p–ISSN: 2723 – 6609 e-ISSN: 2745-5254
Vol. 6, No. 1, January 2025 http://jist.publikasiindonesia.id/

Performance Analysis of Rural Public Transportation Route Hb2 Larangan Terminal–Krian Terminal, Sidoarjo Regency

Anita Rahma Nur Iqlima[1*], Hera Widyastuti[2]
Sepuluh Nopember Institute of Technology, Indonesia
Email: endi.sarwoko@ciputra.ac.id
*Correspondence

Keywords: sidoarjo; LYN HB2; public transportation; rural transportation; service performance.

ABSTRACT

This study aims to identify the performance of Lyn HB2 rural public transportation that is actively operating in Sidoarjo Regency, analyze the level of satisfaction and expectations of Lyn HB2 rural public transportation users, and estimate the number of users who are willing to move from motorcycles to Lyn HB2 rural public transportation. The method used involves primary and secondary data obtained through observation and dissemination of questionnaires to Lyn HB2 rural public transportation users, as well as vehicle capacity analysis, dynamic and static surveys, and public transportation performance analysis using nine predetermined parameters. Based on the results of the existing performance, the service performance on the Lyn Hb2 Rural Public Transportation was obtained as a result that the travel time was 2 hours 22 minutes, the frequency of vehicles was 3 per hour, the load factor was 39%, with a headway time of 31 minutes, the number of trips per vehicle per day of the Lyn HB2 Rural Public Transportation as many as 3 trips.

Introduction

Sidoarjo Regency is part of the Gerbangkertosusila development area, with its position as part of the Surabaya Metropolitan Area, which has rapidly encouraged this area to grow and develop. (Andari et al., 2024). Based on data from the Central Statistics Agency of Sidoarjo Regency in 2023, the population of Sidoarjo Regency will reach 1,996,825 people, with a population density of 2,776 people/km². The district, which has an area of 719.34 km2, is divided into 18 sub-districts, 322 villages, and 31 sub-districts (BPS Statistics, 2024) (Jaya, 2024). Thus, the consequence of these developments is the emergence of traffic flows that demand the provision of adequate facilities and infrastructure as well as reliable transportation management, in connection with the transportation function as the main support for community activities. (Hayati et al., 2024).

Transportation is a system consisting of 3 (three) subsystems, namely the activity system, the movement system, and the network system (Malaysia et al., 2019). The system of activities in an area is located on a piece of land and interacts with each other, resulting in the emergence of a system of human movement between land uses using a transportation network system. Transportation services that do not match the needs of movement cause the transportation system to become useless. Meeting needs is an activity that must be carried out every day (Sjafruddin, 2012). The increasing population in

Sidoarjo Regency, followed by the increase in the use of private transportation, has caused several areas to experience congestion at certain times. This situation emphasizes the need for effective solutions to overcome these problems in Sidoarjo Regency (Nurhadi et al., 2024).

Based on data from the Sidoarjo Police Traffic Unit, the number of accidents in the Sidoarjo area in 2024 from January to October amounted to 1,345 accidents, as a result of which 200 people died, 44 suffered serious injuries, and 1,600 suffered minor injuries. Meanwhile, in the Krian area, there were 335 accidents, 29 deaths, 24 serious injuries, and 395 minor injuries. (Setiawan et al., 2022). In addition, traffic congestion in the Krian, Wonoayu, and Sidoarjo sub-districts during 2024 has contributed significantly to the increase in air pollution. Based on the source of information, namely the Sidoarjo radar, the air quality in Krian District is recorded as the worst in Indonesia. As reported by the air quality monitoring site, IQ Air, the air in Krian is in the unhealthy category. On December 18, 2024, Krian was ranked first with an Air Quality Index (IKU) of 167. In addition, PM 2.5 fine particles in Krian were recorded at 571 micrograms per cubic meter. This means that it is 11.4 times higher than the annual guideline value set by WHO. Therefore, one of the efforts to respond to the problem issue is the existence of Public Transportation for the public to reduce the mobility of private vehicles. (Kyprianos et al., 2024) Teaching cataloging after RDA 3R project: Lessons learned. However, the existence of Lyn HB2 is currently still haunted by various problems, including the behavior of angkot drivers who tend to violate traffic rules to chase passengers or deposits. This habit often causes traffic congestion and can endanger the safety of passengers and other road users. In addition, the physical condition of old and obsolete vehicles and safety issues due to the existence of hawkers and buskers make passengers reluctant to use Lyn HB2. (Armianti & UB, 2022). Another issue of concern is the reduction in the number of active fleets because many vehicles are no longer roadworthy and the low load factor, even to the point that some routes are no longer operating. In 2022, there are 14 active routes, in 2023 there are 11 active routes, but in 2024 all routes are inactive because no one has issued permits. (Kartika et al., 2022). Factors such as the increasing use of private vehicles, competition with online transportation, difficult accessibility, and inadequate transportation conditions also cause a decline in the performance of rural public transportation routes such as Lyn HB2.

The objectives of this study are as follows:

1. Analyzing the performance of Lyn HB2 rural public transportation that is actively operating in Sidoarjo Regency.
2. Analyze the level of satisfaction and expectations of Lyn HB2 rural public transportation users.
3. Analyze the estimated number of users who are willing to move from motorcycles to Lyn HB2 rural public transportation.

Method

The flow chart of the research conducted can be seen in Figure 1

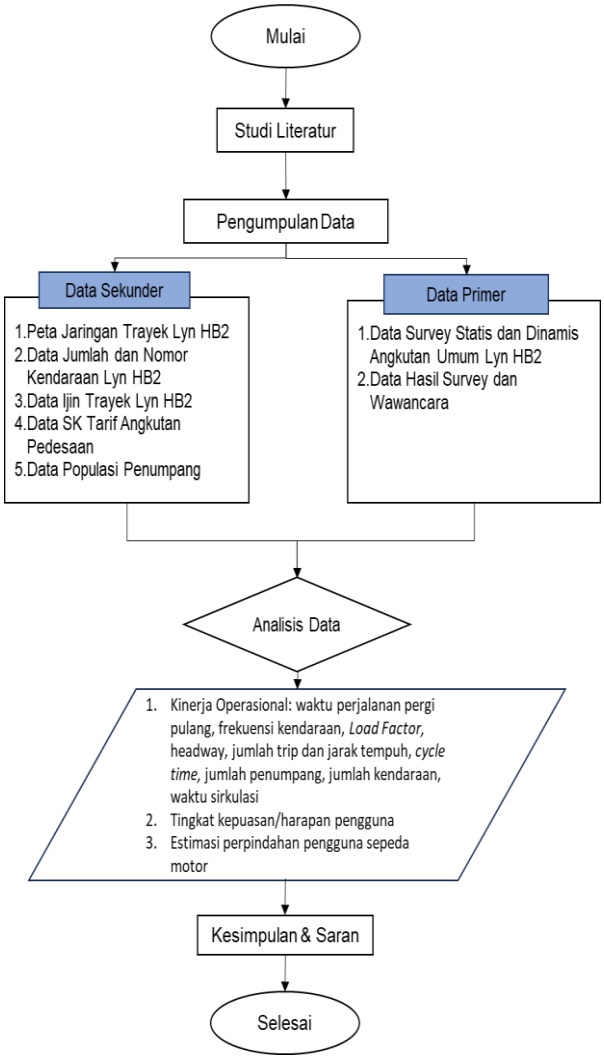

Figure 1
Flow Chart

The location of this study is the HB2 rural public transportation route which serves the route from Krian Terminal to Sidoarjo Terminal through Wonoayu in Sidoarjo Regency. The selection of this location is based on the high use of this route by the community and the existence of performance problems that need to be evaluated.

Data Collection

Data collection in this study was carried out in two ways, namely secondary data collection and primary data.

1. Secondary Data: Secondary data is obtained from official documents and reports published by relevant agencies, such as the Sidoarjo Regency Transportation Office.

This data includes information about the number of vehicles, departure frequency, and road conditions, headways, travel times, vehicle speeds, load factors.

2. Primary Data: Primary data is obtained through field surveys, interviews, and direct observation. The survey was conducted by distributing questionnaires to rural public transportation users on the HB2 route to measure the level of satisfaction and identify the problems faced.

Results and Discussion

Analysis of Satisfaction and Expectations of Lyn HB2 Rural Public Transportation Users in Sidoarjo Regency

The analysis of the level of satisfaction and expectations of the use of Lyn HB2 Rural Public Transportation was carried out using the Importance Performance Analysis (IPA) method to measure the level of satisfaction and importance comprehensively. The analysis of science uses the analysis of the Cartesian diagram. The analysis of the cartesian diagram was carried out by calculating the horizontal axis (X) which shows the service quality level score and the axis (Y) which shows the expected level score. The calculation of the average score, performance level, and expectations is used to determine the cut-off point on the Cartesian diagram which then divides the diagram into 4 quadrants. The following are the stages of the analysis test used to obtain the calculation of the horizontal axis (X) which shows the score of the service quality level and the axis (Y) in the Importance Performance Analysis (IPA) method.

Overview of the Implementation of the Interview Survey

The survey was conducted on users of Lyn HB2 Rural Public Transportation on the Larangan Terminal-Krian Terminal route to find out the performance of Lyn HB2 Rural Public Transportation, the reality and expectations of Lyn HB2 users to advance public transportation, especially rural public transportation in Sidoarjo Regency. Before conducting a survey, primary data on the number of passengers who got off and up was needed. The survey was conducted on weekdays and holidays to find out the number of daily passengers during working hours and holidays. The interview survey was carried out for approximately 7 days, namely in the morning starting at 06.30, in the afternoon at 13.00, and in the afternoon at 16.00 to get the number of respondents by the research goals and objectives.

Survey of interviews with users of Lyn HB2 Rural Public Transportation in Sidoarjo Regency, the sample taken from the total number of passengers within 1 year in 2023 is 16,117 people.

$$n = \frac{N}{1 + N\,e^2}$$

$$n = \frac{16.117}{1+16.117\times0,1^2} = \frac{16.117}{1+16.117\times0,01} = \frac{16.117}{162,17} = 99,383 \approx 100$$

Thus, the minimum number of samples to be taken is about 100 samples for the e value used is 0.1 or 90% precision which is expected to be able to represent passengers. After the survey was carried out, the data was analyzed to determine the performance, satisfaction, and expectations of the current Lyn HB2 Rural Public Transportation users.

Sample Testing using the SPSS App

This research is in the form of a questionnaire interview survey formulated in questions. Validity and reliability testing is carried out to determine whether the measurement scale can be known correctly (validly) and consistently (reliable) so that the results of the research can be accounted for. The test was carried out by calculating the correlation between 1 item and the overall item using the correlation formula from the research results and then comparing it with the r table from the statistical distribution table. The number of samples was 100 respondents with a significance level of 5% or 0.05 for the 1-way test, with the formula Df = n-2 then Df = 100-2 = 98 was obtained then seen in the table Df = 98 with the significance level for the one-way test 0.05 obtained r table is 0.1654 which will then be compared with the r calculated on the validity test results in Table 1 and Table 2. Here is a table of the distribution of r values.

Table 1
Distribution Table of Significant r Values 5%-10%

df = (n-2)	The significance level for the one-way test				
	0.05	0.025	0.01	0.005	0.0005
	Significance level for bi-directional testing				
	0.1	0.05	0.02	0.01	0.001
70	0.1954	0.2319	0.2737	0.3017	0.3798
71	0.1940	0.2303	0.2718	0.2997	0.3773
72	0.1927	0.2287	0.2700	0.2977	0.3748
73	0.1914	0.2272	0.2682	0.2957	0.3724
74	0.1901	0.2257	0.2664	0.2938	0.3701
75	0.1888	0.2242	0.2647	0.2919	0.3678
76	0.1876	0.2227	0.2630	0.2900	0.3655
77	0.1864	0.2213	0.2613	0.2882	0.3633
78	0.1852	0.2199	0.2597	0.2864	0.3611
79	0.1841	0.2185	0.2581	0.2847	0.3589
80	0.1829	0.2172	0.2565	0.2830	0.3568
81	0.1818	0.2159	0.2550	0.2813	0.3547
82	0.1807	0.2146	0.2535	0.2796	0.3527
83	0.1796	0.2133	0.2520	0.2780	0.3507
84	0.1786	0.2120	0.2505	0.2764	0.3487
85	0.1775	0.2108	0.2491	0.2748	0.3468
86	0.1765	0.2096	0.2477	0.2732	0.3449
87	0.1755	0.2084	0.2463	0.2717	0.3430
88	0.1745	0.2072	0.2449	0.2702	0.3412

89	0.1735	0.2061	0.2435	0.2687	0.3393
90	0.1726	0.2050	0.2422	0.2673	0.3375
91	0.1716	0.2039	0.2409	0.2659	0.3358
92	0.1707	0.2028	0.2396	0.2645	0.3341
93	0.1698	0.2017	0.2384	0.2631	0.3323
94	0.1689	0.2006	0.2371	0.2617	0.3307
95	0.1680	0.1996	0.2359	0.2604	0.3290
96	0.1671	0.1986	0.2347	0.2591	0.3274
97	0.1663	0.1975	0.2335	0.2578	0.3258
98	**0.1654**	0.1966	0.2324	0.2565	0.3242
99	0.1646	0.1956	0.2312	0.2552	0.3226
100	0.1638	0.1946	0.2301	0.2540	0.3211

Source: R Statistics Table

Validity Testing Using SPSS Application

The validity test of the research instruments was carried out with 2 parts of the questionnaire. The first part of the questionnaire measures the level of reality or perception for passenger respondents consisting of 17 question items. Meanwhile, the second part of the questionnaire measures the level of importance or expectation of the quality of service they receive or feel. This test is carried out by calculating the correlation between 1 item and the overall item using the correlation formula or product moment (r). Validity testing is carried out to find out whether the instrument or measurement scale can show correctly (valid) so that the results obtained as the basis for concluding this study can be accounted for. The results of the validity test of the perception and expectations of Lyn HB2 Rural Public Transportation users can be seen in the table below.

Table 2
Test Table of Validity of Reality/Perception of Public Transportation Services Rural Lyn HB2

r table	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165
r calculate	0.651	0.650	0.589	0.535	0.523	0.563	0.583	0.599	0.599	0.444	0.470	0.590	0.554	0.582	0.379	0.396	0.449
Ket	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid
Variant	0,730	0,762	0,981	0,821	0,801	1,062	0,570	0,750	0,829	0,721	0,640	0,765	0,786	0,838	0,700	0,645	0,908
Sum	242	242	242	271	253	241	243	245	272	242	263	271	258	221	263	263	221
Average	2,42	2,42	2,42	2,71	2,53	2,41	2,43	2,45	2,72	2,42	2,63	2,71	2,58	2,21	2,63	2,63	2,21
Variable	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	x14	x15	x16	x17

Table 3
Validity Test Table of Expected Value of Lyn HB2 Rural Public Transportation Service

r table	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165	0,165
r calculate	0.734	0.638	0.611	0.531	0.646	0.585	0.715	0.700	0.636	0.649	0.478	0.603	0.657	0.620	0.564	0.515	0.524	
Ket	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	
Varian t	0,768	0,914	0,752	0,872	1,100	1,353	0,774	1,130	1,148	1,118	0,866	0,900	0,806	0,952	0,634	0,773	0,966	
Sum	447	444	448	354	446	443	444	442	489	445	462	356	431	414	447	462	413	
Average	4,47	4,44	4,48	3,54	4,46	4,43	4,44	4,42	4,89	4,45	4,62	3,56	4,31	4,14	4,47	4,62	4,13	
Variable	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	x14	x15	x16	x17	

Based on Table 2 and Table 3 above, it can be seen that the results of the validity test show that the actual value or perception of rural public transportation services of Lyn HB2 r calculates > r table = 0.165, as well as the results of the expected value, namely r calculates > r table = 0.165. Thus, 17 question items from the variable of public transportation travel speed (X1) to the variables of safety, facilities, and cleanliness at the bus stop (X17) were declared valid.

Reliability Testing Using SPSS Application

Some of the questions in this study are non-physical data used to assess the reality and expectations of public transportation users. Therefore, it is necessary to conduct reliability testing to find out whether the instrument or measurement scale is consistent (reliable) or not so that the results obtained as the basis for concluding this study can be accounted for. The results of the reliability test of the reality and expectations of Lyn HB2 Rural Public Transportation users can be seen in the table below.

Table 4
Reliability Test Table

It	Variable	Assessment Criteria	*Cronbach Alpha*		< / >	Reliability Standards	Ket
			Hope	***Fact***			
1	X1	Operating Hours of Rural Public Transportation Routes Lyn HB2	0,833	0,884	>	0,60	Reliable
2	X2	Frequency Public Transportation Vehicles	0,833	0,888	>	0,60	Reliable

It	Variable	Assessment Criteria	*Cronbach Alpha*		< / >	Reliability Standards	Ket
			Hope	***Fact***			
3	X3	Waiting Time for Rural Public Transportation Routes Lyn HB2	0,837	0,889	>	0,60	Reliable
4	X4	Public Transportation Travel Time	0,839	0,892	>	0,60	Reliable
5	X5	Public Transportation Travel Speed	0,840	0,888	>	0,60	Reliable
6	X6	Accuracy of Arrival and Departure Schedules Public Transportation	0,839	0,891	>	0,60	Reliable
7	X7	Ease of access for the community Public Transportation schedule and route information	0,837	0,885	>	0,60	Reliable
8	X8	Level Public Transportation Transfers	0,836	0,885	>	0,60	Reliable
9	X9	Passenger Density in Transportation Common	0,836	0,888	>	0,60	Reliable
10	X10	Condition/Feasibility of Public Transportation (seating capacity, cleanliness vehicle)	0,844	0,887	>	0,60	Reliable
11	X11	Safety and Security of passengers in In Vehicles	0,842	0,893	>	0,60	Reliable
12	X12	Completeness of identity and neatness of officers	0,836	0,889	>	0,60	Reliable

It	Variable	Assessment Criteria	*Cronbach Alpha*		< / >	Reliability Standards	Ket
			Hope	*Fact*			
		Public Transportation					
13	X13	Hospitality/ politeness of Public Transportation officers	0,838	0,887	>	0,60	Reliable
14	X14	Speed of response by management Complaints	0,837	0,888	>	0,60	Reliable
15	X15	Travel costs using Public Transportation	0,847	0,890	>	0,60	Reliable
16	X16	Pregnant women, the elderly, people with disabilities, and children get priority when getting on and off transportation common	0,846	0,892	>	0,60	Reliable
17	X17	Security, facilities, and cleanliness at bus stops	0,845	0,892	>	0,60	Reliable
8	X8	Level Public Transportation Transfers	0,836	0,885	>	0,60	Reliable

Based on Table 4 above, it can be seen that the reliability test results show that the value of Cronbach Alpha for each variable is> 0.60. Thus, the indicators of the variable of public transportation travel speed (X1) to the variables of safety, facilities, and cleanliness at bus stops (X17) are declared reliable to be used as a research variable tool.

Quadrant Analysis with Performance Analysis Index (IPA) Method using SPSS Application

The results of the calculation at the level of conformity are then described into four parts or quadrants of the Cartesian diagram. This is intended to obtain points on the diagram based on the level of reality and expectations that allow the author to group and prioritize improvement efforts on the attributes that are considered important and

expected by the customer to obtain maximum satisfaction. It is known that the average total value of the Perception statement (∑X) is 42.53 and the average total value of interest or expectation (∑Y) is 73.87. Therefore, the average magnitude of the total value of the perceived average of 2.50 which is then used as a cut line against the X axis. The average of the total value of the expected average performance of 4.35 which is then used as a cut line against the Y axis.

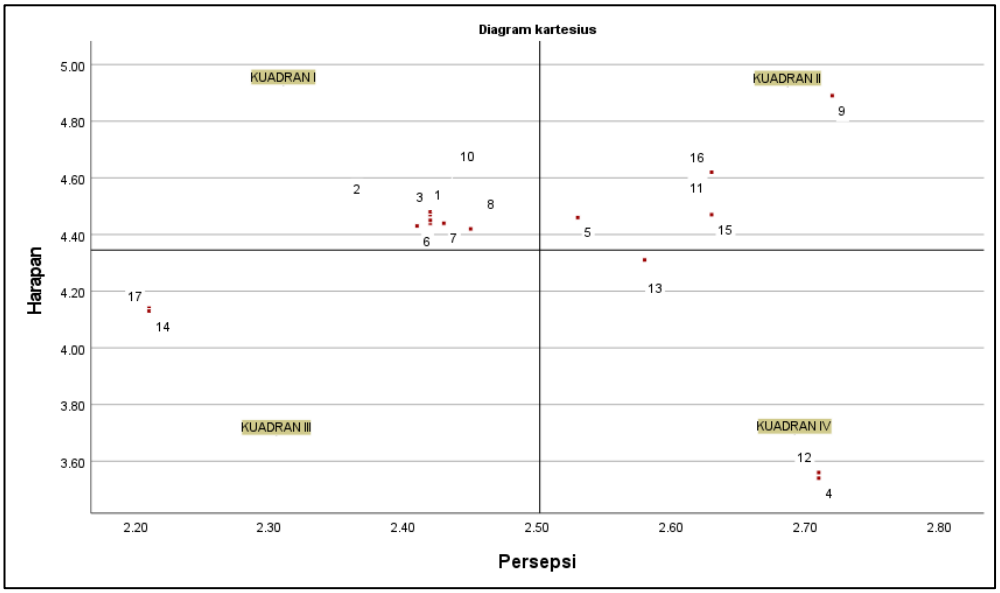

Figure 2
Cartesian Diagram of Perception and Hope

Table 5
Distribution of Perception and Expectation Indicators

Quadrant	No Criteria	Criterion
I (Top Priority)	1	Operating Hours of Rural Public Transportation Lyn Route HB2
	2	Frequency of Public Transportation Vehicles
	3	Waiting Time for Rural Public Transportation Lyn Route HB2
	6	Accuracy of Public Transportation Arrival and Departure Schedules
	7	Ease of public access to information on public transportation schedules and routes
	8	Public Transportation Mobility Rate
	10	Condition/Feasibility of Public Transportation (seating capacity, vehicle cleanliness)
II	5	Public Transportation Travel Speed

Quadrant	No Criteria	Criterion
(Maintain)	9	Passenger Density in Public Transportation
	11	Safety and Security of passengers in the vehicle
	15	Travel costs using Public Transportation
	16	Pregnant women, the elderly, people with disabilities, and children get priority when getting on and off public transportation.
III (Low Priority)	14	The speed of the management to respond to complaints
	17	Security, facilities, and cleanliness at bus stops
IV (Excessive)	4	Public Transportation Travel Time
	12	Completeness of Identity and Neatness of Public Transportation Officers
	13	Friendliness/courtesy of Public Transportation officers

Probability of Moving Motorcycle Users to Lyn HB2 Rural Public Transportation

To analyze how willing private motorcycle users are to switch modes to Lyn HB2 Rural Public Transportation, the binary logistic regression method is used, where the variable is dichotomous with two possibilities (1 = Yes willing to switch and 2 = Not willing to switch). This analysis aims to determine the influence between variables of age, gender, occupation, income, frequency of motorcycle use, reason for using motorcycles, purpose of trip using motorcycles, frequency of trips, costs incurred, average travel time, amount of luggage, condition of pedestrian facilities (platforms, sidewalks, terminals/stops lyn HB2, terminal/stop lyn HB2, conditions of scheduled public transportation, terminal security conditions, pedestrian facility needs, terminal facilities, scheduled public transportation services, improvements in terms of security, required mode transfer infrastructure, and infrastructure priorities. (Alshare, 2018). In the data processing process, each category in each variable will be coded, the code can be seen in the table below.

Table 6
Code Each Category on Each Variable

It	Variable	Category Name	Code
1	Age	12-16	1
		17-25	2
		26-35	3
		36-45	4
		46-55	5
		56-65	6

It	Variable	Category Name	Code
		>65	7
2	Gender	Man	1
		Woman	2
3	Job Type	TNI / POLRI / PNS	1
		Private Employees	2
		Students / Students	3
		Entrepreneur / Self-Employed	4
		Housewives	5
		Other	6
4	Income	>2,000,000	1
		IDR 2,000,000 – IDR 5,000,000	2
		> IDR 5,000,000	3
5	Frequency of Motorcycle Use in the Past Week	Never	1
		1-2 times	2
		3-5 times	3
		>5 times	4
6	Reasons for using motorcycles	Practical and fast	1
		More cost-effective	2
		There is no adequate public transportation	3
7	Motorcycle users' travel intent	Work	1
		Family needs	2
		School/college	3
		Other	4
8	Travel frequency	Every day	1
		Weekdays (Monday-Friday)	2
		Weekends (Saturday-Sunday)	3
		Once a week	4
		Other	5
9	Costs incurred	IDR 10000	1
		IDR 15,000	2
		< IDR 9,000	3
		> IDR 20,000	4
10	Average travel time	10 minutes	1
		15 minutes	2
		20 minutes	3
		< 9 minutes	4
		> 21 minutes	5
11	Number of luggage	1 piece	1
		2 pieces	2

It	Variable	Category Name	Code
		> 2 pieces	3
12	Condition of pedestrian facilities (platforms, sidewalks, terminals/stops lyn HB2	Not Eligible	1
		Less Worthy	2
		Quite Decent	3
		Proper	4
		Highly Worthy	5
13	Terminal/stop condition of lyn HB2	Not Eligible	1
		Less Worthy	2
		Quite Decent	3
		Proper	4
		Highly Worthy	5
14	Conditions of scheduled public transportation	Not Eligible	1
		Less Worthy	2
		Quite Decent	3
		Proper	4
		Highly Worthy	5
15	Terminal security conditions	Not Eligible	1
		Less Worthy	2
		Quite Decent	3
		Proper	4
		Highly Worthy	5
16	Pedestrian Facility Needs	Desperately needed	1
		Need	2
		Enough Need	3
		Less Needed	4
		No Need	5
17	Terminal facility needs	Desperately needed	1
		Need	2
		Enough Need	3
		Less Needed	4
		No Need	5
18	Scheduled Public Transportation Service Needs	Desperately needed	1
		Need	2
		Enough Need	3
		Less Needed	4
		No Need	5
19	Improvement needs from the security side	Desperately needed	1
		Need	2
		Enough Need	3
		Less Needed	4
		No Need	5
20	Modal Transfer Infrastructure Needs	Desperately needed	1
		Need	2
		Enough Need	3
		Less Needed	4
		No Need	5
21	Priority Needs of Infrastructure	Desperately needed	1
		Need	2
		Enough Need	3

It	Variable	Category Name	Code
		Less Needed	4
		No Need	5

As for the bound variable, those who are willing to change modes to Lyn Rural Public Transportation HB2 with code 1 and are not willing to change modes to Lyn Rural Public Transportation HB2 with code 2. Analysis of mode transfer based on characteristics, existing conditions, and needs is tested in a multivariate manner using the SPSS application Where all variables are entered simultaneously to find out whether or not there is a relationship between these variables, which includes age, gender, occupation, income, frequency of motorcycle use, the reason for using a motorcycle, the purpose of the trip to use the motorcycle, frequency of trip, costs incurred, average travel time, amount of luggage, condition of pedestrian facilities (platform, sidewalk, terminal/stop lyn HB2, condition of terminal/stop lyn HB2, condition of scheduled public transportation, terminal security conditions, needs for pedestrian facilities, terminal facilities, scheduled public transportation services, improvements in terms of security, infrastructure for moving modes needed, and priority of infrastructure.

Table 7
Testing Criteria

Iteration History[a,b,c]

Iteration		-2 Log likelihood	Coefficients Constant
Step 0	1	52.870	-1.760
	2	45.943	-2.453
	3	45.401	-2.716
	4	45.394	-2.751
	5	45.394	-2.752

a. Constant is included in the model.

b. Initial -2 Log Likelihood: 45.394

c. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

From Table 7 above, it can be seen that in the model testing criteria before the independent variables are entered, the test requirements are met, this is because the value of -2 log-likelihood < chi-square. The value of -2 log probability is 45.394 while the Chi-square of the table is obtained from DF = n – 1 (100- 1=99), which is obtained from the chi-square value of the table of 123.225. The next stage is to find out whether the independent variables (x1=age, x2= gender, x3= occupation, x4= income, x5= frequency of motorcycle use, x6=reason for using a motorcycle, x7= purpose of the trip to use the motorcycle, x8=frequency of travel, x9=costs incurred, x10=average travel time, x11=amount of luggage, x12= condition of pedestrian facilities (platforms, sidewalks, terminals/stops of lyn HB2, x13=Terminal/stop condition of Lyn HB2, x14=Condition of scheduled public transportation, x15= Terminal safety condition, x16=Pedestrian facility needs, x17= Terminal facilities, x18=Scheduled public transportation services,

x19=Improvements in terms of security, x20=Required mode transfer facilities, and x21=Priority of infrastructure) have a simultaneous effect on the dependent variable (y= willingness to switch modes to Lyn HB2 Rural Public Transportation).

Table 8
Simultaneous Influence Testing Criteria

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	45.394	21	.002
	Block	45.394	21	.002
	Model	45.394	21	.002

Based on the table above, it can be seen that in the model testing criteria, all variables are declared to have been affected simultaneously, as evidenced by the Sig or P value is 0.002 < α=0.05. With logistic regression, the t-test and the partial test are replaced by the Wald test used for the partial real test for each variable coefficient. The significance for the Wald test is less than 0.05. Here are the results of the Wald test.

Table 9
Wald Test Results
Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	kebutuhan perbaikan dari sisi keamanan	2.591	.847	9.362	1	.002	13.338
	Constant	-8.222	2.055	16.006	1	<.001	.000
Step 2[b]	kondisi angkutan umum berjadwal	-1.264	.608	4.322	1	.038	.283
	kebutuhan perbaikan dari sisi keamanan	2.955	1.073	7.589	1	.006	19.204
	Constant	-6.160	2.282	7.290	1	.007	.002

a. Variable(s) entered on step 1: kebutuhan perbaikan dari sisi keamanan.

b. Variable(s) entered on step 2: kondisi angkutan umum berjadwal.

Based on the table above, it can be seen that a significant variable to influences respondents to choose the Lyn HB2 Rural Public Transportation mode of transportation is the need for improvements in terms of safety and public transportation schedule conditions. So the following logical equation is obtained:

Logit (p)= $\ln\frac{p}{1-p}$

= $\beta 0 \pm \sum_{k-1}^{p} \beta_k X_k$

= -6.160 + -1.264+2.9552.591

= -1.878

$p = \frac{e^{-1.878}}{1+e^{-1.878}}$

=0.1326 = 13.26%

The result *of logit (p)* is -1,878, indicating that the probability is 13.26% or below 50% when viewed from the variable criteria of the need for improvement in terms of safety and condition of public transportation schedules. However, if you look at the results of the questionnaire survey obtained by motorcycle users who are willing to change modes to Lyn HB2 Rural Public Transportation by 96% or as many as 94 people which can be seen in the following table.

Table 10
Probability of Motorcycle User Displacement to Lyn Rural Public Transportation HB2

Perpindahan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Berkenan	94	94.0	94.0	94.0
	Tidak Berkenan	6	6.0	6.0	100.0
	Total	100	100.0	100.0	

Conclusion

The Lyn HB2 Rural Public Transportation, which serves the Larangan Terminal-Krian Terminal route, is an innovation to reduce congestion and provide more efficient transportation solutions for rural communities in Sidoarjo. However, the results of the analysis show that this service still faces various challenges. Based on the evaluation of existing performance by the Decree of the Director of Transportation and Transportation Number 687 of 2002, the performance of Lyn HB2 includes an average travel time of 2 hours and 22 minutes, vehicle frequency 3 times per hour, load factor of 39%, headway 31 minutes, number of trips per vehicle as many as 3 trips per day, mileage per vehicle per day 198.8 km, cycle time 144 minutes, The average number of passengers per trip is 9 people, as well as the ideal needs of 6 fleets. The average Lyn HB2 vehicle is 36 years old with a vehicle speed of 37.1 km/h, an average income per trip of Rp 45,000–Rp 90,000, and a daily operating time of 11 hours and 45 minutes (06.36–18.21 WIB). However, vehicles on this route do not meet the route permit because they do not renew the permit in 2024. Based on the Minister of Transportation Regulation Number PM 98 of 2013, only 25% of services meet the Minimum Service Standards (SPM), while the other 75% do not meet, so service improvements are needed. The main factor that affects the quality of Lyn HB2's service is the accuracy of arrival and departure schedules. In addition, the probability of switching modes of transportation from motorcycles to Lyn HB2 reaches 94%, with the main criteria that affect the operating hours of rural public transportation on the Lyn HB2 route, the frequency of public vehicles, the waiting time for rural public transportation on the Lyn HB2 route, the accuracy of the arrival and departure schedules of public transportation, the ease of public transportation schedule and route information, the level of public transportation movement, the condition/feasibility of public transportation (seating capacity, vehicle cleanliness).

Bibliography

Alshare, F. (2018). The role of integrated marketing communications in highlighting the competitive advantage of Jordanian telecommunication companies (Orange company: study model). *International Journal of Academic Research in Business and Social Sciences*, *8*(4), 573–593.

Andari, T., Yohanitas, W., Pribadi, M., Syah, A., Radianto Anwar Setia Putra, I., & Plamonia, N. (2024). Evaluasi Pelayanan Angkutan Pedesaan: Analisis Faktor, Load Factor, dan Waktu Tunggu di Kabupaten Pringsewu, Lampung. *Jurnal Transportasi Multimoda*, *21*, 56–66.

Armianti, F., & UB, A. R. (2022). Program of the Department of Transportation in Improving Public Transportation Services. *Indonesian Journal of Public Policy Review*, *19*, 10–21070.

Hayati, D., Mailiana, M., Budiati, P. L., & Riana, R. (2024). Analysis Of The Effect Of Service Quality On Passenger Satisfaction Of Trans Banjarbakula Bus In Banjar Regency, South Kalimantan. *International Journal Of Financial Economics*, *1*(3), 812–827.

Jaya, M. N. (2024). *Komunikasi Pembangunan Partisipatif Dalam Pengembangan Pariwisata*.

Kartika, S. F., Sirojuzilam, S., & Purwoko, A. (2022). Preference Analysis Of Traditional Traders Towards Relocation Of The Deli Tua Market In City Structure In The District Of Deli Tua Deli Serdang Regency. *International Journal of Science, Technology & Management*, *3*(4), 1165–1169.

Kyprianos, K., Efthymiou, F., & Katsira, G. (2024). Teaching cataloging after RDA 3R project: Lessons learned. *JLIS. It*, *15*(2), 31–50.

Malaysia, P. N., Pengkatalogan-dalam-Penerbitan, D., Asl, M. P., Rajandran, K., & Azam, Y. (2019). *All rights reserved. No part of this publication may be produced, stored in a retrieval system, or transmitted in any form or by any means, electronics, mechanical, photocopying, recording, or otherwise, without prior written permission of the publisher.*

Nurhadi, M., Astuti, S. W., & Dewi, P. (2024). Geometric Evaluation of Highways and Railroads on Safety at Crossings (Case Study of JPL 136 and JPL 138 Madiun City). *ASTONJADRO*, *13*(2), 425–433.

Setiawan, A., Rifai, A. I., & Prasetijo, J. (2022). The Phenomena of Local Public Transportation Service: A Case Oplet in Pontianak, Indonesia. *Citizen: Jurnal Ilmiah Multidisiplin Indonesia*, *2*, 916–923.

Sjafruddin, A. (2012). *Transportasi Wilayah Berkelanjutan Untuk Meningkatkan Daya Saing Ekonomi Nasional*.