

## TELOS Intensive Study Programme Working Group Report: New housing opportunities for Nürtingen without consuming open space

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### Goals and objectives

Main goal was to address the shortage of houses in Nürtingen without consuming more open space and improving the social health and cohesion and minimising the impact on natural environment. The objectives were:

- to increase the population density (number of inhabitants per hectare), while still keeping the sufficient human health conditions (lighting, micro-climate, social conditions etc.) and high environmental quality (supporting biodiversity, maintaining ecological corridors and connectivity, preserving rural landscape etc.);
- to provide a choice and diversity of dwellings for different population groups (in terms of age, origin, religion, style of life) and to define proper urban morphologies fitting into the local landscape and answering the human needs;
- to develop ideas, models, strategies or policies at the city level to find opportunities for new flats, for example by changing the model of dwelling or searching the alternative spaces for housing.

**Motivation:** To understand the problems related to the housing shortage in Nürtingen and develop strategies that address it, if possible, without using more open space. A key aspect was to optimize the efficiency of city infrastructure by increasing the number of flats and reducing the number of commuters movements and providing a local work place.

### Relevance of the perspective:

The central question: “*How might we generate new housing opportunities without consuming more open and green spaces?*”, lead to new questions. Instead of a tailor-made solution for Nürtingen it would be viable to find solutions that can be implemented in other cities. Hence, Nürtingen can be considered as a pilot case. To address the topic, the team needed to get a broader understanding of Nürtingen’s urban landscape, its geography and identity. After a short in situ and desk studies the team defined a set of values, which became a guideline for addressing the housing shortage in Nürtingen in accordance to the features of local socio-economic and environmental landscape, such as:

- the polycentric structure of the settlements in the region and their town-like character with low- and mid-rise (without high-rise buildings), the value of “Dachlandschaft” (roof-landscapes hidden in the line of trees), vast open green spaces in between settlements (orchards, pastures, forests);
- sustainable and livable neighborhoods providing the social diversity, densities over 60 units/ha to make public transport more viable, if possible, fulfilling the requirements of positive energy districts and supporting the idea of urban food production

All these considerations led finally to rephrasing the central question to: *how the new housing models might impact the current landscape patterns?*

**A summary of the forum process**

Data was collected to assess the problem's scale. Using the 'Persona' method, they understood potential users/inhabitants without an extensive demographic study, addressing 'Housing for whom?'. A field trip helped identify urban morphologies for housing in Nürtingen, leading to ideas for urban management, including space optimization and new housing management models as alternative solutions to housing shortages.

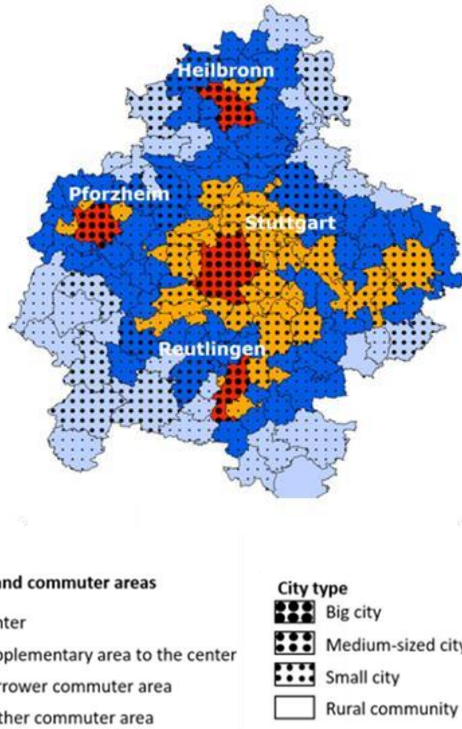


Fig 1. Greater Stuttgart Region and commuting areas (Wagner and Growe, 2020).

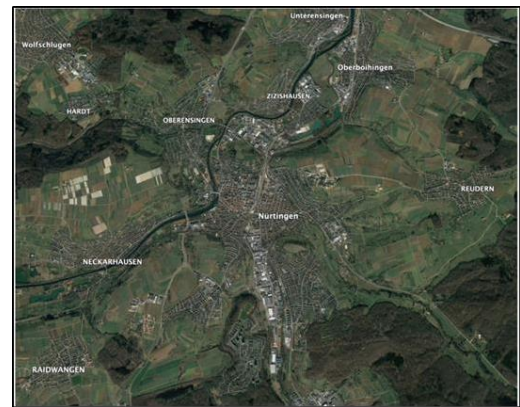


Fig 2. Map of Nürtingen.(Google Earth image)

The first step was to look at the Stuttgart area at regional level. This included the environmental, social, spatial, economic, and legal perspectives. This exercise identified the possible aspects of the housing shortage and its territorial scale (Fig 1,2,3.) Next, data was collected to quantify the problem and answer issued-oriented questions: How many Houses? What size? Where? (Fig 4). This search led us to Nürtingen Municipality website, where some quantifiable data is presented (Fig 4,5).

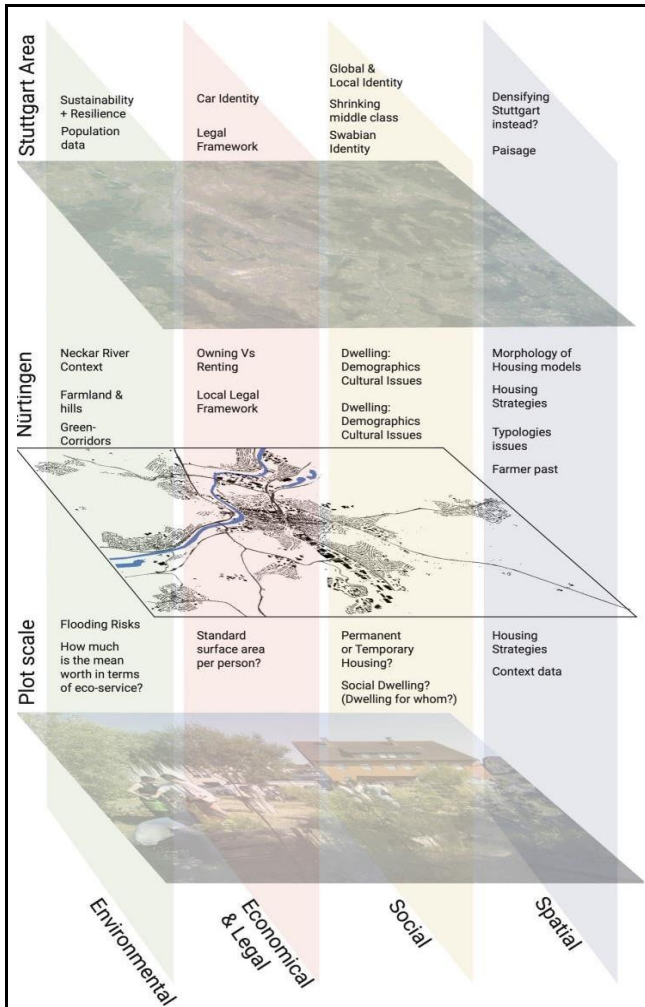


Fig 3. Layer analysis of Topics related to the housing shortage issue

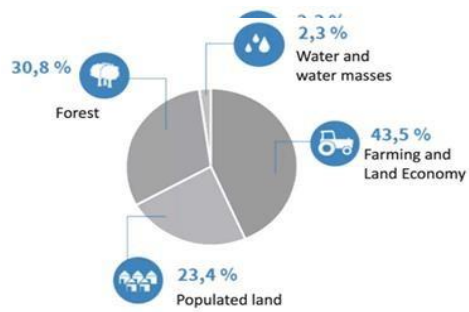


Fig 4. Type and percentages of land use, Nürtingen (Nürtingen Municipality)

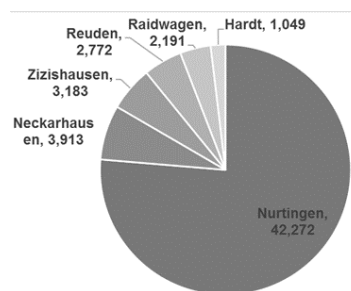


Fig 5. Population in Nürtingen and its periphery districts (Nürtingen Municipality)

After more in-depth research we found the “Integriertes Stadtentwicklungskonzept Nürtingen 2025” This report included several territorial diagrams and maps regarding green spaces, economy, energy, mobility and Housing, and combined with the analysis of the Corine Map further improved our understanding of the city and its surrounding areas (see figure 6, and 7).

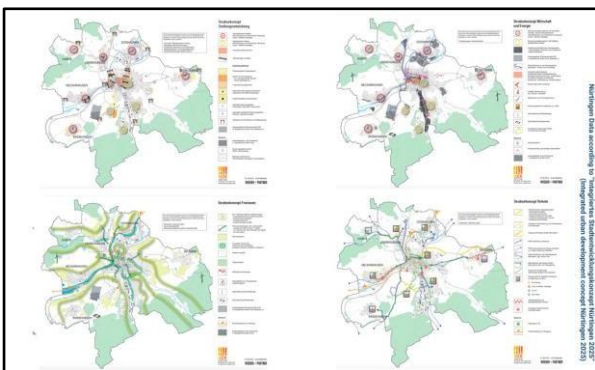


Fig 6. Nürtingen data provided by the Integriertes Stadtentwicklungskonzept Nürtingen 2025.

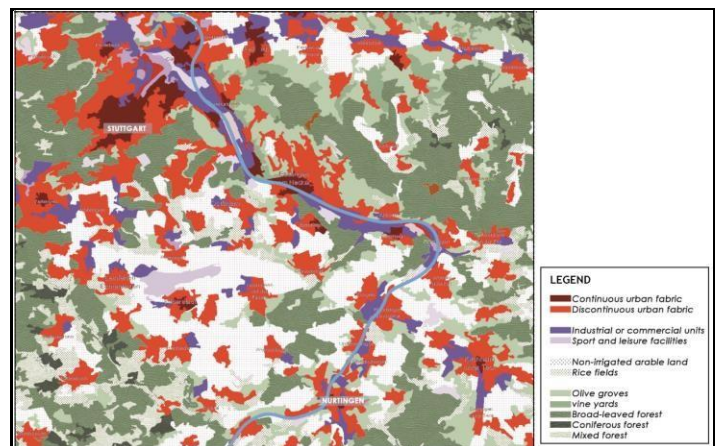


Fig 7. Land use/Land cover map of Stuttgart (Corine, 2018).

Visits in and around the city of Nürtingen further deepened the knowledge about its landscape. It became clear that Nürtingen is a polycentric city, strongly defined by its geography of hills and valleys. The relationship between farming/open green landscapes and urban areas and the connectivity to the surrounding cities (Fig 7) played an integral role in the cities of the whole region. Regarding housing, we concluded that there is a prevalence of low to medium density patterns except for very few high-density tall buildings (Fig 6,7,8).

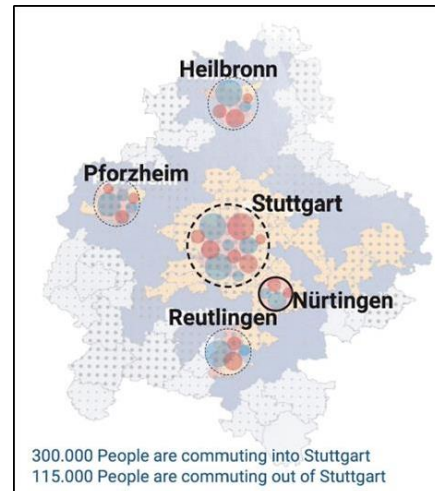


Fig 8. Nürtingen urban area, picture taken during workshop team field trip.

Next, an exercise was developed within the group, to understand the type of residents living in the city, and identify their needs. This exercise resulted in the development of six personas: immigrant student from, a Single dad from European origin, a married couple from Turkey a student living with his mom, an old German (Swabian) woman and a 10-year-old stray cat (fig 9). Questions asked concerned their daily routine, ideal house, economic status, and various other needs.



Fig 9. Characters impersonated during the Personas exercise (Housing for whom?) and the results.

In our endeavor, we have employed the persona approach to envision the present and future housing preferences of individuals. This involves eliciting information through targeted questioning about their current daily routines, specific dwelling requirements, ideal housing preferences, and the urban functionalities they seek in a neighborhood context. By utilizing this method, we aim to gain insights into the types of housing and neighborhoods people currently reside in and aspire to reside in the future.

-  Semi-detached housing | Big yard with a playground | Need to use public spaces for a change instead of cars
-  Large single family house with a garden transformed into low multi family house | Walkable, quiet neighborhood | Proximity to provide basic needs and socialize with friends from here
-  Block of flats | Cultural amenities, cinema, sports, gaming | Easy access to the city centre by public transportation| Wishing to have a flat in a big city in the future
-  Semi-detached housing| Lively neighborhood to socialize | Proximity to services | Effective transportation to rest of the region | Accessibility to walking trails, Nature proximity | Move to a larger city in the future and have a flat
-  Apartment with a balcony in low midraise | Proximity to work and kindergarten | Saving money for planning to buy a larger flat to bring his family to Germany to live with him
-  Micro Apartment in Historical centre | Dense and active neighborhood | Affordable rent | Cafes and restaurants around
-  Nice roof with a view | More green space connectivity | Less noise pollution | More natural ecosystem integration | Available food sources

After this, schematics and criteria regarding the issue were defined in both urban and housing/dwelling scale (fig 10, 11) and residential density (fig. 12).

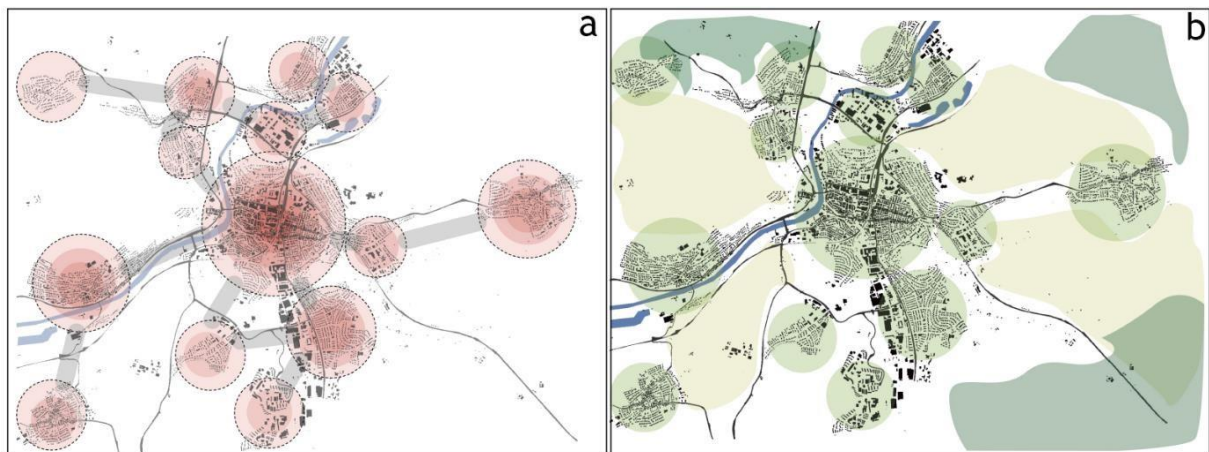


Fig 10. a) Settlement and dwellings spread in many centers; b) Development in valleys, ridges and plateaus

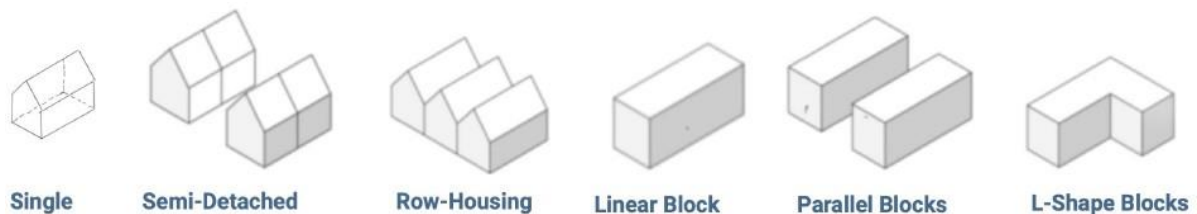


Fig 11 Types of dwelling observed in Nürtingen

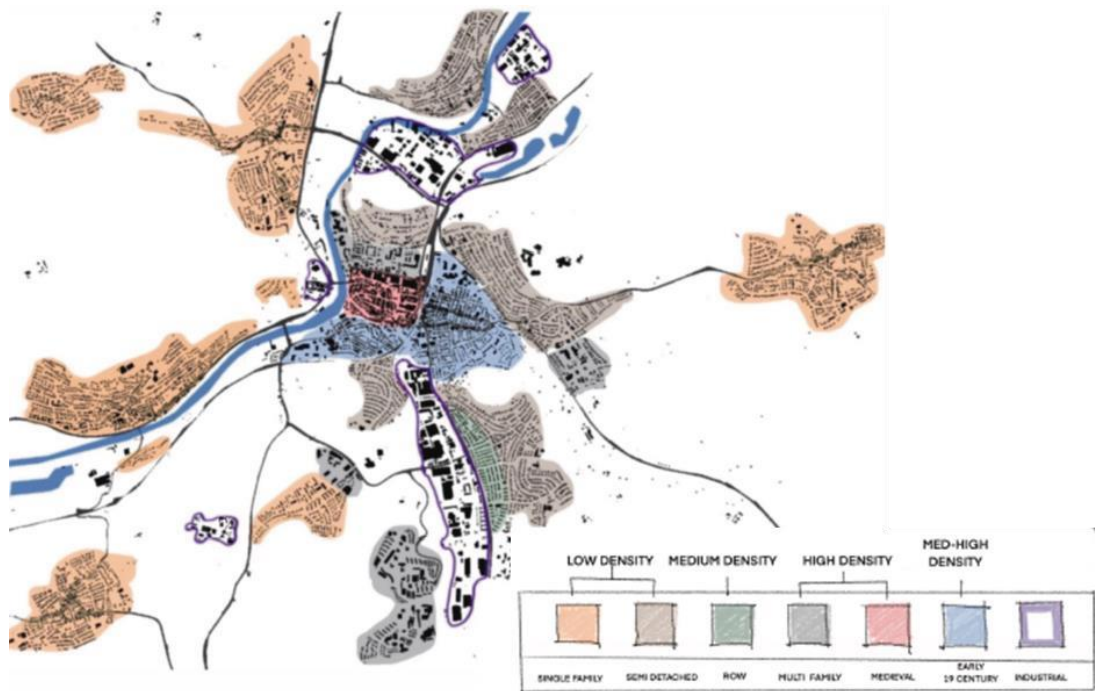


Fig 12. Dwelling density variation in Nürtingen

### Outcomes and findings

The first phase of the research involved exploration of the site, and an analysis of the landscape of the city and surrounding territories. During the landscape analysis three main areas were identified.

1. Historic city area
2. Areas where the building roofs follow the line of the tree height, known as “Dauschlandschaft” in Germany.
3. Areas where new buildings have been developed in contrast to the existing landscape, and where buildings are higher than trees.

Fig. 13. shows the process for the analysis, as well as, pictures showing the three main areas.

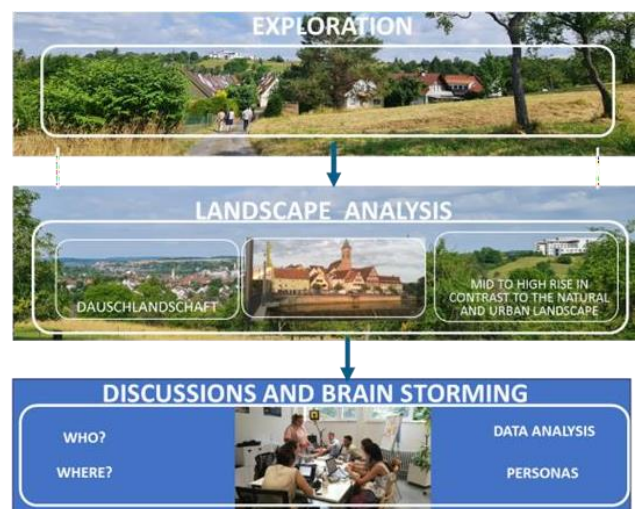


Fig. 13. The process to arrive at the outcome and findings

The conducted analysis led to the development of three branches of strategies for solving the housing shortage: (1) Internal densification of residential areas, (2) Transformation of obsolete industrial/infrastructural areas into new residential areas, and (3) Occupation of developable land (as determined in the Integriertes Stadtentwicklungskonzept Nürtingen 2025). In the following paragraphs these three strategies are developed:

**1. Internal densification of existing residential areas:**

To consider this it will be pertinent to make an inventory of the existing building stock and empty lots. As, the solution focuses on the concept of creating spaces for dwelling, different types of spaces would be required. Hence, after the inventory phase, there would be a classification phase. In this later phase the potential functions of the buildings and lots would be identified. Following this approach and in a preliminary exercise, three main housing types were identified (see first row in Table 1). These three housing types were highly associated with three different urban fabrics or neighborhood types with distinct densities and landscape characters (see second row in Table 1). In the last row of Table 1, the housing strategies for each neighborhood types are proposed.

	Typology 1	Typology 2	Typology 3
<b>Existing Housing Type</b>	Small House Tiny Garden	Small Apartment with Balcony View	Big Family House
<b>Neighborhood Type</b>	Garden Neighborhood	In Historic Center	City Villa
<b>Proposed Housing Strategy</b>	Micro Town-House	Co-Housing Models Micro Apartments	Low-mid Density Dwellings

Table 1. Identification of housing and neighborhood types, and proposed strategies for strategic densification.



Fig. 14. Images showing the different type of dwellings and spaces in a neighborhood in Nürtingen.

**2. Transformation/Reclamation of industrial/infrastructural land and Development of new urban land:**

These two strategies involve identifying areas that have the potential to become new neighborhoods. Based on the urban analysis of the territory these areas include: developable land as defined in the local spatial plan (new urban land), and reclaimed urban land, either in industrial areas that are either empty or can be relocated to a new area, or in dispensable infrastructural land used for transportation systems like parking areas, roads, railway tracks, etc. (for example, the roads or railways could be taken underground. In this way the ground above can become available for new development). To identify the potential of the above strategies in Nürtingen, the number of mid-density and high-density housing/dwellings that could be made available is calculated. The results are as follows (Table 2 and Fig. 15):

	For new mid-density housing	For new high-density housing
Based on:	60 dwellings/ha	150 dwellings/ha
<b>New Urban Land:</b>	2231	5578
<b>Reclamation/Conversion of existing urban land:</b>	406 + 403	1015 + 1010

Table 2. Results based on the “New urban Land” and “Reclamation of Urban Land” approach.

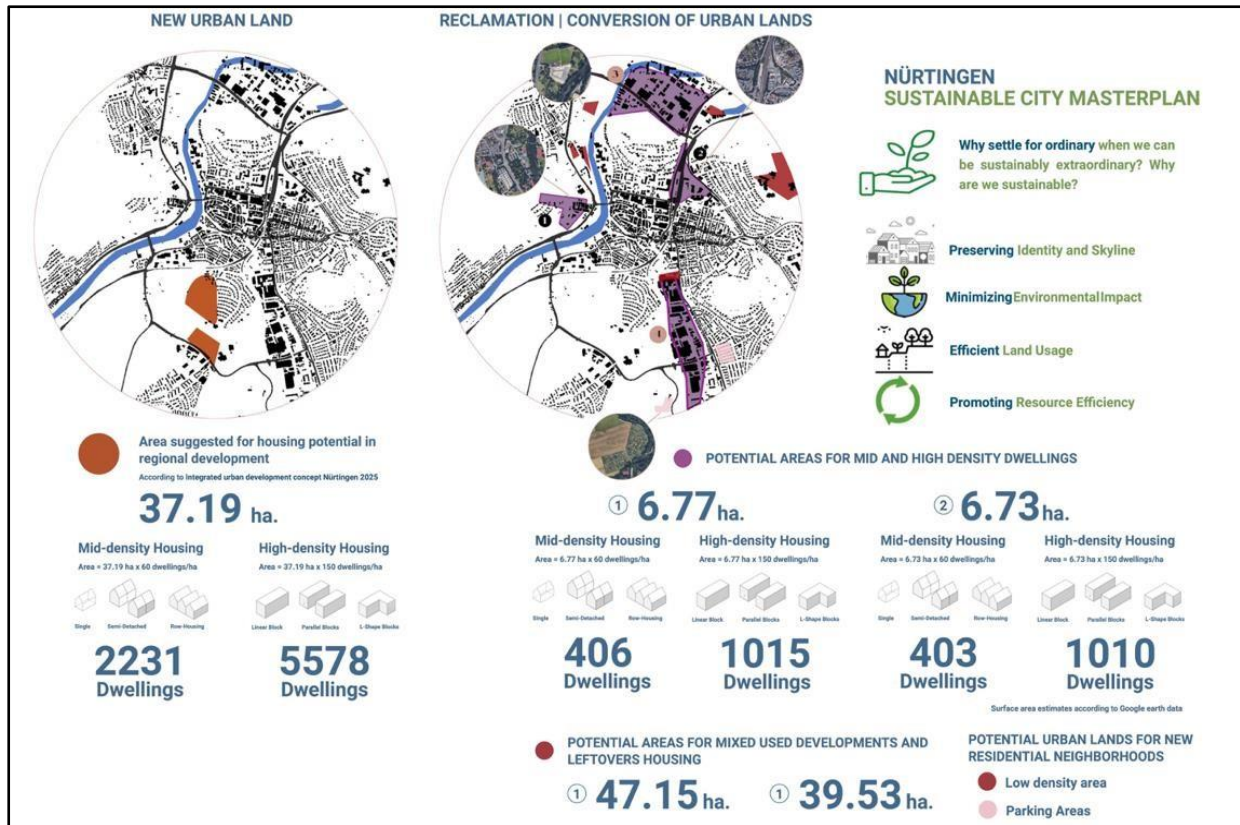


Fig 15. Results based on the “New urban Land” and “Reclamation of Urban Land” approach.

In conclusion, it is essential to remember that this approach is speculative and approximated. Housing policies should consider these areas for housing-related activities, including open green spaces, education/recreational areas, stores, etc., which may cause variations in the numbers. A fully resilient and sustainable approach should involve both strategies and community representatives.

### Reflection and Outlook

We're on a mission to provide housing without cramping anyone's style, or the skyline! This approach involves cleverly regenerating and improving existing spaces, or converting infrastructural land into vibrant residential areas. By reclaiming these unused spaces, we're not only preserving our precious open spaces, but also ensuring a brighter future for our locals. After all, who needs to ruin the identity of a place when we can add a touch of whimsical innovation to create homes that make you say, 'I never knew this space could be so charming!' Join us in building a community that's sustainable, locally-driven, and full of character.

Our approach is not only about creating vibrant homes but also about embracing sustainability with open arms. By revitalizing existing spaces and repurposing infrastructural land, we minimize the need for new construction, reducing the consumption of precious open spaces. This strategy helps us preserve the natural beauty of our surroundings and maintain the integrity of the local landscape and environment. Additionally, our focus on regeneration and improvement promotes resource efficiency, minimizing waste and maximizing the use of existing infrastructure. We believe that sustainability is not just a buzzword but a way of life,



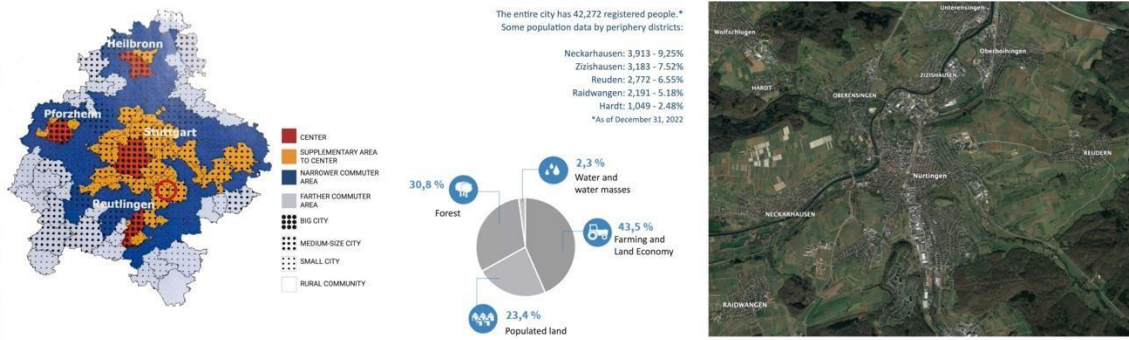
and by adopting these practices, we are making a positive impact on our community, both for present and future generations.

#### REFERENCES

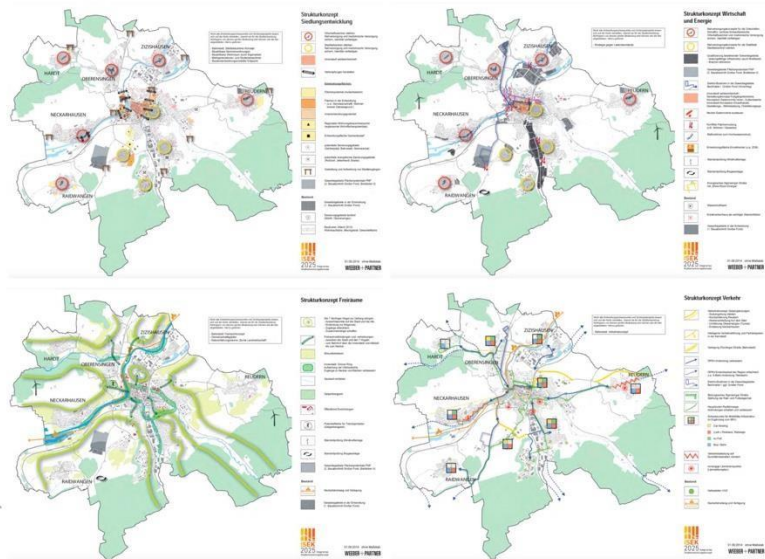
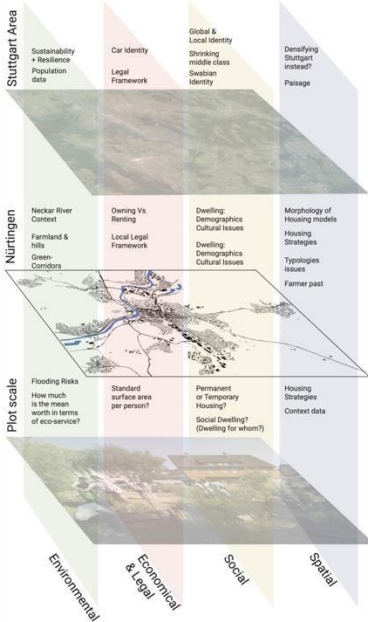
Wagner, M. and Growe, A. 2020. Regional Urbanization and Knowledge-Intensive Business Activities (KIBS): An Example of Small and Medium-Sized Cities in the Greater Stuttgart Region (Germany). *Urban Science*, 4(1), pp. 1-18. DOI: 10.3390/urbansci4010001.



HOW MIGHT WE ADDRESS THE SHORTAGE OF HOUSES IN NÜRTINGEN WITHOUT CONSUMING MORE OPEN SPACE?



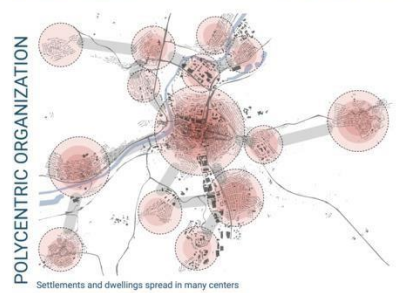
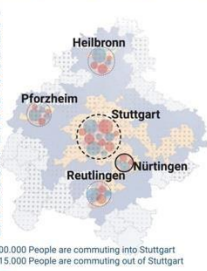
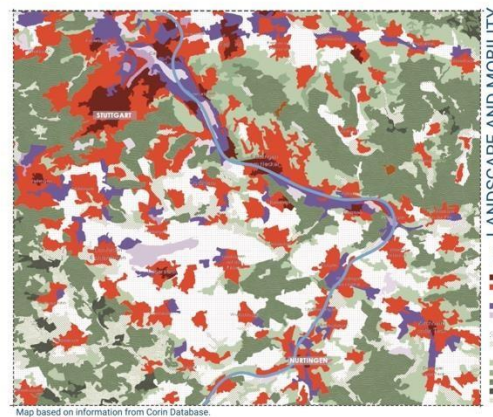
ISSUES & TOPICS - LAYER ANALYSIS



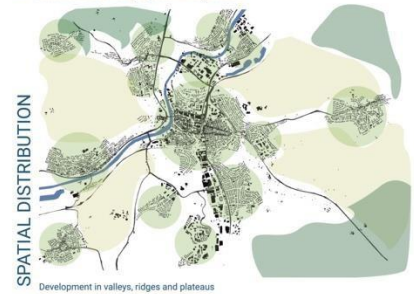
Nürtingen Data according to "Integriertes Stadtentwicklungskonzept Nürtingen 2025" (Integrated urban development concept Nürtingen 2025)



TERRITORIAL ANALYSIS



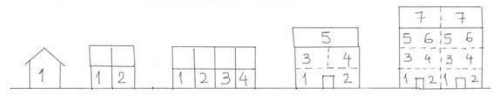
Dwelling Density variation in Nürtingen



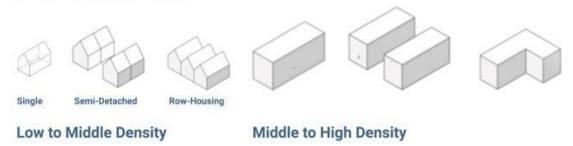
DWELLING STRATEGIES

INTERNAL HOUSING	OCCUPY NEW LAND	TRANSFORMING URBAN LAND
Improvement Densification		Industrial   Infrastructural
<ul style="list-style-type: none"> <li>Empty lots</li> <li>Empty Buildings</li> <li>Renovations</li> <li>Co-Housing</li> </ul>		<ul style="list-style-type: none"> <li>Railway</li> <li>Harbours</li> <li>Airports</li> <li>Parking Areas</li> </ul>

Types of Dwelling observed in Nürtingen



Dwelling Characterization



	Typology 1	Typology 2	Typology 3
Existing Housing type	Small House + Tiny Garden	Small Apartment with balcony view	Big family House
Neighborhood type	Garden Neighborhood	In Historic center	City Villa
Proposed Housing strategy	Micro town-house	Co-housing models, micro apartments	Low-mid Density Dwellings



HOUSING FOR WHOM?  
PROPOSED STRATEGY

**THE PERSONAS**



- What is your daily routine?
- Your requirements and needs?
- What kind of neighborhood do you need?
- What is your type ideal house?
- What functions in city context you are using?
- How do you describe your economic status?

- Semi-detached housing** | Big yard with a playground | Need to use public spaces for a change instead of cars.
- Large Single family house with a garden transformed into low multifamily house** | Walkable, quiet neighborhood | Proximity to provide basic needs and socialize with friends from here.
- Block of flats** | Cultural amenities, cinema, sports, gaming | Easy access to the city centre by public transportation | Wishing to have a flat in a big city in the future.
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- Apartment with a balcony in low midraise** | Proximity to work and kindergarten | Saving money for | Saving money & planning to buy a larger flat to bring his family to Germany to live with him.
- Micro Apartment in Historical centre** | Dense and active neighborhood | Affordable rent | Cafes and restaurants around.
- Nice roof with a view** | More green space connectivity | Less noise pollution | **More natural ecosystem integration** | Available food sources.

**MORE DWELLINGS WITHOUT USING MORE OPEN SPACE**

