which 180 countries undertook to implement a programme of action for the 21st century, is decisive here. The programme of action – known as the Local Agenda 21 or LA 21 – seeks to strike a balance on development issues between economic, social and ecological demands.

States Parties to the World Heritage Convention and all partners in the protection of World Heritage have to ensure that the sustainable use of the property does not have an adverse impact on its outstanding universal value, integrity or authenticity. To achieve this objective in the "Speicherstadt and Kontorhaus district with Chilehaus", the ensemble being nominated for World Heritage List, the following strategic guidelines are proposed:

9.2.1 Sustainable Use of the Buildings

Ever since they were built, the buildings in the Kontorhaus district have been used for the purpose for which they were intended. The condition of the build-

ings in the nominated property can at present be described as outstanding. No major changes of use are currently expected. The conditions for preserving the fabric of the Kontorhaus buildings are therefore ideal.

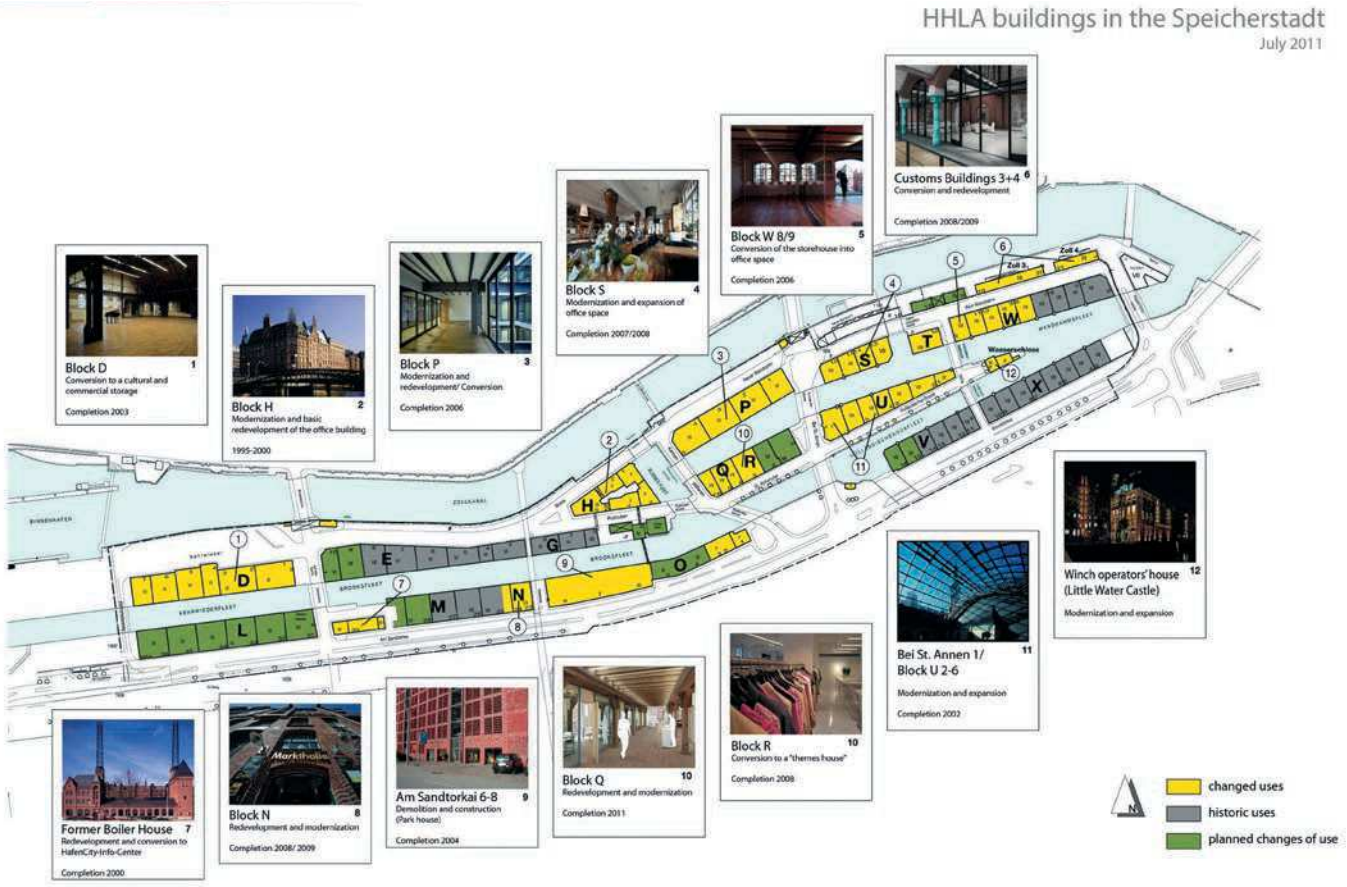
The majority of the Speicherstadt's buildings have been owned by Hamburger Hafen und Logistik GmbH since they were constructed. This situation will not change in the future. HHLA has accumulated a great deal of valuable experience in preserving and maintaining the historic Speicherstadt buildings, and this will ensure a high degree of continuity when it comes to the preservation and sustainable development of the Speicherstadt. In the course of the part-privatisation of HHLA, its Speicherstadt assets were separated from its other business activities. The Speicherstadt buildings were assigned non-listed tracking stocks, which are wholly owned by the Hamburg Capital and Holdings Management Company (Hamburger Gesellschaft für Vermögens- und Beteiligungsmanagement mbH; HGV), which in turn is wholly owned by the City of Hamburg.

In 2007, the Hamburg Parliament adopted a decision entitled Internal Memorandum on the Part-Privatisation of HHLA (Bürgerschaftsdrucksache zum Teilbörsengang), which confirmed a gentle development approach towards new uses for the Speicherstadt. This was a crucial step towards introducing a system of sustainable management and development in the Speicherstadt, enabling it to be preserved in the long term.

9.2.2 Continuity, Identity and Quality of Life through Sustainable Changes of Use in the Speicherstadt

In response to the ongoing process of change in the Speicherstadt, several conversion projects have already been carried out in recent years, in close consultation with the Heritage Protection Agency. There are plans to convert more warehouses in the future, which again will be done in cooperation with the Heritage Protection Agency. This close cooperation is intended to ensure that the architectural homogeneity of the Speicherstadt, its historic buildings, construction techniques and characteristic warehouse interiors are preserved for the future.

Without jeopardising the typical characteristics and historic fabric of its buildings, these measures are intended to make the Speicherstadt a lively and vibrant part of the city, which owes its strong attractiveness and identity not only to its cultural and historical significance and atmosphere, but also to its important role in Hamburg's present and future cultural life. The new user groups within the Speicherstadt make an essential contribution to this, but so do visitors from in and around Hamburg and from further afield, who are attracted by new services and cultural activities. To ensure that these measures are sustainable, a balanced mix of uses is being sought.



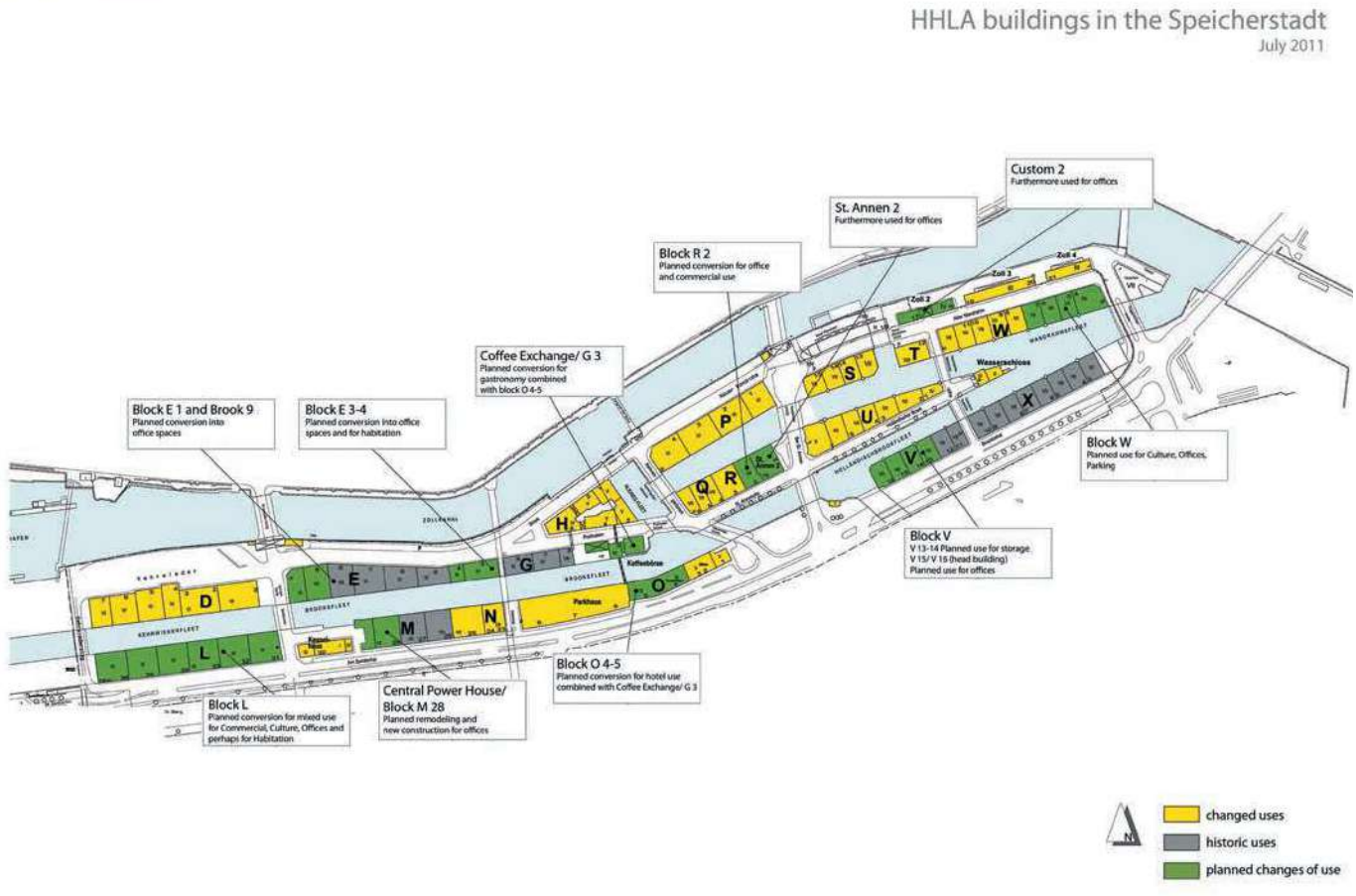


Fig. 66: Completed and planned conversion projects in the Speicherstadt

9.3 Raising Awareness and Disseminating Information

Inscription on the World Heritage List goes hand in hand with an undertaking to communicate the idea of World Heritage and promote the World Heritage site to a wide public audience. This is also essential to raise public awareness of the needs of World Heritage in general, and the need to take proper care of our cultural and historical heritage in particular. The third group of proposed projects therefore concerns education and communication.

9.3.1 Setting up a World Heritage Information Centre

At the heart of the proposed education and communication concept is the World Heritage Information Centre, which will be responsible for public relations, education, tourism and visitor management.

One potential location has been identified for the World Heritage Information Centre: the Speicherstadt's former power house, the Boiler House (Kesselhaus). In recent years it has already housed the Information Centre for the HafenCity. In addition, it is proposed to create a "satellite" World Information Centre in the Kontorhaus district, to ensure that information is readily available across the site.

There are several different entry points to the proposed World Heritage area, at each of which it will be necessary to create "information points", so that visitors can orientate themselves and find out information about the area. This can be achieved by adding digital information to the existing signs.

To ensure that the information provided is as comprehensive as possible, it makes sense to create synergies with existing cultural attractions in the nominated property. This will also contribute to the longevity of the communication concept, while enabling it to be delivered at a reasonable cost. The World Heritage Information Centre should therefore be established in partnership with existing cultural activities, whose thematic work is connected to the history of the Speicherstadt and Kontorhaus district.

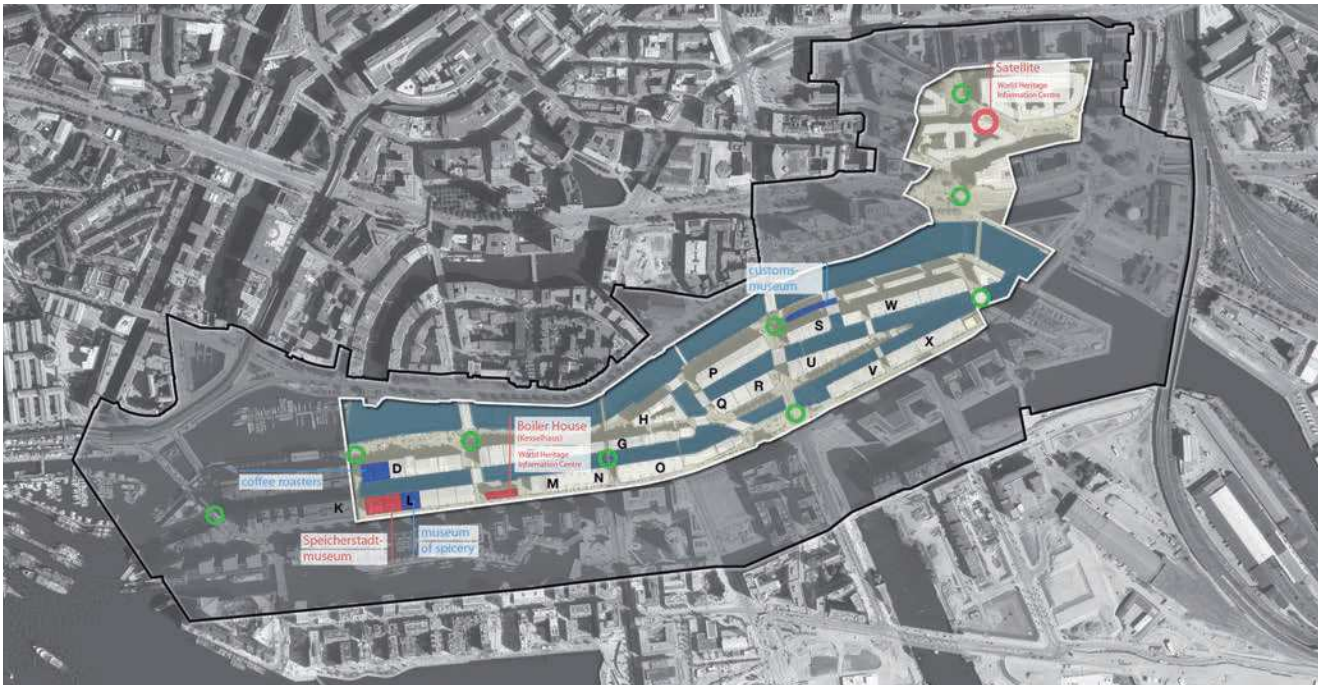


Fig. 67: Key components of the World Heritage Information Centre concept

Fig. 68: The Boiler House

The Speicherstadt Museum is a particularly important example, since it already tells the story of the building of the Speicherstadt and how it has been used over the decades for storing goods, as well as organising regular guided tours focusing on various different themes. There are also numerous cultural attractions in close proximity to the Speicherstadt, which can be included in this concept.

Essential components of the communications structure are therefore:

- the central World Heritage Information Centre in the old Boiler House and a satellite centre in the Kontorhaus district, containing in particular:
- Exhibitions and information about Hamburg's cultural World Heritage
- Information about Germany's World Heritage sites
- Information about the UNESCO World Heritage List and UNESCO activities
- including existing cultural institutions in and around the proposed World Heritage area in the education and communication services provided
- harnessing the existing signage system and complementing it with a digital information system, and perhaps a virtual information system (for example, a "World Heritage app")

9.3.2 Embedding and Integrating the Education and Communication Strategy at Local and International Level

To ensure that the education and communication work is both broad-based and firmly established, it is vital for it to be closely integrated with Hamburg's other tourist offers. This is particularly true in the light of the fact that the Free and Hanseatic City of Hamburg is already heavily geared towards tourism. In 2010, Hamburg had 8.95 million overnight stays and 111 million day visitors. Revenue from tourism was EUR 7.4 billion. An established organisational structure already exists in the city in the shape of Hamburg Tourism (Hamburg Tourismus GmbH), which is responsible for coordinating tourism marketing in Hamburg.

The Speicherstadt, the Kontorhaus district and the Chilehaus already feature heavily in tourism publicity for the Free and Hanseatic City of Hamburg. Together with other tourist attractions, they are already established tourist destinations. Many of Hamburg's attractions, such as Hamburg Port, the Elbe river beach, and the waterfront with its Fish Market and landing stages, have thematic links to the future World Heritage site. There is already a tightly integrated tourist infrastructure, with tours of the port, thematic walking tours of the city and bus tours. There is therefore a readymade, clearly defined backdrop against which to experience the future World Heritage site, which should make it possible to promote the education and communication concept effectively. In addition, the following measures are proposed to inject momentum into this process:

The use of the UNESCO logo should make the World Heritage site more distinctive and raise awareness of

its significance, as well as of the opportunities and responsibilities associated with its preservation. It is intended to use the UNESCO logo both in relevant (Internet) presentations and at appropriate locations in the World Heritage area itself, in particular at entry points to the proposed World Heritage area and in other locations where World Heritage information is provided.

Since it is crucial that the education and communication strategy reaches young people, it is proposed to work in close cooperation with UNESCO Associated Schools. Through the "World Heritage in Young Hands" programme, which seeks, through pedagogical activities, to raise awareness among young people of the risks to World Heritage and to show them how they can help to preserve it, the existing UNESCO Associated Schools in Hamburg (Helene-Lange-Gymnasium, Schule Altonaer Strasse, Gymnasium Allee, Altona, Gymnasium Allermöher, Gymnasium Grootmoor and Technische Fachschule HEINZE) will be closely involved in the education work.

Working with academic institutions should also help to embed the education and communication work. The Free and Hanseatic City of Hamburg hosts three renowned universities: the University of Hamburg, the HafenCity University Hamburg and the Hamburg University of Technology. The Academy for Architectural Culture (aac), a highly regarded private academic institute, is also based in the city, offering additional qualifications for talented students of architecture, graduates and architects. Experts from the HafenCity University Hamburg have already been involved in drafting the nomination documents for the future World Heritage ensemble. It is hoped that this relationship can be consolidated in the future.

To bring the "Speicherstadt and Kontorhaus district with Chilehaus" to life, as a place of communication and new encounters, it is proposed to hold events as part of the World Heritage Day, which is celebrated at a different World Heritage site in Germany each year on the first Sunday in June.

Hamburg's regular Heritage Open Day (on the second Sunday in September) provides a further opportunity to raise public awareness of heritage protection issues. If nomination is successful, the future World Heritage area will therefore play a prominent role in these activities.

If nomination is successful, another opportunity for disseminating information about the World Heritage site is the International Day for Monuments and Sites, which is on 18 April each year.

Membership of the association of German UNESCO World Heritage sites (UNESCO-Welterbestätten Deutschland e. V.) will provide opportunities to work closely with the existing network of tourism organisations representing German World Heritage sites.

The Lübeck Declaration, which was adopted at the international conference organised under the auspices of the German Presidency of the EU on 13 and 14 June 2007 in Lübeck, calls for thematic exchanges of information and enhanced inter-regional and international cooperation between individual World Heritage sites. To this end, it is proposed to form a network including: Hanseatic cities in the Baltic Sea region, many of which – both within and outside Germany – are already inscribed on the World Heritage List; cities with historical trading links to Hamburg; port cities within and outside Europe, and cities which have witnessed significant historical and typological developments in office architecture.

9.4 Key Project Lines

The key project lines for the preservation and sustainable development of the "Speicherstadt and Kontorhaus district with Chilehaus" can therefore be summarised as follows:

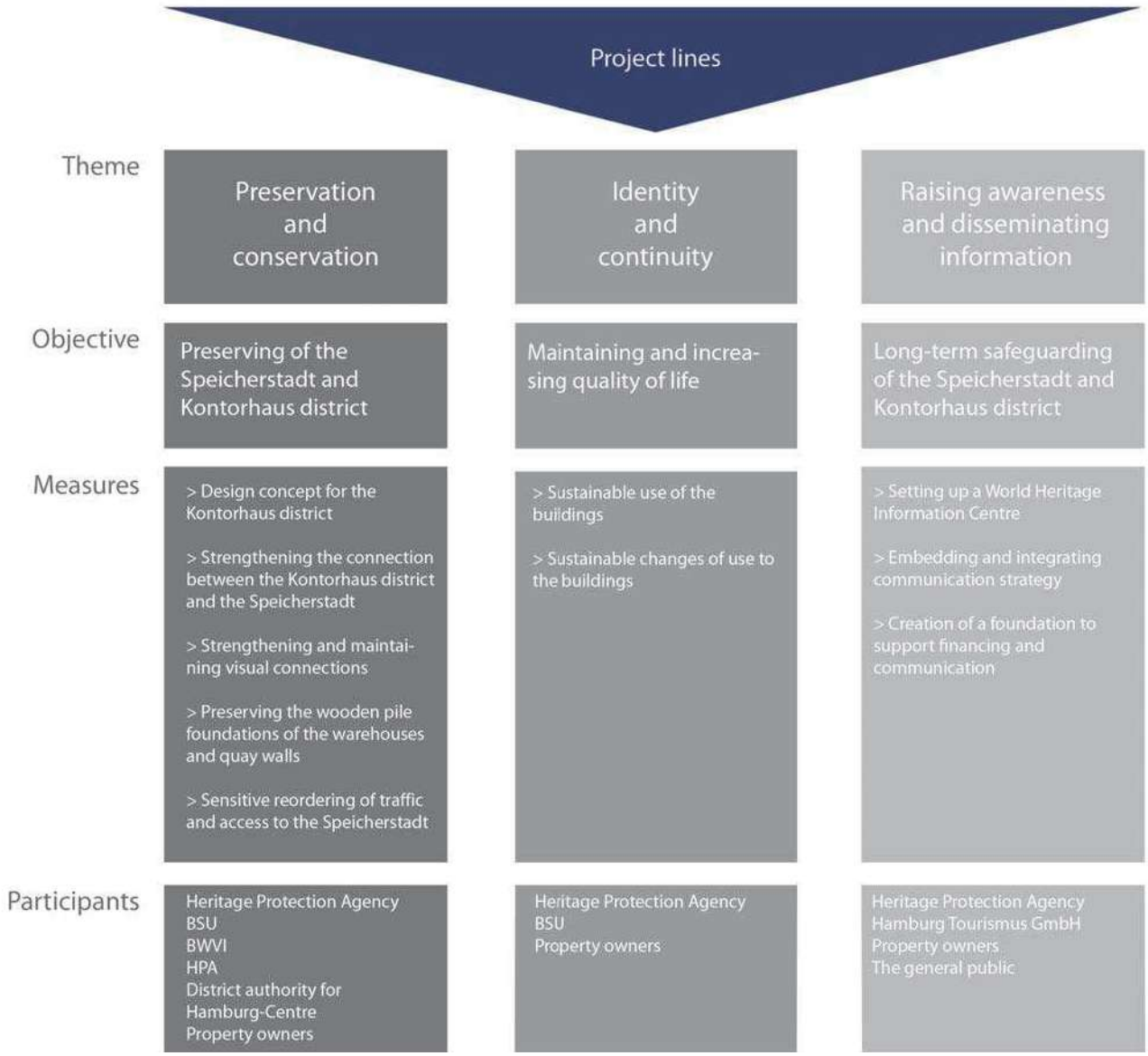


Fig. 69: Action plan and thematic project lines for combining the preservation and sustainable development of the "Speicherstadt and Kontorhaus district with Chilehaus"

10. Resources

There are two essential prerequisites for conserving the proposed World Heritage site, and assuring the necessary coordination and communication: the availability of the appropriate financial resources and properly qualified personnel.

10.1 Staff

Specialist staff in the Hamburg Heritage Protection authorities will be responsible for supervising the protected property, and will thus ensure that the "Speicherstadt and Kontorhaus district with Chilehaus" is properly preserved and maintained. The staff include qualified art historians, architects, landscape architects and conservators.

A new post of World Heritage Coordinator will be created in the Heritage Protection Agency, and the necessary funding has been earmarked.

The members of the Heritage Council, who, under Section 3 of the Hamburg Heritage Protection Act, provide independent expert advice to the competent authority, support the preservation and sustainable development of the World Heritage site.

In the future, the Heritage Council will devote particular attention to the requirements of the proposed World Heritage site. Its expertise will be drawn on to address issues relating to the inclusion of the proposed World Heritage site in the development of the city as a whole, the forthcoming regeneration projects in the World Heritage area and the new construction projects in its buffer zone, as well as other matters connected with heritage preservation. The objective is to achieve consistently high quality when making decisions about the fabric of the buildings and the public spaces.

In addition, both the other ministries and institutions involved and the individual and corporate owners have experienced staff and experts to deal with ongoing repairs and maintenance work.

Firms of architects with experience of working on listed buildings will be commissioned to draw up plans for major renovations and, in some cases, to supervise that work. Hamburg has a good supply of architects, conservators and specialist engineers with experience of working on listed buildings. Several university institutions and technical universities teach and research in that field. There is also a good supply of suitable specialised construction companies and craftsmen in and around Hamburg.

10.2 Funding

10.2.1 Preservation and Maintenance

All of the components of the proposed World Heritage area are legally protected heritage assets under Hamburg heritage law. Pursuant to the Hamburg Heritage Protection Act from 5 April 2013 (HmbGVBl. S. 142), the owners are required, "to make reasonable efforts to preserve the heritage asset, protect it from danger and maintain it in good repair" (Section 7, Paragraph 1). The owners are therefore responsible for maintaining the buildings, and generally provide the necessary financing. Funds are made available each year in the budget of the Free and Hanseatic City of Hamburg to maintain public streets, paths, quay walls and open spaces.

10.2.2 Creation of a Foundation to Support the Preservation of the Nominated Property and Communication Activities

If the nomination of the "Speicherstadt and Kontorhaus district with Chilehaus" as a UNESCO World Heritage site is successful, a foundation will be set up to support communication activities. The intention is to build up the foundation by requesting support from interested and engaged Hamburg citizens, the owners of property in the nominated property and other private-sector companies and institutions. In this way the foundation will also serve to anchor the idea of World Heritage more firmly in the city.

11. Bibliography and Figures

11.1 Bibliography

Bandarin, Franceso und Oers van, Ron: The Historic urban Landscape. Managing Heritage in an Urban Community, Chichester 2012

Bernecker, Roland, Eschig, Gabriele, Klein, Paul, Viviani-Schaerer, Madeleine: Die Idee des universellen Erbes, in: Welterbe-Manual. Handbuch zur Umsetzung der Welterbekonvention in Deutschland, Luxemburg, Österreich und der Schweiz, Bonn 2009 (http://www.unesco.de/fileadmin/medien/Dokumente/Bibliothek/Welterbe-Manual_DUK_2009/Welterbe-Manual_2__Aufl_volltext.pdf)

Deutsche UNESCO Kommission: Lübecker Erklärung, Lübeck 2007 (http://www.unesco.de/luebecker_erklaerung.html)

Freie und Hansestadt Hamburg: Verordnung zur Gestaltung der Speicherstadt, Hamburg 2008

Freie und Hansestadt Hamburg, Behörde für Stadtentwicklung und Umwelt (Hg.): Innenstadtkonzept Hamburg 2010, Hamburg 2010

Freie und Hansestadt Hamburg, Behörde für Stadtentwicklung und Umwelt (Hg.): Speicherstadt Hamburg Entwicklungskonzept, Hamburg 2010

Freie und Hansestadt Hamburg, Hamburger Tourismus GmbH Monitoring und Consulting: Zahlen Fakten Trends, Hamburg 2011

HHLA / Heinz und Jahnen: Gestaltungshandbuch Speicherstadt Hamburg, Juli 2008

HHLA: Leistungskontrolle für das technische Facilitymanagement, Hamburg 2011

ICOMOS: International Chartas for Conservation and Restauration (http://www.international.icomos.org/charters/charters.pdf)

Ringbeck, Birgitta: Managementpläne für Welterbestätten. Ein Leitfaden für die Praxis, Bonn 2008 (http://www.unesco.de/fileadmin/medien/Dokumente/Bibliothek/Managementplaene_Welterbestaetten.pdf)

UNESCO: World Heritage Papers 9: Partnership for World Heritage Cities, Paris 2002

UNESCO: World Heritage Papers 25: World Heritage and Buffer Zones, Paris 2008

UNESCO: World Heritage Information Kit, Paris 2008 (http://whc.unesco.org/uploads/activities/documents/activity-567-1.pdf)

UNESCO: World Heritage Papers 27: Managing Historic Cities, Paris 2010

UNESCO: Operational Guidelines for the Implementation of the World Heritage Convention, (opguide11-en.pdf), Paris 2011 (http://whc.unesco.org/archive/opguide11-en.pdf)

UNESCO: Recommendation on the Historic Urban Landscape, including a glossary of definitions, Paris 2011 (http://portal.unesco.org/en/ev.php-URL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html (Zugriff am 05.05.2012)

UNESCO / ICCROM / ICOMOS / IUCN: Preparing World Heritage Nominations, Second Edition 2011, Paris 2011

UNESCO World Heritage Centre, City of Vienna: World Heritage and Contemporary Architecture. Managing the Historic Urban Landscape, Wien 2005

11.2 List of Figures

Archiv Speicherstadtmuseum Hamburg: Fig. 8

Meyer-Marwitz, Berhard, Hamburgs Weg zum Welthafen, Hamburg 1960, Verlag Okis Dr. Karl Josef Sattelmair: Fig. 9 + 19

Heritage protection department Hamburg, picture library: Fig. 1 - 3, 10, 11, 13-17, 20-25, 28, 29-36, 41-42, 44-47, 49-50, 55.1, 62.1, 63

Heritage protection department Hamburg: Fig. 4, 12, 38-40, 43, 51

Die Hamburger Freihafen-Lagerhaus-Gesellschaft 1885-1910, Denkschrift zum 25. Jubiläum, Hamburg 1910: Fig. 5+6

Hamburg und seine Bauten, 1890: Fig. 7

Hamburg und seine Bauten, 1914: Fig. 27

HHLA Hamburger Hafen und Logistik AG: Fig. 26, 55.2, 56-57, 65

ISL (Institute for Urban and Regional Planning, RWTH Aachen University): Fig. 37, 48, 52-54, 58, 59, 60, 61, 62.2+3, 64, 66, 67, 69

Pachnio, Astrid: Fig. 18