

'15-MINUTE CITY' IN TURKEY: A FRAMEWORK FOR SUSTAINABLE URBAN PLANNING AND GOVERNANCE IN MID-SIZED TURKISH CITIES

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Abstract

This paper examines the feasibility of applying the 15-minute city model in Turkey's mid-sized cities, where compact form and walkability offer an existing foundation for proximity-based planning. Despite this potential, rising car use, fragmented governance, and weak coordination between land use and transport planning constrain progress. Emphasizing the principles of proximity, diversity, density, and ubiquity, the study highlights the need for integrated transport systems, pedestrian-friendly design, and mixed-use development to improve daily life quality. Using tools like the Next Proximity Index (NEXI) and drawing from international experiences and localized urban contexts, the authors call for participatory governance and adaptive reforms. The study concludes that meaningful implementation of the 15-minute city in Turkey depends on restructured planning and governance frameworks responsive to local needs, spatial equity, and the evolving dynamics of urban mobility and accessibility.

Keywords: 15-minute city; sustainable urban planning; public transportation; mid-sized cities; Turkey.

Introduction

This study explores the potential of Turkey's mid-sized cities to align with the "15-minute city" concept, emphasizing proximity, inclusivity, and sustainability. These cities, characterized by compact urban areas where most residents live within a 3-km radius, inherently support walkable, proximity-based urban planning. However, rising automobilization and minimal car use restrictions along with uncoordinated transportation policies in Turkey pose significant risks to the realization of this concept. This study underscores the need for integrated transportation strategies, pedestrian-focused urban planning, and stringent parking policies to support 15-minute city while mitigating car dependence and fostering sustainable urban environments.

Central to the "15-minute city" framework is the reorganization of urban functions to ensure proximity within neighborhoods, necessitating systemic changes in resource allocation patterns and governance schemes (Pozoukidou and Chatziyiannaki, 2021). The concept also emphasizes principles of proximity, diversity, density, and ubiquity, aiming to reduce reliance on motorized transport while promoting sustainable and equitable urban living (Moreno et al., 2021). Practical frameworks for neighborhood-level transformations and multimodal connectivity with an emphasis on public engagement and behavioral shifts in Moreno (2024) are particularly relevant for Turkish cities in transition.

For Turkish cities, rethinking public transportation as the backbone of urban mobility is essential. Developing trunk transit systems free from regular traffic conditions can increase reliability and encourage shifts from private vehicle use. Public transport nodes, such as rail and bus stations, should be integrated into neighborhoods to support seamless multimodal connectivity while reducing car travel.

Pedestrian-friendly design is another critical component. Enhancing walkability through well-maintained sidewalks, safe crossings, and traffic-free inviting public spaces can significantly encourage active mobility. Walkable neighborhoods not only promote physical health but also contribute to cognitive well-being and social interaction, particularly among vulnerable populations like the elderly (Zhang et al., 2023). Moreover, pedestrian infrastructure must account for inclusivity, addressing the "last millimeter" challenges to ensure accessibility for all (Buliung, 2024).

Parking policies play a pivotal role in reducing car dependency. Stringent regulations, such as limiting parking availability in central areas and imposing higher fees, discourage car use and reclaim urban space for pedestrian and community activities (Núñez et al., 2024).

Mixed land-use planning further supports proximity by ensuring essential services, amenities, and recreational spaces are distributed across neighborhoods, thereby fostering local economies and social cohesion (Pozoukidou and Chatziyiannaki, 2021).

While the theoretical underpinnings of the “15-minute city” are rooted in principles of proximity and inclusivity, practical implementation requires data-driven approaches. Tools like the Next Proximity Index (NEXI) can assess accessibility levels and identify gaps in urban planning, guiding tailored interventions (Olivari et al., 2023). Besides, the experiences of cities worldwide provide valuable insights. For instance, European cities with high pedestrian accessibility and diverse land use demonstrate reduced car reliance and enhanced urban equity (Vale and Lopes, 2023). Similarly, compact neighborhoods in ultra-dense cities like Shanghai showcase how mixed-use planning and walkability can foster cognitive and physical health (Zhang et al., 2023). These examples underscore the importance of adopting integrated urban design principles that prioritize human-centric planning over car-oriented development.

Although Turkey’s mid-sized cities possess unique opportunities to lead by example in movement, transitioning to the “15-minute city” in these cities requires addressing existing challenges, including societal car dependency and fragmented urban governance. The study explores different traits of collaboration across for sustainable urban planning goals. Moreover, community engagement in planning processes ensures that interventions reflect local needs and aspirations, fostering public support and long-term success (Pozoukidou and Chatziyiannaki, 2021).

The ‘15 Minute City’ Paradigm

The concept of the 15-minute city has rapidly emerged as a transformative paradigm in contemporary urban planning, addressing the critical issues of environmental degradation, socio-spatial inequality, traffic congestion, and the erosion of community life. Its intellectual roots trace back to historical planning movements such as Clarence Perry’s neighborhood unit, the garden city movement, and compact city theories. What distinguishes the 15-minute city is its shift from spatial to temporal framing of accessibility, ensuring that essential services—housing, employment, education, healthcare, commerce, and leisure—are accessible within a 15-minute walk or bike ride. The COVID-19 pandemic acted as a catalyst for re-centering urban discourse around these principles. Moreno et al. (2021) redefined urban planning by emphasizing accessibility over mobility, repositioning neighborhoods as the nucleus of urban resilience. Expanding this understanding, Whittle (2024) situates the 15-minute city within a broader critique of 20th-century planning ideologies, arguing that the model is not merely a design response, but a shift toward human-centric governance that reclaims the neighborhood as a democratic, semi-autonomous unit of everyday life. This interpretation underlines the 15-minute city as both a spatial strategy and a socio-political agenda aimed at reviving local urban agency in an age of globalization and centralized planning inertia.

The 15-minute city is structured around four foundational principles: proximity, diversity, density, and ubiquity (Moreno et al., 2021). Proximity ensures that daily needs are within a short walking or biking distance, promoting a high quality of life and reducing reliance on motorized transport. Diversity introduces a functional and social mix that sustains inclusive and vibrant communities. Density, reconceptualized from sheer population concentration to efficient land use, underpins both economic viability and the infrastructure necessary for active mobility. Ubiquity ensures that these attributes are not confined to affluent areas, but equitably extended across all neighborhoods, fostering spatial justice. This framework promotes polycentricity, envisioning urban regions as interconnected networks of semi-autonomous, self-sufficient neighborhoods. Echoing this vision, Whittle (2024) articulates that such neighborhoods must not only support daily functions, but also be empowered units of democratic and cultural life, capable of nurturing local identity, adaptability, and resilience. In doing so, the 15-minute city model diverges from 20th-century doctrines of speed and spatial expansion, instead cultivating a human-scaled, time-sensitive geography that invites deeper civic participation and localized governance.

Pozoukidou and Chatziyiannaki (2021) offered a vital critical perspective that builds on the conceptual optimism of 15-minute city framework by addressing its institutional blind spots. They contend that while spatial reconfiguration is a necessary condition for realizing the 15-minute city, it is insufficient without complementary institutional transformation. Specifically, they underscore that the success of this paradigm hinges on localized service delivery supported by adaptive governance, cross-sector collaboration, and participatory mechanisms that reflect the diverse needs of urban populations. Their critique highlights the danger of reducing the 15-minute city to a technocratic or aesthetic endeavor, warning that such interpretations risk rendering the model a symbolic gesture rather than a functional reality. By calling attention to the political, procedural, and resource dimensions of urban reform, Pozoukidou and Chatziyiannaki deepen the discourse, insisting that proximity must be institutionalized not only spatially, but structurally and democratically.

Empirical work by Olivari et al. (2023) introduced the Next Proximity Index (NEXI), a tool for quantifying access to essential services within 15-minute radii. Positioned as a response to critiques such as those raised by Pozoukidou and Chatziyiannaki (2021), NEXI operationalizes the abstract ambitions of the 15-minute city into measurable and actionable indicators. The index is calculated by identifying and mapping key urban functions—such as education, healthcare, retail, green space, and public transport—and assessing their presence within a 15-minute walking radius from residential areas. Each function is weighted based on its essentiality and frequency of use, and the index aggregates these weighted scores to produce an overall proximity measure for each neighborhood. Their studies across Italian cities revealed wide disparities influenced by urban form and historical development, highlighting the importance of context-sensitive planning. Crucially, NEXI extends beyond mapping spatial proximity to integrate dimensions of social inclusion, climate resilience, and mobility justice. This transformation from a technical metric to a normative planning instrument marks a significant step in addressing the procedural and distributive shortcomings emphasized in earlier critiques. By enabling planners to diagnose accessibility gaps and tailor interventions, NEXI exemplifies how empirical tools can support equitable urban transformation and embed the principles of the 15-minute city into grounded governance practices.

Building on the empirical rigor introduced by NEXI, which translates the abstract ideals of the 15-minute city into actionable planning metrics, subsequent studies have further expanded the paradigm's operational and normative dimensions. For instance, Núñez et al. (2024) questioned whether reductions in car usage are primarily driven by modal shifts or by the simple act of shortening travel distances. Their findings underscored that while investments in sustainable mobility infrastructure are important, the most transformative outcomes stem from co-locating services and residences. This reinforces the notion, already embedded in NEXI's design, that land-use planning must be foregrounded in sustainable urban transformation—thereby validating Pozoukidou and Chatziyiannaki's (2021) call for procedural and distributive reforms. Zhang et al. (2023) contributed a public health dimension, revealing how 15-minute neighborhoods in Shanghai foster cognitive and emotional well-being among aging populations. They demonstrated that walkable access to diverse urban amenities reduces isolation and bolsters autonomy, extending the paradigm beyond logistical convenience into the realm of social health and cohesion. Likewise, Vale and Lopes (2023) mapped pedestrian accessibility across over 100 European cities and exposed systemic disparities, where affluent neighborhoods benefited disproportionately. Their research warned that without explicit redistributive planning, the 15-minute city could exacerbate spatial injustice. They also highlighted the specter of "green gentrification," urging integration of equity and participatory governance into urban design. Finally, Buliung (2024) expanded the discourse by introducing the concept of "last millimeter" barriers—micro-scale urban design flaws that significantly hinder access for individuals with disabilities. He argued that while macro-level walkability metrics are often celebrated, they overlook the experiential and embodied dimensions of mobility. His critique strengthens the paradigm's commitment to spatial justice by insisting that true accessibility must be measured not just by distance, but by the ease, dignity, and autonomy with which urban space is navigated. Together, these works illustrate how the paradigm of the 15-minute city continues to evolve—anchored not just in visionary theory, but in inclusive, context-sensitive, and empirically grounded planning practice.

Lately, Moreno (2024) has recast the 15-minute city not merely as a spatial model, but as a profound philosophical and cultural response to the crises of contemporary urban life—namely, speed, fragmentation, and commodification. Accordingly, the 15-minute city is conceptualized as a temporal revolution—an urban condition that values slowness, synchronicity, and an enriched experiential engagement with place. This approach challenges prevailing urban paradigms that prioritize acceleration and efficiency. By positioning the

15-minute city as a multidimensional framework encompassing climate action, public health, and governance innovation, Moreno (2024) calls for a redefinition of urban rhythms and relationships. Central to this vision is the neighborhood as a “complete habitat,” where decentralization and human-scale urbanism become catalysts for inclusivity, resilience, and civic engagement. In this formulation, the 15-minute city transcends traditional planning logic to become a vehicle for reimagining urban time, social proximity, and collective futures.

Cumulatively, the literature has progressed from foundational theory to the development of operational tools, empirical validation, and normative elaboration, offering a comprehensive framework for the 15-minute city. Rather than positioning it as a universal or static solution, the discourse affirms the model as a flexible and evolving paradigm of holistic urban transformation. A critical thread running through this body of work warns against the pitfalls of technocratic overreach, superficial implementation that neglects local contexts, and the perpetuation of socio-spatial exclusion. Success in realizing the 15-minute city, as emphasized across multiple studies, depends fundamentally on inclusive and transparent governance structures, iterative and reflexive planning mechanisms, and strategies that are grounded in the cultural, institutional, and spatial particularities of place. This expanded understanding reinforces that the paradigm’s long-term viability hinges not merely on infrastructure or design interventions, but on the depth of institutional commitment to equity, participation, and contextual sensitivity.

For mid-sized Turkish cities, the rapidly expanding 15-minute city literature offers a dual perspective—serving as both a source of inspiration and a framework for critical reflection. These cities often display inherently compact morphologies and localized social cohesion, which could form a promising basis for implementing proximity-based urban strategies. However, the rapid motorization observed across Turkey—where vehicle ownership continues to rise despite being far from saturation levels—has compounded the challenges of spatial equity and environmental sustainability (see Şenbil and Yetişkul, 2020). Compounding this issue is the widespread inadequacy of public transit systems in mid-sized cities, which are frequently characterized by fragmented service coverage, irregular scheduling, and limited multimodal integration. The predominance of centralized governance and institutional inertia further impedes transformative urban action. As such, the realization of the 15-minute city in Turkey must be envisioned not as a superficial adoption of global trends, but as a profound transformation that responds to the nation’s unique socio-political, infrastructural, and spatial conditions. This necessitates the decentralization of urban governance, a targeted redistribution of public investment toward marginalized neighborhoods, and the institutionalization of participatory planning mechanisms that amplify community voices. In this context, investments in walkable public realms, socially inclusive services, and responsive governance structures are not supplementary but essential. Only through such a multidimensional and locally grounded approach can Turkish mid-sized cities fully embody the principles of the 15-minute city and deliver meaningful outcomes in accessibility, social equity, and urban resilience.

Reframing Urban Planning for 15-Minute City

The 15-minute city, as conceptualized by Moreno (2024) and elaborated throughout contemporary urban planning literature, represents a transformative break from conventional paradigms of city-making. By shifting the primary focus of planning from spatial hierarchies and mobility efficiency to temporal proximity and everyday accessibility, this model reorients urban policy toward a more human-scaled, equitable, and inclusive logic of spatial organization. Unlike earlier approaches that emphasized expansion, zoning rigidities, and centralized nodes of urban activity, the 15-minute city emphasizes integrated, decentralized neighborhoods that embed urban functions within a walkable or bikeable radius. Rather than merely pursuing environmental metrics or sustainability benchmarks, this model urges a reconfiguration of how cities are experienced and governed—placing daily life, local autonomy, and temporal dignity at the center of urban transformation. The 15-minute city is not merely a design proposition, but a cultural and political reclamation of local agency—a response to the alienation and fragmentation produced by twentieth-century planning orthodoxy (Whittle, 2024). In this light, the planning system must be gauged anew, not simply adjusted, to accommodate a neighborhood-oriented urbanism that values inclusivity, accessibility, and autonomy.

Despite the compact morphology and latent proximity potential of many Turkish mid-sized cities, the prevailing planning system remains ill-suited to realize the ambitions of the 15-minute city paradigm. In the face of rapid motorization—which continues to accelerate despite Turkey’s relatively low car ownership levels compared to developed nations—urban infrastructure remains overwhelmingly designed to accommodate growing vehicular

demand rather than to foster a modal shift toward active mobility and short-distance accessibility. The current planning approach privileges high-capacity roads and automobile-centric development, sidelining investments in walkable, bikeable, and transit-supportive urban forms. Compounding the issue, while modifications for single-plot developments are often processed with relative ease, comprehensive area-wide changes face severe institutional and procedural constraints.

Plan changes that require the reorganization of plots, reallocation of public or community spaces, and realignment of shared infrastructure demand cumbersome legal navigation, tax obligations, and inter-agency coordination.

These hurdles are particularly acute in already built-up neighborhoods, where fragmented land ownership, outdated cadastral alignments, and an absence of operative neighborhood-scale planning mechanisms render transformational interventions practically unfeasible. A reframed planning approach must thus reorient public investment and legislative design toward neighborhood-scale and city-wide accessibility solutions—such as short transit route circulators, protected cycling corridors, pedestrian-first streetscapes, and multimodal feeder systems—while simultaneously streamlining regulatory pathways for retrofitting established urban areas. Current practices are dominated by rigid, centrally imposed master plans and a heavily top-down governance architecture that inhibits local adaptation and hinders organic neighborhood evolution. Plan modifications—particularly those aiming to introduce mixed-use zoning or reallocate services to enhance daily accessibility—are often stalled by bureaucratic inertia. The process is burdened by convoluted approval mechanisms, complex legal scrutiny, and considerable taxation burdens, especially for modifications involving broader land reorganizations in already built areas. These are particularly complex because they often require the adjustment of parcel boundaries, the provision or redesign of public and community spaces, and the integration of common goods into a new spatial logic compatible with proximity-based planning. Apart from reorganization of informal housing areas—which more or less face similar institutional and procedural bottlenecks—there is next to no planning agency in Turkey currently capable of undertaking neighborhood-based reorganization or transformation projects aimed at retrofitting already built-up urban areas into more sustainable, proximity-oriented forms.

Notably, while single-plot amendments are somewhat easier to process and more commonly approved, area-wide changes that necessitate the reconfiguration of multiple plots, the realignment of public and communal spaces, or adjustments to shared infrastructure are met with substantial institutional resistance. These comprehensive transformations, essential for enabling integrated neighborhood-level accessibility, often encounter insurmountable procedural barriers unless channeled through large-scale urban transformation projects. Yet even these projects are primarily aimed at housing reconstruction and disaster resilience, rarely contributing to the diversification of urban functions or the realization of complete neighborhoods. This rigidity undermines the capacity for incremental, context-sensitive interventions vital for achieving spatial justice and temporal proximity. Turkish urban planning remains entrenched in functionally segregated zoning and infrastructure priorities that favor high-speed, motorized mobility over fine-grained, pedestrian-oriented accessibility. As a result, neighborhoods remain disconnected from daily needs and incapable of supporting self-reliant urban life, thereby contravening the fundamental logic of the 15-minute city model.

This institutional void mentioned above severely limits the possibility of adapting existing neighborhoods to meet the spatial and functional requirements of the 15-minute city paradigm. While plan amendments for individual plots are relatively more feasible, area-wide modifications—particularly those involving the reorganization of already developed urban zones—encounter substantial procedural obstacles. These difficulties stem from strict legal requirements, high taxation, and the need for consensus among multiple landowners, especially where public spaces, communal facilities, and infrastructure must be reconfigured to meet proximity-based planning goals. Such interventions demand collective coordination, legal harmonization, and public consent—all of which are administratively cumbersome and procedurally opaque under the current regulatory regime. To reframe urban planning for the 15-minute city, it is essential to transition toward planning tools and institutional frameworks that prioritize flexible and adaptive instruments for retrofitting existing urban areas. This shift involves enabling fine-grained, incremental changes at the neighborhood scale that accommodate diverse local conditions and promote temporal proximity, rather than enforcing large-scale, top-down spatial reorganizations. This entails redefining neighborhood units as semi-autonomous, self-reliant territories where residents can access essential services, employment, education, and leisure within a short walking or cycling distance.

Achieving this transformation necessitates mainstreaming mixed-use zoning within Turkish land-use legislation, accompanied by support for incremental and context-sensitive development rather than the enforcement of rigid, large-scale masterplans. To do so, the planning system must be diametrically transformed to foster area-based planning and enable comprehensive urban retrofitting aimed at sustainable and proximity-based outcomes. Current regulatory structures tend to facilitate changes on individual plots, while rendering broader area-based interventions—those requiring coordinated reorganization of plots, reallocation of communal spaces, and integration of public amenities—exceptionally difficult. Without fundamental reform, the capacity to recalibrate existing urban fabric in alignment with 15-minute city goals remains structurally constrained. Such flexibility is key to cultivating resilient, self-sufficient neighborhoods. Whittle (2024) emphasizes that mid-sized urban territories hold significant potential to spearhead this shift by embracing agile, human-scale planning practices. These cities, rather than mimicking the infrastructure-heavy and centralized models of major metropolises, can become exemplars of localized governance and proximity-based urbanism, aligning closely with the ethos of the 15-minute city.

Quantitative tools like the Next Proximity Index (NEXI) introduced by Olivari et al. (2023) offer critical insights into how proximity can be operationalized through spatial analysis. By mapping the availability and diversity of essential services within a 15-minute walking radius, NEXI helps planners diagnose service gaps and prioritize interventions at a granular level. Crucially, this index accounts for both spatial coverage and the qualitative utility of services, integrating considerations of usage frequency and community importance. Pozoukidou and Chatziyiannaki (2021) emphasize that without such tools—and without integrating them into institutional processes—15-minute city initiatives risk becoming superficial or unevenly distributed. Indeed, NEXI embodies a procedural response to their critique, translating normative goals into technical diagnostics that can guide context-sensitive interventions in Turkish cities. In addition, Marquet et al. (2025) have revealed that the widespread adoption of the 15-minute city concept has incited political backlash, conspiracy narratives, and polarized reactions, particularly in the post-COVID planning climate. This skepticism, sometimes grounded in ideological opposition to centralized planning, at other times fuelled by misinformation, challenges planners to reconceptualize how participatory legitimacy and public trust are secured. Their study calls attention to the necessity of transparent, inclusive, and dialogic planning processes that not only inform but also engage communities in shaping their urban environments. The authors categorize critiques from baseless conspiracy theories to legitimate equity concerns, urging planners to discern and respond with sensitivity to context.

However, most Turkish mid-sized cities suffer from poor and insufficient planning units. This institutional weakness is not merely a matter of capacity but also of legal and procedural design. To meet the spatial demands of the 15-minute city, planning departments must be structurally enhanced through targeted capacity building. This includes mandating, by law, the employment of certified city planners in all municipal planning offices and equipping them with the legal authority and technical resources to initiate neighborhood-based retrofitting projects. Furthermore, these units must be supported by a set of model frameworks and toolkits for urban retrofitting—flexible yet enforceable templates that can be adapted to local socio-spatial conditions. Compulsory area-based planning practices, centered around 15-minute city metrics, should be embedded into national planning regulations, ensuring that all plot arrangements, public space configurations, and communal services are strategically designed to maximize proximity. Mixed-use densification and pedestrian-centered public realm design should be codified through new legislation to ensure that neighborhoods evolve as cohesive, accessible, and self-sufficient territories.

Fundamentally, reframing Turkish urban planning for the 15-minute city means dismantling its static, top-down blueprinting tradition and replacing it with adaptive, participatory, and neighborhood-responsive mechanisms. It requires a regulatory architecture that promotes mixed-use overlays, flexible zoning, and simplified plan amendments. Planning offices must be transformed from enforcement units into platforms for co-creation and public engagement. As Whittle (2024), Moreno (2024), and Marquet et al. (2025) assert, this transformation is as much about governance as it is about spatial design—it is about restoring time, agency, and dignity to everyday urban life. Training a new generation of planners equipped with the skills for equity-driven, participatory planning is paramount. Only through this deep institutional renewal—supported by empirical tools like NEXI and grounded in the lived geographies of Turkish cities—can planning systems evolve to meet the demands and opportunities of the 15-minute city model.

Enforcing and Enabling Mid-Size Cities for 15-Minute City in Turkey

To complement these reforms, it is crucial to establish advanced monitoring frameworks that ensure accountability, performance benchmarking, and feedback loops in the implementation of 15-minute planning. This necessitates integrating tools like the NEXI (Olivari et al., 2023) into the routine planning workflow, accompanied by open data policies that allow citizens and stakeholders to track progress in real-time. In addition, legal instruments must be revisited to introduce enforceable thresholds and measurable indicators for service accessibility, walkability, and land-use mix within Planning Zones (PZ). For instance, municipalities should be required to provide yearly audits evaluating whether each PZ meets designated proximity and inclusivity metrics, triggering corrective measures in case of persistent gaps.

Mid-size cities in Turkey represent a critical scale for operationalizing the principles of the 15-minute city, balancing human-scale urban form with regional development needs. Despite their latent potential, these cities are increasingly at risk of following the sprawling, car-dependent trajectories of metropolitan counterparts unless significant legislative and institutional reforms are introduced. As highlighted in Özdemir Sarı et al. (2019), Turkey's existing urban planning framework remains largely reactive, fragmented, and unfit for promoting integrated neighborhood-scale transformations. Therefore, to realize the promise of the 15-minute city model, a recalibration of planning legislation, spatial governance, and urban design practice is imperative.

A key strategic reform must involve the legal demarcation of Urban Settlement Areas (USAs), beyond which suburban and peri-urban expansion should be tightly controlled. These USAs should serve as statutory growth boundaries, akin to urban containment strategies seen in the UK and parts of Northern Europe, to focus investment, planning attention, and infrastructural development within a defined, optimally compact urban envelope. As Moreno (2024) argues, the 15-minute city is incompatible with low-density sprawl because it fragments service provision, increases travel distances, and undermines efforts to build cohesive, self-reliant neighborhoods. Therefore, USAs should be embedded within national and regional legislation, accompanied by clear development guidelines and enforcement mechanisms to prevent encroachment on agricultural land, ecological zones, or disaster-prone areas.

In the Turkish context, however, the definition and scope of USAs in current upper-level plans—particularly Territorial Plans—are often far too expansive relative to realistic future settlement needs. These designations frequently stem from inflated population projections that lack robust demographic analysis and ignore ongoing trends such as stagnating urban growth and accelerated aging in mid-size cities. This tendency is largely inherited from a planning culture forged during Turkey's rapid urbanization years, when population growth and urban expansion were seen as inevitable. However, Turkey now finds itself in a post-urbanization phase, where population growth is either negligible or negative in many mid-sized cities, and where demographic aging is a dominant trend (e.g., Senbil and Yetiskul, 2022). Consequently, existing settlement areas can accommodate most of the anticipated demand, making further expansion both unnecessary and inefficient. The pressing challenge, therefore, is not how to manage outward urban growth, but how to retrofit and revitalize already built-up areas to align with sustainable, proximity-based planning principles. Despite this, existing USAs assume expansive urbanization trajectories, implicitly endorsing urban sprawl through land reserves that exceed actual development demands. This disconnect results in low-density, fragmented urban expansion incompatible with compact, walkable, and service-rich neighborhoods envisaged in the 15-minute city paradigm. A recalibration is urgently required—one that realigns USA definitions with principles of urban compactness, land efficiency, and proximity-based planning. These redefined USAs should reflect current and projected demographic realities, explicitly prioritizing retrofitting and densification within existing built-up areas rather than speculative outward growth.

Within these designated settlement areas, cities must be subdivided into Planning Zones (PZs) that become the primary units for implementing the 15-minute city paradigm. Each PZ should encompass a population size, urban footprint, and service threshold appropriate for the realization of temporal proximity goals—meaning that residents can access essential services, jobs, education, public spaces, and mobility options within a 15-minute walk or bike ride. These zones should not be conceptualized as static units but as dynamic, semi-autonomous neighborhoods with tailored retrofitting plans. As emphasized in Whittle (2024), each urban context requires flexible adaptation of the 15-minute framework; thus, zoning must allow for local specificities, historical development patterns, and community needs.

Operationalizing this framework demands that each Planning Zone be governed through an integrated tripartite approach encompassing planning, design, and infrastructure development. The planning component must involve the preparation of neighborhood-scale development plans that align land use with proximity metrics, prioritizing mixed-use development, densification, and functional integration. These plans must also be legally enforceable and nested within higher-scale municipal plans, ensuring vertical coherence across planning levels. According to Pozoukidou and Chatziyiannaki (2021), one of the most common pitfalls of 15-minute city initiatives lies in the failure to link morphological transformations with institutional change, thereby resulting in fragmented or tokenistic interventions.

The design element should focus on human-centered urban form—walkable block structures, interconnected street networks, well-distributed public spaces, and universal design principles. As Buliung (2024) warns, pedestrian-friendly designs are often undermined by micro-barriers that inhibit access for the elderly, disabled, or those with mobility impairments. Therefore, design standards must be informed by inclusive design guidelines and be co-produced with community input. Participatory design workshops, citizen audits, and tactical urbanism can all serve as tools to ground spatial transformation in local realities while maintaining alignment with 15-minute city principles.

Infrastructure development is the final and perhaps most capital-intensive pillar. Within each PZ, infrastructural upgrades must prioritize multimodal mobility, green and blue networks, and digital connectivity. In particular, neighborhood-level investments in public transit circulators, bike lanes, stormwater management, and renewable energy micro-grids can reinforce spatial resilience and sustainability. The findings of Olivari et al. (2023) through the Next Proximity Index (NEXI) show that accessibility must be both physical and qualitative, measuring not only distance but also frequency, diversity, and the usability of services. NEXI-like metrics should be institutionalized into municipal planning offices as diagnostic and monitoring tools.

Planning departments should be at the core of this effort, with new legislative mandates to conduct compulsory areal plans for each PZ. These units must be capacitated through professionalization policies—requiring that every municipality with more than 10,000 residents employ at least one certified planner, with an additional certified planner mandated for every subsequent 25,000 residents. According to data from the Turkish Statistical Institute, there are 664 such municipalities in Turkey exceeding this population threshold, indicating the wide-reaching implications and feasibility of such a policy framework. This approach fosters a neighborhood-level, holistic planning perspective, enabling municipalities to engage in detailed spatial analysis, proactive retrofitting, and integrated service delivery aligned with the principles of the 15-minute city. Furthermore, planning departments should operate as proactive coordinators, monitoring the consistency of planning, design, and infrastructure projects, and ensuring that all interventions are evaluated through the lens of proximity, accessibility, and inclusivity. As emphasized in the urban governance frameworks articulated by Pierre (2011) and Healey (2006), local institutional capacity is the linchpin of sustainable urban transformation. Without embedded, empowered, and well-resourced local planning units, even the most visionary reforms risk stalling at the level of rhetoric.

In addition to statutory enforcement, enabling mechanisms are essential to translate legal provisions into built reality. This includes fiscal incentives for mixed-use development, subsidies for adaptive reuse and infill housing, and technical assistance programs for small-scale developers and cooperatives. Drawing from the work of Jessop (2002), urban policy must be seen as a multi-level governance challenge, requiring coordination between local, regional, and national actors. Therefore, Turkey must adopt a planning governance model that incentivizes cross-sector collaboration, reduces bureaucratic inertia, and foregrounds place-based innovation. Moreover, Turkish planning legislation must recognize retrofitting—not greenfield development—as the core strategy for spatial transformation. Most mid-size cities are already largely built up, and meaningful 15-minute city implementation hinges on adapting existing neighborhoods rather than constructing new ones. Retrofits must include parcel reorganization, communal facility integration, and mobility recalibration, and should be guided by flexible but enforceable planning codes. These codes must mandate minimum service thresholds per PZ, specify mixed-use quotas, and enforce building design standards that enhance accessibility and reduce carbon footprints.

Turkey's new planning vision must also embed democratic and participatory practices. As Marquet et al. (2025) reveal, backlash against 15-minute city initiatives often stems from perceived top-down imposition and lack of transparency. To mitigate these risks, public deliberation should be embedded into the DNA of the

planning process, including participatory budgeting, neighborhood councils, and inclusive design charrettes. Only then can spatial proximity be translated into social proximity, nurturing the civic trust essential for long-term sustainability. To further elaborate on these strategies, it is critical to design monitoring frameworks with clear accountability lines and publicly accessible benchmarks. These systems must go beyond simple audits and incorporate layered data reporting mechanisms tied to annual municipal performance reviews. Legal instruments must be complemented with compliance indices that are transparently tracked through centralized digital dashboards, enabling civic oversight and targeted funding. International examples, such as France's Quartiers Prioritaires de la Politique de la Ville (QPV) and Spain's Barrios en Riesgo programs, show how legal precision, transparent criteria, and community involvement can mutually reinforce urban proximity planning. By studying Italy's use of NEXI in cities like Bologna, Turkish mid-sized cities can refine data granularity and develop tailored proximity indices. Applying these insights will support the translation of 15-minute planning concepts into localized and enforceable frameworks, while anchoring implementation in institutional learning and peer benchmarking across municipalities.

Conclusions

This study underscores that the 15-minute city paradigm, far from being merely a planning slogan or fleeting policy trend, represents a multidimensional and transformative framework that aligns with the specific conditions and evolving aspirations of mid-sized Turkish cities. Mid-sized cities in Turkey present unique opportunities to integrate the principles of proximity, accessibility, and equity, owing to their inherently compact urban forms, walkable neighborhood structures, and manageable urban scale. These settlements, while less burdened by the spatial complexities of large metropolitan regions, offer fertile ground for retrofitting urban spaces in line with the 15-minute city ideal. Yet, their planning potential remains underutilized due to fragmented governance, under-resourced local planning units, and a lack of participatory frameworks. Recognizing these characteristics, mid-sized cities could serve as pilot grounds for implementing neighborhood-based planning initiatives that prioritize short-distance access to key services and amenities. Moreover, their scale allows for more direct citizen engagement, enabling planners to co-create solutions in real-time with community members. Such localized and iterative approaches are essential for embedding the values of the 15-minute city in urban practice, especially in contexts where formal planning instruments often fail to capture everyday spatial and temporal needs.

However, these opportunities remain largely untapped in the face of rapidly increasing motorization, ineffective and underfunded public transit systems, and entrenched bureaucratic rigidity in planning procedures. A key challenge lies in the disjunction between spatial proximity—often achievable given the compactness of mid-sized cities—and actual operational accessibility, which is hindered by systemic inefficiencies and uneven resource distribution. This gap becomes more pronounced due to a planning regime that, while allowing for frequent plot-level changes, imposes significant legal and financial barriers to area-based transformations involving the reorganization of parcels, communal facilities, and shared infrastructure. Moreover, apart from interventions limited to the rehabilitation of informal housing areas, there is a conspicuous absence of institutional mechanisms or planning agencies capable of orchestrating neighborhood-scale retrofitting initiatives. Consequently, spatial inequalities persist, and the transformative potential of mid-sized cities to implement the 15-minute city paradigm remains unrealized, hindered by fragmented institutional support and the lack of cohesive planning mechanisms capable of executing neighborhood-scale, integrated interventions.

Through extensive engagement with contemporary literature and international best practices, the research highlights how the 15-minute city calls for a fundamental recalibration of urban planning and governance models in Turkey. Moreno (2024) and Pozoukidou and Chatziyiannaki (2021) frame the paradigm not only as a spatial design logic but also as a governance philosophy that values local autonomy, decentralized decision-making, and democratic inclusivity. These values are especially relevant in Turkish urban contexts, where top-down master planning and regulatory rigidity stifle innovation at the neighborhood scale. In this regard, the 15-minute city paradigm serves as both a corrective lens and a strategic tool for reframing Turkish urbanism toward a more human-scaled, temporally sensitive, and equity-centered model of development. It provides a much-needed counterbalance to the prevailing top-down, regulation-heavy planning approach, which often prioritizes standardized land use efficiency over everyday human experiences. By emphasizing the quality and immediacy of access to services within neighborhoods, the paradigm invites a restructuring of planning priorities around lived realities and localized needs.

Its implementation would encourage urban planning to shift from abstract, long-range projections to immediate, people-focused practices, thus embedding flexibility, inclusiveness, and responsiveness at the core of policy and spatial decision-making.

The research reinforces the imperative to redefine urban governance structures by aligning them with flexible planning tools, adaptive zoning frameworks, and area-based retrofitting strategies that can respond to localized socio-spatial dynamics. It proposes the formal subdivision of strictly demarcated urban settlement areas (USAs) into Planning Zones (PZs), each of which should operate as a semi-autonomous and self-sufficient neighborhood unit. The boundaries of USAs must be carefully defined and strictly enforced to prevent unplanned sprawl, which has long been fueled by inflated population projections and outdated assumptions of perpetual urban expansion. These expansive territorial designations—often inherited from the rapid urbanization era—no longer reflect current demographic trends, which show stagnation or decline in many mid-sized cities across Turkey. Therefore, spatial containment and urban compaction must underpin any attempt to retrofit urban areas for proximity-based living. Within these redefined and realistically bounded USAs, PZs must be governed through integrative processes that fuse spatial planning, urban design, and infrastructure development in a synergistic manner. The objective is to ensure that PZs function as complete urban habitats capable of fulfilling daily life needs—such as access to employment, education, healthcare, and recreation—within a short walking or cycling distance. Drawing on the Italian implementation of the Next Proximity Index (Olivari et al., 2023), which provides a scalable tool for evaluating proximity-based service delivery, and incorporating the “last millimeter” design considerations detailed by Buliung (2024), the study highlights the necessity for inclusive and accessible urban design. This must be supported by robust participatory planning mechanisms, dynamic data-driven monitoring systems, and iterative feedback loops that enable continuous refinement of interventions to match evolving community needs and preferences.

As Marquet et al. (2025) highlight, backlash and misinformation regarding the 15-minute city concept make participatory legitimacy crucial. Therefore, governance frameworks must be constructed not solely on legal mandates but on sustained civic engagement, transparency, and accountability. This necessitates an expanded role for professional city planners—not only as technical experts but as facilitators of community dialogue and co-design. Planners must be embedded in local governance structures with the mandate and capacity to engage residents, mediate conflicting interests, and translate proximity-based planning ideals into locally resonant strategies. Equally critical is capacity-building within municipal planning departments: municipalities must be legally required to employ professional planners at proportional scales to population, thereby fostering a neighborhood-level, holistic planning approach. This structural reform ensures that context-sensitive, neighborhood-scale plans are not only drafted with community input but also effectively implemented and monitored.

This study ultimately calls for a comprehensive and systemic transformation of Turkey's planning apparatus, one that is deeply rooted in democratic co-production, context-sensitive urban retrofitting, and a steadfast commitment to spatial justice. The entrenched rigidity of the current planning system must give way to mechanisms that facilitate adaptable, area-based strategies capable of responding to diverse neighborhood needs. Central to this transformation is the institutionalization of the core values of the 15-minute city—proximity, diversity, density, and ubiquity—within legal and procedural planning frameworks. These principles must be operationalized not as abstract ideals but as actionable criteria embedded in zoning regulations, design standards, and administrative practices. Only through such integrative and enforceable reforms can Turkish mid-sized cities evolve beyond mere functionality and efficiency, and become truly inclusive, resilient, and livable urban environments.

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