



European Green Capital Award

Bewerbung der Stadt Heilbronn für das Titeljahr 2027

H

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IMPRESSUM

Stadt Heilbronn
Urban Sustainability Office

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Gz.: I/105-15.10.00-9/2024-13/2025

Stand: 15.04.2025

City Introduction and Context

1. Provide an overview of the city and a general background to the application, including examples of environmental, social and economic sustainability in the city.
2. Describe the key environmental challenges the city faces, including factors which have influenced the city's development.



Figure 1. The city of Heilbronn. Source: Stadt Heilbronn.

“**Everything one sees is fertile land**” – this is how Johann Wolfgang von Goethe once described Heilbronn from the Wartberg hill, expressing the city’s deep connection to its natural surroundings. Located on the Neckar River and surrounded by vineyards in Baden-Württemberg, Heilbronn is a city shaped by resilience, innovation, and transformation.

After its near-total destruction during World War II – with almost 100% of the historic city center reduced to rubble – Heilbronn underwent a remarkable recovery known as the “Miracle of Heilbronn.” In the 1970s, it evolved into a **metropolitan hub** through strategic urban planning, new high-rise developments, pedestrian zones, and infrastructure expansion. The city grew rapidly and surpassed the 100,000-resident mark.

Today, Heilbronn is a diverse, **vibrant city of 132,862 residents representing over 140 nationalities**. Between 2006 and 2024, the population increased by 13.7%, the number of immigrants by 86.1%, and EU citizens by an impressive 98.9%, underlining Heilbronn’s growing appeal and economic strength.

While still influenced by its industrial heritage – with companies such as AUDI, Läpple, and Münzing-Chemie – Heilbronn has evolved into a knowledge-based city. Its “**Knowledge City**” ecosystem, anchored by the Education Campus founded in 2010, hosts institutions like the Technical University of Munich and ETH Zurich. Lifelong learning and environmental awareness are also promoted through “*experimenta*,” Germany’s largest science center. Looking ahead, the **Innovation Park Artificial Intelligence (IPAI)** – a 23-hectare campus – reflects the city’s dedication to forward-thinking, sustainable development, combining research, entrepreneurship, and holistic climate goals (see Flagship Project).

Environmental Challenges

Despite its strengths, Heilbronn faces increasing urban **heat stress** (see Indicator 7). Dense construction, sealed surfaces, and too few green spaces in the inner city have led to rising summer temperatures and declining air quality. Heat islands especially impact vulnerable groups such as the elderly and children.

To address this, Heilbronn is pursuing two key solutions: converting sealed streets into traffic-calmed, **green zones** (see Indicator 3, 7), and creating “**climate groves**” – small, densely planted green areas throughout the city. Both measures help cool the microclimate, boost biodiversity, and enhance residents’ quality of life.

These efforts complement existing environmental initiatives. The ecological condition of the Neckar River remains a challenge (see Indicator 2) due to historic canalization, weirs disrupting fish habitats, and thermal pollution from cooling processes at nearby power plants. However, over the past two decades, the city has undertaken **extensive renaturalization** of brooks and riverbanks.

As a regional employment center and growing hub, Heilbronn handles over 48,000 daily inbound commuters and 30,000 outbound commuters, contributing to air pollution and noise (see Indicator 1 and 5). The city has responded with **lower speed limits, expanded bike paths, traffic-calmed areas**, and a **planned urban cable car** that will connect key destinations, including the IPAI campus.

One of the most transformative developments is the **fuel switch** at Heilbronn’s coal-fired power plant (see Indicator 6). As part of the city’s climate strategy, the plant is transitioning first to natural gas and later to green hydrogen, significantly reducing emissions and aligning with the city’s goal of climate neutrality by 2035.

This ambition is in line with the city's **Climate Mitigation Concept** and its strategies for adaptation and sustainable mobility. Since 2024, every proposal submitted to the City Council must include a climate impact assessment, embedding sustainability into the core of decision-making processes.

Heilbronn is also committed to preserving biodiversity (see Indicator 3). The municipality manages **1,100 hectares of forest, 48,000 trees, 433 hectares of green spaces, and 9 ha of vineyards**. A **network of biotopes** and two biodiversity trails enhance habitat connectivity and contribute to ecological health and public enjoyment.

In waste management (see Indicator 4), Heilbronn introduced a **pay-as-you-throw system** in 2024. Residents are now charged based on the amount of waste they generate, promoting conscious consumption and improved waste separation (see Indicator 4).



Figure 2. Climate grove (above), solar rooftop and bike street (middle), #summer zone, and park (below). Source: Stadt Heilbronn.

European Green Capital application and its impact

In light of these challenges and the need for continued transformation, Heilbronn applied for the European Green Capital (EGC) Award – not only to serve as a beacon of inspiration, but as a catalyst for accelerating environmental progress.

The application process has already driven tangible action. All of the following developments occurred within the past year and were significantly **accelerated by the EGC process and the EU feedback**.

The city launched the **WE-Pact**, a partnership between the local administration and private businesses aimed at achieving climate neutrality by 2035. Fourteen companies have joined so far. Additionally, two new municipal energy companies were founded in 2024: the Heilbronn **Renewable Energy Company and the Heilbronn Heating Company**, both focused on accelerating the shift to clean, local energy systems.

Citizen engagement has also been amplified (see Figure 3). On Sustainability Day, the city transformed its main street – the Allee – into a lively public forum with over 60 environmental and mobility organizations. Throughout the year, participatory events have empowered residents to contribute to the city's green transformation.

Politically, Heilbronn strengthened its alignment with European climate goals by signing the **Green City Accord** and the **Global Covenant of Mayors for Climate and Energy** in 2024. These frameworks support knowledge exchange and demonstrate the city's commitment to shared environmental responsibility.

To coordinate these initiatives, Heilbronn established a dedicated **Urban Sustainability Office** in April 2025 (see Figure 4). Commissioned by the Lord Mayor and the Mayor for Environment, Building, and Mobility, the office oversees all sustainability activities, supports cross-departmental cooperation, and represents the city in national and international networks. It is integrated into a broader sustainability governance framework that includes strategic concepts and advisory boards (see Figure 5).

By acknowledging its environmental challenges, empowering its citizens, and embedding sustainability into urban planning, Heilbronn is evolving into a resilient, inclusive, and climate-conscious European city. The **EGC process has brought momentum, focus, and long-term perspective** – marking a key step in the city's journey toward a greener, smarter future.



Figure 3. Engaging citizens on EGC and environmental topics during the last year. Source: Stadt Heilbronn.

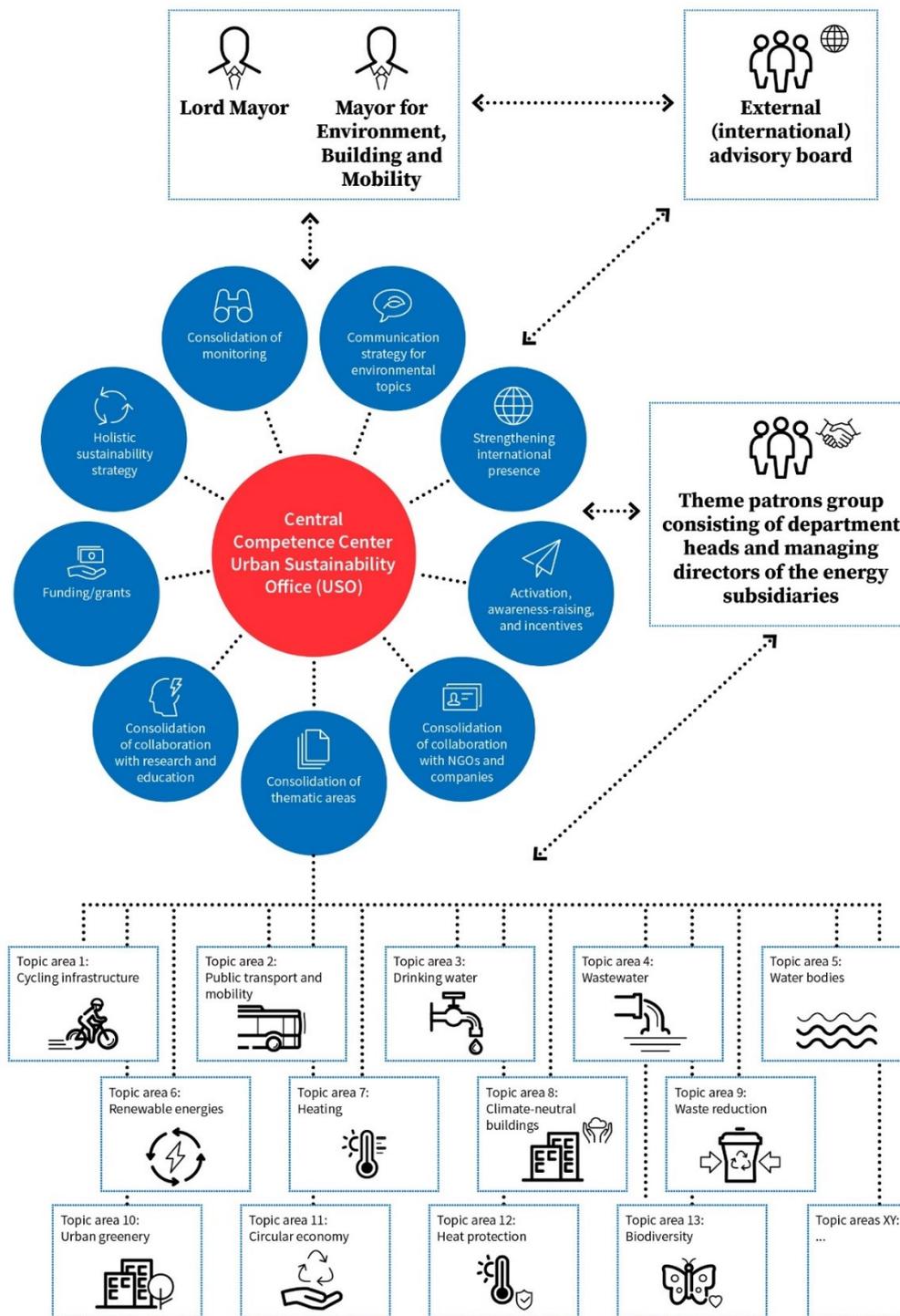


Figure 4. Establishment of an Urban Sustainability Office within the Municipality. Source: Stadt Heilbronn.



Figure 5. Heilbronn's ecosystem for the environmental topics. Source: Stadt Heilbronn.

3. Provide the following two maps:
a. Layout of urban areas, geographical and other features across the city.

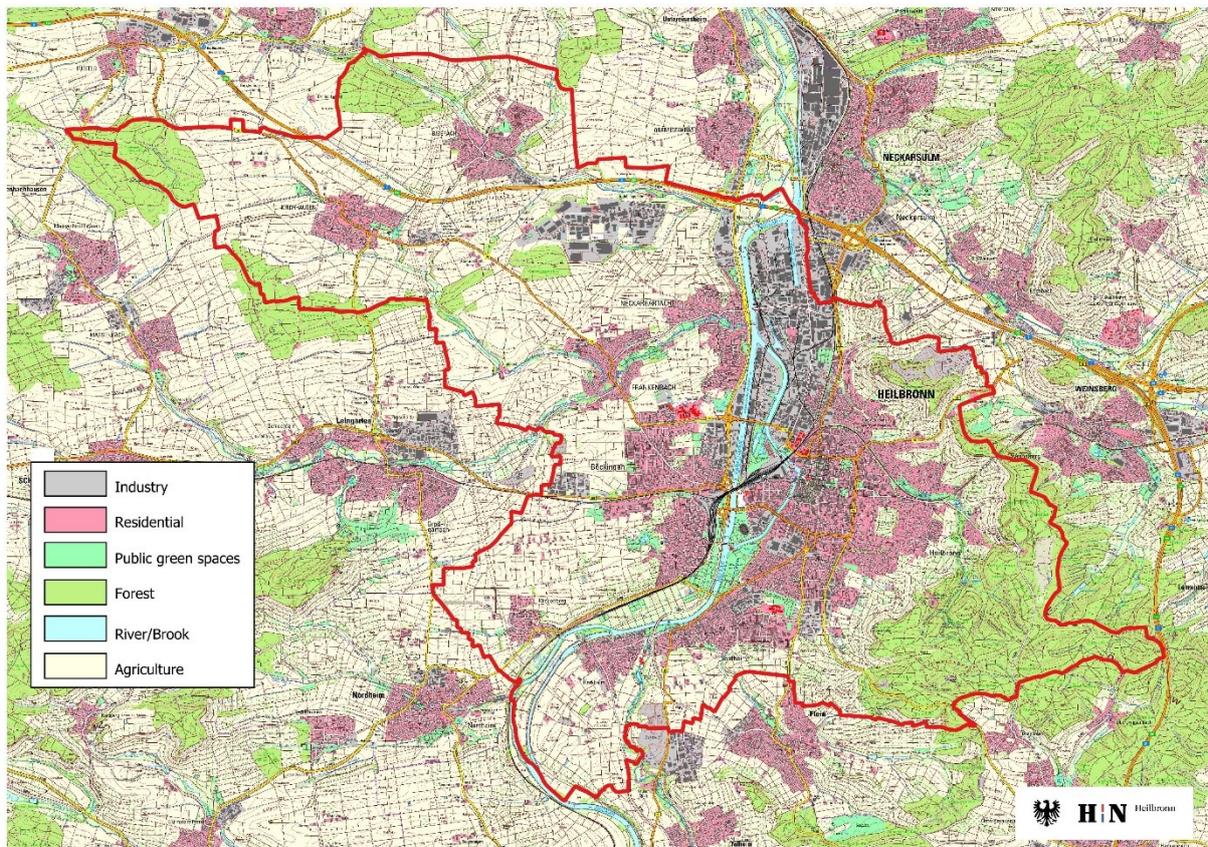


Figure 6. Map of Heilbronn. Source: Stadt Heilbronn.

b. City in the context of the wider surrounding area.



Figure 7. Heilbronn in the wider context of Baden-Württemberg. Source: Geoportal Baden-Württemberg.

Please also complete the following tables:

Table 1: Benchmarking Data - City Introduction and Context

Indicator	Units	Year of data
Population	132,862 Number of inhabitants	2024
Area	99.88 km ²	2024
Population Density	1,330 Inhabitants/km ²	2024
GDP	8,133 €/capita	2022

Table 2: Other commitments and awards

Commitment/Awards	Yes/No	Description
Signed Covenant of Mayors for Climate and Energy 2030	<input checked="" type="checkbox"/>	When: 2024
Signed Green City Accord ¹	<input checked="" type="checkbox"/>	When: 2024
Winner of other City Awards	<input checked="" type="checkbox"/>	Entente Florale (2000), Plaque of Honor from the Council of Europe for outstanding achievements in promoting the European idea (2002) Various Awards for the district of Neckarbogen: e.g. <ul style="list-style-type: none"> • Brownfield24 Award 2021 • German Landscape Architecture Prize (2021) https://www.heilbronn.de/bauen-wohnen/auszeichnungen-fuer-den-neckarbogen.html
Other commitments at European level ²	<input checked="" type="checkbox"/>	Climate Alliance (Klimabündnis)

(max. 1000 words and five graphics, images or tables plus the two requested maps as detailed above)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
Introduction	956	1000

¹ https://environment.ec.europa.eu/topics/urban-environment/green-city-accord_en

² For example signed [Climate Pact](#), etc.

1 Air Quality

1.1 Present Situation

Please complete the following table with the most recent official data from sampling points reporting under the Ambient Air Quality Directive (AAQD, 2008/50/EC) as per Commission Decision 2001/850^{1 2} (hereafter “AAQD sampling points”).

Table 1: Benchmarking Data - Air Quality

Indicator for each sampling point reporting under AAQD		Unit	Year of data
Number of sampling points reporting PM2.5	2	No.	2025
Annual average PM2.5 concentration for each sampling point	8 // 9 ³	µg/m ³	2024
Number of sampling points reporting PM10	2	No.	2025
Annual average PM10 concentration for each sampling point	14 // 16	µg/m ³	2024
Number of days where the daily limit value for PM10 of 50 µg/m ³ has been exceeded per year for each sampling point	0 // 0	No.	2024
Number of sampling points reporting NO ₂	2	No.	2025
Annual average NO ₂ concentration for each sampling point	16 // 30	µg/m ³	2024
Number of hours in which the hourly limit value for NO ₂ of 200 µg/m ³ has been exceeded per year for each sampling point	0 // 3	No.	2024

Please elaborate on the benchmarking data entered in the table above. Please provide the following information when available, and use this information to identify the air pollution issues facing the city - if there are any - and to justify the measures taken:

1. Emissions inventory:

- a. Provide a breakdown of the sources of pollutant emissions per sector that affect the air quality in your city (i.e. an emissions inventory). If possible, also provide a breakdown of the sources of air pollution (e.g., the contribution of different local sources and from long-range transport to the annual mean concentration of PM2.5, PM10, and NO₂, as mentioned in the table above). In case there are other problematic air pollutants besides PM2.5, PM10 and NO₂, please mention them. Identify problematic sectors and discuss associated measures.

Table 2. Breakdown of the sources of pollutant emissions at Weinsberger Straße-Ost (2022). Source: LUBW.

Source group	PM _{2.5} [t/a]	PM ₁₀ [t/a]	NO _x [t/a]	SO ₂ [t/a]
Biogenic systems	0.6	6	20.2	-
Industry and commerce	7.4	19.7	1,310.6	598
Small and medium-sized combustion plants	4.2	4.4	66.3	1.5
Other technical facilities	2.5	3.1	63.6	0.1
Traffic	17.6	40.9	286.8	0.9
Total	32.3	74.1	1747.5	600.5

¹ <https://www.eea.europa.eu/themes/air/air-quality-concentrations/classification-of-monitoring-stations-and>

² <https://www.eea.europa.eu/themes/air/explore-air-pollution-data>

³ Heilbronn – Hans-Rießler-Straße (urban background) and Heilbronn Weinsberger Straße-Ost (traffic-related).

As an industrial city, in the centre of an automotive region, Heilbronn has introduced several concepts to improve air quality in the past.

Due to NO₂ and PM₁₀ limit values being exceeded, the Stuttgart Regional Council, as the responsible authority, had to draw up an **Air Quality Plan**⁴ for Heilbronn in 2008 with a bundle of measures and updated it in 2011. The measures in the second update of the Air Quality Plan in 2020, e.g. the reduction of speed limits from 50 to 40 km/h, successfully implemented compliance with the current limit values (see 1.2.1.b). The following figure shows all the speed-limited roads in Heilbronn.

Furthermore, the update of the **Climate Mitigation Concept** with its goal of climate-neutrality by 2035 was enacted by the City Council in 2023 (see Indicator 6). It concludes nine measures in the area of: expansion of photovoltaics on buildings, open spaces and agricultural land, expansion of wind power, energy-efficient refurbishment, climate-friendly new buildings, expansion of decarbonized heating networks, reduction of GHG emissions in the transport sector, climate-neutral administration by 2030 and public relations work on these topics.

One sub-concept of the Climate Mitigation Concept is the **Mobility Concept 2030**, which sets out measures for mobility management in the following areas: Liveable city, walking, cycling, public transport, sustainable and networked mobility, motorised individual transport, optimisation of commercial transport and public relations. For current mobility projects see Figure 1.

With 48,030 inbound commuters and 29,739 outbound commuters (2024), the City of Heilbronn is also active in regional networks and working groups, e.g. **Mobility Pact Heilbronn-Neckarsulm**. Several cities in the region, the district administration, companies from Schwarz Group (Lidl, Kaufland, preZero) and Audi are working together with the state of Baden-Württemberg to improve road infrastructure, local public transport, regional rail transport, cycling and walking, company and public mobility management and networking with each other. Projects already underway include, e.g. the consolidation of mobility services, the establishment of mobility stations and the development of a company network for corporate mobility management.

Moreover, the **Landscape Plan 2030** with its measures to improve the blue-green infrastructure (see Indicator 3) as well as the **Noise Action Plans** with their measures, e.g. speed restrictions and speed monitoring (see Indicator 5), contribute to improving air quality.

In the industrial sector in particular, the city achieves a reduction in emissions by implementing the '**Technical Instructions on Air Quality Control**' (TA Luft), which is an administrative regulation from the Federal Immission Control Act (BImSchG) and serve to limit air pollution from installations requiring a permit in implementation of the EU Industrial Emissions Directive (2010/75/EU). Regular inspections of installations authorised under immission control legislation contribute to quality assurance.

Under the **WE-Pact**⁵, so far 14 organizations from various sectors are working together towards the common goal of achieving climate-neutrality by 2035, exchanging knowledge and methods of climate mitigation efforts.

⁴ The obligation to draw up an Air Quality Plan arises from EU Directive 2008/50/EC and is transposed into German law by the Federal Immission Control Act (BImSchG) and the 39th BImSchV.

⁵ German: WIR-Pakt

Public transport

- Trial tickets** for new citizens for 2 weeks
- Free public transport for everyone** on Advent Sundays
- 65 buses and 5 trams** in operation on average
- Bus ticket subsidy in shops** for purchases of €12.5 or more
- Buddy for night owls** €5 p.p. (bundles routes for CO₂ savings)
- FiftyFifty-Taxi:** Heilbronn district pays 50% of taxi fares for young people at night
- Cable car project** Cable car connection between main station, IPA, universities, and north-western city districts
- Assessment of the reactivation of two railway lines to the surrounding areas** (Bottwartalbahn and Zabergäubahn)
- Work on a permanent connection for the Inter-city Express**
- Subsidies for public transport tickets** (Deutschlandticket) for free
 - Employees** (municipal administration): 53€ subsidy/month
 - Trainees** (municipal administration): for free
 - Recipients of social benefits** (Bürgergeld): €10 subsidy/month
- Intelligent traffic management system** that gives priority to public transport at traffic lights

MOBILITY IN HEILBRONN /

Cycling

- Cargo bike funding programme**
- Bike house** fully automated bike-parking for 250 bikes
- Awarded as pedestrian- and bikefriendly municipality**
- More than 120 km bicycle infrastructure**
- 7 dedicated bicycle streets**
- 14 million investment budget for bike paths** in the next 4 years
- RS3 cycle expressway Bad Wimpfen-Neckarsulm-Heilbronn** (finished 2030)
- Bicycle leasing for employees** of the city administration
- Pedelec safety training** for city employees
- Raffle of bicycles** for new students
- DB Rad + App:** convert kilometres cycled into rewards
- New touristic city routes for cycling** e.g. sustainable shopping tour
- Green arrows for cyclists**
- 12 bike service points:** free tools for repairing
- Shard hotline** to report pieces of broken glass on cycle paths
- New cycle route between Biberach and Kirchhausen** coming soon
- Cycling officer** of the city

Walking

- 'Fußverkehrs-Check'** External review of pedestrian traffic in Heilbronn
- 'Walking to school'** campaign week (Children collect stamps for walking to school)
- Improvement suggestion form** e.g. for lowered kerbs
- Pedestrian officer** for the city
- Multilingual school route plans** for 19 primary schools in Heilbronn

Sharing offers

- Car sharing** 61 vehicles and 41 stations
- E-scooter sharing**
- E-bike sharing**
- Campus bikes** (Heilbronn universities)
- New mobility hub** in Neckarbogen with sharing offers

Communication & sensitization

- Multilingual mobility brochure**
- City maintenance reporting tool**
- Sustainability Day**
- City cycling competition and cycling festival**
- Activities together with citizens** within the European Mobility Week
- Redesign of Parking Spaces** (Industrial zone Wohlgelegen)
- #SummerZone** traffic-calmed areas for citizens leisure activities

Motorized individual traffic

- Speed-limited zones** in the city center
- Parking and traffic guidance system** Parking (signs for parking facilities, warn of roadworks/congestion due to major events)
- New mobility hub in Neckarbogen:** parking, e-charging, e-sharing, bike-repairing, local energy production
- Real-time display of free parking spaces** in car parks on the homepage
- Honoured for good e-charging infrastructure**

Figure 1. Heilbronn's sustainability activities in the field of mobility. Source: Stadt Heilbronn.

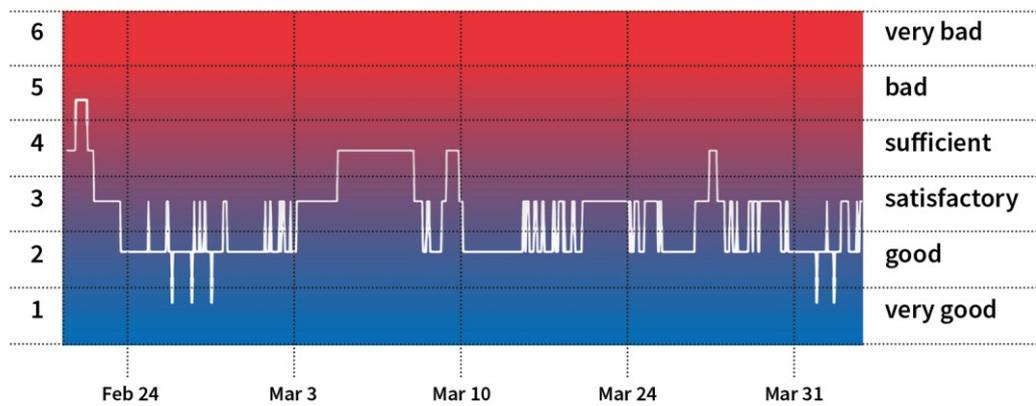
2. Maps of air pollutant concentrations:

- a. If available, please present maps showcasing air pollutant concentrations. If additional sampling points beyond AAQD reporting exist, please provide data. Clearly differentiate between AAQD reporting and supplementary sources of information.



Figure 2. NO₂ immission annual average values per street in µg/m³ (2018 and 2020). Source: Regierungspräsidium Stuttgart, Ingenieurbüro Rau..

Air Quality Index Heilbronn Weinsberger Straße-Ost



Air Quality Index Heilbronn Hans-Rießer-Straße

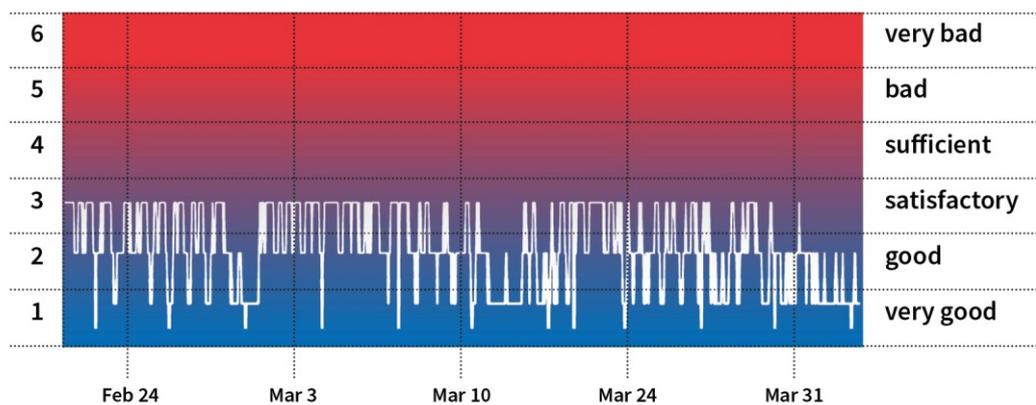


Figure 3. Current Air Quality Index since February 2025 at Heilbronn Weinsberger Straße-Ost (above) and Hans-Rießer.Straße (below). Source: LUBW.

b. Comment on these maps and explain the pollution issues, including details on polluted areas and concentration levels.

Figure 2 shows the expert results of the annual average NO₂ immission values for the base case 2018. The length of the totalled routes with an immission load of more than 40 µg/m³ is 13 km for the base year 2018. After applying the 40 km/h measure, it can be seen that only a few roads still exceed the limit value for NO₂.

The air quality in Heilbronn is constantly monitored by the Baden-Württemberg State Institute for the Environment, Measurements and Nature Conservation (LUBW). One traffic-related measuring station is located in the busy **Weinsberger Straße-Ost** (NO₂ continuous, PM₁₀ and PM_{2.5} gravimetric). Another measuring point is located in **Hans-Rießer-Straße** to map the **urban background pollution** (NO₂, PM₁₀ and PM_{2.5} continuous). Figure 3 provides an overview of the current air quality index since February 2025 at both measuring points.

3. Air quality plan:

If applicable, describe the air quality plan(s) for the air quality zone in which your city is located and its current status of implementation. Specify the geographical scale to which the plan applies and clarify the city's role in executing this plan.

Because NO₂ emissions, which are caused to a large extent by traffic, were problematic until 2019 the Regional Council of Stuttgart updated the Air Quality Plan for the City of Heilbronn in 2020. Nine measures were defined, which are described in more detail in section 1.2.1.b.

PM_{2,5}, PM₁₀ and NO₂ concentrations in the City of Heilbronn decreased in recent years thanks to a large number of measures implemented as described in 1.1.1.a. NO₂ emission values are now well below the annual average limit value of 40 µg/m³. At the moment there is no Air Quality Plan based on a legal basis, as all limit values are complied with. However, air quality measures can be found in several other urban and state concepts.

4. Citizen Engagement:

Detail current strategies for informing, raising awareness, and engaging citizens on air quality. Include concrete actions, such as data dissemination, awareness campaigns, and mechanisms for citizen involvement.

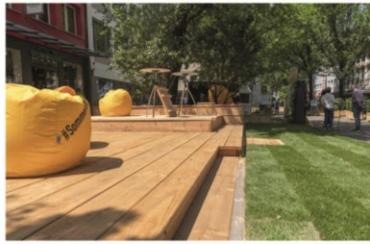
With its local background (influences by automotive companies, company vehicles, commuters etc.) Heilbronn is facing the major challenge to reduce car traffic in the city centre with comprehensive involvement of civil society in numerous **mobility-related projects** (see Figure 1). The following concrete measures help raise awareness: a multilingual mobility brochure, a public transport trial ticket for new residents, the "Stadtradeln" cycling competition, bicycle giveaways for students, activities as part of European Mobility Week and Sustainability Day, etc.

Additionally, **climate mitigation campaigns** like "Heilbronn, the climate and US" in 2023 highlight local citizen engagement in climate action (see climate portal, see Indicator 6).

The **redesign of streets into traffic-calmed areas**, such as the #SummerZone in Lothorstraße and citizen participation initiatives for redesigning Turmstraße and Zehentgasse, raise awareness of air quality issues (see Indicator 3).

In urban projects, citizens are regularly involved through participation formats, which they can access via the **citizen participation platform**. The City of Heilbronn is highly active not only through its website and city newspaper but also across social media (Instagram, Facebook, LinkedIn) to reach a broad audience (see Figure 4).

To ensure even greater transparency of air quality data, various **universities and research institutes in Heilbronn** are working on measuring stations and online dashboards for transparent data for everyone (see References). In order to be successful and create synergies the Urban Sustainability Office (see Introduction) coordinates collaboration with research institutes, the local authority, the Roads Department, and the Statistics Office.



REDESIGN OF SEALED AREAS /
like #SummerZone and climate groves



SOCIAL MEDIA POSTS ABOUT ENVIRONMENTAL SUSTAINABILITY /
theme weeks on the EGC application



PUBLIC PARTICIPATION FORMATS /

e.g. as part of the speed monitoring marathon - Where should speed cameras be placed?



CLIMATE MITIGATION CAMPAIGNS WITH LOCAL TESTIMONIALS /

„Book, get in, drive off – with e-car sharing for cleaner air and less noise.“



WORKSHOPS /

City Administration, City Councillors and citizens discuss the EU's feedback on the application for air quality and noise



EUROPEAN MOBILITY WEEK /

Raising awareness of quiet and emission-free mobility

Figure 4. Citizen engagement through a wide range of participation formats. Source: Stadt Heilbronn.

5. Infringements:

If the air quality zone in which your city is located is currently subject to an ongoing infringement procedure related to the Ambient Air Quality Directive (Directive 2008/50/EC), please explain the reasons for the procedure and outline the measures the city is taking to ensure compliance with the Directive is achieved as soon as possible.

No legal infringements.

(max. 1000 words and five graphics, images, or tables)

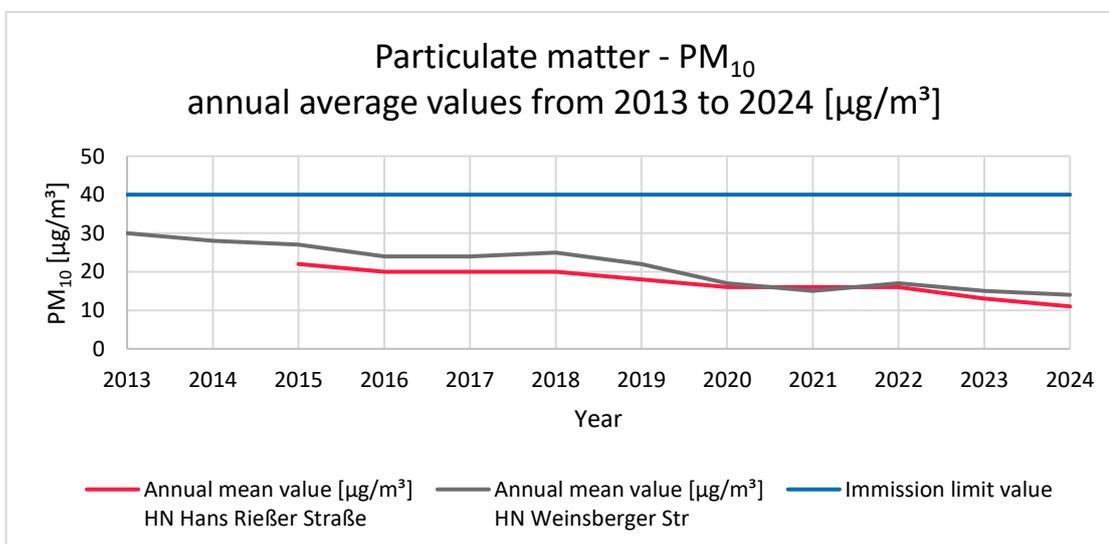
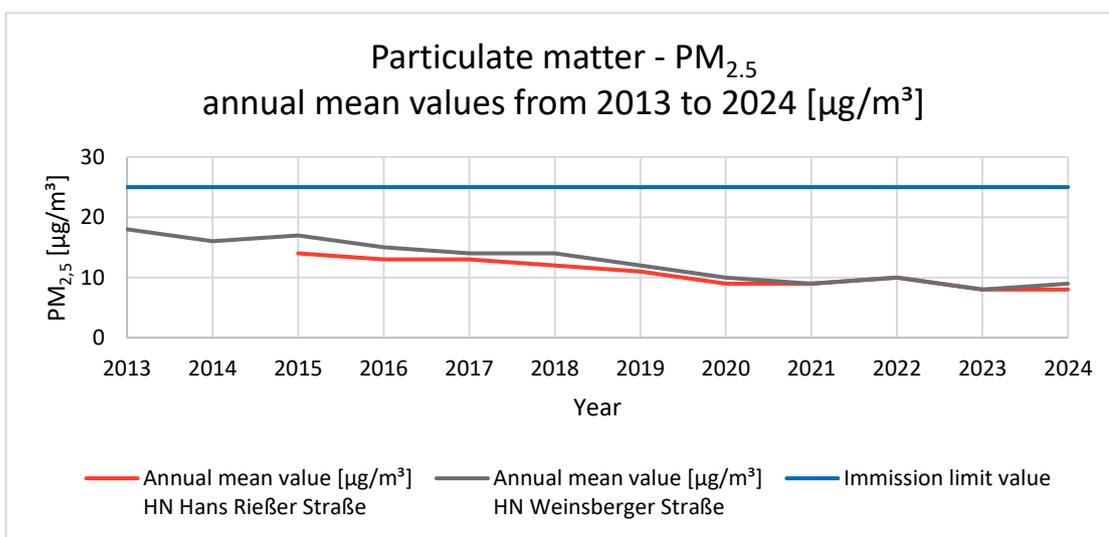
1.2 Past Performance

The aim of this section is to make clear how air quality has evolved in your city over the past ten years. Please provide the following information, if available, and most importantly, discuss the evolution of air quality in correlation with the measures implemented across the various sectors.

1. Air quality:

- a. Present charts depicting trends over the past decade for each AAQD sampling point, clearly marking instances of limit values for:
 - Annual mean concentrations of PM_{2.5}, PM₁₀ and NO₂.
 - Number of daily limit value exceedances for PM₁₀ per year.
 - Number of hourly limit value exceedances for NO₂ per year.
 - Other problematic air pollutants, if any.

The last exceedance in Heilbronn was 5 years ago, since then concentrations of NO₂ and PM₁₀/PM_{2.5} have fallen annually at the measuring stations (see Figure 5). It should be noted that the exceedance in 2019 was measured at a traffic monitoring station; it was a localised pollution situation in Weinsberger Straße. In the urban background, pollutant concentrations (NO₂, PM₁₀) have been well below the limit values for many years. The LUBW therefore does not currently assume that the pollution situation in Heilbronn will change significantly at the existing measuring points, always depending of course on meteorological events, construction and traffic measures as well as fleet renewal.



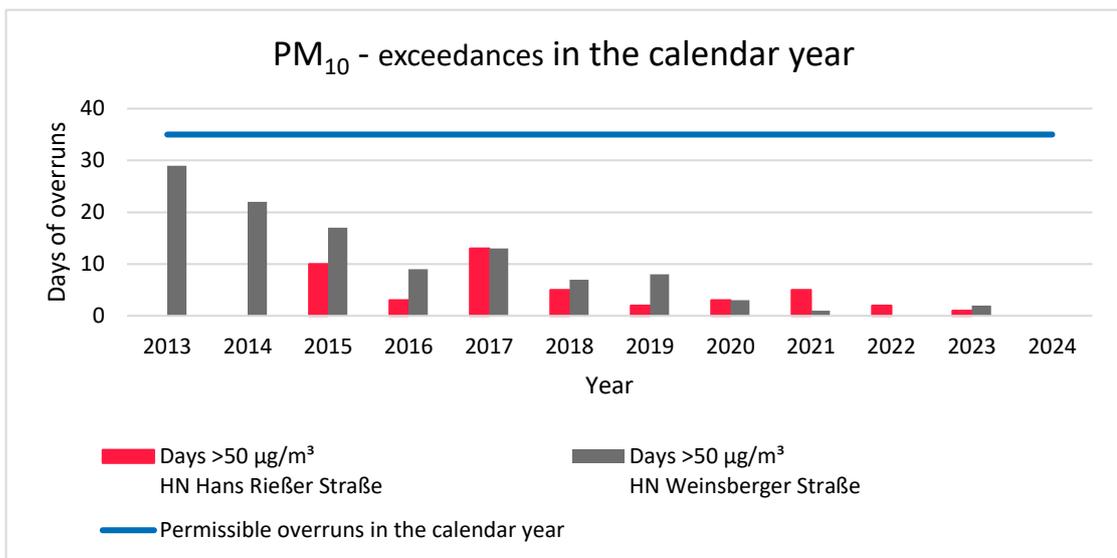
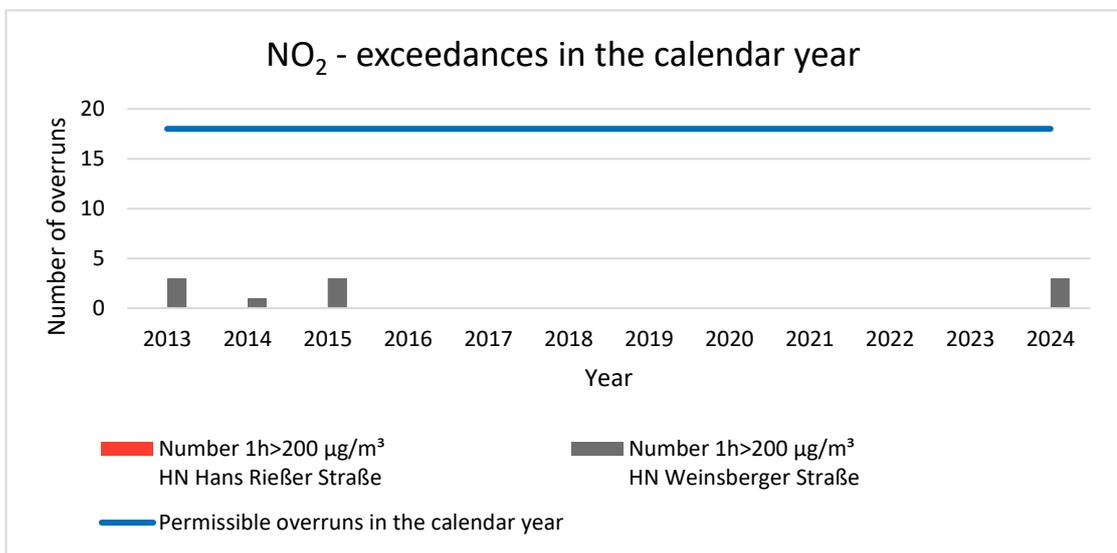
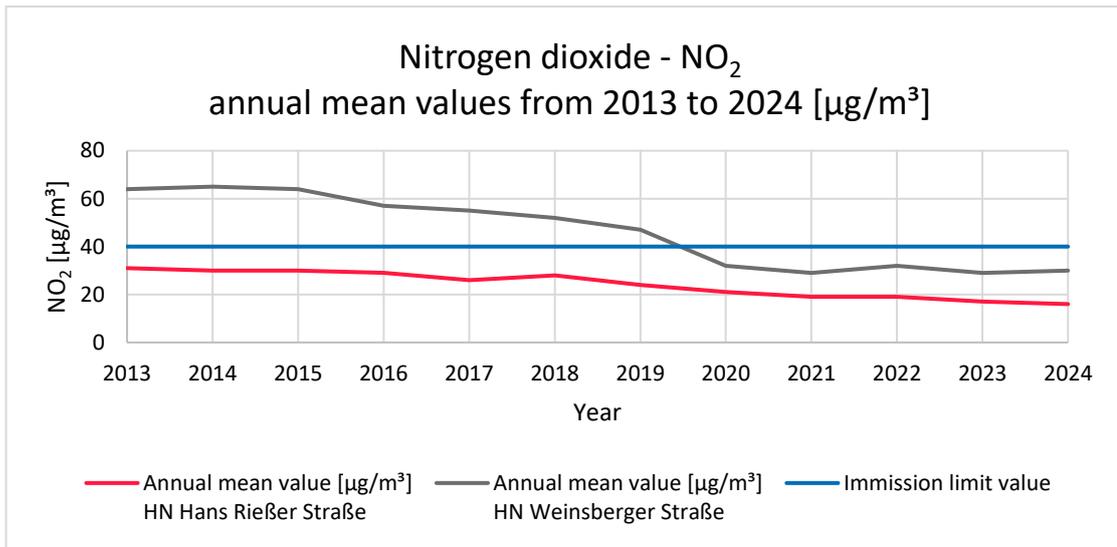


Figure 5. Annual mean values for PM_{2.5}, PM₁₀ and NO₂ and exceedances in the calendar year from 2013 to 2024. Source: LUBW.

- b. Outline the measures implemented by the city authorities in the last ten years that significantly influenced the trends mentioned under point 1, categorizing by sector (Mobility and road traffic, Heating building and housing, Industry, Others). Discuss the evolution of air quality in connection with these measures.

As outlined in 1.1.1.a., an **Air Quality Plan** was drawn up by the Stuttgart Regional Council in 2008, 2011 and 2020, which is aimed at the **main polluter traffic**.

- **Introduction of an environmental zone**⁶ with entry restrictions for certain vehicles
- **Reduction of the speed limit** from 50 to 40 km/h on the main road network in the city centre (starting in 2019 at one section of Weinsberger Straße and continuing in 2020 for other roads). Following the cancellation of the environmental zone by the Stuttgart Regional Council in 2024, the City of Heilbronn decided to maintain a speed limit of 40 km/h on the basis of the Noise Action Plans (see Figure 6).
- **Use of air filter systems** on Weinsberger Straße from 2020 until 2023
- **Strengthening local public transport** through new measures (additionally to the ones from the mobility management), e.g. by setting up a tangential connection and adjusting the tariff (2020), a new bus route connecting Heilbronn's districts and a new bus line connecting connects the districts to the supra-regional public transport lines (2019).
- **Additional parking spaces** for e-vehicles in 2020
- **Supporting cycling traffic** by creating more cycle lanes and additional parking spaces
- **Intelligent traffic control** e.g. prioritisation of public transport
- **Public relations work** through systematic information, counselling, motivation and education
- **Conversion of the entire bus fleet** of Stadtwerke Heilbronn GmbH to the Euro VI standard through new purchases and retrofitting

⁶ From 2009, no vehicles in pollutant group 1 were allowed to enter the environmental zones. From 2012, vehicles in pollutant group 2 were also allowed to enter the zone. With the first update of the Air Quality Plan in 2011, it was also stipulated that vehicles in pollutant group 3 would no longer be allowed to enter the zone from 2013. Thanks to the successfully implemented measures, the environmental zone in the City of Heilbronn has been lifted since 1 January 2024.

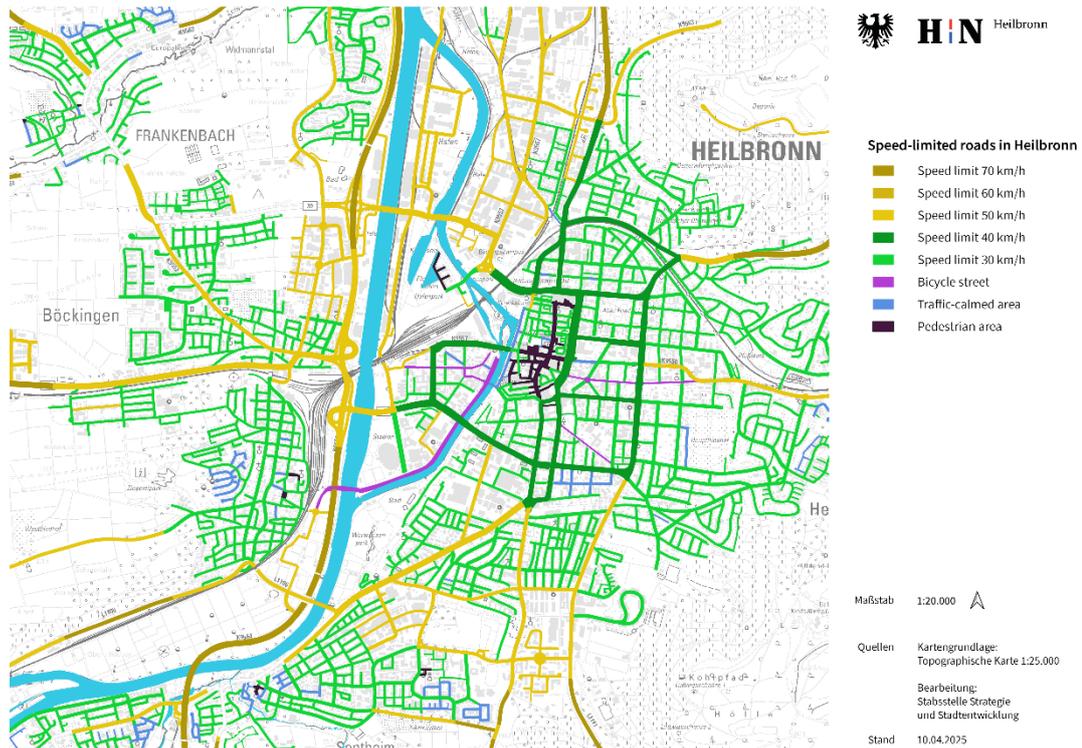


Figure 6. Speed-limited roads in Heilbronn. Source: Stadt Heilbronn.

These traffic-related measures go hand in hand with the measures of the Mobility Concept 2030 and measures already implemented (see Figure 7).

In the area of **energy** numerous measures to reduce energy consumption, increase energy efficiency and promote renewable energies have been initiated in the past (see Figure 8) as well as **construction projects** (see Figure 9).

There are also interfaces with other plans of the City Administration, such as the **Noise Action Plans** (see Indicator 5) and the **Landscape Plan 2030** (see Indicator 3), which also contribute to air pollution control.

As part of the Air Quality Planning, **small combustion plants and industrial plants** were also analysed, which ensured compliance with the air pollutant limit values through appropriate measures within the framework of the applicable German legislation (1st and 17th BImSchV and TA Luft). Thus, the general introduction of filter and flue gas cleaning systems in power stations and industrial plants, lower-emission fuels and the use of exhaust gas cleaning systems in motor vehicles have all contributed to the reduction of air pollutants in Heilbronn.



Figure 7. The most important measures in the area of mobility in recent years. Source: Stadt Heilbronn.

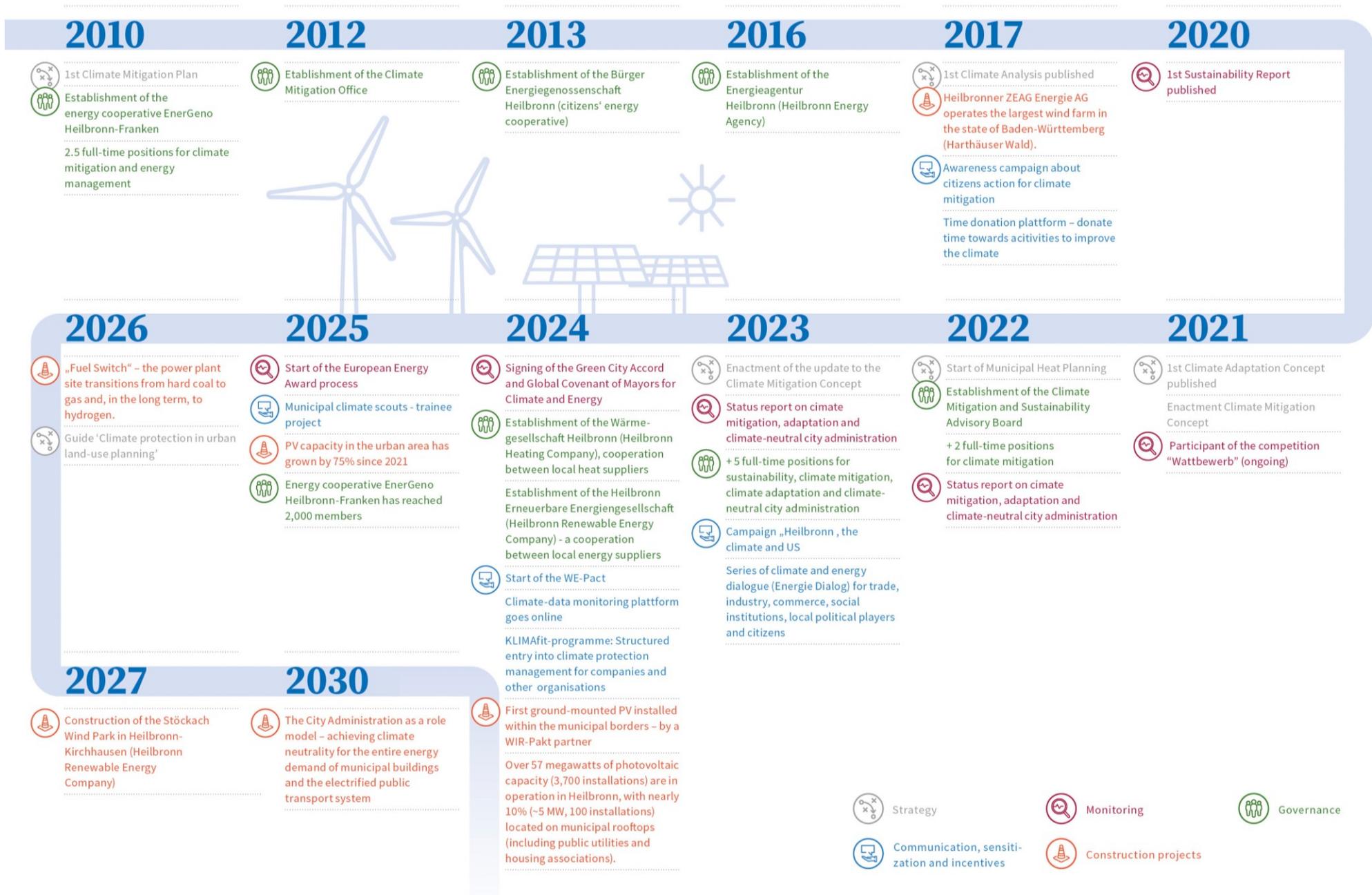


Figure 8. The most important measures in the area of climate mitigation and energy in recent years. Source: Stadt Heilbronn.

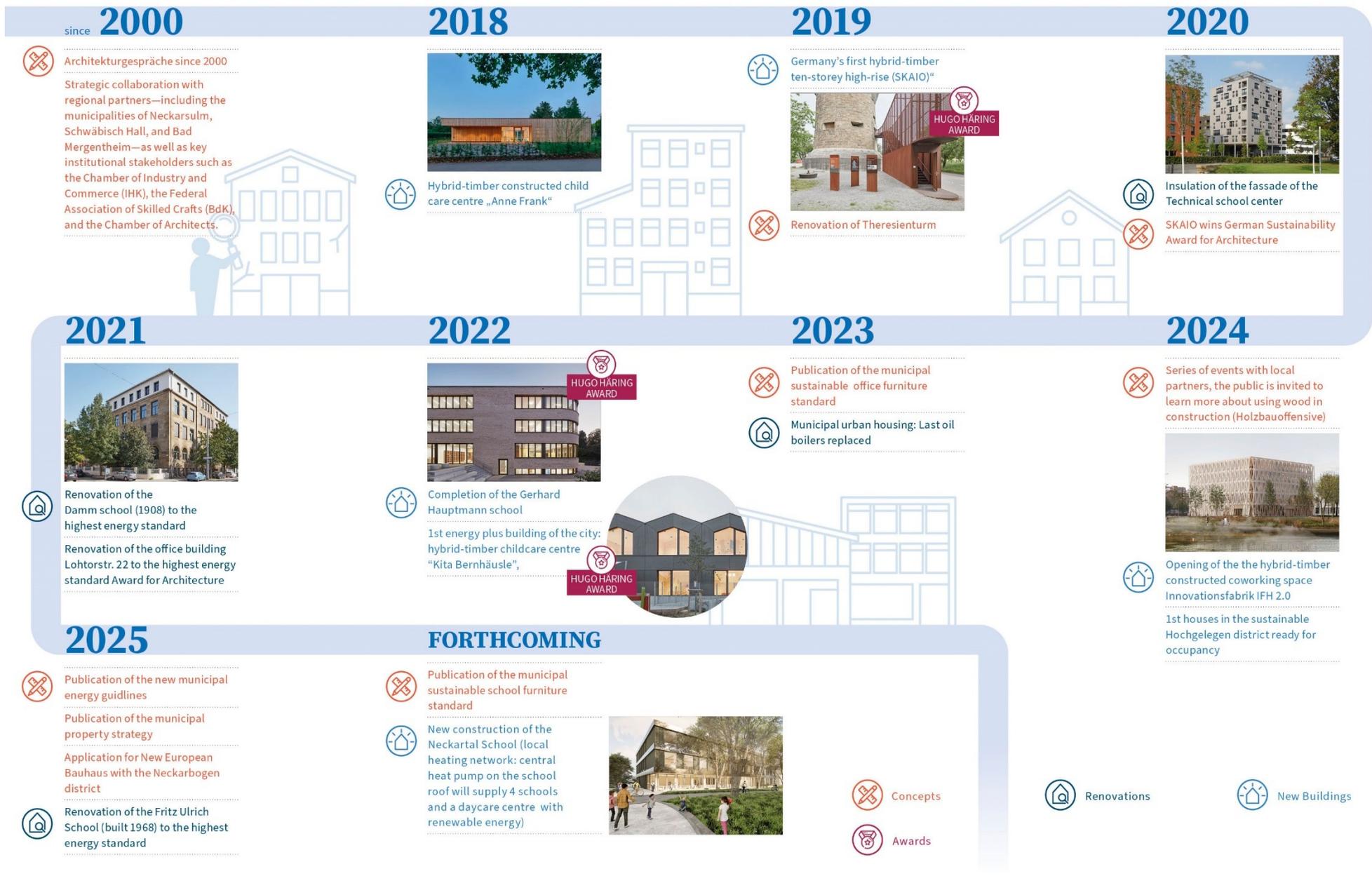


Figure 9. The most important measures in the area of building in recent years. Source: Stadt Heilbronn.

(max. 600 words and five graphics, images, or tables plus the requested charts detailed above)

1.3 Future Plans

1. Objectives:

Outline the objectives 2030 and 2050 for air quality, with a specific emphasis on PM2.5 and NO₂ levels.

Though an **Air Quality Plan** is no longer legally required, the measures will be continued as the city has set itself the goal of achieving net climate-neutrality by 2035 within the **Climate Mitigation Concept** (see Figure 10 and Indicator 6). Moreover, the **Mobility Concept 2030** aims to reduce motorized individual transport and to push alternative mobility choices (see Figure 11). As a signatory of **EU Green City Accord** (GCA) and **Covenant of Mayors for Climate and Energy** (GCoM) Heilbronn is committed to specify targets regarding air quality until 2026.

What we want to achieve together by 2035

 <p>Motorised private transport is to be reduced by 22 %* (reduction: approx. 1-2 % p.a.)</p>	 <p>90 % of the maximum potential** identified for open spaces and 10 % of arable land should be developed with photovoltaics (88,811 MWh/a; approx. 97 ha).</p>	 <p>Gradual reduction of fossil fuels in consumption and complete phase-out by 2035.</p>
 <p>The share of alternative fuels used in kilometers driven is to increase to 53%* (increase: approx. 4% p.a.).</p>	 <p>55 % of the designated maximum potential** is to be developed (168,210 MWh/a; approx. 15-20 wind turbines; approx. 5 ha of land required during operation).</p>	 <p>Increasing the share of alternative fuels: environmental heat, heating electricity/power to heat***, district and local heating***, solar thermal energy and, to a lesser extent, power to gas, biomass and biogas.</p>
 <p>75% of the designated maximum potential** of roof areas is to be developed with photovoltaics (342,073 MWh/a; approx. 192 ha).</p>	 <p>The refurbishment rate for existing buildings starting at 0.8% p.a., rising by 0.2% p.a. to a maximum of 3.2% p.a. (up to 2030 Efficiency House Standard 55, thereafter Efficiency House Standard 40).</p>	 <p>Promoting the exchange of knowledge in society in order to inform, sensitise and motivate each other.</p>

* Reference value is the greenhouse gas balance from 2015.

** of the maximum potential shown in the Baden-Württemberg Energy Atlas

*** based on renewable energies

Figure 10. The main mitigation guide values from the update to the Climate Mitigation Concept.
Source: Stadt Heilbronn.

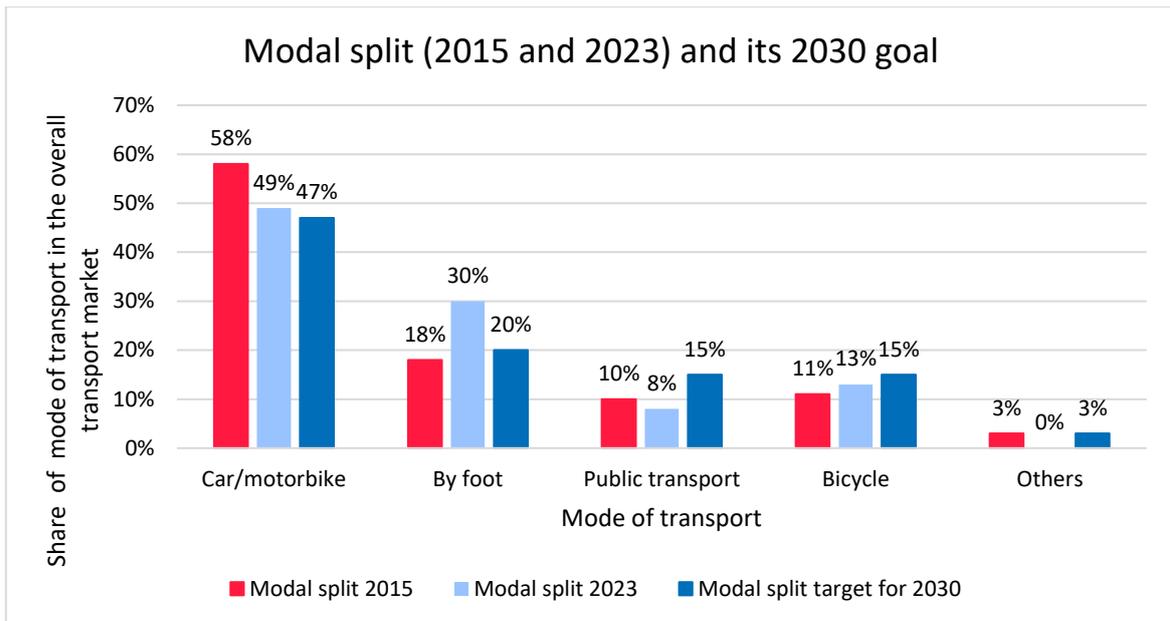


Figure 11. Modal split (2015 and 2023)⁷ and the 2030 development goal. Source: Stadt Heilbronn.

2. Planned measures to achieve objectives:

- a. **Outline the key planned measures, including participatory approaches. Provide information on the expected reductions in pollutant emissions, budget allocations, and implementation schedules. Also, specify if these measures have additional environmental benefits or connections to other environmental criteria.**

⁷ The shares of modes of transport (2015 vs. 2023) are not fully comparable, as in 2015 inbound commuters were also recorded by a cordon survey. In 2023 inbound and outbound commuters were not surveyed.

Table 3. Climate Mitigation Measures 2022 to 2035, estimated reduction in emissions and defined budget. Source: Stadt Heilbronn.

Category	Measures	Estimated CO ₂ savings [tCO ₂ e/a]	Budget [€]
Expansion of photovoltaics on buildings	<ul style="list-style-type: none"> • Target group-specific information and public relations work • Central consultation service • Financial incentives • Networking • Support for solar trades 	212,845	350,000,000
Expansion of ground-mounted and agricultural photovoltaic	<ul style="list-style-type: none"> • Implementation of a detailed potential- and market study • Concept development of the development 	271,281	320,000,000
Expansion of wind power	<ul style="list-style-type: none"> • Implementation of a detailed potential- and market study • Securing of location(s) • Public relations work and stakeholder involvement 	101,935	90,000,000
Energy-efficient refurbishment	<ul style="list-style-type: none"> • Renovation management • Renovation campaign • Development of energy neighbourhood concepts • Craft and trades campaign 	201,851	3,150,000,000
Climate-friendly new buildings	<ul style="list-style-type: none"> • Creation of a legal basis for planning • Information and public relations work • Initiation of pilot projects 	No additional emissions	
Expansion of decarbonized heating networks	<ul style="list-style-type: none"> • Expansion of heating networks/municipal heating planning • Supplying heating networks with renewable energies • Initiation of pilot projects • Stakeholder participation 	Savings of up to 90% compared to fossil fuels (oil, gas)	100,000,000
Reduction of GHG emissions in the transport sector	<ul style="list-style-type: none"> • Promotion of environmentally friendly transport • Promotion of alternative drive systems • Updating the Mobility Concept as a Climate Mitigation sub-concept 	148,864	1,060,000,000
The City Administration as a role model	<ul style="list-style-type: none"> • Climate-neutral city administration by 2030 • Climate and Sustainability Advisory Board • European Energy Award process • Energy-efficient renovation of municipal properties • Waste sorting concept for the city administration and schools 	Progress towards net zero emissions	400,000,000
Public relations work and communication	<ul style="list-style-type: none"> • Climate pacts for residents, businesses and organisations • Energy agency as the point-of-contact for residents • 50,000 trees for Heilbronn • Public relations concept • Municipal incentive program • Competition between schools 	Indirect savings variable, depending on social factors	

Table 4. Mobility projects 2024-2028 and defined budget. Source: Stadt Heilbronn.

Category	Upcoming projects	Budget [€]
Liveable city	<ul style="list-style-type: none"> Measures for climate mitigation in transport Measures to implement the Noise Action Plan Measures to improve accessibility Measures for road safety 	6,354,000
Pedestrian traffic	<ul style="list-style-type: none"> Measures to promote pedestrian traffic Street lighting: conversion to LED, intelligent control, pedestrian crossings Traffic engineering: pedestrian-friendly conversion and new construction of traffic lights 	16,024,000
Cycling	<ul style="list-style-type: none"> Planning and new construction/conversion of cycle paths Planning of cycle school routes Bicycle parking facilities at schools IPAI cycle path connection Neckaruferweg cycle path widening 	20,403,000
Public transport	<ul style="list-style-type: none"> Conversion to e-bus fleet Subsidies to local public transport association Planning and construction of bus lanes Construction of new passenger shelters Individual measures and traffic engineering for public transport improvements 	67,912,000
Sustainable, connected, new mobility	<ul style="list-style-type: none"> Planning and installation of mobility stations as part of the Mobility Pact Heilbronn-Neckarsulm 	1,756,000
Motorised individual traffic	<ul style="list-style-type: none"> Traffic technology: Operation and maintenance of charging points Measures to improve the parking guidance system 	320,000
Mobility management	<ul style="list-style-type: none"> Transport conceptualization and planning 	2,957,000
Public relations work	<ul style="list-style-type: none"> Public relations work on cycling, traffic technology, traffic regulations and traffic planning 	810,000
Total amount		116,536,000

In addition, the measures out of the **Noise Action Plan** (Stage IV) contributing to better air quality: speed limits, speed monitoring at noise hotspots and increasing the share of municipal electric vehicles (see Indicator 5).

As part of improving the **blue-green infrastructure** in context of the **Landscape Plan 2030** and the **Climate Adaptation Concept**, areas in the city centre are redesigned (see Figure 12, Indicator 3 and 7).

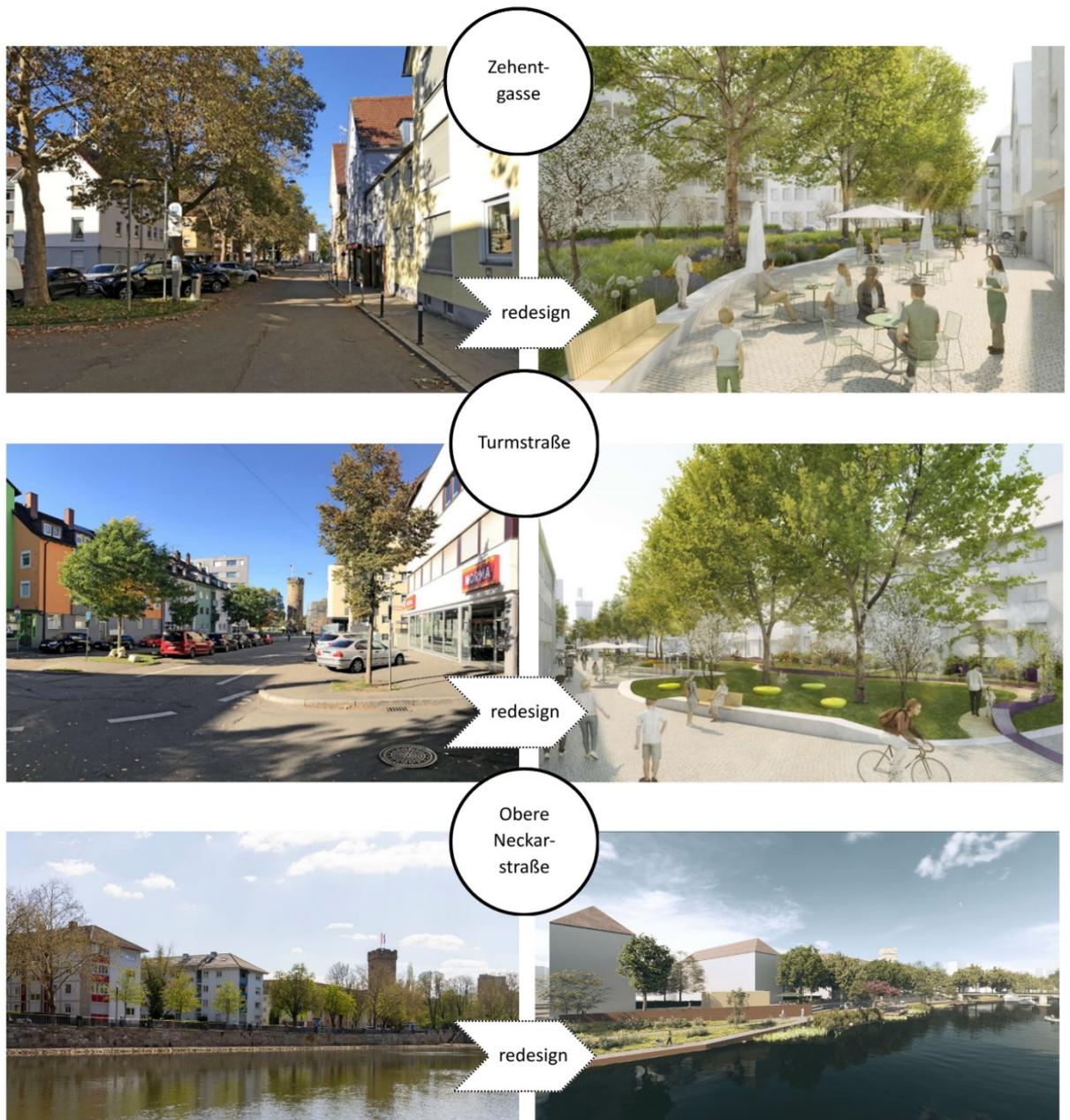


Figure 12. Forthcoming nature-based re-design⁸ of Zehentgasse (above) and Turmstraße (middle), as well as Obere Neckarstraße (below). Source: ARGE Hink Biegert, Raumlabor 3/Thorsten Kraemer, as well as ARGE BlauGrün.

⁸ Redesigning streets climate-resilient, de-sealed, car-free, rain-water managed, and with water features.

Partners from the **industrial sector** in particular are also taking up the challenge with innovative measures:

- Fuel switch: One of the largest hard coal-fired units operated by EnBW is being replaced by a gas and steam turbine plant with the perspective of the use of green hydrogen - EnBW company
- Establishment of a biomass power plant - Brüggemann company
- Operation of the pyrolysis power plant - Süddeutsche Salzwerke AG
- Conversion to green electricity - ZEAG
- Improvement of local public transport - Stadtwerke

There are also **research projects to promote innovations** such as the RegioWIN project HYDROGENIUM⁹, which aims to establish a sustainable hydrogen economy in the Heilbronn-Franken region and drive forward the transformation to a climate-neutral energy supply. The German Aerospace Center (DLR) is working together with institutions on the Heilbronn Education Campus such as Heilbronn University (HHN), the Technical University of Munich (TUM), the Fraunhofer Institute for Industrial Engineering (IAO) and the Heilbronn Region Economic Development Corporation (WFG) to transfer the project to local authorities, companies and society.

⁹ Project duration: septmeber 2023 – dezember 2026; funding: Baden-Württemberg Ministry of Economic Affairs with approx. 2.3 million euros; approx. 4.6 million euros from the European Regional Development Fund (ERDF).

b. Explain how air quality measures are integrated into broader city plans, such as a Sustainable Energy and Climate Action Plan (SECAP), Sustainable Urban Mobility Plan (SUMP), or Climate City Contract (CCC) under the EU Mission on Climate-Neutral and Smart Cities (Cities Mission).

The overarching City Concept sets the goal of reducing air pollutants, forming the basis for further planning. Building on this, air quality measures—as described in section 1.1.1.a—are integrated into urban planning documents such as the Climate Mitigation Concept, the Mobility Concept 2030, the Noise Action Plan and the Landscape Plan 2030.

By committing to the GCoM through a SECAP, signing the GCA, and developing a SUMP, the City of Heilbronn actively pursues improvements in air quality through integrated, sustainable, and cross-sectoral strategies.

c. Provide information on participatory approaches. Describe some concrete and significant actions.

The City of Heilbronn involves the public in the planning of important urban projects as well as concepts, e.g. with an information events, workshops and surveys (see Figure 4). Since 2014, **guidelines for citizen participation** have been applied to municipal projects. The **participation portal wirsind.heilbronn.de** provides detailed information on all plans and projects currently being worked on by the City Administration.

The **Climate and Sustainability Advisory Board** and the **Mobility Advisory Board** with members including local councillors, environmental groups, and companies, are coming together around four times a year with the goal to foster collaboration, develop new projects, and accelerate implementation in sustainability.

3. Support ambitions and measures:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

The City Council of Heilbronn has decided on various concepts, as described in 1.3.2.b. Once adopted by the City Council, the concepts form the basis for the decisions of the specialised departments.

b. Outline plans for monitoring the impacts of implemented measures.

- GCA and GCoM
- Climate mitigation indicators transparent and visualized on the climate portal
- Mobility monitoring, modal split survey approximately every 5 years and re-audit as bicycle-friendly municipality every 5 years by the Roads Department
- Operation of measuring stations by LUBW
- Definition of emission limits for individual industrial plants by the Planning and Building Authority

(max. 600 words and five graphics, images, or tables)

1.4 References¹⁰

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **Measurement data (LUBW)**
 - Current measured values: <https://www.lubw.baden-wuerttemberg.de/luft/messwerte-immissionswerte?id=DEBW015#karte>
 - Information on the sampling point at Hans-Rießler-Straße 7: https://www.lubw.baden-wuerttemberg.de/documents/10184/1007945/DEBW015_HN.pdf
 - Information on the sampling point at Heilbronn Weinsberger Straße-Ost: https://www.lubw.baden-wuerttemberg.de/documents/10184/1007945/DEBW152_HN-WSO.pdf
 - Breakdown of the sources of pollutant emissions: https://udo.lubw.baden-wuerttemberg.de/public/processingChain?repositoryItemId=ekat_gemeinde&conditionValuesSetHash=C018824&selector=ekat_gemeinde&sourceOrderAsc=false&offset=0&limit=2147483647

- **Air Quality Plans (Stuttgart Regional Council)**
 - All Air Quality Plans: <https://rp.baden-wuerttemberg.de/rps/abt5/ref541/seiten/luftreinhalteplaene/>
 - Air Quality Plan for the administrative district of Stuttgart – Subplan Heilbronn (2020): https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/luft/Luftreinhalteplan_fuer_den_Regierungsbezirk_Stuttgart_Teilplan2020_Heilbronn_2_Fortschreibung.pdf
 - Update 2023 on the cancellation of the environmental zones / sub-plans (2023): https://rp.baden-wuerttemberg.de/fileadmin/RP-Internet/Stuttgart/Abteilung_5/Referat_54.1/DocumentLibraries/Luftreinhalteplan/Heilbronn/541_s_luft_LRP_Leo_HN_Herr_HDH_Hemm.pdf

- **Air-related concepts on the Heilbronn homepage**
 - Air Quality Plan: <https://www.heilbronn.de/umwelt-mobilitaet/luft/luftreinhalteplan.html>
 - Climate Mitigation Concept: <https://www.heilbronn.de/umwelt-mobilitaet/klimaschutz/klimaschutz-masterplan.html>
 - Mobility Concept 2030: <https://www.heilbronn.de/umwelt-mobilitaet/mobilitaet/mobilitaetskonzept-2030.html>
 - Noise Action Plan: <https://www.heilbronn.de/umwelt-mobilitaet/laerm/laermkartierung-und-laermaktionsplan.html>
 - Landscape Plan 2030: <https://www.heilbronn.de/umwelt-mobilitaet/landschaftsplan.html>

¹⁰ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- **Working together to drive transformation**
 - GCA-signatory: <https://www.heilbronn.de/rathaus/aktuelles/european-green-city-accord-in-vilnius.html>
 - Heilbronn-Neckarsulm Mobility Pact: <https://www.mobilitaetspakt-h-n.de/>
 - WE-Pact: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-masterplan/wir-pakt.html>
Video: <https://www.youtube.com/watch?v=BwxyW3xIU-I>
 - Climate and Sustainability Advisory Board: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-und-nachhaltigkeitsbeirat.html>
 - RegioWIN project HYDROGENIUM: <https://www.dlr.de/de/ra/forschung-transfer/projekte/staatlich-gefoerderte-projekte/hydrogenium-projekt>
 - Video: University ecosystem is working on transparent ecological data visualisation: <https://www.youtube.com/watch?v=vu1NSjSHPQE>
 - Fuel Switch EnBW: https://www.enbw.com/company/the-group/energy-production/new-buildings-and-major-projects/kraftwerk_heilbronn/technik_6.html

- **Citizen participation**
 - European Green Capital Heilbronn – landing page: <https://www.heilbronn.de/umwelt-mobilitaet/european-green-capital-award-2026.html>
 - Citizen participation platform: <https://wirsind.heilbronn.de/>
 - Climate portal: <https://klimaschutz.heilbronn.de/>
 - Campaign “Heilbronn, the climate and US”: <https://klimaschutz.heilbronn.de/kampagne-2023>
 - Participation in the European Mobility Week: <https://mobilityweek.eu/participating-towns-and-cities/?year=2023&country=DE&city=96Pddie1>
 - C: <https://www.heilbronn.de/umwelt-mobilitaet/mobilitaet/radverkehr.html>
 - New citizens marketing:
 - Mobility brochure: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/mobilitaet/Mobilitaetsbroschüre-DEEN-DIN_A4-20240408.pdf
 - Free bikes for new students: <https://www.heilbronn.de/tourismus/infos/presse/details/artikel/einstadtfahrrad-zum-studienstart-hat-tradition.html>
 - Free public transport trial ticket: <https://welcome.heilbronn.de/de/leben/mobil-in-heilbronn/oeffentlicher-personenverkehr/das-schnupperticket.html>

- **Examples of redesign projects**
 - New Neckar Promenade: <https://www.heilbronn.de/stadterneuerung/neue-neckarpromenade.html>
 - Resdesign of Turmstraße and Zehentgasse: <https://www.heilbronn.de/bauen-wohnen/meine-innenstadt-nord.html>
 - #SummerZone: <https://www.heilbronn.de/bauen-wohnen/meine-innenstadt-nord/sommerstrasse.html>

(max. 400 words)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
1.1	979	1000
1.2	514	600
1.3	600	600

2 Water

2.1 Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data – Water

Indicator		Unit	Year of data
Drinking water			
Drinking water consumption	138	Litres/capita/day	2023
Proportion of water losses from the distribution network	1.9	Infrastructure leakage index	2022
Wastewater			
Capacity of each urban wastewater treatment plant (UWWTP)	500.000 PE	No., population equivalents	2025
Proportion of population connected to the wastewater collecting system and treatment plant(s)	99.9	%	2024
Proportion of the treated wastewater to which only primary treatment level is applied	0	%	2025
Proportion of the treated wastewater to which primary and secondary treatment level are applied	100	%	2025
Proportion of the wastewater to which more stringent treatment level is applied	0	%	2025
Number of times sewer overflows occur per year	926 ¹	No. / year	2023
Surface water bodies			
Ecological status of surface water bodies identified under the Water Framework Directive (WFD)	There are three rivers identified under the WFD: Böllinger Bach, Leinbach and Schozach. Their chemical status and status in terms of quantity is good. The ecological status of Böllinger Bach and Leinbach is unsatisfactory. The status of Schozach is moderate.	Ecological status	2021
Classification of existing bathing sites according to requirements of the Bathing Water Directive	No bathing sites	Classification	

1. Drinking water:

- a. Describe to what extent the requirements of the EU Drinking Water Directive (EU) 2020/2184 (recast) are met. If the parametric value of a parameter set out in Annex I, part A and B of the EU DWD has been exceeded in the last year, indicate for this parameter the ratio of non-compliance i.e. the number of exceedances versus the total number of samples taken.

Requirements of the EU drinking water directive **were fully met**: The parameters outlined in Annex I, Parts A and B of the EU Drinking Water Directive were not exceeded within the City of Heilbronn over the past year. The Drinking Water Ordinance² sets the **strictest standard worldwide**. Except for three instances (calcite dissolution capacity, iron, and colony count at

¹ Before the overflow, the flushing surge is captured in a basin. The frequency of overflows is measured at 44 out of 82 sewer overflow points. On average, there are 21 overflows per structure. According to the state of the art (German Association for Water, Wastewater and Waste e. V.; DWA), these are considered average frequencies.

² The EU Drinking Water Directive 2020/2184 (revised) was integrated into German national law via the Drinking Water Ordinance (Trinkwasserverordnung – TrinkwV) of June 20, 2023.

22°C), all requirements of the Drinking Water Ordinance were met. Subsequent investigations conducted to address the aforementioned exceptions also yielded satisfactory results.

- b. Provide a breakdown of the drinking water consumption for the different sectors (households, industry, agriculture, etc.) over the last 1 year (or 3 years if the last year is not representative).

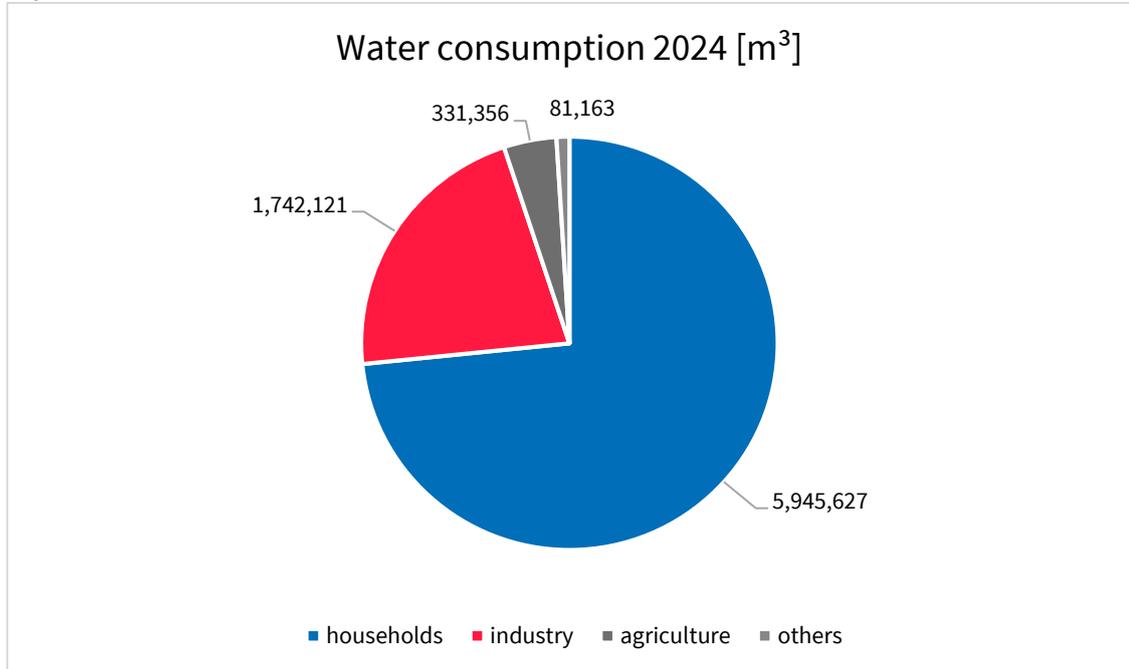


Figure 1. Water consumption for different sectors. Source: Stadt Heilbronn.

Households in Heilbronn utilize approximately 5,945,627 m³ of water. 1,742,121 m³ are utilized for industrial purposes. Agriculture accounts for 331,356 m³. Others account for approximately 81,163 m³ of water consumption, highlighting the diverse range of purposes for which water is utilized in the region.

- c. Indicate the sources of drinking water. Refer to aquifers, river basin management, non-conventional resources, and water recycling initiatives.

Lake Constance is a key source of Heilbronn's drinking water. As Germany's largest lake and Europe's biggest drinking water reservoir, it provides clean water extracted from 60 meters depth at a stable five degrees Celsius. The water requires minimal treatment before flowing from Sipplingen through Baden-Württemberg to Heilbronn. The supply system, regulated by international agreements, may withdraw up to 670 million liters daily. With a capacity of 50 billion m³ and strong currents, the lake naturally dilutes contaminants, ensuring safety. **About 80% of Heilbronn's drinking water** comes from Lake Constance.

Additionally, around **20% of the drinking water is derived from self-owned water sources.**³

³ Including wells and springs located in areas such as the "Böckingen Meadows", "Lein and Rotbach Valley". "Kühnbach Valley", and "Böllinger Bach Valley". Another, albeit minimal, contribution of only 0.01% comes from the water supplier in Massenbachhausen.

- d. Describe if the city promotes the use of tap water, such as offering free water fountains and granting access to vulnerable or marginalised groups.

The drinking water in Heilbronn is of **excellent quality** and can be safely consumed. However, the water quality may be affected by the household plumbing. Therefore, Heilbronn local supply GmbH (HNVG) offers drinking water analysis of drinking water for citizens. Thereby, this programme promotes the consumption of tap water, through increased transparency of water quality, and helps to remove barriers to its use by assuaging any safety concerns.

In 2024-2025, the City of Heilbronn **installed its first two free water fountains**. A remarkable initiative was launched in 2024: In collaboration with the Climate Ambassadors of Local Agenda 21, the Health Department is supporting the Refill campaign and encouraging all organizations in the city to take part. This campaign has already established a network of **14 designated Refill stations**, where individuals can freely refill their own drinking containers with tap water. Participating locations are easily identifiable by the Refill sticker. The locations can be found on the “Cooling Map”, accessible on the municipal website.



Figure 2. Refill stations within in the City of Heilbronn. Source: Stadt Heilbronn.

2. Wastewater:

- a. Describe to what extent the requirements of the [EU Urban Waste Water Treatment Directive \(91/271/EEC\)](#) (UWWTD) are met (collection and treatment). Also, mention any additional treatment steps beyond the requirements of the UWWTD.

Heilbronn’s wastewater is managed in the “Eisbiegel” sewage plant, which **meets the UWWTD by monitoring of and compliance with allowed pollutant levels** (Eliminations in %: CSB: 96, N_{ges}: 81; P_{ges}: 95). The predominant portion of wastewater discharge is collected within a combined sewer system (rainwater and blackwater mixed). Within the separate sewer system, certain small regions employ treatment measures for rainwater, including methods such as retention soil filters. Conversely, in other areas of the separate sewer system, rainwater is discharged without prior treatment into the receiving water body Neckar river. Wastewater originating from regions within the separate sewer system is conveyed to the sewage plant for subsequent treatment.

b. Explain treatment methods applied to the fraction of wastewater not connected to the wastewater collecting systems (individual or other appropriate systems).

In Heilbronn, only a minimal portion of wastewater remains unconnected to the central sewage collection system. The wastewater generated in this context is either processed through appropriate decentralized sewage treatment facilities and subsequently discharged into a receiving water body, or it is collected in septic tanks and transported to the WWTP for processing.

c. List any energy efficiency measures or initiatives for reducing of greenhouse gas emissions for UWWTPs. These measures go beyond the current UWWTD, but align with the recently adopted recast UWWTD. Beyond the current UWWTD, if applicable, explain whether the city uses reclaimed water for environmental, industrial, or urban purposes (e.g., urban green spaces, cleaning of streets).

During the sludge digestion process at the Heilbronn WWTP, **biogas is produced and collected**. This gas, generated on-site, is efficiently utilized in combined heat and power (CHP) plants. The electricity generated, approximately 5.9 million kWh per year, powers the operations of the treatment plant. Furthermore, the **waste heat is utilized** within the digestion tanks and operational buildings. As a result, the self-sufficiency rate with electricity at the treatment plant reaches **nearly 60%**, showcasing a remarkable achievement in sustainable energy utilization.



Figure 3. Wastewater treatment plant Eisbiegel Heilbronn. Source: Stadt Heilbronn.

The treated mixed wastewater from the WWTP is discharged into the Neckar river. Similarly, the purified rainwater from the separate sewer system is directly discharged into the existing receiving water body. Currently, there is no utilization of treated or stored rainwater.

3. Surface and groundwater bodies:

Describe to what extent the requirements of the [EU Water Framework Directive \(2000/60/EC\)](#) are met. Also describe, if applicable, any further supplementary measures adopted in order to provide for additional protection or improvement of the waters covered by the Directive.

The EU Water Framework Directive (WFD) encompasses a holistic approach to addressing the influencing factors within the catchment area of water bodies, including a programme of measures. In order to progressively achieve the objectives of the WFD – **attaining good ecological status and sustainable use of our water resources** – all stressors within the catchment area of water bodies were initially identified, enabling targeted measures to address them at their roots. The Baden-Württemberg Regional Council publishes the results in form of management plans and programmes of measures for the 3rd management cycle (2022-2027) of the WFD. The accompanying documentation contains, among other things, detailed water body profiles with status assessments, pollution factors and fields of actions. Below is a summary of the provided information for the catchment areas of the City of Heilbronn. Further information is linked in the references.

Table 2. Summary 3rd management cycle (2022-2027) of the WFD.

Catchment area	Ecological status/potential	Chemical status	Action fields
Running Water			
Neckar area below Enz incl. Schozach	Moderate	Not good	Trophic Polycyclic aromatic hydrocarbons (PAH) Ubiquitous substances (Hg, PFOS, ...) Pesticides (priority, non-priority) River continuity Water body structure Water balance/ minimum water
Neckar area below Schozach above Kocher	Unsatisfactory	Not good	Trophic Polycyclic aromatic hydrocarbons (PAH) Ubiquitous substances (Hg, PFOS, ...) Pesticides (priority, non-priority) River continuity Water body structure Water balance/ minimum water
Neckar from Enz upstream Kocher	Bad	Not good	Trophic Polycyclic aromatic hydrocarbons (PAH) Ubiquitous substances (Hg, PFOS, ...) Pesticides (priority, non-priority) River continuity Water body structure Water balance/ minimum water Other
Groundwater bodies			
Neckar basin - Schozach springs	Good	Good	Reduction of nitrate pollution
Krauchgau-Unterland	Good	Good	Reduction of nitrate pollution

Weinsberger Valley-Heilbronn	Bad	Good	Reduction of nitrate pollution
Neckarbecken-Zabergäu	Good	Good	Reduction of nitrate pollution

By 2027, the majority of the action plans will have been implemented. Therefore, ecological measures have been and will be implemented at Böllinger Bach, Leinbach, and Schozach by 2027. The measures proposed in the 3rd management cycle (2022-2027) of the WFD receive various state and federal subsidies, such as from the funding programme for agri-environment, climate protection and animal welfare (Förderprogramm für Agrarumwelt, Klimaschutz und Tierwohl - FAKT). The measures are primarily focussed on the areas of habitat creation and organic farming.

4. Citizen Engagement:

Detail current strategies for informing, raising awareness, and engaging citizens on water quality and quantity-related matters. If available, include concrete actions, such as data dissemination, awareness campaigns, and mechanisms for citizen involvement.

Since 2020, Heilbronn celebrates an action day “**Experience Heilbronn with water**” with the goal of sensitizing citizens for the scarce resource water. In the summer semester of 2024, the municipal adult education centre was offering 36 events focused on the topic “water”, including water conservation.

In September and October 2025, **the traveling exhibition on the water crisis** by the Heinrich-Böll Foundation will take place at the city library. Accompanying the exhibition, there will be eight lectures by various experts. The exhibition highlights the connections between the climate and water crisis, as well as the impact of economic activities on water pollution.

5. Infringements:

If the city is currently undergoing an infringement procedure related to the relevant EU legal frameworks on Water, please explain the reasons for the procedure and outline the measures the city is taking to ensure compliance.

No legal infringements.

(max. 1000 words and five graphics, images, or tables)

2.2 Past Performance

The aim of this section is to make clear how the situation described in the previous section has been achieved in the past ten years.

1. Drinking water:

- a. Provide an overview of the total water consumption and a breakdown of water usage for various sectors (households, industry, agriculture, etc.) over the last ten years. Detail the measures that have been implemented to save water consumption and to reuse water.

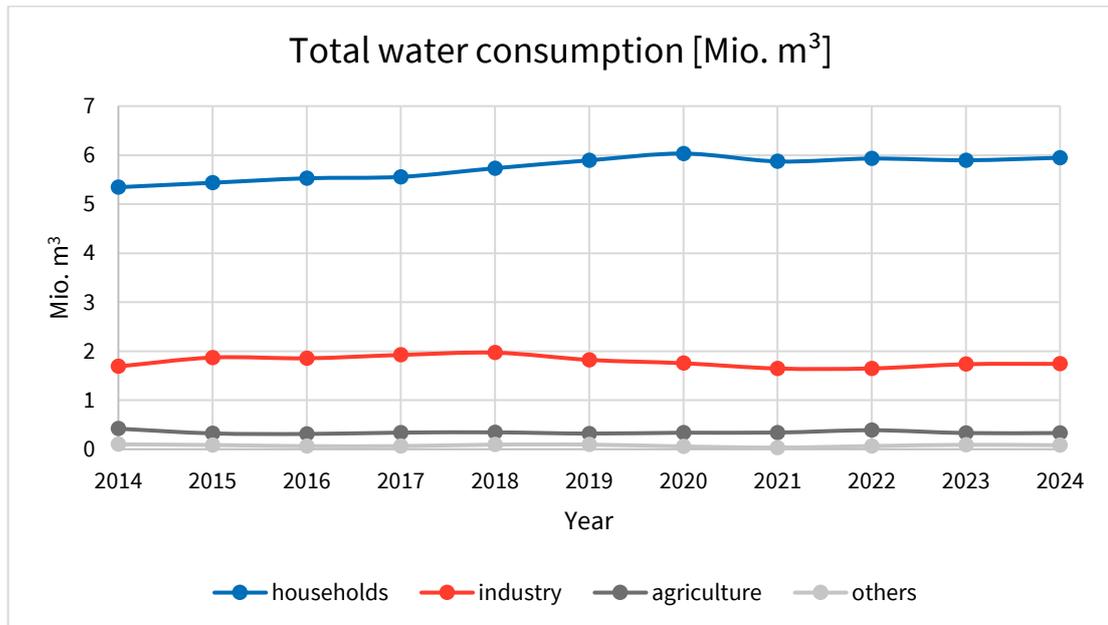


Figure 4. Total water usage over the last ten years. Source: Stadt Heilbronn.

The overall water consumption has increased by 7.2% since 2014, while the number of citizens has increased around 8.5% and several new commercial areas have been added.

The Stadtwerke Heilbronn GmbH has intensified its **efforts to reduce water losses by enhancing maintenance and inspection activities** in the network. This includes manhole, valve, and regular network inspections. Additionally, they monitor night-time consumption through pipe network monitoring in the Heilbronn local supply GmbH control system. These measures enable the rapid identification of pipe bursts, leading to quicker isolation and remediation.

- b. **Elaborate on strategies employed for leakage management and network rehabilitation.**

See answer 2.2.1.a. In addition, the rehabilitation measures are prioritized based on network data (age, material, installation method, frequency of damage) using the Pirem programme and are considered in the economic planning.

2. Wastewater:

- a. **Outline the extent of connection to the wastewater collecting system over the last ten years. 99.9 % of Heilbronn's population** is connected to the wastewater collecting system. The majority of connections to the central wastewater collection system were established over a decade ago. Several outlying areas were connected to the wastewater collection system via pressure pipelines.

- b. Discuss stormwater management over the last ten years, including the frequency of stormwater overflows, and elucidate the utilization of natural water retention and filtration measures and/or sustainable urban drainage systems.

Over the past decade, combined sewer overflow (CSO) treatment facilities have been continuously equipped with measuring devices to monitor the frequency and duration of CSO events. The data collected here are processed and utilized for operational optimization, such as the installation of improved throttling devices.

In recent years, where possible, **separate sewer systems have been introduced during development projects.**

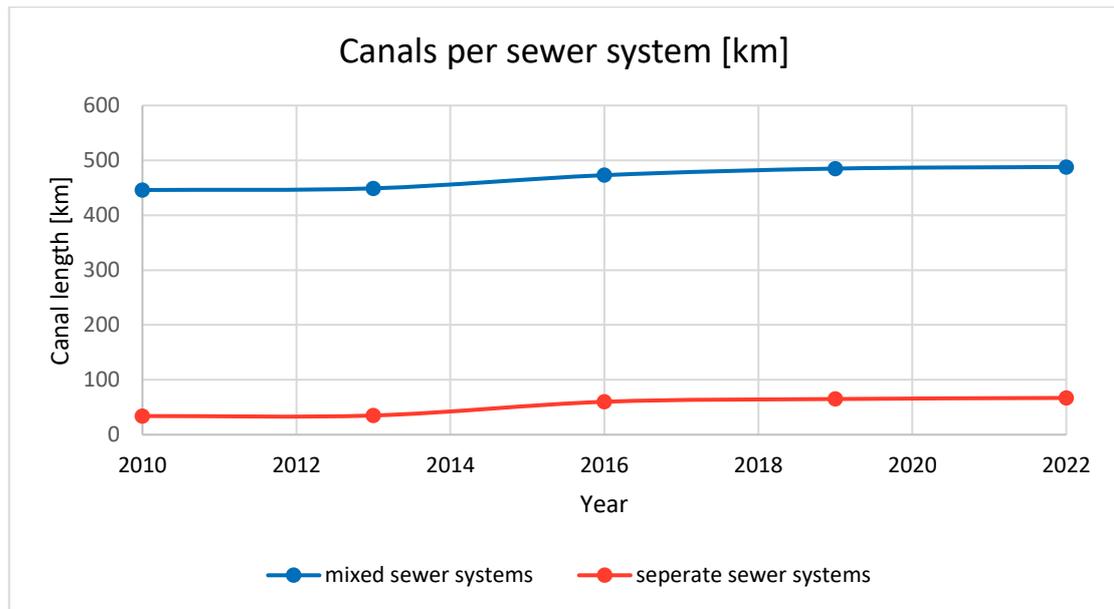


Figure 5. Lengths of canals for mixed sewer systems and seperate sewer systems. Source: Statistik-bw.de

A separate sewer system was established in the new Neckarbogen district. **Rainwater collected here is directed to a retention soil filter** and, after treatment, discharged into an artificial lake, which also serves recreational purposes (see Figure 6).

Similarly, during the conversion of already developed areas, the existing combined system has been converted into a separate system (e.g. East Educational Campus).



NATURAL SUN PROTECTION THROUGH TREES /

planting of 17 maple trees at the
Oststraße sports centre



RENATURALISATION OF STREAMS AND RIVERS /

such as the Böllinger Bach



CLIMATE GROVES /

in the middle of highly
sealed areas



Two lakes in the Neckarbogen
neighbourhood as
**RAINWATER STORAGE
AND FILTERS /**

URBAN GARDENING /

at Kraichgauplatz in front of the
Elly-Heuss-Knapp school centre
in Böckingen



FACADE AND ROOF GREENING /

on municipal buildings



DISTRIBUTION OF CLIMBING PLANTS /

to private individuals during the
Sustainability Day

Figure 6. Examples of nature-based solutions in Heilbronn. Source: Stadt Heilbronn.

c. **Provide insights into advancements in wastewater treatment over the last ten years.**

The implementation of the EU Directive on the treatment of municipal wastewater at the sewage treatment plant has been completed **since over 10 years**. In recent years, the phosphorus elimination at the sewage treatment plant has been steadily improved.⁴

In the area of combined sewer overflow treatment facilities, the treatment of mixed water overflows into the Neckar River has been enhanced and a contribution to the preservation of the receiving waters has been made by constructing **a lamella separator** at the largest rain overflow basin in the City of Heilbronn.

3. Surface and groundwater bodies:

a. **Report on efforts made to achieve and maintain good status for the ecology, chemistry and quantity of waters of the last ten years.**

Heilbronn city has 10 water protection areas with a total size of 2865 ha, covering 28.7 percent of the overall city (see Figure 7). In the last ten years, 2 new protection areas (116 ha) were added.

Several properties within the riparian buffer zone (RBZ) have been acquired to support natural regeneration and reconnection to watercourses. **Fertilization bans** in the RBZ are enforced through regular site inspections, and riparian woodland growth is promoted through forest management. Numerous watercourse renaturation measures have been implemented. In all watercourse-related planning, Baden-Württemberg ensures compliance with the EU WFD and the legal prohibition of deterioration (Wasserhaushaltsgesetz).

⁴ For the Heilbronn sewage treatment plant, as of January 1, 2024, target values for the required effluent concentrations for total phosphorus (P_{ges}) of 0.3 mg/l and orthophosphate ($o-PO_4$) of 0.16 mg/l have been agreed upon.

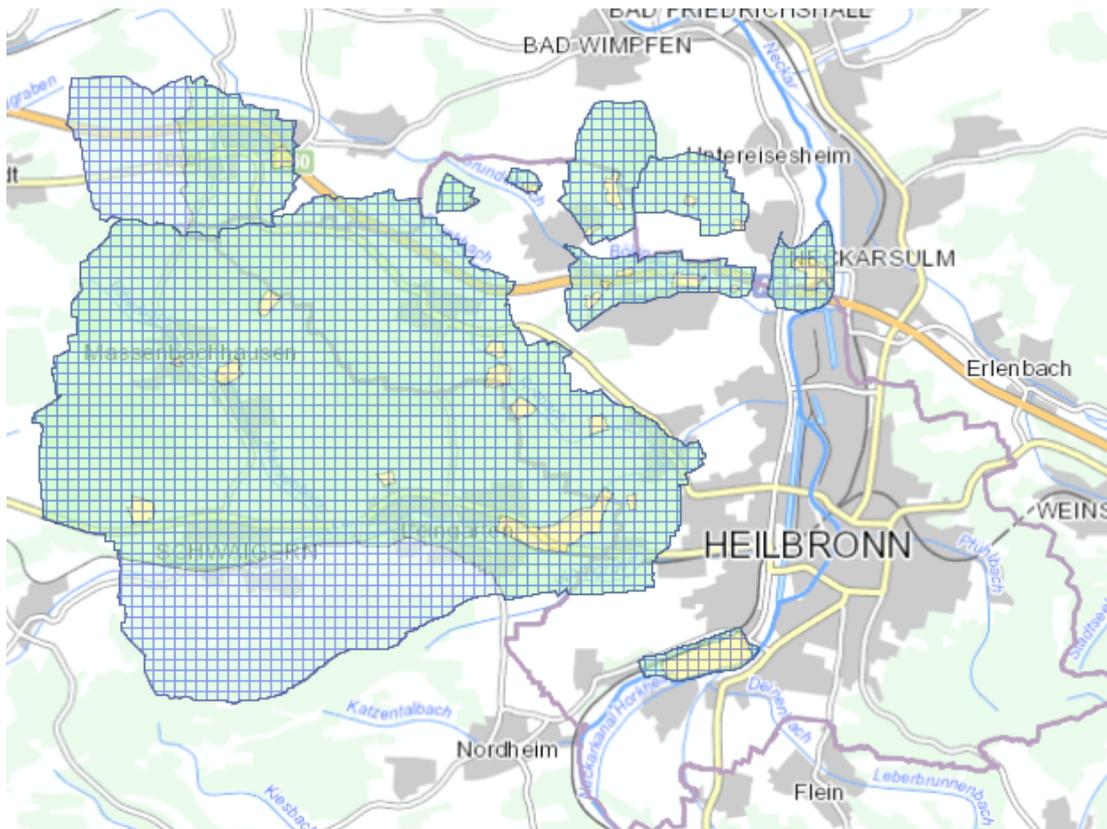


Figure 7. Water protection areas in Heilbronn. Source: statistik-bw.de and LUBW data portal.

b. Report on river restoration efforts, such as resurfacing rivers and naturalizing previously channelled rivers over the last ten years.

At **various watercourses** (see Figure 10), the straightened course has been re-aligned, drop structures (former weir systems) on the riverbed, as well as shore structures, have been removed, and flow deflectors have been installed to increase flow variability. Steep bank areas have been flattened and designed to be structurally diverse. To protect the watercourse, a buffer strip has been established within urban areas with a width of 5 meters and outside urban areas with a width of 10 meters to allow for self-dynamic development.

Each watercourse renaturation (see Figure 8 for examples) is **monitored** in order to ensure the successful achievement of sustainable restoration of natural habitats for flora and fauna. The monitoring is conducted using the specialized fine-scale method required by the state of Baden-Württemberg for watercourse structure mapping.

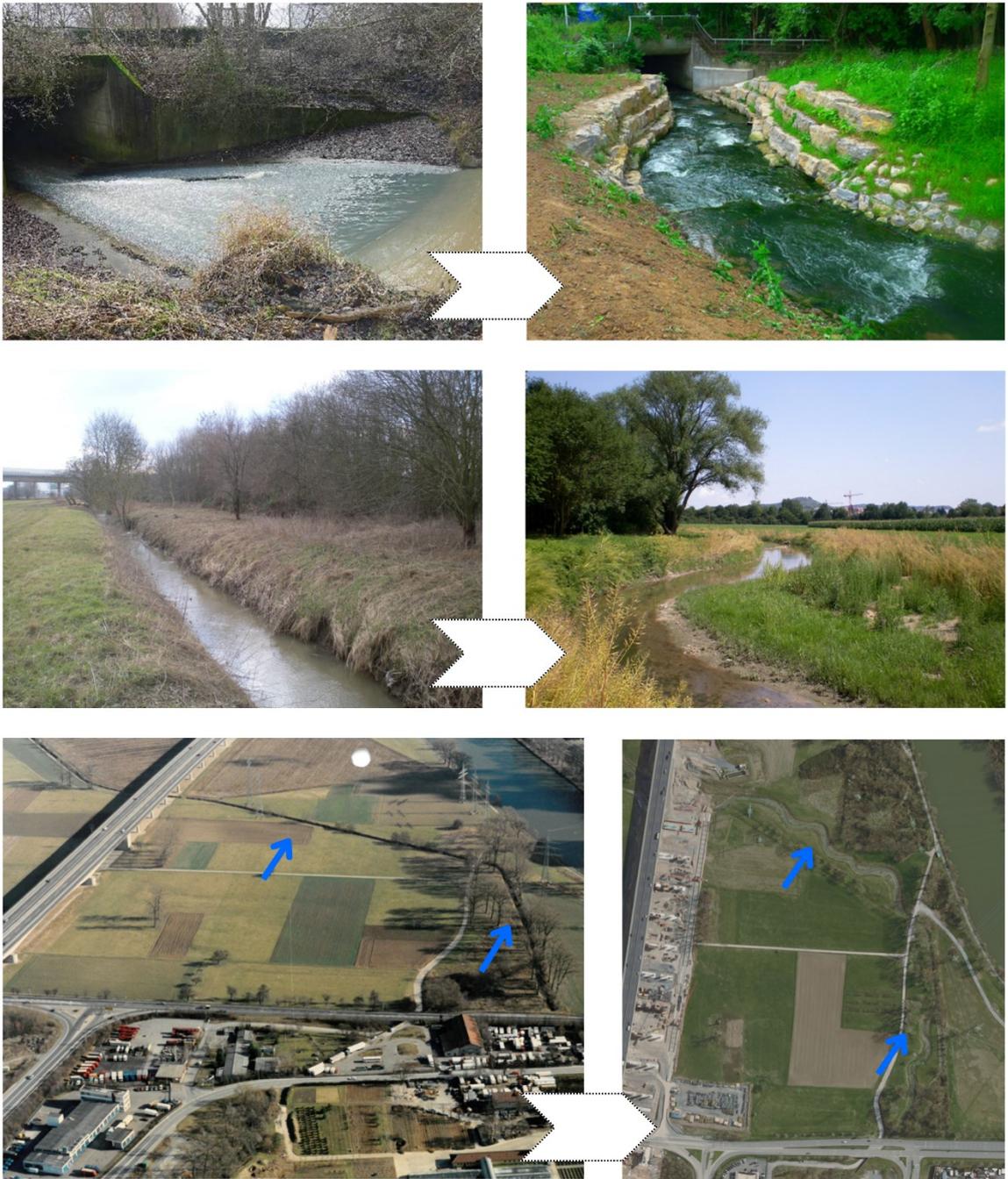


Figure 8. Examples of ecological measures at Böllinger Bach in the recent years. Source: Stadt Heilbronn.

(max. 600 words and five graphics, images, or tables)

2.3 Future Plans

1. Objectives:

Specify the objectives for 2030 and 2050 in terms of:

a. Drinking water, including water saving.

In Heilbronn, a **medium-term expansion of self-water extraction** is planned, aiming for at least 1.5 million cubic meters. The reservoir capacity will increase by 15,000 cubic meters, from 32,724 cubic meters to 47,724 cubic meters. The flushing concept for network flushing is being updated in Heilbronn, aiming to prevent stagnation and deposits in the drinking water network, based on current pipe network calculations. To enhance **monitoring capabilities for water losses**, water zones are being reduced in Heilbronn. The implementation of the "Smart Water Supply" project was being initiated in the Horkheim, Römerhof test area in Heilbronn in 2021, in collaboration with the Ferdinand-Steinbeis Foundation. A key goal of this project is to promptly detect water leakages using intelligent water meters and software-based analysis tools. The areas will be rolled out to the whole city.



Figure 9. Local project partners "Smart Water Supply". Source: Ferdinand-Steinbeis Institute.

b. Wastewater collection and treatment, including ambitions to adapt to the requirements of the recast UWWTD.

By 2030, the Heilbronn sewage treatment plant plans to gradually modernize its sludge treatment process and deploy more efficient combined heat and power plants to increase **self-generated electricity to nearly 70%**. Simultaneously, available open spaces will be utilized for photovoltaic installations, and measures for energy conservation, such as optimizing or replacing aeration basin blowers, will be implemented.

Starting in 2029, phosphorus will be reclaimed from sewage sludge, in 2024 contracts were signed with a duration until 2039.

The installation of **measuring devices in stormwater treatment plants** will continue to enable operational improvements, including the reduction of stormwater overflows.

For goals extending to 2050, efforts will focus on retaining rainwater within urban areas to enhance the urban climate, protect water bodies, reduce flooding, and improve quality of life. The Heilbronn sewage treatment plant plans to construct a fourth treatment stage for trace contaminant removal and aims for near self-sufficiency in energy supply for wastewater facilities.

- c. Use of reclaimed water (if applicable), and progress towards energy neutrality and reduced GHG emissions from UWWTPs, in alignment with the recast UWWTD.**

See 2.3.1. b.

- d. Surface and groundwater bodies, including improving bathing water quality, monitoring new bathing sites, and restoring rivers.**

By 2030, further renaturation efforts planned, see Figure 10.

Goal for 2050: All 70 km of Heilbronn's water bodies, including upper river reaches, achieve good ecological and chemical status.

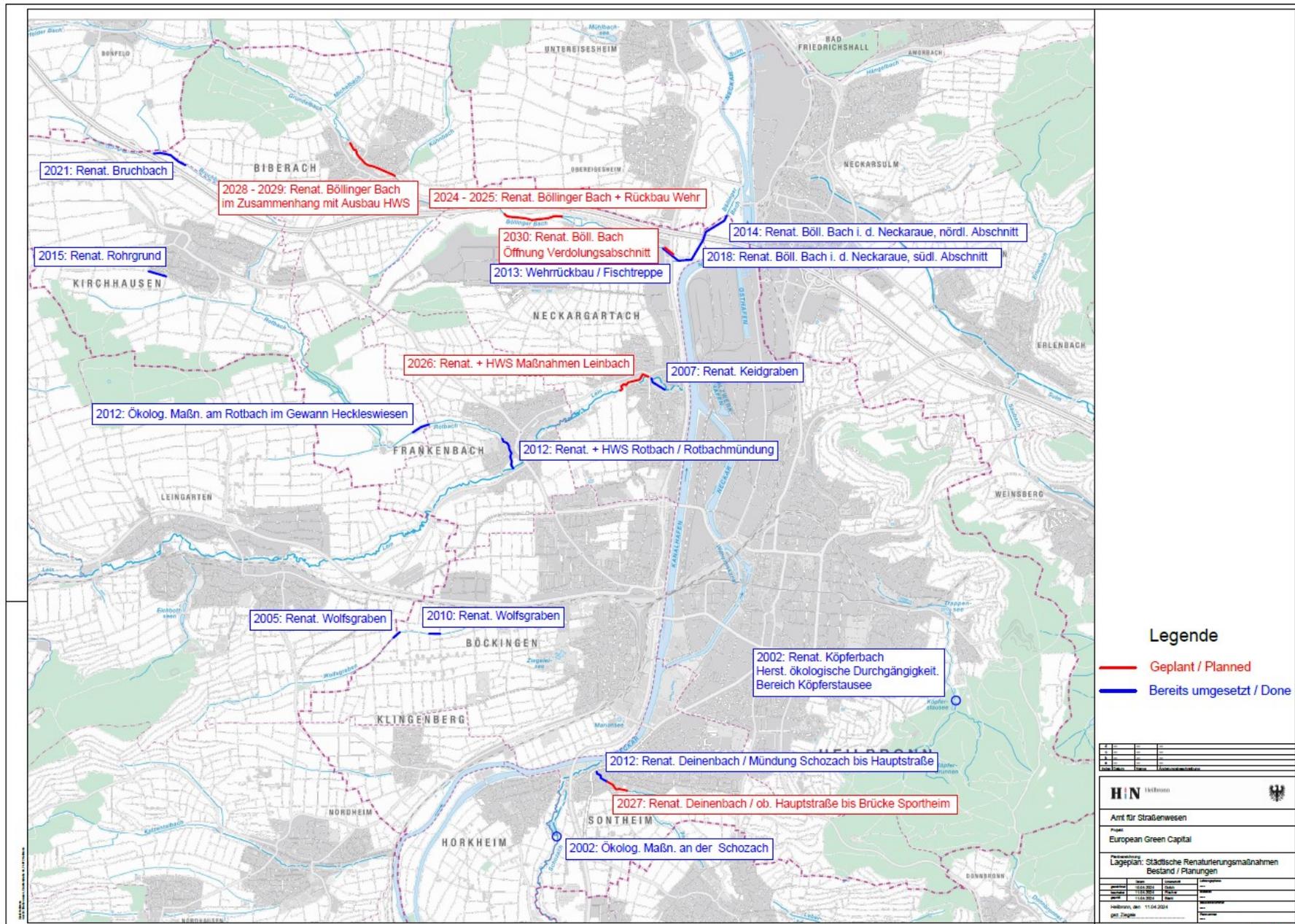


Figure 10. Already restored river and brook areas (blue) and upcoming restoring projects (blue). Source: Stadt Heilbronn.

- e. **Prioritisation of green and blue infrastructure for runoff reduction and runoff filtration (e.g., promoting green roof installation, filter swales, targets for impervious surface distribution).** The focus will remain on the ongoing implementation of green-blue infrastructure (see Indicator 3). The Spatial Structural Climate Adaptation Concept (2025) has defined areas for impervious surface distribution in the next years (see Indicator 7 and Figure 11).

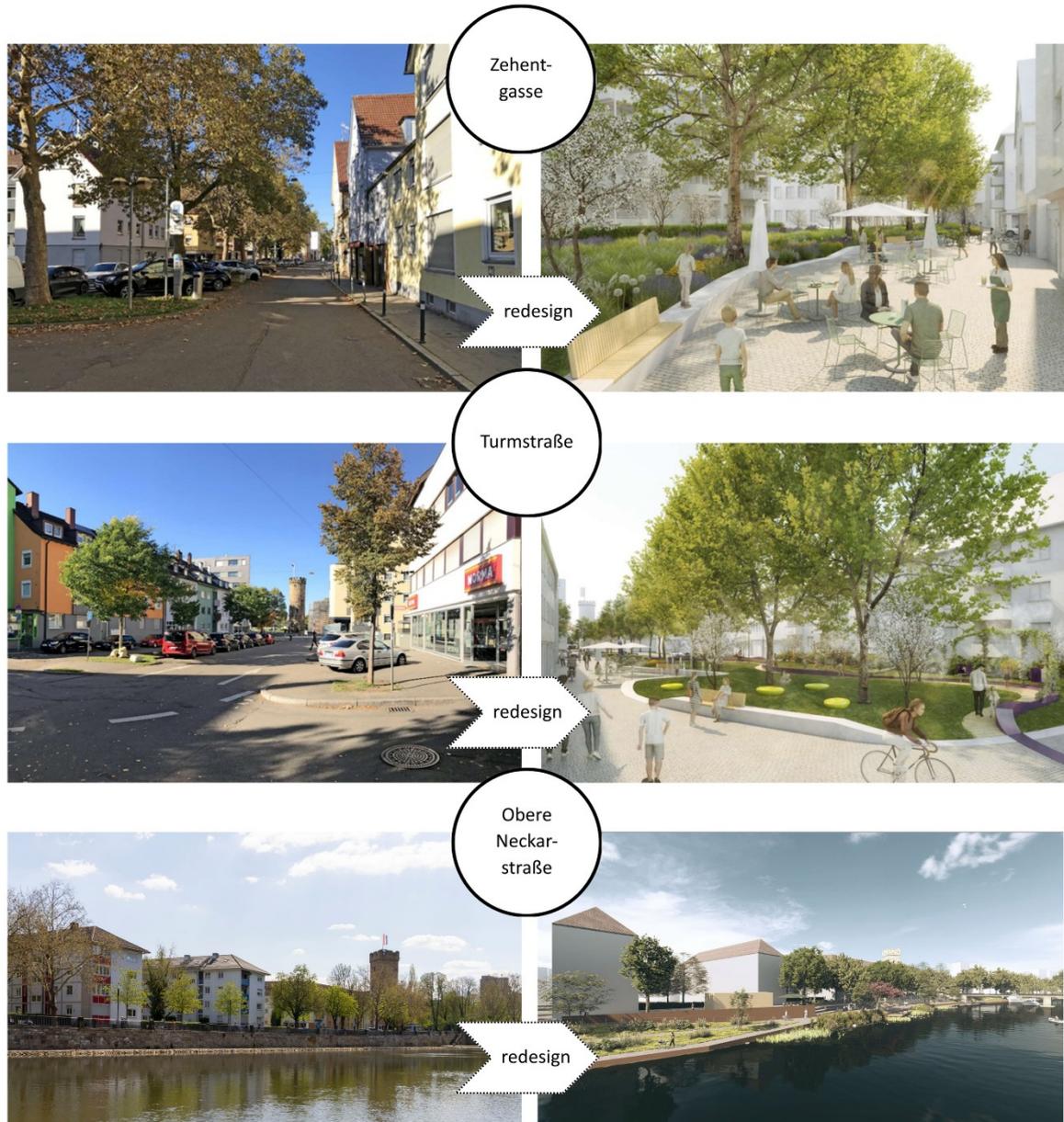


Figure 11. Forthcoming nature-based re-design of Zehentgasse (above) and Turmstraße (middle), as well as Obere Neckarstraße (below); Source: ARGE Hink Biegert, Raumlabor 3/Thorsten Kraemer, as well as ARGE BlauGrün.

2. Planned measures to achieve these objectives:

Outline the key planned measures, including participatory approaches, and provide information on budget allocations and implementation schedules to achieve the objectives in terms of:

a. Drinking water.

- Constructing South Waterworks at Böckinger Wiesen, with well and infrastructure upgrades, aiming for self-water extraction of 1.5 – 2.0 million m³/year. Project costs €22 million, set to finish by 2028
- Expanding reservoir capacity between Ochsenberg and Schweinsberg, a former US Army range. Planning starts in 2024, completion by 2030
- Downsizing water zones linked to meter digitization
- Smart Water Supply project see 2.3.1.a

b. Wastewater.

- Modernization of Heilbronn sewage treatment plant: €52 million, initial measures in progress
- Measuring devices for mixed-water-treatment-plant: €400,000 annually
- Funding for phosphorus recovery tender included in budget from 2024 onwards
- Water-sensitive urban development integrated into ongoing and new urban planning (see Indicator 3 and 7)

c. Surface and groundwater bodies.

Renaturation of sections of Böllinger Bach (2025: 2.53 Mio. €), Lein-, and Deinenbach, and uncovering culverted areas at Böckinger- and Pfühlbach (see Figure 10). Municipal cooperation across boundaries.

Groundwater: Implementation of Protected area and compensation ordinance (SchALVo) leads to further reduction of nitrate levels. Nitrate reduction trend visible in Böckinger Wiesen drinking water protection area as a result of decreased fertilizer use: Nitrate reduction approximately -1.5 mg/l/year.

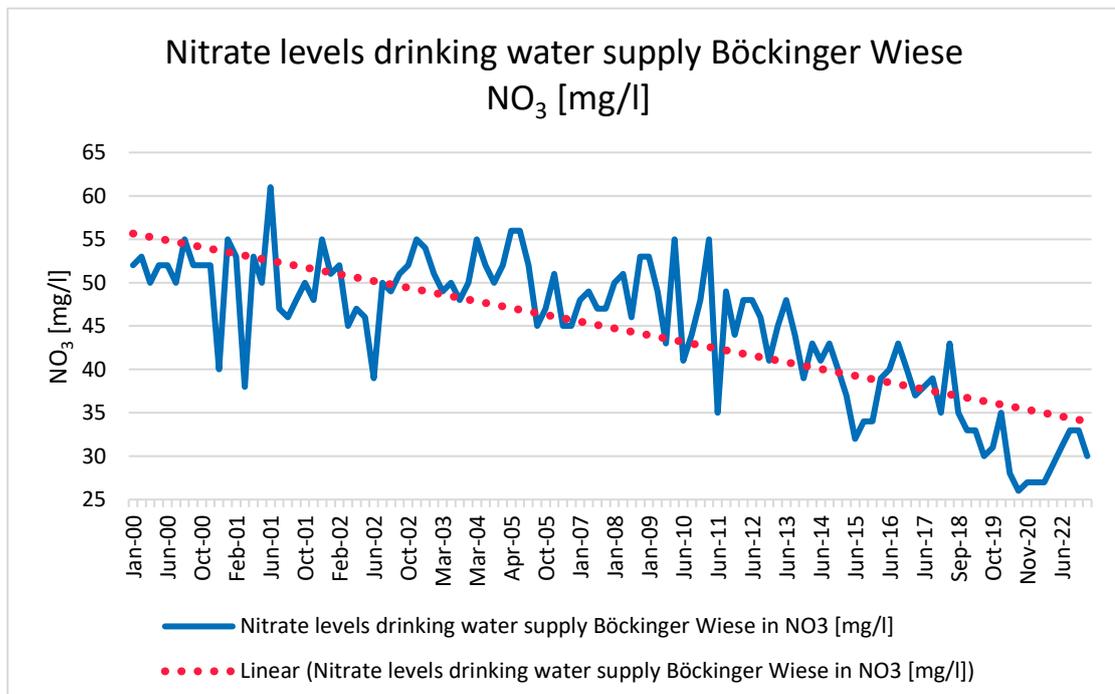


Figure 12. Nitrate levels drinking water supply Böckinger Wiese (drinking water protection area, trend in 10-year period). Source: Stadt Heilbronn.

3. Support ambitions:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

- Reduction of rainwater discharge and water body improvements: Heilbronn's "Climate Adaptation Sub-Concept" and "Climate Mitigation Concept"
- Drinking water initiatives: Baden-Wuerttemberg's Water Supply Master Plan
- Green City Accord signature 2024

b. Outline plans for monitoring the impacts of implemented measures.

Monitoring involves sewage treatment plant measurements for phosphorus, nitrogen, and oxygen, alongside tracking overflow events at mixed water treatment facilities. The Climate Mitigation Executive Office oversees climate-related plans. Quarterly nitrate assessments in drinking water protection areas inform regulatory actions under SchALVo.

(max. 600 words and five graphics, images, or tables)

2.4 References⁵

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **Waste water:**
 - Waste water <https://www.statistik-bw.de/Umwelt/Wasser/22025046.tab?R=KR121>
 - Waste water canals: <https://www.statistik-bw.de/Umwelt/Wasser/22025046.tab?R=KR121>
 - Waste water treatment in the Neckarbogen district: <https://www.heilbronn.de/umwelt-mobilitaet/abwasserbeseitigung/wassermanagement-neckarbogen.html>
 - Data for pollutant removal in the WWTP (2023): https://www.dwa-bw.de/files/_media/content/PDFs/LV_Baden-Wuerttemberg/Homepage/BW-Dokumente/Homepage%202013/Nachbarschaften/LN%202024_Bericht_Teil%201%20und%202024_FINAL_4.pdf

- **Drinking water:**
 - Drinking water from lake Constance: https://www.bodensee-wasserversorgung.de/fileadmin/user_upload/Imagebroschuere_fuer_Web.pdf
 - Smart water supply project with Steinbeis: https://ferdinand-steinbeis-institut.de/case_study/nutzenpotentiale-durch-digitalisierung-heilbronn_wasser/

- **Water protection**
 - Ecological status: <https://www.lubw.baden-wuerttemberg.de/wasser/oekologischer-zustand>
 - Water protection areas: <https://www.statistik-bw.de/BevoelkGebiet/GebietFlaeche/01513011.tab?R=KR121>

- **EU WFD:**
 - Accompanying documentation of the management plans for sub-basin 46 - Neckar downstream of Enz to upstream of Kocher: <https://rp.baden-wuerttemberg.de/themen/wasserboden/wrri/tbg46/seiten/begleitdokumentation/>
 - <https://rp.baden-wuerttemberg.de/themen/wasserboden/wrri/seiten/umsetzungsstand/>

- **Citizen and stakeholder engagement**
 - Action day “water”: <https://www.stimme.de/regional/region/region-heilbronn-aktionstag-wasser-fluesse-seen-tourismus-art-4908924>
 - Refill stations within the City of Heilbronn: <https://karten.heilbronn.de/heilbronn/index.php?service=kartefuerheissetage>

⁵ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- **Water and Climate Mitigation/Adaptation concepts of Heilbronn:**
 - Climate Adaptation Concept: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/klimaschutz/Klimaschutzteilkonzept_Anpassung_an_den_Klimawandel.pdf
 - Climate Mitigation Concept: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-masterplan.html>

(max. 400 words)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
2.1	998	1000
2.2	600	600
2.3	600	600

3 Biodiversity, Green Areas and Sustainable Land Use

3.1 Present Situation

Please complete the following tables:

Table 1: Benchmarking Data – Land use within the administrative boundary of the city.

Indicator	Overall city	Unit	Year of data
Land Use Data			
Public Green Area	19.71 ¹	% of total surface area	2025
Private Green Area	-	% of total surface area	-
(Urban) Agricultural Land	46.2	% of total surface area	2023
Water	2.2	% of total surface area	2023
Urban tree canopy cover data			
Urban tree canopy cover	20 ²	% of total surface area	2024
Population Data			
Population density in built-up areas (city area minus green and blue)	36.65	Inhabitants/ha	2024
Percentage of people living within 300 m of a public green urban area of >5,000 m ²	74.7	%	2025

Table 2: Benchmarking Data – Nature and Biodiversity within the administrative boundary of the city.

Indicator (for area within the administrative boundary of the city)	Number	Total area (ha)
Natura 2000 sites (partially or wholly within the administrative boundary of the city)	62	1,097
Designated sites of national biodiversity importance (habitat/species management areas)	5	89
Designated sites of local (city) biodiversity importance (habitat/species management areas)	478	284

This section is aimed at providing information on the current importance of green areas and biodiversity in your city.

1. Green urban areas:

Provide maps with the following information, and briefly comment on the provided data and maps:

- a. Land use, showing the municipality boundaries delineating the overall city area and the inner-city area.

¹ Heilbronn has a total area of 9988 ha, of which 1381 ha are forests, 433 ha parks and others, and 155 ha green small areas.

² The data is provided by HUGSI.

Land use in the inner and overall city

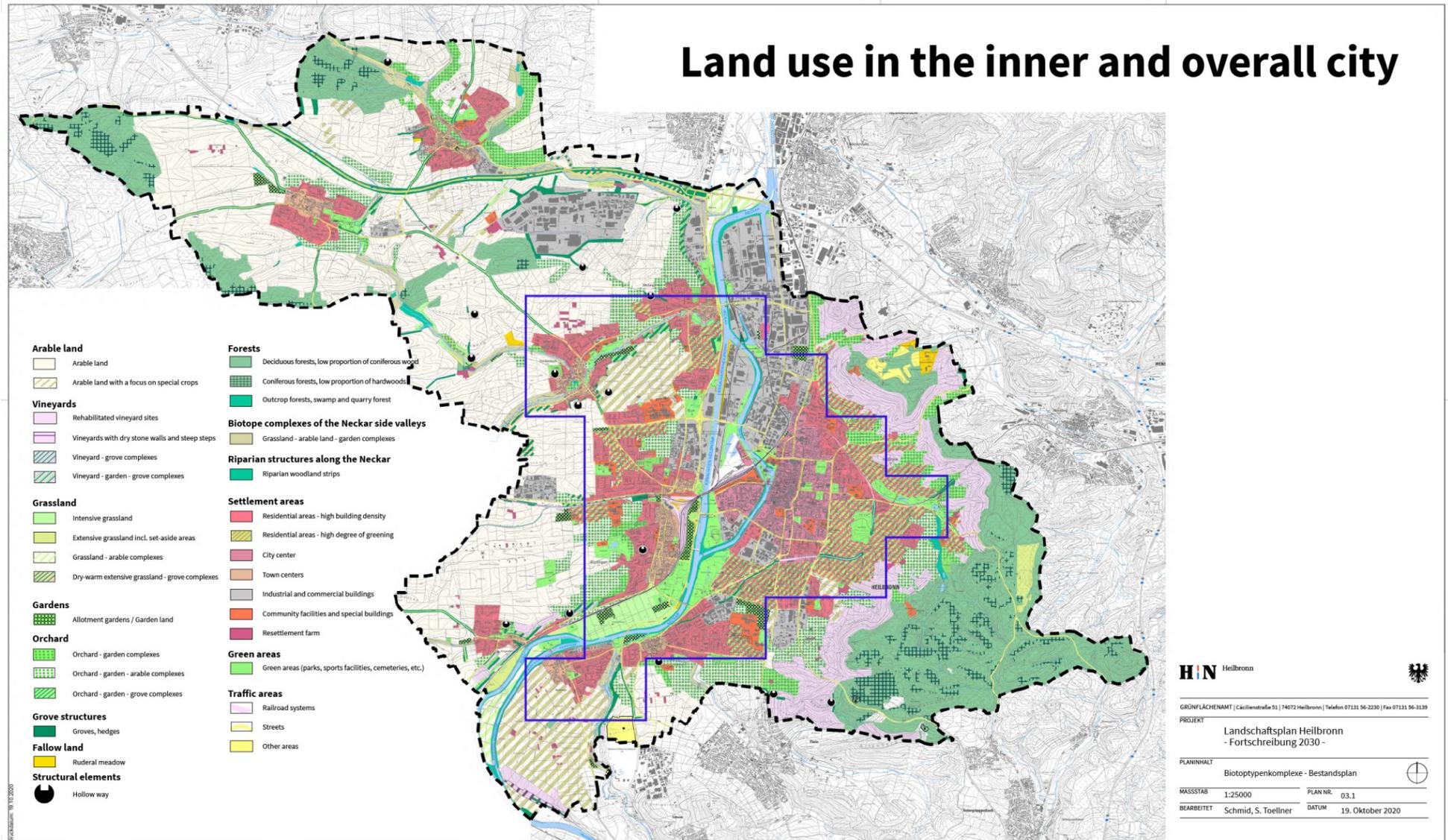


Figure 1. Inner city and overall city and its land use, incl. biotopes. Source: Stadt Heilbronn.

b. Green and blue (water) areas in the city, and their connectivity and coherence.

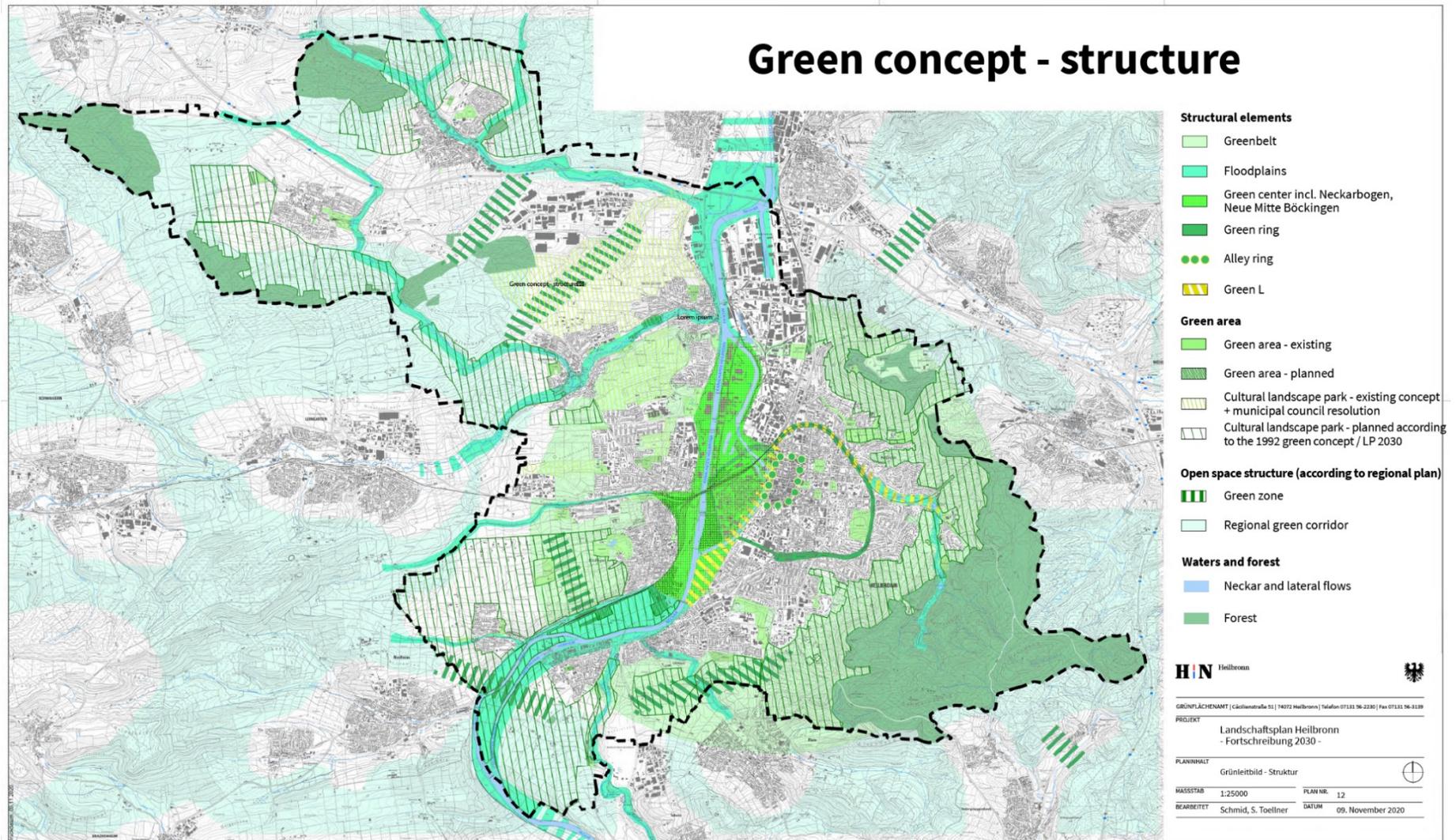


Figure 2. Green structure plan. Source: Stadt Heilbronn.

Heilbronn is a **green city, largely due to the 48,000 city trees** lining streets, parks, and public areas. These trees offer shade and a lush green cover in summer, change colors in autumn, and sprout fresh greenery in spring. Heilbronn's green concept, first developed in 1992 and expanded upon in the 2004 BUGA feasibility study, has shaped its urban development trajectory, notably through the Landscape Plan 2030. This framework prioritizes green linkages, open space integration, river habitat preservation, and biotope connectivity. The accompanying map (Figure 2) illustrates the integration of green spaces, facilitating animal movement. Heilbronn's urban layout features green and blue zones, with the Neckar River increasingly developed for recreation. Efforts to enhance its waterfront make it both an ecological corridor and a leisure destination.

c. Describe how green areas are integrated into the city's spatial planning and how this relates to both the more and less densely populated areas of the city

Heilbronn's municipal planning is legally anchored in EU law like Flora-Fauna and species protection and Baden-Württemberg's law for regional planning.

Heilbronn promotes biodiversity through the **preservation of protected natural habitats**, like nature reserves (German law: § 23 BNatSchG), flora-fauna habitats (92/43/EEC), landscape protection areas (§ 26 Abs. 1 BNatSchG), natural landmarks (§ 28 BNatSchG), and protected biotopes (§ 30 BNatSchG).

Additionally, with the completion of the Landscape Plan 2030 in 2021, a comprehensive framework for green and open space development was established. This integrative paradigm outlines a developmental scenario for the municipality over the next decade, categorizing protected areas, exclusion zones, and biotope network corridors that are considered in spatial planning.

A key tenet of the Landscape Plan 2030 is the incorporation of **nature into urban infrastructure and design**. This entails establishing green infrastructure elements throughout the densely populated inner-city such as parks, gardens, traffic-free zones. Nature-based design features like green roofs, green facades, living walls, rain gardens, etc. are integral to the planning of new, densely populated areas within "Wissensstadt", including Bildungscampus West and IPAI (see Flagship project). Within the less populated agricultural area around the city, small green areas³, and agro-strips (green strips a few meters wide along fields, sown as grass-land or planted with shrubs and trees), boost biodiversity.

2. Biodiversity:

- a. Provide maps indicating protected areas, Natura 2000 sites, and sites protected under national legislation, habitats, habitats of species, and species protected under the Habitats and Birds Directives or national legislation. Briefly comment on the provided data and maps and the specific measures planned and implemented for their management, including protection and restoration measures.**
- b. Outline the species and habitat monitoring programmes your city has in place and how they relate to the EU legislation on nature and biodiversity and the EU Biodiversity Strategy.**

³ "Green small areas" are city-owned areas in midst of agricultural areas, where habitats are created with e.g. deadwood and traditional orchards

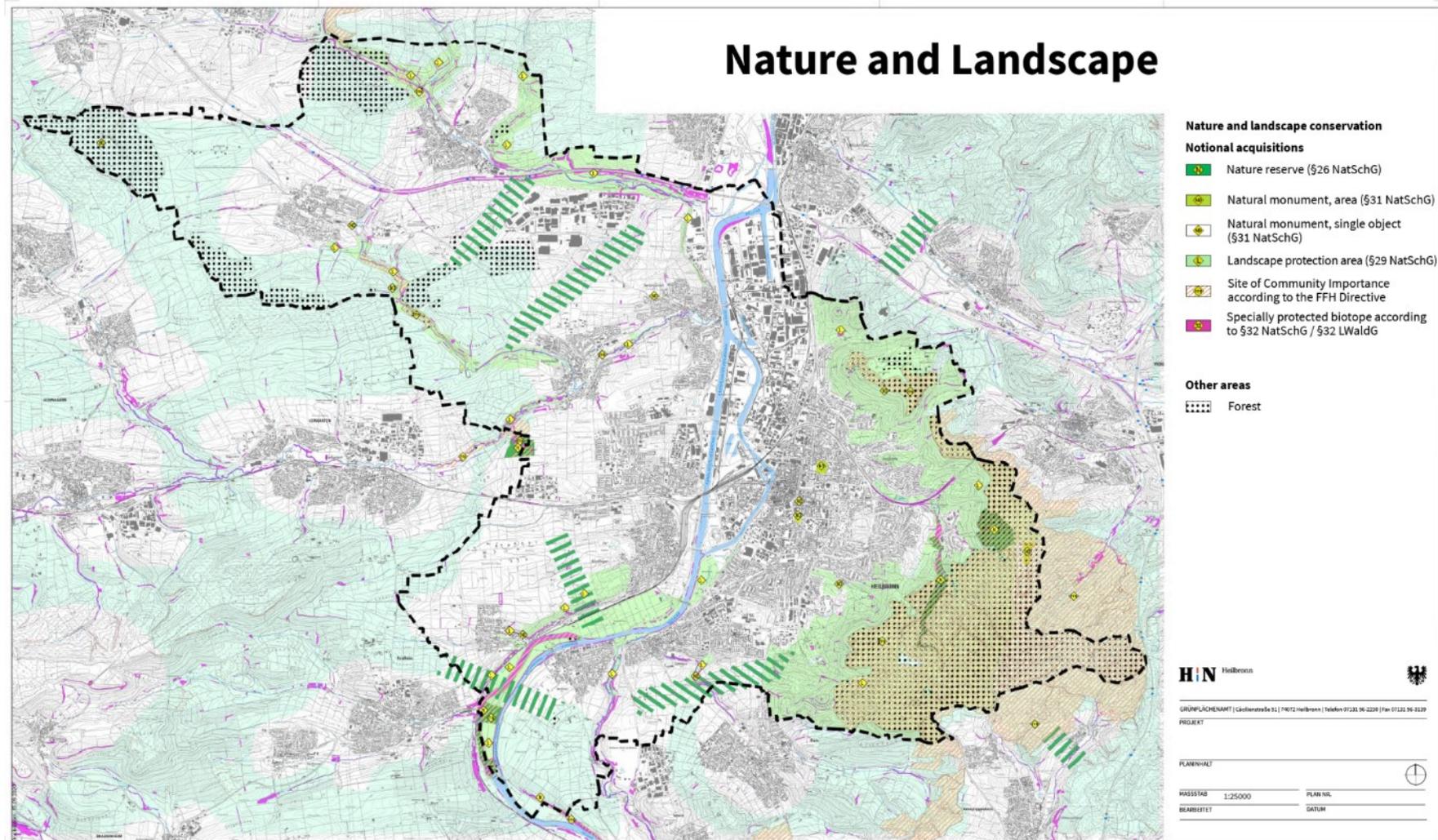


Figure 3. Landscape and nature protection areas. Source: Stadt Heilbronn.

In the overall city, Heilbronn has 5 nature reserves covering a total area of 89 hectares, 15 landscape protection areas covering an area of 2.227 hectares, 3 flora-fauna-habitat (FFH) areas covering an area of 1.097 hectares (including 59 FFH meadow grasslands covering an area of 37.34 ha), and 478 protected biotopes covering an area of 284 hectares. Additionally, there are 12 natural landmarks covering a total area of 10.5 hectares.

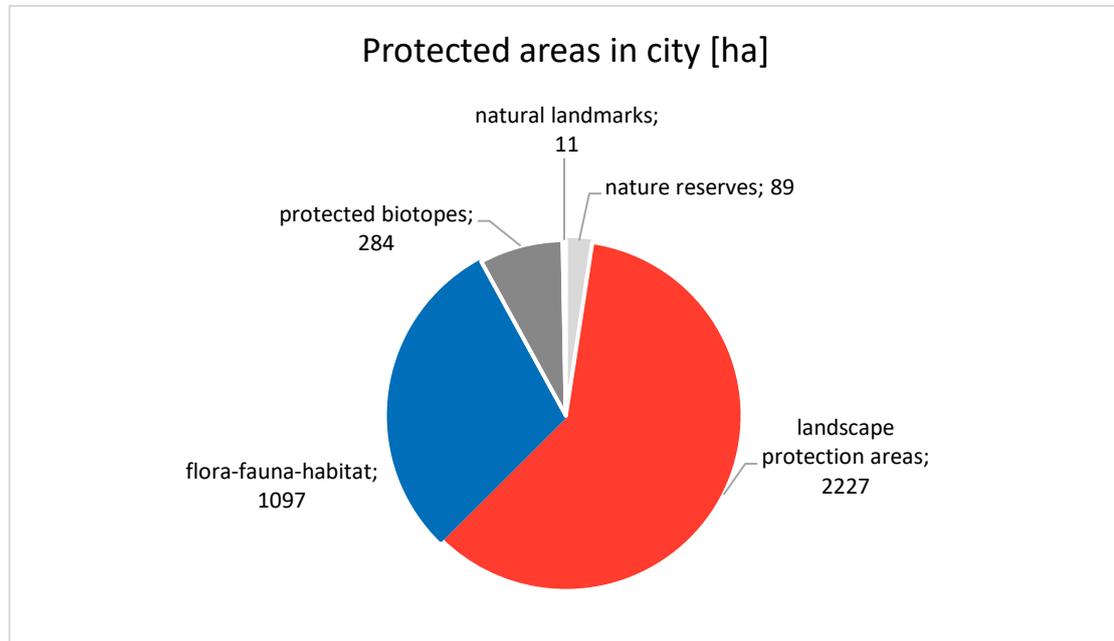


Figure 4. Protected areas in Heilbronn. Source: LUBW data portal.

Heilbronn’s management of protected areas as well as species and habitat monitoring is embedded in a multi-level administrative framework aligned with EU legislation on nature and biodiversity, particularly the **EU Biodiversity Strategy** and directives such as the **Habitats and Birds Directives**.

At the **federal** level, the Ministry for the Environment oversees nature conservation policy, including funding, contract-based nature conservation, and the implementation of the NATURA 2000 network.

At the **state** level, the State Institute for Environment (LUBW) supports the ministry with technical expertise, develops action plans, and coordinates the implementation of relevant EU directives.

Regional councils—including Stuttgart, Karlsruhe, Freiburg, and Tübingen—act as higher nature conservation authorities. They **manage nature reserves**, integrate biodiversity considerations into regional planning, and supervise large-scale projects.

At the **local** level, the City of Heilbronn works within this framework to **implement, monitor, and enforce** EU biodiversity legislation. Local councils (lower nature conservation authority) are responsible for designating protected areas, issuing environmental permits, and assessing the environmental impact of development projects.

In practice, Heilbronn conducts regular **species monitoring**, particularly for birds, amphibians, and insects through regular commissioned expert reports. Additionally, the city collaborates with local NGOs such as NABU and Friends of the Earth for observation and data collection. Before any construction project, habitat mapping is carried out to evaluate ecological value.

These findings guide building decisions and inform the development of compensatory measures when necessary, ensuring compliance with **EU nature conservation goals** and contributing to the **EU Biodiversity Strategy's** targets.

3. Engagement:

- a. Describe your city's approach to involving and engaging residents, visitors, businesses, and institutions in planning and action for (continued) protection and restoration of nature and implementing specific actions for protected areas and/or species protection.
- b. Describe your city's approach to communicating the importance of protecting and restoring nature and the ecosystem services provided by nature's features to residents, visitors, and businesses.

In all activities of the City Administration, citizens are comprehensively engaged through a citizen participation portal wirsind.heilbronn.de. Citizen participation in the public planning process has been ongoing since 2013, marked by the collaborative development of **guidelines for citizen participation**. The participation process includes stages of informing residents, allowing them to express opinions, and engaging in collaborative decision-making. Examples of participatory initiatives include the Landscape Plan 2030, surveys for green space redesign, discussions on cycle expressway routes, neighborhood redesign and revitalization projects.

The city aims to raise awareness and engage residents by giving opportunity to **enjoy, take action for, and learn** about nature and biodiversity (Figure 5).

1 ENJOYING /



Botanical orchard

Many locations designed to be insect-friendly (roundabouts, roadside islands, etc.)

12 parks

3 Climate groves in the inner city (B)

Trails

- 1 forest adventure trail
- 2 fitness trails
- 2 forest playgrounds
- 10 barbecue sites in the city forest
- 43 km of marked hiking trails
- 1 mountain bike single trail and
- 1 MTB downhill track

Geological nature trail in the East City Forest



2 DOING /



Urban Greening Program (House border strip program)

Seed packages

Urban gardening Südbahnhof (D)

Farmers' Association holds information events

Tree sponsorships

Flower bed sponsorships

Urban gardening „Garden eden“

Raised beds in kindergartens

Elementa project in the botanical orchard

Agrostrips program

Sheep farmer grazes nature conservation areas

Butterfly breeding

AHA Apple Juice school and kindergarten project

(Future:)

- Dry stone wall / species conservation project Biberach
- Mauersegler
- Vinyards subsidy program

3 LEARNING /



Botanical orchard

Biodiversity trails

- Frankenbach and Neckgartach
- Mostbirnenweg in Böckingen

Forest education, school-forest projects: approx. 50-80 events per year

Lectures and excursions to protected areas (Lower Nature Conservation Authority)

Summerzone with information about facade greening (E)

Information board about nature-friendly, insect-friendly gardens

Information boards about biodiversity distributed throughout the city (A)

4 COLLABORATING /



Citizen engagement (C)

Close collaboration with

- BUND
- NABU
- Ornothologische Arbeitsgemeinschaft

NGOs

- „Wir für Heilbronn e.V. and
- „Freunde des Waldes“ taking care of forests and gardens in close collaboration with the municipality

Figure 5. Sensitizing and engaging residents on nature and biodiversity. Source: Stadt Heilbronn.

Two highlights are:

- The **Botanical Orchard**, with its collection of 14 historic garden houses, perennial plantings, show gardens, and a fruit plantation featuring over 100 different fruit varieties, offers a unique combination of horticultural culture rarely found in the wider region. With the Elementa project (see Good Practice 1), the culture programme and two major markets, the Botanical Orchard serves as a vibrant destination for all generations.
- Offering a **subsidy program** for peri-urban farmers for the establishment of agro-strips on farmland since 1993. These **agro-strips** are sown with a specially developed local seed mixture to increase flowering plants with the aim of increasing living space and enhance both flora (weeds) and fauna (insects, birds) biodiversity within the agriculture area and with the aim of controlling soil erosion.

4. EU Missions:

Describe if or how your city is involved in the EU Mission on Soil, and/or the EU Mission Restore our Ocean and Waters

To prevent erosion, the City of Heilbronn has been implementing the above-mentioned agro-strips program for over two decades aimed at protecting valuable but highly erosion-prone loess loam soils to prevent soil erosion. This includes a subsidy program for erosion control strips for land users, as well as information on soil conservation. The area of agro-strips has been growing from 66 ha to 73 ha in the last ten years, 80 farmers already joined.

5. Infringement:

If the city is currently undergoing an infringement procedure related to the EU Birds and Habitat Directive, please explain the reasons for the procedure and outline the measures the city is taking to ensure compliance.

No legal infringements.

(max. 1000 words and five graphics, images or tables)

3.2 Past Performance

The aim of this section is to make clear how the situation described in the previous section has been achieved. Where available, quantitative information and data should be provided for the previous ten years in order to show recent trends.

1. Green urban areas:

Provide trends on total green area within the administrative boundary of the city over the last ten years and detail the most significant measures that affected these changes.

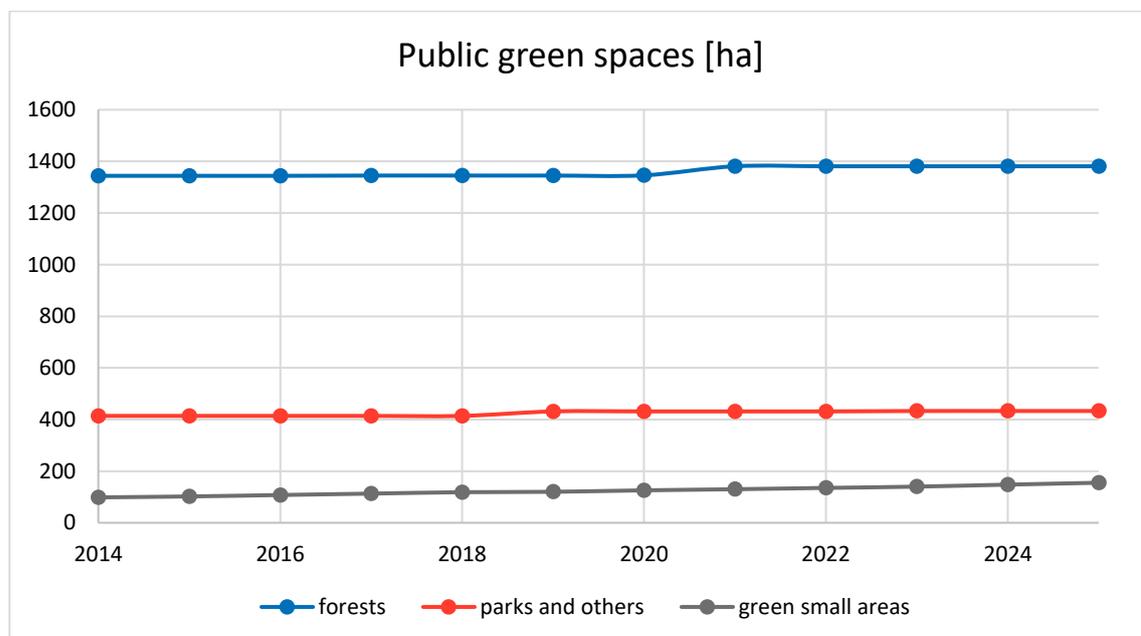


Figure 6. Public green spaces.⁴ Source: Stadt Heilbronn and statistik-bw.

The forest area slightly increased. The development of **parks and green spaces** (433 ha) across the city has been notably enriched by the addition of 17.4 hectares of parkland in the new Neckarbogen district, created as part of the 2019 National Garden Show (BUGA). This transformation turned more than 40 hectares of former railway and industrial wasteland into a vibrant urban district aligning with the concept of a sponge city.

Additionally, the intersection at Wollhaus, the Theresienwiese festival grounds, and the experimenta place have been enhanced with climate groves.

⁴ "Parks and others" (433 ha) equals: Green and park areas, cemeteries, playgrounds and sports fields, skate parks, and outdoor pools, roadside greenery and traffic islands, outdoor areas at schools and kindergartens, sports facilities. "Green small areas" (155 ha): Small areas in midst of agricultural areas that the city owns, where it creates habitats with e.g. deadwood and traditional orchards.



Figure 7. Public green spaces: Parks, roadside greeneries, and climate groves. Source: Stadt Heilbronn.

2. Biodiversity:

- a. Provide figures on the trends on the protected areas for nature and biodiversity features over the last ten years and detail the most significant measures that affected these changes.

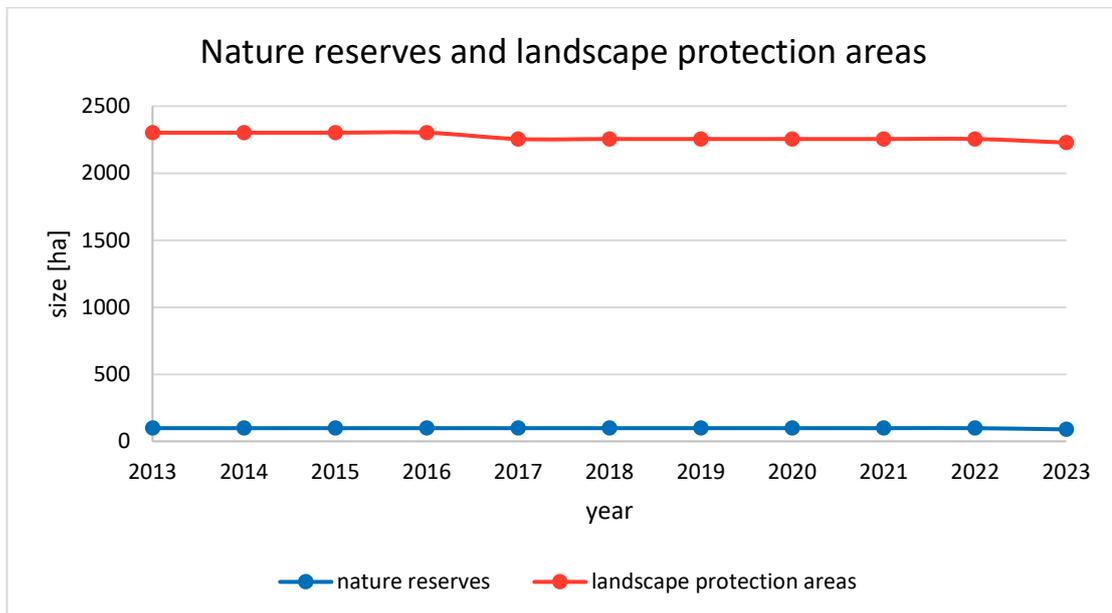


Figure 8. Protection areas (trend). Source. Stadt Heilbronn.

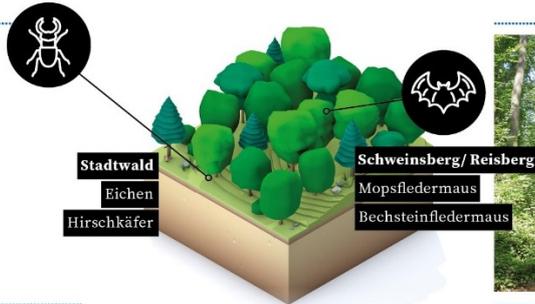
Nature reserves and landscape protection areas stayed stable in the last 10 years, even though the city was growing. The quality of the areas improved through constant maintenance, and professional care and development of the vegetation into climate-resistant stands.

- b. Provide trends on the presence and conservation status of protected of habitats and species over the last ten years and detail the most significant measures that affected these changes.

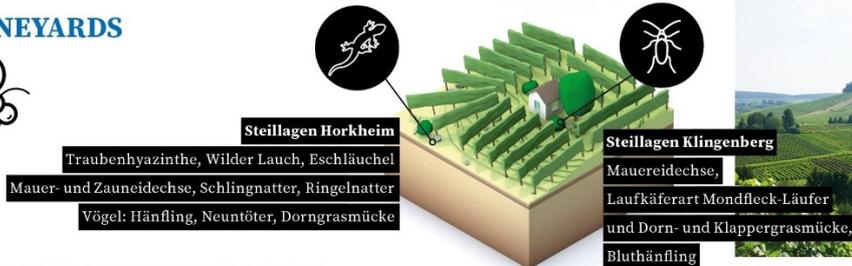
Heilbronn is surrounded by **three FFH areas**, forming a belt around the city. The data on habitat and species is available as standard data forms (for different years) on the European platform for Natura 2000. In the Löwensteiner and Heilbronn Mountains area, new habitat types have been designated in the past ten years. New species have been listed, but a partial significant decline in previously listed species has also been observed. The populations of the yellow-bellied toad and the greater mouse-eared bat have declined significantly. At the same time, new populations of the bullhead, stone crayfish, stag beetle, and dark green fritillary butterfly have emerged.

In the inner city, Heilbronn has witnessed a concerning decline in biodiversity, with habitats and species declining, while alien species are increasing. Species listed on the IUCN Red List are subject to special monitoring and are a central focus in the cities management of habitats such as green spaces, heath vegetations, agro-strips, amphibian biotopes, lizard compensation areas, traditional orchards, and disused railway. **For the monitoring, the city is collaborating** with commissioned experts, as well as local NGOs such as NABU, and Friends of the Earth as well as the ornithological working group. Figure 9 shows Heilbronn's habitats and the predominant species there.

FORESTS



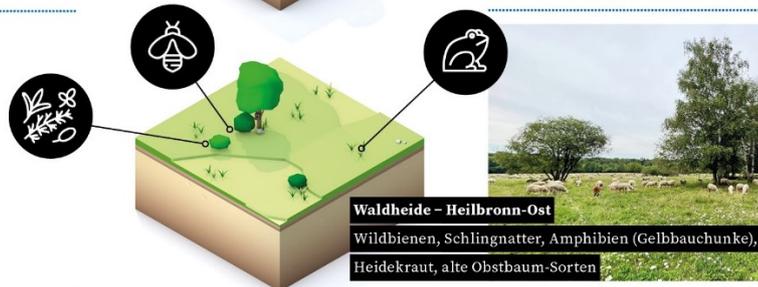
VINEYARDS



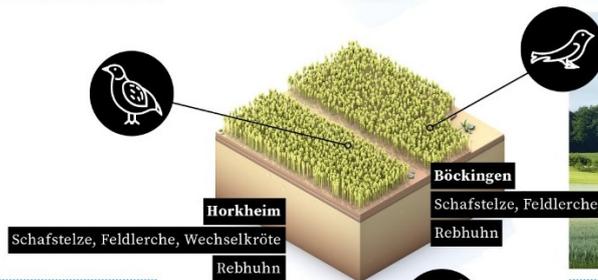
TRADITIONAL ORCHARDS



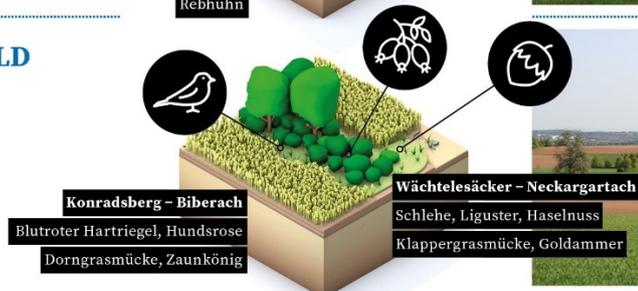
MEADOWS



FARMLAND



HEDGES AND FIELD WOODLOTS



SUNKEN LANES



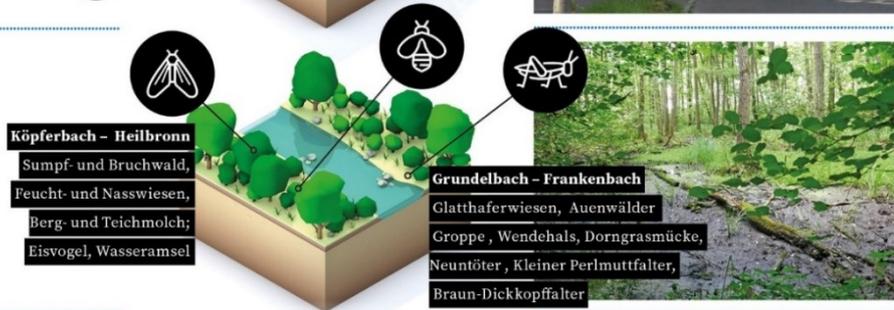
WASTELAND



RESIDENTIAL AREAS



SIDE VALLEYS



GREEN SPACES



HEDGES AND FIELD WOODLOTS

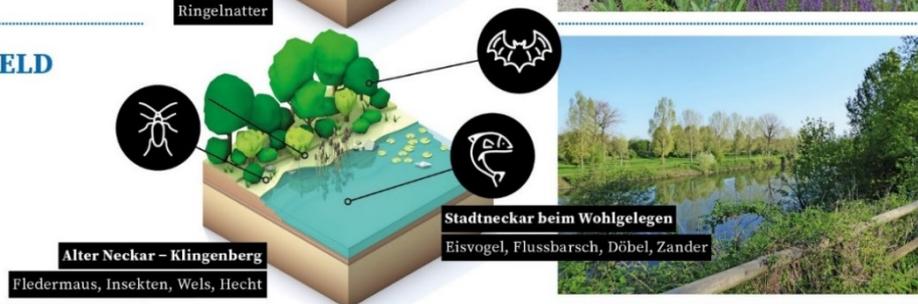


Figure 9. Heilbronn's habitats and species. Source: Landscape Plan 2030, Stadt Heilbronn.

c. **Provide figures on the presence and trends of invasive alien species and the most significant measures taken that affected these changes.**

Invasive species benefit from milder winters and a warmer climate. In the recent years, the municipality is handling thoroughly several alien animals, such as the Nosferatu spider, non-native cockroach species, raccoons, nutria, Egyptian geese, and the American calico crayfish; but also alien plants: Japanese knotweed, Himalayan balsam, giant hogweed, and non-native species of goldenrod.

d. **When applicable, explain the city specific or region-specific drivers of biodiversity loss and connect them with the trends elaborated, including the measures taken to prevent and reverse it.**

Several factors contribute to the decline of biodiversity in Heilbronn. Firstly, the intensive agricultural practices, facilitated by its rich loess clay soils. Furthermore, rapid urbanization and industrial development have also encroached upon natural habitats, and led to biodiversity loss.

For measures taken to prevent and reserve it, see Figure 5.

Two highlights are:

- For several years now, large areas of municipally maintained green spaces, roundabouts, and roadside islands have not been mowed, and **flower-rich meadows** have been cultivated. Signages have been built throughout the city to encourage pollinator-friendly gardens
- Citizens have the opportunity to learn about biodiversity on the **Biodiversity Trail** in Heilbronn, specifically in Frankenbach and Neckargartach, as well as in the Mostbirnenweg in Böckingen, where the characteristics of the occurring flora and fauna species as well as the uniqueness of the cultural landscape are described on signages along the trail.

3. Brownfield sites (derelict zones):

Provide map(s) of the location of brownfield sites (derelict zones) that have been regenerated in the past ten years.

2 brownfield sites have been regenerated in the past ten years:

- The Neckarbogen district that turned 40 ha of unused and contaminated land into an urban district with 17.4 ha green and blue spaces (see Good Practice 3)
- The South Station area, where 6 ha of a derelict zone were transformed into an almost car-free district with 300 flats



Figure 10. Brownfield sites that have been regenerated during the last 10 years. Source: Stadt Heilbronn.

(max. 600 words and five graphics, images or tables)

3.3 Future Plans

1. Objectives:

Specify the objectives for 2030 and 2050 in terms of:

- a. Improvement, extension and maintenance of green urban areas, including tree canopy cover (publicly and privately owned) and the goal to reduce net land take (EU Soil Strategy).
- b. Biodiversity, if possible, in reference to EU Biodiversity Strategy and the proposal of EU nature and biodiversity legislation (Habitats and Birds directives, Nature Restoration, and Invasive alien species regulations).

Table 1. Green urban areas and biodiversity objectives for 2030 and 2050.

		Today	2030	2050	EU legislation
Green urban areas	Public green area	20%	22%	25%	EU Biodiversity Strategy 2030 (Urban Greening Plan), Green Infrastructure Strategy
	Ensure equal access to green areas	75%	78%	80%	EU Biodiversity Strategy 2030 (target: universal access to green spaces)
	Tree canopy cover	20%	25,000 trees planted	50,000 trees planted	EU Biodiversity Strategy 2030, Urban Greening Plan; Increasing tree cover under the EU-3BillionTrees planting goals
	Municipal green roofs	22	30	50	EU Green Infrastructure Strategy, Urban Greening Plan, EU Climate Adaptation Strategy
	Forest	1381 ha			EU Forest Strategy for 2030, EU Biodiversity Strategy 2030
Biodiversity	Conservation and restoration of near-natural habitats: Increase the area of vineyard biodiversity areas	0 ha	10 ha	20 ha	EU Nature Restoration Law (proposal), Habitats Directive (92/43/EEC), EU Biodiversity Strategy 2030
	Conservation and restoration of near-natural habitats: Increase the area of agro-strips (agricultural biodiversity areas)	73 ha	80 ha	100 ha	EU Nature Restoration Law (proposal), Habitats Directive (92/43/EEC), EU Biodiversity Strategy 2030
	Promotion of native species by avoiding invasive alien species and prioritizing native plants in urban landscaping				Regulation (EU) No 1143/2014 on Invasive Alien Species, EU Biodiversity Strategy 2030
	Natura 2000 sites (partially or wholly within the administrative boundary of the city)	1,097 ha			Habitats Directive (92/43/EEC), Birds Directive (2009/147/EC), Natura 2000 Framework
	Designated sites of national biodiversity importance (habitat/species management areas)	89 ha			National implementation of Habitats & Birds Directives
	Designated sites of local (city) biodiversity importance (habitat/species management areas)	284 ha	300 ha	320 ha	EU Green Infrastructure Strategy, Local-level implementation of the EU Biodiversity Strategy
	Rehabilitation of rivers and brooks	3,500 m in the last 20 years	6,320 m	Not specified yet	EU Water Framework Directive (2000/60/EC), EU Nature Restoration Law (proposal), EU Biodiversity Strategy 2030

c. **Rehabilitation of brownfield sites (derelict and/or contaminated land).**

In the district Böckingen, the brownfield areas along the marshalling yard are being developed into high-quality open spaces as part of the "Adaptation of Urban Areas to Climate Change" program (see Indicator 7 "Böckingen Bahnbogen Süd").

Bahnbogen Böckingen:

What: largest forthcoming desurfacing and revitalization project of a brownfield site
Funding: 85% of the federal funding program "Adaptation of Urban Areas to Climate Change" totaling up to 4.8 Mio. EUR, 15% of the municipality herself
Start: 2025

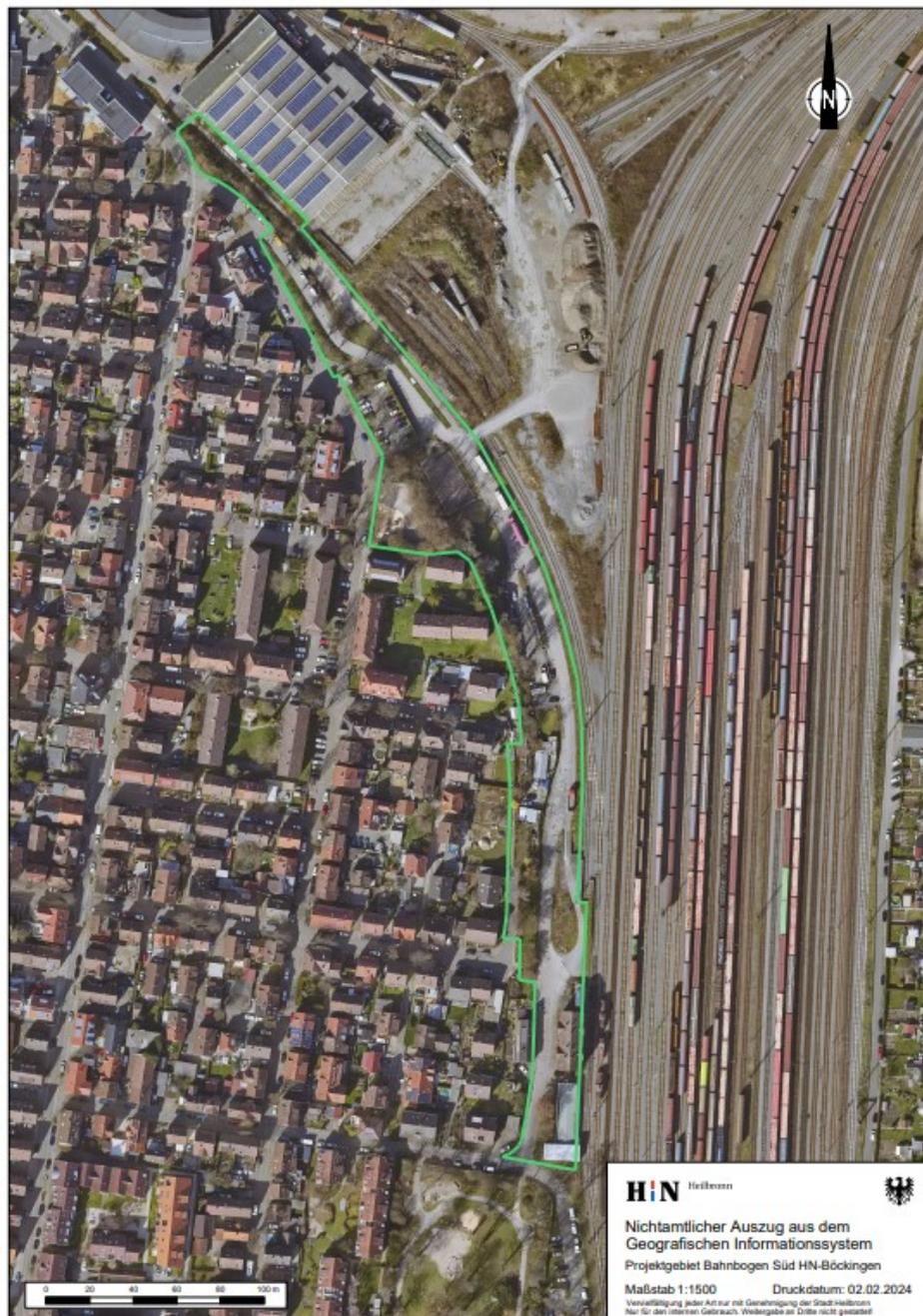


Figure 11. Böckingen Bahnbogen Süd: forthcoming recreated area with green spaces, sustainable water management, pedestrian and cycling routes. Source: Stadt Heilbronn.

2. Planned measure to achieve these objectives:

- a. Outline the key planned measures, including participatory approaches, and provide information on budget allocations and implementation schedules to achieve these objectives.

2025-2028: Urban Green Infrastructure Projects

- Nature-based redesign of Turmstraße: 2 Mio. €
- Nature-based redesign of Zehentgasse: 2 Mio. €
- Nature-based redesign of Eichgasse: 1 Mio. €
- Nature based redesign of Neckar riverbanks: 5 Mio. €
- Green belt "Bernhäusle": 600,000 €
- Municipal (allotment) gardens: 500,000 €

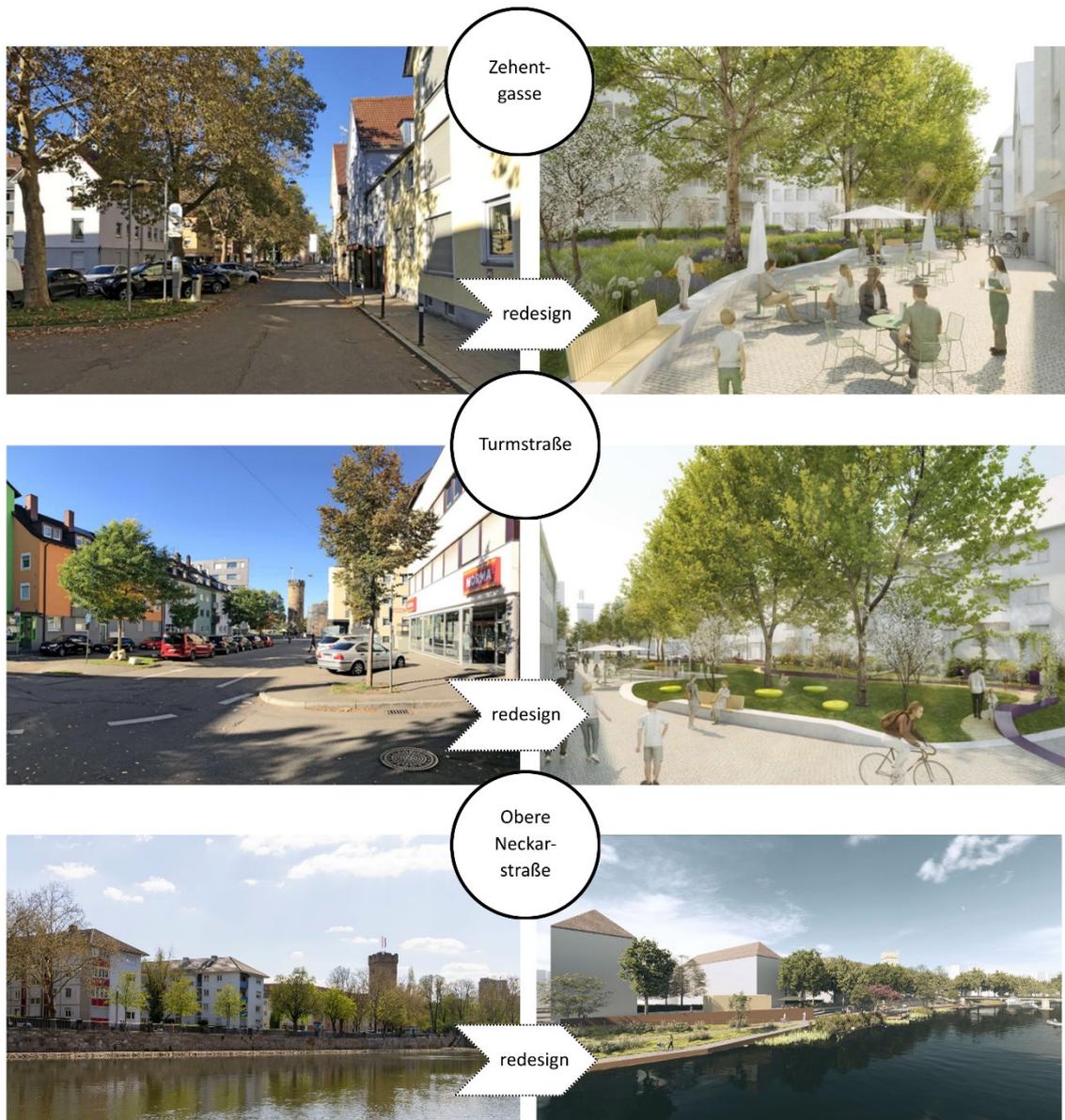


Figure 12. Forthcoming nature-based re-design of Zehentgasse (above) and Turmstraße (middle), as well as Obere Neckarstraße (below). Source: ARGE Hink Biegert, Raumlabor 3/Thorsten Kraemer, as well as ARGE BlauGrün.

2025-2035: Greening and Biodiversity Initiatives

- Playgrounds: 6 Mio. €
- Kindergarten and schools: 10 Mio. €
- Fassade greening, shade, fountains (see Indicator 7)

2025-2035:

- Implementation of the **Statewide Biotopes Network Measures in the Heilbronn Urban District** based on the existing Biotopes Network Plan of Landscape Plan 2030 including detailed action descriptions
Biotopes Network Ambassador (full-time position funded by the state of Baden-Württemberg for 2025-2030)
 - Preservation and further development of the agro-strips subsidy program (already existing since 1993): EUR 1,200,000
 - Implementation of the agro-strips subsidy program in vineyards (planned for 2025): Application for funding programs - EUR 600,000 each year
- Development of **Cultural Landscape Parks** (LP 2030) with biodiversity-promoting measures as important elements for public recreational areas in the countryside. Measures for the Neckargartach/Frankenbach landscape park (IPAI involvement)
 - Funding: EUR 1,000,000/year
- Implementation of **landscape protection measures** from the LP 2030: 8.5 Mio. €
- **Forest**: 10 Mio. €

b. Please also indicate if your city has developed an Urban Greening Plan (Urban Nature Plan) as per guidance available at European level⁵.

With the Landscape Plan 2030, the City of Heilbronn has developed a planning instrument that has completed all steps up to (6) and has largely formulated priorities according to (7) as a bundle of measures for individual landscape areas. Communication within the city community, including with political bodies, is done continuously. Additionally, the Landscape Plan 2030 is used as a tool for environmental education in schools and other educational institutions.

3. Support ambitions:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

- Landscape Plan 2030
- Climate Adaptation Concept
- Biotope Network Baden-Württemberg (§20 BNatSchG)
- EU Green City Accord

b. Outline plans for monitoring the impacts of implemented measures.

- Monitoring of species conservation areas within the scope of urban land use planning: ongoing
- Monitoring Landscape Plan 2030: planned
- Monitoring measures for biotopes connectivity: starting in 2025

(max. 600 words and five graphics, images or tables)

⁵ https://environment.ec.europa.eu/topics/urban-environment/urban-greening-platform_en

3.4 References⁶

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **Landscape Plan 2030:**
 - Generally: <https://www.heilbronn.de/umwelt-mobilitaet/landschaftsplan.html>
 - Short version: <https://www.heilbronn.de/rathaus/aktuelles/details/artikel/kurzfassung-des-landschaftsplan-heilbronn-2030-jetzt-erhaeltlich.html>

- **Nature and landscape protection:**
 - Definition of Landscape protection area: <https://www.bfn.de/landschaftsschutzgebiete>
 - Definition of Nature reserves: <https://www.bfn.de/naturschutzgebiete#:~:text=Naturschutzgebiete%20sind%20nach%20%C2%A7%2023,streng%20gesch%C3%BCtzen%20Fl%C3%A4chen%20in%20Deutschland.>
 - LUBW data portal that shows all protected habitats/species: <https://udo.lubw.baden-wuerttemberg.de/public/>
 - Natura 2000/FFH areas EU portal for habitats and species: <https://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=DE7021341&release>
 - Spawning sites in Heilbronn: <https://www.heilbronn.de/rathaus/aktuelles/details/artikel/neue-laichgewaesser-fuer-wechselkroeten.html>
 - Biotopes network Baden-Württemberg: <https://um.baden-wuerttemberg.de/de/umwelt-natur/biologische-vielfalt-und-mensch/biotopverbund>

- **Renaturation of Brownfield sites:**
 - “Waldheide” (Forest heathland): <https://www.heilbronn.de/umwelt-mobilitaet/naturschutz-artenschutz/naturdenkmale/naturdenkmal-waldheide.html>
 - Neckarbogen: <https://www.heilbronn.de/bauen-wohnen/stadtquartier-neckarbogen.html>
 - District south station: <https://www.berndalbers.com/quartier-suedbahnhof-heilbronn>

- **Monitoring of habitats and species:**
 - Monitoring by the ornithological working group: <https://www.ogbw.de/regionale-ags/oag-heilbronn/oag-heilbronn-downloads>
 - Monitoring by the the local NGO “NABU”: <https://nabu-naturgucker-beobachtungen.de/natur.dll/2Tptzi~YVllgqiXcGpa8n6-6in4/>

- **Citizen participation portal:**
 - Generally: <https://wirsind.heilbronn.de/leitlinien-buergerbeteiligung-hn/>
 - Citizen participation: <https://wirsind.heilbronn.de/vorhabenliste/>
 - Bahnbogen Süd: <https://wirsind.heilbronn.de/content/bbv/details/40>
 - Quartier 2020 – Südbahnhof: <https://wirsind.heilbronn.de/content/bbv/details/112>

⁶ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- **Sensitizing citizens:**
 - „Insect buffet“: <https://www.heilbronn.de/umwelt-mobilitaet/insektenvesper.html>
 - Mostbirnenweg: <https://www.gruppesepia.de/projekte/raum/mostbirnenweg/>
 - Biodiversity trail: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/biodiversitaetspfad.html>
 - Botanical orchard: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/parks/botanischer-obstgarten.html>
 - Elementa project at botanical orchard: <https://www.botanischer-obstgarten.de/elementa/>
 - Parks: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/gruenes_heilbronn/Gruen- und Parkanlagen.pdf
 - Climate groves: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/klimawaeldchen.html>
 - Urban gardening “Garden Eden”: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/urban-gardening.html>
 - Urban gardening “Südbahnhof”: <https://arkus-heilbronn.de/aktuelles/urban-gardening-am-suedbahnhof/>
 - Plant exchange market: <https://www.heilbronn.de/tourismus/veranstaltung/4-pflanzentauschboerse-199043.html?cHash=f8ae284111e9faac34f582b565bff8d8>
 - Urban greening program: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/haeuserandstreifenprogramm.html>
 - AHA Apple juice project: <https://www.heilbronn.de/bildung/schulen/schule-plus/natur-und-technik/aha-alles-heilbronner-aepfel.html>
 - Summer zone with information on facade greening: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/fassadenbegruenung.html>

- **Agro-strips program:**
 - <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/ackerrandstreifenprogramm.html>
 - https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/gruenes_heilbronn/ackerrand_streuobst/Broschuere_Ackerrandstreifenprogramm.pdf

- **Trees in Heilbronn**
<https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/stadtbaeume.html>

(max. 400 words)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
3.1	985	1000
3.2	590	600
3.3	381	600

4 Waste and Circular Economy

4.1 Present Situation

Please complete the following table providing the most recent data that is available for the city. If city data is not available, please provide a brief explanation and use regional data where available.

Table 1: Benchmarking Data – Waste

Indicator	Data	Unit	Year of data
Municipal waste			
Amount of municipal waste generated per capita	462	kg/capita/year	2024
Percentage of municipal waste that is recycled (including through composting and anaerobic digestion of biowaste)	51	%	2024
Percentage of municipal waste sent to incineration (R1 code)	35	%	2024
Percentage of municipal waste sent to landfill (or other forms of disposal (D codes))	14	%	2024
Percentage of recycled packaging waste	15	%	2024
Separate collection for hazardous and specific waste			
Waste from electrical and electronic equipment	55.26	kg/capita/year	2023
Batteries	0.20	kg/capita/year	2023
Waste oils	0.018	kg/capita/year	2022
Household chemicals	0.60	kg/capita/year	2023
Asbestos	3.65	kg/capita/year	2023
Construction and demolition waste	110.31	kg/capita/year	2023
Unused pharmaceuticals	-	kg/capita/year	-

1. Waste collection and treatment system:

Describe the current waste collection system, detailing the types of waste collected separately and specifying the extent of system rollout (percentage of population coverage).

The city collects residual waste, organic waste, used paper, light packaging and bulky waste in different containers, at different frequencies, and different prizes.

Table 1. Types of waste collected by the city. Source: Stadt Heilbronn.

Waste	Containers	Capacity	Collection rhythm	Drop-Off	% population coverage	Treatment	Introduced	Responsible
Residual waste	seperate	Choosable: 40-1,100 l	Choosable: 2 per week - bi-weekly	Recycling depot plus	100%	Waste-to-energy	2000	City
Organic waste	seperate	Choosable: 60-240 l	June-October: weekly Nov-May: bi-weekly	-	100%	Composting/fermentation	1998	City
Green waste	No container	2 m ³	Twice a year (free)	Recycling depots Recycling depot plus	100%	Composting	1989	City
Used paper	seperate	Choosable: 240 or 1,100 l	Choosable: Weekly, bi-weekly or 4-weekly	Recycling depots	100%	Raw materials recycling	2008	City
Light packaging	separate or yellow bag	Choosable: 240 or 1,100 l	Choosable: Weekly, bi-weekly or 4-weekly	Recycling depots	100%	Raw materials recycling	1998 (container) 1992 (yellow bag)	Since 1992 Dual systems
Bulky waste	No container	3 m ³	Once a year on call of the citizen (free) Other collections (fee)	Recycling depot plus	100%	Waste-to-energy and raw materials recycling	1995	City

Households can also drop off **different types of waste**. Some are free of charge (used glass, textiles, etc.); others are charged (see Table 3).

Table 2. Types of waste dropped off by households. Source: Stadt Heilbronn.

Waste	Depots	% population coverage	Treatment	Introduced	Responsible
Used glass	120 collection places for different glass colour containers in the overall city 7 recycling depots Recycling depot plus	100%	Raw materials recycling	1978	Since 1992 Dual systems
Used textiles/ shoes	100 collection places in the overall city Recycling depot plus	100%	Raw materials recycling	2013	City
Pollutant-containing waste: paints, varnishes, acids, alkalis, cleaning agents, adhesives, herbicides, insecticides, wood preservatives, expired medications, etc.	9 collection places with 6 appointments the year Recycling depot plus	100%	Thermal disposal	1990	City
Light packaging, used wood, scrap metal, waste paper, cardboard, batteries, small electrical appliances, green waste, plastics, light bulbs, corks (natural cork), ink cartridges/toner cartridges, CDs/DVDs, used cooking fat/oil.	7 recycling depots Recycling depot plus	100%	Waste- to-energy and raw materials recycling	1990	City
Electrical appliances, refrigerators, screens, PV modules, construction debris (e.g. stones, tiles, bricks, sinks, toilet bowls) outdoor wood waste	Recycling depot plus	100%	Waste- to-energy and raw materials recycling Construction debris: Landfilling (D-code)	2018	City

2. Economic instruments:

Outline the application of the ‘polluter pays’ principle and economic instruments. Include information on differentiated taxes and fees (‘Pay as You Throw’ initiatives), landfill, and incineration charges.

Germany's waste management system is organized and implemented through a **series of regulations**.¹ These regulations assign responsibilities to both retailers and consumers. Retailers are obligated to accept waste free of charge and ensure the environmentally friendly recycling of waste that has been properly separated. Consumers are responsible for sorting and collecting waste separately.

A key example is the **Dual System**, introduced in 1991 under the Packaging Ordinance, which requires businesses to take back and recycle packaging, shifting responsibility from municipalities. Its goal is to reduce resource waste, environmental impact, and CO₂ emissions. The system relies on both public waste disposal (for non-recyclable waste) and private companies (for recyclable packaging). Funded by industry fees, businesses must pay based on packaging type and quantity. Compliance is tracked through documented records, with penalties for non-compliance.

residual waste 2-weekly		residual waste 4-weekly		organic waste	residual waste bag
					
40 litre	81 €	40 litre	40 €	60 litre	8,00 €
60 litre	121 €	60 litre	61 €	80 litre	
80 litre	162 €	80 litre	81 €	120 litre	
120 litre	243 €	120 litre	121 €	240 litre	
240 litre	486 €	240 litre	243 €		
					green waste bag
					
					2,00 €

Figure 1. Different fees for different sizes and collection rhythms (2024). Source: Stadt Heilbronn.

Table 3. Different fees for dropped off waste. Source: Stadt Heilbronn.

Type of waste	Amount [m ³]	Fee [€]	Amount [m ³]	Fee [€]	Max. amount per delivery [m ³]
Residual waste	≤0.5	15	≤1	30	Max. 1
Bulky waste	≤0.5	15	≤1	30	Max. 3
Green waste	≤2	free	>2	15	No max.
Construction debris	≤0.5	20			Max. 0.5
Used wood	≤0.5	15	≤1	30	Max. 2

The City of Heilbronn offers **various economic instruments** to encourage waste separation and reduction, as shown in Table 3 and Figure 1. Households can choose the size of their waste containers (for residual waste, organic waste, used paper, light packaging, bulky waste). **The larger**

¹ Including the Packaging Ordinance, End-of-Life Vehicle Regulation, Battery Act, Electrical and Electronic Equipment Act, and Used Oil Regulation (Verpackungsgesetz, Altfahrzeugverordnung, Batteriegelgesetz, Elektro- und Elektronikgerätegesetz, Altölverordnung).

the container, the higher the price. Households can also select the frequency of collection, with **more frequent pickups costing more.** Additionally, the price for the organic waste container is intentionally set lower than for residual waste to promote the separate collection of organic waste. Light packages waste and old paper waste are free of charge as a mechanism to incentivize citizens to sort the household waste (and as a consequence reduce volume of residual waste for which they pay).

Heilbronn's approach rewards and encourages citizens to **actively contribute to waste separation.** The city communicates the importance of waste separation, avoidance, and proper disposal through several channels:

- Waste App (since 2014), where citizens can view their individual waste collection dates, set reminders, and access detailed information about different types of waste and how to dispose of them correctly.
- Waste Guide (published annually since 1992, barrier-free, in simple language), which is sent to each household, provided to new residents, available at the citizen's office, and accessible on the city's website
- Waste ABC on the city' website (available in 30 languages, barrier-free)
- Waste consulting services for answering residents' specific questions

3. EU Green Public Procurement (GPP) criteria:

Provide information on how the GPP criteria have been used in competitive tendering and decision-making in public procurement.

Since 01/09/2023, the City of Heilbronn exclusively procures "Blauer-Engel" certified **recycled paper** and participates in the competition "Papieratlas".

Since 01/01/2021, the procurement of office supplies for the administration has been organized through **a procurement platform.** Employees can only procure selected office supplies through this platform. High sustainability standards are taken into account in this pre-selection, such as "Blauer Engel" certification or, in terms of procurement law, the addition "corresponds to "Blauer Engel".

Since 04/2023, all procured **office furniture** follows a strict standard with pre-selected items, the furniture is locally procured and 100% is manufactured by the local prison carpentry.

Since 01/01/2021, procured **recycling containers** are produced from 100% recycled plastic, also "Blauer Engel" certified.

Since 2017, conversion **to energy-efficient street lighting** (LED) and smart street lighting.

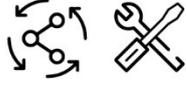
Since 2019, the **e-fleet** of the city administration has been growing to over 30%, as in the small car segment, only electric vehicles are being procured.

4. Circular economy:

Describe the actions and measures taken by the municipal authorities to enable and promote circular economy, in particular, repair, reuse, and sharing economy, as well as to accelerate circular business models.

Figure 2 presents various initiatives to promote the circular economy in Heilbronn, divided into four key areas:

1 SHARE & REPAIR /



Various mobility sharing options:
(e-)cars, (e-)bikes, e-scooters

Plant exchange market

Yellow ribbon campaign

Equipment and instrument lending,
city library

AHA Apple Juice school and
kindergarden project **A**

Clothing swap forum, experimeta

Repair Café, experimeta **B**

Various NGOs:

- FreeFood e.V.
- „Tafel“ – charitable food bank organization



3 REUSE /



9 second hand shops for clothing
e.g. second hand goods store
(Aufbaugilde e.V.) **E**

Children's flea market in the
Böckingen neighbourhood centre

Reusable bottles at municipal events
and meetings

Pilotproject: reusable containers at
the Festival of Lights 2025

Reusable experimeta-ticket-wristbands
made from recycled workwear

Currently 34 RECUP partners in
Heilbronn **D**



2 RECYCLE /



Polluter pays principle

City maintenance reporting tool
„Mängelmelder“ **C**

Trainee competition: ideas for recycling
in the city and city administration

Clean-up day „Putzmunter“
with city council

Clean-up days with schools
Energy Agency

Waste separation in the technical
town hall as a pilot project for the city
administration

4 LEARNING /



Municipal waste app (since 2014)

Waste consulting & waste guide

Education on waste separation
(10 events, lectures, tours per year)

KEFF+ offers online Information-
sessions and events for businesses
(part of the Wirtschaftsregion
Heilbronn-Franken GmbH City of
Heilbronn is a share holder)

Sustainability Conference 2025
at the university DHBW Heilbronn
(Best Practice Plasticindustry +
Circular Economy)

DHBW Heilbronn degree program:
Business Administration –
Technical Management:
Material management and recycling

Figure 2. Actions and measures for promoting circular economy in Heilbronn. Source: Stadt Heilbronn.

Share & Repair: Services such as (e-) car- and bike sharing, plant exchange markets, library tool rentals, and repair initiatives like the Repair Café.

Recycle: Raising awareness through e.g. a municipal defect reporting system, recycling idea competitions, and educational campaigns in schools and public administration.

Reuse: Encouraging and advertising for second-hand shopping to reduce bulky waste and promote the reuse of well-maintained furniture, household items, and textiles; clothing swap platforms, reusable bottle use at city events, and pilot projects for reusable solutions at festivals.

Learning: Educational offerings, including the waste app, waste separation consulting, circular economy events, and training sessions for businesses.

The Heilbronn Economic Development Agency (WFG - Wirtschaftsförderung Raum Heilbronn), in which the City of Heilbronn holds a 30% stake, is actively involved in multiple EU-funded initiatives that support the circular economy through international collaboration, innovation in recycling, and regional governance development. Across all projects, WFG plays a leading role ensuring that regional SMEs benefit from European innovation networks and positioning the region at the forefront of circular economic transformation in Europe.

- **EVOLUTE – Cluster Excellence in the Automotive and Agricultural Machinery Sectors**
EU Programme: COSME – Europe’s Programme for SMEs
Total EU Funding: €500,000
Project Duration: February 2022 – January 2024
WFG’s Role:
Lead partner, organizing ClusterXChange and facilitating SME knowledge exchange
Contribution to Circular Economy:
Supports transformation and sustainability in regional industry, enabling value chain innovation.
- **POLREC – Supporting a Green and Resilient Europe through Polymer Recycling**
EU Programme: Single Market Programme (SMP) – successor of COSME
Total EU Funding: €1.4 million
Project Duration: until August 2025
WFG’s Role:
WFG is an active project partner, assisting regional SMEs in the plastics industry with accessing funding, re-skilling in recycling technologies, and developing circular business models.
Contribution to Circular Economy:
POLREC encourages SMEs to shift from landfilling and incineration of plastic waste to mechanical and chemical recycling. The goal is to increase the use of secondary raw materials from 6% (2018) to 40% by 2030.
- **RE-INCITE – Implementing Circular Economy Strategies in the Alpine Region**
EU Programme: Interreg Alpine Space (2021–2027),
Specific Objective 4.1 – Enhancing institutional capacity for macro-regional strategies
Total Project Budget: €749,956
ERDF Contribution: €562,467
Project Status: Ongoing (Kickoff: February 2025)

WFG's Role:

Lead partner, coordinating a transnational consortium of regional public authorities and innovation clusters from Germany, Austria, Italy, and Slovenia.

Contribution to Circular Economy:

RE-INCITE focuses on implementing circular economy strategies at the regional level by turning industrial by-products into secondary resources. It strengthens public governance structures and fosters cross-border collaboration.

5. Infringement:

If the city is currently undergoing an infringement procedure related to the Waste Framework Directive (WFD), please explain the reasons for the procedure and outline the measures the city is taking to ensure compliance.

No legal infringements.

(max. 1000 words and five graphics, images, or tables)

4.2 Past Performance

The aim of this section is to make clear how the situation described in the previous section has been achieved. Where available, quantitative information and data should be provided for the previous ten years in order to show recent trends.

1. Waste collection and treatment system:

Provide trends over the last ten years on the following and highlight the most significant measures that have influenced these changes:

a. Amount of municipal and packaging waste produced per capita in the city.

The overall amount of waste per capita **decreased around 25%** in the last ten years. Residual waste decreased steadily over the years from 182 kg per capita to 160 kg per capita (12%). The city supported this trend by **various incentivizing measures** to avoid and separate waste: different fees for different sizes of containers and collection schedules (see Figure 1).

Construction waste differs from year to year, depending on construction activities that increase the amount of construction site waste and debris.

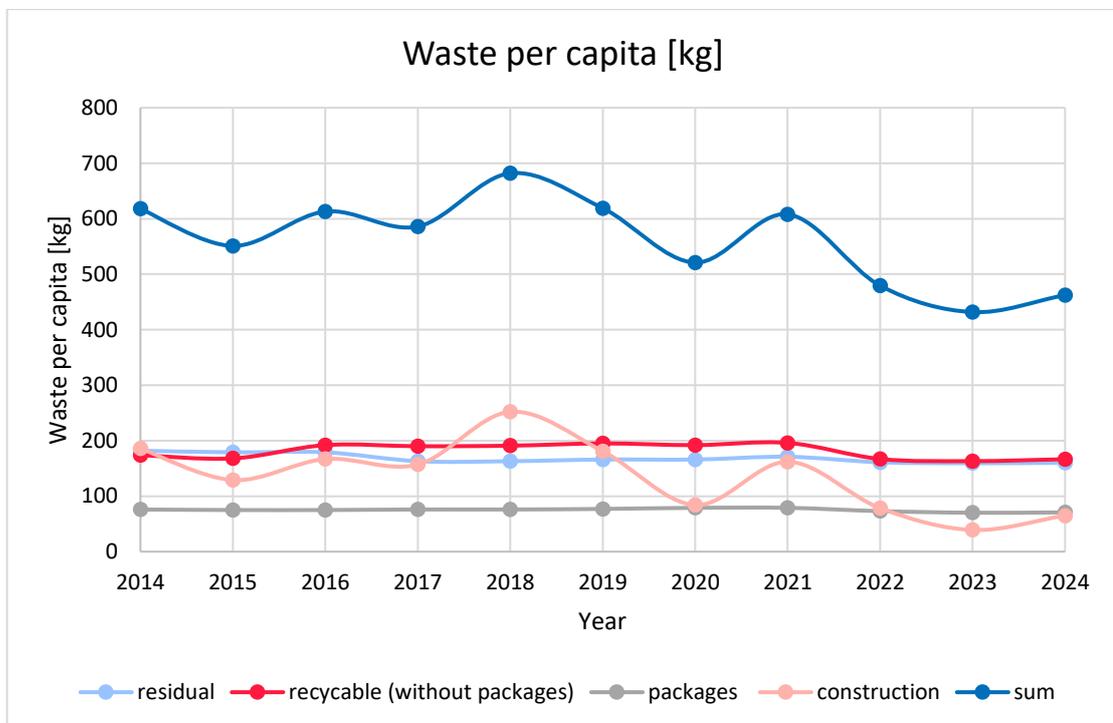


Figure 3. Types of waste per capita. Source: Stadt Heilbronn.

b. Separate collection systems.

Table 1 and 3 show, when the city introduced the systems for **separate collection and drop-off**.

The old shoes and textiles system was introduced in 2013. Before, shoes and textiles were collected several times a year by various non-profit organizations. Now, citizens can bring their old shoes and textiles anytime during the year.

With the Recyclinghof Plus (recycling depot plus), a place for all types of waste has been created, an all-in-one recycling depot. It aims to enable citizens to dispose of all their waste in one place and thus save travel distances.

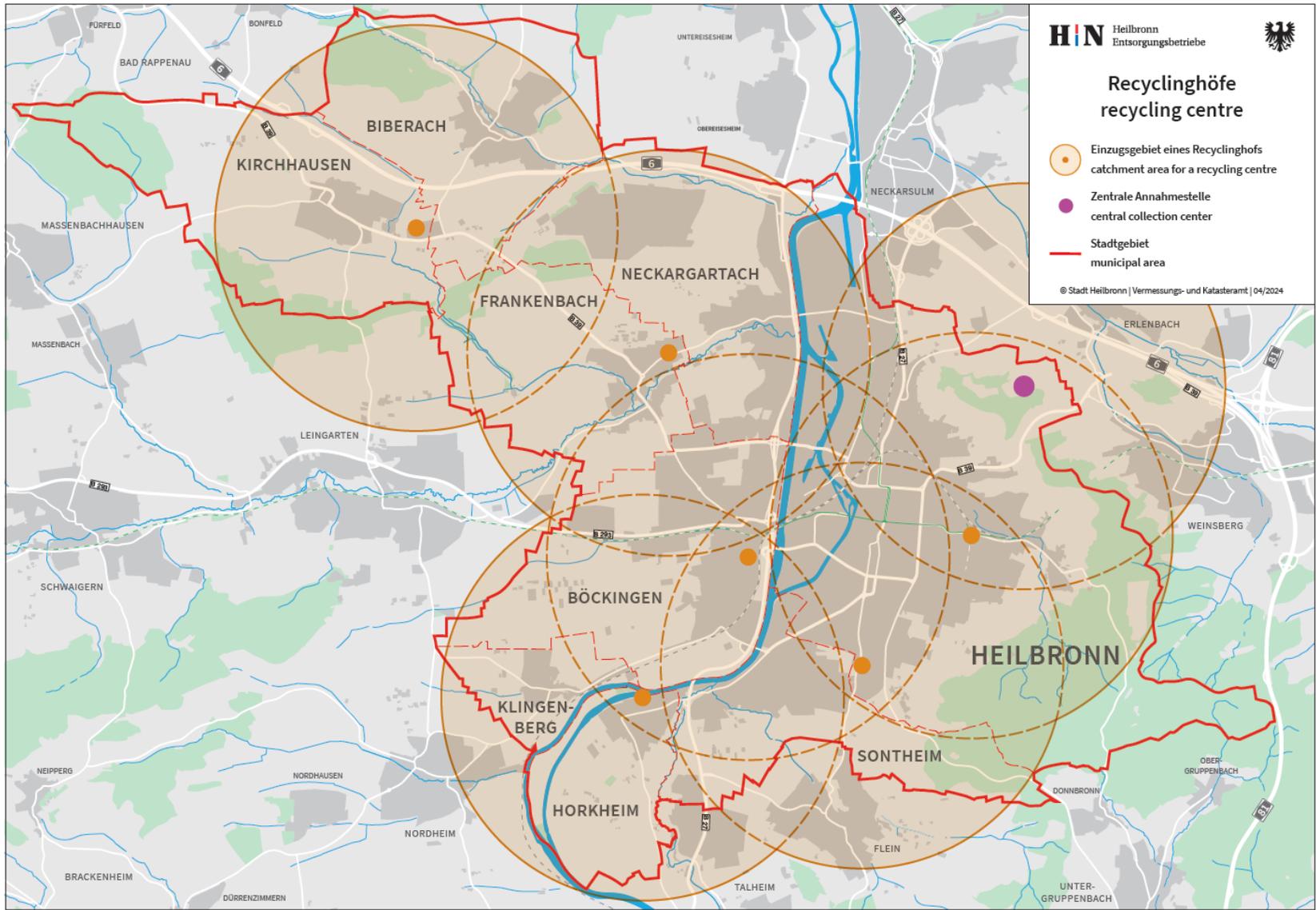


Figure 4. Recycling depots for Heilbronn's citizens (only; 2024). Source Stadt Heilbronn.



Figure 5. Mobile pollutant collection point. Source: Stadt Heilbronn.

c. Percentage of municipal waste sent to incineration, landfill, or other forms of disposal.

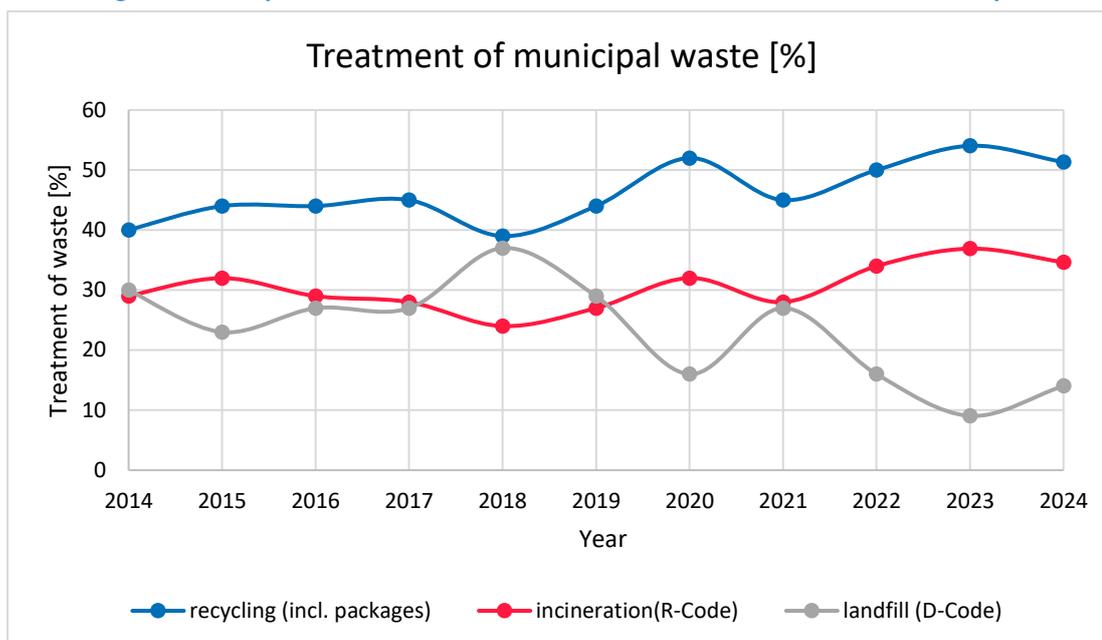


Figure 6. Treatment of municipal waste. Source: Stadt Heilbronn.

In the last ten years, the utilization of landfills fluctuated, depending on the construction industry, as construction activities can vary and affect the amount of construction site waste and debris that needs to be disposed of in landfills. Therefore, during periods of economic growth and increased construction activity, the utilization of landfills often rises, while during downturns, it may decrease. However, Heilbronn could **decrease landfills by half**. **Recycling increased around 22%**, while incineration increased around 16%.

2. GPP-criteria:

Provide insights into the use of the GPP-criteria in competitive tendering and decision-making in public procurement over the last ten years.

See 4.1

3. Circular economy:

Provide insights into the development of a circular economy over the last ten years and detail the most significant measures taken to foster a repair, reuse, and sharing economy.

For measures taken see chapter 4.1.4.

Since 2017, there has been a **resorting of collected bulky waste**. This allows recyclable materials (scrap metal, plastics, old wood, electrical appliances) contained in bulky waste to be separated and recycled as raw materials or used for energy generation.

The city administration launched an initiative in 2021 to support gastronomy businesses in implementing a reusable system for food and beverages (e.g., to-go cups that can be obtained in one café and returned in another establishment within the network). After two information sessions, the invited gastronomy businesses opted for the ReCup reusable packaging. To establish a uniform reusable system throughout the city and support gastronomy businesses, the City of Heilbronn covered the ReCup-system-fees for the first year for the companies that chose a reusable system. Therefore, it paid over 7000 Euros. Figure 7 shows the gastronomy businesses that offer the reusable system. In total, the municipal administration aims to support up to 50 businesses in the first year.

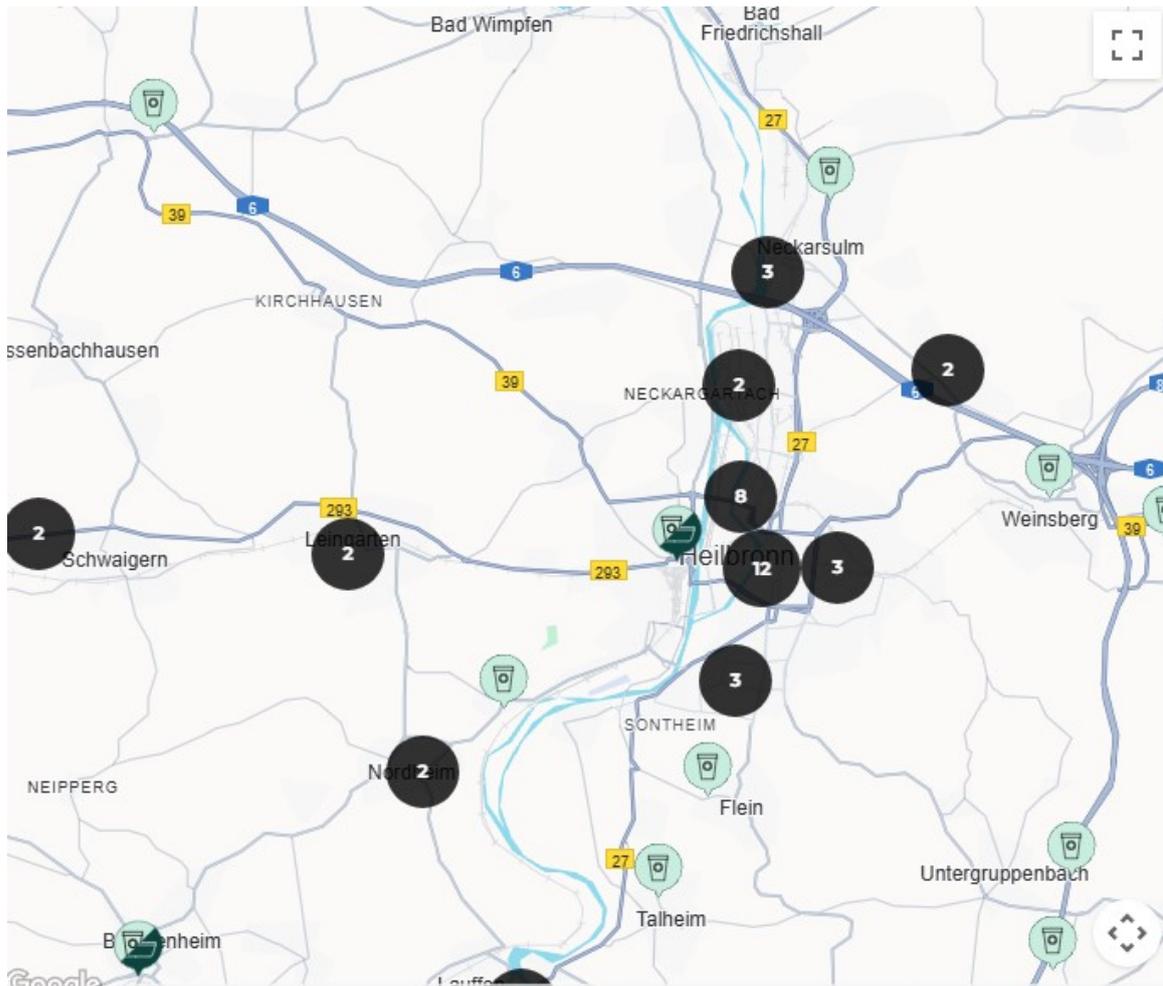


Figure 7. RECUP Partners in Heilbronn. Source: recup.de

(max. 600 words and five graphics, images, or tables)

4.3 Future Plans

1. Objectives:

Outline the objectives for 2030 and 2050 for waste management, emphasizing the achievement of the related European targets. This includes specific objectives addressing plastics and preventing food waste.

Table 4. 2030 and 2050 objectives. Source: Stadt Heilbronn.

Focus Area	Goals by 2030	Goals by 2050
Waste Reduction	<ul style="list-style-type: none"> • Reduce residual waste to <130 kg per capita/year • Establishment of incentive systems for organic waste for reducing residual waste generation <ul style="list-style-type: none"> • Reduction of still excessively high amounts of organic waste in residual waste through improved separate collection in the organic waste bin. • Enhancement of the quality of separately collected organic waste. • Complete treatment of separately collected organic waste in digestion plants 	<ul style="list-style-type: none"> • Residual waste <80 kg per capita/year • <5% incineration (R1), shift to full circular use
Circular Economy	<ul style="list-style-type: none"> • Launch municipal sharing & reuse platform (repair cafés, second-hand, tool libraries, etc.) • Ensure 50% of public procurement is circular • Support SMEs with funding for circular business models • Establish a “Circular Lab” with local stakeholders 	<ul style="list-style-type: none"> • 100% circular public procurement • Mandatory circular-by-design criteria in tenders • Municipal Material Exchange Hub for reused construction materials
Education & Participation	<ul style="list-style-type: none"> • Involve 100% of schools in circular economy projects • Establish a yearly Circular Economy Week for public engagement 	<ul style="list-style-type: none"> • Comprehensive circular learning pathways in schools and universities • Heilbronn recognized as a circular economy hub in Europe
Circular Events	<ul style="list-style-type: none"> • Apply circular standards to 100% of city-run major events: <ul style="list-style-type: none"> • Mandatory reusable systems • No single-use plastics • Waste target: <0.1 liters per visitor • AI-based sorting • Launch “Circular Event Heilbronn” certification for private events 	<ul style="list-style-type: none"> • Zero-waste, climate-neutral events as the standard • Heilbronn is a European leader in circular event management, with a recognized label & expertise export

2. Planned measures to achieve these objectives:

Outline the key planned measures, including participatory approaches, and provide information on budget allocations and implementation schedules to achieve these objectives. Specify measures for the following:

a. Waste management

Change in **waste collection and fee system** starting from 2026 by the introduction of a container identification system:

- a. Digital recognition of waste containers and recording of container emptying.
- b. The containers will receive a chip
- c. Containers are identified via the chip and assigned to property owners
- d. Users have 12 included collections per year (basic fee), which they must pay.
- e. All additional collections are on demand, depending on consumption (be billed according to the collections used) -- **2.1 Mio. €** (2025-2026)

For the **further improvement** of recycling rates, the efficiency of organic waste collection, and the overall waste reduction efforts, residual waste and organic waste inspections and analyses in 2025 – **40,000 €** (2025)

Modernization of existing recycling depots, environmental-friendly optimization of disposal structures - **9 Mio. €** (2025-2026)

Intensification of public relations efforts to enhance information for citizens about waste reduction, reuse, and the circular economy, e.g. enhancement of consultation on organic waste separation in large residential complexes – **2.8 Mio. €** (2025-2035)

b. Use of GPP criteria in competitive tendering and decision-making in public procurement.

The procurement regulations of the City of Heilbronn will be revised in 2025, and the GPP criteria, which are currently already guiding actions (see 4.1), as well as additional criteria, will be integrated into these general procurement regulations.

c. To promote sustainability and circular economy such as repair, reuse, and sharing economy.

Continuation and intensification of cooperations and activities described within Figure 2 and chapter 4.1.4.

The City of Heilbronn will further expand the annual **Sustainability Day**. In previous years, the event mainly featured presentations by local NGOs and public institutions. In 2025, it will also include contributions from industrial partners of the WIR Pact, showcasing their sustainability initiatives alongside civil society actors. The sustainability-oriented system used for the Festival of Lights will be applied. As in previous years, the event will strongly emphasize **sharing and repair initiatives** (see Figure 8).



Figure 8. Sharing and Repairing at the Heilbronn Sustainability Day 2024. Source: Stadt Heilbronn.

Starting this year, the city is transforming its events into circular events.

The Kick-off for this transformation will be the Heilbronn Festival of Lights (Lichterfest) 2025. Held along the scenic Neckar River, the festival is a highly anticipated summer event that animates the city with vibrant energy, music, and cultural festivities. More than a celebration, the festival has established itself as a pioneer in environmentally conscious event management, embedding sustainability as a core principle:

100% Renewable Energy: The entire festival is powered exclusively by green energy sources, thereby significantly minimizing its carbon footprint.

Accessible and Inclusive Design: The venue is easily accessible via public transportation, and comprehensive barrier-free signage ensures an inclusive experience for all attendees.

Reusable Infrastructure and AI-Assisted Waste Management: A standardized reusable cup and dish system is employed across the festival to reduce single-use waste. Furthermore, AI-supported recycling technologies and clearly marked waste collection points encourage responsible disposal by visitors.

Mandatory Recycling for Vendors: All food and beverage vendors are required to adhere to strict recycling protocols, reinforcing the event’s commitment to sustainable practices.

Substantial Waste Reduction: As a result of these combined efforts, waste per visitor is projected to decrease to **only 0.2 liters—down from 0.7 liters** in 2023. Notably, 2025 will mark the first year in which the festival systematically **monitors the volume** of materials successfully recycled.

The Heilbronn Festival of Lights 2025 invites participants to engage in a unique fusion of culture, music, and environmental responsibility—demonstrating how large-scale public events can serve as models for sustainable development.

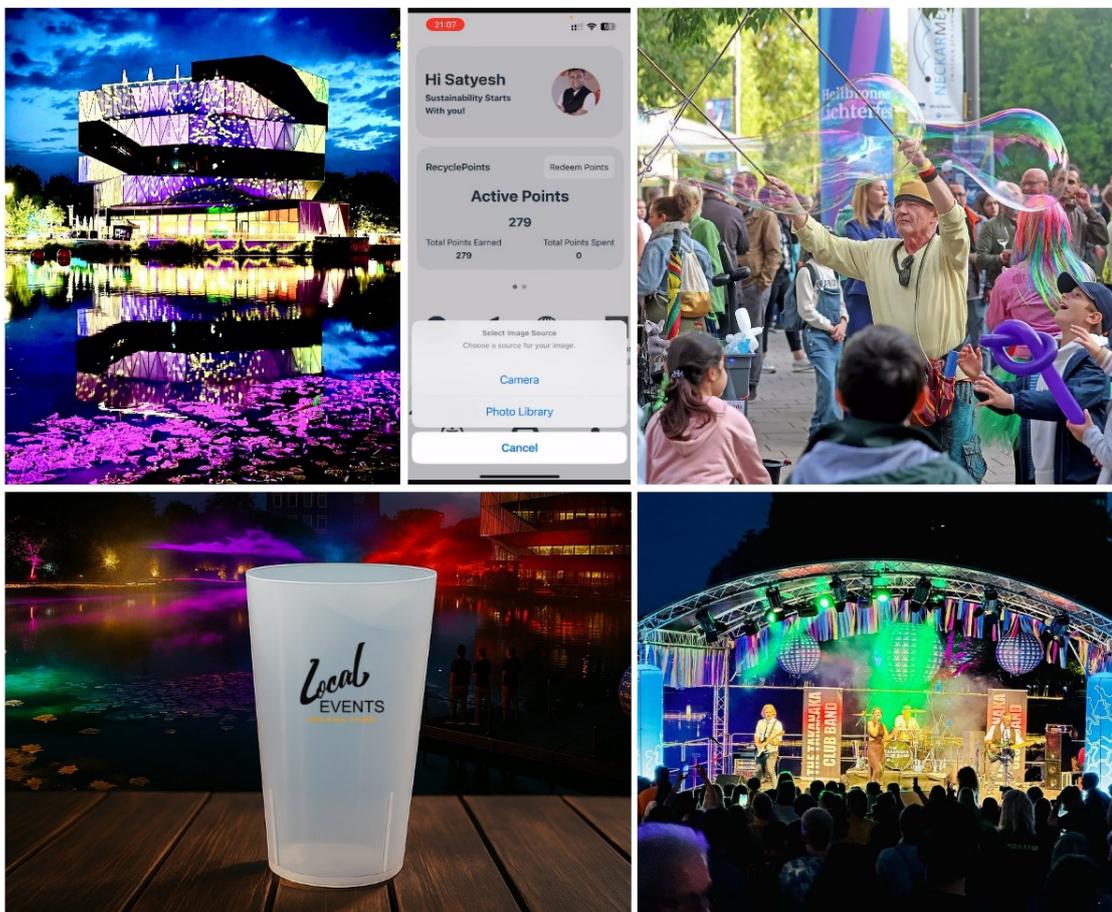


Figure 9. Forthcoming sustainable Festival of Lights with AI assisted recycling and reusable cups from a local company. Source: Stadt Heilbronn.²

² The AI-powered app allows visitors of the Festival of Lights to take a photo of their waste and shows which bin in the sorting system the item should be disposed of in.

3. Support ambitions:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

- Resolution of the municipal council to amend the waste collection and fee system starting from 2026.
- Waste management concept of the City of Heilbronn.
- EU Green City Accord

b. Outline plans for monitoring the impacts of implemented measures.

The impact of the extensive measures in the field of circular economy is reflected in the annual waste balance sheet of the City of Heilbronn.

(max. 600 words and five graphics, images, or tables)

4.4 References³

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **Waste balance sheet:** <https://abfallwirtschaft.heilbronn.de/abfallbilanz>
- **New recycling system form 2026 onwards:** <https://heilbronn-sitzungsdienst.komm.one/bi/getfile.asp?id=14159&type=do>
- **Green Public Procurement**
 - Competition Papieratlas: https://www.papieratlas.de/wp-content/uploads/papieratlas2024_staedte.pdf
 - Energy-efficient street lights: <https://www.heilbronn.de/umwelt-mobilitaet/energie/kommunales-energiemanagement/intelligente-strassenbeleuchtung.html>
 - Office furniture from the local prison carpentry: <https://shop.vaw.de/de/shop/buromobelprogramm-p285>
- **Recycling**
 - Generally: <https://abfallwirtschaft.heilbronn.de/serviceangebot>
 - City maintenance reporting tool “Mängelmelder”: <https://heilbronn.xn--mngelmelder-l8a.de/#pageid=1>
 - Clean-Up day: <https://www.heilbronn.de/rathaus/pressemitteilungen-und-aktuelles/heilbronn-cleanup2025.html>
 - Recycling depot plus <https://www.heilbronn.de/rathaus/buergerservice-az/inhalt/recyclinghof-plus.html>
 - Information on waste reduction: <https://abfallwirtschaft.heilbronn.de/abfallvermeidung>
- **Share & Repair**
 - Plant exchange market: <https://www.heilbronn.de/tourismus/veranstaltung/4-pflanzentauschboerse-199043.html?cHash=f8ae284111e9faac34f582b565bff8d8>
 - AHA Apple juice: <https://www.gunkel-natursaft.de/index.php/natur-erleben/schulsaft-projekt>
 - Yellow ribbon campaign: <https://www.heilbronn.de/rathaus/aktuelles/details/artikel/hier-ist-ernten-erlaubt.html>
 - Equipment and instrument lending: <https://stadtbibliothek.heilbronn.de/unsere-angebote/geraete-und-instrumentenausleihe.html>
 - Clothing swap forum: <https://www.experimenta.science/besuchen/veranstaltungskalender/kleidertausch-im-forum/>
 - “Seniors for others”: <https://www.senioren-fuer-andere.de/sites/reparieren.htm>
 - Repair Café at experimenta: <https://www.senioren-fuer-andere.de/sites/reparieren.htm>

³ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- **Reusing**
 - Second hand shop: <https://www.secondhandkaufhaus.de/>
<https://www.heilbronn.de/shop-und-gastrofinder/adresse/secondhand-kaufhaus-der-aufbaugilde.html>
 - Recup system: <https://umgebung.recup.de/?type=recup¢er=49.1426929¢er=9.210879&resultCount=20&title=Heilbronn&style=color&size=a4>
 - Reusable containers and recycling stations at the festival of lights: https://www.heilbronn.de/fileadmin/daten/hnmarketing/Veranstaltungen/Lichterfest/Infos_Mehrwegsystem_Heilbronner_Lichterfest_2025.pdf
 - Reusable experimenta-ticket-wristbands from recycled workwear: <https://www.experimenta.science/experimenta/presse/nachhaltige-armbaender-fuer-experimenta-besuch/>

- **Local circular economy**
 - Local Economic Development Agency (Wirtschaftsförderung Raum Heilbronn - WFG): <https://wfgheilbronn.de/>
 - Polrec project: <https://wfgheilbronn.de/polrec.html>
 - EVOLUTE project: <https://wfgheilbronn.de/wfgprojekte/evolute.html>
 - Reincite project: <https://www.alpine-space.eu/project/re-incite/>

- **Learning**
 - Waste App: <https://abfallwirtschaft.heilbronn.de/footer-menue/abfall-app>
 - Waste Guide: https://abfallwirtschaft.heilbronn.de/fileadmin/daten/abfallwirtschaft/Abfallratgeber/HN_Abfallratgeber_2024_BITV.pdf
 - Waste ABC <https://abfallwirtschaft.heilbronn.de/abfall-abc>
 - Waste consulting: <https://abfallwirtschaft.heilbronn.de/serviceangebot>
 - KEFF+ online Information-sessions and events for businesses: https://www.keffplus-bw.de/de/services/veranstaltungen?bw_region=%5B%22Heilbronn-Franken%22%5D
 - 1. Sustainability Conference at the university DHBW Heilbronn: <https://events.heilbronn.dhbw.de/event/sustainability-conference-2025>
 - DHBW Heilbronn degree program: Business administration – technical management: Material management and recycling: <https://www.heilbronn.dhbw.de/studium/bachelor-angebote/bwl-technical-management-wertstoffmanagement-und-recycling/studieninhalte-und-profil/>

(max. 400 words)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
4.1	994	1000
4.2	415	600
4.3	600	600

5 Noise

5.1 Present Situation

Please complete the following table providing the most recent data that is available¹.

Table 1: Benchmarking Data – Noise

Indicator		Unit	Year of Data
Share of population exposed to total noise values of L_{den} above 55 dB(A)	11.09	%	2023
Share of population exposed to total noise values of L_{den} above 65 dB(A)	8.53	%	2023
Share of population exposed to total noise values of L_n (night noise indicator) above 50 dB(A)	10.26	%	2023
Share of population exposed to total noise values of L_n (night noise indicator) above 55 dB(A)	8.75	%	2023
The percentage of citizens living within 300 m of quiet areas	35	%	2025
Which limits or reference value does the city apply to residential areas? ($L_d/L_e/L_n$ /other national or regional limits – please give name and description)	<p>National limit values per area of application:</p> <ul style="list-style-type: none"> Noise precaution according to section 2 of the 16th Ordinance on the Implementation of the Federal Immission Control Act (16. Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes): <ul style="list-style-type: none"> L_{den} 59 dB(A), L_{night} 49 dB(A) Noise remediation according to the Ordinance on protection against traffic noise on roads from 1997 (Verordnung zum Schutz vor Verkehrslärm an Straßen von 1997): <ul style="list-style-type: none"> L_{den} 67 / 65² dB(A), L_{night} 57 / 55 dB(A) Traffic restrictions according to the Noise protection guidelines for road traffic (Lärmschutz-Richtlinien für den Straßenverkehr): <ul style="list-style-type: none"> L_{den} 70 dB(A), L_{night} 60 dB(A) 		
In the last year, how many noise complaints did the city receive related to leisure or recreational activities?	43 ³		

¹ In case (some of) the requested benchmarking data is not available, please briefly outline the present situation regarding noise in the city.

² The higher value applies to federal trunk roads, the lower value to state roads in Baden-Württemberg; according to Cooperation decree on noise action planning, Ministry of Transport Baden-Württemberg, Stuttgart, 29 October 2018.

³ The public order office receives noise complaints mainly in the area of nocturnal disturbances by private households, but these are not documented. The number listed is related to leisure or recreational activities: 10 noise complaints relating to events in restaurants, 32 noise complaints relating to restaurants in regular operation and one noise complaint in relation to events - independent of catering establishments.

1. Noise maps:

Present the city's latest noise maps, ensuring they are no older than five years as per the Environmental Noise Directive (2002/49/EC) (END). Additionally, include figures detailing noise exposure from individual sources such as road, rail, air, industry, and leisure.

The City of Heilbronn is situated at the heart of Baden-Württemberg's automotive and business region, making it dependent on well-developed transport connections.

Heilbronn is connected to Mannheim and Nuremberg via the A6 motorway running east to west, while the A81 motorway connects it to Würzburg and Stuttgart in a north-south direction. Within the city, an efficient network of federal, state, and district roads ensures connectivity between its various districts. The main roads carry an average traffic volume of 35,000 vehicles per day, with traffic on Weinsberger Straße, where the B27 and B39 intersect, exceeding 40,000 vehicles per day. Road traffic has been identified as the primary source of noise in the Noise Action Plan. Figure 1 illustrates the noise pollution across the urban area over 24 hours. These and other noise maps, e.g. noise pollution at night, urban railway and IED-port facilities can be found under the corresponding link in the references.

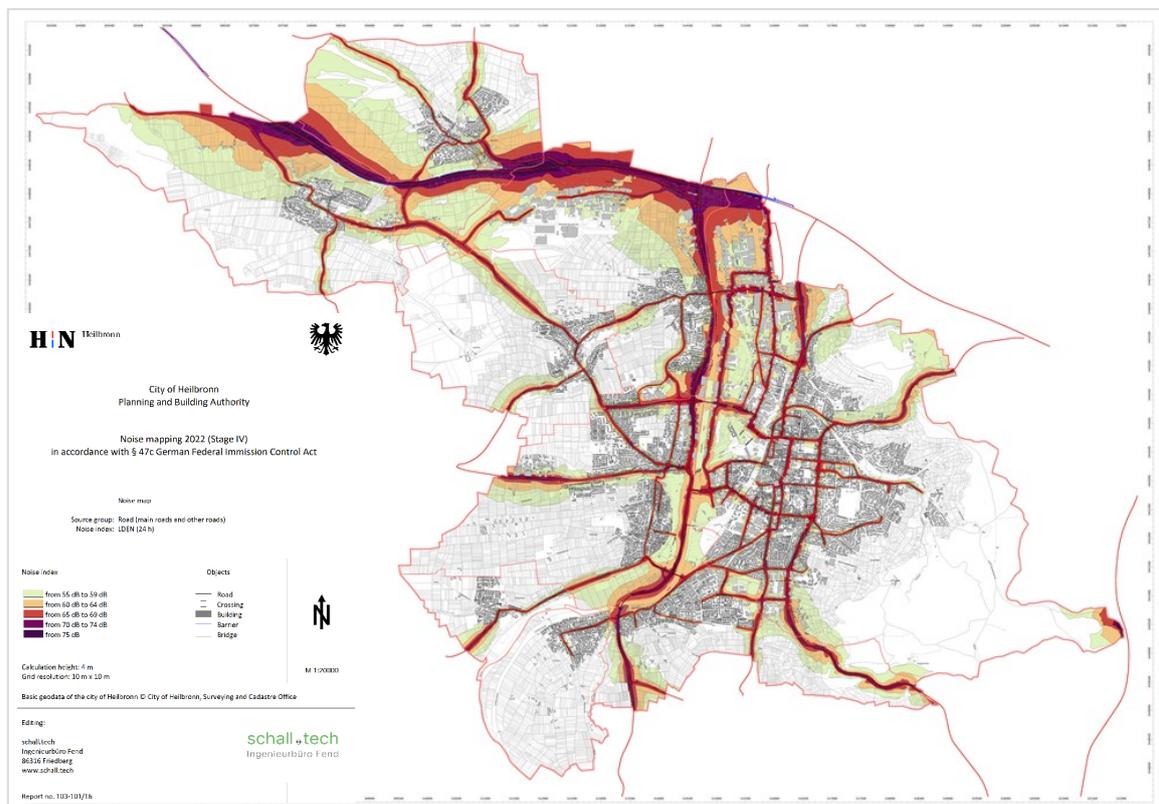


Figure 1. Noise map (main road and other roads, 2022) L_{den} (24 h). Source: schall.tech.

According to noise mapping 2022 the following figure supplements the map above.

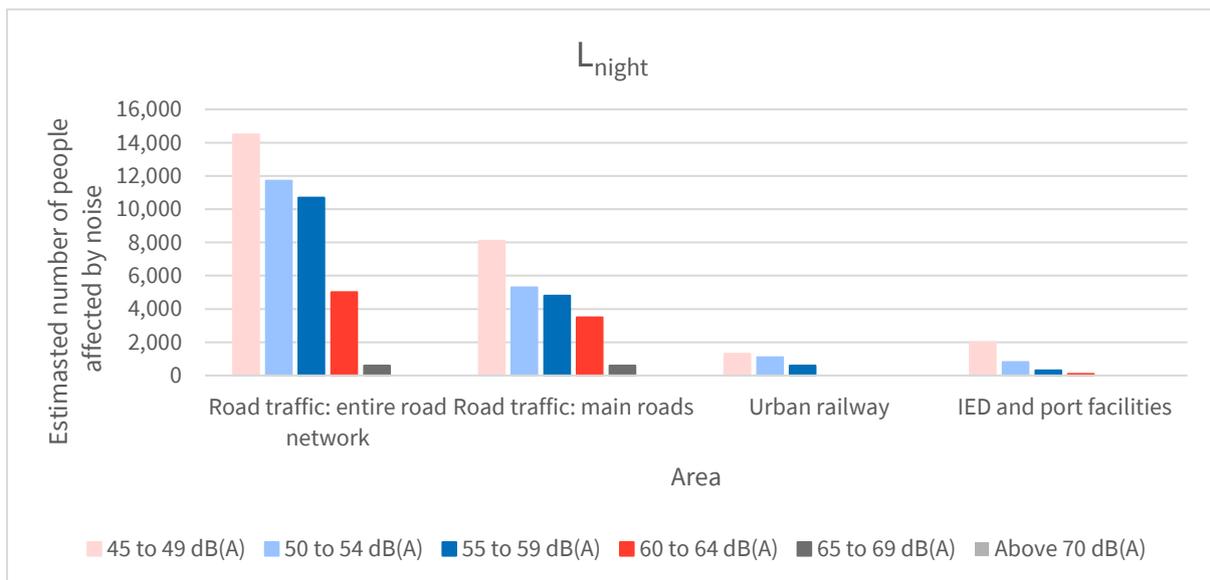
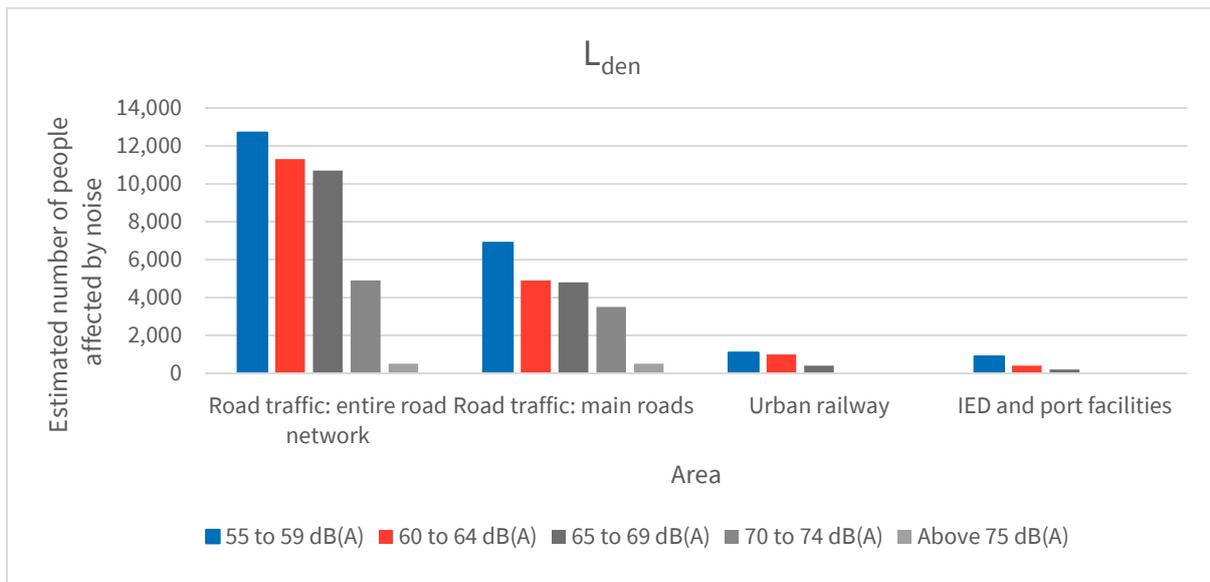


Figure 2. Estimated number of people living in areas with noise indices from $L_{den} = 55 \text{ dB(A)}$ and $L_{night} = 45 \text{ dB(A)}$. Source: schall.tech.

2. Noise action plan:

Provide information on the city's latest noise action plan, ensuring it is no older than five years as per the END. Additionally, describe interventions in place to effectively reduce noise.

The aim of our Noise Action Plan is to counteract increasing noise pollution, especially from traffic. Based on noise mapping, an impact analysis is carried out, which identifies so-called noise hotspots. The Planning and Building Authority then consults the relevant departments and asks for proposals for noise abatement measures. After that, the public is involved and can comment on the proposed measures. A draft plan is then drawn up and the public is consulted again. Once approved by the City Council, the Noise Action Plan is submitted to the State Institute for the Environment, Nature Conservation and measurements of Baden-Wuerttemberg (LUBW) which forwards the information to the Federal Environment Agency for reporting to the EU. The current Noise Action Plan (Stage IV) was adopted by the City Council on 7 October 2024.

Noise Action Plan Stage IV

The continuation of the Noise Action Plan (Stage IV) was based on the EU Environmental Noise Directive 2002/49/EC and its national implementation in Sections 47 a - f BImSchG. This includes the following measures to mitigate traffic noise:

1. Application of noise-optimized asphalt on the following roads:
 - Südstraße (Rosenbergstraße to Wilhelmstraße)
 - Wilhelm-Leuschner-Straße
 - Karlsruher Straße - Weststraße
 - Neckarsulmer Straße (Burenstraße to Rauchstraße)
 - Wilhelmstraße (junction with Südstraße)
 - Mannheimer Straße - Weinsberger Straße (avenue to Schaeuffelenstraße)
 - Paulinenstraße
2. Speed restrictions to from 50 km/h to 30 km/h on the following road sections (see Figure 3 for all speed-limits):
 - Frankenbacher Straße (Palmstraße to the end of the town)
 - Heidelberger Straße (Grünewaldstraße to Derfflinger Straße; noise-reducing asphalt planned in the long term)
 - Theodor-Heuss-Straße (Felsenstraße to the end of town; previously at night, now all day)
3. Updating the municipal noise protection window programme
The programme comprises 24 streets, including all noise hot spots. The funding guideline has been amended in Stage IV: Eligibility for a subsidy is to be defined as exceeding 65 dB (A) L_{den} and/or 55 dB (A) L_{night} , instead of 70 dB (A) L_{den} and 60 dB (A) L_{night} as in the past.
4. Intensification of speed monitoring at noise hotspots
5. Further increase in the proportion of municipal electric vehicles
6. Designation of further so-called quiet areas

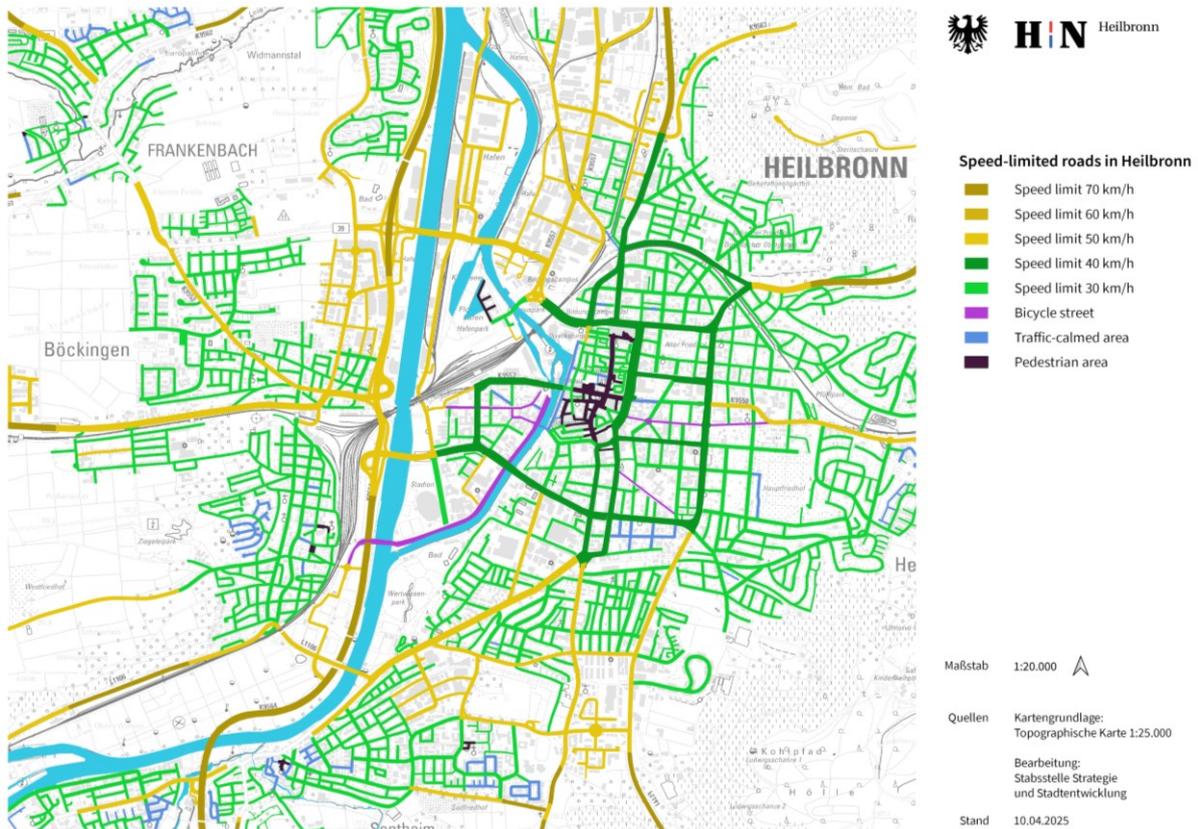


Figure 3. Speed-limited roads in Heilbronn. Source: Stadt Heilbronn.

Together with these measures, the **Mobility Concept 2030** sets out measures for mobility management in the following areas: Liveable city, walking, cycling, public transport, sustainable and networked mobility, motorised individual transport, optimisation of commercial transport and public relations and already implemented successful projects (see Figure 4).

Working together on solutions for reducing noise is essential. Therefore local councillors, environmental groups, and companies are coming together in the cities **Climate and Sustainability Advisory Board** and the **Mobility Advisory Board** several times a year to foster collaboration, develop new projects, and accelerate implementation in sustainability. Moreover, so far 14 organizations from various sectors are working together in the **WE-Pact⁴** towards their common goal of achieving climate-neutrality by 2035, exchanging knowledge and methods of climate mitigation efforts. For the rapid implementation of the measures, also in a regional context, the city is networking in the **Mobility Pact Heilbronn-Neckarsulm** (see Indicator 1).

⁴ German: WIR-Pakt

Public transport

- Trial tickets** for new citizens for 2 weeks
- Free public transport for everyone** on Advent Sundays
- 65 buses and 5 trams** in operation on average
- Bus ticket subsidy in shops** for purchases of €12.5 or more
- Buddy for night owls** €5 p.p. (bundles routes for CO₂ savings)
- FiftyFifty-Taxi:** Heilbronn district pays 50% of taxi fares for young people at night
- Cable car project** Cable car connection between main station, IPA, universities, and north-western city districts
- Assessment of the reactivation of two railway lines to the surrounding areas** (Botwartalbahn and Zabergäubahn)
- Work on a **permanent connection for the inter-city Express**
- Subsidies for public transport tickets (Deutschlandticket)**
 - Employees** (municipal administration): 53€ subsidy/month
 - Trainees** (municipal administration): for free
 - Recipients of social benefits (Bürgergeld):** €10 subsidy/month
- Intelligent traffic management system** that gives priority to public transport at traffic lights

Motorized individual traffic

- Speed-limited zones** in the city center
- Parking and traffic guidance system** Parking (signs for parking facilities, warn of roadworks/congestion due to major events)
- New mobility hub in Neckarbogen:** parking, e-charging, e-sharing, bike-repairing, local energy production
- Real-time display of free parking spaces** in car parks on the homepage
- Honoured for **good e-charging infrastructure**

MOBILITY IN HEILBRONN /

Cycling

- Cargo bike funding programme**
- Bike house** fully automated bike-parking for 250 bikes
- Awarded as **pedestrian- and bikefriendly municipality**
- More than 120 km** bicycle infrastructure
- 7 dedicated bicycle streets**
- 14 million investment budget** for bike paths in the next 4 years
- RS3 cycle expressway Bad Wimpfen-Neckarsulm-Heilbronn** (finished 2030)
- Bicycle leasing** for employees of the city administration
- Pedelec safety training** for city employees
- Raffle of bicycles** for new students
- DB Rad + App:** convert kilometres cycled into rewards
- New touristic city routes for cycling** e.g. sustainable shopping tour
- Green arrows for cyclists**
- 12 bike service points:** free tools for repairing
- Shard hotline** to report pieces of broken glass on cycle paths
- New cycle route between Biberach and Kirchhausen** coming soon
- Cycling officer** of the city

Walking

- 'Fußverkehrs-Check'** External review of pedestrian traffic in Heilbronn
- 'Walking to school'** campaign week (Children collect stamps for walking to school)
- Improvement suggestion form** e.g. for lowered kerbs
- Pedestrian officer** for the city
- Multilingual school route plans** for 19 primary schools in Heilbronn

Sharing offers

- Car sharing** 61 vehicles and 41 stations
- E-scooter sharing**
- E-bike sharing**
- Campus bikes** (Heilbronn universities)
- New mobility hub** in Neckarbogen with sharing offers

Communication & sensitization

- Multilingual mobility brochure**
- City maintenance reporting tool**
- Sustainability Day**
- City cycling competition and cycling festival**
- Activities together with citizens within the **European Mobility Week**
- Redesign of Parking Spaces** (Industrial zone Wohlgelegen)
- #SummerZone** traffic-calmed areas for citizens leisure activities

Figure 4. Heilbronn's sustainability activities in the field of mobility. Source: Stadt Heilbronn.

3. Quiet areas:

Share details about formally defined and delimited quiet areas and sound-improved areas.

The aim is to provide people living in densely populated, noisy areas recreational areas close to their homes. To date, ten "Quiet Areas" have been designated for this purpose (green): The Old Cemetery, the Botanical Orchard, the Main Cemetery, the Heidelberger Straße Cemetery, the City Garden, Leinbachpark East and West, Pfühlpark, Wertwiesepark and Ziegeleipark.

Further areas have now been included as part of the recently adopted Noise Action Plan Stage IV (orange): Riverside areas of the Platanenallee Stadtnecker between Wertwiesepark and Götzenturmbrücke and Friedrich-Ebert-Brücke as well as Campuspark, Neckaruferpark and Hafepark.

As a result, the proportion of residents living within 300 meters of a quiet area has risen to 35%, allowing more people in Heilbronn's inner city to enjoy access to a nearby recreational space. However, there is still potential for large, undisturbed open spaces in the outlying areas (like the municipal forest) that offer recreational character.

The following protective measures apply to quiet areas:

- Review of open space, urban and transport planning measures:
- Consideration in urban land-use planning and authorisation procedures
- Inclusion in landscape planning and the associated utilisation of the corresponding planning instruments.

4. Citizen engagement:

Discuss citizen engagement and public awareness initiatives.

Several public hearings are organised for the **Noise Action Plans**. A total of 36 suggestions were received for the Stage IV noise action plan through public consultation. The Noise Action Plan Stage IV was then drawn up on the basis of the suggestions made by citizens, the comments of the specialist departments and the consideration of the noise pollution of neighbouring residents. One example is the introduction of a 30 km/h speed limit in Frankenbacher Straße and Theodor-Heuss-Straße due to suggestions by citizens.

In general the City of Heilbronn is engaging citizens through a **wide range of participation and information formats** such as climate campaigns with local testimonials, events during the European Mobility Week, workshops on EU feedback regarding air quality and noise as well as digital theme weeks (see Figure 5). These formats promote dialogue, raise awareness, and invite residents to co-create sustainable urban solutions.



REDESIGN OF SEALED AREAS /
like #SummerZone and climate groves



SOCIAL MEDIA POSTS ABOUT ENVIRONMENTAL SUSTAINABILITY /
theme weeks on the EGC application



PUBLIC PARTICIPATION FORMATS /

e.g. as part of the speed monitoring marathon - Where should speed cameras be placed?



CLIMATE MITIGATION CAMPAIGNS WITH LOCAL TESTIMONIALS /

„Book, get in, drive off – with e-car sharing for cleaner air and less noise.“



WORKSHOPS /

City Administration, City Councillors and citizens discuss the EU's feedback on the application for air quality and noise



EUROPEAN MOBILITY WEEK /

Raising awareness of quiet and emission-free mobility

Figure 5. Citizen engagement through a wide range of participation formats. Source: Stadt Heilbronn.

5. Infringement:

If the city is currently undergoing an infringement procedure related to the END, please explain the reasons for the procedure and outline the measures the city is taking to ensure compliance.

No legal infringements.

(max. 1000 words and five graphics, images, or tables)

5.2 Past Performance

The aim of this section is to make clear how the situation described in the previous section has been achieved in the past ten years.

1. Noise:

a. Present the trends or changes in terms of noise within the city over the last ten years.

A trend in the area of noise using figures is actually not possible, as the various Noise Action Plans have different calculation bases. Because the amount of mapped roads is different, the amount of people affected cannot give a logical trend.

However, a trend can be seen in the increasing number of noise protection measures in recent years as a result of the Noise Action Plans and the Mobility Concept (see 1b).

Table 2. Impact analyses from the Noise Action Plans 2009-2024. Source: Stadt Heilbronn.

L_{den} dB(A)	Stage I (2009): Only mapped roads	Stage II (2014): Only mapped roads	Stage III (2019): Only mapped roads	Stage IV (2024): Only mapped roads
55 to 60	4,840	17,800	10,500	12,700
60 to 65	2,960	10,500	8,300	11,300
65 to 70	2,030	6,600	5,400	10,700
70 to 75	1,240	3,900	1,600	4,900
Above 75	160	1,400	100	500
L_{night} dB(A)				
45 to 49				14,500
50 to 55	3,350	11,700	8,600	11,700
55 to 60	2,310	7,000	5,700	10,700
60 to 65	1,460	3,500	1,700	5,000
65 to 70	570	1,600	100	600
Above 70	0	100	0	0

b. Outline the actions and measures implemented by city authorities in the past decade that have significantly influenced the trends and changes mentioned in point 1.

Noise Action Plans

The Planning and Building Authority has been promoting noise reduction planning since 2007. In 2009, the first Noise Action Plan (Stage I) was adopted by the City Council, which focused on the noise protection window programme. In Stage II, this programme was extended, noise-optimised asphalt was laid on five roads, speed limits were introduced and speed monitoring was carried out at noise hotspots. In Stage III, these measures were extended to other areas of the city, as they proved to be the most effective and quiet areas were designated. Stage IV picks up on these measures, intensifies them and added the goal of increasing the proportion of electric vehicles in the municipal fleet⁵ (see Figure 6).

⁵ Since 2019, the e-fleet of the City Administration has been growing to over 30%, as in the small car segment, only electric vehicles are being procured.

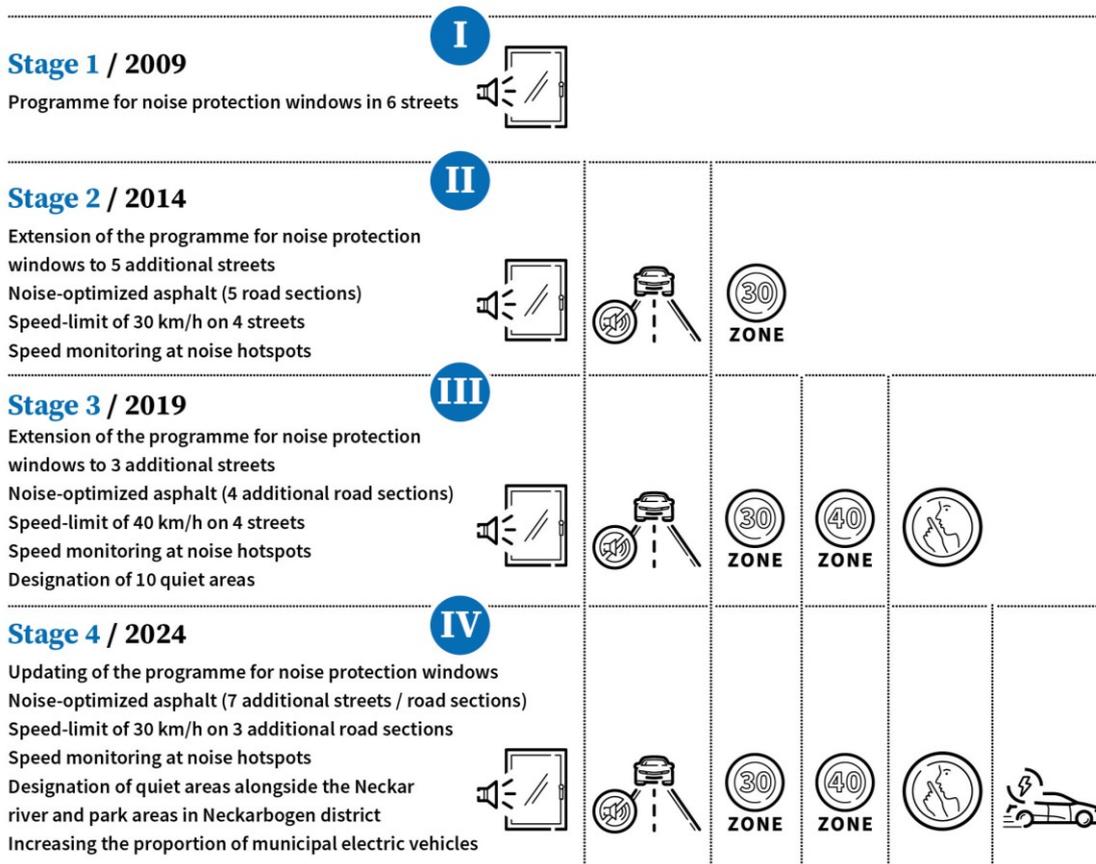


Figure 6. Increasing amount of noise reducing measures. Source: Stadt Heilbronn.

Mobility Concept 2030

As basis for the Mobility Concept extensive traffic surveys were carried out back in 2015. Five further phases followed, in which the public was intensively involved. The concept was adopted by the City Council in November 2020 and replaces the overall transport plan from 2005. Since then, the Mobility Concept served as a guideline for all decisions relating to all modes of transport, including walking and cycling, local public transport, motorised private transport and commercial transport. It also takes into account new forms of mobility such as car sharing, e-mobility and bicycle hire systems (see Figure 7). One focus of the concept is climate mitigation, which is why it is also part of the **Climate Mitigation Concept** (see Indicator 6).



Figure 7. Timeline of mobility projects over the past 10 years. Source: Stadt Heilbronn.

Framework conditions for leisure activities

The City of Heilbronn has implemented an internal noise guideline issued by the Public Order Office to regulate the approval of music and events in public spaces such as Wertwiesenpark, Theresienwiese, and the area around Frankenstadion. In the past, these locations were frequently the subject of significant noise complaints. As a response, the city initiated dialogue with local residents and gathered their input, which played a key role in shaping the current guideline to balance public use and neighbourhood peace.

The Public Order Office in Heilbronn also regulates **closing times for outdoor dining areas**, constantly facing the conflict of interests of revitalizing the inner city and promoting a vibrant urban atmosphere; and ensuring effective noise protection for nearby residents.

2. Noise awareness:

Provide information on initiatives carried out by the city over the last ten years to improve noise awareness, emphasizing their significant and measurable results.

Figure 7 gives an overview about the mobility measures within the last years. One example is the temporary redesign of Turmstraße (2022) and Lothorstraße (2023) in the city centre into a so called **#SummerZone**. The aim of the project was to initiate a process of changing the perception of public space through a change of use: A street previously dominated by cars will become a green and liveable meeting place in the neighbourhood with mobile greenery, seating elements and a reading lounge for the summer months. The projects strengthen the pedestrian and cycle routes between Sülmerstraße and Platz am Bollwerksturm and relieves the neighbourhood of motorised private transport searching for parking spaces. This not only reduces noise pollution but also explicitly creates a recreational area in the centre of the city.

To this end, Lothorstraße has been designated as a pedestrian zone and is closed to car traffic (see Figure 8). Turmstraße will be completely redesigned in 2026 (see 5.3.2.).

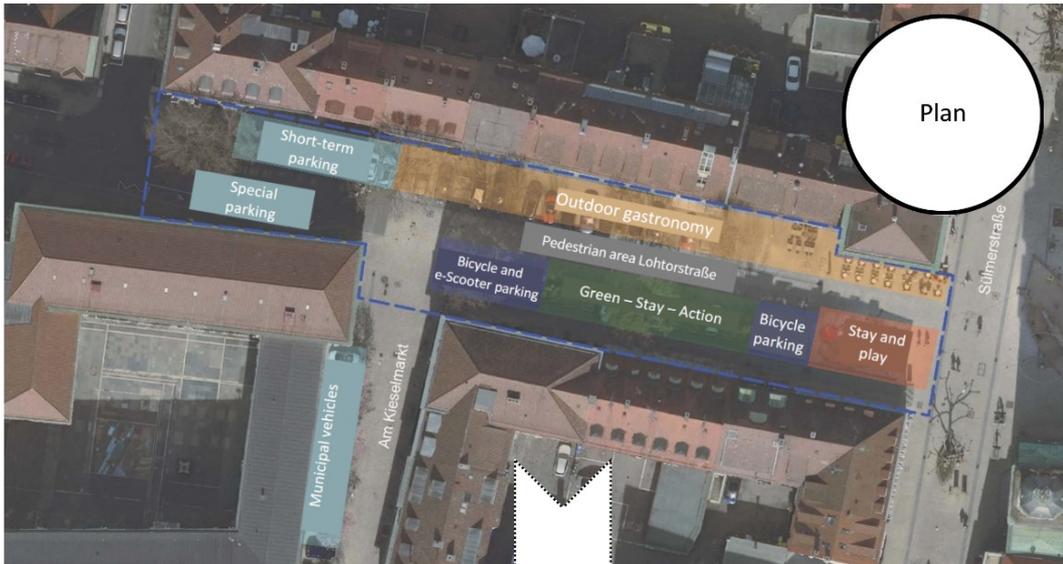


Figure 8. Redesign of Lothorstrasse into a #SummerZone. Source: Stadt Heilbronn/Jürgen Häffner.

(max. 600 words and five graphics, images, or tables)

5.3 Future Plans

1. Objectives:

Specify the objectives for 2030 and 2050 for the quality of the acoustic environment.

In order to achieve climate-neutrality by 2035, the **Climate Mitigation Concept** includes the measure of reducing motorised individual transport by 22 % from 2015 to 2035 with a reduction of 1-2 % p.a. Moreover, the share of alternative drive systems in the remaining kilometres driven is to increase to 53% from 2015 to 2035 with 4% p.a. The **Mobility Concept** as sub-concept of the Climate Mitigation Concept is pushing these noise-reducing goals (see Figure 9). As part of improving the blue-green infrastructure in context of the **Landscape Plan 2030** and the **Climate Adaptation Concept**, areas in the city centre will be redesigned for more recreational and quiet spaces for citizens (see Indicator 3 and 7).

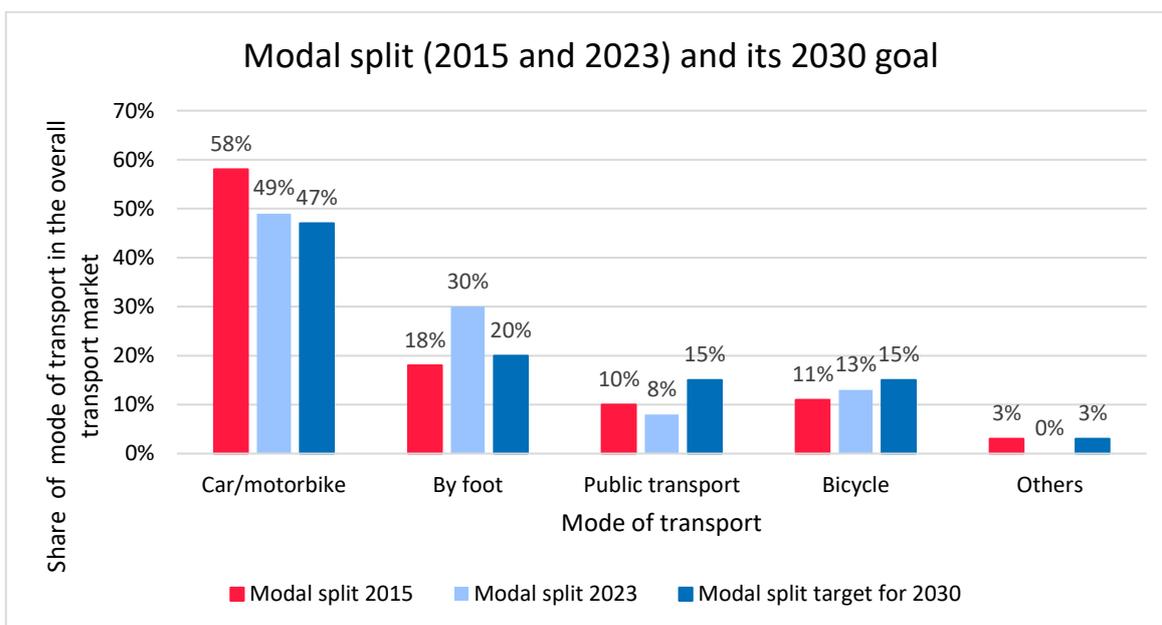


Figure 9. Modal split (2015 vs. 2023)⁶ and the 2030 development goal. Source: Stadt Heilbronn.

⁶ The shares of modes of transport (2015 vs. 2023) are not fully comparable, as in 2015 inbound commuters were also recorded by a cordon survey. In 2023 inbound and outbound commuters were not surveyed.

2. Planned measures to achieve these objectives:

Outline the key planned measures, including participatory approaches, and provide information on budget allocations and implementation schedules to achieve these objectives.

Table 3. Noise-reducing measures with defined budget that will be implemented within the next 5 years. Source: Stadt Heilbronn.

Type of measure	Location	Explanation of the expected benefit	Budget [€]
Road surface interventions	Noise-optimized asphalt on seven road (sections) ⁷	Noise reduction by approx. 3 dB(A)	2,525.00 €
Tightening of the speed limit	Speed limit from 50 km/h to 30 km/h on three road sections ⁸	Noise reduction by approx. 2,5 dB(A)	Low; only signposting
Speed monitoring	Intensification of speed monitoring in the noise hotspots	-	-
Other traffic management measures	The 30 km/h speed limit measures are flanked by infrastructure measures by the Roads Department, which include prioritising of public transport (e.g. in the case of planned reconstruction measures in the Wilhelm-Leuschner-Straße area)	Support of the previous measures	No additional costs
Noise protection windows	Programme for noise protection windows in 24 streets. ⁹	Creation of healthy living conditions, in particular ensuring an undisturbed sleep.	30.000 € annually
Conversion to quieter means of transport	Increasing the share of electric vehicles at the operating office within the procurement	Aiming for a pioneering role	Included in the costs for general procurement
Availability of quiet areas for citizens	see 5.1.3	see 5.1.3	-

Long-term measures that extend beyond a realisation period of five years:

- For all upcoming carriageway renovations: Examination of the possibility of installing a low-noise carriageway surface
- Extension of Saarlandstraße
- Frankenbach / Neckgartach northern bypass
- 4-lane extension of Neckartalstraße with the necessary noise protection measures
- Low-noise road surface on Heidelberger Straße

⁷ Südstraße (Rosenbergstraße – Wilhelmstraße); Wilhelm-Leuschner-Straße; Karlsruher Straße / Weststraße; Neckarsulmer Straße (Burenstraße – Rauchstraße); Wilhelmstraße (Werderstraße – Innsbrucker Straße); Mannheimer Straße / Weinsberger Straße (Allee – Schaeuffelenstraße); Paulinenstraße.

⁸ Frankenbacher Straße (Palmstraße to the end of the town), Heidelberger Straße (Grünwaldstraße to Derfflinger Straße; noise-reducing asphalt planned in the long term), Theodor-Heuss-Straße (Felsenstraße to the end of town)

⁹ Böckinger Straße, Großgartacher Straße, Haller Straße, Horkheimer Straße, Jägerhausstraße, Karlsruher Straße, Kolpingstraße, Leintalstraße, Neckarsulmer Straße, Neckartalstraße, Oststraße, Paul-Göbel-Straße, Paulinenstraße, Saarbrückener Straße, Schlossstraße, Speyerer Straße, Sontheimer Straße, Südstraße, Theodor-Heuss-Straße, Weinsberger Straße, Wilhelm-Leuschner-Straße, Wilhelmstraße, Wollhausstraße, Würzburger Straße.

In addition to these specific noise reduction measures, measures regarding the shift to a **sustainable mobility** and a **better air quality** are having positive effects on noise (see Table 4, Indicator 1).

Table 4. Mobility projects 2024-2028 and defined budget. Source: Stadt Heilbronn.

Category	Upcoming projects	Budget [€]
Liveable city	<ul style="list-style-type: none"> Measures for climate mitigation in transport Measures to implement the Noise Action Plan Measures to improve accessibility Measures for road safety 	6,354,000
Pedestrian traffic	<ul style="list-style-type: none"> Measures to promote pedestrian traffic Street lighting: conversion to LED, intelligent control, pedestrian crossings Traffic engineering: pedestrian-friendly conversion and new construction of traffic lights 	16,024,000
Cycling	<ul style="list-style-type: none"> Planning and new construction/conversion of cycle paths Planning of cycle school routes Bicycle parking facilities at schools IPAI cycle path connection Neckaruferweg cycle path widening 	20,403,000
Public transport	<ul style="list-style-type: none"> Conversion to e-bus fleet Subsidies to local public transport association Planning and construction of bus lanes Construction of new passenger shelters Individual measures and traffic engineering for public transport improvements 	67,912,000
Sustainable, connected, new mobility	<ul style="list-style-type: none"> Planning and installation of mobility stations as part of the Mobility Pact Heilbronn-Neckarsulm 	1,756,000
Motorised individual traffic	<ul style="list-style-type: none"> Traffic technology: Operation and maintenance of charging points Measures to improve the parking guidance system 	320,000
Mobility management	<ul style="list-style-type: none"> Transport conceptualization and planning 	2,957,000
Public relations work	<ul style="list-style-type: none"> Public relations work on cycling, traffic technology, traffic regulations and traffic planning 	810,000
Total amount		116,536,000

The city developing measures that consider the needs of **neurodivergent individuals** who benefit from quiet, low-stimulus environments—whether in municipal services, cultural institutions, or everyday settings. At the end of April, the Science Center experimenta will introduce a “silent hour” offering a calm, noise-reduced experience as a pilot project.

As part of the city centre redevelopment **Turmstraße, Zehentgasse and Obere Neckarstraße will be redesigned nature-based** (see Figure 10 and Indicator 7).

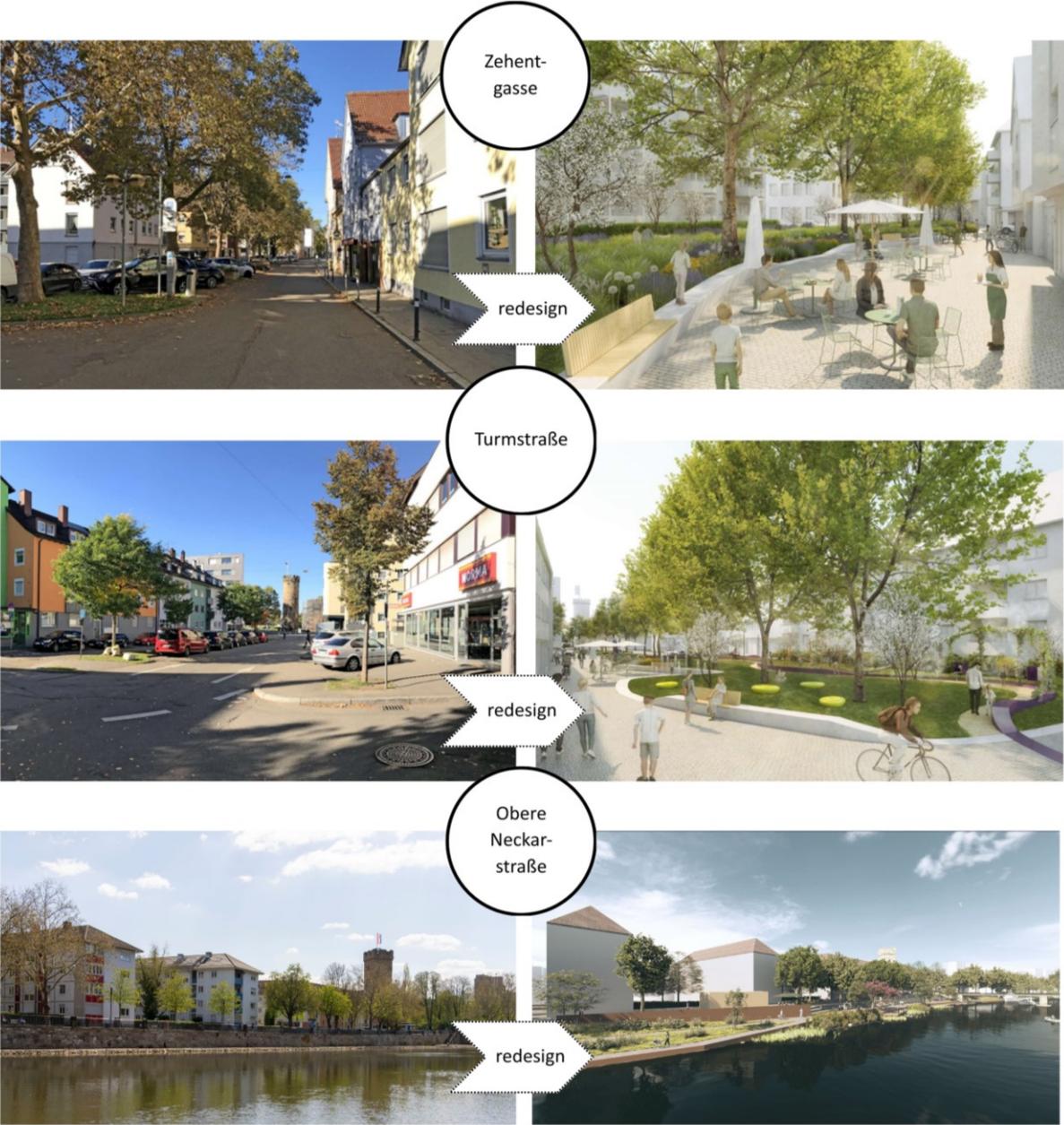


Figure 10. Forthcoming nature-based re-design¹⁰ of Zehentgasse (above) and Turmstraße (middle), as well as Obere Neckarstraße (below). Source: ARGE Hink Biegert, Raumlabor 3/Thorsten Kraemer, as well as ARGE BlauGrün.

¹⁰ Redesigning streets climate-resilient, de-sealed, car-free, rain-water managed, and with water features.

3. Support ambitions:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

The city is obliged to draw up a Noise Action Plan every five years (by the Planning and Building Authority), which is enacted by the City Council. Moreover, the measures of the Climate Mitigation Concept, its update and the Mobility Concept 2030 as sub-concept were also adopted by the City Council and serve as a basis for all departments involved. With signing the EU Green City Accord, the City has committed itself to improving noise indicators on an European level.

b. Outline plans for monitoring the impacts of implemented measures.

According to Section 47e of the Federal Immission Control Act (BImSchG), the **Planning and Building Authority** is responsible for the coordination of noise action planning.

In addition, as part of authorisation procedures for **commercial and industrial companies**, it is checked whether the noise guide values can be complied with and, if necessary, requires noise reduction measures to comply with the guide values.

The **Roads Department** of the City of Heilbronn are responsible for implementing the measures of the Mobility Concept and road-related measures from the Noise Action Plan.

The **Public Order Office**, more specifically the department for monitoring of moving traffic, monitors the speed limit using stationary and mobile measuring equipment. Offences are punished with a warning or fine or, in particularly serious cases, with a driving ban. In addition to accident blackspots identified by the police, special danger spots such as school routes, playgrounds, sports facilities or retirement homes as well as traffic-calmed residential areas and 30 km/h zones are monitored. Wishes and suggestions from the public are also taken into account when selecting the locations, e.g. for the yearly speed monitoring marathon.

The **authorities of the City and district of Heilbronn**, together with the **Heilbronn Police Headquarters**, are working jointly on measures to tackle the local street racing and car poser scene. Regular focused inspections and controls are carried out as part of this effort.

(max. 600 words and five graphics, images, or tables)

5.4 References¹¹

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **General information on noise**
 - Landing page Heilbronn: <https://www.heilbronn.de/umwelt-mobilitaet/laerm.html>
 - Overview and all documents on the Noise Action Plans III and IV (impact analysis, noise mapping, noise focus areas): <https://www.heilbronn.de/umwelt-mobilitaet/laerm/laermkartierung-und-laermaktionsplan.html>
 - Public Participation Noise Action Plan IV: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/laerm/laermaktionsplan_stufe_IV/Drucksache_Laermaktionsplan_Stufe_IV/Anlage_3_Oeffentlichkeitsbeteiligung.pdf
 - Quiet areas: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/laerm/laermaktionsplan_stufe_IV/Drucksache_Laermaktionsplan_Stufe_IV/Anlage_2_Plan_Ruhige_Gebiete.pdf
 - Programme for noise protection windows: <https://www.heilbronn.de/umwelt-mobilitaet/laerm/laermschutzfensterprogramm.html>
 - Noise abatement programme for federal railways: <https://www.heilbronn.de/umwelt-mobilitaet/laerm/laermsanierungsprogramm-des-bundes.html>

- **Noise-related concepts on the Heilbronn homepage**
 - Noise Action Plan: <https://www.heilbronn.de/umwelt-mobilitaet/laerm/laermkartierung-und-laermaktionsplan.html>
 - Air Quality Plan: <https://www.heilbronn.de/umwelt-mobilitaet/luft/luftreinhalteplan.html>
 - Climate Mitigation Concept: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-masterplan.html>
 - Mobility Concept 2030: <https://www.heilbronn.de/umwelt-mobilitaet/mobilitaet/mobilitaetskonzept-2030.html>
 - Landscape Plan 2030: <https://www.heilbronn.de/umwelt-mobilitaet/landschaftsplan.html>

- **Working together to drive transformation**
 - GCA-signatory: <https://www.heilbronn.de/rathaus/aktuelles/european-green-city-accord-in-vilnius.html>
 - Heilbronn-Neckarsulm Mobility Pact: <https://www.mobilitaetspakt-h-n.de/>
 - WE-Pact: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-masterplan/wir-pakt.html>
Video: WE-Pact: <https://www.youtube.com/watch?v=BwxyW3xIU-I>
 - Video: Family-report on using bikes in Heilbronn: <https://www.youtube.com/watch?v=MPKOWOLHhMM>
 - Video: University ecosystem is working on transparent ecological data visualisation: <https://www.youtube.com/watch?v=vu1NSjSHPQE>

¹¹ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- Climate and Sustainability Advisory Board: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-und-nachhaltigkeitsbeirat.html>
- **Citizen participation**
 - European Green Capital Heilbronn – landing page: <https://www.heilbronn.de/umwelt-mobilitaet/european-green-capital-award-2026.html>
 - Citizen participation platform: <https://wirsind.heilbronn.de/>
 - Climate portal: <https://klimaschutz.heilbronn.de/>
 - Campaign “Heilbronn, the climate and US”: <https://klimaschutz.heilbronn.de/kampagne-2023>
 - Participation in the European Mobility Week: <https://mobilityweek.eu/participating-towns-and-cities/?year=2023&country=DE&city=96Pddie1>
 - Cycle Map: <https://www.heilbronn.de/umwelt-mobilitaet/mobilitaet/radverkehr.html>
 - New citizens marketing:
 - Mobility brochure: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/mobilitaet/Mobilitaetsbroschure-DEEN-DIN_A4-20240408.pdf
 - Free bikes for new students: <https://www.heilbronn.de/tourismus/infos/presse/details/artikel/einstadtfahrrad-zum-studienstart-hat-tradition.html>
 - Free public transport trial ticket: <https://welcome.heilbronn.de/de/leben/mobil-in-heilbronn/oeffentlicher-personennahverkehr/das-schnupperticket.html>
- **Examples of redesign projects**
 - New Neckar Promenade: <https://www.heilbronn.de/stadterneuerung/neue-neckarpromenade.html>
 - Redesign of Turmstraße and Zehentgasse: <https://www.heilbronn.de/bauen-wohnen/meine-innenstadt-nord.html>
 - #SummerZone: <https://www.heilbronn.de/bauen-wohnen/meine-innenstadt-nord/sommerstrasse.html>
- **Silent hour in the Science Center experimenta:** <https://www.experimenta.science/besuchen/veranstaltungskalender/stille-stunde/?termin=1746021600>

(max. 400 words)

Word Count Check

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6 Climate Change Mitigation

6.1 Present Situation

This section is aimed at providing information on the current situation in relation to energy and CO₂ emissions (and other greenhouse gases) in the city. Please complete the following table with the most recent data available.

Table 1: Benchmarking Data - Climate Change Mitigation

Indicator		Units	Year of Data
Energy consumption			
Final energy consumption	2,996,755 / 3,325,579 / 3,163,166	MWh	2015 / 2019 / 2020 ¹
Final energy consumption per capita	23,967 / 25,732 / 24,521	kWh/capita	2015 / 2019 / 2020
Share of renewable energies of final energy demand	10.7 ²	%	2019
Share of locally produced renewable energies of final energy demand	3.5 ³	%	2019
Energy performance of municipal buildings (mean)	100	kWh/m ²	2020
CO₂ (and other greenhouse gas) emissions			
Total CO ₂ equivalent emissions per year	1,067,836 / 1,099,125 / 996,597	t CO ₂ eq.	2015 / 2019 / 2020
Total CO ₂ equivalent emissions per capita	8.54 / 8.50 / 7.73	t CO ₂ eq./capita	2015 / 2019 / 2020
Total CO ₂ equivalent emissions per MWh energy consumed	0.36 / 0.33 / 0.32	t CO ₂ eq./MWh energy consumed	2015 / 2019 / 2020
Emission reduction targets		Base Year	Target Year
City's emissions reduction targets	1990	2035	-90

Table 2: Benchmarking Data – Energy consumption and CO₂ emissions per sector

Sector	Total energy consumption ⁴	Unit	Total CO ₂ equivalent emission ³	Unit
Agriculture and fisheries	Not included in the emissions data	%	Not included in the emissions data	%
Industrial and commercial	33 / 26.3 / 28.0		38 / 31.8 / 31.7	
Transport	29 / 31.7 / 29.7		26 / 30.1 / 29.6	
Domestic	30 / 31.5 / 32.5		27 / 27.7 / 29.0	
Services	6 / 7.6 / 6.9		7 / 7.7 / 7.0	
Other ⁵	2 / 2.9 / 2.9		2 / 2.7 / 2.7	
Total	100		100	

¹ The data on energy consumption and CO₂ emissions for the year 2020 are based on the internal report "Heilbronn CO₂ Report 2016–2020". This report has not been published due to a revised calculation methodology that renders the results incompatible with the CO₂ balances of previous years. The City of Heilbronn is currently working on developing a solution to enable a methodologically consistent and thus comparable representation of CO₂ trends over time.

² Electricity accounts for 21% of the total energy demand, 46% of it stems from renewables; Heating accounts for 48% of the total energy demand, 3% of it stems from renewables. See Figure 1

³ The final energy demand was 3,326 GWh; 70,321 MWh electricity, and 44,531 MWh heat from renewable energy sources was produced locally

⁴ For the year 2015 / 2019 / 2020.

⁵ Others refers to the City Administration.

1. Energy sources:

Present a breakdown of the sources of energy. Note the existence of a Sustainable Energy and Climate Action Plan (SECAP) under the EU Covenant of Mayors, or a Climate City Contract (CCC) under the EU Cities Mission providing respective references.

The **Climate Mitigation Concept (2020)** and its **updated version (2022)** provide the basis for the city's climate mitigation efforts. The concept was based on the baseline emissions inventory (Heilbronn CO₂ Report 2014-2015) and includes detailed climate mitigation measures (Table 3). The 2020 Concept was developed within workshops for around 70 stakeholders (residents, city staff, businesses, citizen groups and winemakers) on different specific topics (renewable energy, heating, building, planning and renovations). An additional section on energy poverty is currently under development with interdepartmental discussions and research underway. In 2021, the cities Climate Adaptation Concept was approved by the city council. Therefore, Heilbronn is working consistently on the three action pillars (climate mitigation, adaptation and energy poverty) of the Covenant of Mayors.

The energy and emissions data from the CO₂ Report (2016-2020) includes direct energy consumption within the territory of the City of Heilbronn broken down by different energy sources (see Figure 1).⁶

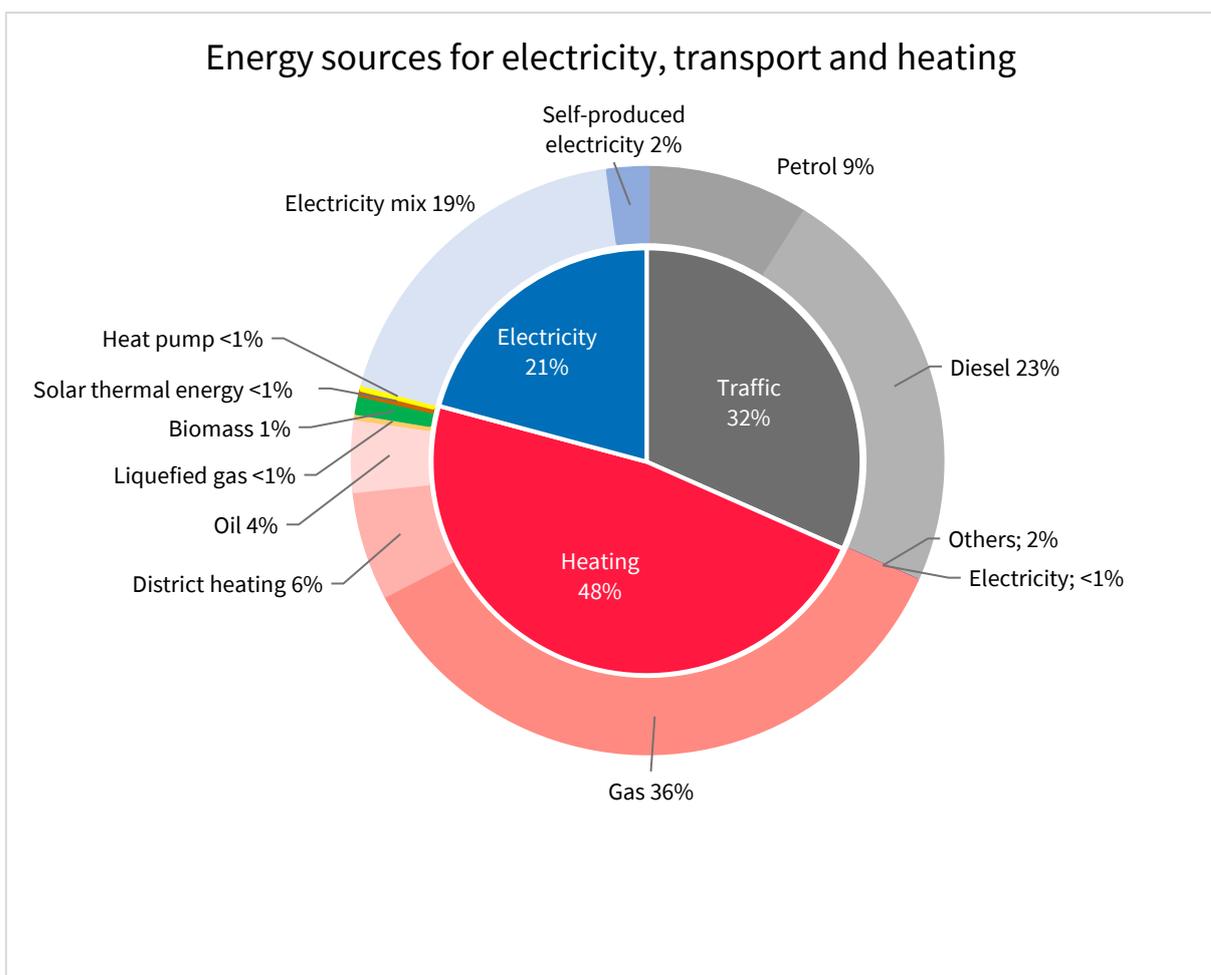


Figure 1. Energy sources for electricity, transport and heating 2019. Source: Stadt Heilbronn.

⁶ The German energy mix 2019 consisted of 46% renewables: <https://strom-report.com/strommix/>

2. CO₂ emissions monitoring:

Discuss the current system in place for monitoring CO₂ emissions.

The first **Municipal Energy Report** was completed in 2008 followed by the first Climate Mitigation Concept in 2010. Both the Municipal Energy Reports and CO₂ Reports have been consequently conducted at regular intervals. The most recent completed CO₂ Report is for the period 2016 – 2020. As a signatory of the **Global Covenant of Mayors** since 2024 and aligning with European strategies, the city will now capture CO₂ emissions biennially. The calculations methods and tools are based on the national standard “BISKO” (Municipal Accounting System), which provides an end-energy-based territorial balance at the time of reporting. BISKO’s methodologies and emissions factors are based on data sources such as the GEMIS database and publications by the German Environment Agency (UBA). Specific factors are provided for natural gas, heating oil, and other energy carriers, which may change over time.

Municipal climate mitigation actions are monitored through **biennial progress reports** with the first one being completed in 2022. Selected indicators are published online on the dashboard “Klimaportal” which was launched in 2024. The trend graphs are updated yearly whereas project progress is updated more regularly.

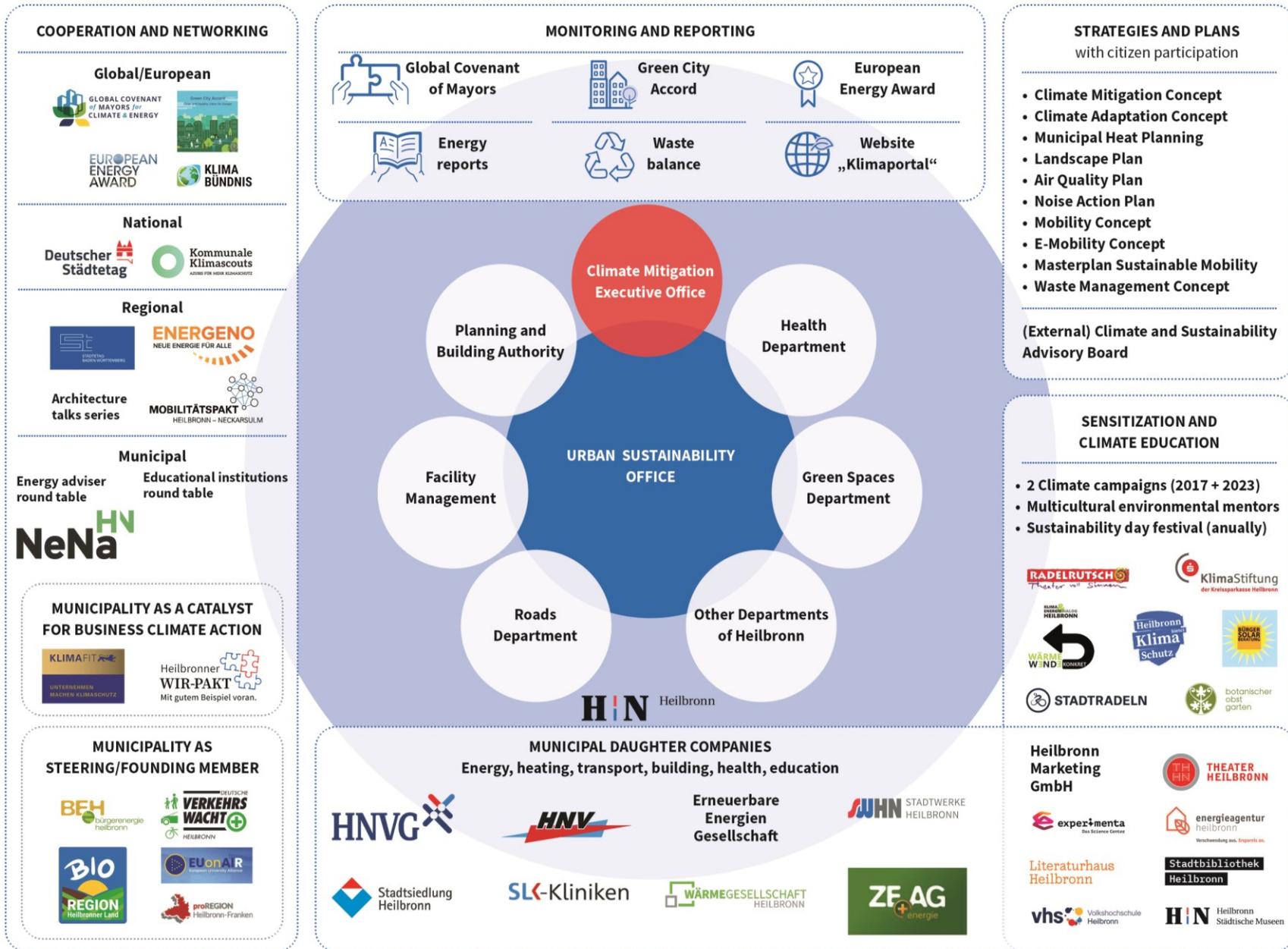


Figure 2. Heilbronn's ecosystem for climate mitigation. Source: Stadt Heilbronn.

3. Organisation:

a. Outline the city's organizational structure responsible for managing energy performances across various sectors such as buildings, transport, and industry.

The Climate Mitigation Executive Office is the **central coordination body for climate mitigation and adaptation activities** within the City Administration. The team benefits from direct report to the **Mayor for Building, Mobility and Environment** as well as having close proximity to the specialised departments most relevant in climate mitigation implementation. Through the interdisciplinary nature of climate mitigation projects, the Executive Office works closely with **various departments throughout the whole city administration**. The European Energy Award (started in 2025) is one such example, where – coordinated by the Executive Office - designated officers work within their responsibilities in various departments to contribute to the city's overall energy performance.

Interdepartmental cooperation is also reflected in several **tandem positions**. One example is the Climate-Neutral City Administration Manager who is located within the Climate Mitigation Executive Office as well as the Facility Management which oversees energy performance in municipal buildings. The Roads Department implements measures that directly or indirectly influences energy performance in the transport sector. E.g. the Stadtwerke Heilbronn, a daughter utilities company of the city, operates the local busses and provides other low carbon transport solutions including E-car-sharing and on-call night shuttles.

Through cooperation and networking with businesses and industry the municipality acts as a catalyst for climate action. This includes the well-publicised climate pact **WE-Pact⁷** and the funding program **CLIMATEfit⁸** to support businesses in the first stages of internal climate management. Additionally, businesses with rooftop solar potential are being identified and contacted personally by the Renewable Energy Manager. The WE-Pact was launched in 2024 and is a network of already 14 local institutions that share the city's 2035 climate goals.

b. Explain how the city collaborates with governmental bodies, private sector service providers, enterprises, and citizens to reduce emissions.

Since the establishment of the Climate Mitigation Executive Office, significant progress has been made in connecting existing climate efforts and stakeholders, as summarized in Figure 2. The city launched a Climate and Sustainability Advisory Board in 2022, with members including local councilors, environmental groups, and companies. Its goal is to foster collaboration, develop new projects, and accelerate implementation in sustainability.

Heilbronn actively participates in **networks at European, national, and regional levels**, such as the Global Covenant of Mayors and the European Energy Award. Local round tables are organized in various sectors to exchange knowledge and build networks, with collaboration also occurring through the NeNa (local sustainability-NGOs network).

Stakeholders were consulted through workshops and surveys, including 2023 workshops for Municipal Heat Planning with energy providers, experts, and councilors. In urban projects, citizens are regularly involved through participation formats, which they can access via the citizen participation platform

The city is involved in **education on the environment**, holding shares in institutions like the adult education center and the science center experimenta, which offer environmental trainings.

⁷ German: WIR-Pakt

⁸ German: KLIMATEfit Förderprogramm Baden-Württemberg

4. Transport:

Detail the modal share of transport, including the proportions for car, public transport, and active transport. Additionally, city plans such as a sustainable urban mobility plan (SUMP) or sustainable urban logistics plan (SULP) should be mentioned⁹.

Heilbronn's **Mobility Concept 2030** and E-mobility Concept (2020) guide actions for emission reduction in transport and result in several measures and activities (see Figure 4, Figure 5). The Mobility Concept is integrated into the Climate Mitigation Concept as **sub-concept**.

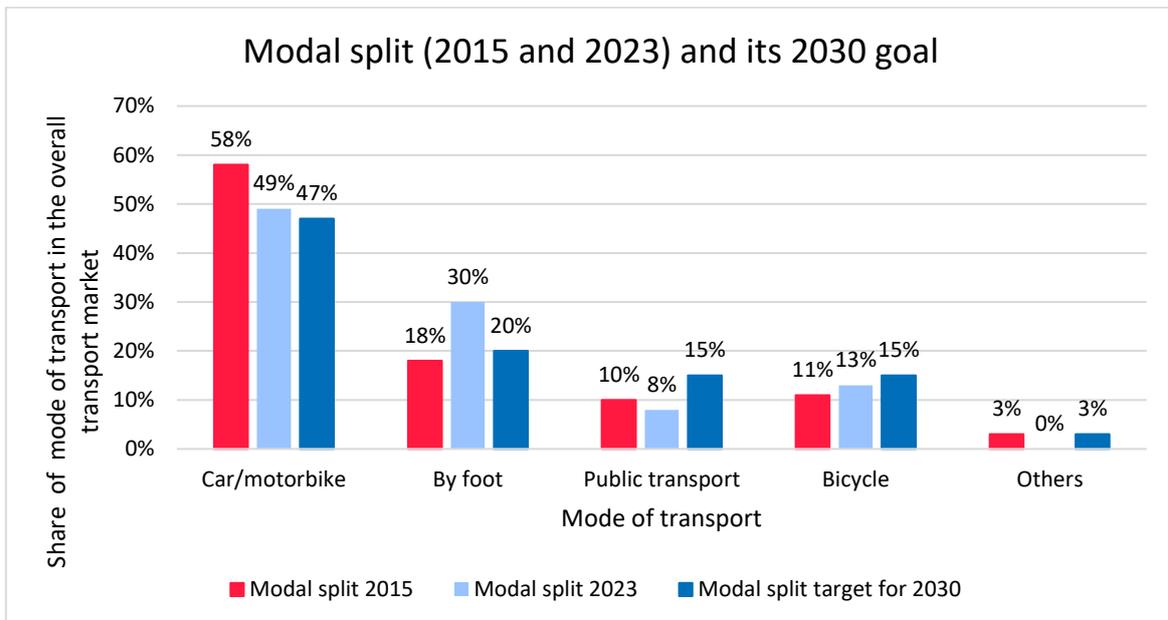


Figure 3. Modal split (2015 vs. 2023)¹⁰ and the 2030 development goal. Source: Stadt Heilbronn.

⁹ Sustainable Urban Logistics Plan

¹⁰ The shares of modes of transport (2015 vs. 2023) are not fully comparable, as in 2015 inbound commuters were also recorded by a cordon survey. In 2023 inbound and outbound commuters were not surveyed.

Public transport

- Trial tickets** for new citizens for 2 weeks
- Free public transport for everyone** on Advent Sundays
- 65 buses and 5 trams** in operation on average
- Bus ticket subsidy in shops** for purchases of €12.5 or more
- Buddy for night owls** €5 p.p. (bundles routes for CO₂ savings)
- FiftyFifty-Taxi:** Heilbronn district pays 50% of taxi fares for young people at night
- Cable car project** Cable car connection between main station, IPAL, universities, and north-western city districts
- Assessment of the reactivation of two railway lines to the surrounding areas** (Bottwartalbahn and Zabergäubahn)
- Work on a permanent connection for the Inter-city Express**
- Subsidies for public transport tickets (Deutschlandticket)**
 - Employees** (municipal administration): 53€ subsidy/month
 - Trainees** (municipal administration): for free
 - Recipients of social benefits** (Bürgergeld): €10 subsidy/month
- Intelligent traffic management system** that gives priority to public transport at traffic lights

Motorized individual traffic

- Speed-limited zones** in the city center
- Parking and traffic guidance system** (signs for parking facilities, warn of roadworks/congestion due to major events)
- New mobility hub in Neckarbogen:** parking, e-charging, e-sharing, bike-repairing, local energy production
- Real-time display of free parking spaces** in car parks on the homepage
- Honoured for good e-charging infrastructure**

MOBILITY IN HEILBRONN /

Cycling

- Cargo bike funding programme**
- Bike house** fully automated bike-parking for 250 bikes
- Awarded as pedestrian- and bikefriendly municipality**
- More than 120 km bicycle infrastructure**
- 7 dedicated bicycle streets**
- 14 million investment budget for bike paths** in the next 4 years
- RS3 cycle expressway Bad Wimpfen-Neckarsulm-Heilbronn** (finished 2030)
- Bicycle leasing for employees** of the city administration
- Pedelec safety training** for city employees
- Raffle of bicycles** for new students
- DB Rad + App:** convert kilometres cycled into rewards
- New touristic city routes for cycling** e.g. sustainable shopping tour
- Green arrows for cyclists**
- 12 bike service points:** free tools for repairing
- Shard hotline** to report pieces of broken glass on cycle paths
- New cycle route between Biberach and Kirchhausen** coming soon
- Cycling officer** of the city

Walking

- 'Fußverkehrs-Check'** External review of pedestrian traffic in Heilbronn
- 'Walking to school'** campaign week (Children collect stamps for walking to school)
- Improvement suggestion form** e.g. for lowered kerbs
- Pedestrian officer** for the city
- Multilingual school route plans** for 19 primary schools in Heilbronn

Sharing offers

- Car sharing** 61 vehicles and 41 stations
- E-scooter sharing**
- E-bike sharing**
- Campus bikes** (Heilbronn universities)
- New mobility hub** in Neckarbogen with sharing offers

Communication & sensitization

- Multilingual mobility brochure**
- City maintenance reporting tool**
- Sustainability Day**
- City cycling competition and cycling festival**
- Activities together with citizens** within the European Mobility Week
- Redesign of Parking Spaces** (Industrial zone Wohlgelegen)
- #SummerZone** traffic-calmed areas for citizens leisure activities

Figure 4. Heilbronn's sustainability activities in the field of mobility. Source: Stadt Heilbronn.

5. Whole life carbon of buildings and infrastructure:

Describe current strategies and initiatives regarding the whole life carbon of buildings and infrastructure, stimulating the use of materials with low embodied carbon, low global warming potential, and/or high stored carbon content.

The City of Heilbronn is committed to reducing CO₂ emissions throughout the entire lifecycle of its municipal buildings and infrastructure. The **Property Strategy** (Objektstrategie Gebäudebestand), to be published in 2025, provides reliable prioritization recommendations for all renovation and refurbishment projects.

The evaluation criteria for existing buildings are based on the following factors:

- Building Value Preservation (Reduction of Maintenance Backlog) – 50%
- Urban Concept Heilbronn 2030 – Education and Knowledge City – 10%
- User Satisfaction – Ensuring Municipal Services – 10%
- CO₂ Neutrality of Municipal Buildings by 2030 – 25%
- Inclusivity – Barrier-Free Use of Municipal Buildings – 5%

In terms of new construction and renovation, the **new municipal energy guidelines** (published 2025) are aligned with the **German Building Energy Act** (GEG). The Heilbronn standard is 20% more ambitious, requiring 20% less heating demand per square meter. In construction, the municipality prioritizes hybrid-timber construction in public buildings and housing. The **Neckarbogen district** serves as a real lab, already featuring 20 hybrid-timber houses. Germany's first ten-storey wooden high-rise, SKAIO (built 2019), won the German Sustainability Award for Architecture.

(max. 1000 words and five graphics, images, or tables)

6.2 Past Performance

The aim of this section is to make clear how the situation described in the previous section has been achieved in the past ten years.

The provided timelines (Figure 5, Figure 6, Figure 7) show the most significant measures and milestones within the last ten years that impacted CO₂ and other greenhouse gas emissions, energy consumption and renewable energies.

In the **area of transport**, impacting categories were:

- **Organizational frameworks and instruments**, such as the Mobility Concept 2030
- **Construction projects**, such as the building of new bike lanes, the new car-light district Neckarbogen including the mobility hub
- **Technical systems and solutions**, such as increasing the number of traffic signal systems with public transport prioritization (+20% in the last ten years)
- **Awards, competition and similar**, such as being awarded as pedestrian and bike-friendly
- **Communication, sensitization, and incentives**, such as the subsidies for “Deutschlandticket”, or the yearly organization of the European mobility week
- **Sharing offers** infrastructure for (e-) cars, bikes, scooters
- **Traffic measures**, such as speed limits, or the forthcoming cable car connection

In the **area of buildings and construction**, 3 categories were guiding:

- **Renovation of existing buildings**, e.g., the Dammschule from 1908 to the latest energy standards
- **Construction of new buildings** such as SKAIO, the award-winning wooden high-rise
- **Fundamental guiding concepts** such as the energy guideline of the City of Heilbronn

In the area of **energy** the most important categories were:

- **Strategies** for Climate Mitigation and Adaptation, e.g. Municipal Heat Planning
- **Different monitoring measures** e.g. sustainability report or status reports on climate mitigation and adaptation
- **Governance for implementing and reviewing the effectiveness of the measures** like the establishment of the Executive Office for Climate Mitigation, the Climate Mitigation and Sustainability Advisory Board, or the establishment of the Heilbronn Renewable Energy Company¹¹
- **Communication, sensitization, and incentives** through different campaigns involving trade, industry, commerce, social institutions, local political players and citizens
- **Renewable energy projects** such as wind parks and photovoltaics

¹¹ Heilbronn Erneuerbare Energiengesellschaft



Figure 5. The most significant measures implemented in the field of mobility in recent years. Source: Stadt Heilbronn.

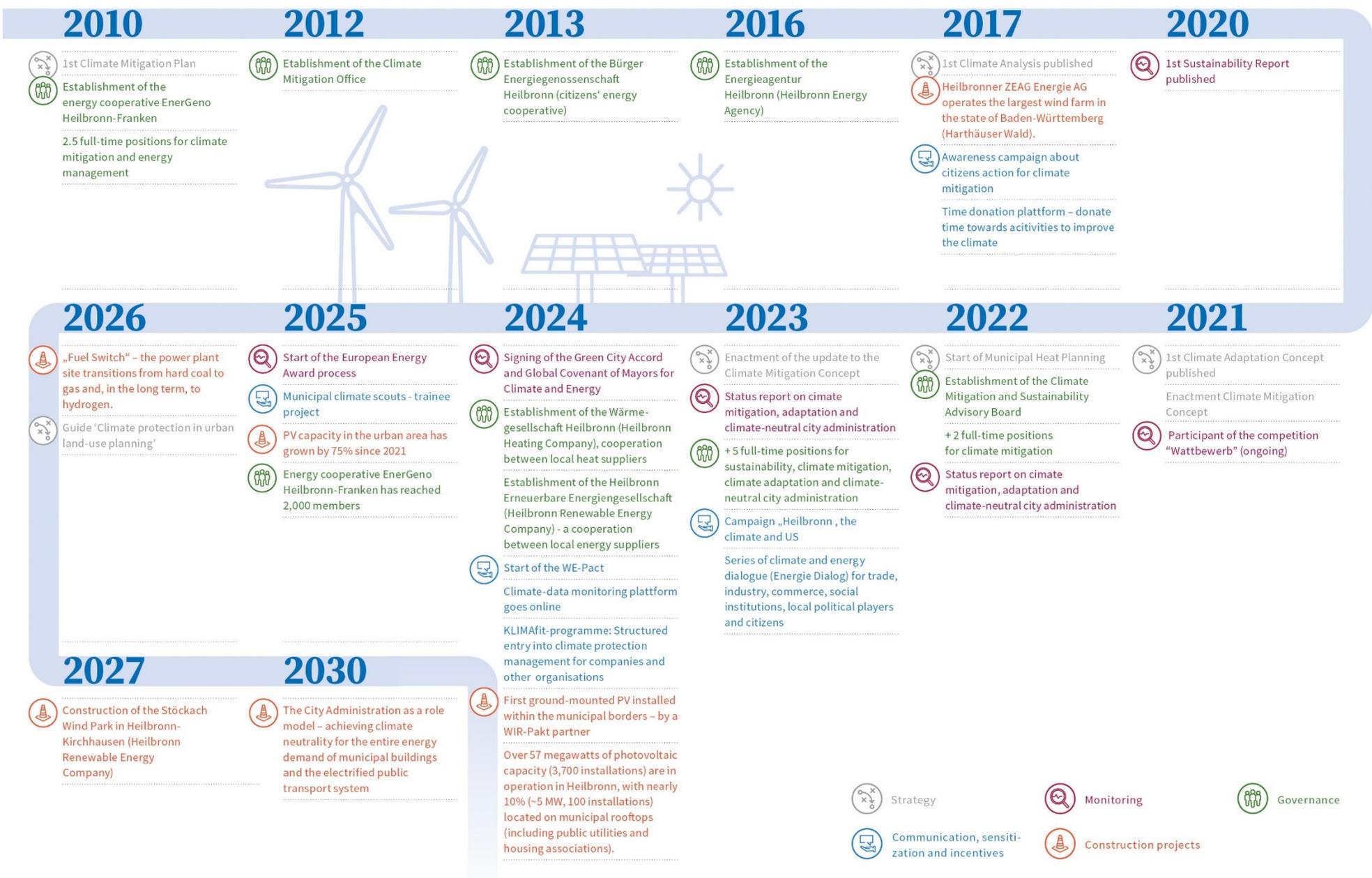


Figure 6. The most significant measures implemented in the field of climate mitigation and energy in recent years. Source: Stadt Heilbronn.

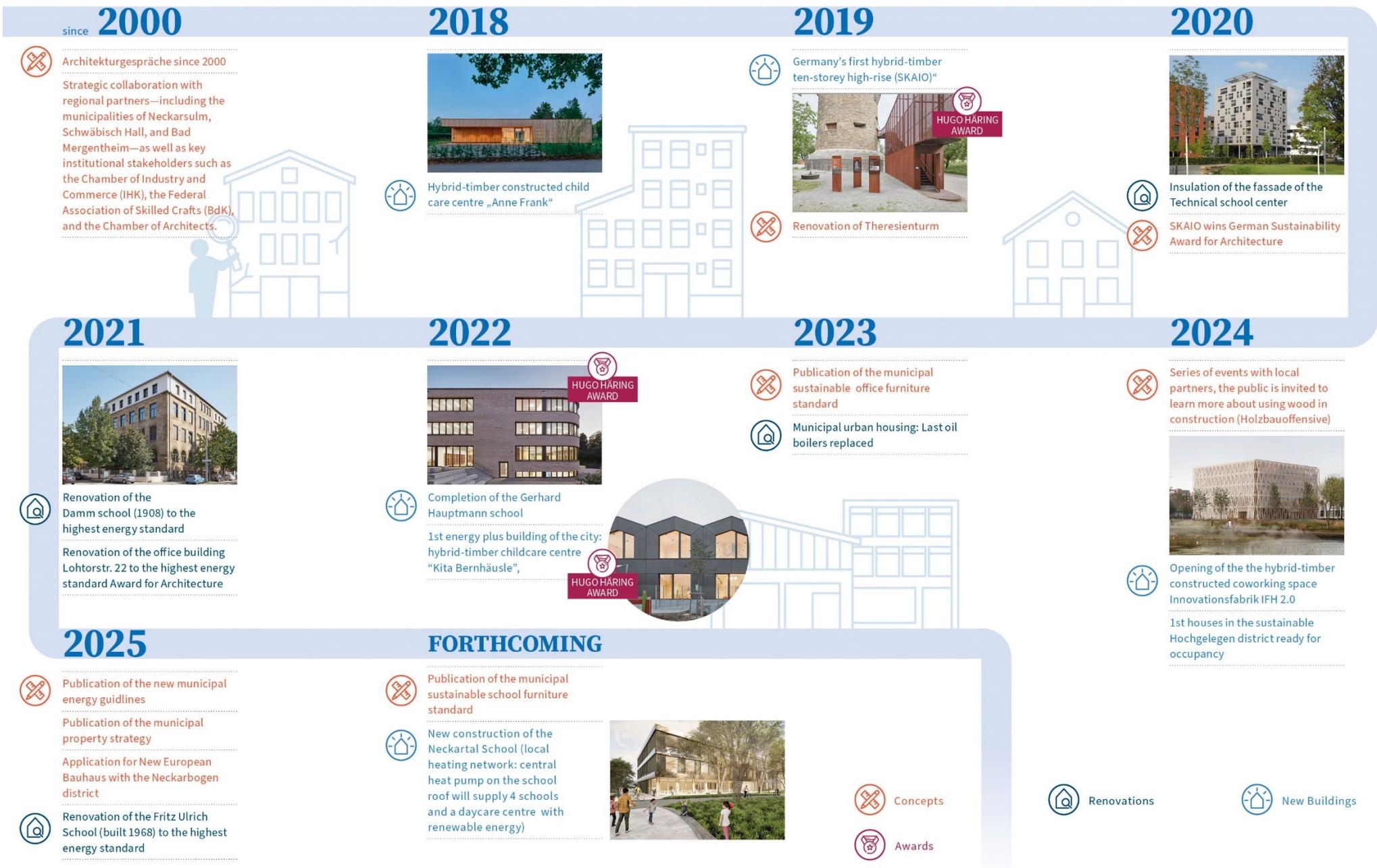


Figure 7. The most significant measures implemented in the field of construction and renovation in recent years. Source: Stadt Heilbronn.

1. CO₂ and other greenhouse gas emissions:

Provide trends in CO₂ and other greenhouse gas emissions over the last ten years and detail the most significant measures that affected these changes.¹²

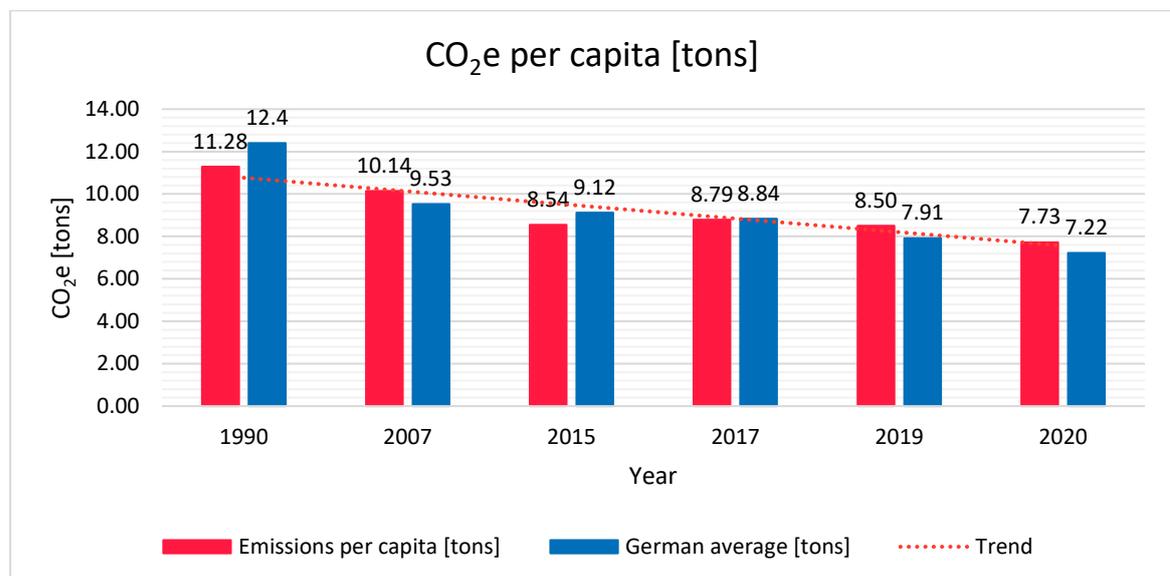


Figure 8. Trend of CO₂e per capita [tons]. Source: Stadt Heilbronn.

2. Energy consumption and energy efficiency:

Provide trends in energy consumption and energy efficiency over the last ten years and detail the most significant measures that affected these changes.¹³

Energy consumption per capita [MWh]:

- 2011: 22.25 MWh
- 2013: 23.16 MWh
- 2015: 23.97 MWh
- 2019: 25.73 MWh
- 2020: 24.52 MWh

Despite significant steps in climate mitigation, Heilbronn's latest energy consumption data shows a slight increase in per capita energy use. Three main reasons are:

- **Increased industrial energy demand** for production, logistics, and commercial activities
- **Growing car ownership**, freight transport, and public transit demand lead to higher fuel and electricity consumption
- **Heating and cooling:** The recent municipal heat plan shows that around 80% of the city's buildings were built before 1979, prior to regulations for thermal insulation. Many of these buildings have not been renovated, contributing to high heating energy demand, as reflected in the CO₂ report¹⁴ (2016-2020).

With recent regulatory changes¹⁵, Heilbronn expects energy consumption to decrease, though the positive effects of these laws are not yet visible in current data.

¹² For the measures taken affecting the changes in emissions, see Figure 5, Figure 6, and Figure 7.

¹³ For the measures taken affecting the changes in energy consumption and efficiency, see Figure 5, Figure 6, and Figure 7.

¹⁴ More than 40% of the total energy demand is attributable to heating

¹⁵ Heilbronn is in Baden-Württemberg, a state with ambitious climate regulations. The State Climate Law (KlimaG), enacted in February 2023, mandates municipal climate responsibilities, including municipal heating

3. Renewable energy:

Provide trends in the use of renewable energy technology over the last ten years and detail the most significant measures that affected these changes.

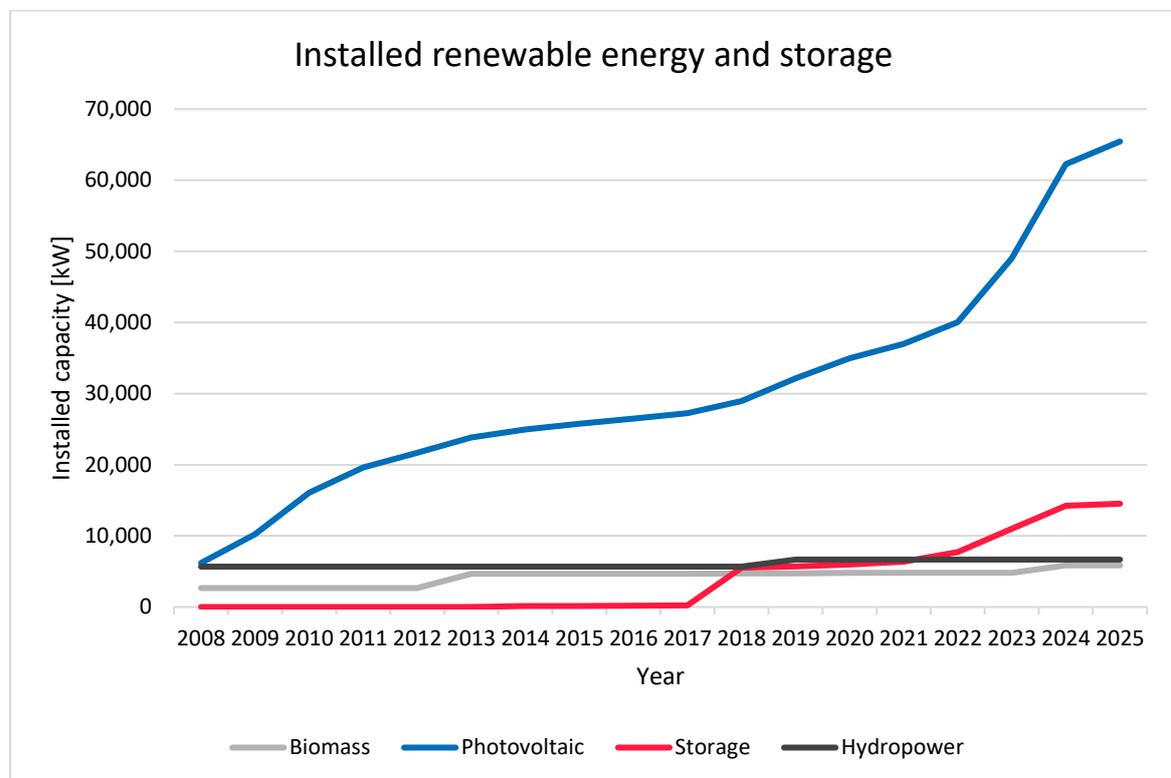


Figure 9. Installed renewable energy and storage. Source: Stadt Heilbronn.

The trend in photovoltaic and other renewable energies can be seen in Figure 9.

Local energy cooperatives¹⁶, have driven renewable energy uptake. E.g. EnerGeno has over 2,000 members and solar projects saving 10,000 tCO₂e annually. On municipal rooftops, the capacity has grown from 828 kWp (2014) to 3,527 kWp (2024), which is 35% of the 2030 goal.

In 2022, Heilbronn launched a local training initiative¹⁷ to empower residents to advise their neighbours on rooftop and balcony PV systems. The resulting volunteer group, **Citizens Solar Consultancy Heilbronn**, continues to offer free peer advice to promote residential solar adoption.

To coordinate larger and more complex projects, municipal daughter companies have partnered with the regional energy company to establish two organisations in 2024: The **Heilbronn Heating Company** aims to extend district heating infrastructure whereas the **Heilbronn Renewable Energy Company** aims to implement renewable energy projects.

(max. 600 words and five graphics, images, or tables)

plans and photovoltaic installations on new and renovated rooftops and parking lots. Nationally, the German Building Act (GEG) of 2020 requires at least 65% renewable energy for heating in new buildings.

¹⁶ BürgerEnergiegenossenschaft, EE Bürgerenergie HN, and EnerGeno

¹⁷ BürgerSolarBeratung Heilbronn

6.3 Future Plans

1. Objectives:

Specify the objective for 2030 and 2050 for further emissions reduction and the development of a sustainable energy system. Reference an existing SECAP or Climate City Contract, where applicable.

The Climate Mitigation Concept sets out specific targets and actions within the area of **energy use, heating, mobility and a climate-neutral City Administration** (Figure 11). The development of a sustainable energy system plays a significant role in the Concept and includes renewable energy infrastructure as well as energy efficient renovations, awareness and networking for an energy transition.

Heilbronn aims to achieve net greenhouse gas neutrality by 2035 (Figure 10). **The City Administration of Heilbronn aims to achieve net greenhouse gas neutrality by 2030.** Beyond concrete goals for 2035, the city strives to continually improve climate performance and supports the German government's target of negative emissions by 2050.

The Municipal Heating Plan (2023) shows the **potential to reduce emissions from heating up to 98%** by increasing the connection to district heating and the installation of heat pumps along with the switch of the energy source from fossil fuels to renewable energies. This will be achieved by building on and strengthening existing infrastructure, organisations and activities.

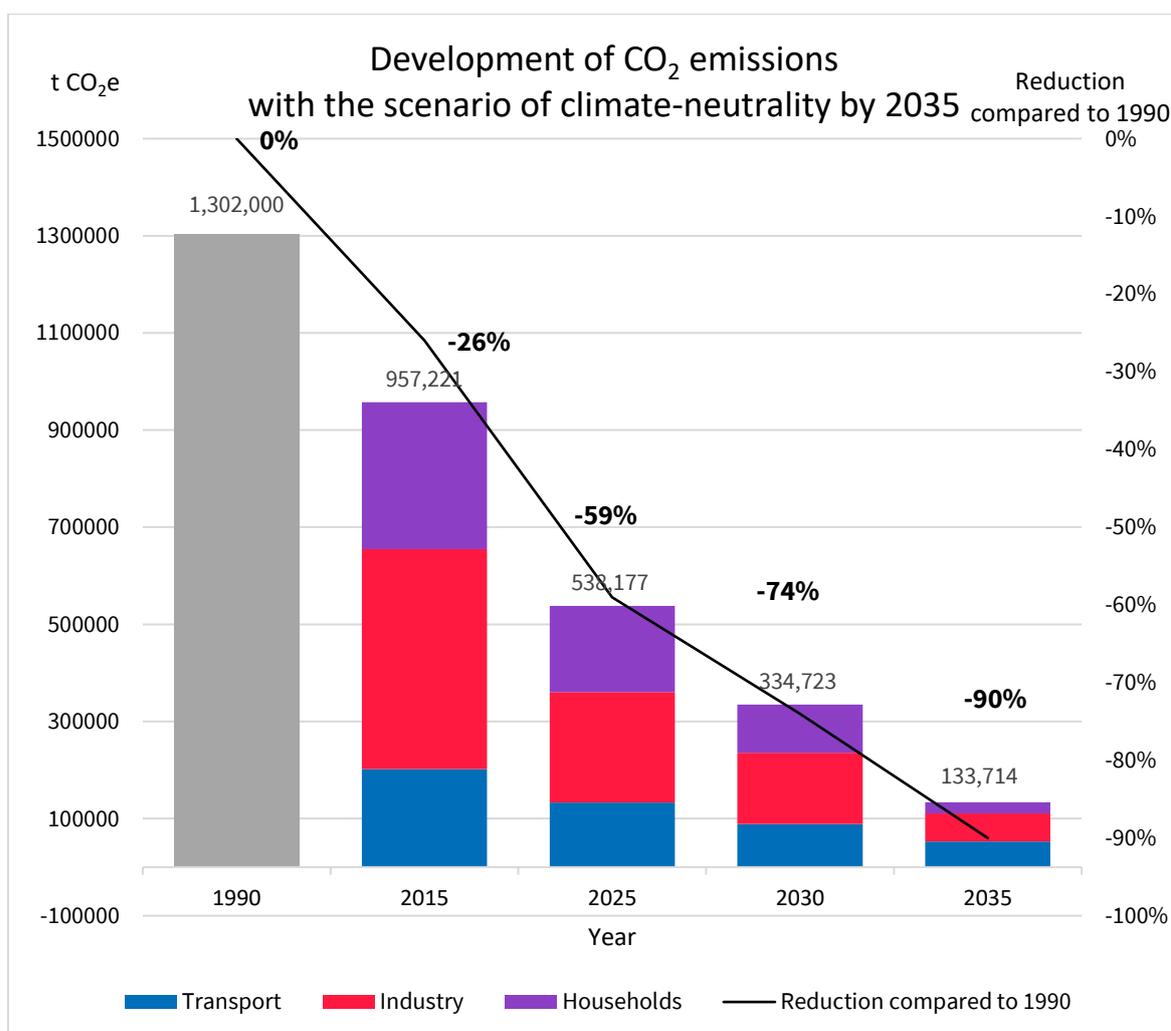


Figure 10. Development of CO₂e with the scenario of greenhouse gas neutrality by 2035. Source: Stadt Heilbronn.

What we want to achieve together by 2035

 <p>Motorised private transport is to be reduced by 22 %* (reduction: approx. 1-2 % p.a.)</p>	 <p>90 % of the maximum potential** identified for open spaces and 10 % of arable land should be developed with photovoltaics (88,811 MWh/a; approx. 97 ha).</p>	 <p>Gradual reduction of fossil fuels in consumption and complete phase-out by 2035.</p>
 <p>The share of alternative fuels used in kilometers driven is to increase to 53%* (increase: approx. 4% p.a.).</p>	 <p>55 % of the designated maximum potential** is to be developed (168,210 MWh/a; approx. 15-20 wind turbines; approx. 5 ha of land required during operation).</p>	 <p>Increasing the share of alternative fuels: environmental heat, heating electricity/power to heat***, district and local heating***, solar thermal energy and, to a lesser extent, power to gas, biomass and biogas.</p>
 <p>75% of the designated maximum potential** of roof areas is to be developed with photovoltaics (342,073 MWh/a; approx. 192 ha).</p>	 <p>The refurbishment rate for existing buildings starting at 0.8% p.a., rising by 0.2% p.a. to a maximum of 3.2% p.a. (up to 2030 Efficiency House Standard 55, thereafter Efficiency House Standard 40).</p>	 <p>Promoting the exchange of knowledge in society in order to inform, sensitise and motivate each other.</p>

* Reference value is the greenhouse gas balance from 2015.

** of the maximum potential shown in the Baden-Württemberg Energy Atlas

*** based on renewable energies

Figure 11. The main mitigation guide values from the update to the Climate Mitigation Concept. Source: Stadt Heilbronn.

2. Planned measures to achieve these objectives:

Outline the city's overall strategy for climate change, detailing how it aligns with the objectives described in point 1 and its integration with other environmental areas. Specifically:

- Explain the city's strategy concerning the renewable versus non-renewable energy mix, including the plans to implement the European Solar Rooftops Initiative.
- Detail the most significant planned measures impacting the total energy use and CO₂ emissions, including budget allocations and implementation schedules.
- Outline the planned measures to ensure changes in industries, consumers' behaviour, and import and export chains, including budget allocation and the implementation schedule.
- Detail the planned measures regarding the whole life carbon of buildings and infrastructure, including budget allocation and the implementation schedule.

One of the most transformative developments is the **fuel switch** at Heilbronn's coal-fired power plant, undertaken by the local energy provider EnBW. The plant is transitioning first to natural gas (2026) and later to green hydrogen (2035). Table 3 shows the measures, CO₂ reduction, and budget¹⁸ (where applicable) within the Updated Climate Mitigation Concept. Heilbronn aims to transform its energy mix by prioritizing **solar and wind energy**. The city will promote rooftop photovoltaics (212,845 tCO₂e/a reduction; €350 million budget). Ground-mounted solar and wind projects (Windpark Stöckach, see Figure 6) further expand capacity (combined 591,061 tCO₂e/a; €410 million).

Key measures to reduce energy use and CO₂ emissions include **energy-efficient retrofitting** (€3.15 billion) and **climate-friendly new construction**, guided by the new Municipal Energy

¹⁸ It is important to note that the figures presented are rough estimates. They reflect the total projected costs up to the target year 2035 and are not intended to be covered exclusively by the municipal administration. Rather, they represent a collective financial effort involving the municipality, private sector stakeholders, and the general public.

Guidelines. For whole life carbon, Heilbronn promotes hybrid timber construction and low-emission building standards (see Figure 7).

The Municipal Heat Plan targets emissions reduction in heating through district heating and heat pumps, backed by €100 million in funding.

To change industry and consumer behavior, Heilbronn expands its WE-Pact for businesses and plans a Climate Pact for citizens.

Table 3. Climate Mitigation Measures 2022 to 2035, estimated reduction in emissions and defined budget. Source: Stadt Heilbronn.

Category	Measures	Estimated CO ₂ savings [tCO ₂ e/a]	Budget [€]
Expansion of photovoltaics on buildings	<ul style="list-style-type: none"> • Target group-specific information and public relations work • Central consultation service • Financial incentives • Networking • Support for solar trades 	212,845	350,000,000
Expansion of ground-mounted and agricultural photovoltaic	<ul style="list-style-type: none"> • Implementation of a detailed potential- and market study • Concept development of the development 	271,281	320,000,000
Expansion of wind power	<ul style="list-style-type: none"> • Implementation of a detailed potential- and market study • Securing of location(s) • Public relations work and stakeholder involvement 	101,935	90,000,000
Energy-efficient refurbishment	<ul style="list-style-type: none"> • Renovation management • Renovation campaign • Development of energy neighbourhood concepts • Craft and trades campaign 	201,851	3,150,000,000
Climate-friendly new buildings	<ul style="list-style-type: none"> • Creation of a legal basis for planning • Information and public relations work • Initiation of pilot projects 	No additional emissions	
Expansion of decarbonized heating networks	<ul style="list-style-type: none"> • Expansion of heating networks/municipal heating planning • Supplying heating networks with renewable energies • Initiation of pilot projects • Stakeholder participation 	Savings of up to 90% compared to fossil fuels (oil, gas)	100,000,000
Reduction of GHG emissions in the transport sector	<ul style="list-style-type: none"> • Promotion of environmentally friendly transport • Promotion of alternative drive systems • Updating the Mobility Concept as a Climate Mitigation sub-concept 	148,864	1,060,000,000
The City Administration as a role model	<ul style="list-style-type: none"> • Climate-neutral city administration by 2030 • Climate and Sustainability Advisory Board • European Energy Award process • Energy-efficient renovation of municipal properties • Waste sorting concept for the city administration and schools 	Progress towards net zero emissions	400,000,000

Public relations work and communication	<ul style="list-style-type: none"> • Climate pacts for residents, businesses and organisations • Energy agency as the point-of-contact for residents • 50,000 trees for Heilbronn • Public relations concept • Municipal incentive program • Competition between schools 	Indirect savings variable, depending on social factors	
------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------	--

e. Describe the planned measures to promote the transition towards zero-emission transport, including active mobility (i.e. walking and cycling). Include details on budget allocation and the implementation schedule. Additionally, outline plans for the development of a SUMP and SULP if these do not already exist.

Table 4 shows the planned measures and budgets in the area of transport.

Table 4. Extract of upcoming mobility projects 2024-2028 and defined budget. Source: Stadt Heilbronn.

Category	Upcoming projects	Budget [€]
Liveable city	<ul style="list-style-type: none"> • Measures for climate mitigation in transport • Measures to implement the Noise Action Plan • Measures to improve accessibility • Measures for road safety 	6,354,000
Pedestrian traffic	<ul style="list-style-type: none"> • Measures to promote pedestrian traffic • Street lighting: conversion to LED, intelligent control, pedestrian crossings • Traffic engineering: pedestrian-friendly conversion and new construction of traffic lights 	16,024,000
Cycling	<ul style="list-style-type: none"> • Planning and new construction/conversion of cycle paths • Planning of cycle school routes • Bicycle parking facilities at schools • IPAI cycle path connection • Neckaruferweg cycle path widening 	20,403,000
Public transport	<ul style="list-style-type: none"> • Conversion to e-bus fleet • Subsidies to local public transport association • Planning and construction of bus lanes • Construction of new passenger shelters • Individual measures and traffic engineering for public transport improvements 	67,912,000
Sustainable, connected, new mobility	<ul style="list-style-type: none"> • Planning and installation of mobility stations as part of the Mobility Pact Heilbronn-Neckarsulm 	1,756,000
Motorised individual traffic	<ul style="list-style-type: none"> • Traffic technology: Operation and maintenance of charging points • Measures to improve the parking guidance system 	320,000
Mobility management	<ul style="list-style-type: none"> • Transport conceptualization and planning 	2,957,000
Public relations work	<ul style="list-style-type: none"> • Public relations work on cycling, traffic technology, traffic regulations and traffic planning 	810,000
Total amount		116,536,000

3. Support ambitions:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

Heilbronn's first international commitment was in 2011 by joining the **Climate Alliance (Klimabündnis)** to reduce 95% greenhouse gases by 2050 compared to 1990 levels.

To align its climate goals with concrete action, Heilbronn updated its **Climate Mitigation Concept** in 2023. The City Council opted for climate-neutrality by 2035 (instead of 2040), accelerating efforts and adding five new sustainability-related positions in the municipality. In 2024, Heilbronn signed the Global Covenant of Mayors and is currently preparing required documentation. Existing strategies are being reviewed to meet GCoM standards. An Energy Poverty Section, including goals and measures, will be developed in 2025 and submitted for City Council approval in 2026. For other strategic milestones, see Figure 6.

b. Outline plans for monitoring the impacts of implemented measures.

To convey tangible progress in the area of climate mitigation, the online **climate portal** for the public was launched in 2024. The interactive graphics show indicators in the areas of electricity, heating and mobility within the city borders over time. The internal monitoring of progress within the city administration is tracked through the **EEA Online Tool** which shows an outcome based on percentage completion. The Climate Mitigation Executive Office **biennial report** will also document activities with more detail (not covered in the EEA tool).

The **modal split** is compiled approx. every five years by the Roads Department. The **energy efficiency** of municipal buildings is continuously monitored by the Facility Management.

c. Detail your city's involvement in EU initiatives such as the EU Covenant of Mayors or the EU Mission Climate-Neutral and Smart Cities, if applicable. This includes information on whether your city is a Covenant signatory or a Mission city, it submitted a Sustainable Energy and Climate Action Plan (SECAP) or a Climate City Contract (CCC), was awarded the Mission Label, or is participating in the Mission as a pilot city, twin city, or research partner.

See above.

(max. 600 words and five graphics, images, or tables)

6.4 References¹⁹

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **Concepts and reports**
 - Climate Mitigation Concept (2020)
https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/klimaschutz/Klimaschutz-Masterplan_Stadt_Heilbronn.pdf
 - Updated version Climate Mitigation Concept (2022)
https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/klimaschutz/2022-09-13_KMP_Heilbronn.pdf
 - Mobility Concept 2030 (2019)
https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/mobilitaet/mobilitaetskonzept/Drucks_294_2019_Mobilitaetskonzept.pdf
 - E-Mobility Concept (2020)
https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/mobilitaet/mobilitaetskonzept/EMK_Heilbronn_Abschlussbericht.pdf
 - CO₂ balance for the City of Heilbronn Update for the years 2014 and 2015
 - CO₂ balance for the City of Heilbronn Update for the years 2016 - 2020
 - Energy Report 2020 - Municipal Energy Management of the City of Heilbronn:
https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/energie/Energiebericht_2020.pdf
 - Concept Municipal Heat Planning
https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/energie/Waerme/2023-Kommunale-Waermeplanung-Heilbronn.pdf
 - And: <https://www.heilbronn.de/umwelt-mobilitaet/energie/waerme.html>
- **Working together to drive transformation**
 - GCoM-signatory: <https://www.heilbronn.de/rathaus/aktuelles/details/artikel/zwei-abkommen-staerken-heilbronns-bewerbung-als-gruene-hauptstadt-europas.html>
 - Heilbronn-Neckarsulm Mobility Pact: <https://www.mobilitaetspakt-h-n.de/>
 - WE-Pact: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-masterplan/wir-pakt.html>
 - Video: <https://www.youtube.com/watch?v=BwxyW3xIU-I>
 - Support programme KLIMAFit:
<https://klimaschutz.heilbronn.de/klimafit-2024>
 - Climate and Sustainability Advisory Board: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-und-nachhaltigkeitsbeirat.html>
 - Video: University ecosystem is working on transparent ecological data visualisation:
<https://www.youtube.com/watch?v=vu1NSjSHPQE>
 - Fuel Switch EnBW: https://www.enbw.com/company/the-group/energy-production/new-buildings-and-major-projects/kraftwerk_heilbronn/technik_6.html

¹⁹ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- **Construction projects and events**
 - Architecture talk series: <https://www.heilbronner-architekturgespraeche.de/programm>
 - Hugo Häring award: <https://www.xn--hugo-hring-preis-Onb.de/preistraeger/map/-1/-1/0/-1/-1>
 - Event series “Holzbau-Offensive” and information about Germany’s first wooden ten-storey high-rise (SKAIO): <https://www.heilbronn.de/bauen-wohnen/stadtquartier-neckarbogen/holzbau-offensive.html>
 - German Sustainability Award for Architecture: <https://www.nachhaltigkeitspreis.de/presse/pressemitteilungen/detail/deutscher-nachhaltigkeitspreis-architektur-geht-an-das-holzhochhaus-skaio-in-heilbronn>
 - Innovationsfabrik: <https://www.heilbronn.de/wirtschaft/partner-der-wirtschaft/innovationsfabrik-heilbronn.html>

- **Citizen participation and sensitization**
 - European Green Capital Heilbronn – landing page: <https://www.heilbronn.de/umwelt-mobilitaet/european-green-capital-award-2026.html>
 - Citizen participation on Climate Mitigation Concept: <https://wirsind.heilbronn.de/content/bbv/details/85>
 - Campaign: „Heilbronn, the climate and US“: <https://klimaschutz.heilbronn.de/kampagne-2023>
 - Climate Portal - Monitoring (Klimaportal): <https://klimaschutz.heilbronn.de/monitoring>
 - Event days for climate mitigation, mobility and sustainability „grüHN!“ 2024 in Heilbronn: <https://www.heilbronn.de/rathaus/aktuelles/details/artikel/mitmachen-bei-den-aktionstagen-gruehn.html>
 - Participation in the European Mobility Week: <https://mobilityweek.eu/participating-towns-and-cities/?year=2023&country=DE&city=96Pddie1>
 - Cycle Map: <https://www.heilbronn.de/umwelt-mobilitaet/mobilitaet/radverkehr.html>
 - Climate and Energy Dialogue event series “Klima- und Energiedialogue Heilbronn” <https://www.agenda21-hn.de/de/einladungen-de/2024/12/31/klima-energiedialog-heilbronn-waermewende-konkret-geht-jetzt-in-2-halbzeit/>
 - New citizens marketing:
 - Mobility brochure: https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/mobilitaet/Mobilitaetsbroschüre-DEEN-DIN_A4-20240408.pdf
 - Free bikes for new students: <https://www.heilbronn.de/tourismus/infos/presse/details/artikel/einstadtfahrrad-zum-studienstart-hat-tradition.html>
 - Free public transport trial ticket: <https://welcome.heilbronn.de/de/leben/mobil-in-heilbronn/oeffentlicher-personennahverkehr/das-schnupperticket.html>

(max. 400 words)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
6.1	980	1000
6.2	576	600
6.3	581	600

7 Climate Change: Adaptation

7.1 Present Situation

This section aims to present the current situation of climate change adaptation in the city.

1. Climate risks, vulnerabilities, and adaptivity:

- a. Describe each climate risk the city faces (e.g., heat, droughts, floods) along with the city's vulnerability to these risks across infrastructure, people, and urban nature.

The Heilbronn Basin is known for its mild, oceanic climate, with relatively sunny and dry conditions. However, the effects of climate change, particularly the rise in temperature, drought, rainfall shifts and more frequent extreme weather events, pose major challenges for the city (see Figure 1).

The densely populated and heavily sealed urban area regularly forms an **urban heat island**. With an annual average of 13.1°C ¹, the city centre is permanently 1.5 degrees warmer than the green park areas and the unsealed Wartberg in the surrounding area with an annual average of 11.6°C.

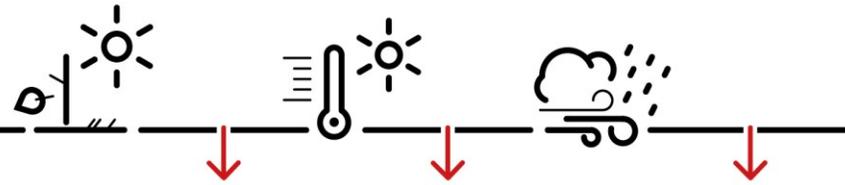
The analysis of the **thermal hot spots** in Heilbronn has shown that in the last ten years, the population in half of the settlement area, especially in the city centre, has been affected by heat stress, with around 30 hot days above 30°C. The high air temperature, humidity and radiation exposure pose a considerable risk to people and the environment. In addition, there are 2 to 6 tropical nights per summer (> 20°C), which increase the health risks for senior citizens over 70, small children under 5 and people with pre-existing conditions.

Industrial and commercial areas such as the Böllinger Höfe and the Neckar and Canal Harbour industrial area in the north of Heilbronn are also exposed to extreme heat.

¹ Data of 2017.

CLIMATE RISKS

Precipitation shift and drought
Increase in average temperature
More frequent extreme weather events



IMPACTS

- Forest fires
- Increase in pest activity and pathogens
- Floods
- Changes in feed quality and availability
- Extended growing seasons
- Late frost
- Changed soil/groundwater balance
- Increased atmospheric CO₂ concentration
- Changed material cycles
- Water body status
- Drinking water quality
- Soil sampling Ozone concentration
- Air quality (pollution and particulate matter)
- Changes in the radiation balance
- Food hygiene
- Destruction of infrastructure
- Increased heating of sealed surfaces
- Water availability
- Chemical-physical water status
- Discharge volume



IMPACTED SECTORS

1

GREEN AND OPEN SPACES

2

AGRICULTURE AND FORESTRY

3

HUMAN HEALTH AND SOCIAL INFRASTRUCTURE

4

PLANNING, BUILDING AND LIVING

5

WATER MANAGEMENT

EFFECTS

- Drought stress and drought damage
- Multiplication of harmful organisms
- Impairment of the climate-regulating effect
- Restricted ecological buffer functions of soils and vegetation
- Restrictions on the quality and quantity of logging/harvesting
- Increased risk of soil erosion
- Shift in cultivation regions
- Respiratory problems
- Risk of skin cancer
- Cardiovascular complaints
- Spread of allergens
- Spread of (invasive) infections
- Infrastructure damage and traffic obstructions
- Acceleration of material damage due to corrosion, rotting, fungal infestation
- Increasing energy requirements for cooling
- Higher proportion of wastewater in surface waters during low water phases
- Increased risk of overloading the sewer network and, as a result, flooding
- Input of pollutants into groundwater and surface waters due to flooding



FURTHER IMPACTS

- Increased need for replanting
- Increased need for maintenance of green spaces and vegetation
- Increased need for green spaces in general
- Impairment of food security
- Endangerment of the forest ecosystem
- Physical and psychological stress
- Jeopardising the supply systems
- Conflicts of land use and objectives
- Rising costs
- Conflicts of use
- Contamination
- Impairment of aquatic biocoenoses

Figure 1. Heilbronn's most significant climate risks and their economic, social and environmental effects. Source: Stadt Heilbronn.

In order to prioritize measures for heat reduction, the municipality undertook a **vulnerability analysis** in 2024. The analysis identified urban areas in Heilbronn that are particularly exposed to heat (exposure analysis) and overlaid these with sensitive structures² (sensitivity analysis). This reveals hot spots, i.e. particularly vulnerable areas of Heilbronn (see Figure 2).

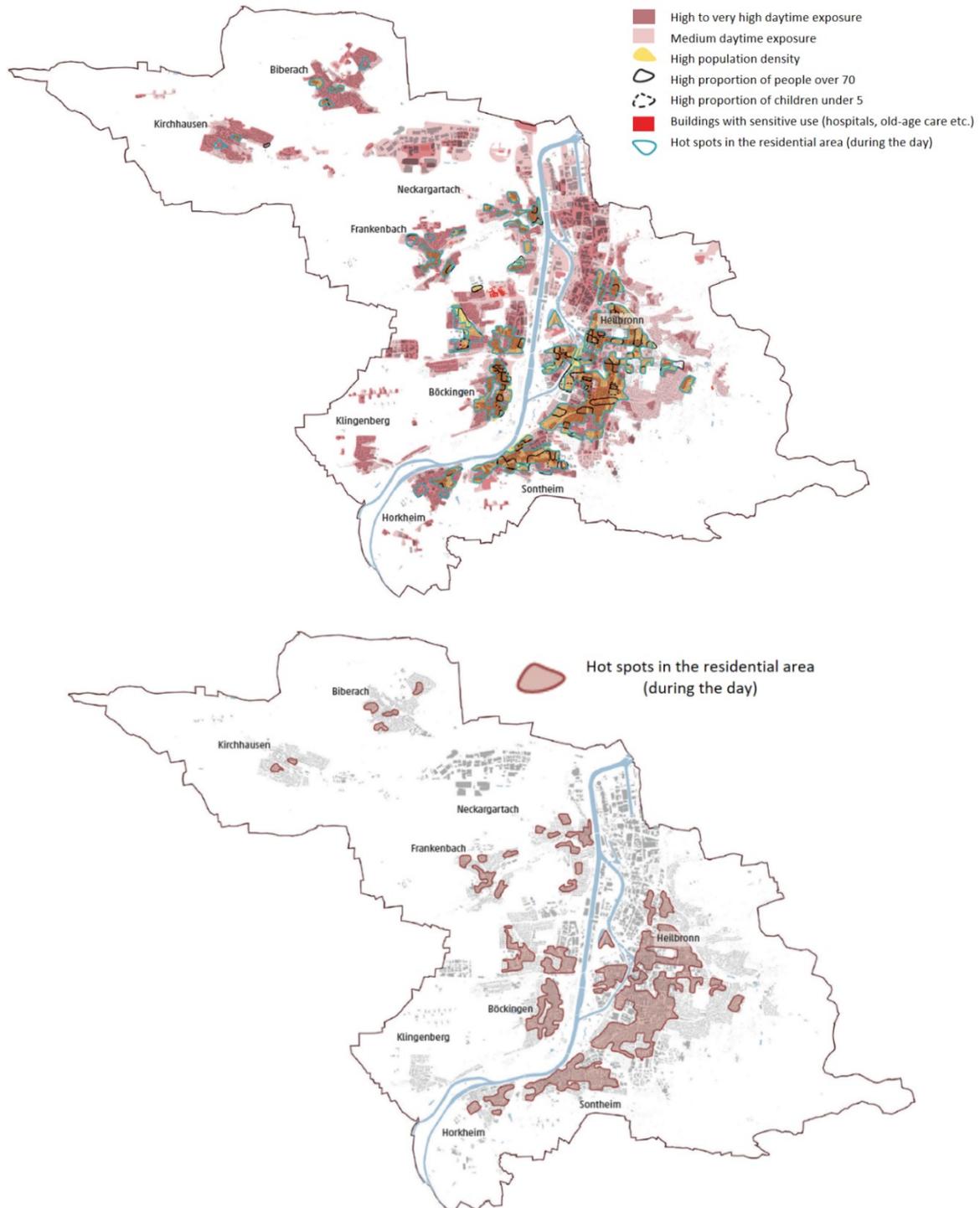


Figure 2. Hot spots of the most vulnerable areas in Heilbronn regarding temperature and sensitive structures. Source: berchtoldkrass space&options.

² Sensitive structures are daycare centers, refugee shelters, nursing homes, and hospitals.

In recent years, **short but intense heavy rainfall events** have led to flooding and property damage in businesses, on roads and on private property as well as to soil erosion and crop losses on agricultural land.

Thanks to the flood protection gate and designated floodplain areas, it has so far been possible to keep the **flood waters of the Neckar River** away from residential areas. A heavy rain risk map will be finalized by 2026.

b. Describe measures taken to adapt to the identified climate change impacts. Reference an existing SECAP or Climate City Contract, where applicable.

In 2021, the **Climate Adaptation Concept** was approved by the City Council (see Table 1). The concept is embedded in the City Concept and is a sub-concept of the Climate Mitigation Concept. It also refers to the overall urban climate analysis, the Mobility Concept 2030 and the Landscape Plan 2030. The measures are not only based on local conditions, but also on the objectives of the European Green Deal and the EU Strategy for Adaptation to Climate Change.

Table 1. Impacted sectors and measures of the Climate Adaptation Concept of 2021. Source: Stadt Heilbronn.

<p>OVERARCHING MEASURES</p>		<ol style="list-style-type: none"> 1. Creation of personnel capacities for concept implementation 2. Participation in funding programs to implement the measures 3. Implementation of a controlling concept 4. Development of a city-wide mission statement for climate adaptation 5. Establishment of a cross-departmental steering group
<p>1 GREEN AND OPEN SPACES</p>		<ol style="list-style-type: none"> 6. Partial unsealing and greening of traffic areas 7. Protection and preservation of inner-city green spaces and testing the climate resistance of existing plant species 8. Securing and expanding large-scale, comprehensive open space structures 9. Creation of a tree concept/greening programme 10. Introduction of a tree protection statute and a greening statute 11. Preservation and promotion of biodiversity
<p>2 AGRICULTURE AND FORESTRY</p>		<ol style="list-style-type: none"> 12. Formation of a working group on 'Agriculture in a changing climate' 13. Field hedge concept 14. Intensification of the future forest development strategy
<p>3 HUMAN HEALTH AND SOCIAL INFRASTRUCTURE</p>		<ol style="list-style-type: none"> 15. Knowledge transfer and education of the population on the increasing risks 16. Increasing the proportion of green spaces/ unsealing at schools and daycare centres 17. Increased unsealing and greening in the area of the clinics/retirement and old people's homes 18. 'Green room' experience space in the city centre 19. Sun protection measures in recreation and break areas
<p>4 PLANNING, BUILDING AND LIVING</p>		<ol style="list-style-type: none"> 20. Climate-adapted new planning 21. Climate adaptation in existing neighbourhoods 22. Awareness-raising campaign for near-natural garden design 23. Funding programme for green roofs and façades in the private sector 24. Roof and façade greening commercial/industrial buildings 25. Green roofs and façades on municipal properties/noise barriers 26. Light façade colours and light asphalt surfaces
<p>5 WATER MANAGEMENT</p>		<ol style="list-style-type: none"> 27. Consultancy services for property protection 28. Awareness-raising campaign on rainwater utilization 29. Strengthening rainwater management 30. Floodplain renaturalisation and development 31. Water retention through the creation of ponds

The **Spatial Structural Climate Adaptation Concept** specifies and prioritises the measures on the topic of heat from the 2021 concept and focuses on residential and transport areas. The outcomes are a concept plan for reducing heat and protecting the existing cold air system as well as a creation of a city-wide bioclimatic relief system. The recently finalized concept will be presented to and decided by the City Council in 2025.

As part of joining the **Global Covenant of Mayors (GCoM)**, the Heilbronn Climate Mitigation and Adaptation will merge into a SECAP.

c. Outline the impacted sectors (e.g., transport, energy, water management, health) and how they are affected.

The effects of climate risks on the individual sectors are described in Figure 1. Corresponding climate adaptation measures are listed in Table 1.

2. Nature-based solutions:

How your city uses nature-based solutions as a means of addressing the challenges posed by the identified impacts.

One main goal of urban and landscape planning, anchored in the Green Guidelines of the Landscape Plan 2030, is the development of **interconnected blue-green infrastructure** (see Indicator 3): It prioritizes preserving and enhancing green spaces while improving rainwater management to counter droughts. Measures include disconnecting roof runoff, retention basins, and tree trenches. In rural areas, efforts focus on restoring floodplains, rewetting drained land, and renaturing the Neckar River. Flood protection will involve levee relocations and multifunctional floodplains (see Figure 3).



NATURAL SUN PROTECTION THROUGH TREES /

planting of 17 maple trees at the
Oststraße sports centre



RENATURALISATION OF STREAMS AND RIVERS /

such as the Böllinger Bach



CLIMATE GROVES /

in the middle of highly
seeded areas



Two lakes in the Neckarbogen
neighbourhood as

RAINWATER STORAGE AND FILTERS /

URBAN GARDENING /

at Kraichgauplatz in front of the
Elly-Heuss-Knapp school centre
in Böckingen



FACADE AND ROOF GREENING /

on municipal buildings



DISTRIBUTION OF CLIMBING PLANTS /

to private individuals during the
Sustainability Day

Figure 3. Examples of nature-based solutions in Heilbronn. Source: Stadt Heilbronn.

3. Planning and organisation:

Explain the planning and organisation for climate adaptation actions in the city. Clarify which departments lead these actions, how collaboration between departments is organised, and how the implementation of strategies or urban plans is organised.

The **climate adaptation manager**, which is a tandem position in the **Green Spaces Department** as well as in the **Climate Mitigation Execution Office**, coordinates the implementation of adaptation measures. She communicates the paradigm shift to the planning and building offices (dep. IV), contributes to the creation of guidelines or statutes, raises awareness (internally and externally) about climate impact risks and possible solutions. Networked and interdisciplinary cooperation is essential for climate adaptation measures. For example, the Climate Adaptation Management develops the Heat Action Plan in cooperation with the Health Department, plans for the removal of road surfaces are being developed with the Roads Department and greening measures are being implemented with the Green Spaces Department. Campaigns and events for stakeholders are organised together with the Communications Department (see Figure 4).

The most recent example of interdepartmental cooperation are the **'Guideline for climate-adapted urban land-use planning'** adopted in 2024, which was developed together with the Planning and Building Authority. This guideline serves as the basis for binding planning law for development plans to ensure that climate adaptation measures are integrated at an early stage when new development plans are drawn up.

The **Mayor for Building, Mobility and Environment** (Fourth Major) is advised by the climate adaptation manager and acts as an ambassador in various strategic and operational committees on urban planning.

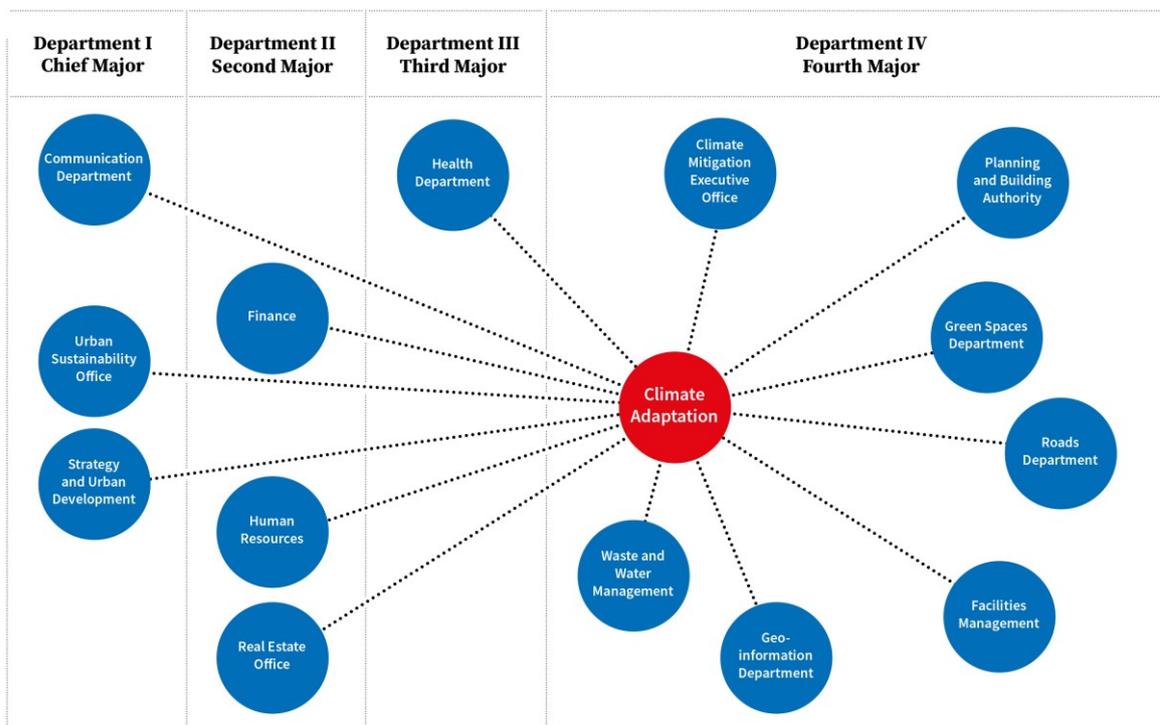


Figure 4. Organizational structure for climate adaptation within the City Administration.
Source: Stadt Heilbronn.

4. Monitoring and evaluation:

Describe the monitoring and evaluation framework and approach, detailing how the progress of measure implementation and the reduction of actual risks and vulnerability are monitored.

In 2022 and 2023, the implementation of the climate adaptation concept was surveyed in the city administration's departments and assessed in **status reports** using a traffic light system.

Starting from 2024, a monitoring concept was introduced, incorporating quantitative and qualitative statements based on targets and indicators.

As a signatory of the GCoM (2024), Heilbronn will also report on its achievements at an international level by 2026 biennially.

5. Stakeholder engagement:

Explain how the city involves stakeholders in the planning and implementation of climate change adaptation actions.

Since 2014, **guidelines for citizen participation** have been applied to municipal projects. On **wirsind.heilbronn.de**, the city conducts regular citizen participations, e.g. for the Climate Adaptation Concept, or for the restructuring of the climate adaptation project "Böckingen Bahnbogen Süd".

In the **Climate Mitigation and Sustainability Advisory Board** interest groups such as NGOs, local councillors and the administration work together on the planning and implementation of measures.

There is also **regular dialogue with individual NGOs** and projects, such as the Climate Ambassadors' bottle refill campaign, which aims to provide free access to drinking water for all at participating locations.

6. Participation in EU initiatives:

Indicate if and how your city is involved in the EU Mission Adaptation to Climate Change and/or it committed to the adaptation pillar under the EU Covenant of Mayors and/or its SECAP including a section on adaptation.

See 7.1.1.b.

(max. 1000 words and five graphics, images, or tables)

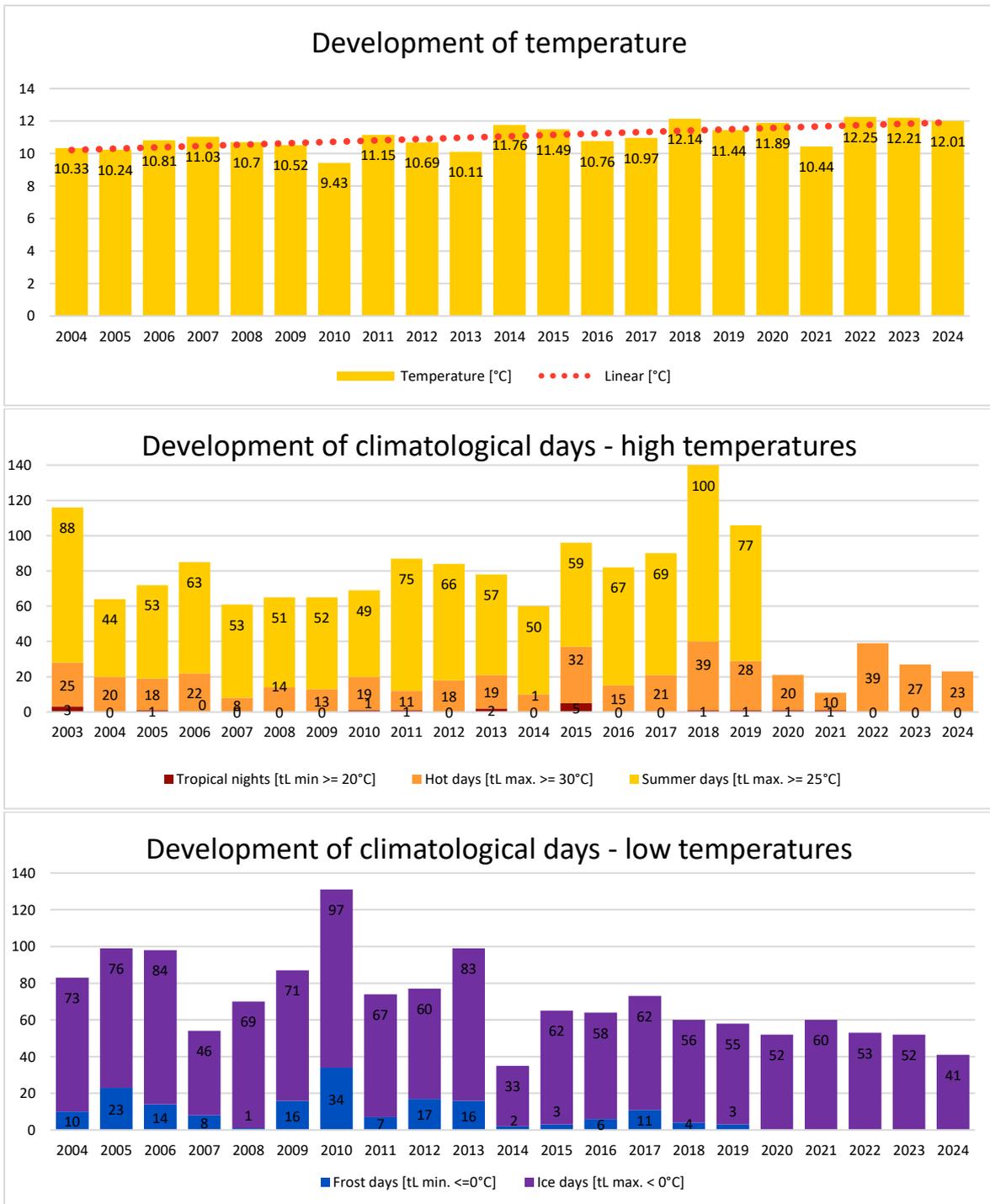
7.2 Past Performance

The aim of this section is to make clear how the situation described in the previous section has been achieved in the past ten years.

1. Climate risks and vulnerability:

Provide information on the development of the actual risks and vulnerability in the city to the different aspects of climate change.

Climate monitoring stations have been measuring the climate of Heilbronn since 1961. The recent climate trends can be demonstrated with LUBW data of the measuring station "Hans-Rießer-Str."(see Figure 5).



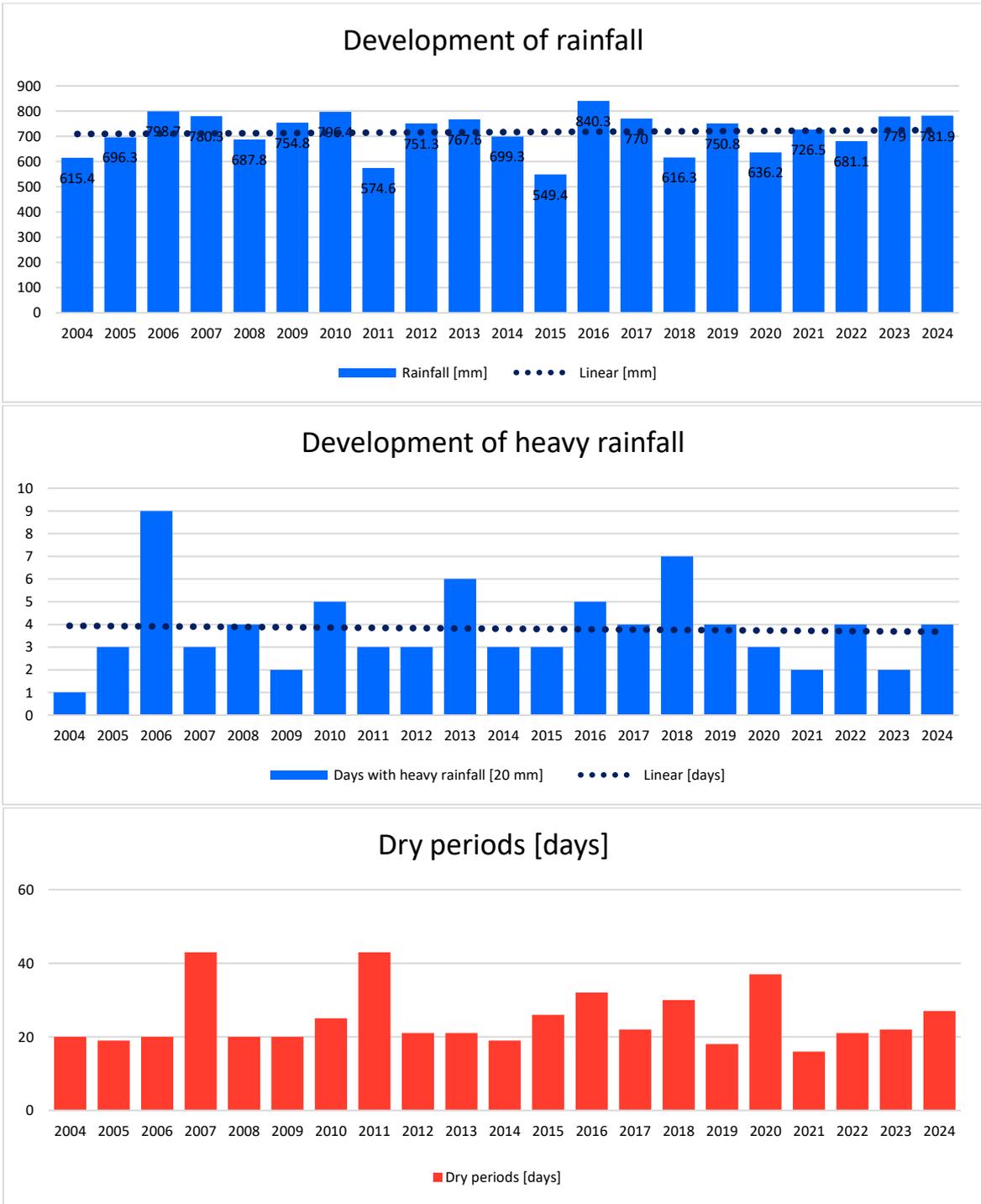


Figure 5. Development of climate trends in the last decades. Source: LUBW.³

³ Data for summer days and frost days for 2020-2024 is not available.

2. Climate adaptivity:

Outline the actions and measures taken by the city authorities in the last ten years that significantly affected the trends and changes mentioned under point 1. Provide concise details to showcase the policy and planning initiatives and the progress made in climate change adaptation.

For climate adaptation, the city is focusing on **improving the blue-green infrastructure** (for current status, see Indicator 3). In the 90's **Waldheide**, a former US atomic weapons site, and the **Ziegeleipark**, a former clay pit with a brick factory, have been de-sealed, revitalized, and provided to citizens as nature-friendly areas for recreation (see video on references).

In the last decade, there has been the development of the **Neckarbogen**, a revitalized railway brownfield site, as a major climate adaptation project (see Good Practice 3). Not only over 17 hectares of green space were created, but the entire neighbourhood is also built to be climate-adapted. Facades are greened, and there's an innovative water management system where rainwater is collected separately. The lakes of the district as well as the renatured Neckar habitat on the west bank north of the Neckarbogen district, are located within the important fresh and cold air corridor that flows along the Neckar from southwest to northeast.

Additionally, the city has established 2 **climate groves**:

- Wollhaus (2019) was awarded the German Landscape Architecture Prize 2021 in the category "Climate Adaptation" because it disrupts one of the city's largest traffic intersections
- Theresienwiese (2022): Special prize "Sustainability and climate adaptation in urban areas" at the Baden-Württemberg Landscape Architecture Prize 2024

For further greening and redesign see Indicator 3.

The aim of the greening measures is to ensure **access to cool places** for particularly vulnerable groups as well as others. In addition, the city is also committed to providing **access to free drinking water**. A remarkable initiative was launched in 2024: In collaboration with the Climate Ambassadors of Local Agenda 21, the Health Department is supporting the Refill campaign and encouraging all organizations in the city to take part. This campaign has yet established a network of 14 designated Refill stations, where individuals can freely refill their own drinking containers with tap water. Participating locations are easily identifiable by the Refill sticker. The locations as well as green and shady areas can be found on the "Cooling Map", accessible on the municipal website (see Figure 6).

In the last ten years, in a joint project between municipalities and the state of Baden-Württemberg, flood hazard maps⁴ have been created for key water bodies, covering around 12,500 km. For Heilbronn, maps exist for rivers like the Neckar, Schozach, and others. These maps show the extent and depth of potential flooding and are essential for disaster response, urban planning, and private protection measures. The following maps are created and continuously updated: Flood hazard map, flood risk map, flood risk assessment map, flood risk management plans. The municipality is board member in several flood protection NGOs.⁵

⁴ According to EU Floods Directive (2007/60/EC)

⁵ Hochwasserzweckverband Böllinger Bach and Zweckverband Hochwasserschutz Schozachtal.

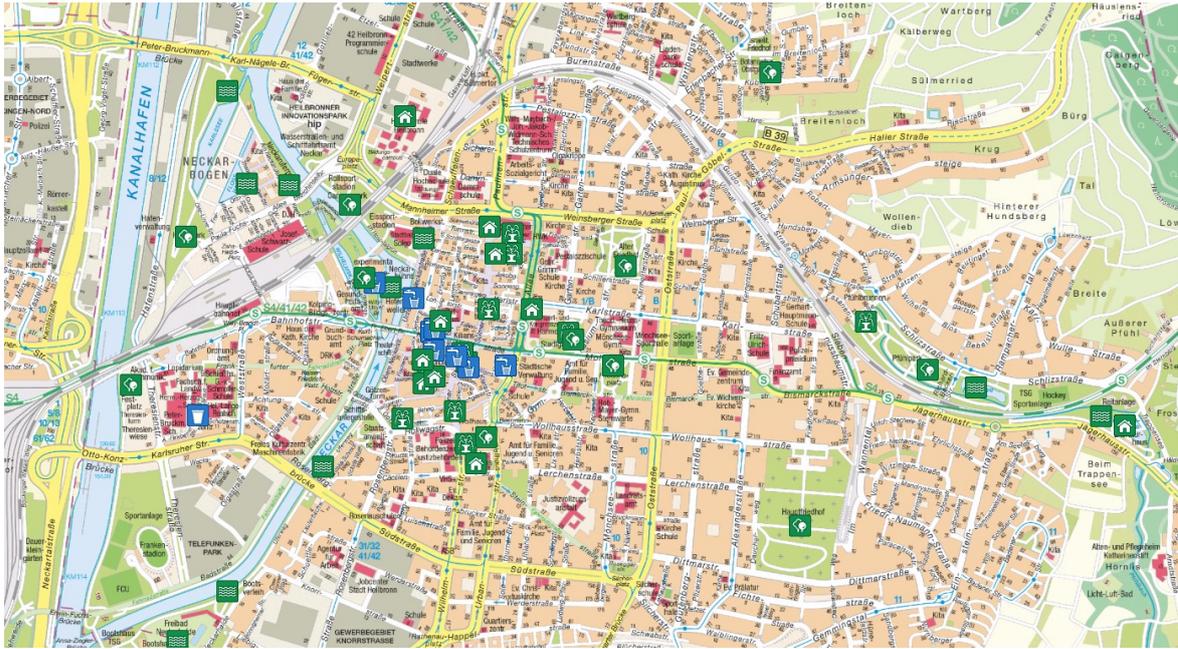


Figure 6. Cooling Map with Refill partners, green and shady areas. Source: Stadt Heilbronn.

The measures implemented in the field of climate adaptation significantly overlap with those of other departments that have been working on similar actions for decades—though not explicitly under the term 'climate adaptation.' This applies, for example, to the fields of green space management, public health protection, and flood control. Through climate adaptation management (see Figure 7), the activities of these departments are now being systematically structured and conceptually linked to climate risks and their development.

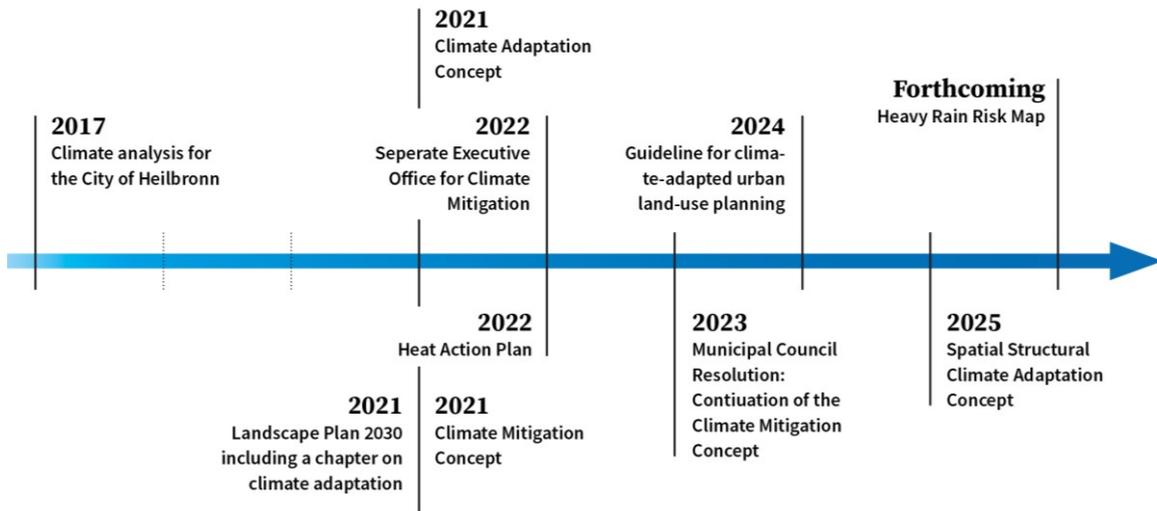


Figure 7. Policy and planning initiatives in Climate Adaptation. Source: Stadt Heilbronn.

(max. 600 words and five graphics, images or tables)

7.3 Future Plans

1. Objectives:

Specify objectives of 2030 and 2050 regarding climate adaptation. Identifying a relationship between the climate adaptation objectives of your city and the objectives outlined in the European Green Deal will be positively noted. Reference an existing SECAP or Climate City Contract, where applicable

The Climate Adaptation Concept of 2021 groups short-, medium-, and long-term goals.

Objective 1: Long-term reduction of vulnerability

Heilbronn aims to reduce its vulnerability to the consequences of climate change in all identified action fields of the Climate Adaption Concept (Green and Open Spaces; Agriculture and Forestry; Human Health and Social Infrastructure; Planning, Construction and Housing; Water Management). This objective corresponds with the efforts of the European Green Deal to reduce exposure to climate risks. Measures set out in various strategic documents (e.g. EU strategy for adaptation to climate change, Biodiversity strategy for 2030, and [EU Green Infrastructure Strategy](#)) are intended to reduce the vulnerability of European systems to climate change.

Objective 2: Long-term increase in resilience

Objective 2 focuses on strengthening the capacity of the urban system to respond to change and recover rapidly from setbacks (similar to EU Strategy for Adaptation to Climate Change).

Objective 3: Raising awareness and exchanging knowledge on the topic of climate impact adaptation

The City of Heilbronn is striving for a continuous exchange of knowledge between all relevant stakeholders to ensure risk awareness and acceptance for the implementation of adaptation measures. The Climate Adaptation Concept is thus in line with the EU strategy for adaptation to climate change, which pursues the goal of "Improving knowledge and managing uncertainty" in the "Smarter adaptation" field of action.

Objective 4: Integration of the topic of climate impact adaptation at all levels of action

An integrated approach involving various stakeholders within the City Administration, but also architects, local politicians, planning offices, homeowners, and interested members of the public, enables the creation and use of important synergy effects, which can reduce the negative effects of climate change. ("More systemic adaptation" action field in the EU strategy for adaptation to climate change).

The forthcoming **Spatial Structural Climate Adaptation Concept** specifies and prioritises the measures on the topic of heat from the 2021 concept and focuses on residential and transport areas. The outcomes are a concept plan for reducing heat and protecting the existing cold air system as well as a creation of a city-wide bioclimatic relief system. The recently finalized concept will be presented to and decided by the City Council in 2025.

2. Planned measures to achieve these objectives:

a. Indicate the existence of a climate change adaptation strategy and/or action plan, providing details on:

- **Targets and their current implementation status.**
- **Impacts and sectors considered.**
- **Integration with overall city planning and other relevant plans and strategies. Note any cross-referencing with sectoral plans.**

For the measures and impacted sectors in the Climate Adaptation Concept (2021) see 7.1.

For the status of the measures see Table 2.

Table 2. Current status of climate adaptation measures within impacted sectors. Source: Stadt Heilbronn.

<p>OVERARCHING MEASURES</p>	<ul style="list-style-type: none"> • One full-time climate adaptation manager since 01/01/2024 • Spatial Structural Climate Adaptation Concept (2025) • Far-reaching guiding elements and recommended measures for climate adaptation in the Landscape Plan 2030 (2021)
<p>1 GREEN AND OPEN SPACES</p> 	<ul style="list-style-type: none"> • Redesign projects already underway including Turmstrasse, Zehentgasse, Eichgasse, Zukunftspark Wohlgelegen • Landscape Plan 2030 picks up on the idea of the 1992 Green guiding principle; all measures are aimed at the idea of green rings and blue artery (see Indicator 3 Biodiversity). • Re-introduction of the tree protection statutes: draft submitted to the Legal Department in June 2024 (processing stalled) • Two new employees at the Green Spaces Department since 2025: Biotope network planning and biodiversity protection • Operations department is working on switching to ecological green space maintenance and is training employees for this purpose • Urban Greening Programme (House border strip programme)
<p>2 AGRICULTURE AND FORESTRY</p> 	<ul style="list-style-type: none"> • Countless measures for promoting biodiversity such as agro-strip programme (see Indicator 3 Biodiversity) • Agro-strip programme for vineyards is on the way • Forest education (50-80 events per year) • More and more field hedges are being planted by farmers • Forest management plans for a conversion to mixed forests
<p>3 HUMAN HEALTH AND SOCIAL INFRASTRUCTURE</p> 	<ul style="list-style-type: none"> • Events and presentations by the Health Department, e.g. in senior citizens' cafés, "Cooling Map" on the city's website, heat warnings on display boards • Planting of 17 medium-sized trees at the Oststraße school sports centre in 2024 • Installation of additional awnings, parasols, trees in parks and other recreational areas took place
<p>4 PLANNING, BUILDING AND LIVING</p> 	<ul style="list-style-type: none"> • Guideline for climate-adapted new planning in urban land-use planning adopted by the municipal council in 2024 • Cooperation 2022+2023 federal project 'Thousands of gardens, thousands of species': Flyers, flower strips in parks, display boards, insect vespers campaign • Municipal campaign giving away climbing plants to citizens • Façade greening at two municipal properties, two more will be implemented in 2025/2026 • Extensive green roofs on 22 municipal buildings
<p>5 WATER MANAGEMENT</p> 	<ul style="list-style-type: none"> • Counselling and information material is provided to citizens • Took place together with other sensitisation measures as in No. 22 • The adopted guideline on 'Climate adaptation in urban land-use planning' contains building blocks of the sponge city for a water-sensitive city • A working group on the water-sensitive city is currently being set up • Renaturalization measures see Indicator 2

For the integration of the concept in other sectoral and generalist plans see Figure 8.

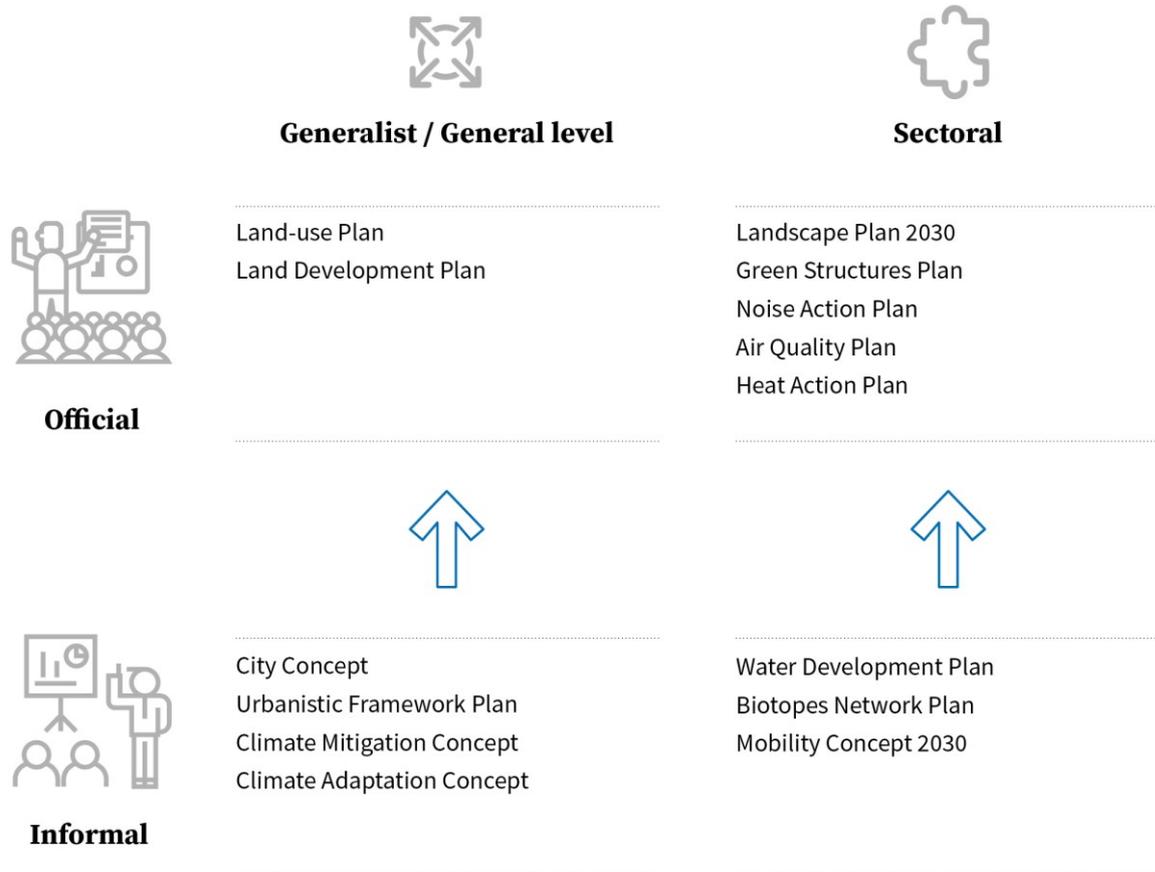


Figure 8. Integration of Climate Adaptation Concept into other sectoral and generalist plans. Source: Stadt Heilbronn.

- b. Outline the key planned measures, including participatory approaches, and provide information on budget allocations and implementation schedules to achieve these objectives.

Table 3. Key planned climate adaptation measures for 2025 and 2026. Source: Stadt Heilbronn.

Key projects	Budget for 25/26 (funds approved by the City Council)	Measure number of the Climate Adaptation Concept 2021 (see Table 1)
Sun protection with trees and awnings e.g. planting 17 new trees at Anne-Frank, Millerstrasse and Riedweg daycare centres e.g. sunshades (4 pieces) Bernhäusle daycare centre	100.000,00 €	16, 19
Extensive green roof at Hofstattstraße/ Böckingen daycare centre	30.000,00 €	25
Sunshades and cistern for Hofstattstraße/ Böckingen daycare centre	16.000,00 €	19, 25, 29
Drinking water fountain Kiliansplatz (construction)	33.378,99 €	21
Drinking water fountain Marktplatz (construction)	37.977,65 €	21
Two Drinking water fountains (maintenance)	7.000,00 €	21
Façade greening on Lothorstrasse (planning and construction)	50.000,00 €	25
Façade greening of town hall (planning and construction)	50.000,00 €	25
Climate forest Marktplatz (planning and construction)	220.000,00 €	6, 21
Climate forest Kiliansplatz (planning)	50.000,00 €	6, 21
Redesign of Lotorstrasse inner courtyard (planning and construction)	200.000,00 €	6, 21
Redesign of town hall courtyard (planning)	80.000,00 €	6, 21
(Partial) unsealing of car parks Zukunftspark Wohlgelegen (planning)	50.000,00 €	6, 21
Greening of Bleichinsel Bridge (planning)	140.000,00 €	6, 21
Tiny Forest, Louis-Hentges-Platz (care)	10.000,00 €	6, 21
Total budget for 2025	1.074.356,64 €	
Sun protection with trees and awnings (year 2 of 5)	100.000,00 €	16, 19
Two Drinking water fountains (maintenance)	7.000,00 €	21
Climate forest Kiliansplatz (construction)	300.000,00 €	6, 21
Redesign of town hall courtyard (construction)	450.000,00 €	6, 21
(Partial) unsealing of car parks Zukunftspark Wohlgelegen (construction)	150.000,00 €	6, 21
Greening of Bleichinsel Bridge (construction)	400.000,00 €	6, 21
Total budget for 2026	1.407.000,00 €	

2025-2028:

- Nature-based redesign of Turmstraße (see Figure 9): 2 Mio. €
- Nature-based redesign of Zehentgasse (see Figure 9): 2 Mio. €
- Nature-based redesign of Eichgasse: 1 Mio. €
- Nature based redesign of Obere Neckarstraße (Neckar riverbanks, see Figure 9): 5 Mio. €
- Green belt "Bernhäusle": 600,000 €

2025-2030:

- Flood protection, several walls will be built to protect against HQ200: 33 Mio. EUR
- Brownfield areas along the marshalling yard are being developed into high-quality open spaces, "Böckingen Bahnbogen Süd": 5 Mio. €
- Sensitizing citizens with campaigns: 200.000 €

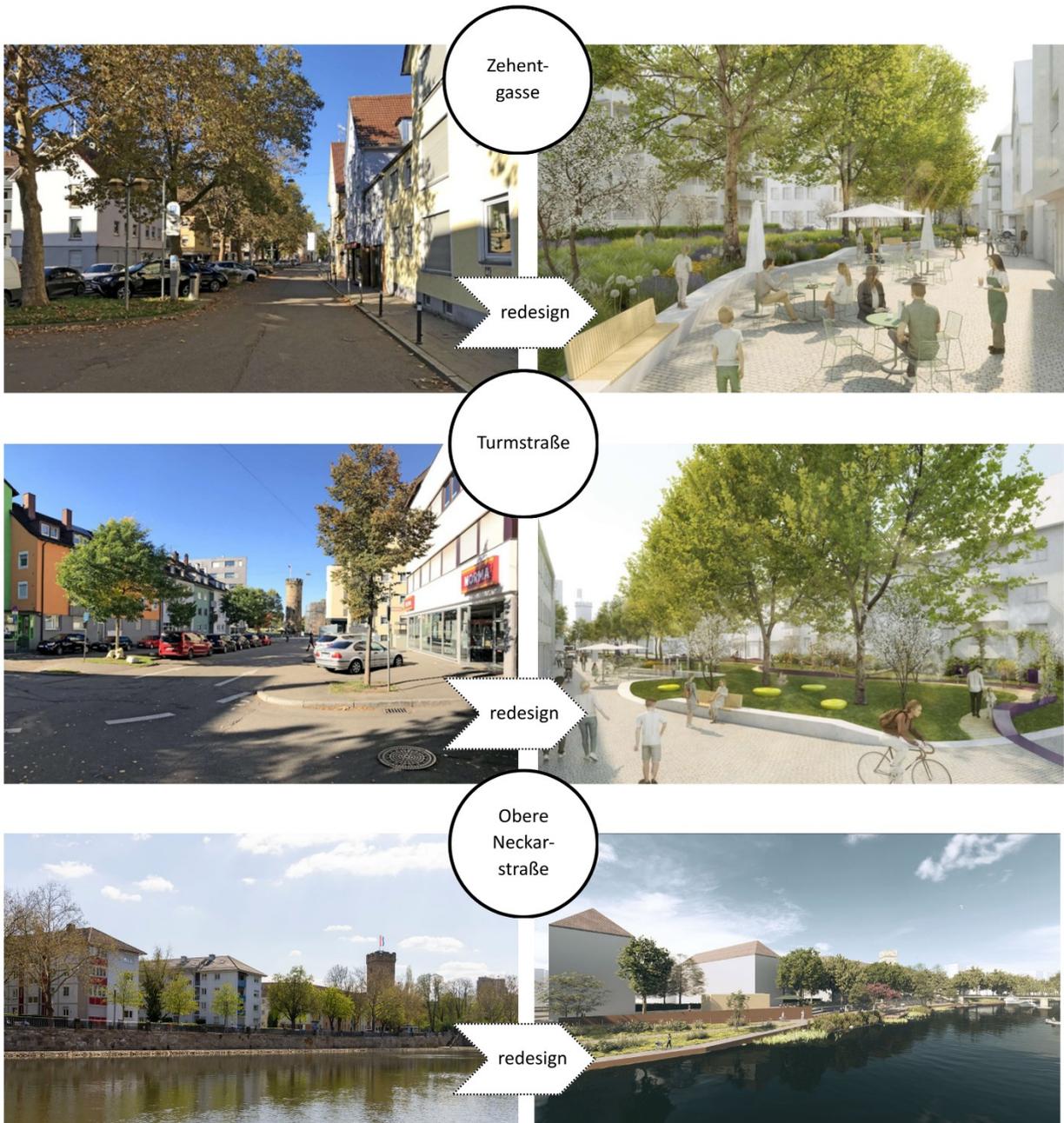


Figure 9. Forthcoming nature-based re-design⁶ of Zehentgasse (above) and Turmstraße (middle), as well as Obere Neckarstraße (below). Source: ARGE Hink Biegert, Raumlabor 3/Thorsten Kraemer, as well as ARGE BlauGrün.

⁶ Redesigning streets climate-resilient, de-sealed, car-free, rain-water managed, and with water features

3. Support ambitions:

a. Highlight strategic and policy commitments supporting the outlined objectives and measures.

- Climate Adaptation Concept - approved by the City Council in 2021
- Guideline for climate-adapted urban land-use planning - adopted in October 2024
- EU Green City Accord and GCoM signatory in 2024
- Spatial Structural Climate Adaptation Concept – to be approved in 2025

b. Outline plans for monitoring the impacts of implemented measures.

Climate adaptation measures are monitored as part of the GCoM and within the framework of the Climate Atlas (State of Baden-Württemberg). To ensure even greater transparency of environmental data, various universities and research institutes in Heilbronn are working on measuring stations and online dashboards.

(max. 600 words and five graphics, images, or tables)

7.4 References⁷

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

- **Concepts and analysis:**
 - Climate Adaptation Concept for Heilbronn (2021): https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/formulare/umwelt_mobilitaet/klimaschutz/Klimaschutzteilkonzept_Anpassung_an_den_Klimawandel.pdf
 - Spatial Structural Climate Adaptation Concept (2025)
 - Klimaatlas – climate data LUBW: <https://www.klimaatlas-bw.de/kartenviewer-vergangenheit>
 - Climate analysis for Heilbronn:
 - https://www.heilbronn.de/fileadmin/daten/stadtheilbronn/bilder/umwelt_mobilitaet/klimaschutz/Gesamtstaedtische_Klimaanalyse.pdf
 - https://www.rvhnf.de/files/content/Download/Landschaftsrahmenplan/Klimaanalyse/Klimaanalyse_RVHNF_Abschlussbericht.pdf
 - Flood affected areas: <https://rips-dienste.lubw.baden-wuerttemberg.de/rips/ripservices/apps/hwrm/Abfrage.aspx?x=514218.9507024261&y=5446196.508822936>
 - Project: Local climate adaptation project: <https://lokale-klimaanpassung.de/lokales-klimaportal/>
- **Climate adaptation related concepts:**
 - Air Quality Plan: <https://www.heilbronn.de/umwelt-mobilitaet/luft/luftreinhalteplan.html>
 - Climate Mitigation Concept: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-masterplan.html>
 - Mobility Concept 2030: <https://www.heilbronn.de/umwelt-mobilitaet/mobilitaet/mobilitaetskonzept-2030.html>
 - Noise Action Plan: <https://www.heilbronn.de/umwelt-mobilitaet/laerm/laermkartierung-und-laermaktionsplan.html>
 - Landscape Plan 2030: <https://www.heilbronn.de/umwelt-mobilitaet/landschaftsplan.html>
- **Climate adaptation projects:**
 - Video: Contemporary witness reports on change in Waldheide Heilbronn: <https://www.youtube.com/watch?v=dsF1HIVRFdo>
 - Climate groves at Wollhaus and Theresienwiese: <https://www.heilbronn.de/umwelt-mobilitaet/gruenes-heilbronn/klimawaeldchen.html>
 - Heilbronn as a winner of the Baden Württemberg Landscape Architecture Prize 2024: <https://www.bdla.de/en/regional-associations/baden-wuerttemberg/news/4340-entschieden-baden-wuerttembergischer-landschaftsarchitektur-preis-2024>
 - German landscape architecture prize 2021 for climate forest Wollhaus: <https://www.deutscher-landschaftsarchitektur-preis.de/preistraeger-2021/191-klimawaeldchen-am-wollhausplatz-heilbronn>

⁷ On all pages of the City of Heilbronn website, you can select your preferred language by clicking the button in the bottom left corner.

- Green facade at Neckarbogen: <https://www.bda-bund.de/awards/gruene-ecke-neckarbogen-heilbronn/>
- Cooling map: <https://karten.heilbronn.de/heilbronn/index.php?service=kartefuerheissetage>
- Flood protection: <https://www.heilbronn.de/umwelt-mobilitaet/hochwasserschutz.html>
- **Citizen participation:**
 - European Green Capital Heilbronn – landing page: <https://www.heilbronn.de/umwelt-mobilitaet/european-green-capital-award-2026.html>
 - Citizen participation platform: <https://wirsind.heilbronn.de/>
 - Climate Adaptation Concept for Heilbronn: <https://wirsind.heilbronn.de/content/bbv/details/105?tab=0>
 - Böckingen Bahnbogen Süd: <https://wirsind.heilbronn.de/content/bbv/details/40>
 - Turmstraße/Zehentgasse: <https://wirsind.heilbronn.de/content/bbv/details/121?tab=1#teilnehmen>
 - Video: Collaboration of reserach institutes on transparency of environmental data: <https://www.youtube.com/watch?v=vu1NSjSHPQE>
 - Climate and Sustainability Advisory Board: <https://www.heilbronn.de/umwelt-mobilitaet/klima-klimaschutz/klimaschutz-und-nachhaltigkeitsbeirat.html>
- **Examples of redesign projects**
 - New Neckar Promenade: <https://www.heilbronn.de/stadterneuerung/neue-neckarpromenade.html>
 - Resdesign of Turmstraße and Zehentgasse: <https://www.heilbronn.de/bauen-wohnen/meine-innenstadt-nord.html>
 - #SummerZone: <https://www.heilbronn.de/bauen-wohnen/meine-innenstadt-nord/sommerstrasse.html>
 - Bahnbogen Süd: <https://www.stimme.de/regional/heilbronn/stadt/lokales/bund-gibt-48-millionen-euro-fuer-bahnbogen-sued-im-heilbronner-stadtteil-boeckingen-art-4742268>

(max. 400 words)

Word Count Check

Please complete the below word count check.

Section	Number of words in body of text	Max. words
7.1	997	1000
7.2	545	600
7.3	574	600

FLAGSHIP PROJECT / IPAI - AI district of the future (all indicators)

The **IPAI CAMPUS** represents the latest major project in Heilbronn. Starting in 2025, up to 24 new buildings will be constructed in this district under the highest ecological standards to provide European companies, institutions, and public sector actors with a new home for their activities related to AI. The project area is in the northern part of Heilbronn, covering an area of 23 hectares. The goal is to optimally combine ecological and economic objectives.

The district design envisions the future IPAI headquarters as a district where people, technology, and landscape come together. It is characterized by flexibility and individuality. The diversity of IPAI CAMPUS is reflected in inviting open spaces, various building typologies, and architectural expressions. Intelligent and sustainable rainwater management will promote the microclimate, while additional aspects such as optimized construction methods, recycled or biobased materials, and on-site energy generation will further reduce operational CO₂ emissions.



The creation of **green corridors connecting to the historic Roman road** contributes to enhancing well-being and health. The strategic positioning of buildings creates noise barriers and ensures sufficient airflow for cooling the campus in summer. The car-free design of the IPAI CAMPUS ensures that public spaces are reserved for pedestrians and cyclists, in combination with intelligent micromobility. Access to a smart logistics system and parking is located beneath the AI district.



The IPAI CAMPUS is being planned in accordance with all prerequisites and conditions for a **Platinum certification from the DGNB** (German Sustainable Building Council), making it the second district in Heilbronn to receive this top award.

These aspects will be crucial to the sustainability of the neighborhood:

ENERGY EFFICIENCY

Regarding energy efficiency, IPAI employs innovative and climate-friendly construction methods to minimize the ecological footprint of IPAI CAMPUS. For this purpose, recycled building materials are used in the load-bearing structure and facade, with plans for wood-hybrid construction and modular building methods. Additionally, a material inventory will be created for all buildings and infrastructures within a digital twin that digitally integrates all relevant factors for managing and tracking the urban large-scale project.

RENEWABLE ENERGY

IPAI CAMPUS will operate as a Smart Grid, incorporating a variety of innovative components. This includes utilizing facades and roofs for solar energy conversion, providing extensive charging infrastructure for vehicles in the mobility hub, and planning for a low-energy network, battery storage, and cooling systems for energy circulation.

BIODIVERSITY AND WATER MANAGEMENT

The planning of open spaces, green facades, and roofs is carried out with a focus on biodiversity, aiming to increase the species diversity of the area compared to its initial state. A comprehensive monitoring system measuring various environmental influences such as noise, air pollutants, and other factors will be accessible via a dashboard. This system aims to inform the public about the environmental impacts of the district. Urban farming will be utilized in real laboratories to test food production in urban environments. Furthermore, the IPAI CAMPUS is designed as a sponge city to initially store rainwater and subsequently release it into the environment at a delayed rate.

A CAMPUS FREE OF MOTORIZED LOCAL TRAFFIC

The concept of the IPAI CAMPUS stipulates that no road traffic will circulate in the area. Access for all cars, trucks, and buses ends at a logistics hub, which serves as a transfer and transshipment station. The local distribution of goods will occur via an underground logistics system, while bicycles and scooters will be provided for the mobility of people.



GLOBAL HOME OF HUMAN AI – COMMUNITY ENGAGEMENT

Public engagement is already today a success factor for the IPAI CAMPUS, as participation fosters a sense of community and shared responsibility, helping to make the topic of AI more tangible. An important aspect is that the project's development goes hand in hand with the needs and values of the local population and stakeholders, allowing people from the region to identify with the project and thus increasing acceptance. Active communication and tangible demonstrators ensure transparency in planning and decision-making processes for the public sector, local stakeholders, and the general public.



Through event formats like the AI Salon and the AI Festival, as well as other touchpoints for participation, IPAI reaches diverse target groups and gains valuable insights and feedback. Early community involvement fosters trust, which is essential for long-term support and success. The aim is to create a vibrant and inclusive space for interaction with the IPAI CAMPUS to bring innovation to the wider public.

GOOD PRACTICE 1 / Environmental education for the next generation (all indicators)

Today's **children and young people** are the key players of tomorrow. Their ideas, commitment, and determination are crucial to ensuring a livable future for generations to come. That is why environmental education in kindergartens and schools is of great importance.

In **Heilbronn's municipal schools and kindergartens**, project days and themed weeks dedicated to sustainability take place regularly. Throughout the year, these institutions foster environmental awareness with great care and creativity—teaching children and young people about waste separation, planting raised beds and school gardens, and even raising butterflies and bees.

Schools and **kindergartens** collaborate with the Green Spaces Department, the Energy Agency, Experimenta, the Forest Network, the Climate Foundation of Kreissparkasse, and other partners. One particularly inspiring initiative is led by the Elly-Heuss-Knapp School, where students from the local high school, elementary school, and community school actively contribute to the beautification of the public "Kraichgauplatz" by planting and designing the space. In 2020, a desolate concrete plaza was transformed into a vibrant community garden. Today, herbs, berries, and vegetables thrive in the garden, cared for by preparatory classes and dedicated neighbors. The space invites visitors to linger, fostering a connection between nature and community.



The municipality of Heilbronn is offering various free programs on nature and climate mitigation:

ENERGY AGENCY – free teaching units on climate mitigation

The energy agency offers free lessons with various teaching units to **kindergartens**, kindergartens, and schools in Heilbronn. The units convey practical knowledge on topics such as renewable energies, climate change, recycling, and sustainable nutrition. In kindergarten, preschool children experience climate mitigation in a playful way through stories, craft projects, songs, and experiments. In schools, climate change is addressed across subjects with lessons, excursions, and projects on climate-relevant topics.



Course Highlights

- Little Explorers of Great Energies – How energy is generated from the sun, wind, and water
- Goodbye, Trash Monster!
- Rainforest and Arctic Animal News for Young Journalists
- Climate Change and Extreme Weather Events
- Climate-Friendly Nutrition!
- Guided Tour of a Heilbronn Recycling Facility

Each year, the energy agency offers 44 teaching units (approximately 88–100 sessions, depending on the scheduling of schools/daycares) as well as 12 workshops.

APPLE JUICE FROM THE CITY'S ORCHARDS

Traditional orchards shape the cultural landscape of our region. The city of Heilbronn maintains 30 hectares of orchards across 100 plots. Preserving this rich habitat requires expertise and dedication. The **"AHA! Alles Heilbronner Äpfel (all Heilbronn's apples)"** project involves



kindergarten and school children in harvesting the city's orchards. Many young people lack a connection to local produce, and this hands-on experience teaches them about the harvest process. The fruit is processed by a local cider mill (GUNKEL) into juice and spritzer. Schools receive custom-labeled bottles, allowing them to market their own juice, serve it at events, or sell it through partner companies. This project benefits everyone: well-maintained orchards for the community, hands-on learning for students, and a unique product for schools.



"ELEMENTA" – the Botanical Orchard as a learning space

The Heilbronn Botanical Orchard is an outdoor learning space for primary school students. The orchard is more than a park—it's a living classroom filled with diverse plants, trees, and wildlife. Birds thrive among the old trees and hedges, while bees, insects, and earthworms play key roles in the ecosystem. Open year-round, it offers an immersive way to explore nature and environmental connections. The project "Elementa" is a collaboration with the Heilbronn State Seminar for Didactics and Teacher Training and the Heilbronn Adult Education Center. Classes can book three-hour modules that combine hands-on nature experiences in the garden with creative workshops at the Youth Art School.

Course Highlights

- The Honeybee: Learn about bee colonies and taste fresh honey.
- Meadow & Insects: Study beetles, ants, and spiders up close.
- Fruits & Orchards: Learn how fruit trees grow and how apples are harvested.
- Wild Fruits: Identify edible and toxic berries.
- Haymaking & Meadows: Discover traditional techniques and plant diversity.



FREE SCHOOL VISITS AT KLIMA ARENA

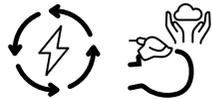
Since 2025, the Heilbronn Climate Foundation Sparkasse is supporting school visits to the KLIMA ARENA with 20,000 €. Operated by the Dietmar Hopp Foundation, the KLIMA ARENA is more than just a knowledge hub—it is an experience. Through interactive exhibitions and a themed adventure park, it playfully explores the topic of climate change.

GOOD PRACTICE 2 / Sustainability in the SLK Clinics (indicator 3, 4 and 6)

SLK-Kliniken

SUSTAINABILITY AT THE SLK CLINICS

- More than 5,750 people are caring for the well-being of more than 75,500 inpatients and 274,000 outpatients at three locations every year. 3,000 children are born at SLK every year.
- The SLK Clinics demonstrate how hospitals can maintain high medical standards while positively impacting ecological factors, despite facing numerous challenges in healthcare.
- The SLK Clinics have launched numerous projects to improve sustainability both within their facilities and in the broader community, setting new environmental standards.
- The clinics have built strong collaborations in various environmental sectors, ensuring that sustainability is an integral part of their operational and strategic approach.
- The City of Heilbronn is a 50 % shareholder of the SLK clinics.



1 ENERGY AND EMISSIONS /

Energy management

Ventilation system in the operating theatre on demand instead of around the clock



Replacement of the anaesthetic gas desflurane (high greenhouse gas potential) with sevofluran and minimisation of the flow rate → emissions reduced by 94,9 % since 2019

Pharmacy:

Change of metered dose inhaler to powder for self-inhalation



2 LEARNING AND NETWORKING /

WE-Pact partner since 2024

Common goal: climate neutrality till 2035

Heilbronner
WIR-PAKT
Mit gutem Beispiel voran.

Participation in the „CLIMATEfit“

Programme greenhouse gas balance sheet & programme of measures were developed

Sensitizing employees

(intranet, workshops, competitions)

Project CLIMATE SAVERS – LIFE SAVERS

App for employees to visualise their environmental protection measures in CO₂ savings → total amounts of savings: 13 t CO₂e savings 13 tons of CO₂



3 HEALTHY AND SUSTAINABLE NUTRITION /

Awards

- Winner of the QuMIK Quality Award in the ‘Environment and Sustainability’ category 2023
- Finalists for the German Sustainability Award

Overall project objectives:

- Healthy and sustainable meals
- Reduction of food waste achieved through the following cooperations:

a) Pro Region ‘citizens’ association

Educational campaigns on healthy eating in kindergartens and school

b) Baden-Wuerttemberg Cooperative State University (DHBW Heilbronn)

Degree programme „Food Management“

c) PAN (physicians association for nutrition)

Exhibitions and workshops for employees

d) Helping the homeless with several Heilbronn-NGOs (Aufbaugilde Heilbronn, Diakonisches Werk, Foodsharing Heilbronn e.V.)

e) Charité Berlin

f) PAN (physicians association for nutrition)

Exhibitions and workshops for employees

g) Heilbronn Youth Hostel

Cookbook for sustainable and healthy meals in large kitchens



4 WASTE MANAGEMENT /

Conversion of the medication dispensing system in the pharmacy:

Pre-distribution of medication per patient instead of dispensing in blister packs

Cooperation with DHBW Heilbronn

Degree programme ‘Resource Management’

↓
Current project: implementation waste separation in the operating theatre



Reintroduction of reusable instruments that are reprocessed

Recycling of old hearing aids, smartphones, printer cartridges financially supports a selected partner school

Reduction of the use of disposable gloves for non-essential procedures through employee training

Paper reduction

through centralised switch to duplex printing



5 BIODIVERSITY AND GREEN SPACES /



Miracle tree of life

„Plant a tree with us for the birth of your child.“ for 5€

Insect-friendly green space management through the creation of flower meadows



Fundraising campaign with chief physicians’ honey



6 GOVERNANCE /

Environmental Commission (since 2019)

Sustainability Manager (since 2024)

GOOD PRACTICE 3 / The Neckarbogen district (all indicators)

Heilbronn's **Neckarbogen district** stands as a shining example of Heilbronn's transformative spirit, turning what was once a neglected parcel of land into a **vibrant and thriving, biodiverse** urban neighborhood. Characterized by award-winning architecture and expansive green spaces, Neckarbogen emerged prominently during the 2019 Bundesgartenschau (BUGA, Germany-wide Garden Exhibition).

Since then, the city has been steadfast in its efforts to evolve this area into a vibrant community and commercial hub, accommodating up to 3,500 residents and 1,000 employees. Expansive green spaces, two lakes, six play and sports facilities, and the 1.5-kilometer-long riverfront along the Neckar River are the legacy of the BUGA 2019. They transform the Neckarbogen into an exceptionally green and family-friendly urban quarter with high recreational and leisure value. The Neckarbogen district has won numerous awards over the years, for example the Polis Award 2017 - Winner in the category "Urban Brownfield Recycling", the Baden-Württemberg Landscape Architecture Prize 2022, recognition in the category "Sustainability in Urban Development / Green Infrastructure Projects" and is pre-certified by the DGNB (German Association for Sustainable Building). The following aspects are crucial for the sustainability of the district:



ENERGY EFFICIENCY

The Neckarbogen is intended to provide a real-life laboratory for innovative and climate-friendly construction methods. In the first phase of construction, completed for the Federal Garden Show (Bundesgartenschau) in 2019, Germany's first wooden high-rise building - the Skaio - was built in the Neckarbogen district. This ten-story building, constructed using wood hybrid construction, sets high standards in architecture and sustainability. Over the next two years, 18 out of 28 buildings will be constructed using wood hybrid construction methods.

GREEN SPACES AND BIODIVERSITY

17 ha green spaces of a recreated brownfield area are the backbone of the new green district. Five parks were built: Neckaruferpark, Hafenpark, Campuspark, Floßhafen and Stadtschungel. A renatured section of the Neckar riverbank, two lakes, the Neckar river promenade, a graduation tower, and lizard habitats, are included alongside new lawn and meadow areas, woody and herbaceous areas, as well as roadside greenery with irrigation systems.

RENEWABLE ENERGY

There are various combined heat and power plants, including a central mobility hub with a central energy storage for the Neckarbogen area. Innovations with deep probes supply several buildings with heat from the ground. Active energy houses with roof and façade solar panels support other residences in a local network.

PUBLIC TRANSPORT AND WALKABILITY

Neckarbogen is designed as a car-light urban area. Motorized traffic access is limited, with parking primarily underground. A mobility center with bike and car sharing services will be established in the district garage, promoting alternative transportation. Extensive bike paths and pedestrian zones connect buildings and recreational areas along the Neckar River. A pedestrian and bicycle bridge over railway tracks links the area to the close main train station and city center.



WATER MANAGEMENT

An innovative water treatment was implemented, separating and using rainwater to replenish lakes instead of directing it to the sewage plant. A reed-planted retention soil filter filters rainwater, preventing algae growth and maintaining lake health.

COMMUNITY ENGAGEMENT AND SOCIAL SUSTAINABILITY

Neckarbogen is an example for Heilbronn's community engagement as the project emphasized participation, ensuring that local residents had a voice in shaping the development of their neighborhood. The innovative Neckarbogen district is the starting point for a new building culture in Heilbronn, inspiring current building projects of the city.