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Enhancing Housing Development Guidelines for Sustainable Growth: A Proposal for Contextual Density Planning

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ABSTRACT

Housing, considered a fundamental human right, underscores a nation's obligation to furnish adequate living accommodations for its citizens. This study focuses on Malaysia's housing industry, tracing its growth over the past millennium, with a significant surge since gaining independence in 1957. As Kuala Lumpur and its environs undergo substantial development, evolving regulatory frameworks aim to efficiently plan these expansions for the burgeoning local population. At the heart of this discourse is the concept of density, signifying the allowable number of accommodation units within a specified area. While current metrics like units per acre (u.p.a) and persons per acre (p.p.a) effectively guide development guidelines, they often fall short in considering existing facilities in the vicinity and responsiveness to immediate surroundings. This paper proposes a paradigm shift by advocating for development guidelines that encompass facilities within a 500-meter radius of the proposed site using the exploratory research design method to acquire an understanding of a complex issue in its real-life context. Building on decades of housing industry development, the paper identifies opportunities to enhance and optimize housing facility quality and user satisfaction. The proposed contextual density planning seeks to minimize redundancy and enhance efficiency by incorporating facilities within a 500-meter radius into development guidelines. Contributing to the discourse on sustainable urban development, this paper advocates for a more nuanced approach aligning housing projects with existing socio-cultural and physical contexts. By considering the broader environment, the proposed conceptual guidelines aim to foster more efficient, sustainable, and contextually relevant housing developments, thereby positively impacting both the industry and its stakeholders.

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1. Introduction

The provision of adequate housing is fundamental to fulfilling the basic human need for shelter and security. According to Reed and Sims, [30], variations in climate, weather, criminality, government policy, land availability, and construction materials differ between locations and affect the suitability of housing. Governments worldwide recognize housing as a cornerstone of well-being, with initiatives aimed at ensuring universal access to suitable accommodations. The National Housing Department emphasizes housing as a necessity and underscores the government's commitment to ensuring that all citizens have access to appropriate housing options.

Housing development is crucial for enhancing the quality of life globally. Adequate housing not only provides shelter but also contributes to social stability, economic development, and community well-being. In Malaysia, the demand for housing has surged alongside the country's development, particularly in urban areas where commercial activities are concentrated. This demand has driven the expansion of high-density strata housing, initially in urban centers and later extending into suburban areas. However, this rapid development has often been carried out in isolation, neglecting existing facilities and amenities within a 500-meter radius, resulting in duplication and underutilization. Addressing housing challenges, particularly in the context of high-density strata housing, requires a holistic approach that considers factors such as density, affordability, quality, accessibility, and the broader socio-economic context. Optimizing existing facilities and emphasizing sustainable development will help create inclusive and vibrant communities.

1.1 Density in City Planning

When it comes to city planning, density plays a pivotal role in the contemporary planning and development of residential buildings. Local authorities, planning agencies, and departments utilize density as a crucial metric to regulate, assess, and authorize development projects. Density refers to the number of people living in a certain area and how buildings are used, measured through various components related to residents and housing. Developers and landowners consistently strive for increased densities to ensure satisfactory returns and profitability from their land investments. However, public perception often aligns with conventional beliefs regarding suitable densities, where anything surpassing 'low density' is commonly perceived as excessively dense.

Residential density plays a crucial role in fostering social sustainability and contributes positively to the provision of local services and facilities. The degree of sustainability varies across cities, with density representing one of the key factors shaping urban landscapes, as evidenced by numerous studies. Density is one of the most readily quantifiable aspects of urban appearance, observable at both the macro (urban) and micro (neighborhood) levels.

As cities grow and land becomes scarce, they increasingly turn to vertical development rather than horizontal expansion, especially for housing. The correlation between density and development viability is particularly pronounced in urban areas where land prices and housing demand are both high. This trend hinges on the need to maximize density. With more people living in cities, the density of residential areas becomes crucial in planning. Awad, [5] stated that researchers have extensively studied this, examining factors such as size and time. While size is a straightforward measurement—comprising length, width, and height—he further emphasized that time depends on factors like socio-economics, environment, and governance.

Sivam *et al.,* [34] elucidated that residential density is a frequently utilized concept in planning practice. While the concept of density policy is generally understood, its perception and application vary across different regions of the world. In Kuala Lumpur, the Kuala Lumpur Structure Plan 2020 serves as the primary reference for determining residential density. It outlines the permissible residential density based on several stipulations, including: (i) regulating and preserving the site's shape and construction, (ii) preserving and harmonizing with the surrounding area's character, (iii) managing an appropriate balance between residents and existing or planned facilities and infrastructure

in the area, (iv) regulating and managing development security and population levels in areas prone to geotechnical risks, (v) promoting population growth to bolster urban services like public transportation, local commerce, and community amenities, and (vi) providing diverse types of residential buildings to cater to the needs of residents and future urban communities.

The dissatisfaction arising from the growth of high-rise residences, driven by population growth and increasing residential density, constitutes a significant portion of urban challenges. These findings highlight the complexity of density issues, echoing Husin, *et al.,* [15] assertion that density presents a multifaceted challenge. The research delves into the intricacies of urban life patterns, which are often misconstrued or misapplied. While residential density isn't directly correlated with specific building types, it serves as a measure of the concentration of people within an area, shaping social interactions, activities, and urban functionality. Additionally, according to Boyko *et al.,* [7], erroneous density assessments can lead to inefficiencies within cities, resulting in lifeless neighborhoods and the misallocation of valuable resources to address associated problems . This is supported by Chen [10], who emphasizes that high-density urban living can lead to increased housing prices and income disparity, ultimately diminishing community satisfaction and quality of life.

1.2 Strata Development and Housing Policies

The need for housing in Malaysia is expected to increase remarkably due to rapid growth in population, interstate migration, changing economic status of citizens, changing tastes, and the dilapidation of the existing housing stock. In 2024, the Malaysian population is estimated at 34.7 million people. However, land becoming scarce and costs rising to meet demands, urbanization in Malaysia has fueled the rapid development of strata buildings.

Strata housing, which includes apartments and condominiums, has emerged as a key solution to address the challenges of land scarcity and high population density in urban areas. The concept of 'strata' was legally introduced in Malaysia in 1985 in response to the rapid urbanization and growth of multi-storey buildings in major cities. As noted by Reena [31], 'strata properties' refer to developments where individual lots, or parcels, are carved out from a building or land. Over the years, strata development schemes have recorded a steady increase. Khalid *et al.*, [19] further stress that stratified property development maximizes density within allowable planning standards. The construction of strata buildings in urban cities such as Kuala Lumpur, Pulau Pinang, and Johor Bahru is driven by the scarcity of land and high land costs, as pointed out by Zan *et al.* [44]. Given the increasing number of stratified buildings in urban development, the concept of urban consolidation aids in understanding strata developments as an effective way of managing increasing urban populations and combating urban sprawl, as discussed by Randolph and Easthope [28].

As one of the Asian countries, Malaysia has a significantly higher proportion of homeowners compared to Western countries, reflecting its aspiration to become a home-owning society. According to Siti Hajar [33], Malaysia is recognized for having both comprehensive and residual housing policies. The government prioritizes housing and community facilities, which indirectly improve the quality of life and contribute to the development of civilization. This governmental role in housing development is evident through policy formulation and the implementation of various housing strategies. A notable policy is the National Housing Policy (NHP), which provides guidelines for planning and developing the housing sector. The NHP was initiated in the 1960s. Idrus and Siong [16] reviewed Malaysia's housing policies, categorizing them into three periods: pre-1970s, 1970s to 1990s, and post-1990s (Figure 1). These plans include the introduction of numerous housing programs and schemes specifically targeted at lower and middle-income groups, as highlighted by Yaacob *et al*., [39].

Year	Policy	Highlighting on Housing Policy
Before 1957	Colonial	Housing Trust and quarters.
1961-1970	2nd Malaya Plan	Democratic housing ownership and squatters.
1966-1970	1st Malaysia Plan	Low cost and public housing.
1971-1975	NEP – 2nd Malaysia Plan	Urbanization, industrialization, public housing estate, SEDC, UDA, FELDA and SPPK.
1976-1980	3rd Malaysia Plan	National Housing Council 1980. Low cost housing, FELDA, quarters.
1981-1985	4th Malaysia Plan	Low cost, medium and high – public and private price, qualification, type, design.
1986-1990	5th Malaysia Plan	Population settlement concept, infrastructure and public amenities for public unity.
1991-1995	6th Malaysia Plan	Malaysian privatization and incorporated concepts in housing construction such as low cost.
1996-2000	7th Malaysia Plan	National Housing Company – RM 2 billion and CIDB, smart partnership and housing.
2001-2004	8th Malaysia Plan	Integrated National Housing Policy. Government – Low cost housing. Private – Medium low, medium and high cost housing Target achievement zero squatter.
2006- 2010	9th Malaysia Plan	Improving the quality of houses. Ensure the sufficient quality of affordable houses. Enforcement on Program Perumahan Rakyat.
2011-2015	10th Malaysia Plan	Provide 78,000 affordable houses and friendly housing environment.
2016-2020	11th Malaysia Plan	Provide quality and sufficient affordable housing from poor to middle income households

Fig 1: The Malaysian Housing Plans spanning from the 1950s to the 2020s

The 12th Malaysian Housing Plan (2021-2025) underscores the government's commitment to fostering inclusive urban and regional development, aligning with the broader goals of *Wawasan Kemakmuran Bersama* 2030. Central to this plan is the emphasis on well-being, inclusivity, sustainability, and connectivity, which are essential for creating balanced growth and promoting environmental sustainability. By integrating these principles into strata development and housing policies, Malaysia is poised to advance toward a future that prioritizes the prosperity and well-being of all its citizens.

1.3 Issues in Strata Housing

Addressing the issues in strata housing requires a multifaceted approach. This includes the effective management and maintenance of shared facilities, the development of robust governance structures, and comprehensive urban planning. By tackling these challenges, strata housing can provide a viable solution for accommodating urban growth while ensuring a high quality of life for all residents.

In Malaysia's major cities, there has been significant growth in the development of elevated building structures, such as multi-story apartments, reflecting the increasing demand for above-ground space, as noted by Zubedy [45]. Consequently, living in stratified properties has become a prevalent lifestyle, particularly in urban areas. Strata housing, while crucial for optimizing land use in densely populated cities, presents unique challenges that must be addressed to ensure sustainable and equitable urban growth. With the growing demand, the rate of residents living in strata buildings is expected to continue increasing, as highlighted by Mohd Nor *et al*. [20]. However, this growth brings several challenges, particularly in the management and maintenance of shared facilities.

Shared facilities, such as recreational areas, security systems, and common spaces, require effective management to ensure their longevity and functionality. The financial burden of maintaining these facilities falls on residents through maintenance fees. Governance is another critical issue in strata housing. In Malaysia, the emphasis on preventive maintenance in housing is often lacking, leading to the deterioration of amenities and a decline in residents' quality of life, as cited by Yusof *et al.* [41].Effective governance is essential for resolving disputes, enforcing rules, and ensuring the smooth operation of strata communities. However, governance structures can vary widely, and some may lack the necessary resources or expertise to manage complex strata properties effectively, resulting in conflicts among residents and inefficiencies in property management.

Strata housing developments must also balance density with livability. High-density living can strain infrastructure, including transportation, utilities, and public services. Ensuring that these systems can support the increased population is vital for maintaining a high standard of living. Urban planning must account for these factors to create sustainable and resilient strata communities. In response to these challenges, Malaysia has established comprehensive policies and regulations, such as the Strata Management Act 2013 and the Strata Titles Act 1985. The Strata Management Act outlines responsibilities for maintaining and managing strata properties, while the Strata Titles Act provides for the subdivision of buildings and the issuance of strata titles to individual owners. Continuous review and improvement of these laws are necessary to adapt to the evolving needs of urban populations.

Given the importance of community living, this paper suggests that new strata housing developments could benefit from conducting feasibility studies on existing amenities within the site, considering both economic factors and living quality. Stanislav *et al.*, [32] support this by suggesting that clustering retail stores near high-density housing can enhance a community's walkability by facilitating various activities. Consequently, fostering local participation between policymakers and residents is increasingly vital. Engaging the existing community helps ensure the availability of necessary environmental elements and services, thereby enhancing neighborhood livability and the overall quality of urban life

2.0 Methodology

Adopting an exploratory research design, this paper identifies the typical layout of strata housing, focusing on the shared facilities level. It conceptualizes the strata housing model integrated with existing surrounding communities, examining the impact on community living, economic and operational efficiency, sustainability, and the viability of commercial units within these communities.

According to the Kuala Lumpur Structural Plan 2040, the well-being of Kuala Lumpur's residents is defined by a high quality of living, equality, and access to quality facilities. The vision of "Kuala Lumpur: A City for All" emphasizes sharing, inclusivity, and equality, grounded in the improvement of the natural environment and economic growth to achieve shared prosperity and enhance community well-being. Figure 2 illustrates the key aspects of the Kuala Lumpur Structural Plan 2040.

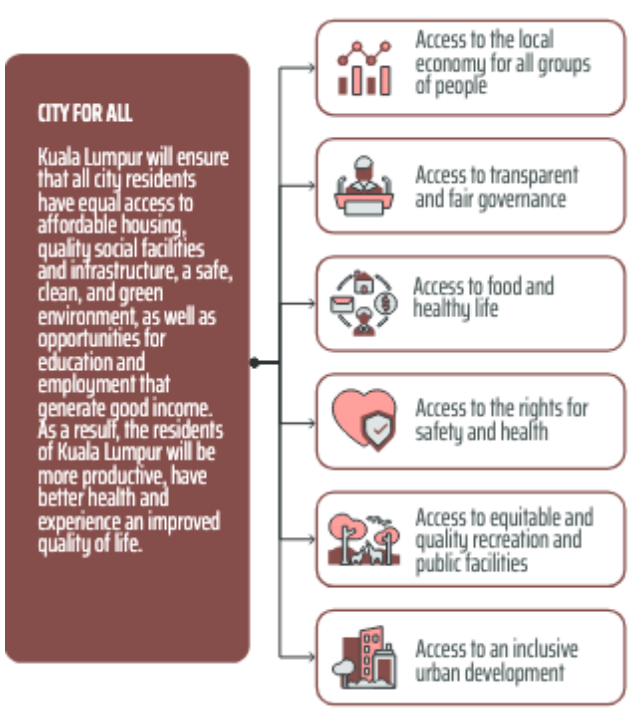

Fig 2 : Aspects of "City for All" from the Kuala Lumpur Structural Plan 2040

To ground this study within a structured theoretical context, the research applies the "20-minute neighborhood" or "15-minute city" concept as outlined in Plan Melbourne 2017-2050. This concept emphasizes localizing essential urban functions within a 500-meter radius, promoting walkability and reducing dependence on vehicular transport. By incorporating this framework, the study aims to explore how shared facilities within strata housing developments can contribute to a more sustainable and connected community. This approach directly addresses research questions related to optimizing facility use and improving community well-being, ensuring that the methodology aligns with contemporary urban planning theories and practices.

Fig 3: The 17 urban and social functions that should be accomplished within neighbourhood

In the context of strata housing layouts, local authorities recommend allocating 5-10% of the area for shared amenities, depending on the number of units. Figure 2 illustrates a typical layout of a strata housing development, where shared amenities include a multipurpose hall, religious facilities, recreational spaces, and a childcare facility. Figure 4 presents a conceptual layout of a strata housing development surrounded by existing facilities, such as recreational spaces, a function hall, religious facilities, a childcare facility, parking spaces, and commercial units—all within a 500-meter radius. Consistent with the '20-minute neighborhood' concept, Figure 5 aligns with the recommended comfortable walking distance for a person.

Fig 4: Typical layout plan of the facility level of a strata housing development

Fig 5: Proposed conceptualised layout of strata housing with existing facilities within the site

The methodology provides a contextual guideline for understanding the potential of shared facilities in residential complexes and their surrounding communities, emphasizing mutual benefits and enhanced resource utilization. The following sections outline the specific facilities and mechanisms proposed for their shared use, optimizing existing amenities within the site as recommended in the '20-minute neighborhood' concept adapted from Plan Melbourne 2017-2050. The methodology provides a contextual guideline for understanding the potential of shared facilities in residential complexes and their surrounding communities, emphasizing mutual benefits and enhanced resource utilization. Therefore, these shared facilities are further discussed in the methodology to highlight their significance.

2.1 Recreational Facilities

By optimizing existing amenities within the site, as recommended in the '20-minute neighborhood' concept adapted from Plan Melbourne 2017-2050, this approach directly addresses the limitation of recreational spaces at the facility level in strata housing developments. Figure 6 illustrates how recreational facilities, such as local playgrounds and parks, green streets and spaces, community gardens, and sports facilities, can be expanded within the neighborhood to complement and enhance the recreational offerings within strata housing complexes.

Fig 6: Recreational facilities in the 17 Urban and Social Functions

2.2 Function Hall

Community halls are pivotal in promoting social interaction and cohesion within a community. By centralizing these spaces and allowing them to be shared among multiple residential complexes, their utilization is maximized, creating vibrant social hubs. This approach not only fosters community bonds but also contributes to the overall sustainability of the area. When new developments leverage existing function halls, they omit the need to construct additional facilities, which in turn allows for more housing units to be built within the permissible Gross Floor Area.

2.3 Religious Facilities

The shared use of existing religious facilities enhances their role as cultural and social anchors within a community. These spaces, often central to the life of the neighborhood, benefit from increased engagement and attendance when shared across residential complexes. This collective use ensures that religious facilities are well-maintained and continue to serve the community effectively. New developments, by utilizing these existing facilities, can similarly forgo the construction of new religious spaces, further lowering development costs and contributing to more affordable housing

prices. The collaborative effort in maintaining these spaces also enhances community bonds and supports a cohesive neighborhood environment.

2.4 Child Care Facilities

The shared use of existing local kindergartens and nurseries is proposed as a practical solution to the unpredictable demand for child care within residential complexes. This approach allows developments to allocate more resources to housing units, potentially lowering overall costs and offering more competitive prices. Furthermore, supporting existing child care facilities strengthens their sustainability, fostering a more integrated community where families have access to high-quality educational services without the need for additional infrastructure.

2.5 Parking Spaces

Underutilized parking spaces represent an inefficiency that incurs ongoing maintenance costs for existing buildings, covering expenses such as cleaning, security, lighting, and repairs, often resulting in higher service charges for residents. By allowing new developments to utilize these underused spaces, existing buildings can offset some of these costs through rental income or service agreements. For new developments, this arrangement reduces the considerable expense of constructing additional parking spaces, including land acquisition, construction, and maintenance costs. This cost-saving can be passed on to buyers or tenants, making the new development more attractive and affordable. Financially, both existing and new developments benefit: existing buildings generate revenue from idle parking spaces, while new developments save on construction costs, allowing for more investment in amenities and enhancing property value.

2.6 Commercial units

Encouraging residents to patronize nearby commercial areas rather than constructing new commercial units within residential complexes can boost the local economy and reduce the burden on new developments. This approach not only bolsters the local economy by driving consistent patronage to nearby businesses but also fosters a dynamic, cohesive community. Residents benefit from a broader selection of services and amenities, enhancing the neighborhood's overall vibrancy and contributing to its long-term sustainability.

The strategic optimization and shared use of various facilities within a neighborhood are crucial in addressing the spatial and economic challenges of strata housing developments. By leveraging existing community facilities rather than constructing new ones, developments can maximize the allowable Gross Floor Area (GFA) for additional housing units, leading to increased availability and affordability of homes. This approach not only enhances community well-being and social cohesion but also allows for housing units to be offered at lower prices due to reduced construction costs. Prioritizing shared facilities and existing resources fosters a sustainable, interconnected, and thriving community, ultimately creating more vibrant and resilient urban environments.

3.0 Result

This study's findings highlight several crucial insights into the utilization, benefits, and challenges of sharing existing facilities within neighborhoods, with a particular focus on community engagement, economic efficiency, and overall social cohesion. These findings are grounded in the methodology's adoption of the "20-minute neighborhood" concept and the strategic integration of shared facilities to optimize Gross Floor Area (GFA) in new strata housing developments. Additionally, the study proposes a paradigm shift in urban development, urging new developments to consider existing

amenities within a 500-meter radius, thereby minimizing redundancy and enhancing the overall effectiveness of urban spaces.

3.1 Community Engagement

Religion and spirituality have always been community-oriented. According to Brown *et al.,* [9], benefits include a sense of belonging, connection with like-minded individuals, mutual care during times of need, establishment of social norms, and life cycle rituals such as births, coming of age, marriage, sickness, and death. The shared use of religious facilities, plays a pivotal role in fostering social interaction and cohesion within the community, particularly in the context of strata housing. These facilities serve as cultural and social anchors, promoting inclusivity and cooperation among residents from diverse backgrounds. By leveraging existing religious spaces, new developments can maximize GFA by allocating more space to housing units rather than constructing redundant facilities. This approach not only preserves the social and cultural significance of religious spaces but also contributes to a more efficient and affordable housing development model.

3.2 Economic Efficiency

According to Huong [14], besides taking into consideration of the environmental, social, cultural dimension, the economic value of sustainability must be taken account in order to achieve sustainable housing economic dimensions of sustainability must be taken into account in order to achieve a sustainable housing. The Economic efficiency is possible to achieve through the shared use of facilities like kindergartens, nurseries, and parking spaces. By utilizing existing amenities, new developments can significantly reduce construction costs, allowing for more housing units to be built within the permissible GFA. This cost-saving can be passed on to homebuyers, making housing more affordable. Additionally, the collaborative maintenance of shared facilities, such as parking spaces, offers financial benefits to both existing and new developments. This model of shared amenities not only optimizes resource use but also enhances the overall economic sustainability of the neighborhood.

3.3 Sustainability and Viability of Commercial Units

When considering the sustainability and viability of commercial units, it is advantageous for residents to support local businesses rather than relying solely on limited on-site commercial spaces. By doing so, they can enhance the economic vibrancy of their community, which benefits both residents and businesses. According to Nafrizon *et al.,* [22] properties located in areas with amenities such as clinics, postal services, community halls, playgrounds, and other public and private facilities are more attractive to potential buyers, thereby increasing demand. Encouraging residents to patronize nearby local businesses rather than depending on limited on-site commercial units can enhance the viability of these units. This strategy minimizes the need to allocate Gross Floor Area (GFA) to new commercial spaces, allowing more focus on residential development. Supporting local businesses contributes to a vibrant local economy, which in turn makes the neighborhood more desirable and sustainable in the long term. By strategically optimizing the use of existing commercial areas, developments can provide more housing units at lower prices, thus improving overall community well-being.

3.4 Discussion

The "20-minute neighborhood" concept, as explored in this study, highlights the critical importance of optimizing existing facilities within a walkable radius. By ensuring that essential services and amenities are available within a 20-minute walk, new strata housing developments can reduce the need for constructing additional facilities, thereby maximizing the Gross Floor Area (GFA) for more

housing units. This strategy not only addresses the limitations of recreational and other facilities at the development level but also fosters sustainable urban living by minimizing reliance on vehicular transport and enhancing community connectivity.

Implementing the "20-minute neighborhood" concept requires careful attention to two key factors: distance and features. Research by Badland *et al.* [6] suggests that 20 minutes is the maximum time people are willing to walk to meet their daily needs locally, which corresponds to a walking distance of up to 2 km or a cycling distance of 5 km while still maintaining access to public transport, as illustrated in Figure 7. This timeframe is especially crucial for low-income individuals, as noted by Thanaraju *et al.*[35], who prioritize proximity between their home and workplace to minimize transportation costs.

To successfully establish a 20-minute neighborhood, several essential criteria must be met. The area should be safe, accessible, and well-connected for pedestrians and cyclists, thereby promoting active transportation. It should also offer high-quality public realms and open spaces, provide essential services and destinations that support local living, and ensure access to quality public transport that connects residents to jobs and higher-order services. Additionally, housing and population densities must be adequate to make local services and transport viable, while supporting thriving local economies to sustain the community.

Therefore, when conducting a feasibility study on an existing site, it is vital to thoroughly assess both the distance and features of the area. This ensures that the shared facilities are efficient, accessible, and consistent with the principles of the 20-minute neighborhood concept.

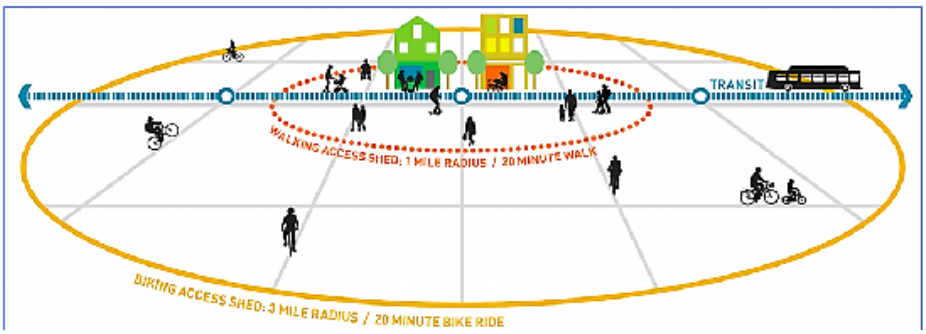

Fig 7: Distances According to 20-Minute Neighbourhoods' Concept

4.0 Conclusion

Housing demand in Malaysia has surged in tandem with the nation's development, particularly in urban areas where commercial activities are concentrated. This demand has led to a cycle of expanding high-density housing development, initially in urban centers and later extending into suburban areas. However, this rapid development has often occurred in isolation, neglecting existing facilities and amenities within a 500-meter radius, resulting in duplication and underutilization.

This paper proposes a paradigm shift in the planning of new housing developments, particularly strata housing, by advocating for detailed feasibility studies of existing facilities within 500-meter radius from site. Such an approach could lead to the optimization of these facilities, omitting redundant amenities in new developments. This strategy offers several potential benefits, including the ability to construct more housing units within the allowed Gross Floor Area (GFA), reduced construction costs, and consequently, lower-priced housing units. Additionally, utilizing existing facilities in new developments will contribute to the cost of upkeep and maintenance, enhancing sustainability. This optimization also fosters greater community interaction, promoting safer and friendlier neighborhoods.

The study further highlights the critical role that density plays in achieving sustainable urban development. By adopting the "20-minute neighborhood" concept, new strata housing developments can optimize land use, concentrating amenities within a dense, walkable area. This approach supports

higher-density living by ensuring that essential services are accessible within a short distance, making it possible to accommodate more housing units within the same area. The feasibility studies proposed in this paper are vital for identifying opportunities to optimize GFA, thereby maximizing the density of housing units without compromising quality of life.

By reducing the need to construct redundant facilities, developers can allocate more space for housing, effectively increasing density in a manner that is both efficient and sustainable. This strategy not only supports higher population densities but also ensures that these densities are balanced with livability. The integration of shared facilities, such as recreational spaces, parking, and commercial units, within a walkable distance helps to maintain a high quality of life even in denser environments. This balance is crucial for creating vibrant, resilient, and sustainable urban communities.

Shared recreational facilities, such as courts and parks, increase resident satisfaction and foster community spirit, while shared function halls strengthen community ties. Economically, shared amenities like kindergartens, nurseries, and parking spaces reduce costs and improve operational efficiency. However, the success of these shared facilities hinges on effective management, regular maintenance, and active involvement of local councils and management teams. The challenges of implementation, such as potential conflicts and the need for continuous financial and administrative support, must also be addressed to ensure sustainability.

This study recognizes the limitations in its scope and acknowledges that the findings may not be generalizable across all residential contexts due to varying socio-economic and cultural factors. Nevertheless, the integration of shared facilities in strata housing presents a promising approach to addressing the challenges of providing high-quality housing in urban areas. It supports the broader efforts to create a more inclusive urban environment while addressing the current issues of rising housing prices and substandard construction practices.

In conclusion, integrating shared facilities within residential complexes, especially in strata housing developments, offers significant benefits. By optimizing density through strategic planning and the adoption of the "20-minute neighborhood" concept, it is possible to create sustainable, high-density living environments that are both livable and economically viable. However, comprehensive planning, effective management, policy support, and resident engagement are crucial to overcoming challenges and ensuring the successful implementation and sustainability of these amenities. The study recommends conducting feasibility studies for new developments, developing policy frameworks, fostering public-private partnerships, and implementing monitoring and evaluation mechanisms. These steps are essential to enhancing living standards, supporting government housing initiatives, and promoting sustainable urban growth in Malaysia.

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