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Urban Morphological Analysis of Rappocini District in Makassar, Indonesia: A Spatial Perspective

Alexander Adrian Saragi^{1*}

¹Architecture Study Program, Department of Civil Engineering and Planning Education,
Faculty of Engineering, Universitas Negeri Makassar

¹alexander.adrian.saragi@unm.ac.id*

Abstract

This study explores the spatial development of Rappocini District in Makassar, Indonesia, through the framework of urban morphology. Utilizing Roger Trancik's urban design approaches, specifically the figure-ground and linkage methods, the research investigates the district's land use distribution, building configurations, and circulation systems. The analysis reveals a predominantly angular figure-ground pattern, marked by dense, irregular building masses and minimal open space, indicative of organic, uncoordinated urban expansion influenced by functional and social factors. The linkage structure is dominated by a Mega-Form pattern, where a few primary arterial roads act as the main conduits for movement and connectivity within the area. These spatial characteristics underscore both the complexity and limitations of high-density urban development in the absence of comprehensive planning. The findings contribute to a better understanding of local morphological dynamics and offer valuable insights for guiding context-sensitive and sustainable urban design strategies aimed at improving spatial coherence, accessibility, and quality of life.

Keywords: Urban Morphology, Figure-Ground, Linkage, Rappocini District, Spatial Structure, Urban Planning

1. Introduction

Urban morphology refers to the examination of a city's physical layout and spatial organization, encompassing aspects such as land use distribution, road systems, and the interplay between built structures and open spaces—often analyzed through the figure-ground framework [1] A city's physical form does not emerge randomly; rather, it is shaped through a prolonged evolutionary process influenced by historical contexts, cultural dynamics, spatial planning regulations, and the daily activities of communities [2] Understanding this evolution is critical, especially amid increasingly complex patterns of urban growth and transformation, as it helps clarify how cities evolve over time and how such changes affect the quality of urban environments [3]

As cities continue to expand, spatial planning issues become more intricate, necessitating a deep historical and visual comprehension of the structures that define urban areas. Morphological studies play a vital role in tracing physical transformations, such as growth patterns, land-use changes, and socio-economic shifts within specific regions [4]. By dissecting the foundational structure of urban spaces, future urban development can be designed to be more context-sensitive and sustainable.

[5] emphasizes that a morphological perspective enables urban planners to understand how urban forms evolve, which in turn allows for the development of contextually grounded strategies that preserve local identity. In Indonesia, many cities are experiencing rapid and often unregulated spatial transformations due to fast-paced urbanization and population increases. These changes do not only alter the city's visual landscape but also influence the quality of life, transportation network efficiency, and trigger environmental issues such as traffic congestion and reduced ecological capacity of green spaces [6].

While most morphological research has traditionally focused on Indonesia's major cities like Jakarta, Surabaya, and Medan, this study centers on Makassar, particularly the Rappocini District. Though not a national administrative hub, Makassar holds strategic importance as the largest metropolis in eastern Indonesia and serves

as the provincial capital of South Sulawesi. The city functions as a key node for trade, education, healthcare, industrial activities, and transportation across the region [7]

Rappocini District is experiencing marked changes in its urban morphology. Located in a central urban zone, it acts as a confluence point for dense housing clusters, commercial centers, administrative offices, and main arterial routes. The increasing land-use intensity, proliferation of high-rise structures, and expansion of road and transport corridors are clear indicators of the district's evolving physical configuration [8] Based on data from [9], Rappocini has witnessed a substantial rise in building density and notable shifts in land use over the last decade. These findings align with previous research by [10] which observed significant transformations in road layouts and land utilization in Makassar, especially in central areas like Rappocini, driven by economic growth and urban migration trends since the late 20th century. Given these dynamics, conducting a morphological analysis of Rappocini is both timely and necessary. It addresses a gap in existing academic literature and offers valuable insights for urban space management and planning strategies aimed at creating more livable and resilient urban environments.

This research adopts the Urban Design theory framework introduced by Roger Trancik to analyze the morphological configuration of Rappocini District. According to [11], a comprehensive understanding of urban form can be approached through three analytical methods: figure-ground, linkage, and place. For the purposes of this study, two of these—figure-ground and linkage—are applied in a complementary manner to interpret the spatial organization and connectivity of urban spaces within the district. The figure-ground method examines the spatial relationship between built structures (figures) and the surrounding open spaces (grounds), both of which constitute the fundamental elements of urban form. In this context, building masses represent solid forms such as institutional facilities, continuous building rows, and other compact built elements, collectively referred to as urban solids. In contrast, urban voids refer to open areas like plazas, parks, roadways, courtyards, and interstitial spaces that serve as zones of movement or social interaction [11][12]

Through this analytical lens, six distinctive spatial typologies can be identified, each characterized by its unique configuration of figure and ground relationships: (1) angular patterns, marked by irregular geometries and sharp-edged spatial forms; (2) axial patterns, which structured around dominant linear axes; (3) grid patterns, organized into a regular, lattice-like spatial matrix; (4) linear curve pattern, following curvilinear paths or responding to natural terrain; (5) concentric radial pattern, radiating from a central node of circulation outward in all directions; and (6) organic patterns, formed through adaptive, spontaneous development in response to environmental and contextual factors [13] [14]. These six typologies provide a framework for visual and spatial analysis, and their representations are illustrated in Figure 1, offering insight into the underlying morphological structure of the Rappocini District.

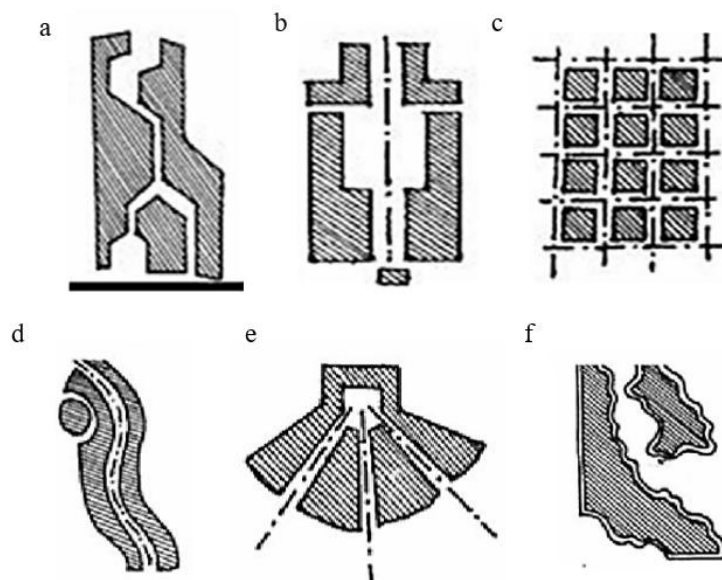


Figure 1. Figure-Ground Pattern: (a) Angular ; (b) Axial; (c) Grid; (d) Linear Curve; (e) Concentric Radial; (f) Organic
Source: Roger Trancik, 1988

In comparison, the linkage approach serves to analyze the degree of interconnectivity among spatial components that shape the urban morphological framework. This method emphasizes circulation—both pedestrian and vehicular—as a fundamental factor influencing the configuration of spatial networks. In this context, linkages are understood as the connective tissues that integrate buildings with surrounding open spaces, establishing a coherent urban system [15]. The application of the linkage concept in this study is guided by the collective form perspective, which views urban structures as products of dynamic and reciprocal relationships among spatial elements. According to this model, three primary typologies can be distinguished: (1) compositional forms, self-contained units that are functionally interconnected, allowing for organized internal relationships; (2) mega shape, large-scale configurations that exhibit strong spatial cohesion and integration across wide urban areas; and (3) group shapes, modular arrangements designed to support incremental development and spatial flexibility over time [11] [14]. These three typologies provide a conceptual lens for understanding how spatial elements work together to shape the overall morphology of the city. Their respective characteristics and spatial dynamics are visualized in Figure 2.

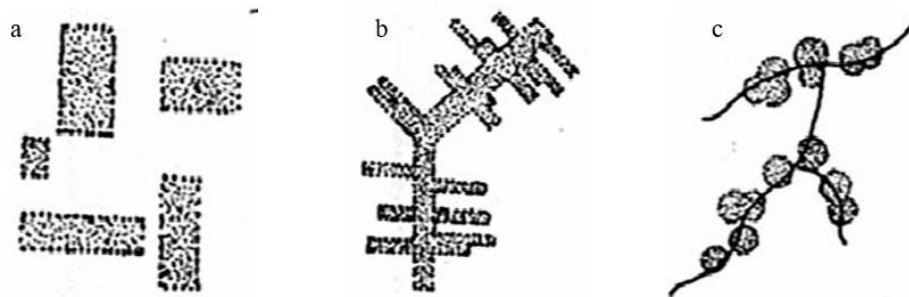


Figure 2. Spatial Types in Collective Form Linkage: (a) Composition Form ; (b) Mega Form; (c) Group Form
Source: Roger Trancik, 1988

2. Research Methods

To investigate the morphological characteristics of Rappocini District, this study adopts a descriptive research method as its primary approach. The goal is to deliver comprehensive and accurate insights regarding the area's physical attributes, while also identifying spatial components that warrant further examination—particularly in relation to land utilization, building layout, and road infrastructure. The findings are intended to serve as strategic input for future spatial and environmental planning efforts.

The population targeted in this research consists of residents within the administrative boundaries of Rappocini District. A purposive sampling technique was employed to select participants who met specific criteria aligned with the study's objectives. These criteria included individuals aged 17 and above, residing and actively participating in the daily life of the district, and possessing a general awareness of environmental concerns and the spatial evolution of urban areas.

Data collection was primarily based on secondary sources, drawing from academic literature related to urban design theory—particularly the framework developed by [11]. This research focuses on two of his main analytical tools: the figure-ground and linkage approaches, which are used to interpret the district's physical structure. Additional sources include the 2015–2035 Rappocini District Spatial and Zoning Plan, Figure-Ground Maps for analyzing building configurations, and the Makassar City Spatial Plan documents to assess the existing road network.

All collected data were examined using qualitative analysis techniques, aiming to develop a holistic understanding of Rappocini District's morphological structure. This analysis covers critical aspects such as land use patterns, architectural forms, and the transportation system that facilitates the area's urban functions and supports local community activities.

3. Results and Discussions

This section outlines the outcomes of the morphological analysis carried out in the Rappocini District as the designated study area. The evaluation focuses on three core components: land use, building forms and typologies,

and the road network system. These elements are examined systematically to construct a holistic understanding of the district’s physical layout and spatial configuration. A detailed explanation of each component is provided in the subsequent sub-sections.

3.1. Profile of the Study Area

Rappocini District is one of the administrative districts located within Makassar City, in the South Sulawesi Province of Indonesia. Geographically, the district is bordered by Panakkukang District to the north, Tamalate District to the south, Mamajang and Makassar Districts to the west, and Gowa Regency along with Panakkukang District to the east.

Administratively, Rappocini comprises 11 urban villages: Gunung Sari, Karunrung, Mappala, Kassi-Kassi, Bontomakkio, Tidung, Banta-Bantaeng, Buakana, Rappocini, Ballaparang, and Minasa Upa. The total land area of Rappocini is approximately 9.23 square kilometers, which constitutes around 5.25% of the total area of Makassar City [16]. Table 1 and Figure 3 illustrate the territorial limits and administrative subdivisions of the district.

Table 1. Area per Village

Village	Area (km ²)
Karunrung	1,52
Minasa Upa	1,33
Banta-Bantaeng	1,27
Gunung Sari	0,98
Tidung	0,89
Kassi-Kassi	0,82
Buakana	0,77
Ballaparang	0,59
Mappala	0,50
Rappocini	0,36
Bontomakkio	0,20

Source: BPS Makassar (2024)

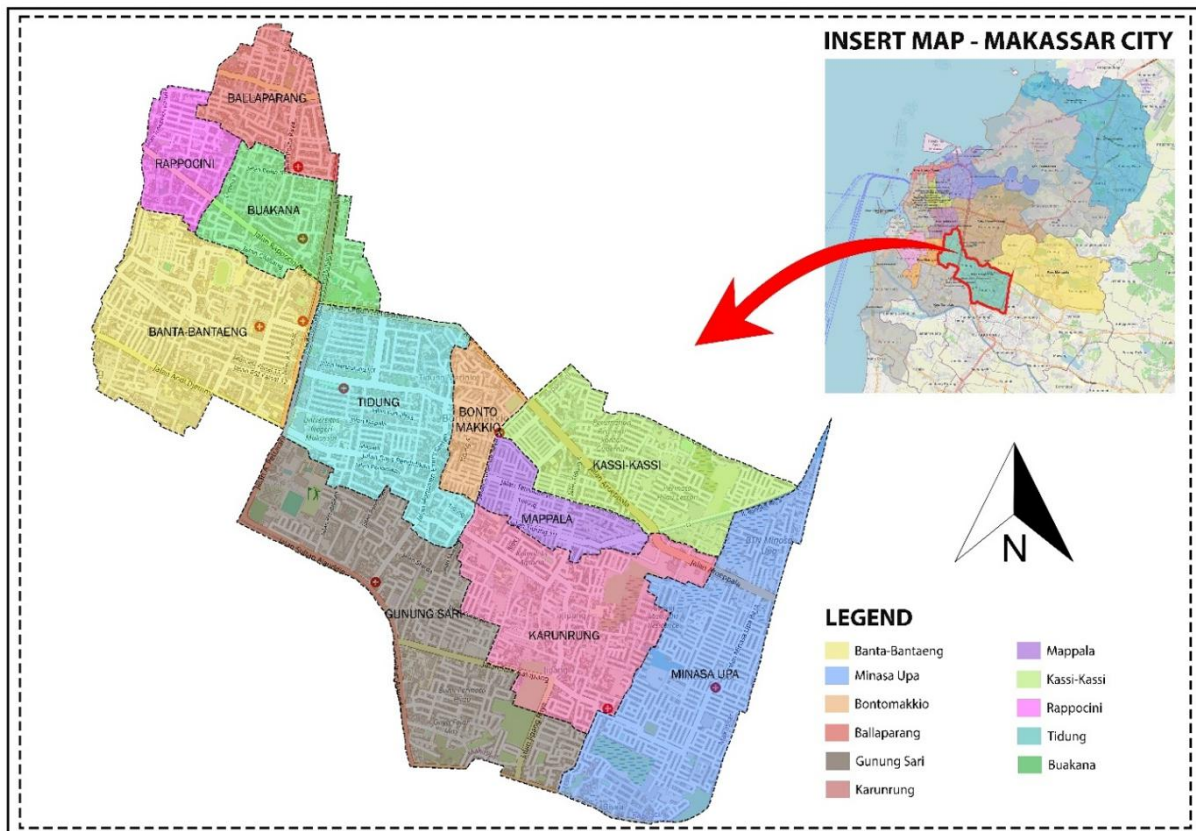


Figure 3. Administrative Map of Rappocini Sub-District
Source: RTRW Makassar 2015-2035

Figure 3 illustrates the administrative map of Rappocini District, delineating its 11 constituent urban villages: Gunung Sari, Karunrung, Mappala, Kassi-Kassi, Bontomakkio, Tidung, Banta-Bantaeng, Buakana, Rappocini, Ballaparang, and Minasa Upa. The map provides a spatial visualization of the internal territorial segmentation within the district, which occupies a strategically significant location in the central region of Makassar City.

An inset map included in the figure highlights the position of Rappocini within the broader urban context of Makassar, underscoring its pivotal role and spatial connectivity with adjacent districts. This cartographic representation is a vital tool for supporting further spatial analyses, particularly those concerning land use distribution, accessibility, and urban morphological patterns. These aspects form the foundation for understanding the processes of regional transformation and offer key insights for urban planning and governance.

3.2. Land Use

Based on the Spatial Pattern and Zoning Map of Rappocini District, the predominant land use in the area is allocated for medium-density residential zones, which are generally indicated in brown on the map. This is followed by areas designated for high-density residential use, typically marked in red. These two categories of housing dominate the district's land utilization profile, reflecting the urban residential character of Rappocini.

The spatial distribution of these land use types across the district is illustrated in Figure 4, which provides a visual representation of zoning allocations and highlights the concentration of residential development in various urban villages.

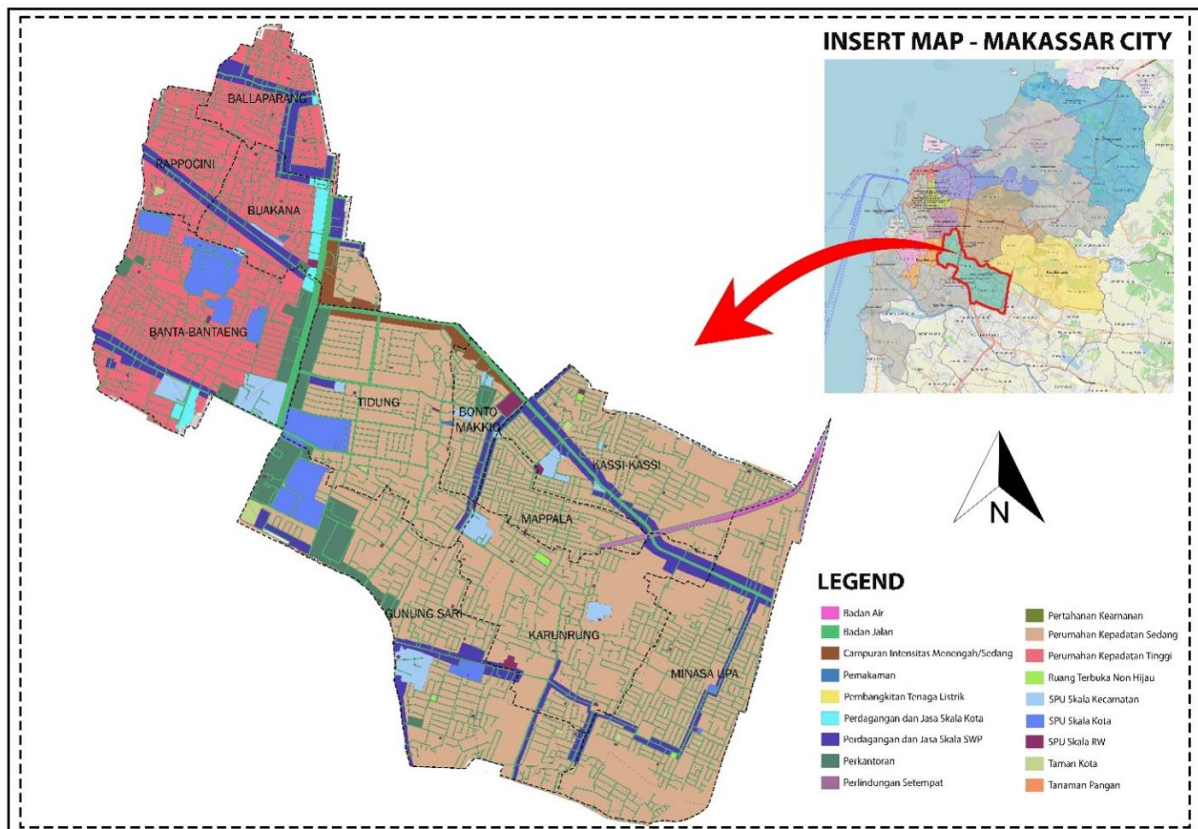


Figure 4. Land-Use Map of Rappocini Sub-District

Source: Bappeda Makassar, 2025

Figure 4 presents the land use distribution within Rappocini District, derived from the official Spatial Pattern and Zoning Plan Map. The visualization indicates that the majority of the district's territory is allocated for medium-density residential areas, represented in brown. Additionally, high-density residential zones, depicted in red, are dispersed across several sections of the district.

Beyond residential functions, the map also identifies other key land use categories, such as green open spaces, commercial and service areas, and public facilities, each distinguished by specific colors as outlined in the map.

legend. This spatial arrangement highlights the heterogeneous and multifunctional nature of land use in Rappocini District. Furthermore, it illustrates how the area's development pattern is shaped by the demands of housing, public infrastructure, and economic activities, contributing to the district's evolving urban morphology.

3.3. Figure-Ground

The spatial configuration in Rappocini District, characterized by the relationship between built structures (figures) and open spaces (grounds or voids), predominantly exhibits an angular pattern. This pattern reflects an irregular arrangement with sharp spatial transitions, often resulting from organic urban growth and varied land parcel shapes. The distribution and interaction of these elements are visualized in Figure 5, which illustrates the spatial morphology formed by building masses and the voids between them.



Figure 5. Figure-Ground of Rappocini Sub-District

Source: Researcher's Analysis, 2025

According to [11], angular patterns represent a spatial relationship between built masses and open spaces characterized by irregular configurations, sharp angles, and changes in directional alignment. These patterns often emerge organically as a result of historical developments, geographical constraints, or evolving social dynamics.

Supporting this view, a study by [10] observed notable changes in land use within Rappocini District, where both the road network and building forms have developed spontaneously, adapting to pre-existing land parcels and the functional needs of local communities. This unplanned growth has led to the formation of narrow, winding spaces that reflect the organic nature of the district's urban morphology.

Furthermore, [17] emphasize that angular patterns significantly influence social interaction, spatial perception, and urban legibility. These patterns provide a critical foundation for designing urban spaces that are sensitive to the local morphological context, making them highly relevant in planning frameworks aimed at preserving the identity and functionality of historically evolved environments.

3.3.1. Karunrung

The Karunrung area is characterized by a spatial layout where buildings are positioned in relatively close proximity, yet still provide a clearly defined allocation of open space. Although the building density is high, the overall arrangement does not result in the formation of a single, solid urban block. Instead, the structures maintain spatial breaks that preserve visual and functional openness within the urban fabric.

Most structures in this area exhibit a Building Base Coefficient (KDB) of more than 70%, indicating that a significant portion of the plots is utilized for building coverage. Additionally, the Building Boundary Line (GSB) in Karunrung ranges from 2 to 5 meters, offering limited setbacks that contribute to the compact yet non-congested character of the neighborhood.

The figure-ground composition and building typology representative of Karunrung's morphological pattern are depicted in Figure 6, serving as a visual reference to support this analysis.



Figure 6. Figure-Ground and Building Typology in Karunrung
Source: Researcher's Analysis, 2025

3.3.2. Minasa Upa

The Minasa Upa area is characterized by a well-organized and systematically arranged building layout, with numerous residential blocks that exhibit a uniform size and regular pattern. The built environment in this area is predominantly composed of housing units and shop-houses (*ruko*), reflecting a balanced integration between residential and commercial functions. Although the building density is relatively high, several open spaces are still present and contribute to the spatial articulation of the neighborhood.

Structurally, the majority of buildings in Minasa Upa demonstrate a Building Base Coefficient (KDB) exceeding 70%, signifying a dense utilization of land for building footprints. The Building Boundary Line (GSB) typically ranges from 3 to 5 meters, indicating moderate setbacks that enhance the overall sense of order in the district's spatial form.

The figure-ground diagram and the typological characteristics of buildings in Minasa Upa are illustrated in Figure 7, offering visual insight into the area's urban morphology.

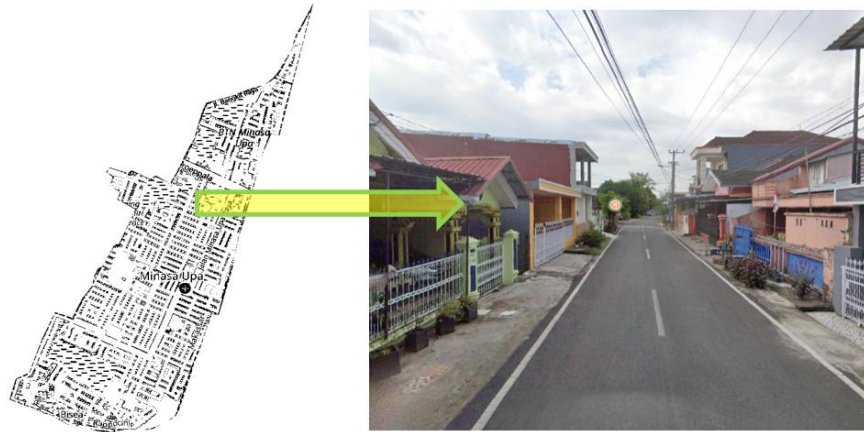


Figure 7. Figure-Ground and Building Typology in Minasa Upa
Source: Researcher's Analysis, 2025

3.3.3. Banta-Bantaeng

The Banta-Bantaeng area is characterized by a high building density, with closely packed building masses dominating the urban landscape. Despite this, several open land parcels remain, including areas designated as public facilities and community fields, which contribute to the functional diversity of the neighborhood.

Buildings in this area generally exhibit a Building Base Coefficient (KDB) of over 70%, reflecting intensive land use. The Building Boundary Line (GSB) ranges between 2 to 6 meters, although in narrower alleyways, setbacks are minimal or nearly nonexistent, leading to extremely compact spatial conditions.

The figure-ground composition and building typologies that define the urban form of Banta-Bantaeng are presented in Figure 8, providing a visual reference for the district's dense morphological structure.

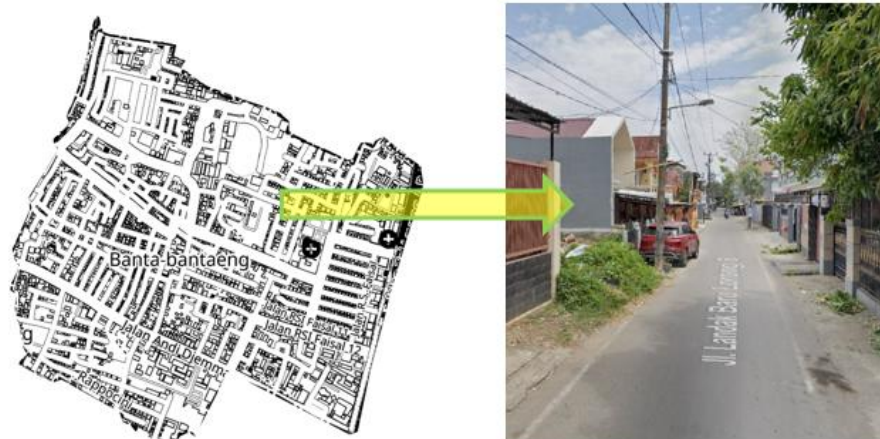


Figure 8. Figure-Ground and Building Typology in Banta-Bantaeng
Source: Researcher's Analysis, 2025

3.3.4. Gunung Sari

The Gunung Sari area exhibits a unique spatial pattern resulting from the combination of planned residential developments, such as the Bumi Permata Hijau housing complex, and organically developed settlements. This blend creates a diverse figure-ground composition, reflecting both structured and adaptive growth forms.

The built environment is primarily composed of residential units with relatively low building density, where many properties include private open spaces, contributing to a more spacious and breathable urban fabric. The Building Base Coefficient (KDB) in this area is approximately 70%, while the Building Boundary Line (GSB) ranges between 3 to 5 meters, offering moderate setbacks that support residential comfort and privacy.

The figure-ground diagram and building typologies representing the spatial characteristics of Gunung Sari are illustrated in Figure 9, providing insight into the district's mixed development pattern.



Figure 9. Figure-Ground and Building Typology in Gunung Sari
Source: Researcher's Analysis, 2025

3.3.5. Tidung

The Tidung area is characterized by a diverse building density, influenced by the presence of several major land use types. The area is predominantly occupied by educational facilities, notably the Makassar State University (UNM), along with formal residential zones and a variety of public facilities, including hospitals and schools.

The building mass within Tidung generally follows a Building Base Coefficient (KDB) of approximately 70%, indicating moderately high land utilization. The Building Boundary Line (GSB) varies considerably depending on the road type: in larger or institutional zones, setbacks range between 8 to 10 meters, while in narrower residential streets, setbacks are typically reduced to 3 to 5 meters.

The figure-ground composition and building typologies that define the spatial character of Tidung are depicted in Figure 10, offering a visual understanding of the area's functional diversity and urban morphology.



Figure 10. Figure-Ground and Building Typology in Tidung
Source: Researcher's Analysis, 2025

3.3.6. Kassi-Kassi

The Kassi-Kassi area is predominantly composed of housing complexes for civil servants (ASN) and subsidized housing (BTN), resulting in a well-planned and orderly spatial layout. The area exhibits a structured building density, largely attributed to the presence of clustered residential developments and the integration of supporting public facilities, such as green open spaces and drainage infrastructure.

In terms of spatial configuration, the building mass in Kassi-Kassi typically adheres to a Building Base Coefficient (KDB) of approximately 60%, indicating a more moderate land coverage compared to other areas. The Building Boundary Line (GSB) generally ranges between 3 to 5 meters, providing a balanced spatial separation between buildings and circulation areas.

The figure-ground diagram and building typology of Kassi-Kassi are presented in Figure 11, which visually conveys the planned morphological character of the area.



Figure 11. Figure-Ground and Building Typology in Kassi-Kassi
Source: Researcher's Analysis, 2025

3.3.7. Buakana

The Buakana area is characterized by a high population density accompanied by a concentration of densely built structures. The urban form is further distinguished by an irregular and fragmented road network, reflecting organic and unplanned development patterns.

The building mass in Buakana predominantly exhibits a Building Base Coefficient (KDB) exceeding 70%, indicating intensive land use. The Building Boundary Line (GSB) is generally very limited, ranging between 1 to 2 meters, and in several narrow alleyways, setbacks are virtually nonexistent, resulting in a compact and tightly clustered spatial arrangement.

The figure-ground composition and building typologies that represent the morphological condition of Buakana are illustrated in Figure 12, highlighting the dense and irregular urban fabric typical of this area.

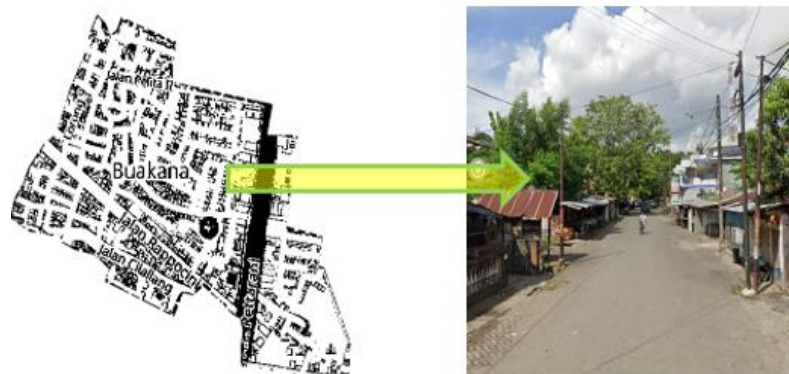


Figure 12. Figure-Ground and Building Typology in Buakana
Source: Researcher's Analysis, 2025

3.3.8. Ballaparang

The Ballaparang area is characterized by a uniform distribution of building masses, where the Building Base Coefficient (KDB) exceeds 70%, indicating intensive land coverage. Open space within the area is limited, with most plots being fully developed, resulting in a dense urban fabric.

The Building Boundary Line (GSB) in Ballaparang generally ranges from 2 to 3 meters, although in many areas, setbacks are minimal or nearly absent, contributing to the compact spatial character. The road network in this urban village is relatively well-organized, though it does not follow a strictly grid-based layout, suggesting a semi-regular development pattern.

The figure-ground composition and building typology reflecting the morphological identity of Ballaparang are visualized in Figure 13, offering insight into the area's dense and structured spatial configuration.

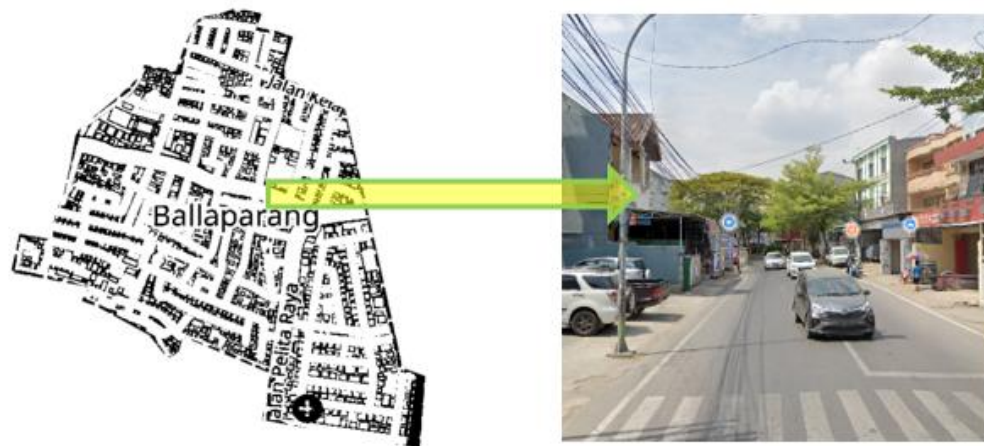


Figure 13. Figure-Ground and Building Typology in Ballaparang
 Source: Researcher's Analysis, 2025

3.3.9. Mappala

The Mappala area exhibits a high building density, where the Building Base Coefficient (KDB) exceeds 70%, indicating extensive land coverage primarily occupied by dense residential structures. The area is also marked by the presence of narrow roads and a non-uniform spatial layout, reflecting patterns of organic and sporadic urban growth.

Along main roads, buildings typically maintain a Building Boundary Line (GSB) of approximately 3 to 4 meters. However, within smaller alleyways, setbacks are minimal or absent, contributing to the compact and irregular morphology of the settlement.

The figure-ground diagram and building typology of Mappala are presented in Figure 14, which illustrates the area's unplanned development pattern and high-density spatial structure.

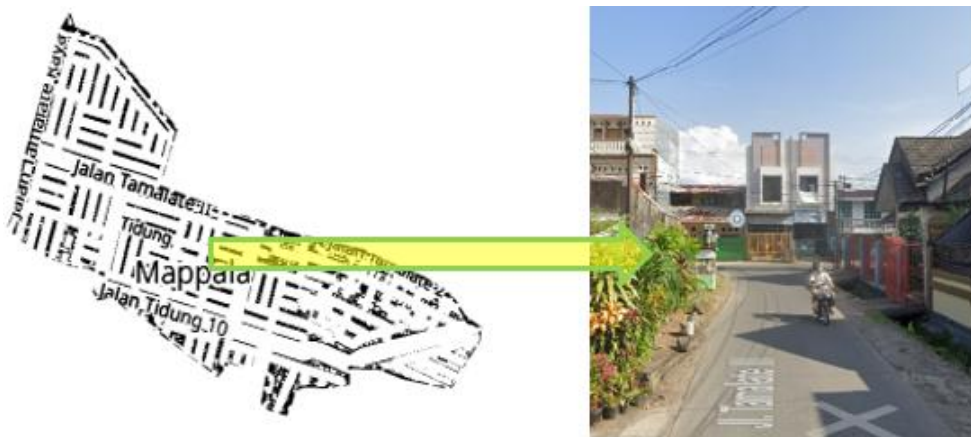


Figure 14. Figure-Ground and Building Typology in Mappala
 Source: Researcher's Analysis, 2025

3.3.10. Rappocini

The Rappocini area demonstrates a very high level of building density, with most structures exhibiting a Building Base Coefficient (KDB) of more than 70%. This indicates that a substantial portion of land parcels is occupied by building footprints.

Along the main roads, the Building Boundary Line (GSB) typically ranges from 4 to 5 meters, while in narrower streets, the setback decreases significantly to approximately 1 to 2 meters. In many instances, buildings are constructed in direct proximity to the road boundaries, contributing to the area's compact and intense urban fabric.

The figure-ground layout and building typology that characterize the morphological pattern of Rappocini are illustrated in Figure 15, offering insight into the spatial configuration and land use intensity of the area.

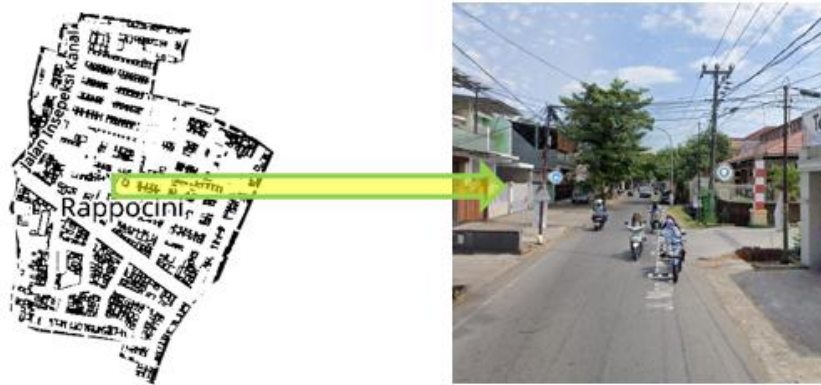


Figure 15. Figure-Ground and Building Typology in Rappocini
Source: Researcher's Analysis, 2025

3.3.11. Bontomakkio

The Bontomakkio area is characterized by a very dense concentration of building masses, with a Building Base Coefficient (KDB) consistently above 70%, indicating intensive land utilization. Along the main road corridors, buildings typically maintain a Building Boundary Line (GSB) ranging between 4 to 6 meters. However, within the narrower internal roads, setbacks are minimal or virtually nonexistent, contributing to the compactness of the built environment.

The area also shows a scarcity of undeveloped land, with most plots already occupied by permanent structures, leaving little room for future horizontal expansion. This condition reflects a highly saturated urban fabric with limited open space availability.

The figure-ground diagram and building typology that capture the spatial characteristics of Bontomakkio are presented in Figure 16, offering a visual reference for its densely built morphological pattern.



Figure 16. Figure-Ground and Building Typology in Bontomakkio
Source: Researcher's Analysis, 2025

3.4. Linkage

The road network structure in Rappocini District exhibits a well-defined and hierarchical linkage system, with its spatial organization predominantly structured around a central arterial corridor. This configuration aligns with the Mega-Form typology as conceptualized by [11], in which the primary circulation axis serves as a structural spine from which secondary and local routes evolve.

The urban fabric of Rappocini is shaped by several major thoroughfares, including Jalan A.P. Pettarani, Jalan Sultan Alauddin, and Jalan Hertasing, which function as the main arterial roads, forming the primary backbone of mobility and regional connectivity. These major roads support the branching of collector and local roads, facilitating access to residential areas, public facilities, and urban activity centers, and creating a layered circulation system that reflects a clear spatial hierarchy.

The classification of road types within Rappocini District is outlined in Table 2 below:

Table 2. Road Type Hierarchy in Rappocini District, Makassar

Road Type	Street Name
Primary arterial road	Jalan A.P. Pettarani, Jalan Sultan Alauddin
Primary collector road	Jalan Hertasning, Jalan Andi Djemma, Jalan Rappocini Raya
Secondary collector road	Jalan S. Faisal, Jalan Pelita Raya, Jalan Mapala, Jalan Tidung, Jalan Pendidikan
Local road	Jalan Cendrawasih, Jalan Tamalate, Jalan Tidung 10, Jalan RSI Faisal 12

Source: RTRW Makassar 2015-2035

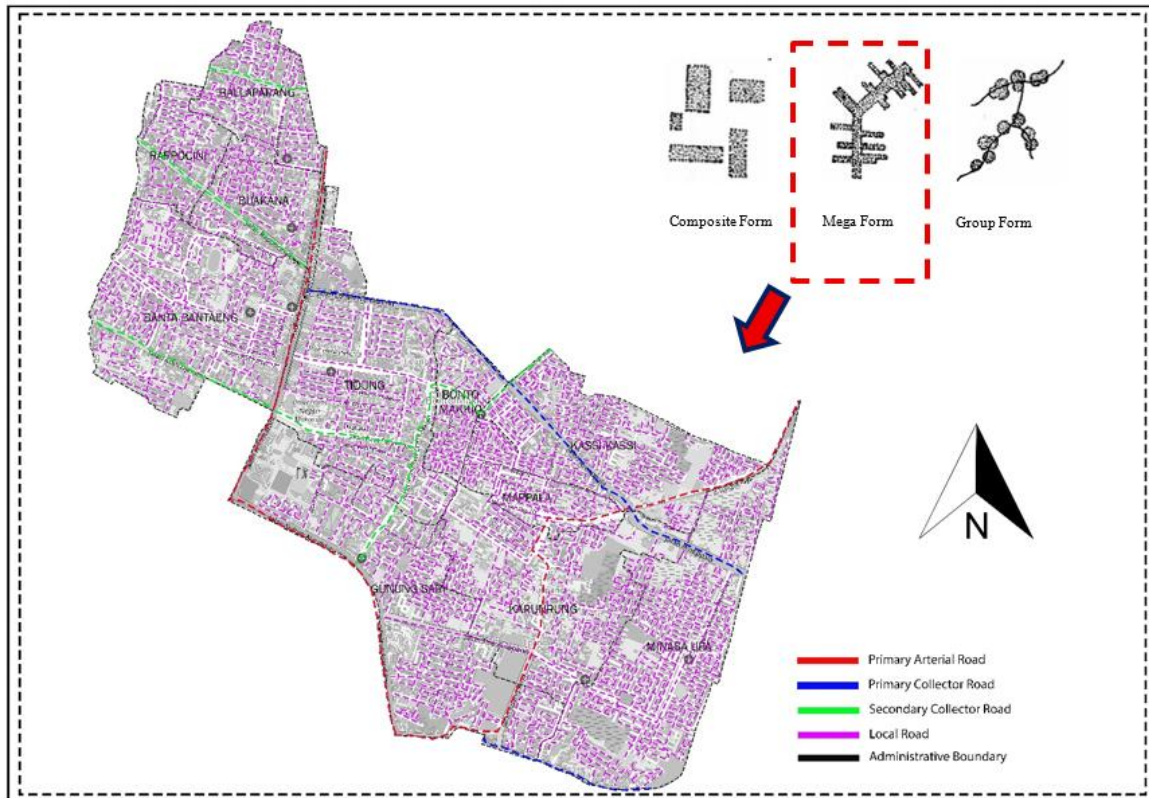


Figure 17. Road Hierarchy and Road Linkage Type in Rappocini District

Source: Researcher's Analysis, 2025

Figure 17 illustrates the linkage typology within Rappocini District, highlighting a hierarchical road network structure dominated by a primary corridor that functions as the main axis for urban connectivity. This spatial configuration aligns with the Mega-Form classification introduced by [11], which emphasizes urban growth patterns centered around a dominant structural spine, with secondary and local roads branching outward from it. The primary arterial roads play a strategic role in linking the district to larger economic corridors and the city core. Collector roads, both primary and secondary, facilitate movement between arterial routes and neighborhood zones, enabling efficient transportation at the sub-district level. Local roads serve as the final connectors, providing access to housing clusters, community facilities, and local businesses.

In summary, the linkage system of Rappocini District exhibits a highly structured, functional, and adaptable urban pattern, consistent with the Mega-Form model. This spatial organization allows for seamless connectivity across urban layers and supports future growth while maintaining the coherence of the overall morphological structure.

4. Conclusion

The morphological analysis of Rappocini District highlights a spatial structure shaped by organic and unregulated urban development, marked by high building density and irregular open space distribution. The dominance of an angular figure-ground pattern indicates a lack of formal planning in the evolution of the urban fabric, resulting in compact building formations with limited setbacks and fragmented public spaces. This spatial imbalance may hinder walkability, reduce environmental quality, and negatively affect the overall urban experience for residents. In terms of circulation, the district exhibits a Mega-Form linkage system, where a few major arterial roads—particularly Jalan A.P. Pettarani and Jalan Sultan Alauddin—serve as the primary structure supporting urban

mobility. While this model provides strong macro-level connectivity, it also reveals an over-reliance on a limited number of main routes, which can lead to congestion, inefficiencies, and accessibility challenges at the neighborhood scale. These findings emphasize the need for integrated and context-sensitive urban planning. Future development strategies in Rappocini should prioritize spatial integration, enhance the balance between built areas and open spaces, and diversify the transportation network to support both local and regional connectivity. Additionally, reintroducing accessible green and communal spaces can improve social cohesion and environmental resilience. By recognizing the current morphological conditions and addressing their limitations, planners and decision-makers can support more inclusive, functional, and adaptable urban growth in Rappocini District.

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