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TECHNICAL EVALUATION OF PEDESTRIAN FACILITIES ALONG THE PALEMBANG LRT LINE

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Abstract

The pedestrian path along the Palembang LRT line is one of the indispensable public facilities in Palembang city. Currently, the pedestrian path along the Palembang LRT has not functioned optimally, because the pedestrian path that should be intended for pedestrians but is often misused. In addition, the pedestrian paths are still not in accordance with the technical standards of pedestrian path planning. The purpose of this study was to evaluate pedestrian facilities along the Palembang LRT line. The research method is descriptive quantitative using an instrument to evaluate the existing condition of the pedestrian path based on the Circular Letter of the Minister of PUPR Regulation Number 18/Se/Db/2023. The results showed that of the 5 aspects used to evaluate, with 24 indicators, 13 indicators, amounting to 54.2 percent of pedestrian paths existed and met the technical criteria for pedestrian facilities, 10 indicators, amounting to 41.2 percent, existed but did not meet the criteria and 1 indicator, amounting to 4.2 percent, did not exist and did not meet the technical criteria for pedestrian facilities. To be able to optimize LRT, it is necessary to improve pedestrian facilities along the Palembang LRT to the maximum such as improving pedestrian path materials that meet the technical standards of pedestrian paths.

Keywords: ***pedestrian facilities, technical evaluation, pedestrian paths, walkability***

INTRODUCTION

A pedestrian path is a path designed to provide services for pedestrians to improve pedestrian mobility, safety and comfort (Darmawan & Rahmi, 2021). Its existence is necessary so that all pedestrians can move easily, safely and comfortably (walkability) from one place to another (Kementrian PUPR, 2023) while *walkability* is a complex series to measure how connected, complete, friendly, clear, safe and comfortable a pedestrian path is (Pedo, 2022). One of the pedestrian paths in Palembang city is the pedestrian path located under the Palembang *Light Rail Transit* (LRT) corridor. Palembang city LRT has a corridor length of 23.4 kilometers. As part of an integrated transportation system, pedestrian facilities along the LRT line are an important element that supports the successful operation of the LRT.

Pedestrian facilities (JP) function not only as a link between the LRT station and the surrounding area, but also as a factor that affects the comfort and safety of road users. However, pedestrian facilities often do not meet the technical standards and needs of road users, such as narrow pedestrian path widths, uneven and damaged pedestrian path surfaces, no difference in height levels between pedestrian paths and roads, so that two-wheeled vehicles still use pedestrian paths, and lack of lighting at night.

Based on previous research, the problems that arise on pedestrian paths along the LRT line, especially pedestrian paths at the Ampera LRT station, are the lack of adequate facilities for pedestrians, such as special pedestrian paths that are often misused for parking lots and street vendor selling areas. This causes the lack of safe and comfortable pedestrian paths (Islami et al., 2024).

Based on the background of the existing conditions mentioned above, it is important to conduct a technical evaluation of pedestrian facilities along the Palembang LRT line. This evaluation aims to assess whether the existing facilities have met the technical standards of pedestrian facilities that refer to the Circular Letter of Permen PUPR Number 18/Se/Db/2023 concerning Guidelines for Technical Planning of Pedestrian Facilities, as well as to identify improvements to pedestrian paths and encourage the use of LRT as a choice of public transportation modes.

RESEARCH METHODS

Data collection is taken from primary and secondary data, namely making observations (direct measurements in the field) along with documentation and observations using the *google map* application. The research methodology used is using a quantitative approach whose data collection process is numerically based and has a systematic logic (Fardila, 2018). The research stages of the technical evaluation of pedestrian facilities along the LRT line were carried out field observations with measurements and documentation.

The analysis technique used is descriptive quantitative with a weighting analysis tool with a Likert scale (Institude for Transportation Development Policy, 2019). The focus of this research is to measure the quality of walkability of pedestrian paths along the Palembang LRT line with an assessment of the quality of walkability of pedestrian paths following the assessment indicators in Table 1.

Table 1. Assessment indicators of the quality of walkability of pedestrian paths along the Palembang LRT.

No.	Score	Assessment Indicator	Description
1.	3	Indicators are available and on both sides of the walkway/complete indicators	High *walkability*
2.	2	Indicators are available and only on one side of the walkway i.e. on the left or right side medium quality/partially complete indicators	Medium *walkability*
3.	1	Indicators are available but only partially or at some points on one side of the walkway/low quality indicators/incomplete indicators	Low *walkability*
4.	0	Indicator not available on the walkway/very low quality indicator	Very low *walkability*

The instrument for assessing the *walkability of* pedestrian paths along the Palembang LRT uses 24 Indicators based on (Darmawan & Rahmi, 2021) . So that a score can be obtained for the *walkability* assessment and assisted with a *walkability* quality assessment guide. This guide is used to calculate the quality of *walkability* so that a score is obtained for the *walkability* assessment, which is a tool to measure how connected, complete, friendly, clear, safe and comfortable a pedestrian path is for pedestrians (Darmawan & Rahmi, 2021) . The assessment *range* is from 0 - 3 (number 0 = *low walkability* to 3 = high *walkability*) so that the average per indicator is obtained for the left and right sides of the five pedestrian paths (JP) along the Palembang LRT which are summarized from all sides (left and right sides) of the Pedestrian Path (JP) from JP 1 - 5, in Table 2.

Table 2. *Walkability* Quality Assessment Guidelines

No.	Aspect	Indicator	None (0)	Low (1)	Medium (2)	High (3)	Ref
1.	Connectivity	Pedestrian path connectivity	Pedestrian path is not available	Walkway not connected to main road	One side of the walkway is connected to the main road.	All sides of the walkway are connected to the main road.	(Kementrian PUPR, 2023)
		Walkway connected to public transportation nodes	Not connected to a public transportation node	Connected to a public transportation node but no signage and unclear boundaries	Connected to a public transport node on one side of the JP and there is clear signage and boundaries	All sides of the JP are connected to public transportation nodes and there are clear signage and boundaries.	(Pedo, 2022)
		A pedestrian bridge (JPO) is available	JPO is not available	There is a JPO with a width of < 2 m (alternating) and only exists on one side of the JP with a distance of >	There are JPOs with a minimum width of 2 m (alternating) on both sides of the JP with a distance of more than	There are JPOs on all sides of the JP with a distance of 300 m between JPOs	(Kementrian PUPR, 2023; Pedo, 2022)

No.	Aspect	Indicator	None (0)	Low (1)	Medium (2)	High (3)	Ref
				400 m from one JPO to the other.	300 m between one JPO and another.		
		Availability of crossing facilities for the disabled complete with signage for the disabled	Crossing facilities for the disabled are not available	There are crossing facilities for the disabled but not up to standard	There is a disabled crossing facility on one side of the JP but there is no clear signage for the disabled.	There are crossing facilities for the disabled such as elevators and ramps on both sides of the JP complete with signage for the disabled.	(Darmawan & Rahmi, 2021; Pedo, 2022)
2	Complete	Availability of information boards, billboards, signs, and shop signboards	Information boards, billboards, signs, and shop signboards are not available.	There are information boards, billboards, signs, and shop signboards on some pedestrian paths but their placement is uneven with a distance of 300 - 400 m.	There are information boards, billboards, signs and shop signboards on one side of the pedestrian path at a distance of 200-300 m.	There are information boards, billboards, road signs/markings, and shop signage available on all sides of the JP.	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023)
		Travel distance from the bus stop to the destination can be reached on foot	Travel distance from the bus stop to the destination >1 km	Travel distance from bus stop to destination 400-500 m	Mileage from bus stop to destination 300 m and placed on one side of the JP	Mileage from bus stop to destination 300 m and placed on all sides of the JP	(Kementrian PUPR, 2023)
3.	Friendly	Effective pedestrian path width 1.5 m	Pedestrian path not available	Walkway width < 1 m	Walkway width < 1.2 m	Walkway width > 150 cm on both sides JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023; Pedo, 2022)
		Vehicle speed control	Vehicle speed control does not exist	False speed humps and speed limit signs are present	Speed humps and speed limit signs are present on one side of the JP	Speed humps and speed limit signs are present on all sides of the JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023)
		Ramp availability on JPs with 12% slope	Ramp is not available	There are ramps on some parts of the JP with varying gradients	There is a ramp on one side of the JP with a slope of > 12%	There are ramps on both sides of the JP with 12% slope	(Kementrian PUPR, 2023; Pedo, 2022)

No.	Aspect	Indicator	None (0)	Low (1)	Medium (2)	High (3)	Ref
		Availability of guiding blocks on the JP	Guiding blocks are not available	There are guiding blocks at some points of the JP	There are guiding blocks on one side of the JP	There are guiding blocks on both sides of the JP	(Kementrian PUPR, 2023; Pedo, 2022)
4.	Clear	Parking lot on the pedestrian path	No 45° parking spaces on either side of the JP	There are 45° parking spaces on both sides of the JP	There is a 90° on-street parking space on one side of the JP	There are 90° parking spaces on all sides of the JP	(Kementrian PUPR, 2023)
		Parking lot availability	There is no parking lot outside the JP	Off-street parking is done at behind the building	There is a parking lot area on one side of the JP	There are parking lots on all sides of the JP	(Kementrian PUPR, 2023)
5.	Safe and comfortable	Availability of shade trees at JP	Shade trees are not available	Shade trees are present in some JPs	Shade trees are present on one side of the JP	Shade trees are present on all sides of the JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023; Pedo, 2022)
		Availability of trash bins within 20 m	Trash bins are not available at JP	There are trash bins in several places with irregular distance in the JP	There is a trash bin with a distance of 20 m on one side of the JP	There are trash bins with a distance of 20 m on both sides of the JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023; Pedo, 2022)
		Availability of street lighting with a height of 4 m	Street lighting is not available	Street lighting is in the middle of the JP with a height of 4 m	Street lighting is present on one side of the JP with a height of 4 m	Street lighting is present on all sides of the JP with a height of 4 m	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023; Pedo, 2022)
		Availability of park benches	Park benches are not available	Park benches are available at some points of the JP and the placement is not regular	Park benches are available on one side of the JP	Park benches are available on both sides of the JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023)
		Availability of ornamental plants in JP	Ornamental plants in JP are not available	Ornamental plants are available in several places on both sides of the JP	Ornamental plants are available on one side of the JP	Ornamental plants are available on all sides of the JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023)
		JP material condition	JP material condition is not available	Material conditions are dazzling, slippery, bad, damaged, and have holes in some JPs	Material condition is good, not damaged, not perforated, not dazzling, and not slippery on	The material condition is good, undamaged, without holes, not dazzling to the eyes, and not	(Kementrian PUPR, 2023; Pedo, 2022)

No.	Aspect	Indicator	None (0)	Low (1)	Medium (2)	High (3)	Ref
					one side of JPs	slippery on all sides of the JPs.	
		Presence of buildings on the left or right side of the JP to relax the eyes	There are no buildings on all sides of the JP that can relax the eyes.	There are some buildings around the JP that can relax the eyes	There are buildings on one side of the JP that can relax the eyes	There are buildings on both sides of the JP that can relax the eyes	(Kementrian PUPR, 2023)
		Availability of street vendors	There are no street vendors	There are street vendors in several places in the JP and hamper walking activities	There are street vendors on one side of the JP and do not hinder walking activities	There are street vendors on both sides of the JP and do not hinder walking activities	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023)
		JP height level difference between 15-20 cm	No JP available	JP height level difference > 20 cm	JP height level difference on one side of the JP between 15-20 cm	JP height level difference on both sides of JP between 15-20 cm	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023; Pedo, 2022)
		22. Availability of zebra crossing	There is no zebra crossing available in the JP	There is a zebra crossing with irregular spacing	There is a zebra crossing on one side of the JP	There are zebra crossings on all sides of the JP with a regular distance between one zebra crossing and another.	(Darmawan & Rahmi, 2021)
		23. Availability of drainage channels	Drainage channels are not available	Drainage channels are available but only a few spots so that it does not flow to the end / final disposal site	There is a drainage channel but only on one side of the JP	There are drainage channels on both sides of the JP	(Kementrian PUPR, 2023)
		24. Availability of bollards	Bollards are not available	Bollards are present but placed irregularly	There are bollards on one side of the JP	There are bollards on both sides of the JP	(Darmawan & Rahmi, 2021; Kementrian PUPR, 2023)

Description:
JP = Pedestrian Path
JPO = Pedestrian Bridge
Street Vendors = Street Vendors
Reference Notes:
- (1) = researcher 1 (Fardila, 2018)

- (2) = researcher 2 (Darmawan & Rahmi, 2021)
- (3) = researcher 3 (Pedo, 2022)

RESULTS AND DISCUSSION

This section explains the research results obtained in detail, which can be expressed in the form of tables, program codes or graphs for easy understanding.

Quality Assessment of *Walkability* along Palembang LRT Walkway

After observations in the field and calculated using the *walkability* quality assessment guide, the results of the assessment of the existing pedestrian path along the Palembang LRT are shown in Table 3.

Table 3. Existing Conditions of 5 JPs Along the Palembang LRT that Refers to the Quality of *Walkability* and Technical Standards

No	Aspect	Code	JP 1		JP 2		JP 3		JP 4		JP 5		Sub Total	Average Per Indicators
			Kr	Kn	Kr	Kn	Kr	Kn	Kr	Kn	Kr	Kn		
1	Connectivity	A1	3	3	3	3	3	3	3	3	3	3	30	100
		A2	3	3	3	3	3	3	3	3	3	3	30	100
		A3	1	1	2	2	2	2	2	2	2	2	18	60
		A4	3	3	3	3	3	3	3	0	3	3	27	90
2	Complete	B1	3	3	3	3	3	3	3	3	3	3	30	100
		B2	0	0	1	1	2	2	2	2	1	1	12	40
3	Friendly	C1	2	2	2	2	3	3	1	1	1	1	18	60
		C2	0	0	0	0	0	0	0	0	0	0	0	0
		C3	1	1	2	2	2	0	2	2	2	0	14	46,67
		C4	3	3	3	3	3	3	3	3	3	3	30	100
4	Clear	D1	0	2	2	2	3	3	3	0	2	0	17	56,67
		D2	0	2	2	2	3	3	3	0	2	0	17	56,67
5	Safe and convenient	E1	3	3	3	3	3	3	3	3	3	3	30	100
		E2	0	1	1	1	1	1	3	3	0	0	11	36,67
		E3	1	1	1	1	1	1	1	1	1	1	10	33,33
		E4	1	0	0	0	3	3	3	3	0	0	13	43,33
		E5	3	3	3	3	3	3	3	3	3	3	30	100
		E6	1	1	2	2	2	1	1	1	1	1	13	43,33
		E7	2	2	2	2	2	2	2	2	2	2	20	66,67
		E8	0	2	2	2	2	2	2	2	2	2	18	60
		E9	1	0	1	1	0	0	1	0	0	0	4	13,33
		E10	1	1	0	0	1	1	1	1	0	0	6	20
		E11	1	1	0	0	0	0	0	0	1	1	4	13,33
		E12	0	1	1	0	1	1	1	1	0	0	6	20

Notes:
*The average number per indicator is obtained from = the sum of the 10 left and right sides of the 5th pedestrian path (the sum of all sides on the pedestrian path).

The results of the analysis of the existing conditions of the Palembang LRT pedestrian path were obtained for 5 aspects of *walkability*, namely:

1. **Connectivity aspects,** (A1) the observation results show there is a suitability of 100 percent on all sides of the pedestrian path already connected to the arterial and collector roads of Palembang city, this is in accordance with the research that has been done. This is in accordance with the Technical Standards set by the Government (Kementrian PUPR, 2023) . In other cities such as Kupang, the connectivity aspect is 100 percent, this shows that development in cities in Indonesia is in accordance with the technical standards set by the Government (Pedo, 2022) . Pedestrian paths connected to public transportation nodes (A2) show that there is 100 percent conformity seen from connecting with bus stops and public vehicles . Conditions in the city of Sintang pedestrian paths are connected to public transportation but all activities are mostly carried out on foot and are not too dependent on public transportation, this shows that the construction of pedestrian paths in Indonesia is in accordance with the technical standards of pedestrian paths set by the Government (Islami et al., 2024) .

Parameter (A3) There is a pedestrian bridge on the pedestrian path along the Palembang LRT only 60 percent have a Pedestrian Bridge (JPO). Conditions in the city of Kuanino Kupang are also only 20 percent that meet the criteria of technical standards relating to the availability of JPOs. This shows that cities in Indonesia do not optimize the use of JPOs (Budiyanto et al., 2020). The availability of crossing facilities for people with disabilities (A4), the results show that the suitability is 90 percent, this is different from the city of Sintang which shows a suitability of 40 percent that is not in accordance with the technical standards that refer to the Circular Letter of Permen PUPR Number 18/Se/Db/2023 (Islami et al., 2024; Kementrian PUPR, 2018; Kementrian PUPR, 2023)

2. **Complete Aspects,** (B1) there is conformity with the technical standards of pedestrian paths by 100 percent; parameter (B2) is obtained, namely information boards, billboards, signs, and shop signboards on all sides of the pedestrian path with a distance of < 150 meters already gives a very high assessment of the *walkability* of a pedestrian path, the results show that 40 percent because only 2 pedestrian paths meet this criterion . In contrast to the pedestrian paths in the city of Padang which fall into the category of quite comfortable for walking, because the distance of transit pedestrian paths is not too far from the destination. This shows the average distance of transit pedestrian paths to the destination of 200 - 300 meters, this is in accordance with the technical standards of pedestrian paths (Kementrian PUPR, 2023).
3. **The friendly aspect,** (C1) obtained an assessment of 60 percent meets this criterion, the conditions in the field are damaged, the width of the pedestrian path should be according to technical standards can provide comfort for road users. In Malioboro, the width of the pedestrian path is in accordance with the technical standards set by the Government, so it is necessary to improve the pedestrian path to comply with the criteria for technical standards of pedestrian paths that have been designed by the Government (Agphin Ramadhan et al., 2018) . Parameter (C2), shows that there is a ramp on the pedestrian path with a maximum slope of 12 percent. Parameter (C3), the results show that only 46.67 percent of pedestrian paths meet this parameter, based on the existing conditions many are damaged . Parameter (C4), obtained the presence of guide blocks on the pedestrian path results show that conformity is 100 percent. The pedestrian paths in Malioboro also have clear guide blocks and are in accordance with the technical standards designed by the Government. This shows that pedestrian paths in Indonesia have adjusted to the technical standards designed by the Government (Agphin Ramadhan et al., 2018).
4. **The Clear aspect of parameter** (D1)**,** the results show that 56.67 percent of pedestrian paths along the Palembang LRT meet this parameter. Parameter (D2), the results show that 56.67 percent of pedestrian paths along the Palembang LRT meet this parameter, special parking pockets should be prepared for commercial areas (Widiyanti, 2019).
5. **Safe and comfortable aspects,** (E1) results show that the suitability of 100 percent. Parameter (E2) . It was found that only 36.67 percent of pedestrian paths that have conformity with this parameter do not comply with technical standards for pedestrian facilities (Widiyanti, 2019). Parameter (E3), the assessment results show only 33.33 percent of pedestrian paths have conformity with this parameter. Parameter (E4), assessment results show 43.33 percent of pedestrian paths that have conformity with this parameter should be with a distance of 180 meters between seats in accordance with the technical standards of pedestrian facilities (Budiyanto et al., 2020). Parameter (E5), the assessment results show that the suitability is 100 percent where the existing conditions are in accordance with the technical standards issued by the Government. Ornamental plants are present on all pedestrian paths, the number of ornamental plants on all sides of the pedestrian path can provide eye coolness for road users who pass through the pedestrian path (Fardila, 2018) . Parameter (E6), the assessment results show an average value of 43.33 percent. Parem (E7), the assessment results show an average value of 66.67 percent. Parameter (E8), the assessment results show only 60 percent. Parameter (E9), the assessment results show an average value of 13.33 percent kerbs should be added to separate the pedestrian path facilities from the road body in accordance with (Agphin Ramadhan et al., 2018) . Parameter (E10), the assessment results show an average value of 20 percent of pedestrian paths that have conformity with this parameter, *zebra crossings* should be present on all pedestrian paths along this LRT in accordance with (Widiyanti, 2019) . Parameter (E11), the assessment results show an average value of 13.33 percent. Parameter (E12), the assessment results show an average value of 20 percent, pedestrian paths that have conformity with this parameter the availability of bolar is very influential to pass large to avoid other vehicles entering the lane along the pedestrian path (Widiyanti, 2019).

Results of Evaluation in the Field, Then the Parameter Code for Technical Criteria for Pedestrian Facilities Will Be Made

After recording and collecting data on existing conditions in the field, an evaluation of these conditions is carried out by adding an analysis of the fulfillment of criteria and brief reviews related to the technical evaluation of pedestrian paths (Table 4).

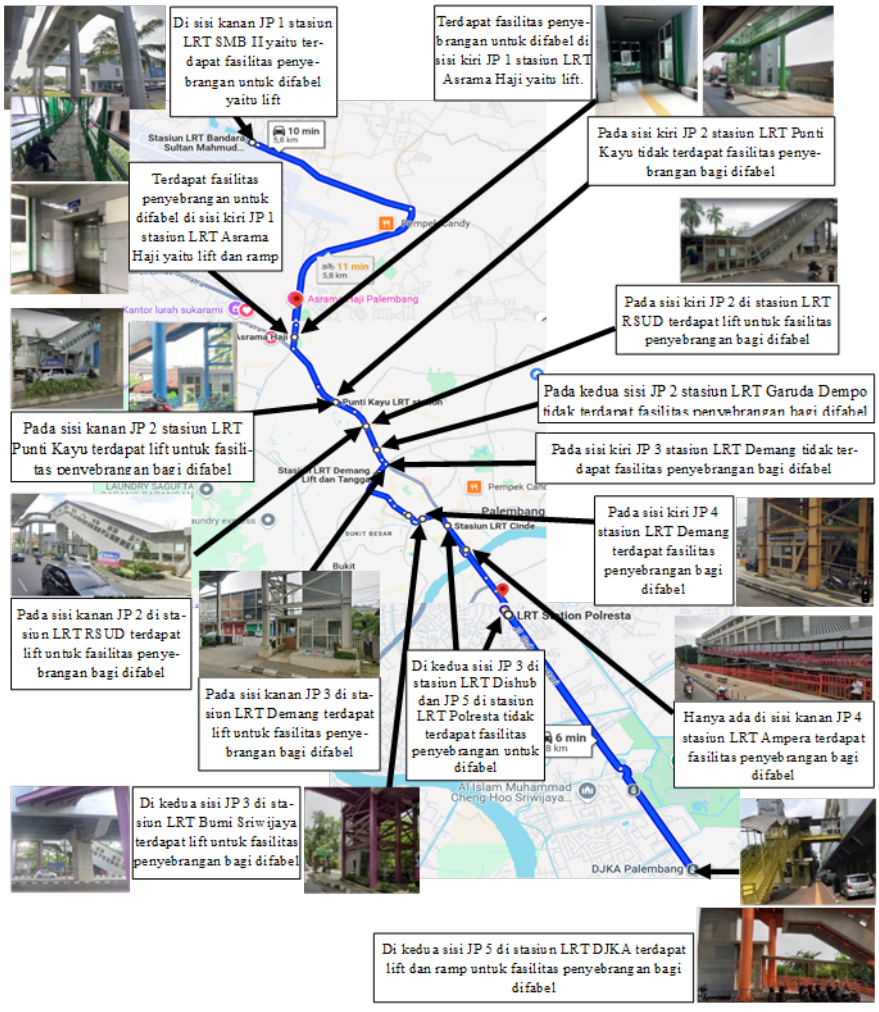
Table 4. Technical Evaluation of Pedestrian Walkways Along the Palembang LRT

Aspect	Code	Percentage per Indicator (%)	Exists and/or Meets Criteria	Exists and/or Does Not Meet Technical Standards	Does not exist or does not meet technical standards	Criteria Fulfillment Analysis	Review of Pedestrian Walkway Assessment Criteria Based on Technical Standards
Connectivity	A1	100	V			100% meets criteria	All sides of the pedestrian path are connected to the main road to facilitate the mobility process of road users (Institude for Transportation Development Policy, 2019)
	A2	100	V			100% criteria met	The priority measurement to support this function is 500 - 1000 m from the center point of the bus stop or equal to 10 minutes walk .(Institude for Transportation Development Policy, 2019)
	A3	60	V			> 50% meets the criteria	JPOs on pedestrian paths have a minimum width of 2 m (alternating) (Kementrian PUPR, 2023)
	A4	90	V			> 50% meets the criteria	Pedestrian bridges must be equipped with crossing facilities for the disabled. (Kementrian PUPR, 2023)
Complete	B1	100	V			100% meets criteria	Sign details refer to the Minister of Transportation Regulation No13/2014 on Traffic Signs. Signs related to pedestrians
	B2	40		V		< 50% does not meet the criteria	Transit to destination distance of 300 m and placed on both sides of the walkway (Kementrian PUPR, 2023)
Friendly	C1	60	V			> 50% meets criteria	Effective pedestrian path width > 150 cm (Kementrian PUPR, 2023)
	C2	0			V	<50% does not meet the criteria	This facility is intended to provide a coercive effect for drivers to reduce speed. window size 370 - 400 cm long. Maximum height 10 cm. (Kementrian PUPR, 2018)
	C3	46,67		V		<50% does not meet the criteria	Ramps are placed at driveways, intersections, and pedestrian crossings with a maximum slope of 12% (1:8). (Kementrian PUPR, 2023)
	C4	100	V			100% meets the criteria	Requirements for the provision of guide blocks (Kementrian PUPR, 2023)
Clear	D1	56,67	V			100% meets the criteria	Parking lots on some pedestrian paths are arranged 90^{o} (Kementrian PUPR, 2018)(Sunarto Tjahjadi, 1996)

Aspect	Code	Percentage per Indicator (%)	Exists and/or Meets Criteria	Exists and/or Does Not Meet Technical Standards	Does not exist or does not meet technical standards	Criteria Fulfillment Analysis	Review of Pedestrian Walkway Assessment Criteria Based on Technical Standards
	D2	56,67	V			100% criteria met	There are vehicle parking facilities for passengers using LRT transit as a continuation transit from the point of origin to the destination, or vice versa (Widiyanti, 2019)(Kementrian PUPR, 2018)
Safe and Comfortable	E1	100	V			100% meets criteria	The green lane is placed on the pedestrian path without reducing the effective width of the pedestrian path and as a separator between the road space and the pedestrian path with a width of 1.20 m. (Kementrian PUPR, 2023)
	E2	36,67		V		< 50% does not meet the criteria	Garbage bins are placed every 20 m at the meeting points, with the size adjusting to the needs. (Kementrian PUPR, 2023)
	E3	33,33		V		<50% does not meet the criteria	Lighting lamps are located every 10 m with a maximum height of 4 m (Kementrian PUPR, 2023)
	E4	43,33		V		<50% does not meet the criteria	Park benches are placed at a distance of 110 - 120 m by adjusting the characteristics of the location. (Kementrian PUPR, 2023)
	E5	100	V			100% meets the criteria	The placement of ornamental plants on the pedestrian path should pay attention to(Institude for Transportation Development Policy, 2019) : The type of plants to be used should be relaxing and not in the middle of the pedestrian path.
	E6	43,33		V		<50% does not meet the criteria	Requirements for surface materials that can be used for pedestrian paths (Kementrian PUPR, 2018)
	E7	66,67	V			> 50% meets the criteria	Building facades that are attractive to pedestrians can be referred to as an effort to relax the eyes and can increase the comfort as well as the safety of people walking (Institude for Transportation Development Policy, 2019)
	E8	60	V			> 50% meets criteria	The placement of street vendors on pedestrian paths is based on the priority of road space, i.e: building parcels with at least 2 m of road space left. (Institude for Transportation Development Policy, 2019)
	E9	13,33		V		<50% does not meet the criteria	The recommended pedestrian path height level difference is 15-20 cm, if >20 cm it is not comfortable to

Aspect	Code	Percentage per Indicator (%)	Exists and/or Meets Criteria	Exists and/or Does Not Meet Technical Standards	Does not exist or does not meet technical standards	Criteria Fulfillment Analysis	Review of Pedestrian Walkway Assessment Criteria Based on Technical Standards
							pass .(Kementrian PUPR, 2018)
	E10	20		V		<50% does not meet the criteria	*Zebra crossing* has requirements according to pedestrian technical standards (Kementrian PUPR, 2023)
	E11	13,33		V		<50% does not meet the criteria	Minimum drainage size is 50 cm wide and 50 cm high (Kementrian PUPR, 2018)
	E12	20		V		<50% did not meet the criteria	Bollards are placed about 30 cm from the pedestrian barrier and have a height of 0.60 - 1.20 m. Distance is adjusted according to needs (Kementrian PUPR, 2023)

a. Connectivity aspects, (A1-A3) have met the JP (pedestrian path) technical standard criteria, on average all JPs are connected to more than 2 arterial roads (A1); all JPs are connected to public transportation nodes (A2) namely feeders, LRT, and transmusi; There are JPOs (Pedestrian Bridges), with a width of 100 cm on both sides of the Pedestrian path but have a considerable distance between one JPO (Pedestrian Bridge) and another JPO. The most JPOs are on the left side of JP 2 totaling 5 JPOs (A3) and the availability of crossing facilities for the disabled, available crossings for the disabled and there are signs and have clear boundaries (Table 4) (Mardiana et al., 2019) . Meanwhile, the existing conditions in the aspect of connectivity with the observed indicators are code A4, namely the availability of crossing facilities for the disabled complete with signs for the disabled (Figure 1).



Existing conditions in the aspect of connectivity with the observed indicator A4, namely regarding the availability of crossing facilities for the disabled.

b. Completeness aspect, (B1-B2) information boards, billboards, signs, and shop signboards are already available on all sides of the pedestrian path (B1). However, the distance is still quite far if taken on foot, because on average in all JPs, the transit distance to the destination is 200-300 meters (B2).

c. Friendly Aspects, (C1-C4) the availability of guide blocks on the pedestrian path has met the criteria but the condition of many of them is mossy and damaged (C1); There are no speed controllers in all JPs because 2-wheeled vehicles are not allowed to pass through JPs so there is no need to make vehicle speed controllers (C2); The availability of ramps at JPs with a maximum slope of 12 percent does not meet technical standards because many of them are damaged and have an average slope of 15-20 percent so that it will make it difficult for pedestrians (C3) and many guide blocks are also not visible (C4).

d. Clarity aspect, (D1-D2) there are parking lots in all JPs that meet technical standards, but only for motorcycle parking. In general, the assessment of the clarity aspect is good because it meets the criteria.

e. Safe and Comfortable Aspects, (E1-E12) along the JP there are many shade trees so that it can increase the comfort of pedestrians who pass through it. E2 - E4 trash bins are rarely found and the distance between bins is more than 20 meters. Trash bins with a distance of >20 meters are considered not meeting technical standards, trash bins exist at several points of the pedestrian path, but are placed irregularly and placed more than 20 meters, only in JP 4 precisely from the Cinde LRT Station to before the roundabout fountain in front of the grand mosque which has implemented the placement of trash bins within 20 meters, in accordance with previously conducted research (Roza dan Suri, 2020) (Ardyanti, 2019) . Indicators of street lighting lamps with a height of 4 meters, are considered not meeting technical standards because the lighting lamps are placed in the middle of the pedestrian path, namely under the LRT corridor, the lighting lamps should be placed on the JP side so that it is not dark at night while avoiding crime (Ardyanti, 2019) , so that the lighting along the JP is still assisted by lighting from shops, shophouses, and offices around the pedestrian path along the LRT (Agphin Ramadhan et al., 2018).

The availability of park benches is still small and the location between benches is still far away, making it difficult for pedestrians if they want to take a break to sit on a bench to relax. E5 the availability of ornamental plants on pedestrian paths adds to the comfort of pedestrians passing through the path (Kementrian PUPR, 2023) . E6 the condition of many JP materials has been damaged so that pedestrians must be a little vigilant when walking because some paving blocks have been damaged. The material condition of the pedestrian path, on average, the material condition in JP 3 and 5 is damaged and has not been repaired. E7-E8 There are already buildings on the left or right side of the pedestrian path to relax the eyes especially if supported by sufficient lighting at night and there are several street vendors selling drinks on the side of the road so that their existence can at the same time beautify the pedestrian path (Ardyanti, 2019) . E9-E11 The difference in the height level of the pedestrian path is made one of them to facilitate pedestrians when getting off the bus stop. *Zebra crossings* are located on pedestrian paths with high pedestrian mobility, namely near the Cinde LRT station (Jannah et al., 2021).

Availability of drainage channels, in some JPs, many have closed drainage channels to facilitate the mobility of vehicles going in and out of a building (Pedo, 2022) . Drainage channels only exist at a few points in each JP so they do not meet technical standards, this is because many drainage channels are covered with concrete to expand the vehicle parking area. E12 Availability of bollards, bollards are available near the LRT station to prevent 2-wheeled vehicles from entering the pedestrian area (madjid, 2019).

CONCLUSION

From 5 aspects with 24 Indicators as an instrument to assess and evaluate JP along the Palembang City LRT line, there are 13 indicators that meet the technical criteria for pedestrian facilities, namely 54.2 percent, 10 indicators and those that do not meet the criteria, namely 41.2 percent, and 1 indicator or as much as 4.2 percent that has no value at all, namely 0. This causes reduced interest in pedestrians to enjoy traveling along the Palembang LRT line. Some JPs are damaged, starting from the condition of the pedestrian path material which has been damaged due to holes, many road guide blocks on the pedestrian path are also damaged, mossy, making it difficult for people with disabilities to use the guide blocks. Street lights are still sparse, causing the road to be dark at night, potentially leading to crime, especially in JP 1 and JP 4 and 5. Among the five pedestrian paths along the Palembang LRT, the most alarming condition is in JP 2.

To be able to optimize the LRT, it is necessary to improve pedestrian facilities along the Palembang LRT to the maximum such as improving the pedestrian path material according to JP technical standards. Then the addition of street lights not only in the middle under the Palembang LRT line but also on the left and right sides of the pedestrian path, especially pedestrian paths that are around vacant land. So that road users feel safe and comfortable passing through the pedestrian path along the Palembang LRT and it is also necessary to add some additional items such as adding a high level pedestrian path so that there is a difference between the road and the pedestrian path.

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