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FROM DENSIFICATION TO HIGH-RISE DEVELOPMENT. UNPACKING SUSTAINABILITY TRADE-OFFS AND CONTRADICTIONS IN OSLO

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Abstract

Oslo has long pursued an ambitious anti-sprawl agenda, with densification at the core of its urban development strategy. Compact growth, efficient land use, and climate-oriented planning have shaped the city's approach to sustainability. However, as densification intensifies, concerns about its social, spatial, climate, and ecological consequences have increasingly emerged; challenging the assumption that compact urbanism is inherently equitable and sustainable.

This paper presents a meta-analysis of a decade of research on the relationship between densification strategies and socio-spatial justice in Oslo. Drawing on studies of neighbourhoods, planning documents, and governance processes, we examine how densification is implemented and justified, and what inequalities it may reinforce.

We analyse how climate goals and planning frameworks have established compact development as Oslo's dominant paradigm, explore environmental trade-offs with ecological protection, and assess socio-spatial impacts such as rising housing costs and unequal access to amenities. We also consider how the city's emerging high-rise strategy may intensify these tensions.

Keywords:

Densification, High-Rise Development, Socio-Spatial Inequality, Housing Policy, Sustainable Urbanism.

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1. Introduction

Densification has become a cornerstone of urban sustainability policy in cities across Europe and beyond. In Oslo, it has acquired a particularly prominent and normative role since the 1980s. Historically characterised by relatively low-density development and suburban expansion, the city has increasingly embraced densification as a key strategy to limit urban sprawl, preserve surrounding forests and green areas, and promote a more compact urban form (Næss *et al.,* 2011). Framed within both national and local political agendas as an environmentally sound path to green growth, densification has also been associated with expected social benefits including expanding housing supply, enabling social mix, and enhancing liveability at the local level (Municipality of Oslo, 2015).

However, while densification is often promoted as a universally beneficial planning strategy, its social and distributive outcomes depend heavily on the institutional and spatial contexts in which it unfolds (Haarstad*et al.*, 2023). Research on the social sustainability of densification underscores that, particularly in market-driven settings and in the absence of inclusive housing policies, such processes can generate exclusionary dynamics and exacerbate existing inequalities. Rising land values and housing costs associated with densification interventions can undermine affordability for low-income households, migrants, and first-time buyers (Debrunner, 2024), while brownfield and central redevelopments often overlap with "new-build gentrification" producing displacement pressures and reshaping neighbourhoods for higher-income groups (Davidson and Lees, 2005; Hewitt, 2026; Rérat, 2012). Compact and low-carbon districts increasingly cater to eco-conscious middle-class lifestyles (Rice *et al.*, 2020), and flagship eco-districts or waterfront redevelopments frequently become enclaves for affluent groups; reinforcing segregation (Andersen and Røe, 2017; Caprotti, 2014). These tensions revolve around the risks of altered place identity, exclusionary development, displacement, and uneven access to environmental benefits (Cavicchia and Cucca, 2022; Skrede and Andersen, 2022). In addition, it has been argued that densification in many cases foregrounds technical rationales and financial logics (Kjærås, 2024), with the risk of underplaying architectural qualities and socially attentive place-making.

In Oslo, these outcomes have been mediated by a highly commodified housing system (Aarland and Sørvoll, 2021) characterised by high homeownership rates, a public housing sector that expands primarily through limited acquisition of existing units, weak price regulation mechanisms, and a strongly dual structure in which a small, residual municipal housing sector coexists with a largely unregulated private market. The planning system is also highly privatized, as most development plans for housing and offices are made by private real-estate developers and builders (Falleth *et al*., 2010). This places the initiative, economic risks, and design in the hands of these actors, while concentrating development within individual plan areas. Such a fragmented, project-based approach can make it difficult to coordinate across developments and to achieve broader planning objectives, such as providing sufficient social infrastructure for a growing population.

Against this background, this paper offers an interpretative reading of the possible environmental and social implications of densification. Drawing on insights from multiple studies conducted in Oslo over the last decade, the paper offers an interpretative meta-analysis of how densification interacts with diverse dimensions of sustainability.

The paper is structured as follows. First, we define the densification conceptually and analyse its implementation in Oslo. In so doing we highlight how national climate goals, regional planning frameworks, and local political dynamics have merged to make compact development the dominant urban paradigm. Second, we explore the environmental implications of this strategy, and focus on how densification is implemented, the trade-offs that emerge among ecological protection, climate targets, and the pressure for growth. Third, we examine the socio-spatial justice dimensions of Oslo's densification path, and show how rising housing costs and displacement pressures not only exacerbate existing divisions, but also how they may improve conditions for social mix. Finally, we consider the potential implications of Oslo's new high-rise strategy, which signals a shift toward vertical urbanism. We discuss how tall-building development may intensify existing tensions around segregation, affordability, and the distribution of environmental benefits and burdens, and we reflect on whether high-rise densification represents a continuation of, or a turning point in, the city's longstanding compact-city agenda.

Overall, the paper argues that while densification has contributed, to some extent, to meeting important climate targets, its social consequences warrant closer scrutiny. A more just and sustainable urban transition in Oslo will require rethinking as to how density is produced, governed, and distributed across the city.

2. Oslo in Context: Densification, Housing System, and Planning Governance

Oslo's urban development strategy has prioritised densification as a key planning principle since the 1980s (Næss *et al*., 2011). Within Oslo's planning doctrine, densification – *fortetting* – refers to the concentration of new housing, workplaces, and services within the existing urbanised area, rather than through outward urban expansion. This approach has followed the compact city model, which has become deeply institutionalised in municipal planning documents and widely accepted as the most sustainable way to manage urban growth, reduce greenhouse gas emissions, and preserve peri-urban agricultural and natural lands (especially the forests surrounding the city, called "Marka"). Within this framework, densification has been presented both as a sustainability strategy and as a growth mechanism (Næss *et al*., 2020) – intended to intensify land use in already urbanised areas, and particularly so in areas in close proximity to public transport (Municipality of Oslo, 2018). Spatially, Oslo's densification strategy is structured by three principles: first, the containment of urban expansion through the protection of Marka as an urban growth boundary; second, development "from inside out", which prioritises redevelopment in inner-city areas before outer suburban areas; and third, the concentration of growth around public transport nodes and corridors. In this sense, Oslo's densification strategy overlaps with transit-oriented development (TOD), especially when implemented outside the densely built-up city, where a shift towards sustainable mobility is more reliant on access to public transport. This is especially the case for the suburban hinterland of Oslo. While policies to reduce car use have been relatively successful in the city core, there is vast potential to develop such strategies in the city's suburban hinterlands (Nenseth and Røe, 2024).

The compact city model and densification strategies are implemented through a multi-scalar planning system and a multi-level decision-making regime. The logic of this system is that a regional plan (County of Akershus and Municipality of Oslo, 2015) for the future development of public transport infrastructure, workplaces, and housing is intended to guide land-use and transport planning in the municipalities that form the Oslo region. Municipal land use plans, in turn, serve as frameworks for legally binding development plans, which are compulsory for all larger building projects. Although all such plans must be adopted by the area's political authorities, most development plans (following a 1985 amendment to the Planning and Building Act) are produced and implemented by private real estate developers and builders. The shift towards private builders and developers being the dominant actors in urban development, as well as the increased role of financial actors (Orderud, 2006), has infused urban planning with business strategies, investment returns, competition and place promotion strategies (Røe *et al*., 2022) resembling the urban entrepreneurialism found internationally (Hall and Hubbard, 1996).

While densification is presented as an environmentally rational approach, it has operated within a governance regime and housing policy context that limits the city's potential to address spatial inequalities. Over the past two decades, densification in Oslo has unfolded through the large-scale redevelopment of former industrial and commercial areas, particularly in the inner East of the city. These interventions have increasingly relied on private developers, with the municipality playing a coordinating role rather than exercising strong control over housing provision through densification (Cavicchia, 2023). This is particularly relevant if we consider the implications of promoting market-oriented densification for housing inequalities. While the city promotes social mix and social sustainability (Municipality of Oslo, 2018, 2008), it lacks binding tools to enforce housing affordability, mandate non-market housing, or ensure inclusive access to new developments (Cavicchia, 2023). In particular, under the national legal framework established by the Planning and Building Act, the municipality lacks legally enforceable inclusionary housing mechanisms (Granath Hansson et al., 2025; Nordahl, 2014), thereby constraining its capacity to steer densification toward more equitable outcomes. Indeed, while the municipality can negotiate for some affordable units on publicly owned land, it cannot impose affordability requirements on private developers beyond those included in development agreements. This results in highly uneven outcomes across projects which reinforce rather than mitigate socio-spatial inequalities. The weak regulatory framework limits the municipality's ability to secure affordable housing from private development in densification areas and, as a result, social goals are often subordinated to market logic (Cavicchia and Cucca, 2025).

At the same time, Norway's housing system offers limited institutional support for redistributive interventions. The welfare state's role in direct housing provision has diminished significantly over time and especially since the1980s (Aarland & Sørvoll, 2021); partly because municipal property has been sold to private actors which

has, in turn, limited municipalities' ability to set aside housing for affordable housing or disadvantaged groups. Most new housing is delivered by private actors, and typically targets middle- and high-income groups. These constraints have been further amplified by the structural features of the Norwegian housing system. As of 2022, approximately 70% of Oslo's population were homeowners, reflecting a national housing model that is built on asset-based welfare and limited direct public provision (Cavicchia et al., 2025). Public rental housing makes up only about 3% of the total housing stock and is strictly means-tested, reserved for the most vulnerable groups (Sørvoll, 2019). Cooperative housing – historically a more affordable alternative – has increasingly aligned with market prices, especially in centrally located developments, limiting its redistributive function (Cavicchia et al., 2025). This limits the sector's ability to offer affordable alternatives to ownership. Housing policy increasingly promotes individual responsibility, and reinforces homeownership as both a tenure norm and a welfare strategy. In such a context, densification strategies – when implemented without inclusive housing policies – tend to reproduce rather than challenge existing inequalities (Debrunner *et al*., 2024).

Furthermore, spatial disparities are closely linked to how densification materialises in Oslo (Figure 1). On the eastern side of the city, large-scale redevelopment projects have occurred in brownfield areas such as Løren and Ensjø as part of one of Europe's largest city-building plans; it seeks to provide residences for approximately 40,000 inhabitants and 100,000 workplaces (Municipality of Oslo, 2018). Here, planning ambitions for compact growth, including improved public transport (a new metro connection), have coincided with high-end residential development. Although these areas reflect attempts to increase housing supply and restructure obsolete industrial zones, they have been developed mainly to attract the middle and upper middle classes, and lack social infrastructure such as parks, sports fields, public spaces, youth clubs, and so on, as developers have mainly sought to produce dwellings for sale within Oslo's highly profitable housing market. As these areas are also frequently criticised for their monotonous architecture, the densification strategy has received negative attention (Grønning and Mosebach, 2024).

On the western and more affluent side of the city, densification has been more fragmented and politically sensitive, often facing stronger resistance from residents (Andersen and Skrede, 2017). In addition, a substantial share of inner-suburban housing areas, with mainly detached and semi-detached housing, is preserved under a municipal plan, "småhusplanen" (the small house plan). This plan prevents densification in the preserved areas, in both the western and eastern parts of the city, but mainly in the western, more affluent areas. Due to the existence of power relations and market calculations by developers, these differentiated trajectories are played out in possibly unequal ways, with high-end amenities and infrastructure prioritised in areas where revenues are high. These processes are amplified by the transfer of the cost of such amenities from municipalities and public agencies to private developers, in what Graham and Marvin (2002) have described as the dismantling of the modern infrastructural ideal.

While some densification and redevelopment projects have introduced more diverse housing typologies as well as new financial instruments that reduce the demand for capital among first-time buyers, their capacity to alter entrenched socio-economic patterns remains limited (Cavicchia, 2023). This underscores the need to understand densification in Oslo not only as a spatial strategy but also as a process that is shaped by institutional constraints, social and environmental justice issues, and the broader financialization of housing. Understanding Oslo's approach to densification thus requires attention not only to spatial strategies, but also to the institutional, political, and economic logics through which urban development is governed.

3. Environmental implications and paradoxes

In this section, we explore the environmental implications of densification, focusing on how it is implemented and the trade-offs that emerge with regard to ecological protection, climate targets, and the pressure for growth. Empirically, the section considers Oslo's overall compact-city planning framework. It draws on existing research on green-space loss and environmental inequality, and analyses the material and infrastructural consequences of redevelopment, including the displacement of environmental burdens to suburban and peri-urban hinterlands.

Densification is considered an environmentally friendly approach to urban development becauseit reduces pressure to convert natural areas and farmland, thereby protecting natural landscapes and biodiversity. In

addition, densification may enhance proximity and high-density urban structures, thus minimising travel distances and the need for motorised transport (Cooper *et al*., 2002; Næss *et al*., 2020). Densification of residential areas often takes the form of apartment buildings; less land-demanding and more energy-efficient for space heating than low-density single-family houses (Brown and Wolfe, 2007). Cumulatively, all of these factors may contribute to reducing energy consumption, mitigating climate change, and protecting nature and biodiversity. These environmental benefits form the basis for densification as both a widely accepted urban development norm and the prevailing strategy in Oslo's planning context (Røe *et al*., 2022), in which arguments for urban densification are strongly grounded in the aforementioned environmental concerns (Municipality of Oslo, 2011).

Despite these environmental benefits, densification is by no means without conflicts, trade-offs and limitations even regarding environmental sustainability (Berghauser Pont et al., 2021). If densification primarily occurs on brownfield sites, it can help reduce the conversion of natural areas into built-up zones. However, urban densification in Oslo has also resulted in negative consequences for urban green spaces. Between 1999 and 2004, there was a 5% decrease in open-access areas within the continuous urban areas of Greater Oslo (Næss et al., 2020). The intensified use of land not only increased population density but also raised demand for social and technical infrastructure – such as kindergartens, playgrounds, and schools – aspects which can further contribute to the loss of green spaces. The significance of green spaces for public health became particularly apparent in Oslo during the Covid-19 pandemic, (Venter et al., 2020). The continued reduction of open areas poses an ongoing risk to public health in future situations. With regard to Oslo, studies indicate that districts experiencing population densification tend to have the lowest availability of blue-green spaces (Venter et al., 2023).

Another well-known challenge to using densification as a climate mitigation measure is the trade-offs and potential conflicts that exist with regard to climate adaptation strategies. In particular, increased densification can lead to soil sealing and inadequate management of precipitation; both may result in flooding. Other negative environmental impacts of densification include increased noise levels, higher concentrations of air pollutants, and intensified urban heat island effects. These issues also have distributive aspects. In Oslo, the areas most affected by environmental disadvantages are often those that have experienced the most intense population consolidation (Venter et al., 2023).

Densification is a typical decoupling strategy that seeks to reconcile economic and physical growth in urban development with environmental sustainability through the highly efficient use of land and other resources (Næss et al., 2011). In environmental governance terms, the densification in Oslo resembles the ecological modernisation strategy, unfolded in the urban planning context, with a hegemonic neoliberal discourse characterised by a technical environmental perspective, urban entrepreneurialism, and a market-based solution (Kjærås, 2024). This strategy can only be considered relatively environmentally friendly when compared to urban sprawl. While densification helps to reduce land consumption, it is much more challenging to achieve similar reductions in other environmental impacts, such as material use for construction, infrastructure, and energy consumption (Næss et al., 2020). In absolute terms, an increase in building stock still leads to higher overall consumption of materials and resources (Xue, 2015). There are also geographically uneven spillover effects that are seldom taken into consideration, such as transporting the masses from development projects that are part of densification strategies into suburban and peri-urban hinterlands. Sæther (2024) studied the transport and disposal of excavated masses from development projects in Oslo and identified nearly 30 disposal sites across the greater Oslo region. Transporting these masses generates CO2 emissions, while their deposition can have significant environmental impacts, particularly because many of the sites are located in natural or agricultural areas.Densification can be an effective strategy in the short term, but it faces limitations in the long run as available land for infill development becomes exhausted. In Oslo, current opportunities for densification primarily come from redeveloping former industrial and harbour areas which have become available due to economic globalisation, de-industrialisation and the relocation of manufacturing. This global economic shift underpins the adoption of the densification approach. However, once these sites are fully developed, further expansion of the residential building stock would require encroaching on natural land or farmland. Given Oslo's current and projected population growth along with associated – though estimated –housing demands (Statistics Norway, 2024), it is difficult to envision how future housing and infrastructure needs can be met without additional land becoming available. As the remaining opportunities for redevelopment diminish, pressures for further densification within existing urban areas are likely to intensify, potentially exacerbating

existent conflicts between densification objectives and the preservation of local identity and amenities including green spaces, natural features, and the existing urban environment (Andersen and Skrede, 2017).

4. Implications for housing accessibility

This section considers densification in Oslo as market-driven housing production, and especially focuses upon the redevelopment of brownfields into new residential areas. The feature of densification examined here is not simply the addition of housing units, but the type, tenure, price level, and accessibility of the housing produced. The analysis draws on empirical studies of Oslo's newly developed densification areas, as well as previous work on housing accessibility, new-build gentrification, and exclusionary pressure. The section further analyses the institutional limits of Oslo's housing and planning system.

One of the important social challenges associated with urban densification in Oslo concerns housing accessibility. Although densification is widely promoted as a strategy to expand housing supply and alleviate affordability pressures, this narrative often overlooks more fundamental questions about the nature and distribution of new housing: what types of dwellings are produced, who gains access to them, under what tenure conditions, and in which parts of the city? Housing accessibility refers to the differentiated capacity of individuals and households to access the housing market across tenures, typologies, and spatial locations (Cavicchia, 2021). In Oslo, the dominance of homeownership as the main tenure form, combined with limited empirical data on the slightly growing rental sector, means that discussions on accessibility primarily centre around the ownership market (Cavicchia *et al*., 2025). As discussed in previous research (Cavicchia, 2022, 2021), densification has not significantly improved access to attractive and centrally located housing for broad segments of the population. Instead, much of the new housing produced favours relatively affluent buyers.

Patterns observed across the city indicate that densification areas – where much of the new housing supply has been concentrated – face some of the most acute accessibility challenges (Cavicchia, 2021). These challenges emerge on multiple levels. First, these developments almost exclusively produce ownership units, resulting in a narrow housing supply in which the availability of rental housing depends almost entirely on private landlords. Second, the units delivered are typically small. One- and two-bedroom apartments dominate – often justified by developers as a strategy to promote affordability. Yet in practice, these units remain expensive both in terms of price per square metre and relative to average incomes; they are frequently unsuited for families (Wessel and Lunke, 2019). Third, all the housing provided belongs to the free-market segment, with no provision for social or affordable housing. The only partial exception is represented by a limited stock produced by OBOS, which has introduced models such as below-market-price units and rent-to-own schemes. However, these remain limited in number and lack legal safeguards to ensure affordability over time. As a result, housing delivered through densification tends to be neither affordable nor particularly high-quality in several areas (Schmidt, 2014).

Land values further shape these patterns. Many densification projects take place in central or brownfield locations where land costs are high, and competition among developers is strong. In the absence of binding affordability mechanisms, this context incentivises housing production that is aimed at high-income segments or investors. The lack of institutional tools to regulate pricing, enforce tenure mix, or introduce non-market options contributes to a situation in which housing accessibility remains tightly linked to purchasing power. These dynamics are particularly relevant for younger people and first-time buyers, whose challenges are partially captured by the *Nurse Index* – a national indicator that compares the purchasing power of a single nurse's income across Norwegian cities. The index illustrates the severity of these conditions, and shows how difficult it has become for middle-income households to access homeownership in Oslo (in 2024, a nurse could afford to buy 2.4% of the housing units sold in Oslo, against 24% in Tromsø, 30% in Bergen and 32% in Stavanger). Therefore, such groups may have to relocate to more affordable outer suburbs when they have children and require more spacious homes. In a recent qualitative study of nurses living in the Oslo region, Solli (2026) revealed the dilemmas confronting nurses as they cope with both everyday care responsibilities and work life, and, in some cases, choose between interesting hospital careers in the city centre and less attractive work in suburban nursing homes.

Spatial analysis of Oslo further reveals that the areas developed through densification – particularly in the inner and semi-central districts, where housing prices have increased by up to 200% since 2004 – overlap with the city's least accessible housing zones, as assessed using the Nurse Index (Cavicchia, 2021). In this sense, while densification has expanded the overall housing stock, it has primarily done so in ways that benefit already advantaged groups, and thus reinforced rather than mitigating existent socio-spatial inequalities. Furthermore, access to homeownership increasingly depends on intergenerational transfers or accumulated equity, making it difficult for individuals without family support to enter the market (Cavicchia, 2021). In many densification areas, housing opportunities are effectively restricted to those with substantial pre-existing wealth or strong socio-economic advantages. This means that although densification can provide more housing units than low-density development, it does not necessarily broaden access for a wider range of residents. Instead, it produces an expansion of stock that is largely captured by already-advantaged groups, leaving persistent barriers in place for lower-income households.

The limitations of housing accessibility in Oslo's densification areas are further compounded by broader processes of *new-build gentrification*, a form of gentrification that occurs not through the rehabilitation of existing housing stock, but through the construction of entirely new developments (Davidson and Lees, 2005). In Oslo, where densification largely occurs on former industrial and commercial sites, new-build gentrification is particularly relevant to understanding how urban change can generate gentrification-like dynamics without direct displacement. Unlike traditional gentrification, where existing residents (usually tenants) are forced out, new-build gentrification involves "selective inclusion"; housing is built for more affluent groups, reshaping the socio-economic profile of areas through who is allowed to reside within the same (Davidson and Lees, 2005; Rérat, 2012).

In a context such as Oslo – where direct displacement is relatively uncommon due to high homeownership rates and because many densification projects occur on previously non-residential land – new-build gentrification unfolds through subtler processes. Here, the concept of exclusionary pressure (Cavicchia, 2022) helps to explain how housing markets filter access even in the absence of displacement. Drawing on and expanding Peter Marcuse's (1985) idea of "exclusionary displacement," exclusionary pressure refers to processes that prevent certain groups from moving into redeveloped areas, especially when housing prices rise beyond their reach. An extreme example of new-build gentrification in Oslo is the Fjord City development, and particularly the redevelopment of the inner eastern harbour district of Bjørvika. Here, high-end residential developments are combined with office spaces for highly paid jobs – often linked to multinational companies – as well as major cultural institutions, including the city's library, museum, and opera house. Although the original plans envisioned allocating a share of the housing stock (at least 10%) to affordable housing, this objective was ultimately not realised (Andersen and Røe, 2017).

In Oslo's densification areas, exclusionary pressure operates not only within the redeveloped sites but also spills over into surrounding neighbourhoods as well as, more recently, suburban centres. This spillover is central to how new-build gentrification materialises. As new, high-priced units are introduced, they raise the profile and market expectations of adjacent areas. The result is a social filtering-up effect, whereby subsequent housing transactions are increasingly directed toward higher-income buyers; a process which makes it progressively harder for first-time buyers and middle- or low-income groups to gain access (Cavicchia, 2022). This process is further intensified by the speculative nature of Oslo's housing market. In several of the areas surrounding major densification sites – including Ensjø, Løren, and Kværnerbyen – the frequency of housing transactions has been particularly high; indicating intense speculative activity. Apartments have been bought, flipped, and resold multiple times over relatively short periods. This pattern not only drives up prices but also fosters a short-term investment logic that undermines housing stability and deepens exclusionary effects (Cavicchia, 2021). In these cases, speculation becomes a key mechanism through which exclusionary pressure is reproduced, as property values are inflated and dwellings are treated less as homes and more as assets. These cases illustrate how exclusionary pressure works not through the removal of current residents, but through the systematic reconfiguration of access to urban space. The result is a gradual socio-spatial transformation in which neighbourhoods that were once accessible become increasingly closed off to less affluent groups. This transformation occurs through price appreciation, speculative investment, and a narrowing of the income profiles of new residents.

Crucially, the exclusionary effects of densification in Oslo have emerged from the interactions of planning frameworks, market dynamics, financialisation and institutional constraints. The absence of binding affordability requirements, the dominance of the ownership sector, and the municipality's limited regulatory leverage have all contributed to the creation of a situation in which densification reinforces rather than reduces inequality. Reframing new-build gentrification through the lens of exclusionary pressure is essential to capture the specific ways in which densification contributes to socio-spatial stratification in Oslo. This perspective sheds light on how, even when driven by sustainability goals, densification can reinforce exclusionary housing dynamics in a highly competitive, speculative market.

5. Social mix or gentrification?

Another relevant issue at stake is understanding how densification interacts with the socio-spatial distribution of different population groups in Oslo. This section analyses densification as a process that can produce both social mix and gentrification, depending on location, scale, housing profile, and surrounding neighbourhood contexts. Empirically, the section analyses densification areas across different parts of the city: in eastern Oslo, large brownfield redevelopments tend to attract higher-income residents to historically working-class areas, while in western Oslo, smaller, more fragmented projects may offer limited entry points into affluent districts. The analysis explores social composition and social change in the densification areas with regard to factors such as household income, tenure, family composition, immigrant background, and school-related effects.

While densification is often framed as a planning tool to promote social mix and diversity, its outcomes depend strongly on where and how it takes place, the location of projects, the surrounding social contexts, and the housing market conditions that shape who can afford to move in (Cavicchia and Cucca, 2025). Oslo's enduring east–west socio-economic divide provides a crucial backdrop for interpreting these dynamics (Ljunggren, 2017). The western districts remain the most affluent, with higher property values, income levels, and educational attainment, while the eastern districts have historically housed more modest-income and immigrant households.

Against this backdrop, analysis of six densification areas – Løren, Ensjø, and Kværnerbyen in the east, and Skøyen, Majorstuen, and Pilestredet Park in the west – reveals distinct patterns which point to both gentrification and de-segregation (Cavicchia and Cucca, 2025). In the east, large-scale redevelopments have transformed former industrial and commercial sites such as Løren, Ensjø, and Kværnerbyen. These once peripheral and neglected areas have become symbols of urban renewal – compact, with a functional mix and well-connected through transit-oriented approaches (including a new metro connection). Yet the new housing that has emerged there is almost entirely at the high end of the market, and the supply consists mainly of new owner-occupied apartments targeted towards middle- and upper-income buyers (Cavicchia, 2021). In 2018, household incomes in these new neighbourhoods were already well above their district averages, particularly in Løren, where they exceeded Grünerløkka's by more than 20%. Similar trends appeared in Ensjø and Kværnerbyen, both of which had higher incomes than the surrounding Gamle Oslo district, even though they were still below the citywide average.

This upward shift points to a selective process. Densification in the eastern parts of the city tends to attract residents who are better off than the existing population (as these areas historically have been dominated by the working class), but not necessarily among Oslo's wealthiest. These are often younger professionals, as in Kværnerbyen, which is dominated by single-person households and many renters, and middle-income families, especially evident in Løren and Ensjø, where the share of households with children is much higher than in their respective districts.

Patterns of immigrant background add further nuances. Løren has a relatively high proportion of non-Western immigrants - about 28%, above both the district and city averages - while Ensjø and Kværnerbyen have lower proportions. In these latter areas, non-Western immigrant residents also tend to have lower incomes than their peers from within the wider district. Overall, eastern densification areas show a gentrifying tendency: they attract residents with higher incomes than the surrounding district average, often through homeownership in high-priced housing markets. This, as already noted, is also linked to spillover effects into surrounding neighbourhoods, where housing prices and income levels have risen significantly over time.

The picture looks somewhat different in the West. Here, densification has occurred through smaller projects - in places like Skøyen, Majorstuen, and Pilestredet Park - located in some of Oslo's most affluent neighbourhoods. Interestingly, household incomes in these densification areas are lower than in their surrounding districts, and in Majorstuen and Pilestredet Park, they even fall below the city average. This reflects the profile of their residents: many are younger renters, singles, or couples at the start of their careers. In Majorstuen and Pilestredet Park, renters make up around half of all households, while in Skøyen, where the population is slightly older, the rental share is smaller and incomes somewhat higher.

These western neighbourhoods are marked by smaller apartments and few families – between three-quarters and four-fifths of households have no children. Still, their relatively diverse resident mix means that they can act, at least modestly, as entry points into high-status districts for groups who might otherwise be excluded. In recent years, Majorstuen and Skøyen have even seen a gradual increase in residents with non-Western backgrounds, suggesting that some degree of social diversification is occurring, albeit at a limited scale.

These trends indicate that western densification areas can function as entry points for less affluent residents into high-status districts, thereby modestly contributing to increased social mix. However, this effect is limited by the small size and sporadic nature of densification projects in the West, as well as strong local opposition to larger-scale developments.

When comparing eastern and western densification areas, a clear macro-pattern emerges. While these patterns suggest a potential desegregation effect of densification, significant limitations remain. In the east, market-driven housing production without binding affordability requirements risks reinforcing the exclusion of lower-income households. In contrast, and in the West, limited land availability, strong opposition to densification, and high rental prices restrict the potential for a genuine social mix. In addition, both sides face challenges related to micro-segregation within developments, where apartment size, tenure, and price stratification can reproduce inequalities even in mixed areas.

The potentials of densification for residential social mixing matter particularly for schools, one of the most important arenas of social cohesion in Oslo, a city characterised by pronounced residential and school segregation (Cavicchia and Cucca, 2020). Yet, so far, densification has not contributed significantly to reducing these divides. Two main problems have emerged (Cavicchia and Cucca, 2020). First, many densification projects have been poorly suited for families with children, as already argued, with very limited provision of larger, affordable units. As a result, these neighbourhoods tend to attract young adults, couples, and highly mobile households, rather than stable families with school-age children. Consequently, the demographic impact of densification on nearby schools has been often limited (Cucca and Mouratidis, 2025). Second, densification has been concentrated in the inner city, while the outer districts – where residential and school segregation are most severe – have seen little intervention. The outer East and West, strongly divided along socioeconomic and ethnic background lines, remain largely untouched by transformative planning (although the situation is somewhat different in the surrounding suburban municipalities). Yet without substantial investment in affordable family housing in these peripheral areas, the potential for densification to rebalance socio-spatial inequalities and reduce school segregation is largely unrealised (Cavicchia and Cucca, 2020).

6. Towards High-rise living?

This section examines high-rise development as an emerging vertical form of densification in Oslo. The focus is on whether tall buildings generate new implications for housing affordability, social mix, environmental justice, and micro-segregation. The analysis is based on Oslo's recent high-rise strategy, and includes responses from public and private actors, international research on vertical urbanism, and empirical studies of high-rise living environments in both post-war and contemporary developments.

Recent policy developments have signalled a partial shift in Oslo's densification trajectory from predominantly mid-rise compact development towards a more explicit embrace of vertical urbanism. The adoption of a new municipal high-rise strategy marks an important turning point in planning discourse and has reframed tall buildings not only as exceptional architectural objects but as potential instruments for sustainable growth, land-use efficiency, and transit-oriented development (Municipality of Oslo, 2023). However, there are widespread

concerns that this strategy will not contribute to the city's socially sustainable development. An analysis of the document and comments submitted from a variety of actors and stakeholders during a hearing (Choi et al., 2024) reveals that although high-rise developments are believed to enhance Oslo's economic vitality in well-connected areas near transportation hubs and reduce urban sprawl, several issues remain regarding social inequality, the preservation of cultural heritage, and environmental sustainability.

Generally speaking, high-rise buildings are increasingly presented as both a way to accommodate continued population growth without encroaching on protected green areas and low-rise neighbourhoods, and as a means to concentrate density in well-connected nodes (Graham, 2016). In this sense, vertical development is positioned as a continuation - and intensification – of the compact city paradigm already dominant in Oslo. High-rise development in Oslo also reflects an international trend in which high-rise buildings signify a post-industrial shift towards entrepreneurial and competitive economic policies. The proliferation of multistorey buildings is seen not only as a way to densify cities and thus effectively utilise infrastructure and further promote shifts towards sustainable transport, but also as the ultimate expression of competitive urbanism, as promoted, for example, by Glaeser (2011). Increased physical density through high-rise development has, in many cities, become part of their urban sustainability strategies, despite resistance from, for example, architectural heritage institutions and citizens living in neighbourhoods near new high-rise developments (Ebbensgaard, 2024). High-rise development is also highly profitable for real estate developers and builders due to increased space utilisation. In addition, spectacular high-rise buildings may serve as symbolic expressions of urban economic vitality.

However, as with densification more broadly, the social and environmental implications of high-rise development are far from neutral. International research on high-rise development and vertical urbanism shows that tall residential buildings tend to amplify rather than neutralise market dynamics. They often function as highly commodified housing products shaped by investment logic, branding strategies, and profitability considerations (Graham, 2016; Maloutas, 2024; Maloutas and Karadimitriou, 2022). In market-driven contexts, high-rise projects frequently target upper-income segments and investors; thereby contributing to new forms of socio-spatial stratification and what has been described as vertical micro-segregation – the internal differentiation of residents by floor level, apartment size, access to views, light, and amenities (Maloutas, 2024). Rather than producing socially mixed environments, vertical developments may, therefore, reproduce inequalities both within buildings and across neighbourhoods (Lehrer and March, 2019).

Evidence from recent research in Oslo points in a similar direction. New high-rise residential developments are typically located in already attractive and infrastructure-rich areas – such as waterfront redevelopments, former industrial transformation zones and spaces surrounding nodes in the public transport system – where land values are high, and development has been led by large private actors (Andersen & Røe, 2017). These new developments represent a clear shift from the high-rise housing projects of the post-war period, from the 1950s to the 1970s, when public and municipal agencies, together with cooperative builders, planned and implemented large-scale housing projects, especially in the eastern outskirts of the city. These high-rise developments addressed post-war housing demands by building amenity-rich neighbourhoods with a substantial proportion of municipal social housing. Such developments were, nevertheless, halted due to growing public criticism of these housing environments, especially for families with children (Røe, 2025). It was not until the early 2000s, after the municipality had launched its first strategy for high-rise buildings as part of the compact city policy, that high-rise housing again became an alternative. The municipality of Oslo now has approximately 100 high-rise residential buildings, and a large share of them have been built in the second phase (post 2000) of high-rise developments.

These new projects often combine iconic architecture, private shared amenities, and securitised semi-public spaces; thereby reinforcing patterns of selective inclusion. Dwelling types in high-rise buildings are frequently skewed toward small and medium-sized ownership units, with larger and more exclusive apartments concentrated on upper floors – with the latter also often featuring large balconies and outdoor terraces. The development of high-rise buildings, often constructed for elites, may create micro-segregation (both horizontally and vertically) and prioritise secluded social activities in ways that counter the development of a socially sustainable city. A study based on interviews and observations in newly constructed high-rise buildings in Fjord City revealed the spatial and vertical diversity of living environments in such buildings and their close neighbourhoods. While some apartments were characterised as large and amenity-rich, with

abundant light and views, others were perceived as dense, close to the street level and in the "shadows". In contrast, high-rise developments from the post-war period were designed to reduce inequalities in physical living conditions and amenities (Asbjørnsen et al., 2025), with a variety of indoor and outdoor amenities, as well as social infrastructure, accessible to all inhabitants.

This internal vertical differentiation mirrors broader housing market inequalities and may generate new forms of socio-spatial filtering, even in the absence of direct displacement – dynamics that resonate with patterns of new-build gentrification and exclusionary pressure; both already documented in Oslo's densification areas (Cavicchia, 2023, 2022, 2021). In Oslo, some of future new high-rise developments are to be located in one of the few centrally located multicultural and socially diverse urban districts, Grønland, where the social implications may be severe if inclusive measures are not implemented.

From a socio-spatial justice perspective, high-rise development risks intensifying several of the tensions already identified in Oslo's densification approach. First, in the absence of binding affordability requirements or inclusionary housing tools – which Norwegian municipalities largely lack (Granath Hansson et al., 2025) – vertical projects are likely to further expand the stock of high-priced housing, and thus contribute little to improved accessibility for lower- and middle-income households (Cavicchia, 2023, 2021). Second, the concentration of tall buildings in specific redevelopment areas may reinforce uneven development patterns across the city; thereby adding vertical enclaves to an already polarised urban geography structured along the east–west divide (Cavicchia and Cucca, 2025; Ljunggren, 2017). Third, the increasing privatisation of elevated and internalised shared spaces – such as rooftop terraces, indoor lounges, and residents-only facilities – may shift everyday social life away from open public arenas toward controlled semi-private environments, weakening the integrative potential of neighbourhood space.

7. Conclusion

The experience of Oslo's densification strategies must ultimately be understood within the framework of a highly commodified housing system (Aarland & Sørvoll, 2021), as well as a planning regime where private real-estate developers, builders and consultancies are influential actors who increasingly set the agenda for urban development (Haarstad et al., 2021; Røe et al., 2022). Urban growth in the Norwegian capital has unfolded against a backdrop of uneven intensification, with redevelopment concentrated in specific pockets of the city rather than evenly distributed (Cavicchia, 2022). These processes intersect Oslo's long-standing socio-spatial divisions between east and west, and shape how densification is implemented and experienced across different neighbourhoods.

A recurring feature of redevelopment has been the symbolic use of green space as part of the branding of new districts (Andersen & Skrede, 2017). As noted, rivers, streams, and linear parks have often been mobilised as emblems of sustainability to give legitimacy to densification projects. Yet, the actual provision of green space has frequently been more limited than initially envisioned (Venter et al., 2023).

The geography of densification also reflects deeper urban divides, which are increasingly addressed within existent international literature (Røe et al., 2022). Much of the new construction has taken place in the eastern parts of the city, largely because of the availability of post-industrial land. At the same time, resistance from residents in western neighbourhoods has limited large-scale redevelopment there. This uneven distribution means that the social and ecological consequences of densification are felt more acutely in certain districts, thereby reinforcing existing patterns of inequality (Cavicchia, 2021).

The social outcomes of these processes are increasingly visible. As reported in other contexts affected by a high-pressure housing market, densification –particularly through the construction of small apartments – does not automatically improve housing affordability (Stacy et al., 2023). New housing in densification areas is often priced well beyond the reach of average households; contributing to a growing affordability problem (Cavicchia, 2021). The dynamics of "new-build gentrification" extend beyond individual projects, spill over into adjacent neighbourhoods, and raise housing costs more broadly. While densification has some potential to play a desegregating role in Oslo's west – by introducing more diverse housing types into historically affluent areas – such projects have been rare and fragmented (Andersen and Røe, 2017; Cavicchia, 2021). In contrast,

in the eastern districts, densification has more consistently supported gentrification; reshaping the social composition of neighbourhoods and contributing to displacement pressures.

A better understanding of rental dynamics is also essential. The rise of both long-term and short-term rental markets in Oslo has had a profound effect on affordability, yet these dynamics have not always been well captured in debates. Without a deeper understanding of how rental practices intersect with densification, it is difficult to fully grasp the consequences of the same for housing access.

In Oslo's municipal and regional planning frameworks, densification has been envisaged as a coordinated and environmentally rational strategy: a way to accommodate population growth within the existing urbanised area, protect agricultural and natural lands, reduce car dependence, support public transport, and promote socially sustainable urban development. This planning doctrine assumes that compact growth can simultaneously deliver climate benefits, efficient land use, improved accessibility, and more inclusive urban environments. The empirical studies reviewed in this article show, however, that Oslo's densification strategies present a set of intertwined paradoxes (Andersen & Skrede, 2017; Kjærås, 2024): green space is celebrated as part of the compact city narrative but sacrificed or put under pressured by redevelopment pattern; redevelopment is concentrated where land is available, resistance is weaker, and market conditions are favourable; affordability is undermined even as new supply is added; and gentrification advances unevenly across the city's east and west. The Oslo case thus demonstrates that the social and environmental effects of densification cannot be inferred from the planning doctrine alone. Densification is not a single policy instrument with predetermined outcomes, but rather a set of development practices that are shaped by governance arrangements, land availability, market dynamics and local resistance. The central issue is therefore not simply whether Oslo should densify, but how density is produced, where it is located, who benefits from it, and which costs are redistributed across neighbourhoods, social groups, and ecological systems.

Recognising these tensions is essential for understanding the limits of the "green city" narrative and for imagining more equitable ways of accommodating urban growth (Andersen and Røe, 2017).

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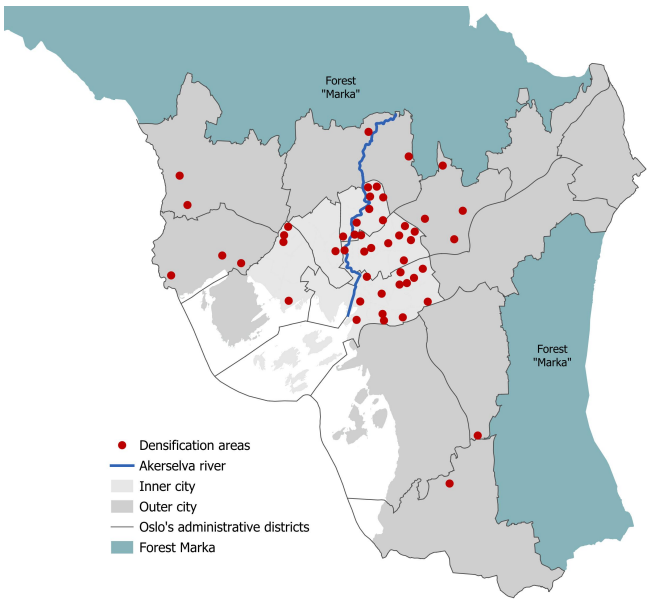


Figure 1. Distribution of densification areas in Oslo (construction period: 2004-2024. Data source: Oslo Statistical bank). Made by authors