

# THE INFLUENCE OF CONTEXT AND URBAN STRUCTURE ON THE WALKABILITY OF BUKIT BINTANG COMMERCIAL DISTRICT, KUALA LUMPUR

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## ABSTRACT

*According to Wall and Waterman (2009), the walkability of an urban district is influenced by the contextual integration between the district and the surrounding areas as well as the structure of the urban fabric. This paper discusses the context and the urban structure of Bukit Bintang Commercial District in light of the walkability criteria. Using the criteria adapted from various scholars, this study measures the walkability of the district and identifies the influencing factors through field observations. The findings indicate that the success of Bukit Bintang district as a walkable urban place is supported by the connectivity of the area to the adjacent urban nodes of Pudu and Kuala Lumpur City Centre (KLCC). The structure of the urban fabric (i.e. streets, open spaces and buildings) is legible, which provides ease of movement. However, the permeability is low in the newer parts of the area due to the presence of longer urban blocks and larger footprint shaped by the modern shopping complexes built in the 1980's. The findings denote the need for enhanced legibility of smaller urban spaces and improved permeability of larger urban blocks. This will increase the walkability of Bukit Bintang Commercial District for the pedestrian comfort of walking.*

**Keyword** context, urban structure, walkability, Bukit Bintang Commercial District

## 1. INTRODUCTION

Walkability relates to how the environment is able to support and encourage walking (Southworth, 2005). It is not only limited to the urban design qualities that may promote walking, but also the psychological aspect, such as the pleasure and enjoyment while walking. Therefore, walkability should be considered as it converges the different elements of urban design, namely, the structure, context, time, distance and for users to make sense of the city. Buildings, open spaces, streets and paths are significant urban elements in an urban district. The legibility and connectivity of these elements support ease of movement and accessibility of the pedestrians, allowing people to make sense of the city (Wall & Waterman, 2009). It is observed in this study that the improvement of the commercial districts within the city centre of Kuala Lumpur focuses mainly on the beautification of the streetscape elements, which disregards the need to improve the legibility of the district as a whole. A walkable environment should be legible that should provide a sense of orientation and visual comfort (Southworth, 2005). The contextual integration of a district with the surrounding and the pattern of urban settings define the streets and open spaces for public consumption (Wall & Waterman, 2009). Therefore, an analysis of urban context and structure is vital in determining the extent to which the urban setting supports the walkability of urban places to the pedestrians.

## 2. WALKABILITY AND WALKABLE ENVIRONMENT

Southworth (2005) claims that walkability is a foundation for a sustainable city. It refers to how the built environment is able to sustain and encourage walking by providing the pedestrians with comfort and safety, connecting people and offering pleasant views throughout the journey. This is supported by Brown, Werner, Amburgey and Szalay (2007), who emphasize that a walkable environment that is designed to combine with walkable features can improve walkability, and hence, provide comfort of walking. This is the situation where the pedestrians have the movement priority and spaces that are mostly dominated by the pedestrians (Zacharias, 2001). Here, the walkability level can be influenced by the qualities associated with walkable environment; these include accessibility, environmental and social safety, aesthetically pleasing man-made and natural features, pedestrian amenities for comfort and land use diversity (Brown *et al.*, 2007).

Although previous studies relate physical features with walking behaviour, Ewing and Handy (2009) argue that physical features alone may not explain much about the experience of walking down a street and it does not capture the people's overall perceptions towards the urban environment. Moreover, Ewing and Handy (2009) have selected five main perceptual qualities that have been successfully operationalized and rated to evaluate and assess how these qualities influence perceptions. The qualities are imageability, enclosure, human scale, transparency and complexity. These qualities define the accessibility of the context and legibility of the urban structure, which may have affected the way people move through the city and their perceptions of the paths and spaces.

How do these qualities influence the level of walkability? A measurement to assess these qualities is developed to identify the characteristics defining the walkability of an urban district in terms of the contextual integration of the district with the surrounding areas and the form and pattern of the urban fabric that support the pedestrian's experience of a place.

## 3. CONTEXT AND URBAN STRUCTURE AS THE DETERMINANTS FOR WALKABLE ENVIRONMENT

Previous works have indicated several main criteria determining the walkability of urban public spaces that provide the sense of comfort to the pedestrians. These include context, urban structure, accessibility, connectivity,

accessibility and safety. For the purpose of this paper, the criteria relating to context and urban structure will be discussed. The importance of the context and the structure of a city can be translated according to the level of integration between urban spaces and its wider context and the legibility of buildings, spaces and other urban elements to the pedestrians. In this regard, Wall and Waterman (2009) opine that urban districts should be embedded in the context of the city and integrated with the surrounding spaces. The authors also state that urban context is about relationships, and the legibility of these often-complex relationships allows us in turn to make sense of the city. However, due to the lack of legibility and permeability, urban spaces cannot respond well to the needs of the pedestrians in terms of finding their way and orientation. Context can be associated with the location and siting as well as the distance between places. It is defined by the linkages of blocks and streets allowing spaces for pedestrians to move about. Continuous link and choices of paths help easing the movement in the city. Furthermore, walkable environment is also characterized by the high degree of accessibility with highly connected spaces within districts or towards the city centre. Efficient transport network and services promote connectivity and accessibility. However, visual linkages between places strengthen connectivity between activity nodes. The main streets play a major role in creating a stronger context since it is the main connecting route to and from the commercial centres.

The second key determinant is urban structure, defined by the pattern of built forms and open spaces, which influence how places are used and the quality of public spaces in the physical sense. Ewing and Hardy (2009) state that a highly imageable city is well formed, contains distinct parts and is instantly recognizable to anyone who has visited or lived there. It functions as the innate human ability to detect and remember patterns. Its elements are easily identifiable and grouped into an overall pattern. The urban structure is translated into route networks (i.e., streets, paths and open spaces) and the urban form (i.e., plots, blocks and buildings). The frameworks of routes and spaces connect locally and more widely the way developments, routes and open spaces relate to each other. The pattern of the arrangement of street blocks, plots and their buildings in a settlement produces either a fine or course grain. A fine urban grain creates a high level of enclosure and defined open spaces. The urban layout, which offers direct, straight, short and legible walkways with fewer blind spots between places, is more responsive to accessibility needs and way finding. It also provides the sense of security due to visibility of spaces to the public eyes (Wall & Waterman, 2009).

The city blocks can give both neighbourhoods and cities unique characteristics for all who live in and pass through them, while the building mass, height, land use and street width can combine to create balanced street scenes and successful urban compositions (Wall & Waterman, 2009, p. 54). Buildings should be humane in scale and provide comfort of use. The quality of the open spaces and landscape influences the activity and the intensity of use. Good public spaces provide comfort and safety, as well as convenience and contentment to the people and the pedestrians while walking (Carmona *et al.*, 2003). The quality of the path and street network is the main factor in influencing walkability. In addition, the width of streets and paths provides ease of movement. The identifiable place markers and nodes are important to make the places more legible and comprehensible (Norsidah & Shuhana, 2012). Apart from the street signs, the hierarchy of street patterns allows for clear differentiation of character and scales that can help people's orientation within the city. This study defines the context in terms of the connectivity between one place to another and the quality of the paths. Urban structure is translated based on the spatial composition of streets, paths, open spaces and building blocks. Different spatial and physical characteristics will have different effects to how people experience the cities.

#### 4. METHOD

Using the scale of measurement for walkability adapted from various sources (PERS from Abley, 2003; Gallin, 2001), this study measures the qualities associated with walkability factors and observes the area through photographic recording. Assessment criteria for the criteria chosen earlier are produced in a form of measurement scale to determine the walkability of the study area. The assessment uses the numerical rating on a five-point scale of 1 to 5 for each of the variables. The highest point (5) is given to the areas that fulfil all criteria, which represents the highest level of walkability measured by the researchers. On the contrary, the one-point (1) scale portrays the opposite condition. For example, the provided walkway with a width around 3 metres will score higher than the walkway with the width less than 3 metres. Notes and photographs of the actual conditions of the district and factors associated with it are notated to clarify the recorded patterns.

## 5. RESULTS AND DISCUSSION

### *Context*

The results for each criterion are represented in the scale of high (5 point), medium (3-4 point) and low (1-2 point) for easy identification of the strongest or weakest qualities of the time consumed to reach the key destination that affects the comfort and walkability of Bukit Bintang commercial district. It is identified that the urban structure scores a medium level (3 to 4 points), which is associated with the physical forms of the district showing a compact urban structure and less unidentified spaces. However, the permeability is considered low due to the long urban blocks with large scale shopping complexes (e.g. Lot 10 and Sungei Wang Plaza), thus consuming smaller urban plots. This is particularly evident in the newer part of the district. In terms of context, the area has good connectivity with the surrounding areas. The 5-point score is recorded since the area is connected to many paths with minimum walking distance (10-15 minutes).

In terms of physical accessibility, the results indicate a good level of connectivity within and outside the district, which is contributed by the main through road of Jalan Sultan Ismail and other connecting streets. The area is also highly accessible by rail and bus systems. Therefore, as a whole, the level of walkability of the district is greatly influenced by the context, urban structure, and accessibility because of its simple layout.

Table 1 demonstrates the results for the urban context in Zone 1. From the 10 spots, known as the most used areas, five of them are located within a short walking distance, which takes about five to seven minutes of walking from the main junction. The areas include shopping retails, food stalls, a bus stop and parking areas. The short walking distance has made these places as the concentrated areas in Zone 1. Meanwhile, it is identified that the three spots within the public services area, namely, two parking areas, a bus stop and a taxi stand, are located within longer walking distance which takes about 12 to 15 minutes of walking to reach the main junction. The longer distance between the parking area and the main junction is one of the factors that leads to traffic congestion, where people refuse to walk but choose to find a parking space near to the commercial area. However, the analysis of the urban context in Zone 1 indicates that the degree of walkability is high as most of the commercial areas are located between the short and moderate walking distances.

Table 1: Results on the context and urban structure for Zone 1 in relation to distance

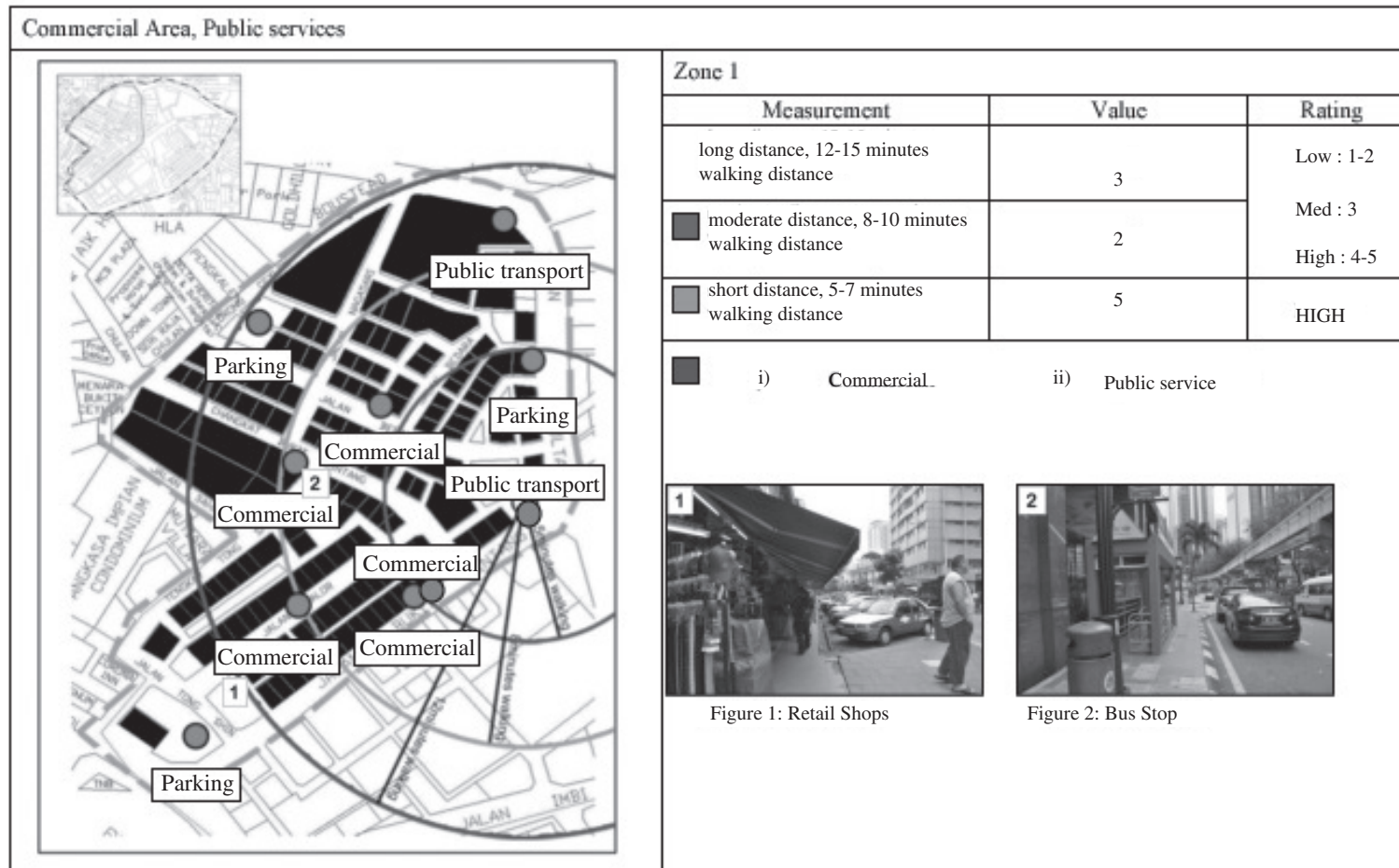


Table 2: Results on the context and urban structure for Zone 2 in relation to distance

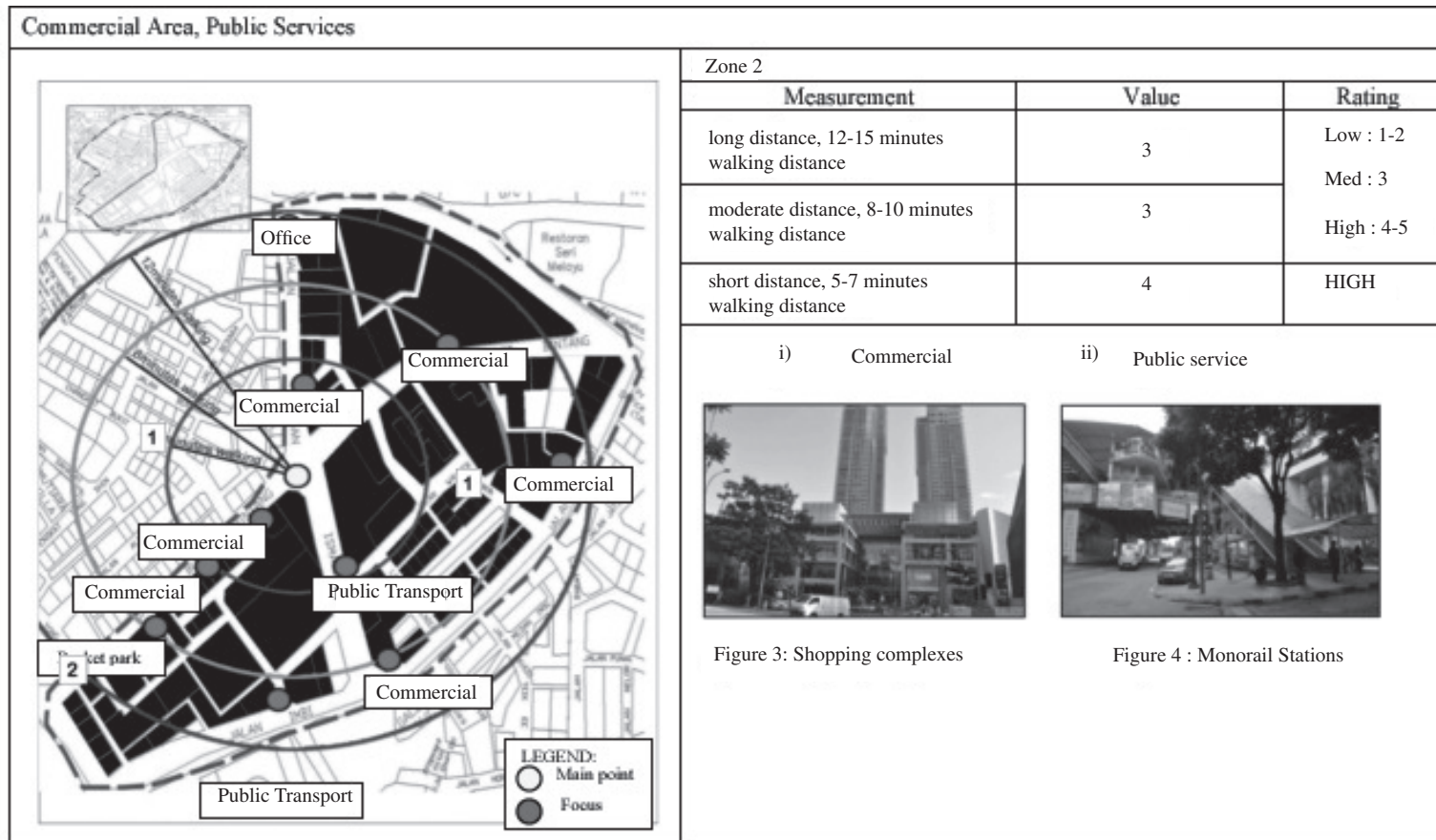




Table 3: Results on the urban structure for Zone 1 in relation to walkways

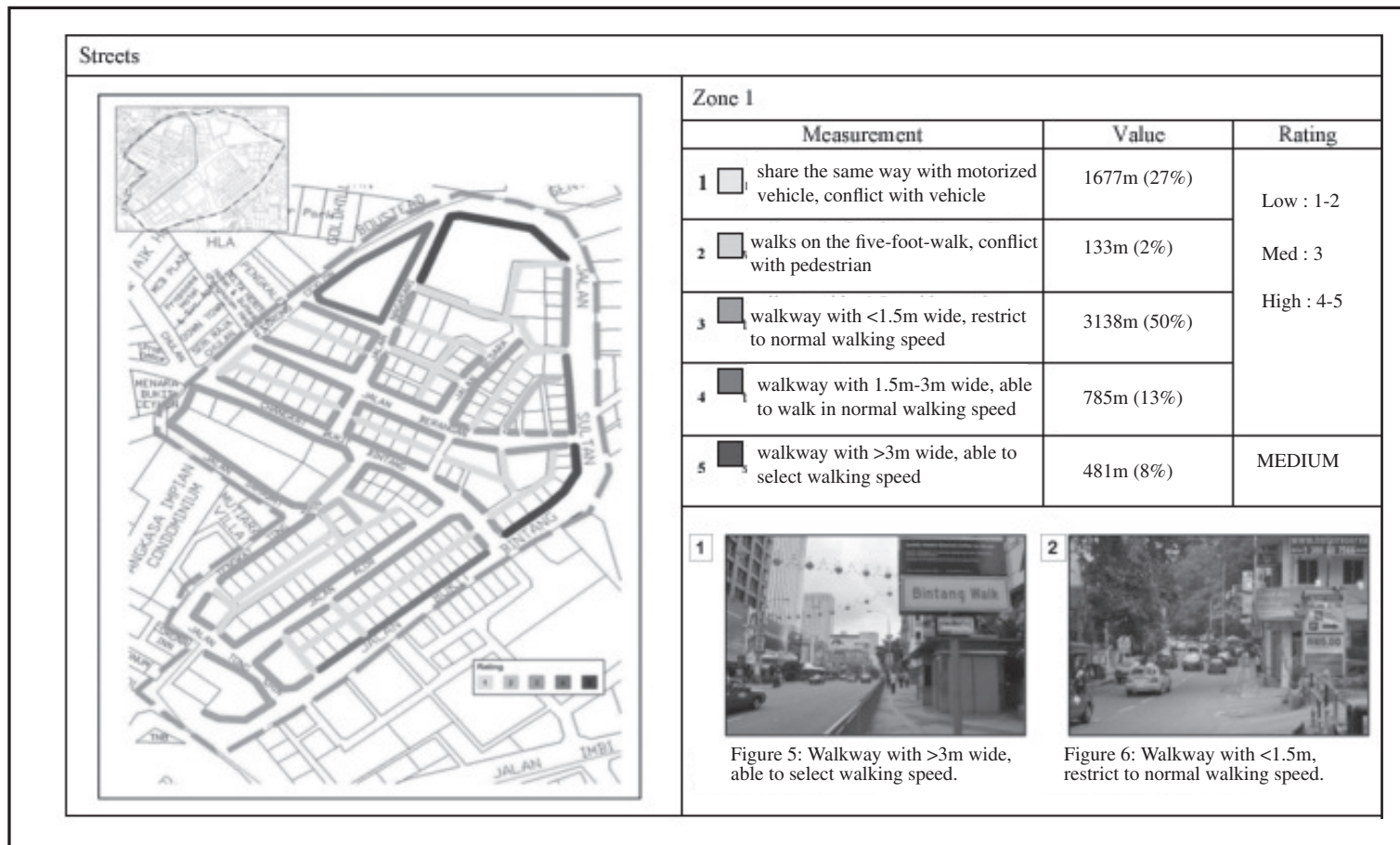


Table 4: Results on the urban structure for Zone 2 in relation to walkways




Street		Zone 2			
		Measurement	Value	Rating	
	1	share the same way with motorized vehicle, conflict with vehicle	1816m (24%)	Low : 1-2 Med : 3 High : 4-5	
	2	walks on the five-foot-walk, conflict with pedestrian	388m (5%)		
	3	walkway with <1.5m wide, restrict to normal walking speed	1658m (22%)		
	4	walkway with 1.5m-3m wide, able to walk in normal walking speed	1793m (23%)		
	5	walkway with >3m wide, able to select walking speed	2016m (26%)	HIGH	
		1		2	
		<p>Figure 7: Share the same way with motorized vehicle.</p>		<p>Figure 8: Walkway with &gt;3m, able to select walking speed.</p>	

Table 5: Results on the urban structure for Zone 1 in relation to buildings

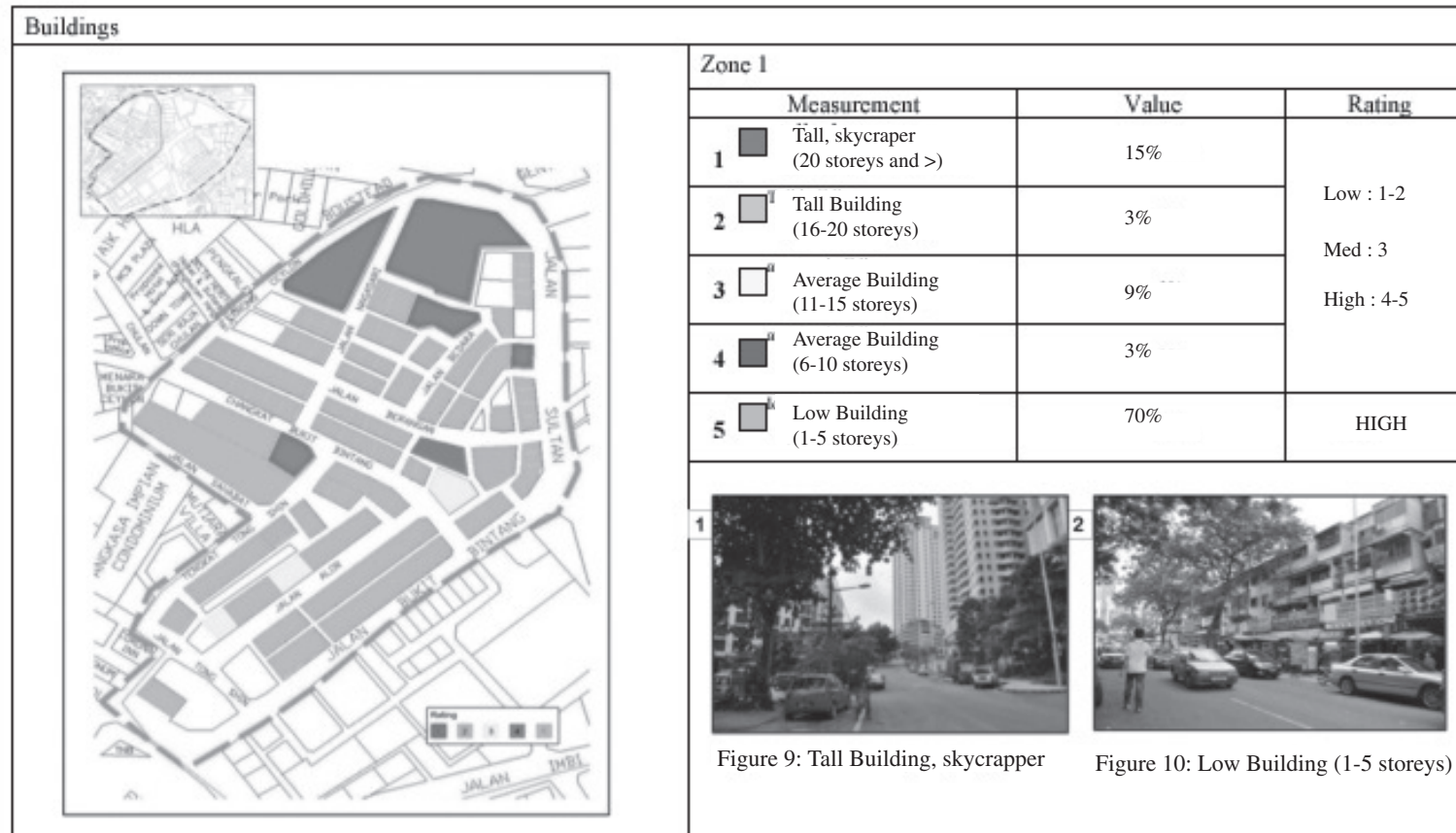




Table 6: Results on the urban structure for Zone 2 in relation to buildings

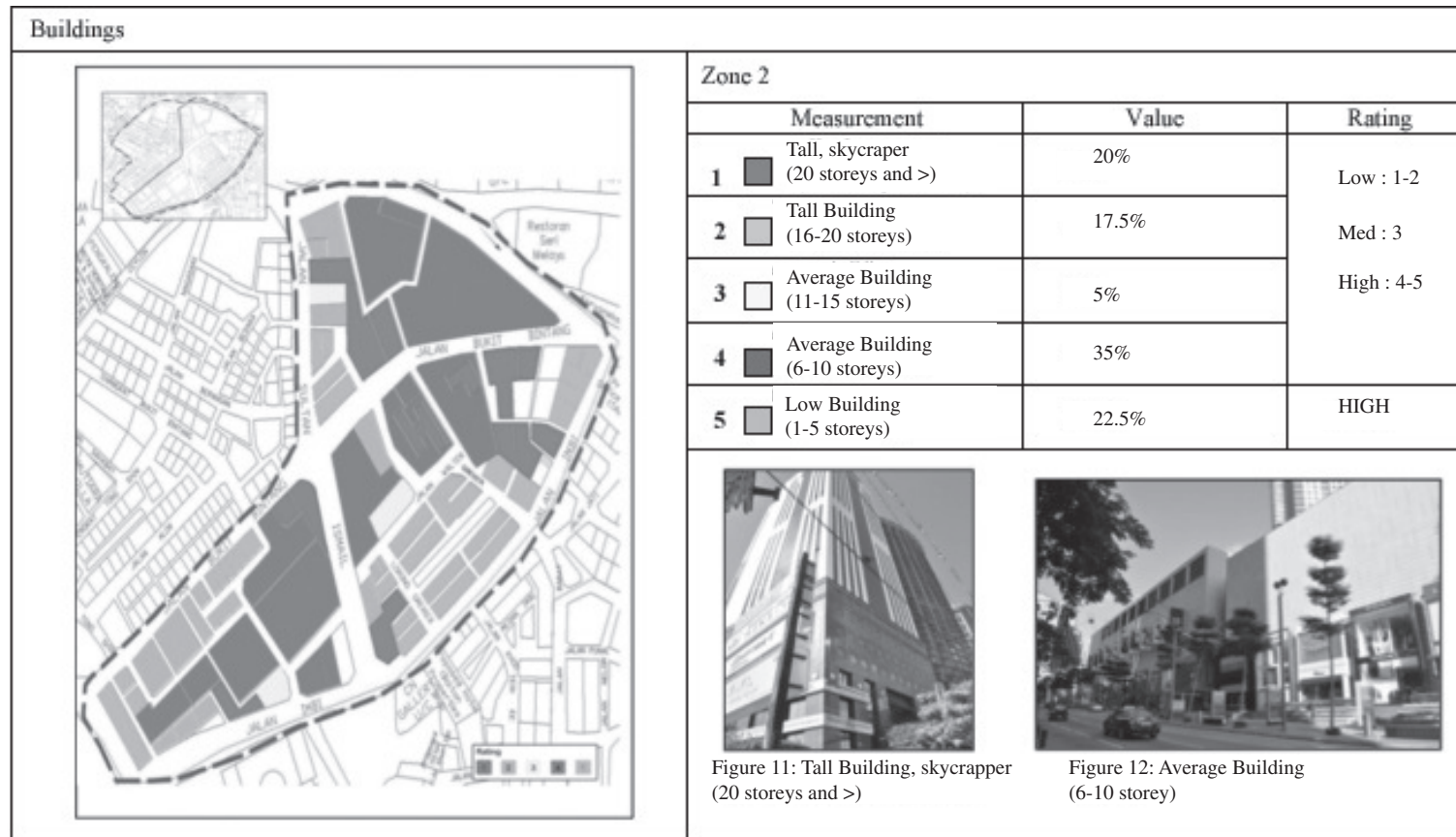




Figure 13: A figure-ground map of Bukit Bintang Commercial District showing the urban pattern

Table 2 demonstrates the results for the urban context in Zone 2. Almost similar to Zone 1, the urban context in Zone 2 scores between medium and high, where four of the spots located within the short distance and six other spots are between moderate and long walking distance equally. The four spots are the commercial areas including shopping complexes, shop lots, and public transport station. The strategic location of the monorail station contributes in the high percentage of walking activity in Zone 2. However, it is found

that the distribution of both the commercial areas and public services is different from each other as compared to Zone 1. This is contributed by the urban pattern where the building blocks in Zone 2 consume larger built-up areas, resulting in a larger footprint. However, the attraction of activities and entertainment has encouraged walking activities despite the distance of the place. Nevertheless, the analysis of urban context has shown that the degree of walkability in Zone 2 is at medium to high level.

## *Urban Structure*

Table 3 demonstrates the results for physical criteria of pedestrian walkways or streets in Zone 1. The findings reveal that half of the walkways in the area (3138m) comprise walkways with less than 1.5 metres wide. This restricts the normal walking speed only, which is in the medium level walkability. Meanwhile, 27% of the walkways (1677m) are identified as having a low walkability level where pedestrians have to share the similar space with motorized vehicles, which could be dangerous because this may create conflict of the space used. Only about 8% of the walkways (481m) offer walkways with an adequate width of more than 3 metres. Therefore, in terms of its streets or walkways, the walkability in Zone 1 is at a medium level.

Table 4 demonstrates the results for physical criteria of pedestrian walkways or streets in Zone 2. In contrast to Zone 1, the walkways in Zone 2 score between medium to high degree, where 26% (2016m) comprise walkways with more than 3 metres wide, followed by 23% (1793m) which consist of walkways of 1.5 metres to 3 metres wide, and about 22% (1658m) are less than 1.5 metres wide. With these various widths, pedestrians are able to choose whether to have a normal to faster walking speed without being restricted by any obstacles. However, about 1816 metres of the walkway (24%) scores the lowest level, whereby the pedestrians have to share the same way with the traffic. Most of the streets are in the back lanes of the buildings or alternative ways to reach places in a shorter time. Nevertheless, the degree of walkability of the streets and walkways in Zone 2 is at a high level based on the recorded scores of this study.

Table 5 shows the results for physical criteria of the building height in Zone 1. It is recorded that about 70% of the total areas are covered by buildings with the height of not more than 15 metres (between 1 to 5 storeys). As mentioned previously, the urban structure in Zone 1 represents the structure of the traditional quarter of the area, where it is made up of small building blocks and offers many back lanes as the alternative way. This supports the high level of walkability in terms of building height in Zone 1. It can be seen that skyscrapers make up only 15% of the findings, in which most of them are commercial buildings for hotels and offices. Therefore, in terms of building height, the level of walkability in Zone 1 is at a high level.

Meanwhile, Table 6 displays the results of the building height for Zone 2. Although Zone 2 consists of more modern structures and buildings, about 20% of the buildings are made of tall buildings, which is 5% more than that of Zone 1. The dominant structures are comprised of average height of buildings (35%) that do not exceed 30 metres or 6-10 storeys. They are buildings that

serve commercial purposes, where most of them are shopping complexes and entertainment places. About 22.5% of the buildings are located in Zone.

The whole site is excellent in terms of the urban structure (5 point value). This is due to the medium scale of the existing buildings despite a few huge scale shopping complexes (e.g. Lot 10 and Sungei Wang Plaza). The area is enclosed with low-rise buildings with the height ranging from 5 to 10 metres. Notably, 4 points are appropriate to the scales of the streets and legibility, respectively, due to the quality of the walkways with 1.5 metres to 3 metres wide, which enables pedestrians to walk in a normal walking speed. However, the absence of pedestrian paths is evident along the narrower streets (i.e. Jalan Alor, Jalan Nagasari and Jalan Walter). Although several street names are missing, the site is evaluated as legible because of its memorable and simple street pattern. However, the length of some of the commercial building blocks needs to be reduced by providing a green linkage crossing the buildings to improve permeability.

The need for a walkable environment that provides comfort (Brown et al., 2007) for pedestrians can be improved with stronger linkages and better quality pedestrian network within the district as a whole. While the main street of Bukit Bintang has the quality to support walkability, the connectivity of the smaller streets and paths with the main street and the quality of the open spaces could assist in making the inner places more legible to the pedestrians. The relationship allows them to make sense of the city (Wall & Waterman, 2009). The Bukit Bintang commercial district is formed by both old and new urban patterns. Thus, the effect of urban context and structure on its walkability is mixed. There is a need for a more integrated pedestrian network in the less prominent areas. The significance of Jalan Bukit Bintang and Bintang Walk as main linkages and legible paths is evident despite having the lack of legible elements identifying other parts of the district.

It is vital for a city to be able to connect people from places to places without getting lost. A good and direct walkway will guide pedestrians to places they wish to go without solely depending on the signage. Traditionally, a walkway is one of the means of transportation which functions as a tool that connects the urban spaces and unites people and urban elements together (Wall & Waterman, 2009). Nowadays, the walkway is perceived as an element that builds up the city and not just as a mode of transportation. Therefore, the connectivity of urban spaces needs to be considered in designing the city for improved walkability. It is identified that the mixed use of activities in commercial has increased the connectivity of urban spaces. However, the connection made is also facilitated by the presence of efficient tools that may link them together, which is the high connectivity of the path.

The connectivity of Bukit Bintang Commercial District is observed as fairly high, which can be contributed by the urban pattern of the area. It is analyzed that the pattern of the district is unplanned or organically developed through time. It is built up from smaller building blocks, and therefore, it has higher degree of connectivity. It is also supported by high density of pedestrians, near to the main street of Jalan Bukit Bintang and Jalan Sultan Ismail. Besides the wide and comfortable walkways provided in the area, the facades of the buildings also help in connecting the people to the place. The positive and transparent façades will portray more sense of welcoming which will create communication between the people and the place. The transparency of activities between the building façades will be able to facilitate the pedestrians to understand more about the place. The ease of connectivity makes it pleasant for people to walk in Bukit Bintang Commercial District.



*Figure 14. Bintang Walk has effectively been used as the main pedestrian path connecting commercial spaces and buildings along the main street of Jalan Bukit Bintang*

## CONCLUSION

Modern development has transformed the city structure and urban fabric. While connectivity between places in commercial areas is improved with the rail transport systems in place, the importance of small public spaces as legible elements that support orientation is not well emphasized in the district. This study identifies that Bukit Bintang Commercial District is recognized as an area that can be labelled as a walkable district, where it offers an acceptable walking distance with the urban layout of the district that is able to guide the pedestrians to easily reach their key destination. Large urban blocks in most cases break the scale of the traditional urban blocks, particularly the shopping complexes (i.e. Sungei Wang Plaza and Lot 10) and commercial buildings (i.e. Low Yatt Plaza). Improvement to the quality of pocket spaces in smaller streets will enhance the overall context and structure of the district as a whole. Hence, this will support the walkability of the area.

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