



Mixed-Use Urban Planning Strategies for Enhancing Livability in Rapidly Growing Cities

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Abstract

Rapid urbanization has intensified challenges related to infrastructure pressure, environmental degradation, and declining quality of life, necessitating innovative urban planning strategies to enhance livability. This study examines mixed-use urban planning strategies for improving livability in rapidly growing cities by integrating land-use diversity, accessibility, infrastructure efficiency, environmental quality, and social interaction. A mixed-methods approach combining spatial analysis, livability indicators, and statistical evaluation was adopted to assess different mixed-use development typologies. The results revealed that high mixed-use zones demonstrated superior performance across accessibility, infrastructure efficiency, environmental quality, and social livability indicators compared to moderate and low mixed-use zones. The composite livability index confirmed that integrated land-use planning significantly enhances urban performance and sustainability. The XY cluster plot demonstrated a strong positive relationship between mixed-use intensity and livability, while the heatmap highlighted consistent improvements across key indicators in high mixed-use zones. These findings emphasize that mixed-use urban planning reduces transportation dependency, improves environmental conditions, and promotes vibrant and inclusive urban environments. The study concludes that adopting mixed-use development strategies, flexible zoning policies, and integrated infrastructure planning can significantly enhance urban livability and support sustainable urban growth in rapidly expanding cities.

Keywords: Mixed-use development, urban livability, land-use diversity, urban planning, sustainable cities, accessibility, infrastructure efficiency

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Introduction

Rapid urban growth and emerging challenges to livability

Rapid urbanization has become one of the most defining characteristics of contemporary cities, leading to unprecedented spatial expansion, population concentration, and infrastructural pressure (Hussain & Imtiyaz, 2018). As cities grow rapidly, traditional planning approaches often struggle to accommodate increasing demands for housing, employment, transportation, and public services. This imbalance frequently results in urban sprawl, traffic congestion, environmental degradation, and declining quality of life (Manjunatha et al., 2019). Consequently, enhancing livability in rapidly growing cities has emerged as a central goal of urban planning. Livability encompasses various dimensions, including accessibility, safety, environmental quality, economic opportunities, and social well-being. However, fragmented land-use planning and mono-functional zoning systems often undermine these goals by separating residential, commercial, and institutional areas, thereby increasing dependency on transportation and limiting social interaction (AlWaer & Cooper, 2023).

Limitations of conventional single-use zoning approaches

Conventional zoning policies have historically emphasized the separation of land uses to manage urban growth efficiently. While such approaches were initially effective in addressing industrial pollution and overcrowding, they have increasingly revealed significant limitations in modern urban contexts (Kumar

et al., 2017). Single-use zoning contributes to longer commuting distances, inefficient infrastructure utilization, and reduced walkability. Moreover, segregated land-use patterns often create inactive urban spaces during certain times of the day, leading to reduced safety and diminished community engagement (Su et al., 2017). These challenges are particularly pronounced in rapidly expanding cities where population density and land scarcity demand more efficient and integrated planning solutions (Gomes, 2020). As a result, planners and policymakers are increasingly reconsidering traditional zoning frameworks in favor of more flexible and adaptive urban development models (Birkmann et al., 2014).

Mixed-use development as a sustainable planning strategy

Mixed-use urban planning has emerged as a promising strategy for addressing the limitations of conventional planning approaches. By integrating residential, commercial, institutional, and recreational functions within compact urban spaces, mixed-use development promotes efficient land utilization and enhances accessibility (Vorontsova et al., 2016). This approach encourages walkability, reduces dependence on private vehicles, and supports public transportation systems. Additionally, mixed-use environments foster vibrant public spaces, promote social interaction, and contribute to economic vitality by supporting local businesses and employment opportunities (Mouratidis & Poortinga, 2020). The integration of diverse functions within a single development also enhances safety by ensuring continuous activity throughout the day and night. These advantages make mixed-use planning particularly relevant for rapidly growing cities seeking to balance development with livability goals (Moos et al., 2018).

The role of mixed-use planning in enhancing urban livability

Urban livability is closely linked to the availability of essential services, accessibility to employment, and quality public spaces. Mixed-use planning addresses these factors by creating neighborhoods where residents can live, work, and access amenities within close proximity (Kausar et al., 2024). Such environments promote active lifestyles, reduce travel time, and enhance overall well-being. Furthermore, mixed-use developments contribute to environmental sustainability by minimizing urban sprawl and encouraging compact growth patterns (Sanches et al., 2021). The integration of green spaces, pedestrian pathways, and shared infrastructure further enhances the quality of urban environments (Karndacharuk et al., 2014). In addition, mixed-use planning supports inclusive development by accommodating diverse social and economic groups, thereby fostering equitable urban growth.

Technological and policy innovations supporting mixed-use strategies

Recent advancements in urban planning technologies and policy frameworks have further strengthened the implementation of mixed-use development strategies. Geographic Information Systems (GIS), urban simulation tools, and data-driven planning approaches enable planners to assess land-use patterns, infrastructure capacity, and demographic trends more effectively (Attah et al., 2024). Additionally, flexible zoning regulations, incentive-based planning policies, and public-private partnerships have facilitated the adoption of mixed-use developments (Homsy & Kang, 2023). These innovations allow cities to respond dynamically to changing urban demands while maintaining sustainable growth patterns. Moreover, integrated planning approaches that combine transportation, housing, and economic development strategies contribute to more cohesive and resilient urban systems (Sharifi & Yamagata, 2018).

The need for strategic frameworks in rapidly growing cities

Despite the growing recognition of mixed-use planning benefits, the implementation of such strategies requires well-defined planning frameworks and context-specific approaches. Rapidly growing cities often face challenges such as inadequate infrastructure, regulatory constraints, and limited institutional capacity. Therefore, identifying effective mixed-use planning strategies is essential for achieving sustainable and livable urban environments. This study aims to explore mixed-use urban planning strategies that enhance livability by examining spatial integration, accessibility, infrastructure efficiency, and environmental sustainability. By analyzing these factors, the research seeks to contribute to the development of comprehensive planning approaches that support resilient and livable urban futures.

Methodology

Research design and analytical framework

This study adopted a mixed-methods research design integrating quantitative spatial analysis with qualitative urban planning assessment to evaluate mixed-use urban planning strategies for enhancing livability in rapidly growing cities. The analytical framework was structured to examine relationships between land-use diversity, accessibility, infrastructure efficiency, environmental quality, and overall urban livability. The research combined spatial indicators, socio-economic parameters, and environmental variables to develop a comprehensive understanding of mixed-use development impacts. The framework also incorporated multi-dimensional livability indicators to assess how mixed-use planning contributes to improved urban environments. The methodological approach included data collection, variable selection, indicator development, spatial analysis, statistical evaluation, and comparative assessment.

Selection of study units and sampling strategy

The study adopted a stratified sampling approach to select urban zones representing different levels of mixed-use development intensity. Urban areas were categorized into three primary development typologies: high mixed-use zones, moderate mixed-use zones, and low mixed-use zones. Within each category, multiple urban districts were selected based on population density, land-use distribution, infrastructure availability, and growth patterns. Sampling units included residential blocks, commercial corridors, transit-oriented zones, and mixed-use neighborhoods. A total of 30 sampling units were selected across the development typologies to ensure representation of diverse urban conditions. The sampling strategy allowed for comparative analysis of mixed-use development effectiveness across different urban contexts.

Identification of variables and livability indicators

The study incorporated multiple variables categorized into five major dimensions: land-use diversity, accessibility, infrastructure efficiency, environmental quality, and social livability. Land-use diversity variables included residential density, commercial density, institutional presence, recreational space availability, and mixed-use index. Accessibility variables comprised walkability index, public transport availability, travel distance to essential services, and street connectivity. Infrastructure efficiency parameters included road network density, utility service availability, public facility distribution, and service coverage efficiency. Environmental quality indicators included green space ratio, air quality index, noise level, and urban heat island intensity. Social livability variables included population density balance, social interaction spaces, safety index, and economic activity intensity.

Data collection and measurement techniques

Data were collected using a combination of primary and secondary sources. Primary data included field surveys, observational assessments, and stakeholder interviews. Structured survey questionnaires were used to collect responses related to accessibility, infrastructure satisfaction, and perceived livability. Observational data were recorded to measure pedestrian activity, land-use distribution, and public space utilization. Secondary data sources included urban planning documents, land-use maps, transportation data, and environmental monitoring reports. Geographic Information System (GIS) tools were used to map spatial variables such as land-use diversity, accessibility, and infrastructure distribution. Measurement scales were standardized to ensure consistency across all sampling units.

Development of mixed-use index and livability index

A composite mixed-use index was developed to quantify land-use integration within each sampling unit. The index was calculated using weighted values of residential, commercial, institutional, and recreational land-use proportions. Similarly, a livability index was developed by integrating accessibility, environmental quality, infrastructure efficiency, and social indicators. Each variable was normalized using a standardized scoring system ranging from 0 to 100. Weightage was assigned to each dimension

based on relevance to urban livability. The composite indices allowed for comparative evaluation of mixed-use development effectiveness across different urban zones.

Spatial analysis and mapping procedures

Spatial analysis was conducted using GIS-based techniques to assess land-use distribution, connectivity patterns, and infrastructure accessibility. Buffer analysis was performed to measure accessibility to essential services such as healthcare, education, and commercial facilities. Network analysis was used to evaluate road connectivity and walkability. Land-use diversity maps were generated to visualize mixed-use intensity across sampling units. Heat maps were developed to identify areas with high and low livability scores. Spatial clustering techniques were used to categorize urban zones based on mixed-use characteristics and livability outcomes.

Statistical analysis and modeling approach

Statistical analysis was conducted to examine relationships between mixed-use planning variables and livability indicators. Descriptive statistics were used to summarize data patterns across sampling units. Correlation analysis was conducted to evaluate relationships between land-use diversity and livability parameters. Multiple regression analysis was performed to identify key predictors of urban livability. Principal Component Analysis (PCA) was applied to reduce dimensionality and identify dominant variables influencing livability outcomes. Cluster analysis was conducted to group urban zones based on mixed-use characteristics and livability performance.

Comparative assessment and validation procedures

Comparative analysis was conducted across different mixed-use typologies to evaluate performance differences. Urban zones were compared based on mixed-use index values, accessibility scores, and livability indicators. Sensitivity analysis was conducted to assess the impact of variable weighting on index results. Validation was performed using stakeholder feedback and cross-verification of spatial data. The methodological framework ensured robust evaluation of mixed-use urban planning strategies and provided reliable insights into enhancing livability in rapidly growing cities.

Results

The analysis of mixed-use development characteristics revealed substantial variation across different urban typologies (Table 1). High mixed-use zones recorded the highest land-use diversity index (0.82), along with balanced residential (78%), commercial (72%), and institutional (68%) distribution. These areas also exhibited higher recreational space availability (21%) and achieved the highest mixed-use index value (80.5). In contrast, moderate mixed-use zones demonstrated moderate land-use integration with a mixed-use index of 61.2, while low mixed-use zones showed fragmented land-use distribution with significantly lower commercial and institutional availability. These findings indicate that higher levels of land-use integration are associated with improved spatial balance and urban functionality.

Table 1. Mixed-use development characteristics across urban typologies

Urban Typology	Land-use Diversity Index	Residential Density	Commercial Density	Institutional Availability	Recreational Space (%)	Mixed-use Index
High Mixed-use Zone	0.82	78	72	68	21	80.5
Moderate Mixed-use Zone	0.61	65	54	49	16	61.2
Low Mixed-use Zone	0.38	52	31	28	10	39.8

Accessibility and infrastructure indicators varied significantly across mixed-use typologies (Table 2). High mixed-use zones recorded the highest walkability index (82), public transport accessibility (79), and road connectivity (76). Service accessibility also remained highest in these zones, resulting in an overall infrastructure efficiency score of 79.5. Moderate mixed-use zones demonstrated intermediate values, while low mixed-use zones exhibited limited accessibility and connectivity. These results suggest that integrated land-use planning contributes to improved transportation efficiency and accessibility to essential services.

Table 2. Accessibility and infrastructure efficiency indicators

Urban Typology	Walkability Index	Public Transport Accessibility	Road Connectivity	Service Accessibility	Infrastructure Efficiency Score
High Mixed-use Zone	82	79	76	81	79.5
Moderate Mixed-use Zone	66	61	64	62	63.3
Low Mixed-use Zone	45	41	48	43	44.3

Environmental and social indicators further supported the benefits of mixed-use planning (Table 3). High mixed-use zones recorded higher green space ratios (24%), improved air quality scores (78), and reduced noise levels (72). Social interaction and safety indices were also highest in high mixed-use zones, indicating vibrant and secure urban environments. Moderate mixed-use zones showed moderate environmental and social performance, whereas low mixed-use zones demonstrated limited green spaces, lower air quality scores, and reduced social interaction levels. These findings highlight the positive influence of mixed-use planning on environmental sustainability and social cohesion.

Table 3. Environmental and social livability indicators

Urban Typology	Green Space Ratio (%)	Air Quality Score	Noise Reduction Score	Social Interaction Index	Safety Index
High Mixed-use Zone	24	78	72	81	76
Moderate Mixed-use Zone	17	65	61	66	63
Low Mixed-use Zone	10	52	48	49	46

The composite livability index demonstrated clear differences among urban typologies (Table 4). High mixed-use zones achieved the highest livability index (78.2), followed by moderate mixed-use zones (62.5) and low mixed-use zones (45.0). The results indicate that mixed-use planning significantly enhances urban livability by improving accessibility, infrastructure efficiency, environmental quality, and

social interaction. These findings confirm that integrated land-use development plays a critical role in enhancing urban environments.

Table 4. Overall livability index across mixed-use typologies

Urban Typology	Land-use Score	Accessibility Score	Infrastructure Score	Environmental Score	Social Score	Livability Index
High Mixed-use Zone	80.5	79.5	77.8	74.5	78.5	78.2
Moderate Mixed-use Zone	61.2	63.3	62.5	61.0	64.5	62.5
Low Mixed-use Zone	39.8	44.3	45.2	48.2	47.5	45.0

The XY cluster plot further illustrated the relationship between mixed-use intensity and urban livability (Figure 1). The plot revealed three distinct clusters representing high, moderate, and low mixed-use zones. High mixed-use zones formed a cluster with higher livability scores, while moderate mixed-use zones occupied intermediate positions. Low mixed-use zones were clustered at the lower end of both mixed-use and livability indices. The clustering pattern demonstrated a strong positive relationship between mixed-use development and urban livability.

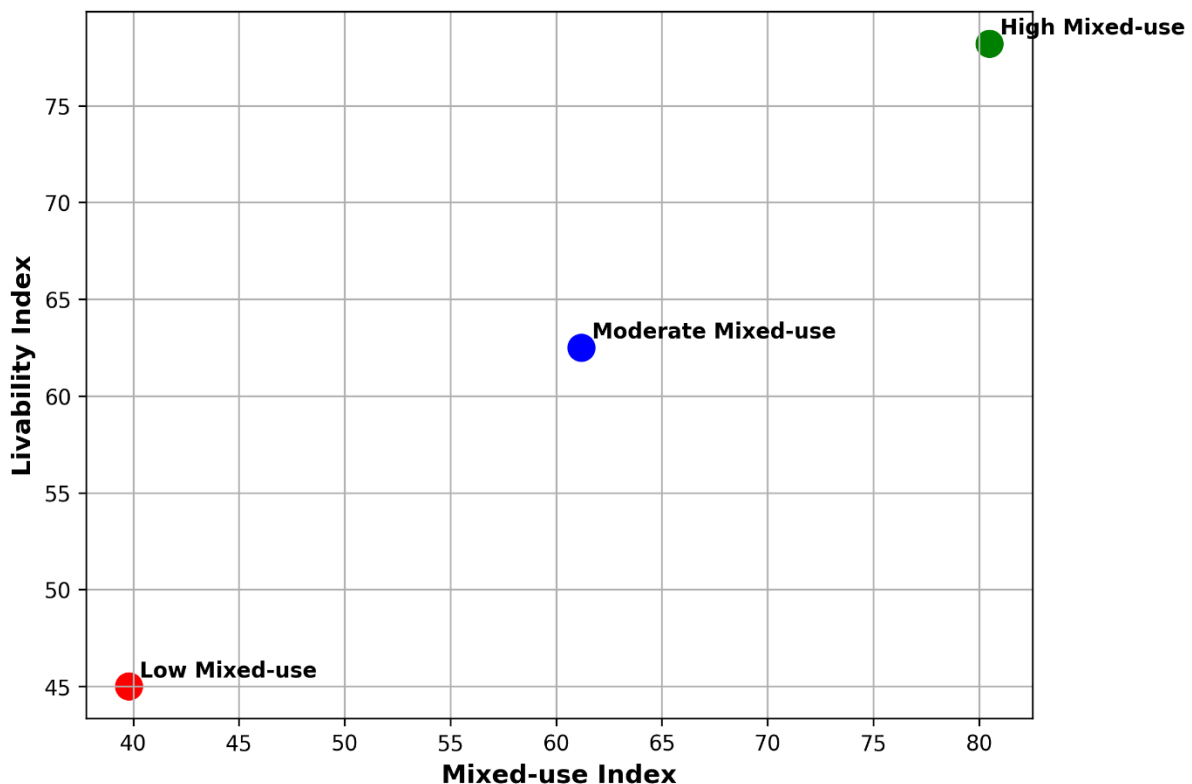


Figure 1. XY Cluster Plot showing mixed-use development and livability relationship

The heatmap visualization highlighted the performance of different livability indicators across mixed-use typologies (Figure 2). High mixed-use zones showed consistently higher values across land-use diversity, accessibility, infrastructure, environmental quality, and social livability indicators. Moderate mixed-use

zones displayed intermediate performance, while low mixed-use zones showed limited performance across all indicators. The heatmap further confirmed that mixed-use planning strategies contribute significantly to enhancing overall urban livability.

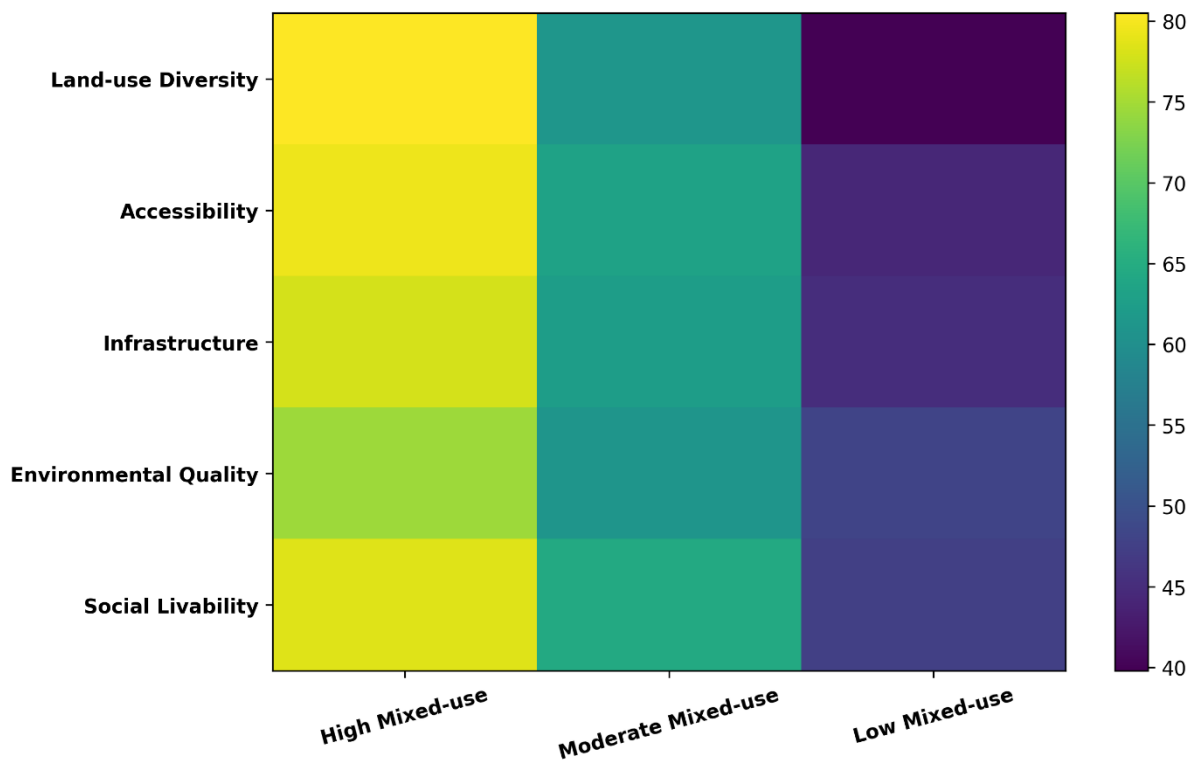


Figure 2. Heatmap showing urban livability indicators across mixed-use zones

Discussion

Mixed-use planning improves urban livability outcomes

The findings of this study demonstrate that mixed-use urban planning plays a significant role in enhancing urban livability. The results revealed that high mixed-use zones achieved the highest livability index, outperforming moderate and low mixed-use zones (Table 4). These findings indicate that integrating residential, commercial, institutional, and recreational functions within compact urban areas contributes to improved urban performance (Wang et al., 2018). The positive relationship between mixed-use intensity and livability, as illustrated in Figure 1, further confirms that urban areas with higher land-use diversity tend to offer better accessibility, infrastructure efficiency, and environmental quality. These results align with contemporary urban planning theories that emphasize compact and integrated development as key strategies for sustainable urban growth. Mixed-use planning reduces urban fragmentation and promotes efficient land utilization, which ultimately enhances overall urban livability (Raman & Roy, 2019).

Land-use diversity enhances accessibility and infrastructure efficiency

The results showed that high mixed-use zones recorded significantly higher accessibility and infrastructure efficiency scores compared to moderate and low mixed-use zones (Table 2). These findings suggest that mixed-use planning reduces travel distances and improves accessibility to essential services. The improved walkability index and public transport accessibility observed in high mixed-use zones indicate that integrated land-use development supports efficient transportation systems (Hendrigan & Newman, 2017). In contrast, low mixed-use zones demonstrated limited connectivity and reduced accessibility, highlighting the challenges associated with single-use zoning approaches. These findings suggest that integrating land-use functions can reduce transportation dependency and improve mobility

within urban areas (Nigro et al., 2019). Furthermore, improved infrastructure efficiency in high mixed-use zones indicates that compact development patterns enable better utilization of urban infrastructure, thereby reducing operational costs and enhancing service delivery.

Environmental quality benefits of mixed-use development

The study also highlighted the environmental advantages of mixed-use planning. High mixed-use zones exhibited higher green space ratios, improved air quality, and reduced noise levels (Table 3). These findings suggest that mixed-use development supports environmentally sustainable urban growth by minimizing urban sprawl and promoting compact development. The improved environmental performance observed in mixed-use zones may be attributed to reduced commuting distances and increased walkability (Kim et al., 2020). Additionally, the integration of green spaces within mixed-use developments contributes to improved microclimatic conditions and enhanced environmental quality. The heatmap visualization (Figure 2) further demonstrated that high mixed-use zones consistently performed better across environmental indicators. These findings emphasize the importance of incorporating environmental considerations into mixed-use planning strategies (Hachem-Vermette & Grewal, 2019).

Social interaction and community vibrancy in mixed-use environments

Social livability indicators also improved significantly in high mixed-use zones. The results indicated higher social interaction indices and improved safety levels in mixed-use areas (Table 3). These findings suggest that mixed-use development promotes vibrant and active urban environments. Continuous activity throughout the day in mixed-use areas enhances safety and encourages community engagement (Wesley & Ainsworth, 2018). In contrast, low mixed-use zones exhibited limited social interaction and lower safety indices, indicating that segregated land-use patterns may reduce community vibrancy. The integration of residential and commercial activities in mixed-use developments creates opportunities for social interaction and strengthens community cohesion (Salami et al., 2021). These findings highlight the role of mixed-use planning in fostering socially inclusive urban environments.

Spatial integration and clustering patterns

The clustering pattern observed in Figure 1 indicates a strong association between mixed-use intensity and livability performance. High mixed-use zones formed a distinct cluster with higher livability scores, suggesting that integrated land-use development significantly influences urban performance (Dong & Zhang, 2022). Moderate mixed-use zones showed intermediate performance, indicating that partial integration may provide some benefits but may not fully optimize urban livability. The spatial patterns observed in Figure 2 further support these findings, as high mixed-use zones consistently performed better across multiple indicators. These results suggest that comprehensive mixed-use planning strategies are necessary to achieve maximum livability outcomes (Moos et al., 2018).

Implications for urban planning strategies

The findings of this study have significant implications for urban planning and policy development. Mixed-use planning strategies should be prioritized in rapidly growing cities to enhance livability and sustainability. Urban planners should promote compact development patterns, improve connectivity, and integrate green spaces within mixed-use developments. Additionally, flexible zoning policies and integrated planning frameworks can support the implementation of mixed-use strategies. The results also highlight the importance of data-driven planning approaches to evaluate urban performance and guide development decisions. By adopting mixed-use planning strategies, cities can achieve improved livability, sustainability, and resilience in the face of rapid urbanization.

Conclusion

This study demonstrates that mixed-use urban planning strategies play a critical role in enhancing livability in rapidly growing cities by promoting land-use integration, improving accessibility, strengthening infrastructure efficiency, and enhancing environmental and social conditions. The results

revealed that high mixed-use zones consistently outperformed moderate and low mixed-use zones across key livability indicators, including accessibility, environmental quality, and social interaction, as reflected in Tables 1–4 and Figures 1–2. The positive relationship between mixed-use intensity and livability further highlights the importance of compact and integrated urban development. Additionally, mixed-use planning contributes to reduced transportation dependency, improved public spaces, and increased community engagement, thereby fostering sustainable urban growth. These findings emphasize that adopting mixed-use planning frameworks, flexible zoning regulations, and integrated infrastructure strategies can significantly improve urban environments. Overall, mixed-use urban planning emerges as a practical and sustainable approach for addressing the challenges of rapid urbanization while enhancing the quality of life and long-term resilience of cities.

References

1. AlWaer, H., & Cooper, I. (2023). Unpacking the concept of 20-minute neighbourhoods: disentangling “desired outcomes” from the “means” available for achieving them. *Open House International*, 48(4), 704-728.
2. Attah, R. U., Gil-Ozoudeh, I., Garba, B. M. P., & Iwuanyanwu, O. (2024). Leveraging geographic information systems and data analytics for enhanced public sector decision-making and urban planning. *Magna Sci Adv Res Rev*, 12(2), 152-63.
3. Birkmann, J., Garschagen, M., & Setiadi, N. (2014). New challenges for adaptive urban governance in highly dynamic environments: Revisiting planning systems and tools for adaptive and strategic planning. *Urban Climate*, 7, 115-133.
4. Dong, L., & Zhang, L. (2022). Spatial coupling coordination evaluation of mixed land use and urban vitality in major cities in China. *International Journal of Environmental Research and Public Health*, 19(23), 15586.
5. Gomes, E. (2020). Sustainable population growth in low-density areas in a new technological era: Prospective thinking on how to support planning policies using complex spatial models. *Land*, 9(7), 221.
6. Hachem-Vermette, C., & Grewal, K. S. (2019). Investigation of the impact of residential mixture on energy and environmental performance of mixed use neighborhoods. *Applied Energy*, 241, 362-379.
7. Hendrigan, C., & Newman, P. (2017). Dense, mixed-use, walkable urban precinct to support sustainable transport or vice versa? A model for consideration from Perth, Western Australia. *International journal of sustainable transportation*, 11(1), 11-19.
8. Homsy, G. C., & Kang, K. E. (2023). Zoning incentives: Exploring a market-based land use planning tool. *Journal of the American Planning Association*, 89(1), 61-71.
9. Hussain, M., & Imitiyaz, I. (2018). Urbanization concepts, dimensions and factors. *International Journal of Recent Scientific Research*, 9(1), 23513-23523.
10. Karndacharuk, A., Wilson, D. J., & Dunn, R. (2014). A review of the evolution of shared (street) space concepts in urban environments. *Transport reviews*, 34(2), 190-220.
11. Kausar, A., Zubair, S., Sohail, H., Anwar, M. M., Aziz, A., Vambol, S., ... & Khan, O. I. (2024). Evaluating the challenges and impacts of mixed-use neighborhoods on urban planning: an empirical study of a megacity, Karachi, Pakistan. *Discover Sustainability*, 5(1), 24.
12. Kim, E. J., Kim, J., & Kim, H. (2020). Does environmental walkability matter? The role of walkable environment in active commuting. *International journal of environmental research and public health*, 17(4), 1261.
13. Kumar, M., Gogoi, A., Kumari, D., Borah, R., Das, P., Mazumder, P., & Tyagi, V. K. (2017). Review of perspective, problems, challenges, and future scenario of metal contamination in the urban environment. *Journal of Hazardous, Toxic, and Radioactive Waste*, 21(4), 04017007.
14. Manjunatha, C. S., Chandrashekar, J. S., & Chandrashekhara, B. (2019). An overview of multidimensional drivers and adverse impacts of urban sprawl. *Environment and We International Journal of Science and Technology*, 14, 77-87.

15. Moos, M., Vinodrai, T., Revington, N., & Seasons, M. (2018). Planning for mixed use: affordable for whom?. *Journal of the American Planning Association*, 84(1), 7-20.
16. Mouratidis, K., & Poortinga, W. (2020). Built environment, urban vitality and social cohesion: Do vibrant neighborhoods foster strong communities?. *Landscape and urban planning*, 204, 103951.
17. Nigro, A., Bertolini, L., & Moccia, F. D. (2019). Land use and public transport integration in small cities and towns: Assessment methodology and application. *Journal of Transport Geography*, 74, 110-124.
18. Raman, R., & Roy, U. K. (2019). Taxonomy of urban mixed land use planning. *Land Use Policy*, 88, 104102.
19. Salami, S. F., Isah, A. D., & Muhammad, I. B. (2021). Critical indicators of sustainability for mixed-use buildings in Lagos, Nigeria. *Environmental and Sustainability Indicators*, 9, 100101.
20. Sanches, P., Lemes de Oliveira, F., & Celani, G. (2021). Green and compact: A spatial planning model for knowledge-based urban development in peri-urban areas. *Sustainability*, 13(23), 13365.
21. Sharifi, A., & Yamagata, Y. (2018). Resilience-oriented urban planning. In *Resilience-oriented urban planning: theoretical and empirical insights* (pp. 3-27). Cham: Springer International Publishing.
22. Su, S., Pi, J., Xie, H., Cai, Z., & Weng, M. (2017). Community deprivation, walkability, and public health: Highlighting the social inequalities in land use planning for health promotion. *Land Use Policy*, 67, 315-326.
23. Vorontsova, A. V., Vorontsova, V. L., & Salimgareev, D. V. (2016). The development of urban areas and spaces with the mixed functional use. *Procedia Engineering*, 150, 1996-2000.
24. Wang, Y., Shaw, D., & Yuan, K. (2018). Gated neighborhoods, privatized amenities and fragmented society: Evidence from residential experience and implications for urban planning. *Sustainability*, 10(11), 4301.
25. Wesley, J. M., & Ainsworth, E. L. (2018). Creating communities of choice: Stakeholder participation in community planning. *Societies*, 8(3), 73.