INTERNATIONAL JOURNAL ON ADVANCED TECHNOLOGY, ENGINEERING, AND INFORMATION SYSTEM
(IJATEIS)
VOLUME 1 ISSUE 2 (2022)

ARRANGEMENT OF PEDESTRIAN PATHS BASED ON WALKABILITY ASPECTS IN JAKARTA KOTA TUA AREA

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Abstract

Jakarta Kota Tua's (old town) Area is a historical area that located in Capital City of Indonesia, namely Jakarta which continues to degrade in both physical and nonphysical ways, resulting in an unfavorable image and an unappealing location, one of which is the lack of pedestrian facilities in the Kota Tua area, not to mention the fact that during the holidays, pedestrians are jammed with street vendors, making it impossible for pedestrians to walk in the area around the Old Town Area. Furthermore, there are still neglected facilities such as trash cans and bus stations where passengers can wait for buses that are not fit for their intended purpose. This research aims to find out the walkibility based on existing condition in the Jakarta Kota Tua area. The analytical method that uses in this research is descriptive analysis based on pedestrian path characteristic walkability index analysis. According to the calculation results, 1st zone is included in the waiting to walk category with a walkscore value of 56.3 and there are segments that have the lowest scores, namely segments 12 A and 12 B. Meanwhile, 2nd zone is included in the category of walk on your own risk because it has a walks score of 48,31 which is below the score of 1st zone or in other words it is necessary to improve in terms of quality and quantity as well as control for side barriers which aim to ensure that visitors or pedestrians are not disturbed and feel comfortable during their activities.

Keywords: *Pedestrian-path, Walkability, Jakarta Kota Tua (Old Town), Public Facility*

1. INTRODUCTION

Kota Tua Jakarta is located in Pinangsia Village, Tamansari District, West Jakarta. Currently, Kota Tua is situated in the North Jakarta and West Jakarta municipal districts. According to the Old Town Guidelines (2007), Kota Tua is one of the cultural heritage areas in Jakarta that is intended to function as a living heritage and revitalization area, specifically as an area that is projected to become one of the primary city-scale activities for DKI Jakarta residents in terms of culture, recreation, and recreation (Krambeck & Shah, 2006). Living and working in an area designated as a cultural heritage area. This is in line with the DKI Jakarta Regional Government's objective to transform Kota Tua into a cultural tourism destination. According to the planning instructions included in Governor's Regulation No. 36 of 2014 about the Old Town Area Master Plan (Utami & Anza, 2017), the Kota Tua Cultural Heritage Area is separated into two control areas: the area within the wall and the area outside the wall (Agradiana, 2020). Inside the wall is an area of the Kota Tua where all historical and morphological components are strictly regulated. This area contains Fatahillah, Kali Besar, Roa Malaka, Shipyard/Wall, Fish Market Maritime Museum, and Sunda Kelapa. While the area outside the wall is a region that encompasses the wall's outermost perimeter and has jurisdiction over key cultural heritage structures and city-

forming features. Among these locations are Luar Batang, Pekojan, Chinatown, and Onrust Archaeological Park.

The Kota Tua area of Jakarta is one of the historic areas in the capital city, namely in Jakarta. During the Dutch colonial period in Indonesia, the Kota Tua of Jakarta was known as the capital city of Indonesia. Kota Tua shows the development and evolution of the city from a traditional city to a colonial city in the eastern world and as a multiethnic city and acculturation with the same planning of European cities in the 16-18 centuries (Sulistyo, 2019). Kota Tua Jakarta which is also known as Oude Batavia and has nicknames as "Asian Gem" and "Queen of East" in the 16th century was once a small area in Jakarta which has 1.3 km2 administratively crossing North Jakarta and West Jakarta (Dewi, 2012).

In 1972, Governor of Jakarta Ali Sadikin declared the Kota Tua of Jakarta a national historic landmark. The governor's decision is the first stage in a comprehensive plan to preserve the Kota Tua's historical and architectural structures. Since the early 1990s, unsuccessful efforts have been made to rejuvenate the Kota Tua of Jakarta in an attempt to improve the area's reputation. The pedestrian path is a crucial component of the Kota Tua's historic district redevelopment initiative.

The significance of pedestrian accessibility in the Kota Tua area is outlined in the Kota Tua Guidelines (2007), which promote the vitality of the Kota Tua Cultural Heritage Area by enhancing the activities of urban public spaces in consideration of the interrelationships between open spaces, pedestrians, and the preservation of cultural heritage buildings in the region encompassing the public space (Khairunnisa et al., 2022). Particularly, the designation and use of pedestrian space in the Cultural Conservation Area occurs along the canal in South East Kali Besar, along the canal in North East Kali Besar, and along the canal in West Kali Besar (Darmawan et al., 2020). However, existing pedestrians in the Cultural Conservation Area have issues with economic activities that serve to promote cultural tourism destinations. The presence of street vendors along the sidewalks of Kota Tua impedes pedestrian access by interfering with commercial activities (Edelia & Aslami, 2022). Additionally, this causes individuals to jostle when traveling on the pedestrian way (Ramadhian, 2021). It is difficult for pedestrians to enter the region surrounding the old town due to the absence of amenities for pedestrians in the Kota Tua and the disruption caused by street vendors during holidays (Lo, 2011).

In addition to those with disabilities having trouble crossing the pedestrian path due to street vendors misusing the function of the pedestrian way, this is a problem that is frequently experienced (Fitriyana, 2018). There are still facilities for basic use that are not maintained, such as garbage cans and bus stops for waiting for buses, such as trash cans and bus stops. A solution is required for the aforementioned issues, as the Kota Tua region, which is one of Jakarta's cultural heritages, attracts a large number of people with diverse ages and demands (Council, 2000). The theory of the Global Walkability Index, as modified by the Clean Air Initiative, will provide input for the proper arrangement of pedestrian paths in the Kota Tua area, as it is measurable at the study site and assigns a weight to each parameter, despite the fact that global and Asian conditions vary greatly (Krambeck & Shah, 2006). The arrangement that will be suggested based on the findings of this study is anticipated to preserve the historical significance of the Kota Tua area.

2. RESEARCH METHOD

This research was conducted in Kota Tua Jakarta, which is located in Pinangsia Village, Tamansari District, West Jakarta Municipality. This study area has an area of 1.3 km^2 consisting of 18 corridors. The research method used in this study is quantitative research where quantitative in this study aims to explain the results of the pedestrian path assessment with a walkability index.

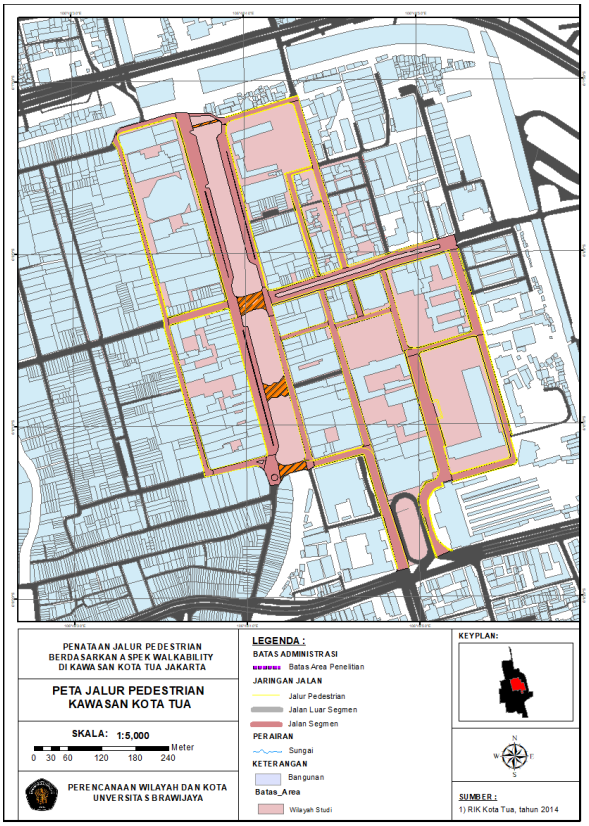

Figure 1 Study Area Map

2.1. Variable Selection

Using data from the Asian Development Bank (2011) (in (Leather et al., 2011)) and Clean Air Initiative-Asian (2010), the walkability level variable is used to determine the performance of the pedestrian path, while the road characteristic variable is used to determine the condition of the road in the corridor that has the potential to structure directions.

Table 1 Variable Selection

Variable	Parameter	Source
Walkability level	• Pedestrian conflict • Security from crime • Motorcyclist behavior • Availability of crossing paths • Crossing safety • Amenities • Disabled supporting infrastructure • Maintenance and and cleanliness • Side obstacle	Asian Development Bank (2011) , Clean Air Initiative- Asian (2010)
Road Characteristics	The geometric size of the pedestrian path • Pedestrian width • The length of the pedestrian path • Pedestrian path height	Guidelines for Planning, Provision, and Utilization of Infrastructure and Facilities for Pedestrian Space in Urban Areas by the Director General of Spatial Planning (2014)

2.2. Method of Collecting Data

This study employs a primary survey involving field observations and survey forms for data gathering. Through road geometry, observations were performed to determine the existing condition of the pedestrian way at the study site. While the survey form is used to assess the walkability of pedestrian walkways using a Likert scale ranging from 1 to 5 with 1 being the least walkable and 5 being the most walkable, secondary surveys use data gathering methods by acquiring data from relevant entities such as the government. The secondary data utilized originates from government institutions.

2.3. Data Analysis Method

2.3.1. Walkability Index Analysis

Walkability index analysis is used to calculate how friendly the area is for pedestrians or road users. This analysis was carried out using parameters from the Asian Development Bank (2011) (Leather et al., 2011). Then, each of these parameters is given an assessment weight that has been determined by the Clean Air Initiative (2010) as follows:

Table 2 Walkability Index Calculation

Variable	Parameter	Weight
Safety and security	1. Pedestrian path conflicts with other modes of transportation	15
	2. Security from crime	25
	3. Motorcyclist attitude	10
	4. Crossing safety	10
Comfort and attractiveness	5. Crossing availability	5
	6. Amenities (supporting facilities)	5
	7. Supporting infrastructure for disabled groups	10
	8. Maintenance and cleaning	10
	9. things that get in the way	10

Source: CAI-ASIA (2010) in (Minhas & Poddar, 2017)

The final walkability index per area is determined by averaging the results of each index at the research location. On the basis of the parameters with the lowest walkability index value, proposed modifications can be identified. The outcomes of observations regarding the characteristics of the pedestrian path might also be taken into account when suggesting upgrades to pedestrian amenities. The range of each segment's walkability is as follows:

a. 0-50 = Walk at your own risk
b. 51-70 = Waiting to walk
c. 71-100 = Pleasure to walk

2.3.2. Pedestrian Path Condition Analysis

Provision and utilization of pedestrian network infrastructure and facilities in urban are analyzed on each road segment by assessing the geometric aspects of the road (pedestrian path width, length, and height of each pedestrian path) for consideration of the direction of the pedestrian path arrangement in the Kota Tua Jakarta by comparing the existing conditions and the standards used, namely planning guidelines. This approach is also utilized to select the pedestrian path section with the lowest value in order to establish the structural priority in the Kota Tua Jakarta.

3. RESULT AND DISCUSSION

According to the Kota Tua Area Pedestrian Scenario contained in the Jakarta Provincial Governor's Regulation Number 36 of 2014 concerning the Old town Area Master Plan, the survey location is dominated by the main pedestrian movement routes consisting of Jalan Kali Besar, Jalan Kunir, Jalan Kopi, Jalan Kemukus, and Jalan Stasiun Kota. Furthermore, the secondary pedestrian movement path consists of Jalan Cengkeh, Jalan Pintu Besar Utara, Jalan Bank, Jalan Ros Malaka Utara and Jalan Ros Malaka Selatan. In addition, there is also a pedestrian through path in the building. The corridors in the Old Town Area, which are divided into 30 segments, have different main activities. Based on its land use, the Old Town Area is dominated by the main activities in the form of tourism in all segments, except 2nd, 14th, 15th, and 16th segments because it has main activities in the form of offices and trade.

3.1. Pedestrian Path Condition

On pedestrian paths, geometric conditions include width, effective width, height, pavement, barriers, barriers, ramps, and disability facilities. Land use in segment 1 includes office land use in addition to commerce and services. This segment's land use for commerce and services is Bank BNI 46. Existing conditions indicate that the pedestrian route in segment 1B in front of the Bank BNI 46 building does not comply with the Director General of Structuring Space's Guidelines for Planning, Provision, and Utilization of Infrastructure and Facilities for Pedestrians in Urban Areas (2014). Figure 2 depicts the state of the pedestrian walkway along 1st segment.

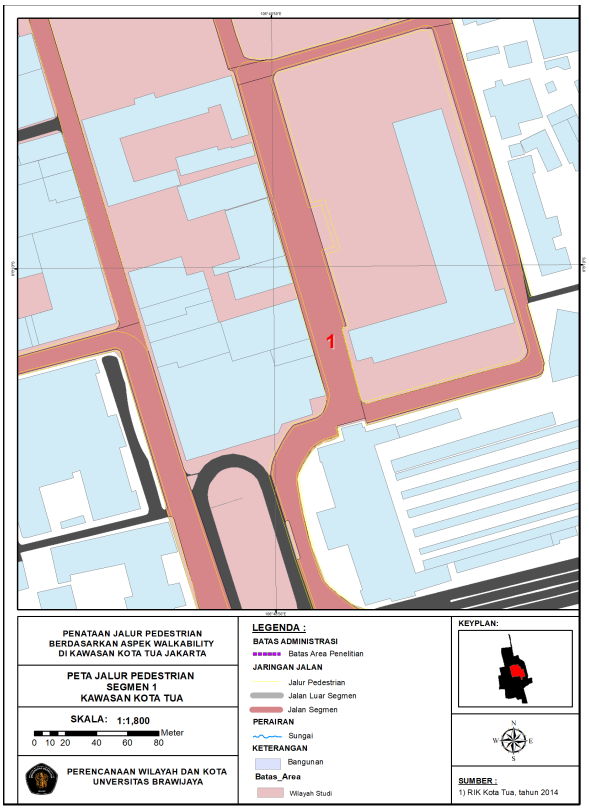

Figure 2 Pedestrian Path Map of 1st Segment

While in segment 1A there is a pedestrian route on the side of the road with a width of 4 meters and an effective width of 3 meters that is still well maintained, there are difficulties in the form of improperly placed barriers that force walkers to walk on the road shoulder. The state of pedestrian path segment 1 can be observed in detail in Table 3, which is provided below.

Table 3 The condition of the pedestrian path 1st segment in the old town area

Pedestrian Path Characteristics	Existing condition		Standard
	Section A	Section B	
Wide	4 m	0.5m	- Pedestrian paths must have a comfortable width, at least when two pedestrians pass but do not intersect with a minimum effective width of 1.5 meters - Lane widening must be carried out if there are road equipment on the pedestrian path. - There are ramp facilities, guiding blocks, tactile information, and voice signals if needed (Source: Guidelines Planning, Provision and Utilization Infrastructure and Facilities Room Urban Pedestrians by Director General Spatial Planning, 2014)
Effective Width	3 m	0.4 m	
Tall	0.1m	0.1m	
Pavement	concrete block	concrete block	
Obstacle	Street vendors and concrete barrier	street vendors	
barrier	Concrete Barriers	There isn't any	
Disabled facilities - *Ramp* - *Guiding blocks* - *Braille signage* - *tactile information*	No ramp available	No ramp available	

3.2. Pedestrian Path Facilities

Complementary facilities to determine the performance of pedestrian paths include drainage, lighting, seats, trash cans, information boards, bollards, and shelters. The Kota Tua area has two drainage channels, namely open and closed drainage, but 15th segment does not meet the standard where the size is less than 50 centimeters (Figure 3).

Figure 3 Open Drainage in 15th segment

At some point in each segment in the Kota Tua area, they already have lighting for pedestrians, especially in the area around the Fatahillah Museum. The function of the lighting itself is to provide lighting for pedestrians, especially at night. However, these lamps are not available in the 12A and 13A segments. The availability of seating facilities in the Kota Tua area is quite a bit. This can be seen from its availability which is only around the historic building of the Kota Tua itself (Figure 4).

Figure 4 Seating in 5th Segment

Most of the trash cans scattered in the Kota Tua area are provided by the government, which is part of the trade and service facilities in the Kota Tua area. Therefore, the trash cans provided have provided waste sorting according to the type of waste and are in segments 8 and 9.

Figure 5 Trash Can in 8th Segment

However, in 1st, 11th, 12th, 13th, 15th, and 17th segments, garbage was found scattered about because of the unavailability of trash bins. Likewise with information boards which can only be found in 4th, 5th, 6th, and 7th segments which already meet the standards by placing them at social interaction points. Meanwhile, the availability of safety fences or commonly referred to as barriers is only found at a few points in the Kota Tua area, mainly in the trade and service areas, namely in 1st, 9th and 13th segments (Figure 6).

Figure 6 Guardrail in 13th Segment

A bus stop is a stopping place that generally has a waiting room with a roof, but is smaller than a terminal. There are only a few bus stops in the Kota Tua area, namely 1st and 4th segments. Most of the bus stops in the Kota Tua area are still suitable for use.

Figure 7 Guardrail in 13th Segment

Table 4 Analysis of the Condition of Shelters in the Old Town Area

Segment	Existing Condition	Standard
Segment 1	Shelters available	- The bus stop has stalls for waiting located every 300 meters and at potential points of the area - The materials used for shelters/shelters or waiting stalls must have durability tall like metal (Source: Guidelines Planning, Provision and Utilization Infrastructure and Facilities Room Urban Pedestrians by Director General Spatial Planning, 2014)
Segment 2	No bus stop/shelter available	
Segment 3		
Segment 4	Shelters available	
5 segment	No bus stop/shelter available	
Segment 6		
Segment 7		
Segment 8		
Segment 9	Available shelter/bus stop	
Segment 10	No bus stop/shelter available	
Segment 11		
Segment 12		
Segment 13		
Segment 14		
Segment 15		
Segment 16		
17 segment		
Segment 18		

3.3. Walkability Index Analysis

The following is an assessment *walkability* in each segment:

Table 5 Walkability Level Score

Segment	Variable									Score
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
1B	1	3	3	4	5	3	1	3	3	**26**
1A	5	3	4	4	5	3	1	4	4	**33**
2A	5	4	5	5	5	3	5	3	4	**39**
2B	5	4	5	5	5	2	5	3	2	**36**
3A	2	4	4	3	3	3	4	5	5	**33**
3B	2	4	4	3	3	3	4	5	5	**33**
4A	3	3	4	3	4	2	2	3	1	**25**
4B	5	3	3	3	4	2	3	4	4	**31**
5	5	5	5	5	5	2	1	5	5	**38**
6	5	5	5	5	5	3	1	3	5	**37**
7	5	5	5	5	5	3	1	3	5	**37**
8A	3	2	3	4	2	1	1	2	3	**21**
8B	5	5	5	5	5	5	5	5	5	**45**
9A	2	4	3	3	4	2	1	3	1	**23**
9B	3	4	3	3	4	3	1	4	4	**29**
10A	2	2	2	2	2	3	3	4	1	**21**
10B	5	3	4	3	4	3	3	4	4	**33**
11A	4	3	3	4	3	3	1	3	4	**28**
11B	4	3	3	4	3	3	1	3	4	**28**
12A	4	4	3	2	1	2	3	4	3	**26**
12B	4	4	3	2	1	2	3	4	3	**26**
13A	4	4	3	2	5	2	3	4	3	**30**
13B	4	4	3	2	5	2	3	4	3	**30**
14B	5	4	4	4	2	3	5	4	4	**35**
14A	3	3	3	4	2	2	1	4	3	**25**
15A	2	2	3	2	2	2	1	4	1	**19**
16A	5	4	3	4	4	3	5	5	5	**38**
16B	5	4	3	4	4	3	5	4	5	**37**
17A	4	3	4	4	3	2	1	5	2	**28**
17B	4	4	4	4	4	4	4	4	5	**37**
18	5	5	5	5	5	3	1	3	5	**37**

Table 6 Walkability Index Calculation

Segment	Variable Assessment with Weight									Segment	Variable Assessment with Weight								
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
3A	30	100	40	30	15	15	40	50	50	**1B**	15	75	30	40	25	15	10	30	30
3B	30	100	40	30	15	15	40	50	50	**1A**	75	75	40	40	25	15	10	40	40
5	75	125	50	50	25	15	10	30	50	**2A**	75	100	50	50	25	15	50	30	40
6	75	125	50	50	25	15	10	30	50	**2B**	75	100	50	50	25	10	50	30	20
7	75	125	50	50	25	15	10	30	50	**4A**	45	75	40	30	20	10	20	30	10
12A	60	100	30	20	5	10	30	40	30	**4B**	75	75	30	30	20	10	30	40	40
12B	60	100	30	20	5	10	30	40	30	**8A**	45	50	30	40	10	5	10	20	30
13A	60	100	30	20	25	10	30	40	30	**8B**	75	125	50	50	25	25	50	50	50
13B	60	100	30	20	25	10	30	40	30	**9A**	30	100	30	30	20	10	10	30	10
18	75	125	50	50	25	15	10	30	50	**9B**	45	100	30	30	20	10	10	40	40
										10A	30	50	20	20	10	15	30	40	10
										10B	75	75	40	30	20	15	30	40	40
										11A	60	75	30	40	10	15	10	30	40
										11B	60	75	30	40	10	15	10	30	40
										14B	75	100	40	40	10	15	50	40	40
										14A	45	75	30	40	10	10	10	40	30
										15A	30	50	30	20	10	10	10	40	10
										16A	75	100	30	40	20	15	50	50	50
										16B	75	100	30	40	20	15	50	40	50
										17A	60	75	40	40	10	10	10	50	20
										17B	60	100	40	40	20	20	40	40	50
Total *Walkscore*	**56,340**									**Total *Walkscore***	**48.310**								
Zone	**56.3**									**Zone**	**48.31**								

The results of the assessment of the nine variables in 30 segments in the Kota Tua area of Jakarta, the segment that has the highest value is segment 8 section B which is located on Jalan Kali Besar Timur.

history that has turned into trade and services. Segment 8, section B, has a total score of 45 perfect. Meanwhile, the segment with the lowest score is segment 15, section A, with the surrounding buildings dominated by trade and services. Segment 15 of section A has a total value of 19 which is influenced by the lowest value on the variable supporting infrastructure for disabled support groups and the variables that hinder pedestrian paths.

The total results of the segment assessment will then be used for weighting in the calculation of the walkscore through each zone. Zone 1 is to the west of the Kali Besar River. In zone 1 there are 10 segments, including segments 3A, 3B, 5, 6, 7, 12A, 12B, 13A, 13B, 18. Zone 2 is on the northeast side of the Kali Besar River with physical boundaries in the form of a median on Jalan Kunir and southeast of the Kali Besar River which borders zone 1 in the form of Jalan Kunir. This zone includes 21 segments, namely segments 1A, 1B, 2A, 2B, 4A, 4B, 8A, 8B, 9A, 9B, 10A, 10B, 11A, 11B, 14A, 14B, 15, 16A, 16B, 17A, 17B.

3.4. Pedestrian Path Arrangement

After identifying the walkability level of the researcher, the results of several parameters are still below the average of the researcher's assessment. Therefore, the arrangement is carried out by referring to the parameters in the Global Walkability Index which have an average value that is not good and of course while still taking into account the existing condition of the pedestrian path in the Kota Tua area of Jakarta. The results of the arrangement of the parameters are generated based on the results of the researcher's assessment by filling out the Walkability Scoring Guide which is then analyzed by the researcher.

Table 7 Arrangement of Pedestrian Paths in Zone 1

No.	Walkability parameters	Existing condition	Setup Instructions	Handling Priority
1.	Crossing Safety and Availability (x4 and x5)	Based on observations, the safety of crossings in environmental zone 1 Kota Tua Jakarta is still considered low, especially in segment 12, the condition is that there is no zebracross or crossing path yet, but pedestrians are used to crossing without	- Procurementcrossing lanes in segment 12, because of problems in the segment, namely the unavailability of crossing paths that can interfere with or hinder pedestrians when carrying out activities, therefore it is necessary to place or arrange in accordance with the guidelines regarding the provision of crossing paths in that segment so that it can support the value of the walkability level.	- Segments that are prioritized for handling variables for crossing safety are segments 12A, 12B, 13A, 13B in zone 1 because in these segments, crossing safety is still very lacking and vulnerable to pedestrians. -In zone 1, the segment that becomes the

		crossing facilities such as zebracross which can pose a danger to pedestrians. from security and availability parameters to low		priority for handling in terms of crossing availability is segen 12A and 12 B because there is no pedestrian path or it is in a badly damaged condition.
2.	Amenity/support facilities (x6)	Based on observations, the supporting facilities in segment 12 are still very lacking	-The need for additions and trash cans in this segment, especially at the point of stopping public transportation. When viewed from the existing conditions, this segment includes a trade and service area where pedestrians need a place to rest for a while, in addition to the addition of adequate distance seating facilities, namely between seats every 10 meters, adjusted to the guidelines for providing pedestrian space facilities, 2004. -The need for additional trash bin facilities is of course adjusted to the length of the pedestrian path in segment 12 with a distance of 20 meters with a size according to the needs of the existing condition of the pedestrian path in that segment and the materials used have high durability such as metal and cast concrete which are adjusted to the guidelines providing pedestrian space - In terms of lighting, the addition of lights needs to be further developed in terms of quantity and quality which in the	

			existing condition is still relatively low with a distance of 10 meters in order to minimize criminal acts with the need adjusted to the guidelines for providing pedestrian space facilities - Additional signs can be developed in the segment, namely no-parking and no-stop signs. - The need for adding a safety fence or bollard is necessary to separate the road from the pedestrian path	
3.	Disabled infrastructure (x7)	Based on observations, researchers see that the facilities for pedestrians with disabilities are still relatively low, they are available but the placement is still not right	Additional facilities, disabled people and ramps are needed in every pedestrian path segment. Of course, ramps and markings are located in locations that are safe from vehicle circulation and free of obstacles, should have special markers in the form of colored lines and be directed at points of social interaction so that when viewed from the existing conditions , people with disabilities can easily go to office facilities or trade and service centers.	

Based on the walkability score assessment of the condition of the pedestrian path in the Kota Tua area, zones have priority for improvement, and each segment has different priorities.

Table 8 Pedestrian Path Arrangement in Zone 2

No.	Walkability Parameters	Existing condition	Setup Instructions	Handling Priority
1.	Crossing Safety and Availability (x4 and x5)	Based on observations, the safety of crossings in environmental zone 2 in the Old town of Jakarta is considered low, especially in segments 1, 4, 9, 10, 11 and 15, the condition is that there is no zebra crossing or crossing path, but pedestrians are used to crossing without crossing facilities. such as zebracross which can pose a danger to pedestrians therefore the value of the safety and availability parameters is low	-Adding crossing lanes in segments 1, 4, 9, 10, 11 and 15, due to problems in the segment namely the unavailability of crossing lanes that can interfere with or hinder pedestrians when carrying out activities, therefore placement or arrangement is needed in accordance with the guidelines on the provision of crossing lanes in that segment so that it can support the value of the walkability level.	-In zone 2, the segments that are prioritized for handling are segments 10A and segment 15A because they are prone to pedestrians crossing -In zone 2, the priority for handling are segments 8A, 10A, 14A, 14B, and 15A
2.	Amenity/support facilities (x6)	Based on observations, supporting facilities in segments 1, 4, 9, 10, 11 and 15 are still very lacking	-The need for additions and trash cans in this segment, especially at the point of stopping public transportation. When viewed from the existing conditions, this segment includes a trade and service area where pedestrians need a place to rest for a while, in addition to the addition of adequate distance seating facilities, namely between seats every 10 meters, adjusted to the guidelines for providing pedestrian space facilities, 2004. -The need for additional trash bin facilities is of course adjusted to the length of the pedestrian path in segment 12 with a distance of 20 meters with a size according to the needs of the existing	

			condition of the pedestrian path in that segment and the materials used have high durability such as metal and cast concrete which are adjusted to the guidelines providing pedestrian space -In terms of lighting, the addition of lamps needs to be further developed in terms of quantity and quality which in the existing condition is still relatively low with a distance of 10 meters in order to minimize criminal acts with the need adjusted to the guidelines for providing pedestrian space facilities -Additional signs can be developed in the segment, namely no-parking and no-stop signs. -Need Adding a safety fence or bollard is very necessary to separate the body of the road from the pedestrian path	
3.	Disabled infrastructure (x7)	Based on observations, researchers see that the facilities for pedestrians with disabilities in segments 1,4, 9, 10, 11 and 15 are still relatively low, with several facilities already available but in their placement they are not properly maintained or not maintained.	-Additional facilities, disabled people and ramps are needed in every pedestrian path segment. Of course, ramps and markings are located in locations that are safe from vehicle circulation and free of obstacles, should have special markers in the form of colored lines and are directed at points of social interaction so that when viewed from the condition existing, people with disabilities	-

			can easily go to office facilities or trade and service centers.	
4.	Things get in the way (x9)	Based on the observations of the researchers when in the field, they saw that in some segments there were obstacles such as a concrete barrier that was not appropriate for its placement, and there were also street vendors/illegal parking so that when users passed through the lane, pedestrians had to enter the road which was considered dangerous due to the absence of a separator between them. sidewalk with the road.	- Widening and repair of pedestrian paths, ramps, cleaning of garbage and adding vegetation to green lanes to increase comfort -Providing complementary facilities, especially lighting, trash cans and others to add comfort for pedestrians and the beauty of pedestrian paths -Adding lighting and rearranging physical objects that block the view in order to increase safety for pedestrians -Cleaning pedestrian paths from obstacles both permanent and non-permanent -Control illegal parking or street vendors from the authorities	

3.5. Pedestrian Line Facility Design

The structuring directives can be applied by drawings that are poured through the design on parameters that have values below the average. The following is an illustration of the design of the arrangement of pedestrian path facilities in the Kota Tua of Jakarta:

3.5.1. Crossing Safety and Availability

The safety parameters and availability of crossings, both in zone 1 and zone 2 are considered low due to the absence of crossing paths. Based on the results of the structuring directions, in zone 1 it is necessary to add crossing lanes in 12th segment, while in zone 2 the additional lanes are carried out in 1st, 4th, 9th, 10th, 11th and 15th segments.

Figure 8 Crosswalk Design in 1st Segment

3.5.2. Amenity/Supporting Facilities

Based on the results of the (2019) calculation, low values for the amenities/supporting facilities parameters in both zones. In zone 1 (segment 12) and zone 2 (1st, 4th, 9th, 10th, 11th and 15th segments), the proposed structuring directions are the addition of trash bins, lighting, no-parking and no-stop signs, and safety fences.

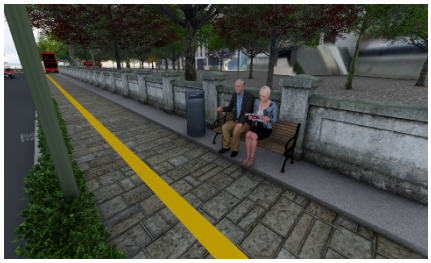

Figure 9 Design of Adding Trash Cans in Segment 1

Figure 10 Safety Fence/Bollard Design in Segment 1

3.5.3. Disabled Infrastructure

Assessments for disabled infrastructure parameters that have low scores are in 5th, 6th, 7th and 18th segments, where there are no adequate facilities for people with disabilities. With that, the direction of structuring on aspects of infrastructure for people with disabilities is in the form of adding disabled facilities and ramps. While in zone 2 the lowest values are in 1st, 8th, 9th, 11th,14th and 17th segments with an average value of 10.

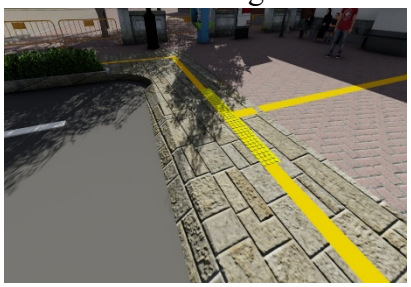

Figure 11 Design of Disabled Infrastructure Addition in the 1st Segment

3.5.4. Disabled Infrastructure

Assessments for disabled infrastructure parameters that have low scores are in 5th, 6th, 7th and 18th segments, where there are no adequate facilities for people with disabilities. With that, the direction of structuring on aspects of infrastructure for people with disabilities is in the form of adding disabled facilities and ramps. While in zone 2 the lowest values are in 1st, 8th, 9th, 11th, 14th and 17th segments with an average value of 10.

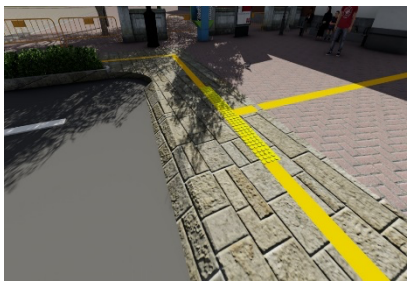

Figure 11 Design of Addition of Disabled Infrastructure in 1st Segment

3.5.5. Inhibiting Factors

Aspects of things that hinder get a low score, in zone 2 9th segment with a value of 10. Therefore, it is necessary to guide the arrangement, namely widening and repairing the surface of the pedestrian path, ramp sloping, cleaning garbage and adding vegetation and then providing complementary facilities, especially lighting, trash cans and more.

Figure 12 Bus Stop Design in 1st Segment

Figure 13 Traffic Sign Design in 1st Segment

4. CONCLUSION

According to the calculation results, the conclusions that can answer the two problem formulations in this study are as follows:

The walkability level is the goal to answer the first problem formulation which requires a description analysis related to the characteristics of the pedestrian path and the level of walkability. So that these results can be used to formulate structuring directions on aspects that have a value below 3 which means there is a risk to pedestrians. According to the calculation results, zone 1 is included in the waiting to walk category with a walkscore value of 56.3 and there are segments that have the lowest scores, namely segments 12 A and 12 B.

Zone 2 is included in the walk on your own risk category because it has a walksscore of 48.31 below the zone 1 score or in other words, improvements are needed in terms of quality and quantity as well as control for side obstacles aimed at preventing visitors or users of pedestrian paths from being disturbed and feel comfortable during activities.

In structuring pedestrian paths, the focus is on the safety aspect and the availability of crossing lanes, supporting facilities/facilities, infrastructure for the disabled and obstacles, which are then illustrated through a structuring design that refers to the Guidelines for Planning, Provision and Utilization of Spatial Infrastructure and Facilities for Pedestrians in Urban Areas by the Director General of Spatial Planning , 2014) with structuring priorities adjusted to existing conditions as well as the results of the calculation of pedestrian path walks. Structuring the safety and availability aspects of crossings as well as the amenity/supporting facilities aspect is focused on 12th segments zone 1 and 1st, 4th, 9th, 10th, 11th and 15th segments zone 2. The infrastructure aspect of disability is focused on 5th, 6th, 7th and 18th segments zone 1 and 1st, 8th, 9th, 11th,14th and 17th segments zone 2. The inhibiting factors is focused on 9th segment on zone 2, with the aim of increasing the value of each zone to the pleasure to walk classification which means that this classification illustrates that the pedestrian path has functioned and has supported walking activities without the need for improvement.

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