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ACE | Architecture, City and Environment

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

https://doi.org/10.5821/ace.20.58.13476

Urban Densification as a Tool for Sustainable Development Policy in Switzerland

La densificación urbana como herramienta para la política de desarrollo sostenible en Suiza

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Received: 2025-01-14 | Final version: 2025-04-16

Abstract

The article examines the implementation of urban densification policies in Switzerland as a strategic response to limited land availability and the pursuit of sustainable spatial development. The research investigates the mechanisms that enable social acceptance of inward development and explores whether high-quality architecture can be produced under the spatial and legal constraints these policies impose. The methodology is based on a literature review and a typological analysis of selected recent projects realized through architectural competitions. Case studies include various types of infill and redevelopment interventions—such as extensions of existing buildings, high-rise developments, and hybrid structures—evaluated within the framework of urban land reserve classifications. The findings suggest that densification projects, when designed by experienced architects and supported by effective planning instruments, can enhance urban quality of life and result in socially accepted, environmentally conscious outcomes. While densification often faces challenges like public resistance (NIMBY effect), limited access to green areas, and increased spatial tensions, thoughtfully planned projects can mitigate these issues and even contribute to improving existing neighborhoods. In Switzerland, densification policies are strongly supported by the public, as demonstrated in national referenda, and are embedded in constitutional and legislative frameworks. Although the compact city model may seem less essential in countries with more available land, it remains a relevant planning approach due to its ecological, economic, and social advantages. When properly communicated and implemented through inclusive processes, urban densification can serve as a catalyst for architectural innovation and support broader goals of environmental sustainability in urban development.

Keywords:
densification; compact city; inward development; urban land reserves

E-ISSN: 1886-9751

Resumen

El artículo examina la implementación de políticas de densificación urbana en Suiza como una respuesta estratégica a la disponibilidad limitada de suelo y al objetivo de lograr un desarrollo espacial sostenible. La investigación analiza los mecanismos que permiten la aceptación social del desarrollo hacia el interior y explora si es posible generar arquitectura de alta calidad bajo las restricciones espaciales y legales que estas políticas imponen. La metodología se basa en una revisión de literatura y en un análisis tipológico de proyectos recientes seleccionados, realizados a través de concursos de arquitectura. Los estudios de caso incluyen diversos tipos de intervenciones de relleno y renovación urbana —como ampliaciones de edificios existentes, desarrollos en altura y estructuras híbridas— evaluados dentro del marco de clasificación de reservas de suelo urbano. Los resultados sugieren que los proyectos de densificación, cuando son diseñados por arquitectos experimentados y respaldados por instrumentos de planificación eficaces, pueden mejorar la calidad de vida urbana y generar resultados socialmente aceptados y ambientalmente responsables. Aunque la densificación enfrenta desafíos como la resistencia social (efecto NIMBY), el acceso limitado a espacios verdes y el aumento de tensiones espaciales, los proyectos bien planificados pueden mitigar estos problemas e incluso contribuir a la mejora de barrios existentes. En Suiza, las políticas de densificación cuentan con un fuerte respaldo ciudadano, como lo demuestran los referendos nacionales, y están incorporadas en marcos constitucionales y legislativos. Aunque el modelo de ciudad compacta pueda parecer menos urgente en países con más disponibilidad de suelo, sigue siendo una herramienta de planificación relevante por sus beneficios ecológicos, económicos y sociales. Bien comunicada e implementada mediante procesos participativos, la densificación urbana puede actuar como motor de innovación arquitectónica y sostenibilidad ambiental.

Palabras clave:
densificación; ciudad compacta; desarrollo hacia el interior; reservas de suelo urbano

Citation: Poklewski-Koziełł, D. (2025). Urban Densification as a Tool for Sustainable Development Policy in Switzerland. *ACE: Architecture, City and Environment, 20*(58), 13476. https://doi.org/10.5821/ace.20.58.13476

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1. Introduction and literature review

1.1. Limited land reserves

Switzerland is a relatively small country with an area of approximately 41,000 km². The limited availability of land suitable for development is primarily due to the mountainous topography of the Alps, which covers about 60% of the country's territory, with only 30% of the land considered suitable for settlement purposes (Schultz et al., 2003; BRP, 1998). Spatial development in Switzerland after World War II was broadly in line with trends observed in other European countries, focusing on the occupation of new settlement areas. This was driven by the country's dynamic economic growth and technological progress, resulting in a significant demand for land. Between 1950 and 1990, newly urbanized areas doubled. In subsequent years, further expansion of urbanized areas continued. As a result, two-thirds of the country's total housing stock was constructed after 1946 (Grams, 2018). Today, despite legislation aimed at curbing uncontrolled urban sprawl, the rate of spatial development has not slowed and remains high, with an estimated increase of 1 m² of built-up land per second (Nebel, 2014; BFS, 2013). Paradoxically, although Switzerland is considered one of the most densely populated countries in Europe, its urban structure is not characterized by densely populated metropolises but rather by many small and medium-sized cities, with Zurich being the largest — yet with a modest population currently not exceeding 420,000 inhabitants (Schultz et al., 2003). The degree of urban sprawl is significant. The development of transportation infrastructure facilitated the creation of a highly absorbent urban structure, which has encroached upon valuable natural landscapes and agricultural land. This model of spatial development, driven by increasing mobility, has resulted in growing demand for further transportation infrastructure and ongoing pressure on the natural environment. Interestingly, the issue of uncontrolled urban sprawl was recognized surprisingly early — as early as 1933 — when Armin Meili, a Swiss architect and politician, condemned this process, referring to it as "the cancer of dispersed settlement" and the "profanation of the landscape." He called for "the preservation of the beauty of the homeland" and "the conscious shaping of the future development of the country with due regard for the welfare of the individual" (Meili, 1933; Grams, 2018).

1.2. Topography and culture

Spatially sustainable development in the country is currently one of the main objectives of legislation, enshrined in the constitution, the spatial planning law, and central to the activities of the national administration at all three levels of its hierarchical structure. It focuses on the creation of legal frameworks for spatial development, with the essence of this process being the balance between nature and its regenerative capacities, on the one hand, and human needs, on the other.

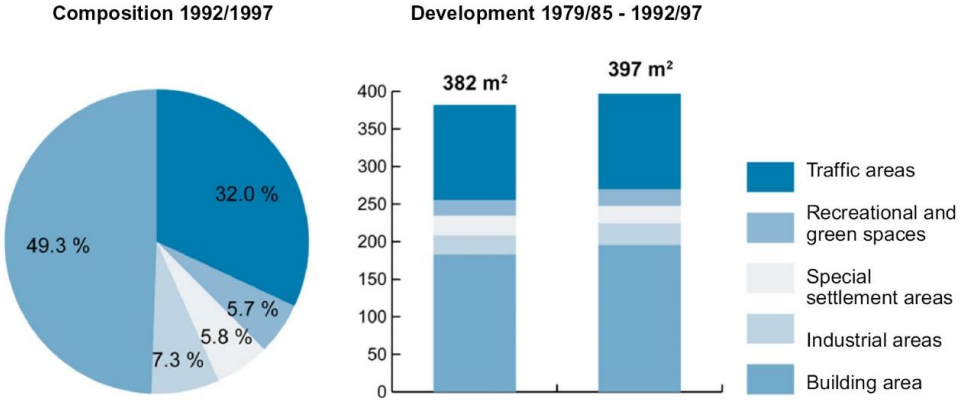
In view of the above, government strategic documents state the following: “Efforts must be made to achieve a polycentric spatial development with settlements that are as compact as possible and occupy minimal space, distributed across the entire territory of Switzerland. [...] Greater efforts should be made to ensure the economic use of land and encourage more internal development of settlements. [...] Steps should be taken to ensure the sustainable development of the country’s space and to establish a transportation system that meets the needs of business and the population, while simultaneously reducing the negative impacts of transport on people, the environment, and the economy.” (BR, 2012, p. 29)

Despite this, discrepancies are evident between the established goals and the actual implementation of adopted spatial planning strategies. This undeniably proves that any instrument will be ineffective if not properly executed (Avenir Suisse, 2010). Therefore, even the Swiss Federal Council has acknowledged that the country’s development is far from sustainable.

The limited territorial resources available for settlement development have prompted the thrifty Swiss to promote inward settlement, realized under the slogan “inward development before outer development.” A significant factor contributing to this stance is the importance of the landscape as a shaping element of national identity — where, unlike in neighboring countries, neither language nor ethnic unity could serve as a national glue. The landscape, initially perceived as a threat, was “domesticated” only in the 18th century (Kaufmann & Zimmer, 1998), becoming an inspiration for artists, writers, and poets. Of course, such attitudes are not universal, and even today, there are still people who view wild nature as a hostile and dangerous place (Bauer et al., 2009; Stremlow & Sidler, 2002). However, no less significant in shaping attachment to the landscape was the role it played in the country’s history

— starting from the 14th century, when it helped the army of armed peasants successfully repel the Habsburg attack, laying the foundation for the development of the future independent state (Kaufmann & Zimmer, 1998).

Figure 1. Per Capita Settlement Area and Urban Development: 1979–1985 vs. 1992–1997



Source: ARE (2013)

1.3. Reasons for increasing land consumption

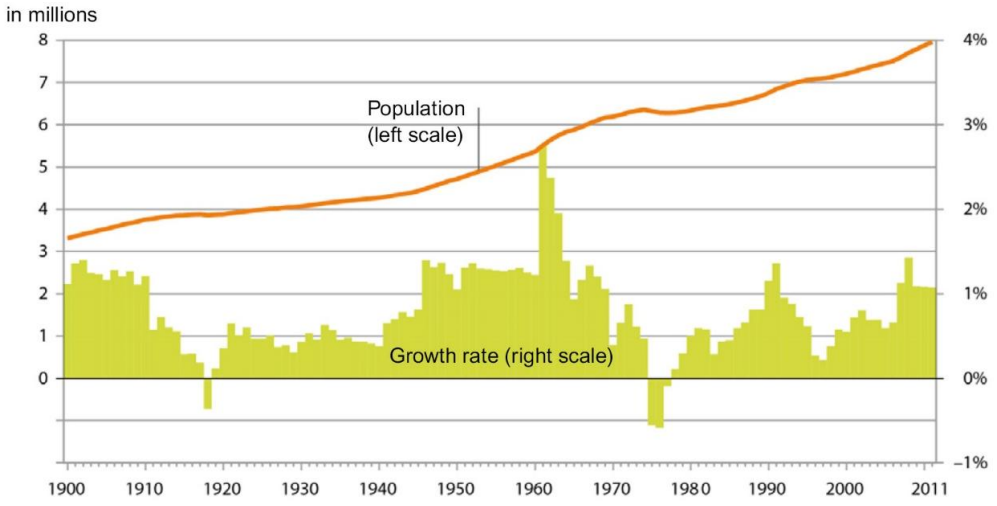
The Swiss Federal Council, in its development strategy for the years 2012–2015, defined the maximum area of settlement zones per person at approximately 400 m² (Figure 1). This value has already been exceeded and currently stands at around 407 m² — about 20 m² more than in the early 1980s. During the same period, the area of settlement zones increased by approximately 24%. The expansion of new settlement zones primarily occurred at the expense of the limited supply of agricultural land. A slight consolation is that, in recent times, successful efforts have been made — though only marginally — to slow down the reduction of this valuable agricultural land area (BR, 2012, pp. 29–30).

The causes of the increasing capacity of Swiss settlement areas, although complex, have been well identified. They include factors related to spatial planning, as well as socio-economic, demographic, and political aspects. Among the most significant are, undoubtedly, population growth and economic development, which lead to an increase in citizens' wealth. Wealth manifests itself, among other things, in growing demands for quality of life — such as larger living spaces or increased needs for recreational and leisure areas.

This phenomenon is also accompanied by a growing supply of infrastructural facilities. The increase in wealth also serves as the foundation for the popularity of a lifestyle model in which owning a second home — be it a vacation or weekend home — becomes a significant element. This represents the realization of the social ideal of owning a "countryside home."

The increase in population was not halted even by the Second World War. Over the past 100 years, government statistics have recorded more than a twofold growth in population, primarily driven by migration movements of varying intensities (Figure 2). In 2010, migration accounted for 80% of the population growth (Nebel, 2014).

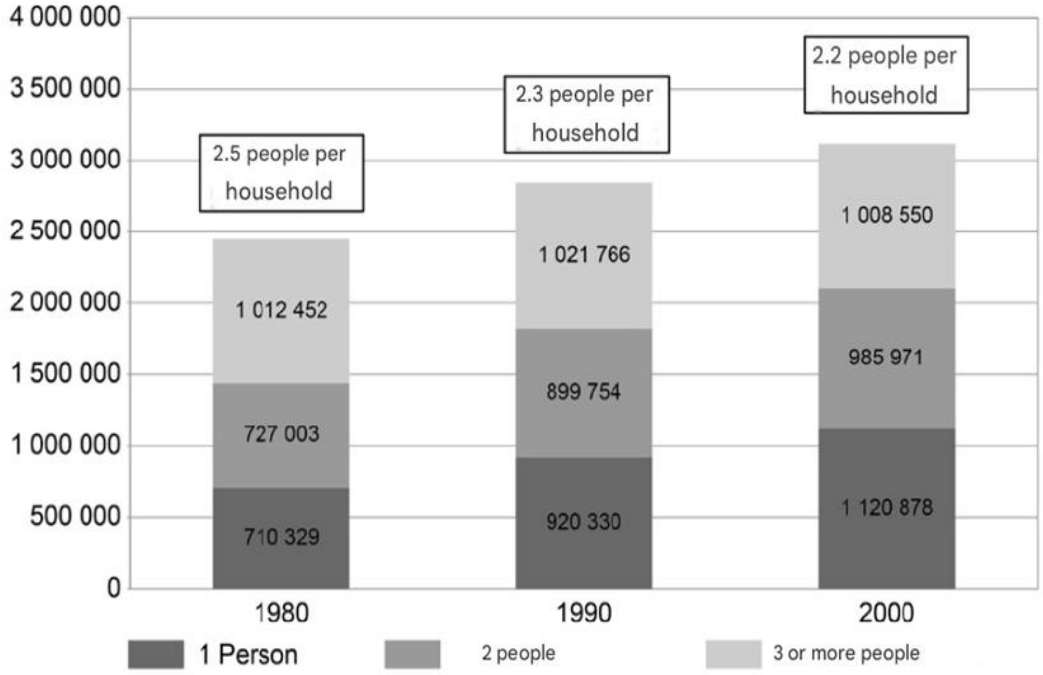
Figure 2. Population development and growth rates from 1900 - 2011



Source: BFS (2012a).

Equally significant are the social factors related to the decreasing average size of households, resulting both from an aging population and the rise in the number of small households — particularly one- and two-person households. Smaller households play a crucial role in reducing population density, a parameter that should be carefully considered when shaping urban planning indicators for land use in residential areas (Figure 3).

Figure 3. Size and number of households



Source: BFS (2012b).

Competition between municipalities in attracting so-called "good taxpayers" (Herdt & Jonkman, 2023) provides an incentive to make new, low-cost peri-urban land available to affluent consumers and families with children who are looking to realize the dream of owning their own home. A well-developed transport infrastructure stimulates mobility, enabling daily commuting even from remote locations.

The lack of incentives supporting policies to revitalize city centers stands in contrast to state instruments such as financial subsidies and tax breaks for housebuilding. Additionally, the low tax burden on building land owners encourages land accumulation by those investing in the area (BR, 2012).

1.4. Negative effects of dispersed development

Not only in the realm of science, but increasingly within public opinion, there is a growing belief that the idea of a compact city is a key element of sustainable development (Wicki & Kaufmann, 2022). In recent years, a noticeable shift has occurred in spatial policy and scientific discourse regarding the perception of the city — no longer seen as a problem in the context of sustainability, but rather as part of the solution.

Due to concerns over climate change and threats to the natural environment, compact cities are increasingly viewed as a crucial step on the path toward sustainable development (Angelo & Wachsmuth, 2020; Poklewski et al., 2023;). While this view has its critics — proponents of urban sprawl emphasize the importance of fulfilling human needs related to choice of place and form of residence (Camagni et al., 2002; Dubois-Taine & Chalas, 1997) — supporters of the compact city concept see it as a response to numerous challenges in contemporary urbanism. These include, among others: high energy consumption; excessive land use; increasing costs of implementing, maintaining, and operating technical infrastructure; deteriorating air quality; accessibility issues; rising social costs; and the depletion of limited environmental resources (Neuman, 2005; Burchell et al., 2002; Beatley, 1995).

Despite predictable tensions, resistance, and social costs (Debrunner et al., 2020; Herdt & Jonkman, 2023; Wicki & Kaufmann, 2022; Götze & Jehling, 2023), the concept of densification — implemented, among other means, through amendments to spatial planning legislation — has become a central element of spatial policy in Switzerland, enjoying strong public support, as reflected in voting results: 63% in favor.

As mentioned in the introduction, the availability of land for settlement purposes in Switzerland is limited. Given continued population growth and the preservation of the current development model, the upper limit of population growth — according to statistical data (ARE, 2012) — would be only 1.7 million additional residents. This is alarmingly low for a country that aspires to maintain economic growth. Consequently, there is a strong consensus on the necessity of rational and efficient management of this limited and non-renewable land resource (Scholl, 2003).

What are the other sources of support for this concept? Nebel (2014) identifies three main categories of contributing factors:

- Economic (concerns over lower construction and infrastructure maintenance costs),
- Cultural landscape (regarded as a key asset in attracting tourists), and
- Ecology (landscape fragmentation, which threatens the stability of ecosystems).

He also adds several secondary but noteworthy factors:

- Dispersed development conflicts with Switzerland's spatial policy, which relies on public rail transport, leading to a reduction in the efficiency of public transport (due to falling population density).
- Rising mobility costs, increasing energy demand and increased reliance on car transport as a result of declining population density can lead to problems in the availability of services for vulnerable groups such as the elderly or children
- The process of segregation and gentrification of urban areas.
- The exodus of residents may threaten the financial viability of centrally located health and social service facilities and consequently contribute to a decline in quality of life
- An increase in vacancy rates threatens existing centres, leading to a reduction in property values.
- Single-family estates in rural areas do not meet the needs of an ageing population, with the risk of “abandoned houses”.
- Progressive soil sealing and damage to the soil's basic function, increasing the risk of natural hazards
- Loss of particularly fertile and valuable soil for production purposes
- High environmental impact and negative ecological effects of traffic growth (e.g. noise, emissions, energy consumption).

2. Methodology

The policy of urban densification, implemented at the interface with the existing urban layout, presents significant challenges related to social acceptance. Infill development, through its impact on the built environment and existing rights, does not create only “winners.” Those who lose out and experience these changes may, for example, face a reduction in green spaces, limited access to daylight, loss of privacy and place identity, transportation difficulties, deterioration in environmental quality (including increased noise and air pollution), distorted cityscapes, or rising rental costs — to name the most significant (Debrunner et al., 2020).

In light of these difficulties, the article poses two main research questions. The first concerns the sources of social acceptance for the policy of inward development in Switzerland, and whether mere awareness of the need for sustainable development is sufficient to ensure public support for such actions. The second question addresses the quality of architecture: can the limitations imposed by public authorities — steering urban investments toward uncertain or constrained territories — lead to the creation of valuable and innovative architecture? Does the policy of inward development still represent a meaningful tool in spatial planning?

The research methodology primarily relies on a literature review. The study of qualitative and innovative aspects of architecture also required the analysis of online sources (SA, ESP). Particularly useful were materials available on websites dedicated to the results of architectural competitions (ESP), which provided not only insights into the formal and legal requirements imposed on competition participants, but also into the socio-economic conditions underlying investment decisions.

3. Results and discussion

The implementation of the strategy encapsulated in the slogan "inward development before outward" is only feasible within the framework of an inventoried resource of available land reserves. The objective of identifying these reserves is to create new development land located within the already designated administrative boundaries of urban agglomerations, in accordance with the regulations set out in applicable planning documents. The clear aim is to increase population and employment density while maintaining a high quality of the living environment. Equally important are issues related to the protection of natural resources and the landscape.

A key aspect of this concept is the optimal spatial distribution of new development areas, considering various forms of land use, and strategically locating them—preferably within public transport catchment zones. This is especially important in the context of sustainable development policies, given that over 60% of built-up areas currently have low or no access to public transportation (ARE, 2012).

The most urbanized areas tend to have the smallest reserves of land available for settlement. The largest reserves are found in the suburban zones of major centers or in suburban rural municipalities (ARE, 2012). Although cities do possess land use reserves, these are primarily due to the potential for implementing more intensive development models.

Therefore, it is widely considered that, despite the physical constraints imposed by topography, a creative approach to increasing population density can unlock significant areas of land potentially usable for settlement policy. In some cases, simply lifting existing limitations—such as building line regulations, distance requirements, or usage restrictions—may be enough to make these areas available.

The amount of land reserves varies between cities and cantons. However, according to federal statistics, approximately 60% of these reserves exist across Switzerland as a whole (ARE, 2008).

3.1. Typologies of area reserves

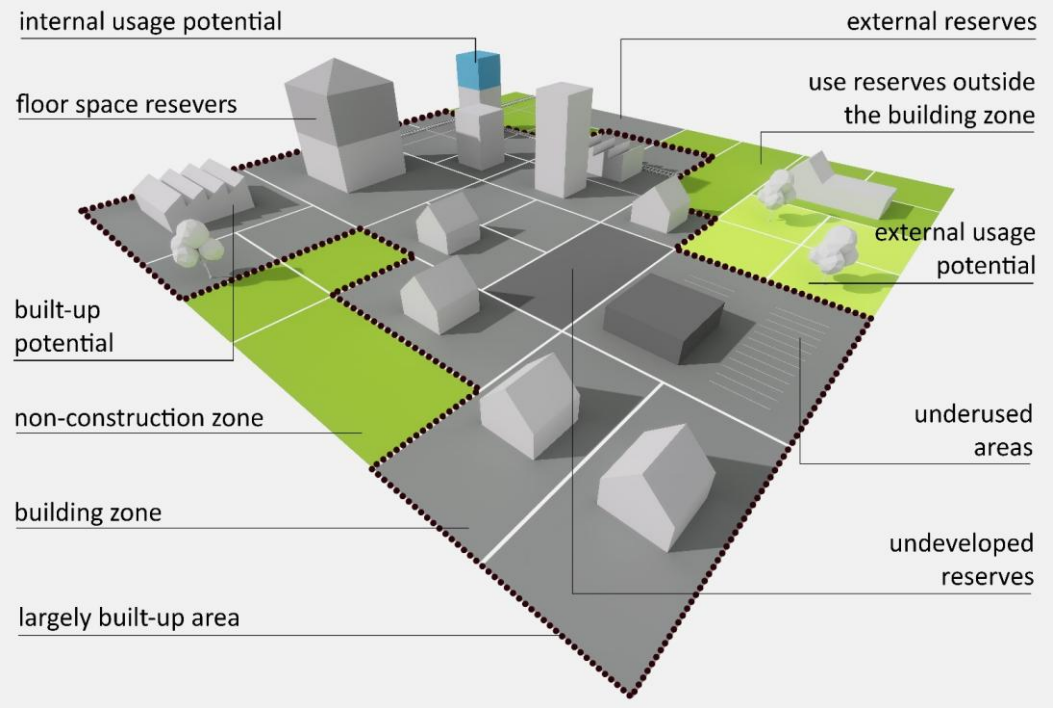
The starting point for determining structural development reserves is primarily the provisions of local zoning law. According to this approach, reserves are defined by the difference between the current state of land development and the potential development volume permitted by these regulations. The increase in residential area has led to a situation in which expanding the usable floor area of buildings does not necessarily result in the desired increase in population density. Therefore, the goal of spatial policy in densification is to transform urban structures in such a way that the intensity of residence and employment—quantified by the number of people per unit area—will increase as a result.

The strategy of "inward development before outward development" promotes the use of so-called largely built-up areas, as defined in the Spatial Planning Act (wüG). Within these boundaries, it is possible to designate territorial reserves—both undeveloped and developed. In the case of developed areas, this refers to zones where structural densification is feasible through strategies such as vertical extensions, horizontal expansions, reconstruction, demolition, and the construction of new buildings. Built-up areas that can constitute spatial reserves also include currently unused sites, including classic degraded areas such as former industrial, military, and railway sites, as well as vacant buildings.

Additional potential for internal development is represented by areas with latent development capacity, which may be released through changes to the applicable local land-use regulations (Figure 4).

This chapter presents an original review of selected examples of densification strategies implemented in various Swiss cities, illustrating the practical aspects of shaping architecture and urban form in accordance with the principle of "inward development before outward development." The selected examples represent only a small portion of the broad spectrum of projects that have been completed or are currently underway. They fit within the established typologies for densification and support Thomas Seivert's observation that the challenges of modern times oblige us to experiment and have the courage to apply unconventional solutions. Unfortunately, he also pointed to a clear gap between what is taught and what people expect, which led him to the conviction that raising public awareness in this regard is urgently needed (Grams, 2018).

Figure 4. Schematic representation of the basic settlement development options



Source: Own elaboration based on Nebel (2014).

3.2. Inward development of urban block

The building designed by the office of Felippi Wyssen is located in the densely built-up district of Basel, Matthäusquartier, on Oetlingerstrasse (Figure 5). A characteristic feature of the urban structure in this part of the city is the block layout, in which the dominant urban module exceeds 100 meters. This type of layout once facilitated the creation of spaces for visually unattractive industrial and service buildings. Fortunately for the quality of the interior spaces within the urban blocks, they are now shifting towards the city peripheries. The departing service buildings create opportunities for new development within the concept of "inward development before outward development." This also supports the desired rehabilitation of neglected spaces inside the blocks.

The proposal by Wyssen's office involves constructing a simple, four-story building on the site of a demolished garage, utilizing a repetitive structural module. The building consists of eight two-story apartments, each approximately 60 m², which is relatively small by Swiss standards. The apartments are designed for two-person families, arranged in four rows, stacked one above the other, spanning the width of the building, which ensures optimal conditions for natural ventilation of the spaces. The living area is located on the lower floor, while two bedrooms are situated on the upper level. Circulation is provided by an external staircase and an elevator, positioned in such a way as to reduce the perception of the building's mass and minimize the overshadowing of the residential units. The entrances to the upper apartments are accessed via a gallery located on the second floor.

The building was constructed using a mixed technology that combines concrete, steel, and wood. Wooden elements were used in the gable walls and the roof. The design references the industrial character of the neighborhood, reflected in the subdued color palette and the aesthetics of exposed raw materials: the concrete of the balcony slabs, the steel supports, large glazing, and the corrugated cladding panels on the walls and roofs. The roof evokes the image of a shed roof, typical for industrial buildings.

Particular attention should be given to the unusual solution for the bathrooms, which are located in the central part of the building. Due to minimal thermal load, they are not equipped with radiators, and the heat is intended to come from the adjacent heated rooms. The rooms themselves are partitioned using 43 mm thick layers of unfinished multi-layer wood, enhancing the sense of rawness and simplicity.

Sustainable development is achieved through the use of a simple, repetitive structure and a functional layout of the apartments. Surface losses were reduced by placing the staircase and elevator on the exterior of the building, which allowed for savings in the heated volume. Additionally, each apartment features an individual technical node, eliminating heat loss associated with circulating pipe distribution. Photovoltaic panels were installed on the roof, and

thin partition walls made of multi-layer wood enhance the functional efficiency of the apartments (SA, 2024a).

Figure 5. Residential building on Oetlingerstrasse, Basel, Felippi Wyssen Architekten

Source: Own elaboration.

3.3. Interference with existing structure - superstructure

Architects from W2H developed a comprehensive densification concept for the 1980s housing estate, located in the northern part of the Ostermundigen satellite city for the national capital (Figure 6). The process began with a workshop, during which key development priorities were worked out, taking into account environmental aspects, space quality and parking policy.

Due to the long distances between the existing buildings, increasing the height of the buildings in the centre of the settlement by a maximum of three storeys and on the outskirts by a maximum of two storeys was possible without adversely affecting the quality of the internal spaces. In this way, the basis for the changes to the planning documents was prepared in consultation with the residents.

Figure 6. Extension of 1980s residential buildings, Ostermundigen, W2H Architekten AG

Source: Own elaboration.

The housing estate consists of 12 buildings, connected by a shared garage, and owned by 10 different owners. From the outset, it became clear that the investment must be carried out in stages, adhering to principles that would ensure a clear improvement in living conditions for the residents at each phase. A characteristic feature of the existing buildings is their compositional coherence. Due to the strong attachment of the residents to the estate, the architects decided to preserve the distinctive identity of the place, defined by the freestanding buildings set in greenery.

For each building, structural assessments were conducted, taking into account factors such as seismic safety. Based on these studies, depending on the scale of the planned vertical extension,

it was determined whether strengthening the internal wall was necessary. The extension was designed using wooden elements in a skeletal structure, which helped minimize the weight of the additional floor and reduce the negative impact on the static properties of the existing structure. The vertical extension was implemented within the perimeter of the existing walls, allowing the new apartments to replicate the functional layouts of the previous units. At the same time, the stepped nature of the development was maintained, adding a picturesque quality to the complex. Interestingly, despite the clear color separation of the two parts of the building, the architecture remains formally and aesthetically cohesive.

The strategy for densifying the estate is also a socially-driven initiative and, therefore, cannot be considered purely in terms of investment. From the architects' perspective, it was crucial that the design contributed to the improvement of the residents' quality of life at every stage of the project, both in the structure of the apartments and in the external spaces. As part of the modernization, window joinery was replaced, photovoltaic panels were introduced on the roofs, and the landscaping of the external areas was improved by creating recreational and relaxation zones tailored to the needs of various users.

The final urban layout anticipates an increase in the number of apartments from 228 to 338, while maintaining high-quality space and living comfort for the residents (SA, 2024b).

3.4. High-rise buildings

One of the most representative investments in the category of high-rise buildings implementing the densification strategy is the Pilatus Tower in Kriens, south of Lucerne (Figure 7). Pilatus Tower is a complex of two towers, 50 and 100 meters in height, connected by a sports hall with a seating capacity of 4,000 spectators, designed by the architectural office Giuliani Hönger Architects. The lower tower, oriented towards Mattenplatz square, takes its form from the adjacent hotel building and is intended to be converted into rental apartments in the future. The taller tower, located near the train station square, will house smaller residential units and luxury apartments, offering spectacular views. The polygonal shape of the residential buildings makes their form slimmer, which in turn minimizes their dominating effect on the landscape.

Figure 7. Pilatus residential towers and sports hall, Kriens, Giuliani Hönger Architects

Source: Hönger (2018).

The concept was selected as the winner of an architectural competition, and its implementation required a change to the local urban development plan. The investment gained particular significance due to its unique financing model, which proposed covering the costs of building the sports hall from the proceeds of selling apartments and commercial spaces. This approach attracted attention and also helped secure funding from both federal and cantonal sources. The investment constitutes a tight infill of the urban block defined by streets located within the catchment area of the Mattenhof train station. A distinctive feature of high-rise building projects is the careful selection of location, which increases the chances of realization by minimizing the negative impact on the local community. The so-called "social neutrality" means that the construction does not interfere with the interests of third parties, and the number of potential stakeholders within the investment's impact area is limited. Locations such as those around train stations, sports facilities, or other non-residential functions are often chosen for such investments.

In the case of Pilatus Tower, the taller tower was located on the northern side, where the shadow zone includes railway land, allotment gardens, and further to the northwest, sports facilities. Similar location decisions promoting "social neutrality" are present in many other Swiss projects. An example of this is two residential towers near the Swissporarena stadium, located just 600 meters to the northwest, or the 93-meter-high residential tower in Basel, designed by Herzog & de Meuron, situated next to the Messe Basel exhibition grounds.

Similar locational motivations can also be seen in the Hardturm Areal project in Zurich. This development, located on industrial land currently undergoing intensive revitalization, is another example of utilizing "social neutrality" in the selection of locations for high-rise buildings. As a result, the project not only addresses housing needs but also supports the transformation of urban industrial areas into modern, multifunctional spaces (Hönger, 2018; Benedetti, 2018).

3.5. Brownfields – hybrid railway stations

A certain group of projects consists of the redevelopment of railway stations, carried out both in the central locations of large urban centers (e.g., Nauentor in Basel) and in smaller satellite towns (such as the redevelopment of the station in Bremgarten). The second category includes a five-story hybrid residential-commercial structure with retail space on the ground floor in Horgen Oberdorf, designed by the architectural firm Galii Rudolf Architekten (Figure 8). The building was selected through an architectural competition. The construction of a residential building above a railway station is a response to the growing popularity of suburban locations within the catchment areas of railway lines. These types of places offer both convenient access to the central urban area, which is a source of employment, and conditions conducive to relaxation—quiet, peace, and a small-town atmosphere, supported by the availability of recreational areas and the natural beauty of the surroundings. Consequently, a target group of potential residents has been identified, primarily consisting of families with children and individuals who prefer comfortable living conditions in suburban areas. Therefore, the programmatic structure of the building predominantly features medium and large apartments.

Figure 8. Hybrid residential and commercial structure with commercial space in ground floor, Horgen, Galii Rudolf Architekten

Source: ESP (2023).

Although the anticipated users value the railway as a mode of transport, the mountainous topography of the area necessitated the inclusion of an underground parking garage in the design requirements, with its dimensions being minimized in accordance with the lowest possible urban planning indicators. The architectural form of the building was designed with careful consideration of the surrounding urban context, particularly with regard to the fine grain of the urban fabric. The proposed hybrid structure responds to the dynamic changes occurring in the urban layout of the town. As part of these transformations, the building is intended to serve as a local district center, which was a crucial starting point in the design process. For this reason, particular emphasis was placed on designing an active ground floor zone that promotes integration with the public space and facilitates broad accessibility to services (ESP, 2023).

4. Conclusions

The specific terrain formation and the resulting limited land resources have prompted Switzerland to adopt a policy of urban densification. Beyond the purely utilitarian objectives related to the protection of limited land, this policy is also grounded in key principles of sustainable development. Public approval for the strategy was expressed through majority support in voting. Nevertheless, the path from words to action is long. An inherent feature of shaping compact cities within existing urban structures is the potential for social conflict. When changes directly impact individuals, the phenomenon of NIMBY (Not In My Backyard) often emerges — even among those who otherwise support the policy in principle (Wicki & Kaufmann, 2022). Spatial densification is largely associated with projects situated at the interface with existing buildings, where the affected zone includes a wide range of stakeholders.

While public participation may, in some cases, cause delays or even lead to the abandonment of development projects, a far greater challenge to the successful implementation of densification policies lies in the general lack of public awareness regarding their long-term benefits. Abandoning democratic mechanisms is not a viable solution; on the contrary, these very processes are crucial in building lasting legitimacy for planning decisions and strengthening citizens' trust in public institutions. In the long term, it is the transparency of decision-making that will form the foundation for effective and socially acceptable urban development.

This article presents various typologies of inward development and argues that, in the hands of competent architects and through appropriate procedures, such urban policy can result in original and innovative solutions. These strategies can serve as vital tools for spatial planning and contribute to enhancing the quality of the living environment (Escobar Ramirez, 2024). In countries where open land for development is more readily available, this planning method may appear less necessary. However, given that compact cities protect natural environments from human intrusion, preserve biodiversity, maintain ecosystem continuity, and support sustainable development, this approach deserves consideration in such contexts as well.

One of the key advantages of urban densification lies in its potential ecological benefits. While the concept of a compact urban form is often associated with more efficient land use and reduced urban sprawl, its actual impact on the protection of natural resources — particularly green and blue infrastructure — requires further, in-depth research.

Urban greenery, water systems, parks, rain gardens, and ecological corridors not only enhance the visual appeal of cities but also play critical environmental, social and climate-related roles. Therefore, in the process of densification, it is essential to protect and strengthen these elements as integral components of sustainable urban development (Vázquez-Morejón et al., 2024).

The findings of such research should be communicated in a clear, accessible, and comprehensible manner to the broader public. Only then can effective knowledge transfer from expert circles to society occur — a process that is vital for raising public awareness and fostering acceptance of solutions that link urban densification with environmental protection.

5. Authorship

The author declares that there is no conflict of interest.

6. References

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