International Journal of Architecture and Urbanism Vol. 09, No. 03 (2025) 458 – 475

talenta PUBLISHER

International Journal of Architecture and Urbanism

Journal homepage: https://talenta.usu.ac.id/ijau

The Model of Pedestrian Arrangement in The Commercial Area Corridor of Dr. Mansur Street Medan City

Wahyu Abdillah*[1], Irsal[2], Devin Defriza Harisdani[1], Dwi Lindarto Hadinugroho[1], Novrial[1], Firman Eddy[1]

[1]*Department of Architecture, Faculty Engineering, Universitas Sumatera Utara, Medan, 20155, Indonesia*
[2]*Department of Agrotechnology, Faculty of Agriculture, Universitas Sumatera Utara, Medan, 20155, Indonesia*

*Corresponding Author: wahyu5@usu.ac.id

ARTICLE INFO

Article history:
Received 22-07-2024
Revised 03-09-2025
Accepted 16-10-2025
Available online 18-11-2025

E-ISSN: 2622-1640
P-ISSN: 2622-0008

How to cite:
Abdillah W et al. The Model of Pedestrian Arrangement in The Commercial Area Corridor of Dr. Mansur Street Medan City. International Journal of Architecture and Urbanism. 2025. 9(3): 458-475.

http://doi.org 10.32734/ijau.v9i3.23031

ABSTRACT

This study explores a pedestrian arrangement model in the commercial corridor of Dr. Mansur Street, Medan City, which exhibits characteristics of urban sprawl through a strip development pattern. The research seeks to answer the question: How can pedestrian infrastructure be arranged to improve spatial connectivity, social interaction, and place identity in commercial areas affected by urban sprawl? The approach refers to visual, structural, and collective linkage theories to design connected pedestrian spaces that reflect the local character. The spatial arrangement focuses on forming a street space that functions like an urban square, highlighting local elements and everyday community activities to strengthen the identity of the area. In line with the Strategic Plan of Universitas Sumatera Utara, which promotes the value of local wisdom, this research contributes to the development of planning strategies based on local values. The results show that the Dr. Mansur corridor has strong potential to serve as a social space that supports community interaction and enhances the quality of the urban environment. The proposed design applies the principles of *smart growth*, which integrates social, cultural, environmental, and local wisdom aspects in a holistic way. The findings are expected to serve as a reference for city governments and policymakers in designing public spaces that are adaptive to urban change and support community-based development.

Keywords: pedestrian, arrangement, path, smart growth

1. Introduction

Urban development is a complex and dynamic process, which is generally influenced by two main currents: first, planned growth in accordance with government policies and spatial plans; and second, unplanned growth that arises naturally from community activities. The imbalance between these two directions often leads to land use changes that are difficult to control, especially in dense urban areas. One of the consequences of this condition is the emergence of the phenomenon of urban sprawl, which is the uncontrolled expansion of urban areas and functions [1], [2]. One of the main triggers of urban sprawl in the core area of the city is the change of residential function to commercial function, which generally occurs sporadically without the support of an integrated policy or planning arrangement. In Medan City, this dynamic is evident in the Dr. Mansur Street corridor area, which is one of the growth centers around the University of North Sumatra. This area experiences rapid growth pressure due to various factors, such as the presence of higher education institutions, high mobility of road users, strategic accessibility, and utilization of road space by informal activities such as street vendors [3].

The change in spatial function from private residential to public space in this corridor can be seen in the number of houses converted into business premises, such as restaurants and shophouses. However, this change poses new challenges for the life of the area, especially since the existing road infrastructure was not designed to support dense commercial activities. The roads in this area were originally designed to support slow traffic in keeping with the character of the residential neighborhood. However, as commercial activities increased, the road was no longer able to accommodate the faster and denser flow of vehicles. This has led to congestion, indiscriminate parking, and competition for space between vehicles, pedestrians, and informal traders. Sidewalks that should function as safe and comfortable areas for pedestrians are now used by street vendors, carts, and motorized vehicles. This situation reflects the symptoms of strip commercial development, which is the growth of commercial activities that extend along main roads without the support of comprehensive and integrated urban planning [4]. This phenomenon has been a concern in many previous studies, such as the study of public space behavior [5], land use change control [6], and the landscape approach to the social value and ecological aspects of commercial areas [7]. These studies confirm that uncontrolled spatial transformation can lead to a decline in environmental quality and fragmentation of the city structure. In the case of the Dr. Mansur Street corridor, there is a degradation of public space infrastructure, especially in the pedestrian element. Spatially uncoordinated development has eliminated visual unity and spatial sequence, which has resulted in low place attachment.

In this condition, an area reorganization strategy is needed that emphasizes the improvement of road structures and the revival of public spaces, especially through the arrangement of pedestrian paths that adjust to local culture and socio-economic activities of the community. However, most of the existing arrangement models have not fully considered local values, community habits, and daily cultural patterns in the design of pedestrian paths. This condition shows that there is still a research gap in the study of area design based on local wisdom and values. This study aims to develop a model for structuring pedestrian paths in commercial areas that experience the impact of urban sprawl, especially those characterized by the development of commercial activities in an extended manner (strip commercial). This study took the case of the Dr. Mansur Street corridor, Medan City. Conceptually, the approach used refers to the principles of smart growth [8], which emphasizes the importance of efficient use of space, increased accessibility, improved environmental quality, and incorporation of local social and cultural values in urban planning. In the design, this research also uses linkage theory from three aspects, namely visual [9], structural [10], and collective [11], which are then combined in the concept of street-square composition [12]. The main emphasis is directed at the activities and needs of the local community (local habituation), so that the pedestrian design not only functions as a circulation path but also as a social space that strengthens the identity of the area. This research is also in line with the Strategic Plan of the Universitas Sumatera Utara, which emphasizes the importance of disclosing local wisdom in regional development. Thus, the results of this research are expected to make a theoretical contribution to the development of local value-based area revitalization science, as well as being an applicable policy guideline for city governments and stakeholders in managing the growth of community-based areas in a sustainable manner.

1.1. *Strip Commercial Development*

Strip commercial development is one tangible form of the urban sprawl phenomenon, which is the horizontal expansion of cities without integrated planning. This pattern is identified by the linear growth of commercial areas along main roads, where each building unit has direct access to the road. This pattern triggers various problems such as traffic congestion, visual chaos, and a decline in environmental quality [13], [14]. It also encourages other forms of urban sprawl, such as leapfrog development and low-density, single-function development, resulting in fragmentation of urban space and gaps in infrastructure services. The impacts include an increase in vehicle volume, environmental degradation, and a decline in the quality of social life in urban communities [2]. Furthermore, the transformation of the strip into a lifestyle center also shifts the function of public space into private space, resulting in the weakening of social capital in the surrounding community [15]. The main characteristics of strip development are two- to three-story commercial buildings with limited parking space and the dominance of vehicles crowding the side of the road.

1.2. *Smart Growth Concept as an Alternative Arrangement*

The smart growth concept was developed as a response to the uncontrolled growth of cities. It emphasizes efficient use of space, connected infrastructure, and environmental and social sustainability. Key principles of smart growth include improving housing quality, reducing congestion, preserving open space, and strengthening city centers [16]. In Europe, the circular flow approach for land use management is applied to optimize former sites (brownfields) to prevent the expansion of new land [8]. This strategy aligns with the concepts of compact city and urban intensification, which emphasize the consolidation of development within existing urban areas [17].

1.3. *Strip Paths / Urban Corridors*

In an urban planning perspective, a corridor is understood as a structural element in the form of a row of buildings along a street that serves as a link between areas and shapes the visual quality and atmosphere of the neighborhood [18]. Architecturally, a corridor is not only a path of movement but also a social space with a certain spatial and aesthetic character. The characteristics of the corridor are strongly influenced by the building mass system, the presence of vegetation, pedestrian paths, and street furniture elements. As a public space, the corridor supports commercial activities while creating a visual experience for road users [12].

1.4. *The Principles of Urban Corridor Management*

The arrangement of urban corridors needs to pay attention to the principles of comfort, relaxation, passive and active involvement, and aspects of discovery [19]. The composition between building masses and open spaces needs to be organized through a figure-ground approach to create a dynamic urban structure. Each urban area consists of fragments of interconnected corridors, so the importance of the linkage concept is in helping people understand the relationship between parts of the area as a whole. There are three main approaches in this concept, namely visual linkage, structural linkage, and collective linkage, which play a role in strengthening spatial integration between city elements. To understand the visual system in the corridor, a serial vision approach can be used, which consists of aspects of vision, place, and content [20]. This approach emphasizes the importance of sequential visual experience when moving in urban space, as well as understanding the meaning of place and its context.

1.5. *Place Identity (Genius Loci)*

The concept of genius loci, or the spirit of place, explains the emotional and cultural values inherent to a location. Human attachment to a place is divided into three categories, namely place attachment, place identity, and place dependence [21]. These three elements form a sense of place that is important for the social sustainability of an area. Elements such as paths, edges, nodes, districts, and visual markers (landmarks) shape the imageability or strong image of a place [22]. The spirit of a place is reflected in the interaction between culture and physical elements, such as historical artifacts, topography, and the layout patterns of the area.

1.6. *Pedestrian*

However, many cities in Indonesia have not met this standard. In Medan City, for example, damaged sidewalks or the absence of pedestrian paths cause pedestrians to walk on the road, which increases the risk of accidents [22]. Based on the Universal Declaration of Pedestrian Rights, every individual has the right to safe and comfortable road space. However, many cities in Indonesia have not yet met this standard. In the city of Medan, for example, the damaged sidewalks or the absence of pedestrian paths force pedestrians to walk on the road, which increases the risk of accidents [23]. A good pedestrian path should have a flat surface, sufficient width, and be free from visual and physical obstacles [24].

The research on the arrangement of pedestrian paths in the commercial corridor of Dr. Mansur Street, Medan City, was identified from the linear growth of the area due to urban sprawl, which resulted in the degradation of pedestrian functions. As a response, this research adopts a Smart Growth approach combined with three main concepts, namely, linkage (visual, structural, collective), street-square (public space composition), and local wisdom. The integration of the three is directed to produce a corridor design that is not only functional and aesthetic but also strengthens the identity of the area and supports the improvement of the quality of public space and social activities of the community (Figure 1).

This research has a contribution in filling the scientific gap, especially in the lack of pedestrian arrangement models that consider the integration between spatial theory and local values in strip development areas. Previous studies are generally technical in nature and have not accommodated many behavioral patterns and habits of the community. In addition, research that comprehensively combines the concepts of smart growth, linkage theory, and street-square in the context of urban commercial areas is still rare. Thus, this research offers a more contextual, integrative, and community-based approach.

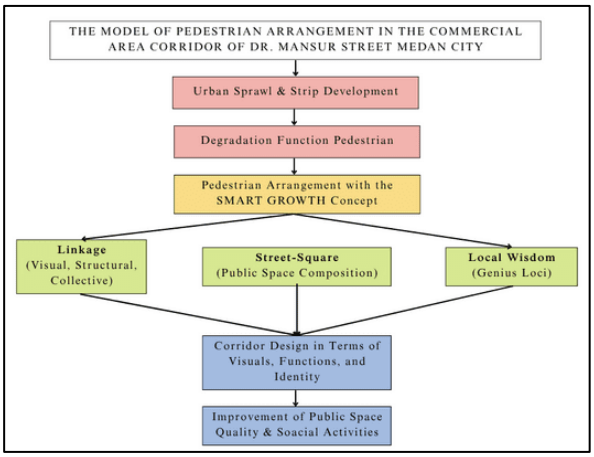

Figure 1 The conceptual framework of the research
(Source: Author's Analysis, 2020 updated 2024)

2. Method

This research uses a mixed-methods approach (quantitative and qualitative) with an exploratory descriptive approach. This approach was chosen to obtain a comprehensive understanding of the dynamics of the commercial area along the Dr. Mansur Road corridor in Medan City, which is experiencing urban sprawl and strip development [25]. The study area covers approximately 1.2 km from Pattimura Intersection to Setiabudi Intersection, with delineation using the spatial mapping method. Data collection was conducted through direct observation, photo documentation, and recording daily activities at three different times: morning (09:00–10:00 WIB), afternoon (13:00–15:00 WIB), and evening (17:00–19:00 WIB), covering traffic conditions, pedestrian facilities, and advertisements, as well as formal and informal commercial activities. Data were analyzed using a functional structuralism approach and SWOT analysis to identify the area's strengths, weaknesses, opportunities, and challenges, presented in the form of narratives, graphs, and visual sketches [26]. A total of 10 participants were selected through purposive sampling techniques, consisting of pedestrians, business operators, and public transport users. Participants were interviewed semi-structurally to explore their views and experiences related to the use of pedestrian spaces.

Figure 2 Research Location of Dr. Mansur Street Medan Area (Source: Google Maps)

The research site is located in the corridor of Dr. Mansur Street, Medan City, which is one of the arterial roads with a length of approximately 2.05 km (Figure 2). This street stretches from Pattimura street to Setiabudi street, and administratively serves as the boundary between Merdeka Village and Padang Bulan Village. Dr. Mansur Street also crosses three sub-districts, namely Medan Selayang, Medan Helvetia, and Medan Sunggal, and serves as an important link between the eastern and western areas of Medan City. This strategic position makes Dr. Mansur Street heavy traffic route that accommodates both pedestrian and medium vehicle movements (Figure 3).

Figure 3 Atmosphere of Dr. Mansur Street Intersection
(Source: Author's Analysis, 2020 updated 2024)

The important transportation nodal points along this corridor include the Campus-Patimura Street intersection, Perjuangan street intersection, Selayang intersection, and Setiabudi intersection. Land use changes from residential to commercial zones that are not accompanied by adequate spatial planning have led to an increase in vehicle volume, indiscriminate parking on the roadside, and irregular loading and unloading of goods, triggering congestion.

The physical environment of Dr. Mansur Street is generally quite leafy and shady, with the presence of trees helping to create a comfortable microclimate. This condition encourages the emergence of various informal economic activities, such as street food merchants, food vendors, as well as credit and internet service sellers, which are scattered at around 100 points between the Campus Intersection and BNI 46 Building, with the distance between points ranging from 5 to 10 meters (Figure 4). These activities mostly occupy the pedestrian path and often cause congestion due to vehicles stopping to shop, as well as the dominance of motorcycles using the road shoulder as a parking area.

Figure 4 The Informal Street Merchants on the Pedestrian of Dr. Mansur Street
(Source: Author's Analysis, 2020 updated 2024)

Firstly known as Universitas Sumatera Utara Street, this section has evolved in line with the increasing activities and volume of road users. Now, Dr. Mansur Street acts as an urban arterial road that connects the centers of education, health, and commercial activities in Medan City, making it a strategic corridor that needs to be reorganized to support a more orderly and sustainable urban function.

3. Results and Discussion

3.1. The Physical Character and Spatial Analysis of Dr. Mansur Street

In segment 1 of Dr. Mansyur Street-Setiabudi Street, this area shows high traffic density and is dominated by commercial activities, especially cafes and nightlife. Intensive economic activities along this road trigger functional conflicts between motorized vehicles, on-street parking, and pedestrian space. The absence of adequate sidewalks and overlapping use of road space causes inconvenience and potential danger for road users, especially pedestrians. Meanwhile, segment 2 of Dr. Mansyur Street shows a striking imbalance between the left and right sides of the road, both in terms of the availability of pedestrian facilities and spatial arrangement. Many open spaces are not optimally utilized and tend to be neglected. In addition, the lack of vegetation and street lighting also worsens the quality of the road environment and reduces comfort and safety for users, especially at night. As for segment 3 of Dr. Mansyur Street-Jamin Ginting Street, this area functions as a transition area to a large transportation node, namely the Jamin Ginting intersection. The high volume of vehicles in this segment puts great pressure on road space, while pedestrian facilities are very limited. The lack of safe crossing lanes and unavailability of proper pedestrian space worsen accessibility and safety for the public, especially non-motorized users (Table 1).

Table 1 Key findings by street segment

No	Segment Street	Key Findings	Problems	Potential Development
1	Dr. Mansyur – Setiabudi	- Busy night culinary activities - Congested traffic - Illegal parking	- Conflict of pedestrian vs vehicle functions - Narrow and disturbed sidewalks	Culinary zone arrangement, sidewalk expansion
2	Dr. Mansyur	- Inequality of facilities between sides of the street - Minimal vegetation	- Sidewalks are not spread out well - Lack of lighting - Lack of space to lounge	Sidewalk revitalization, provided vegetation
3	Dr. Mansyur – Jamin Ginting	- Vehicle congestion point - Access to city nodes	- No crosswalk - Poor pedestrian facilities	Addition of zebra crossings and bus stops, increase pedestrian space

Spatial analysis based on urban elements according to Kevin Lynch on the Dr. Mansyur Street corridor shows differences in character between segments (Table 2). The Dr. Mansyur–Setiabudi segment functions as an active commercial district with the dominance of night culinary activities, marked by the presence of landmarks in the form of culinary shophouses, large billboards, and the Nagabonar Tri-junction Monument, as well as the main node at the Setiabudi intersection, which is the center of movement and interaction (Figure 5).

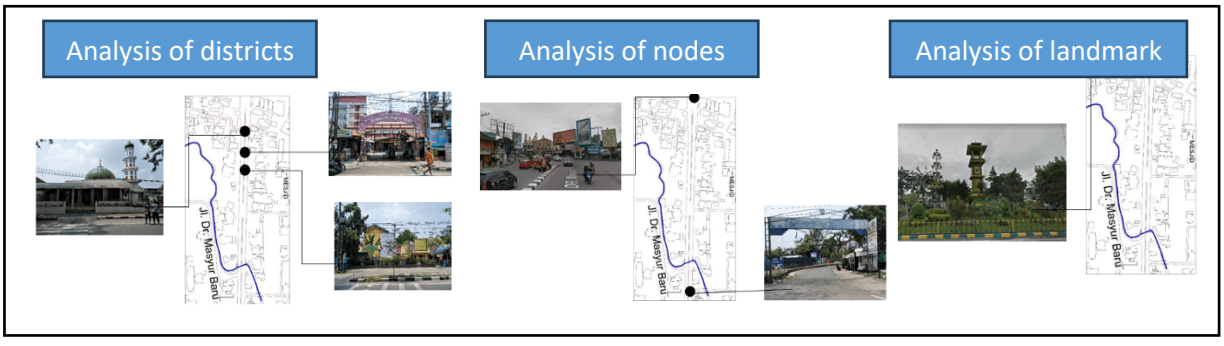

Figure 5 Mapping of Landmarks, Nodes and Districts in the Dr. Mansyur–Setiabudi segment (Source: Author's Analysis, 2020 updated 2024)

In the middle segment of Dr. Mansyur Street, the area shows mixed residential and service functions but lacks a strong spatial identity. No significant nodes are found, and the existing landmarks are only small buildings that are not visually prominent (Figure 6).

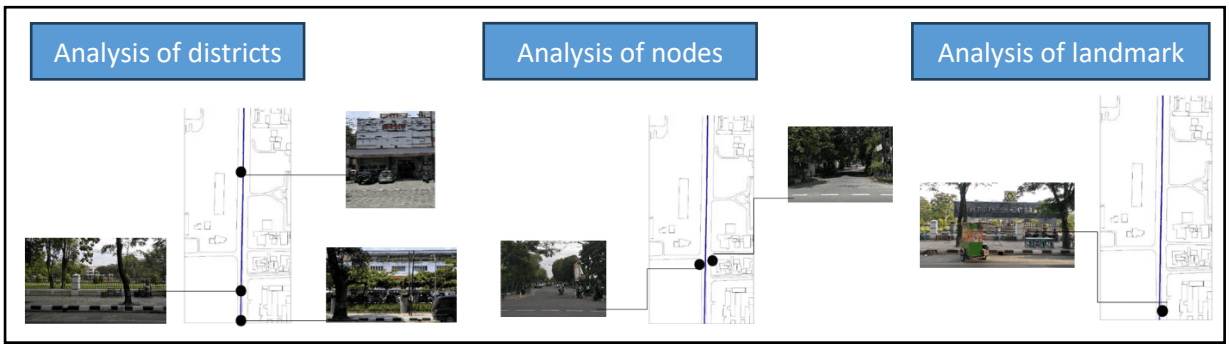

Figure 6 Mapping of Landmarks, Nodes and Districts in the Dr. Mansyur segment (Source: Author's Analysis, 2020 updated 2024)

Meanwhile, the Dr. Mansyur-Jamin Ginting segment is a transition area to the city's transportation nodes. The main node is located at the Jamin Ginting intersection, and landmarks in the form of institutional buildings and bus stops function as orientation markers, although they are not fully utilized. This difference reflects the need for different arrangements in each segment to strengthen the spatial structure and visual quality of the area (Figure 7).

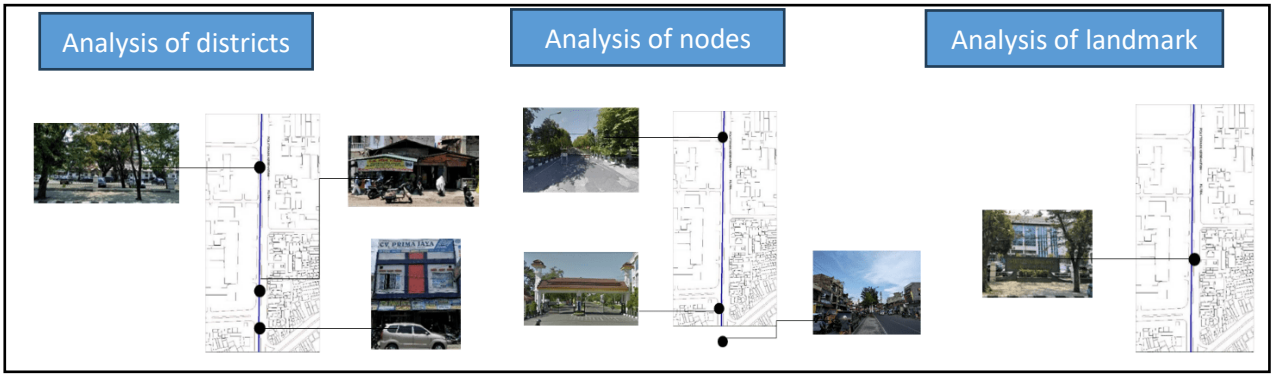

Figure 7 Mapping of Landmarks, Nodes and Districts in the Dr. Mansyur-Jamin Ginting segment (Source: Author's Analysis, 2020 updated 2024)

Table 2 Spatial analysis of Dr. Mansyur street based on city elements (Kevin Lynch)

No.	Segment	District	Node	Landmark
1	Dr. Mansyur – Setiabudi	The commercial district is bustling with active dining, café and nightlife activities	Setiabudi Intersection: traffic node and center of concentration of street user activities	Famous culinary shophouses, illuminated shop signs, large billboards on top of buildings, Nagabonar Tri-junction Monument
2	Dr. Mansyur	Mixed residential and service districts that are not well organized visually or functionally	Weak; no significant nodes, only small business buildings and parking lots are distributed.	Shops, semi-permanent buildings and open spaces are not utilized as landmarks
3	Dr. Mansyur – Jamin Ginting	Transitional districts to major transportation zones and educational institutions	Jamin Ginting Intersection: traffic distribution node between city corridors and intermodal access	Educational institutions, bus stops and large buildings around the intersection act as local spatial landmarks

Based on physical and behavioral observations, a number of places with characters that show strong attractiveness as landmarks were identified as USU Hospital, USU Gate 1, BNI Bank, AW Resto, Champion Cafe, Mansur Apartment, and Grandhika Hotel. As for the potential of being an attraction, the nodes are the

Campus Intersection, Perjuangan Street intersection, Selayang intersection and Setiabudi Street intersection. The famous districts on Dr. Mansur Street corridor are USU Hospital, USU Campus (Faculty of Medicine campus, Rectorate Bureau), Selayang Swimming Pool area, and Syafiatul Amaliyah school area (Figure 8).

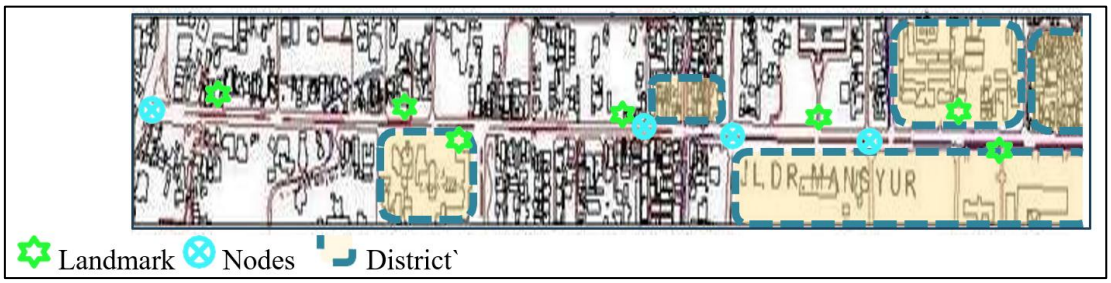

Figure 8 Mapping of Landmarks, Nodes and Districts in the Research Area
(Source: Author's Analysis, 2020 updated 2024)

Based on the identification of a number of corridor attractions, a pattern can be obtained that becomes the basis for the commercial sequential design of the Dr. Mansur Street corridor as a Linkage Visual Corridor, Linkage Structural Joined, and Linkage Collective Group Form. As a corridor, Dr. Mansur Street shows assertiveness as a massive arterial corridor as a strip development (ribbon type) with rows of commercial activities along the road (Figure 9).

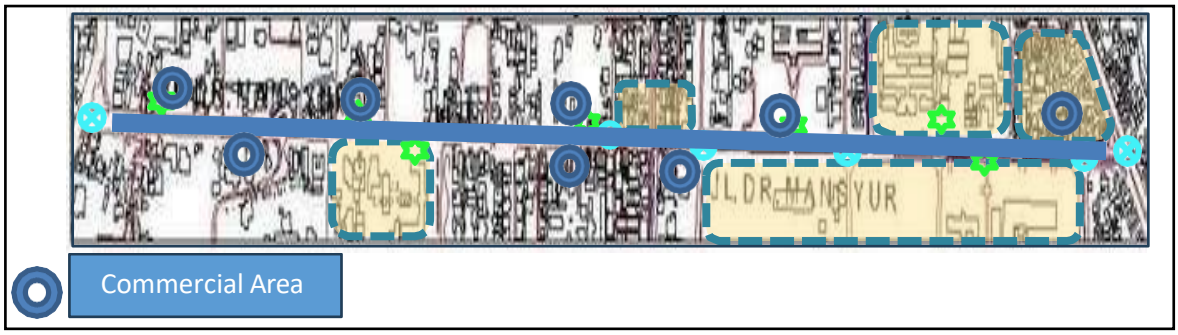

Figure 9 Commercial Sequence in the Research Area
(Source: Author's Analysis, 2020 updated 2024)

3.2 Comparison with Previous Studies

The Braga Street area in Bandung City shows a strong focus on preserving colonial architectural heritage and revitalization efforts both physically and non-physically. These efforts are directed at improving the quality of walkability and attracting tourists through strengthening the identity of the area as a historic public space [27], [28], [29], [30]. Meanwhile, the Malioboro area in Yogyakarta emphasizes pedestrian functions that are user-friendly, clean, safe, and supportive of social and cultural activities. The arrangement of this area reflects an inclusive approach in creating a comfortable urban space for pedestrians while strengthening the image of local culture [31], [32], [33], [34]. In contrast to Alor Street in Kuala Lumpur, this area is known as a bustling culinary-based nightlife icon. However, despite its high informal economic appeal, the pedestrianization of Jalan Alor has not been optimized, with more attention paid to commercial aspects than to the aesthetics and comfort of the pedestrian space [35], [36] (Table 3).

Table 3 Comparison of aspects of street pedestrian arrangement of the Braga Street (Bandung), Malioboro Street (Yogyakarta), and Alor Street (Kuala Lumpur)

Aspect	Braga Street (Bandung)	Malioboro Street (Yogyakarta)	Alor Street (Malaysia)
Characteristics	Art-deco colonial heritage area, tourism & creative economy center	Semi-pedestrian area, cultural & shopping center	Famous street food area, active at night, culinary tourism
Purpose of Arrangement	Revitalize the heritage area and pedestrian mall	Improve pedestrian comfort and safety	Organize pedestrian circulation and maintain

Aspect	Braga Street (Bandung)	Malioboro Street (Yogyakarta)	Alor Street (Malaysia)
			the attractiveness of culinary tourism
Methods of Evaluation	Greenshields, Greenberg, Walkability Index, Visual streetscape	Customer Satisfaction Index, Importance Performance Analysis, Walkability	Field observation & DBKL (Dewan Bandaraya Kuala Lumpur) policy
Services Level	B-C (flow & space), E-F (speed) → Service C due to tourist areas	69.19% sufficient, needs improvement in weather protection, CCTV, and crossing aspects	Low during heavy tourist traffic; lack of sidewalks and pedestrian-vehicle conflicts
Element of Comfort	High accessibility, good streetscape visuals (active frontage), but management needs to be improved	Seating, disabled path, visually organized, but not optimally used	No special visual elements, narrow streets, but very strong culinary experience
Main Problems	Illegal parking, impaired pedestrian mobility, old buildings abandoned	Pedestrian vs vehicle conflicts, parking zones, street vendors, garbage problems	Overcrowding at night, lack of pedestrian and vehicle flow management
Uniqueness of the Area	Art-deco architecture and colonial history	"Cultural Terrace" concept, active pedestrian area all day long	Evening street food, informal atmosphere, popular with international tourists
Theories Used	- Walkability (Southworth, 2005) - Pedestrian Level of Service (LOS) - Green Infrastructure	- Walkability Index - Konsep Livable Streets (Jacobs) - Comfort & Security (Gehl, 2010)	- Urban Liveability - Walkable City Framework

3.3 Model of Area Design

The area structuring model proposed in this research is based on a synthesis between the spatial structure, visual character, and social activity patterns of the local community along the Dr. Mansur Street corridor. This approach refers to Kevin Lynch's theory, specifically the three main elements of districts, nodes, and landmarks, which are used to strengthen the identity of the area and improve the quality of public space. Spatially, the corridor is divided into three main segments: (1) the Dr. Mansur-Setiabudi segment as a dense commercial area with night culinary activities; (2) the Dr. Mansur segment as a transition zone with mixed character; and (3) the Dr. Mansur-Jamin Ginting segment dominated by student activities. Each district has its own character that becomes the basis for structuring pedestrian space. With this approach, the arrangement of the area does not only focus on the physical aspects of the pedestrian path but also pays attention to the spatial structure and elements that form the identity of the area. This model is expected to restore the function of public space as a place that is safe, comfortable, and reflects the local character of the Medan City community.

3.3.1 Pedestrian

The pedestrian path in this area will be narrowed and modified with a green lane to avoid street vendors who often take the pedestrian path as a trading area (Figure 10).

Figure 10 Illustration of Pedestrian Proposed Commercial Sequence in the Research Area
(Source: Author's Analysis, 2020 updated 2024 [37])

To increase the characteristics of the USU campus along this corridor, several points will be built along the pedestrian path, named "time passage", which is an open exhibition that contains information or works from each faculty in USU (Figure 11). The exhibition area will be placed on the pedestrian along door 2 to door 3 of USU with 15 exhibition boards according to the number of faculty on the USU campus (Figure 12).

Figure 11 Illustration of Exhibition Area
(Source: Author's Analysis [38])

Figure 12 Map of Exhibition Area Placement
(Source: Author's Analysis, 2020 updated 2024)

In the area of traders or food shops for students, the pedestrian in this segment will be designed as a walk-through pedestrian that will give the impression of closeness and no boundaries for pedestrian users. And to add aesthetics and increase the interest of walking in the surrounding community, pedestrians are designed with interesting patterns and colors, which are also instagramable (Figure 13).

Figure 13 Pedestrian Sequence in the Research Area
(Source: Author's Analysis [39], [40])

Unfortunately, this type of pedestrian is often used as a parking lot because there is no clear boundary between the road shoulder, the pedestrian and the shop terrace. So the solution to the problem is to use a chain barrier as shown in the picture. This chain barrier will be placed on the outer boundary of the pedestrian path that directly intersects with the street.

3.3.2 Shelter

The shelter is useful as a place to rest and/or shelter from the heat and rain for pedestrians and road users. The dividing wall of the shelter is designed to be utilized for advertising and signage (Figure 14).

Figure 14 Model Shelter
(Source: Author's Analysis, 2020 updated 2024)

The shelter is placed in an area that has a minimum pedestrian width of 2 meters, and there is active pedestrian activity. The area is located in segment 1, from Jl. Jamin Ginting intersection to USU door 4. Also, the distance between shelters is only 175-300 m to maintain the comfort of pedestrians (Figure 15).

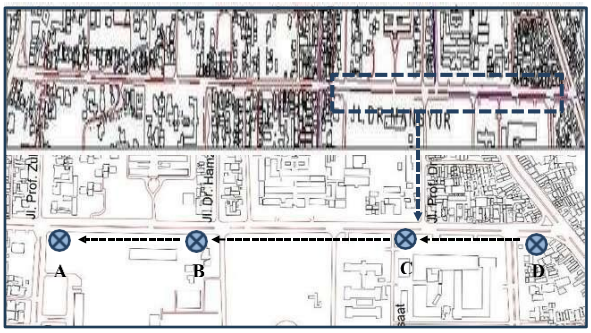

Figure 15 Map of Shelter Placement on Segment 1 Dr. Mansur
(Source: Author's Analysis, 2020 updated 2024)

In addition to shape design, comfort should also be considered in designing shelters. For this reason, in each shelter, a spot of interest will be designed so that users who are resting can also have visual recreation.

Figure 16 Illustration of Shelter A and Shelter B
(Source: Author's Analysis, 2020 updated 2024 [41])

In Shelter A and B, the area that will be used as a spot of interest is across the shelter. The area will be designed into an aesthetic spot where the existing pedestrian, which is approximately 15 meters long, will be installed with a colorful glass canopy that, when exposed to sunlight, will produce a very beautiful light beam (Figure 16). This spot will also be equipped with pieces of furniture that will beautify the area and certainly be suitable as a selfie spot.

At Shelter C, the area that will be used as a spot of interest is at the median of the street. The area will be planted with colorful tabebuya trees. The street median in this area will also be equipped with colorful spotlights that will look beautiful when enjoyed at night (Figure 17).

Figure 17 Illustration of the Spot of Interest Area Shelter B and Shelter D (Street Singers)
(Source: Author's Analysis [42], [43])

In Shelter D, the spot of interest in this shelter is the street artists who usually pass by at the intersection when the light is red or there are also those who use the street median to show their actions (Figure 17).

3.3.3 *Mansur Plaza*

The presence of street vendors along the Dr. Mansur Street corridor certainly disrupts traffic and results in not maximizing the use of street furniture in the corridor. Therefore, the solution to this problem is to relocate the street vendors' area, which will be collectively placed at several points (Figure 18).

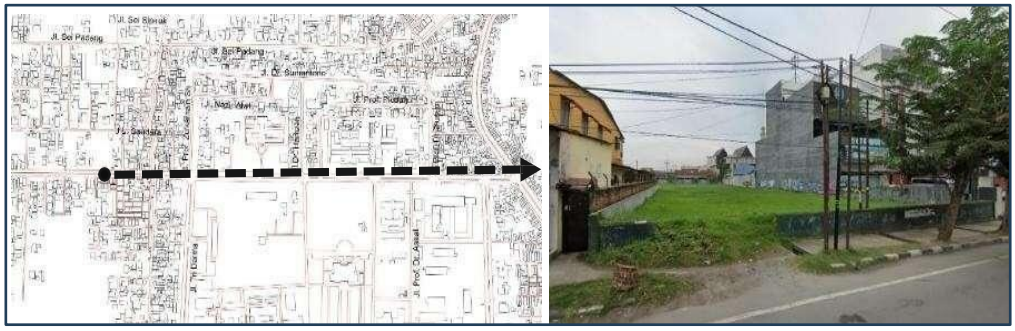

Figure 18 Street food merchants area along Dr. Mansur Street corridor
(Source: Author's Analysis, 2020 updated 2024)

The Mansur Plaza will be built on two vacant lots that are still in the Dr. Mansur Street corridor. In addition to providing land for street food merchants, Mansur Plaza is also designed for a community center, two different but related functions (Figure 19). To prevent congestion, Mansur Plaza also provides vehicle parking that can accommodate both two and four-wheeled vehicles. This parking area is placed on the right, left and rear sides of the land to create a close and direct impression for street users.

Figure 19 Illustration of Mansur Plaza and vehicle parking on Dr. Mansur Street
(Source: Author's Analysis, 2020 updated 2024)

3.3.4 *Mansur Food Fest*

The Selayang Swimming Pool, which is identical to the culinary area, is suitable as a food fest area. The entrance of the swimming pool, which tends to be inactive at night, is very suitable to be used as a space for organizing food fests at both entrance roads (Figure 20). The food fests will be held every weekend night and on other major holidays.

Figure 20 Illustration of Mansur Food Fest
(Source: Author's Analysis, 2020 updated 2024 [44])

3.3.5 Vegetation

On Segment 1, Dr. Mansur's existing pedestrian path, which is currently often converted by street vendors as trading stalls, requires handling. One of them is in terms of vegetation. Vegetation used along the pedestrian path uses glodokan pole tree species (Figure 21). The selection of this tree is based on its function as a barrier to the pedestrian area and the road, so that street vendors cannot use the pedestrian path as a trading area.

In addition, the reason for replacing the existing trees with glodokan tiang trees is that these trees do not create a shady atmosphere, which reduces the comfort of the street vendors in the area. For the median strip, the recommended vegetation is tabebuya trees. This tree is trending in several big cities in Indonesia due to its high aesthetics. In this segment, the selection of this tree is based on its function as a shade plant that has high aesthetic value. Additionally, the placement of king palm trees along the USU Hospital area is aimed at emphasizing one of the districts and also landmarks in the corridor (Figure 22). The placement of king palm trees in the area aims to provide a different atmosphere along the corridor, similar to the placement of tabebuya trees along the USU campus district.

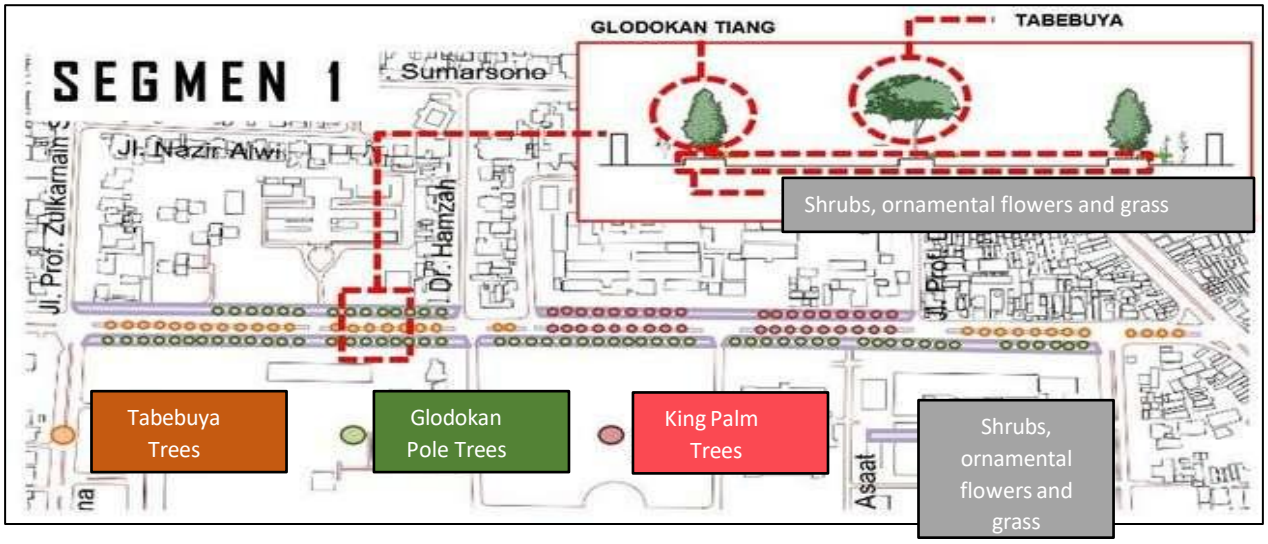

Figure 21 Map of Vegetation Model in Segment 1 Dr. Mansur
(Source: Author's Analysis, 2020 updated 2024)

Figure 22 Illustration of Glodokan Tiang, Tabebuya and Palm Tree Vegetation in Segment 1 Dr. Mansur
(Source: Author's Analysis [45], [46], [47])

In Segment 2, the existing area, which is mostly culinary shops, automatically requires the convenience of pedestrian users to pass from one shop to another (Figure 23). Therefore, a shade plant is needed, namely the ketapang kencana tree. In addition to its function as a shade, this tree also has a slender trunk, very suitable for pedestrian conditions that tend to be narrow (Figure 24).

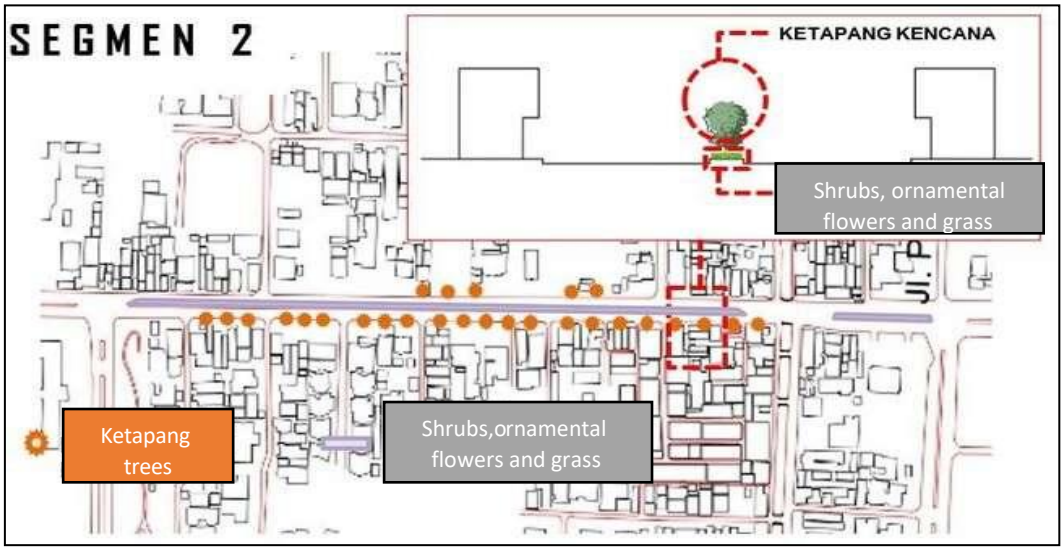

Figure 23 Map of Vegetation Model in Segment 2 Dr. Mansur
(Source: Author's Analysis, 2020 updated 2024)

Figure 24 Illustration of Ketapang Kencana Tree Vegetation in Segment 2 Dr. Mansur
(Source: Author's Analysis [48])

Similar to Segment 2, in Segment 3, Ketapang trees were chosen due to the need for shade plants at several points, but the width of the pedestrian in this segment also tends to be narrow (Figure 25). In the area dominated by cafes, the recommended vegetation is the Cambodian tree (Figure 26). The placement of this tree is an affirmation of the cafe commercial area, which is expected to provide a different and aesthetic atmosphere.

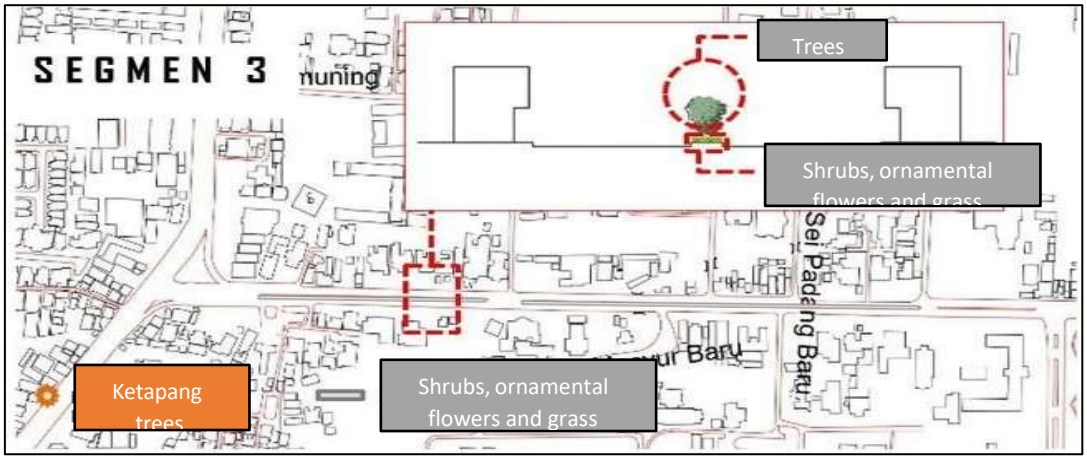

Figure 25 Map of Vegetation Model in Segment 3 Dr. Mansur
(Source: Author's Analysis, 2020 updated 2024)

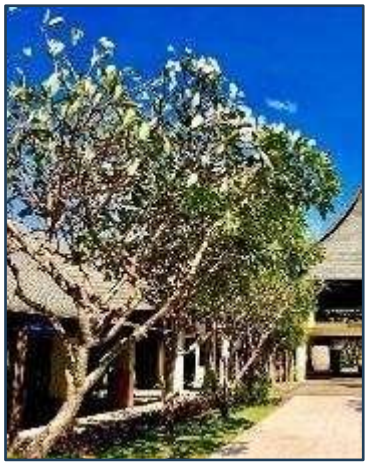

Figure 26 Illustration of Cambodian Tree Vegetation in Segment 3 Dr. Mansur
(Source: Author's Analysis [49])

4. Conclusion

This research shows that the commercial corridor of Dr. Mansur Street has potential as an active urban social space but is currently not supported by an adequate spatial arrangement. The chaotic condition of the pedestrian path, the presence of irregular street vendors, and the lack of visual continuity indicate the need for an integrated reorganization. The Medan City Government needs to immediately take strategic steps through a more assertive and sustainable public space management policy, especially in managing informal activities so that they do not interfere with pedestrian functions. This arrangement needs to combine physical, social, cultural, and environmental aspects, as reflected in the smart growth approach.

The bottom-up approach is important in this context, by actively involving the community in the planning and decision-making process. By understanding local customs and needs, zoning will be more inclusive and contextualized. As a direction for future research, it is suggested to develop participatory design methods that can strengthen collaboration between the community, local businesses, and the government in structuring urban corridors in a sustainable manner.

5. Acknowledgements

The authors express gratitude to the TALENTA Research 2020, supported by the Universitas Sumatera Utara (USU), as documented in the cooperation agreement No. 393/UN5.2.3.1/PPM/SPP-TALENTA USU/2020 dated April 28, 2020. The author would also like to express his gratitude to the related parties who helped conduct this research.

6. Conflict of Interest

This research aims to design a good, aesthetic, and architectural arrangement model that accommodates developments and changes in the research area. The involvement of the general public as direct users, the government, and related parties is needed to concretize this model into reality. However, there are potential problems in the form of premanism, maintenance costs, and exclusivity of the area. The exclusivity of the area contradicts inclusivity, where exclusivity can only be enjoyed by certain communities of people or institutions, while inclusivity removes this limitation.

References

[1] X. Wang, R. Shi, and Y. Zhou, "Dynamics of urban sprawl and sustainable development in China," *Socioecon. Plann. Sci.*, vol. 70, no. June, p. 100736, 2020, doi: 10.1016/j.seps.2019.100736.
[2] R. Ewing and S. Hamidi, "Compactness versus Sprawl: A Review of Recent Evidence from the United States," *J. Plan. Lit.*, vol. 30, no. 4, pp. 413–432, 2015, doi: 10.1177/0885412215595439.

[3] B. Bagheri and R. Shaykh-Baygloo, "Spatial analysis of urban smart growth and its effects on housing price: The case of Isfahan, Iran," *Sustain. Cities Soc.*, vol. 68, no. August 2020, p. 102769, 2021, doi: 10.1016/j.scs.2021.102769.
[4] R. Shih, "Urban Sprawl and Strip Development : The Case Study of the Banilad- Talamban Corridor Urban Sprawl and Strip Development : The Case Study of the Banilad - Talamban Corridor," no. January 2015, 2017.
[5] W. Zahrah, D. N. Aulia, and B. O. Marpaung, "Koridor Ruang Kota Layak Huni: Budaya 'Merampas' Ruang Publik," *Pros. Temu Ilm. IPLBI*, p. Halaman E 089, 96., 2016.
[6] A. R. Kushidayati and P. G. Ariastita, "Arahan Pengendalian Penggunaan Lahan di Koridor Jalan Raya Juanda Sidoarjo," *J. Tek. ITS*, vol. 6, no. 2, pp. C640–C644, 2017.
[7] K. Wolf, "Strip Malls and City Trees," *Arboirculture Urban For.*, vol. 35, no. 1, pp. 33–40, 2009.
[8] R. Shrivastava and A. Sharma, "Smart Growth: A Modern Urban Principle," *Archit. Res.*, vol. 1, no. 1, pp. 8–11, 2012, doi: 10.5923/j.arch.20110101.02.
[9] E. Bacon, *Design of Cities*. United Kingdom: Thames & Hudson, 1967.
[10] C. Rowe and F. Koetter, *Collage City*. The MIT Press, 1979.
[11] R. Trancik, *Finding Lost Space: Theories of Urban Design*. Van Nostrand Reinhold, 1991.
[12] R. Krier and C. Rowe, *Urban Space*. London: Academy Editions, 1979.
[13] R. G. Holcombe, "Growth Management In Florida: Lessons For The National Economy," *CatoJournal*, vol. 10, no. 1, pp. 109–125, 1990.
[14] J. A. G. Jaeger and C. Schwick, "Improving the measurement of urban sprawl: Weighted Urban Proliferation (WUP) and its application to Switzerland," *Ecol. Indic.*, vol. 38, pp. 294–308, 2014, doi: 10.1016/j.ecolind.2013.11.022.
[15] E. Talen and S. Lee, *Design for Social Diversity*. Routledge, 2018.
[16] S. G. America, "Principles of Smart Growth." [Online]. Available: https://smartgrowthamerica.org
[17] H. Ruibo and W. Linna, "Challenges and Opportunities Facing China's Urban Development in the New Era," *China Perspect.*, vol. 2013, no. 2, pp. 15–27, 2013, doi: 10.4000/chinaperspectives.6149.
[18] M. Zahnd, *Perancangan Kota Secara Terpadu*. Yogyakarta: Kanisius, 1999.
[19] C. Moughtin, *Urban Design: Street and Square*. Routledge, 2003.
[20] G. Cullen, *Concise Townscape*. London: Routledge, 2012. doi: https://doi.org/10.4324/9780080502816.
[21] E. Relph, *Place and Placelessness*. 1976. [Online]. Available: https://slunik.slu.se/kursfiler/LK0189/40081.1314/Relph_by_Joahansson_sem_7.pdf
[22] K. Lynch, *The Image of the City*, First edit. The MIT Press, 1960.
[23] T. Banerjee and A. Loukaitou-Sideris, *Companion to Urban Design*, 1st Editio. London: Routledge, 2011. doi: https://doi.org/10.4324/9780203844434.
[24] X. Zhu and S. C. Chiou, "A Study on the Sustainable Development of Historic District Landscapes Based on Place Attachment among Tourists: A Case Study of Taiping Old Street, Taiwan," *Sustain.*, vol. 14, no. 18, 2022, doi: 10.3390/su141811755.
[25] J. W. Creswell and V. L. P. Clark, *Designing and Conducting Mixed Methods Research*, 3rd ed. Sage Publications, 2017. [Online]. Available: https://us.sagepub.com/en-us/nam/designing-and-conducting-mixed-methods-research/book241842
[26] P. Ricoeur, *Interpretation Theory: Discourse and the Surplus of Meaning*. Texas: Texas Christian University Press, 1976.
[27] S. N. Putriana, R. D. A. B. Fairdian, and A. Asyraf, "Analisis Walking Permeability, Walking Effort, dan Walkability Index, Studi Kasus Pada Jalan Braga Bandung," *J. Tek. Sipil*, vol. 31, no. 2, pp. 201–208, 2024, doi: 10.5614/jts.2024.31.2.10.
[28] B. F. Pradharma, D. T. Alnindya, B. A. M. Pourine, A. S. Ekomadyo, and V. Susanto, "Street Experience Jalan Braga : Memahami Pemenuhan Kebutuhan Pejalan Kaki melalui Media Google Street View," *J. Arsit. Zo.*, vol. 4, no. 1, pp. 46–61, 2021, doi: 10.17509/jaz.v4i1.29920.
[29] S. Apriliyani and D. Setiawan, "ANALISIS KARAKTERISTIK DAN TINGKAT PELAYANAN PEDESTRIAN DI KAWASAN PUSAT PERTOKOAN DI JALAN BRAGA BANDUNG DENGAN METODE GREENSHIELDS," *J. MOMEN*, vol. 07, no. 02, pp. 140–154, 2024.
[30] R. Astria, "Perubahan Tingkat Kenyamanan Pedestrian Di Jalan Braga Utara , Bandung," *J. Ilm. Desain Konstr.*, vol. 18, pp. 27–39, 2019.
[31] M. F. Chakam and A. Rakhmatulloh, "Study on Service Quality and Priorities of Pedestrian Path Development in Malioboro Area to Support Sustainable Urban Mobility," *Astonjadro*, vol. 13, no. 1, pp. 138–145, 2024, doi: 10.32832/astonjadro.v13i1.14534.
[32] A. T. Uak, "Evaluasi Konsep Ramah Pejalan Kaki Pada Pedestrian Malioboro Dengan Pendekatan

Konsep Walkability," *J. Arsit. ARCADE*, vol. 4, no. 1, p. 29, 2020, doi: 10.31848/arcade.v4i1.324.
[33] Y. G. Mukti and P. D. Ir. Suparwoko, MURP., "Revitalisasi Sirkulasi dan Pedestrian Pada Kawasan Malioboro, Yogykarta," *Konf. Nas. II Forum Wahana Teknol.*, 2015.
[34] A. S. Prayuda, E. Priyo, L. Salsabila, and A. Kasiwi, "Persepsi Wisatawan Terhadap Penataan Kawasan Pedestrian Malioboro," *J. Nas. Pariwisata*, vol. 12, no. 1, pp. 9–18, 2020.
[35] J. Zakaria and N. Ujang, "Comfort of Walking in the City Center of Kuala Lumpur," *Procedia - Soc. Behav. Sci.*, vol. 170, no. January, pp. 642–652, 2015, doi: 10.1016/j.sbspro.2015.01.066.
[36] N. Nasrudin, M. Sarimin, and N. Ibrahim, "ASSESSING A WALKABLE ENVIRONMENT IN JALAN TUANKU ABDUL RAHMAN, KUALA LUMPUR, MALAYSIA," *Plan. MALAYSIA J. Malaysian Inst. Planners*, vol. 16, no. 3, pp. 261–273, 2018.
[37] C. College, "Royce E. Pollard Japanese Friendship Garden." [Online]. Available: Royce E. Pollard Japanese Friendship Garden
[38] D. Libeskind, "Daniel Libeskind designs photo installation at Auschwitz." [Online]. Available: https://www.dezeen.com/2019/07/23/daniel-libeskind-auschwitz-caryl-englander-photography-through-the-lens-of-faith/
[39] Alusruvi, "Pavement Walk Road." [Online]. Available: https://pixabay.com/photos/pavement-walk-road-barrier-1681490/
[40] J. Wang, "Plaza." [Online]. Available: https://www.pinterest.com/pin/514677063684547206/
[41] Mxnna, "Konstanz University - Decorative Metal Sheets." [Online]. Available: https://in.pinterest.com/pin/291185932178904009/
[42] C. Green, "Busker with Electric Guitar on Liverpool City Centre Street." [Online]. Available: https://www.shutterstock.com/image-photo/busker-electric-guitar-on-liverpool-city-736238
[43] Festival of Lights, "0004 Unter den Linden FESTIVAL OF LIGHTS 2009." [Online]. Available: https://www.flickr.com/photos/festivaloflights/4859697753/
[44] "Golden Night Market (Okayama City/Ishiyama Park)." [Online]. Available: https://okayama-kodomo.net/blog/2019/04/22/23772/
[45] "Glodokan: Evergreen & Pemecah Angin." [Online]. Available: https://greenindonesia.co/glodokan-evergreen-pemecah-angin/
[46] nowdots, "Potret Bunga Tabebuya di Jalanan Kota Magelang, serasa di Jepang." Accessed: Apr. 25, 2025. [Online]. Available: https://www.instagram.com/p/Cy-kRAALosj/?igsh=NGNucDZzOTNvZnIx&img_index=1
[47] D. Maryatii, "Pohon Palem." [Online]. Available: https://www.instagram.com/p/CQfhtGnhHbk/?igsh=MTdxcjB6bXhmcWh0dQ%3D%3D
[48] Agro Sejahtera, "Beberapa contoh koleksi pohon ketapang." [Online]. Available: https://jualpohonbesar.com/pohon-ketapang/
[49] B. Walters, "Anvaya Cove Beach and Nature Club, Morong, Bataan, Philippines." [Online]. Available: https://globalgardenlab.com/anvaya-cove-beach-and-nature-club-morong-bataan-philippines-2/