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# JAK LINGKO URBAN PUBLIC TRANSPORT PERFORMANCE EVALUATION ON TRAYEK 21, 22, 24, 25, 26, 27, 28, 29, AND 30 OF PROVINSI DKI JAKARTA

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## ABSTRACT

Passenger public transportation is a means of transportation used to serve the public in DKI Jakarta, along with the increase in private vehicle ownership which is increasing while urban transport has decreased the number of passengers. The decline makes demand not proportional to availability. There are several factors that influence the decline in public interest in using city transportation, one of which is the level of service provided is still inadequate, therefore it is necessary to conduct an evaluation of the performance of urban transport on the Jak 21-30 route. Based on the results of the evaluation using the technical guidelines for organizing public transportation in urban areas on fixed routes and routes, as well as minimum service standard parameters based on the World Bank, the method used is performance evaluation carried out by analyzing public transport performance. For Load Factors there are differences in SPM, the standard issued by the 2002 DRJD Decree is <70%, including Good, while the 21-30 route is still moderate, while the standard issued by the World Bank that is 70% includes compliance, there are 2 routes that do not meet standard. Headway on all routes is good. Travel time on the World Bank, there are 2 routes that do not meet the SPM ideal time of 1-1.5 hours, with the results of the analysis still under 1 hour. So in comparison using the SPM (World Bank) Standard does not meet because the round-trip routes on the Jak 21 and 22 routes are too short and have major centers such as airports and malls.

**Key word:** city transportation,;evaluation; performance; service.

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## INTRODUCTION

Along with the rapid development of technology in DKI Jakarta area and the increasing mobilization of people who are active in their environment. Distribution and mobilization began to be supported by the increasing ownership of private vehicles which will have an impact on the decrease in public interest to use urban public transport. Transportation as the most accessible means of public transport by the public, where we know together that public transportation has a serious problem today as routes are less efficient to change modes, many public transports pursue rent, parking carelessly on the shoulder of the road, from which many cause very congested congestion, many people still use private transportation and lack of public interest to use public transportation. Based on the above problems the GOVERNMENT of DKI Jakarta has built jak lingko program in DKI Jakarta area, Jak Lingko means an integrated and sustainable transportation system. With the program, there needs to be an evaluation of the performance of Jak Lingko Service Transportation, especially in corridors 21, 22, 24, 25, 26, 27, 28, 29, 30, to know the performance of the public transportation service.

The concept of public transport passengers in traveling can be influenced by the needs of people to move. So the use of public transportation is the right choice to choose for people who do not have private vehicles. The need for more motorized vehicles to operate. This shows that motorized vehicles are an effective medium for use as a means of transportation (Hana K, Juang A, 2019); Cicilia et al, 2019); (Syaiful S, Wahid N, 2020). Public transportation in Jakarta is the most dominant form of transportation as a substitute for private cars. This mode of transportation also affects road conditions as a means of supporting motorized vehicles to operate. Good road conditions increase the speed of public transportation (Syaiful S, Elvira Y, 2017).

## RESEARCH METHODS

### Research Time

The research time was conducted on Tuesday and Saturday morning rush hour (07:00 - 09:00 WIB), afternoon rush hour (11:00 - 13:00 WIB) afternoon rush hour (16:00 – 18:00 WIB) Monday, Tuesday represents weekdays and Saturday represents a holiday.

### Research Sites

The location of this research site is the city of DKI Jakarta, especially corridors 21 – 30, here is the route line corridor 21 – 30:

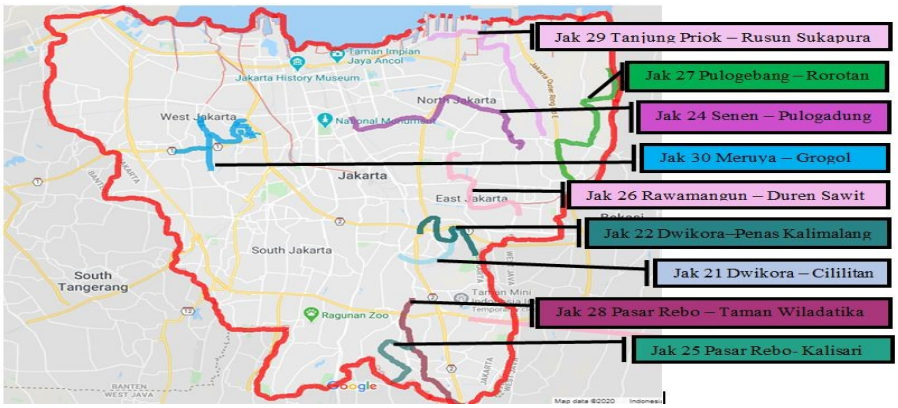


**Figure 1.** Research Sites (Source: Processing results from google maps)

The stage of this research is displayed in the form of flow chart as follows:

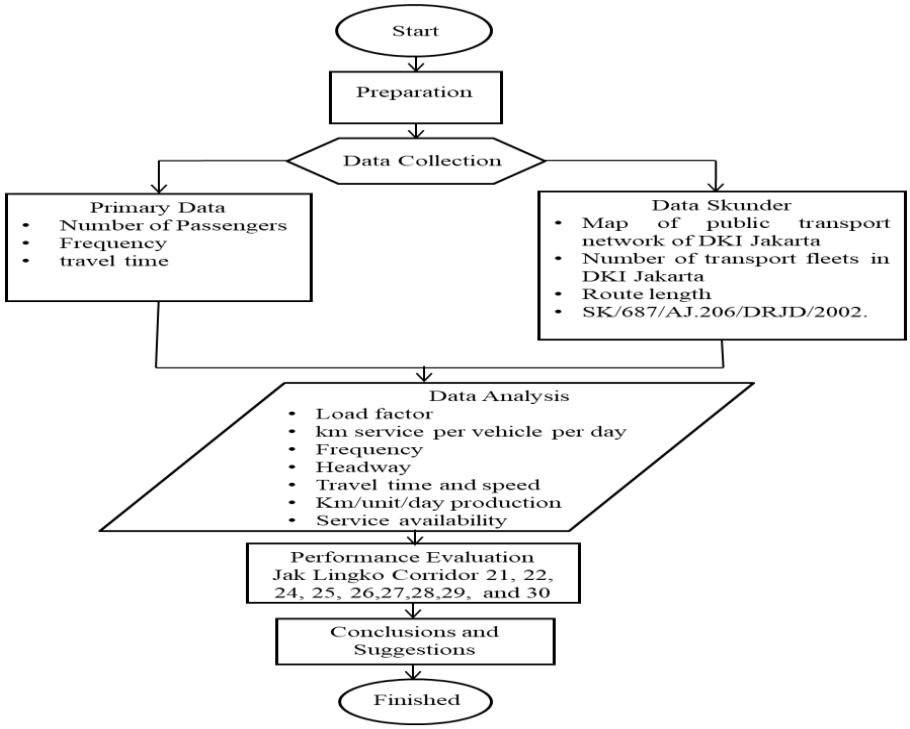


**Figure 2.** Research flow chart

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## RESULTS AND DISCUSSIONS

### Passenger data

The survey results were conducted from 07.00 – 09.00 WIB for the morning rush time, 11:00-13:00 WIB for afternoon time, 16:00 -18:00 WIB for afternoon rush time. By way of survey on public transportation and record the number of passengers who ride and get off public transportation.

**Table 1.** Passenger data

| Code Route | Route | Time | Passenger | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| Jak 21 | Dwikora – Cililitan | Busy morning | 11 | 11 | 10 |
| | | Lunch break | 7 | 9 | 8 |
| | | Busy afternoon | 11 | 9 | 11 |
| | | **Average** | 10 | 10 | 10 |
| Jak 22 | Dwikora – Penas Kalimalang | Busy morning | 11 | 10 | 11 |
| | | Lunch break | 8 | 9 | 10 |
| | | Busy afternoon | 10 | 11 | 11 |
| | | **Average** | 10 | 10 | 11 |
| Jak 24 | Senen – Pulogadung | Busy morning | 11 | 11 | 11 |
| | | Lunch break | 9 | 6 | 7 |
| | | Busy afternoon | 11 | 9 | 10 |
| | | **Average** | 10 | 9 | 9 |
| Jak 25 | Pasar Rebo – Kalisari | Busy morning | 9 | 9 | 11 |
| | | Lunch break | 6 | 7 | 7 |
| | | Busy afternoon | 9 | 11 | 8 |
| | | **Average** | 8 | 9 | 9 |
| Jak 26 | Rawamangun – Duren Sawit | Busy morning | 10 | 11 | 10 |
| | | Lunch break | 7 | 8 | 8 |
| | | Busy afternoon | 8 | 9 | 10 |
| | | **Average** | 8 | 9 | 9 |
| Jak 27 | Pulogebang – Rorotan | Busy morning | 10 | 9 | 9 |
| | | Lunch break | 10 | 6 | 8 |
| | | Busy afternoon | 11 | 9 | 11 |
| | | **Average** | 10 | 8 | 9 |
| Jak 28 | Pasar Rebo – Taman Wiladatika | Busy morning | 11 | 11 | 11 |
| | | Lunch break | 6 | 10 | 8 |
| | | Busy afternoon | 9 | 11 | 11 |
| | | **Average** | 9 | 11 | 10 |
| Jak 29 | Tanjung Priok – Rusun Sukapura | Busy morning | 11 | 10 | 10 |
| | | Lunch break | 9 | 8 | 8 |
| | | Busy afternoon | 11 | 11 | 9 |
| | | **Average** | 10 | 10 | 9 |
| Jak 30 | Meruya – Grogol | Busy morning | 10 | 10 | 8 |
| | | Lunch break | 6 | 5 | 6 |
| | | Busy afternoon | 9 | 9 | 11 |
| | | **Average** | 8 | 8 | 8 |

Source: Survey Results 2020

Jak Lingko Public Transport Service Performance

**Load factor**

Examples of load factor calculations are as follows.

Lf = Pnp/C *X* 100 % = 10/11 *X* 100 % = 100 %

**Table 2**. Load factor

| Code Route | Route | Time | Passenger | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| Jak 21 | Dwikora – Cililitan | Busy morning | 100 | 100 | 91 |
| | | Lunch break | 64 | 82 | 73 |
| | | Busy afternoon | 100 | 82 | 100 |
| | | **Average** | 87,9 | 87,9 | 87,9 |
| Jak 22 | Dwikora – Penas Kalimalang | Busy morning | 100 | 91 | 100 |
| | | Lunch break | 73 | 82 | 91 |
| | | Busy afternoon | 91 | 100 | 100 |
| | | **Average** | 87,9 | 90,9 | 97,0 |
| Jak 24 | Senen – Pulogadung | Busy morning | 100 | 100 | 100 |
| | | Lunch break | 82 | 55 | 64 |
| | | Busy afternoon | 100 | 82 | 91 |
| | | **Average** | 93,9 | 78,8 | 84,8 |
| Jak 25 | Pasar Rebo – Kalisari | Busy morning | 82 | 82 | 100 |
| | | Lunch break | 55 | 64 | 64 |
| | | Busy afternoon | 82 | 100 | 73 |
| | | **Average** | 72,7 | 81,8 | 78,8 |
| Jak 26 | Rawamangun – Duren Sawit | Busy morning | 91 | 100 | 91 |
| | | Lunch break | 64 | 73 | 73 |
| | | Busy afternoon | 73 | 82 | 91 |
| | | **Average** | 75,8 | 84,8 | 84,8 |
| Jak 27 | Pulogebang – Rorotan | Busy morning | 91 | 82 | 82 |
| | | Lunch break | 91 | 55 | 73 |
| | | Busy afternoon | 100 | 82 | 100 |
| | | **Average** | 93,9 | 72,7 | 84,8 |
| Jak 28 | Pasar Rebo – Taman Wiladatika | Busy morning | 100 | 100 | 100 |
| | | Lunch break | 55 | 91 | 73 |
| | | Busy afternoon | 82 | 100 | 100 |
| | | **Average** | 78,8 | 97,0 | 90,9 |
| Jak 29 | Tanjung Priok – Rusun Sukapura | Busy morning | 100 | 91 | 91 |
| | | Lunch break | 82 | 73 | 73 |
| | | Busy afternoon | 100 | 100 | 82 |
| | | **Average** | 93,9 | 87,9 | 81,8 |
| Jak 30 | Meruya – Grogol | Busy morning | 91 | 91 | 73 |
| | | Lunch break | 55 | 45 | 55 |
| | | Busy afternoon | 82 | 82 | 100 |
| | | **Average** | 75,8 | 72,7 | 75,8 |

Source: Analysis Results 2020

From the average load factor analysis using equation 2.1, the largest percentage of load factors is on Jak 22 Route (Dwikora – Penas Kalimalang), Jak 28 (Rebo Market – Taman Wiladatika), with a value of 97.0%, while for Jak 25 route (Rawamangun – Duren Sawit), Jak 27 (Pulogebang – Rorotan) and Jak 30 (Meruya – Grogol)have the smallest percentage with a value of 72.7%.

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**Table 3.** Frekuensi

| Code Route | Route | Time | Frekuensi (kend/jam) | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| Jak 21 | Dwikora – Cililitan | Busy morning | 49 | 47 | 46 |
| | | Lunch break | 57 | 53 | 51 |
| | | Busy afternoon | 55 | 59 | 62 |
| | | **Average** | **53** | **53** | **53** |
| Jak 22 | Dwikora – Penas Kalimalang | Busy morning | 25 | 26 | 28 |
| | | Lunch break | 35 | 37 | 34 |
| | | Busy afternoon | 30 | 26 | 29 |
| | | **Average** | **30** | **30** | **30** |
| Jak 24 | Senen – Pulogadung | Busy morning | 29 | 25 | 24 |
| | | Lunch break | 26 | 32 | 33 |
| | | Busy afternoon | 33 | 30 | 30 |
| | | **Average** | **29** | **29** | **29** |
| Jak 25 | Pasar Rebo – Kalisari | Busy morning | 34 | 31 | 27 |
| | | Lunch break | 33 | 29 | 32 |
| | | Busy afternoon | 27 | 33 | 34 |
| | | **Average** | **31** | **31** | **31** |
| Jak 26 | Rawamangun – Duren Sawit | Busy morning | 18 | 15 | 17 |
| | | Lunch break | 18 | 15 | 18 |
| | | Busy afternoon | 15 | 21 | 16 |
| | | **Average** | **17** | **17** | **17** |
| Jak 27 | Pulogebang – Rorotan | Busy morning | 27 | 23 | 29 |
| | | Lunch break | 25 | 30 | 27 |
| | | Busy afternoon | 27 | 25 | 23 |
| | | **Average** | **26** | **26** | **26** |
| Jak 28 | Pasar Rebo – Taman Wiladatika | Busy morning | 23 | 30 | 25 |
| | | Lunch break | 32 | 23 | 30 |
| | | Busy afternoon | 26 | 29 | 27 |
| | | **Average** | **27** | **27** | **27** |
| Jak 29 | Tanjung Priok – Rusun Sukapura | Busy morning | 30 | 31 | 26 |
| | | Lunch break | 36 | 33 | 36 |
| | | Busy afternoon | 32 | 34 | 36 |
| | | **Average** | **33** | **33** | **33** |
| Jak 30 | Meruya – Grogol | Busy morning | 53 | 57 | 54 |
| | | Lunch break | 58 | 54 | 58 |
| | | Busy afternoon | 55 | 53 | 54 |
| | | **Average** | **55** | **55** | **55** |

Source: Survey results 2020

Based on the survey results on Jak 21 – Jak 30 routes, it can be noted that Jak Lingko Transportation Service has the highest frequency on Jak 30 Route (Meruya – Grogol) with an average of 55 vehicles/hour, Frequency gets high value because the number of vehicles passing through Jak 30 passes through the largest centers of rise such as: government center, Terminal, Station, Mall Ciputra Jakarta, Mall taman anggrek, Cenral park Jakarta, Universiatas Tarumanegara, Trisakti University, Krida Wacana Christian University, Royal Taruma Hospital, Rs. Sumber Sanas. While the service with the lowest average frequency is Jak Route 26 (Rawamangun – Duren Sawit) as many as 17 vehicles / hour, because on jak route 26 the largest rise center is not like Jak 30 (Meruya – Grogol) so that the vehicle that will be able to be a fan on the route is still low so the frequency value is low compared to other routes.

**Time between (Headway)**

The headway is a measure that states the distance and time of two consecutive vehicles that go through a single observation point. The headway for each Jak Lingko Public Transport Route can be shown in the table below.

**Table 4**. Headway

| Code Route | Route | Time | Headway (minutes) | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| Jak 21 | Dwikora – Cililitan | Busy morning | 2.45 | 2.55 | 2.61 |
| | | Lunch break | 2.11 | 2.26 | 2.35 |
| | | Busy afternoon | 2.18 | 2.03 | 1.94 |
| | | **Average** | **2.25** | **2.28** | **2.30** |
| Jak 22 | Dwikora – Penas Kalimalang | Busy morning | 4.80 | 4.62 | 4.29 |
| | | Lunch break | 3.43 | 3.24 | 3.53 |
| | | Busy afternoon | 4.00 | 4.62 | 4.14 |
| | | **Average** | **4.08** | **4.16** | **3.98** |
| Jak 24 | Senen – Pulogadung | Busy morning | 4.14 | 4.80 | 5.00 |
| | | Lunch break | 4.62 | 3.75 | 3.64 |
| | | Busy afternoon | 3.64 | 4.00 | 4.00 |
| | | **Average** | **4.13** | **4.18** | **4.21** |
| Jak 25 | Pasar Rebo – Kalisari | Busy morning | 3.53 | 3.87 | 4.44 |
| | | Lunch break | 3.64 | 4.14 | 3.75 |
| | | Busy afternoon | 4.44 | 3.64 | 3.53 |
| | | **Average** | **3.87** | **3.88** | **3.91** |
| Jak 26 | Rawamangun – Duren Sawit | Busy morning | 6.67 | 8.00 | 7.06 |
| | | Lunch break | 6.67 | 8.00 | 6.67 |
| | | Busy afternoon | 8.00 | 5.71 | 7.50 |
| | | **Average** | **7.11** | **7.24** | **7.08** |
| Jak 27 | Pulogebang – Rorotan | Busy morning | 4.44 | 5.22 | 4.14 |
| | | Lunch break | 4.80 | 4.00 | 4.44 |
| | | Busy afternoon | 4.44 | 4.80 | 5.22 |
| | | **Average** | **4.56** | **4.67** | **4.60** |
| Jak 28 | Pasar Rebo – Taman Wiladatika | Busy morning | 5.22 | 4.00 | 4.80 |
| | | Lunch break | 3.75 | 5.22 | 4.00 |
| | | Busy afternoon | 4.62 | 4.14 | 4.44 |
| | | **Average** | **4.53** | **4.45** | **4.41** |
| Jak 29 | Tanjung Priok – Rusun Sukapura | Busy morning | 4.00 | 3.87 | 4.62 |
| | | Lunch break | 3.33 | 3.64 | 3.33 |
| | | Busy afternoon | 3.75 | 3.53 | 3.33 |
| | | **Average** | **3.69** | **3.68** | **3.76** |
| | | Busy morning | 2.26 | 2.11 | 2.22 |

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| Code Route | Route | Time | Headway (minutes) | | |
|---|---|---|---|---|---|
| | | | Monday | Tuesday | Saturday |
| Jak 30 | Meruya – Grogol | Lunch break | 2.07 | 2.22 | 2.07 |
| | | Busy afternoon | 2.18 | 2.26 | 2.22 |
| | | **Average** | **2.17** | **2.20** | **2.17** |

Source: Analysis results 2020

Example:

H = 60/frekuensi , observation from 07:00 - 09:00 is obtained

H = 120/49 = 2.45 Minutes

The overall results of headway analysis data can be seen in table 4.6 above. On Jak Lingko public transport route there is the highest score on Jak 26 (Rawamangun – Duren Sawit) which is 7.24 minutes and the lowest on jak 30 route (Meruya – Grogol) which is 2.17 minutes. This is because the frequency value is too keci resulting in the size of the headway value and vice versa.

**Travel time and speed**

Here is an example of determining travel time during the morning rush hour at 07.00 - 09.00 WIB as follows:

Example:

W = T/J W = 48/10,90=4,4 Minutes /km

From the results of the analysis for the entire Jak Lingko route during the morning, afternoon, and afternoon rush hours obtained the average value, the following analysis results can be seen in table 5 below.

**Table 5**. Travel time analysis results

| Code Route | Route | Time | Travel Time (minutes/km) | | |
|---|---|---|---|---|---|
| | | | Monday | Tuesday | Saturday |
| Jak 21 | Dwikora – Cililitan | Busy morning | 4,4 | 4,6 | 4,1 |
| | | Lunch break | 5,1 | 5,3 | 5,5 |
| | | Busy afternoon | 4,2 | 3,9 | 4,0 |
| | | **Average** | 5 | 5 | 5 |
| Jak 22 | Dwikora – Penas Kalimalang | Busy morning | 5,1 | 4,8 | 5,5 |
| | | Lunch break | 5,5 | 6,4 | 5,8 |
| | | Busy afternoon | 5,2 | 4,6 | 4,5 |
| | | **Average** | 5,3 | 5,3 | 5,3 |
| Jak 24 | Senen – Pulogadung | Busy morning | 4,8 | 4,7 | 4,8 |
| | | Lunch break | 5,0 | 5,0 | 4,8 |
| | | Busy afternoon | 4,5 | 4,6 | 4,7 |
| | | **Average** | 4,8 | 4,8 | 4,8 |
| Jak 25 | Pasar Rebo – Kalisari | Busy morning | 5,0 | 4,8 | 4,8 |
| | | Lunch break | 5,0 | 5,0 | 5,1 |
| | | Busy afternoon | 4,8 | 4,9 | 4,9 |
| | | **Average** | 4,9 | 4,9 | 4,9 |
| Jak 26 | Rawamangun – Duren Sawit | Busy morning | 5,4 | 4,9 | 5,7 |
| | | Lunch break | 5,4 | 5,3 | 4,9 |
| | | Busy afternoon | 4,7 | 5,1 | 4,8 |
| | | **Average** | 5,2 | 5,1 | 5,1 |

| Code Route | Route | Time | Travel Time (minutes/km) | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| Jak 27 | Pulogebang – Rorotan | Busy morning | 5,3 | 5,1 | 5,6 |
| | | Lunch break | 6,1 | 6,4 | 6,2 |
| | | Busy afternoon | 5,4 | 5,4 | 5,1 |
| | | **Average** | 5,6 | 5,6 | 5,6 |
| Jak 28 | Pasar Rebo – Taman Wiladatika | Busy morning | 4,6 | 5,4 | 5,3 |
| | | Lunch break | 5,5 | 4,6 | 5,0 |
| | | Busy afternoon | 5,0 | 5,1 | 4,8 |
| | | **Average** | 5,0 | 5,1 | 5,0 |
| Jak 29 | Tanjung Priok – Rusun Sukapura | Busy morning | 5,7 | 5,8 | 5,3 |
| | | Lunch break | 6,2 | 6,2 | 6,6 |
| | | Busy afternoon | 5,4 | 5,3 | 5,4 |
| | | **Average** | 5,8 | 5,7 | 5,8 |
| Jak 30 | Meruya – Grogol | Busy morning | 4,7 | 4,8 | 4,7 |
| | | Lunch break | 5,7 | 5,4 | 5,8 |
| | | Busy afternoon | 4,8 | 5,0 | 4,7 |
| | | **Average** | 5,1 | 5,1 | 5,1 |

Source: 2020 analysis results

Of all Jak Lingko routes, the highest average is 5.8 minutes/km, and the lowest is 4.8 minutes/km.

Travel Speed is the rate of movement of traffic and is often expressed in km/h units, using the 2.4 equation. For example in the morning rush hour at 07.00 - 09.00 WIB.

Travel speed = (J.)/( W)= 10.90/( 50 ) where the travel time is still in minutes must be changed in units of hours. Travel speed = 10.90/( 50 /60) = 10.90/( 0.83) = 13 km/h

The speed for each City Transport route in 2020 can be shown in the table below.

**Table 6.** Travel Speed

| Code Route | Route | Time | Travel Speed (km/h) | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| Jak 21 | Dwikora – Cililitan | Busy morning | 13 | 10 | 15 |
| | | Lunch break | 10 | 16 | 12 |
| | | Busy afternoon | 14 | 13 | 14 |
| | | **Average** | 13 | 13 | 13 |
| Jak 22 | Dwikora – Penas Kalimalang | Busy morning | 9 | 8 | 13 |
| | | Lunch break | 13 | 14 | 10 |
| | | Busy afternoon | 11 | 12 | 10 |
| | | **Average** | 11 | 11 | 11 |
| Jak 24 | Senen – Pulogadung | Busy morning | 12 | 11 | 16 |
| | | Lunch break | 16 | 14 | 13 |
| | | Busy afternoon | 11 | 14 | 10 |
| | | **Average** | 13 | 13 | 13 |
| Jak 25 | Pasar Rebo – Kalisari | Busy morning | 14 | 13 | 10 |
| | | Lunch break | 15 | 10 | 16 |
| | | Busy afternoon | 8 | 14 | 10 |
| | | **Average** | 12 | 12 | 12 |
| Jak 26 | Rawamangun – Duren Sawit | Busy morning | 13 | 12 | 11 |
| | | Lunch break | 10 | 14 | 10 |
| | | Busy afternoon | 14 | 10 | 14 |

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| Code Route | Route | Time | Travel Speed (km/h) | | |
|---|---|---|---|---|---|
| | | | **Monday** | **Tuesday** | **Saturday** |
| | | **Average** | 12 | 12 | 12 |
| Jak 27 | Pulogebang – Rorotan | Busy morning | 15 | 9 | 7 |
| | | Lunch break | 8 | 16 | 12 |
| | | Busy afternoon | 9 | 8 | 14 |
| | | **Average** | 11 | 11 | 11 |
| Jak 28 | Pasar Rebo – Taman Wiladatika | Busy morning | 16 | 8 | 14 |
| | | Lunch break | 10 | 16 | 16 |
| | | Busy afternoon | 10 | 12 | 6 |
| | | **Average** | 12 | 12 | 12 |
| Jak 29 | Tanjung Priok – Rusun Sukapura | Busy morning | 9 | 13 | 8 |
| | | Lunch break | 10 | 8 | 14 |
| | | Busy afternoon | 11 | 9 | 7 |
| | | **Average** | 10 | 10 | 10 |
| Jak 30 | Meruya – Grogol | Busy morning | 13 | 9 | 13 |
| | | Lunch break | 14 | 12 | 9 |
| | | Busy afternoon | 10 | 15 | 13 |
| | | **Average** | 12 | 12 | 12 |

Source: Analysis results 2020

From the table above it is known that jak 21 route (Dwikora – Cililitan), Jak 24 (Senen – Pulogadung) has the highest average speed of 13 km/h, and the lowest is on Jak 29 route (Tanjung Priok – Rusun Sukapura), which has an average speed of 10 km/h.

Passenger production/km service

**Table 7**. Passenger Production/Service Km

| No | Route | Total Fleet | Pnp/Km |
|---|---|---|---|
| 21 | Jak 21 (Dwikora-Cililitan) | 22 | 1.53 |
| 22 | Jak 22 (Dwikora-Penas Kalimalang) | 14 | 1.14 |
| 24 | Jak 24 (Senen-Pulogadung) | 43 | 0.52 |
| 25 | Jak 25 (Pasar Rebo-Kalisari) | 23 | 0.94 |
| 26 | Jak 26 (Rawamangun-Duren Sawit) | 22 | 0.81 |
| 27 | Jak 27 (Pulogebang-Rorotan) | 33 | 0.51 |
| 28 | Jak 28 (Pasar Rebo-Taman Wiladatika) | 25 | 1.03 |
| 29 | Jak 29 (Tanjung Priok-Rusun Sukapura) | 36 | 0.96 |
| 30 | Jak 30 (Meruya-Grogol) | 77 | 0.67 |

In the table above there is a route that has parameters Pnp /km more than 1.08 found on jak 21 route (Dwikora-Cililitan), Jak 22 (Dwikora-Penas Kalimalang), meaning on Jak 21 and 22 routes able to finance in its oprasional, other routes have not been able to finance this because pnp/km is still below 1.08.

Fleet availability

Examples of fleet availability calculations are as follows;

K = 50/(2.30 x 1) = 21.75 K = 21.75/22 x100% = 98.86 ≈ 99%

The following fleet availability can be seen in the table below.

**Table 8**. Fleet availability

| No | Route | Number of fleets/cycle time | Total fleet | %SGO |
|---|---|---|---|---|
| 21 | Jak 21 (Dwikora-Cililitan) | 21.75 | 22 | 99% |
| 22 | Jak 22 (Dwikora-Penas Kalimalang) | 13.47 | 14 | 96% |
| 23 | Jak 24 (Senen-Pulogadung) | 42.73 | 43 | 99% |
| 24 | Jak 25 (Pasar Rebo-Kalisari) | 22.77 | 23 | 99% |
| 25 | Jak 26 (Rawamangun-Duren Sawit) | 22.11 | 22 | 100% |
| 26 | Jak 27 (Pulogebang-Rorotan) | 32.96 | 33 | 100% |
| 27 | Jak 28 (Pasar Rebo-Taman Wiladatika) | 24.30 | 25 | 97% |
| 28 | Jak 29 (Tanjung Priok-Rusun Sukapura) | 34.57 | 36 | 96% |
| 29 | Jak 30 (Meruya-Grogol) | 76.92 | 77 | 100% |

Source: Analysis Results 2020

Based on the results of the analysis of fleet availability on jak 26 route (Rawamangun-Duren Sawit), Jak 27 (Pulogebang-Rorotan), Jak 30 (Meruya-Grogol) is the highest route that has reached Ready To Use Oprasi which is with a value of 100%, the lowest routes are Jak 22 (Dwikora-Penas Kalimalang) and Jak 29 (Tanjung Priok-Rusun Sukapura) with a score of 96%

**Jak Lingko Public Transport Service Level Against Minimum Service Standards**

In this study the performance that can be obtained from surveys that have been conducted will be compared to public transport SPM, so it will be known whether Jak Lingko's transport performance observed is in accordance with the standardization of public transportation by SPM World Bank and decree of the Director General of Land Transportation Number: SK/687/AJ.206/DRJD/2002 on Technical Guidelines for The Maintenance of Public Passenger Transport in Urban Areas In Fixed and Regular Routes with parameters are load factor, headway, travel speed, and fleet availability

**Table 9.** Sk Load Factor comparison. DRJD/2002 with SPM World Bank

| No | Route | Description | Unit | Result | Parameter SPM SK Dirjen 2002 | | | Information | SPM *World Bank* | Information |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | analysis | less | moderate | good | | | |
| 1 | Jak 21 | Load faktor | % | 87.9 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 2 | Jak 22 | Load faktor | % | 97.0 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 3 | Jak 24 | Load faktor | % | 93.9 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 4 | Jak 25 | Load faktor | % | 81.8 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 5 | Jak 26 | Load faktor | % | 84.8 | >100 | 70 - 100 | <70 | Moderate | 70% | Fulfill |
| 6 | Jak 27 | Load faktor | % | 93.9 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 7 | Jak 28 | Load faktor | % | 97.0 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 8 | Jak 29 | Load faktor | % | 93.9 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |
| 9 | Jak 30 | Load faktor | % | 75.8 | >100 | 70 - 100 | <70 | Moderate | | Fulfill |

Source: Analysis results 2020

From the entire Jak Lingko route on the Jak 21 - Jak 30 route, based on public transport performance standard SK/687/AJ.206/DRJD/2002 on The Implementation of Public Transport in The City Area In Fixed and Regular Routes, for the overall load factor on jak 21 - 30 routes is included in the moderate parameters. The regulation of the Directorate General of Land Transportation of the World Bank on Minimum Service Standards, on the load factor for the entire Jak 21 -30 route is included in the parameters of meeting the Minimum Service Standard of 70%,

**Table 10.** Headway SK DRJD 2002 comparison with SPM World Bank

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| No | Route | Description | Unit | Result | Parameter SPM SK Dirjen 2002 | | | Information | SPM *World Bank* | Information |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | analysis | less | moderate | good | | | |
| 1 | Jak 21 | Headway | minute | 2.3 | >15 | 10 - 15 | <10 | Good | 1 - 12 | Fulfill |
| 2 | Jak 22 | Headway | minute | 4.16 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 3 | Jak 24 | Headway | minute | 4.21 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 4 | Jak 25 | Headway | minute | 3.91 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 5 | Jak 26 | Headway | minute | 7.24 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 6 | Jak 27 | Headway | minute | 4.67 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 7 | Jak 28 | Headway | minute | 4.53 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 8 | Jak 29 | Headway | minute | 3.76 | >15 | 10 - 15 | <10 | Good | | Fulfill |
| 9 | Jak 30 | Headway | minute | 2.20 | >15 | 10 - 15 | <10 | Good | | Fulfill |

Source: Analysis results 2020

From the table above it can be noted that the comparison of SK/687/AJ.206/DRJD/2002 on The Implementation of Public Transportation in The City Area of Fixed and Regular Routes, for the entire Jak 21-30 route including Good because the anasisi results on the Jak 21-30 route are still below the standard value of <10 based on SK. DRJD/2002.

Based on the Directorate General of Land Transportation (World Bank). For the Minimum Service Standard value for the headway which is 1-12 minutes, the overall value obtained from the analysis result is not passed / less than the standard value means the headway value has met the SPM. Therefore, the above comparison of headway value on Jak Lingko route 21-30 belongs to the category of Good service.

**Table 11.** Travel Speed Comparison with SPM

| No | Route | Description | Unit | Result | Parameter SPM SK Dirjen 2002 | | | Information | SPM *World Bank* | Information |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | analysis | less | moderate | good | | | |
| 1 | Jak 21 | Travel speed | Km / hour | 13 | < 5 | 6 - 10 | >10 | Good | 10 - 12 Km/hour | Slower |
| 2 | Jak 22 | Travel speed | Km / hour | 11 | < 5 | 6 - 10 | >10 | Good | | Fulfill |
| 3 | Jak 24 | Travel speed | Km / hour | 13 | < 5 | 6 - 10 | >10 | Good | | Slower |
| 4 | Jak 25 | Travel speed | Km / hour | 12 | < 5 | 6 - 10 | >10 | Good | | Fulfill |
| 5 | Jak 26 | Travel speed | Km / hour | 12 | < 5 | 6 - 10 | >10 | Good | | Fulfill |
| 6 | Jak 27 | Travel speed | Km / hour | 11 | < 5 | 6 - 10 | >10 | Good | | Fulfill |
| 7 | Jak 28 | Travel speed | Km / hour | 12 | < 5 | 6 - 10 | >10 | Good | | Fulfill |
| 8 | Jak 29 | Travel speed | Km / hour | 10 | < 5 | 6 - 10 | >10 | Moderate | | Fulfill |
| 9 | Jak 30 | Travel speed | Km / hour | 12 | < 5 | 6 - 10 | >10 | Good | | Fulfill |

Source: Analysis results 2020

Based on SK Parameters. DRJD/2002, on the results of the overall analysis of jak 21-30 routes fall into the category of Good only at jak 29 entered into the moderate category. Meanwhile, based on SPM from the World Bank for Jak 21 and Jak 23 routes is slower than the Minimum SPM Service Standard stipulated. This is because the route is experiencing traffic congestion, causing delays at the speed of travel.

**Table 12.** Fleet Availability

| No | Route | Description | Unit | Result | Parameter SPM SK Dirjen 2002 | | | Information | SPM *World Bank* | Information |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | analysis | less | moderate | good | | | |
| 1 | Jak 21 | Fleet availability | % | 99% | <80 | 80-89 | 90-100 | Good | 80-90% | Fulfill |
| 2 | Jak 22 | Fleet availability | % | 96% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 3 | Jak 24 | Fleet availability | % | 99% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 4 | Jak 25 | Fleet availability | % | 99% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 5 | Jak 26 | Fleet availability | % | 100% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 6 | Jak 27 | Fleet availability | % | 100% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 7 | Jak 28 | Fleet availability | % | 97% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 8 | Jak 29 | Fleet availability | % | 96% | <80 | 80-89 | 90-100 | Good | | Fulfill |
| 9 | Jak 30 | Fleet availability | % | 100% | <80 | 80-89 | 90-100 | Good | | Fulfill |

Source: Analysis results 2020

From the comparison of fleet availability using sk parameter standards. DRJD/2002 and The World Bank's Minimum Service Standards, from the analysis of all routes jak 21-30 get a good percentage value, because nilia percentage is not below 80.

## CONCLUSION

Based on the results of data management and also analysis on Jak Lingko Transportation in DKI Jakarta province, that the performance of Jak Lingko Transportation on Jak 21, Jak 22, Jak 24, Jak 25, Jak 26, Jak 27, Jak 28, Jak 29, and Jak 30 can be summed up as follows:

The performance of public transport services of passengers on the Jak 21 - 30 route, based on public transport performance indicators there are seven indicators, among others: The highest load factor is 97.0%, for the lowest tryek is 72.7%. Production of km service per vehicle per day for the 9 routes is still below the target value of 200 km, the highest frequency is 55 vehicles/hour, while the service with the lowest average frequency is as much as 17 vehicles/hour, headway on jak lingko public transport route has the highest value of 7.24 minutes and the lowest is 2.17 minutes. Travel time From the entire route Jak Lingko gets the highest average value of 5.8 minutes/km, and the lowest value is 4.8 minutes/km, and the highest vehicle speed is 13 km/h, and the lowest there is an average speed of 10 km/h. the highest route fleet availability has reached Ready Use Oprasi which is with a value of 100%, while for the lowest route that is with a value of 96%.

From the analysis of jak lingko public transport service level on Jak 21 - Jak 30 route, based on sk performance weighting parameters comparison. DRJD 2002 weighting performance as well as World Bank Minimum Service Standards. On load factors fall into the moderate category, For Headway on jak route 21-30 which is analyzed quite well. Travel speeds fall into the category of both SPM World Bank at jak 21 and Jak 24 including slower due to traffic congestion. Fleet availability on all routes has filled SGO in the good category.

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