Analysis of the City Bus Service Network in Bogor City (Case Study: Bubulak Terminal - Cidangiang Route)

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ABSTRACT

BisKita Trans Pakuan Bogor Corridor 1 route line Bubulak Terminal - Cidangaing is expected to reduce the number of city transportation and private vehicles to overcome congestion in Bogor City. An assessment is needed to determine whether the service and operational performance of the bus are up to standard. The indicators used in the evaluation of operational performance refer to the Decree of the Director General of Land Transportation SK.687/AJ.206/DRJD/2002 and the World Bank, while the minimum service standards refer to the Minister of Transportation Regulation No. 10 of 2012 and Minister of Transportation Regulation No. 27 of 2015. This study aims to determine the performance level of the facilities and infrastructure of *BisKita* Trans Pakuan Corridor 1 services. This research uses quantitative methods. The results showed; the average load factor on the departure route during the weekday has met the standard value of 74% and on the return route has not met the standard of 66% while the passenger load factor on the departure and return routes during the weekend is 50% and 49% which means it has not met the standard, the average headway during the weekday has met the standard of 9.40 minutes and during the weekend has not met the standard of 12.90 minutes, the average frequency during the weekday and weekend has met the standard of 6 bus/hour and 4 bus/hour, The average return and departure travel times have met the standards of 42.23 minutes and 54.10 minutes during the weekday and 40.67 minutes and 58.00 minutes during the weekend, the average return and departure speeds have met the standards of 23.59 km/hour and 22.81 km/hour during the weekday and 22.41 km/hour and 21.94 km/hour minutes during the weekend, the average fleet operating during the weekday and weekend has met the standards of 100% and 92% of the total fleet. Based on the analysis results, some indicators of the operational performance of *BisKita* Trans Pakuan Corridor 1 have not met the standards because some load factors are still below the standard.

Keywords: *BisKita Trans Pakuan*; corridor 1; bus operational performance; bus facilities; infrastructure services; skala Likert.

INTRODUCTION

Bogor City which has an area of 118.5 km^2 and its population growth which reached 1.097 million people in 2020 has led to an increase in the economy in the Bogor City area, so that the need for transportation facilities and infrastructure in Bogor City is increasing as well. This makes public transportation facilities a very strategic aspect and is expected to be able to accommodate all the needs of the activities of the residents of Bogor City. *BisKita* Trans Pakuan is a bus rapid transit (BRT) based public transportation service in Bogor City, West Java. *BisKita* Trans Pakuan has four corridors that have been operating, one of which is Corridor 1 which is the initial route of the Trans Pakuan bus that has existed since 2008. This route connects Bubulak Terminal in West Bogor with Cidangiang Bus Stop in Central Bogor. With the existence of *BisKita* Trans Pakuan, it is expected to reduce the number of city transportation and private vehicles as an effort to overcome congestion in Bogor City.

The service of public transportation is an important thing that must be considered by service providers because the better the service, the more service users will use the service (Osly, 2022). This study was conducted to analyze the operational performance of the BTP Corridor 1 bus using the reference World Bank Policy Study, 1986 and Surat Keputusan Direktorat Jendral Perhubungan Darat No. 687 Tahun 2002 and analyze the facilities and infrastructure services of the BTP Corridor

1 using the reference of Peraturan Menteri Perhubungan No. 10 tahun 2012 which was updated in Peraturan Menteri Perhubungan No. 27 tahun 2015.

Transportation is the backbone of the social and economic life of modern society. A good transportation system ensures efficient mobility, supports economic activities, and improves the quality of life. However, with the development of the era and population growth, transportation problems are increasingly complex, including congestion, air pollution, and inequality in access to transportation. Therefore, public transportation policies and sustainable transportation have become very important issues in various countries, including Indonesia (Syaiful S et.al, 2024; Syaiful S et.al, 2024). Public transportation refers to a transportation system provided to the general public at affordable rates. This transportation includes buses, trains, ships, and other mass transportation modes. Public transportation policies are designed to promote the use of mass transportation modes to reduce the use of private vehicles, which can reduce congestion, reduce greenhouse gas emissions, and promote energy efficiency (Syaiful S et.al, 2022).

The importance of public transportation cannot be denied, especially in big cities that often experience traffic congestion. In Jakarta, for example, congestion is a chronic problem that impacts the productivity and quality of life of the community (Syaiful S et.al, 2020; Syaiful S et.al, 2021; Syaiful S, Agus F, 2020). With good public transportation, people have more comfortable and efficient choices for their daily travel. Policies to improve public transportation services, such as the development of busway infrastructure, light rail (LRT), or commuter trains, are expected to be able to overcome congestion problems (Syaiful S et.al, 2021; Syaiful S, Irbah AF, 2021).

However, the main challenges in developing public transportation are the lack of adequate infrastructure, limited funding, and public resistance to switching from private vehicles to mass transportation. In many cities in Indonesia, public transportation facilities are still limited, routes do not cover all areas, and comfort and safety standards are often not met (Syaiful S et.al, 2022; Syaiful S etal, 2021; Syaiful S et.al, 2022). This makes public transportation less attractive to the public, who tend to prefer using private vehicles. Sustainable transportation refers to a transportation system designed to meet the mobility needs of the community without harming the environment and future generations (Syaiful S et.al, 2023; Mudjanarko SW, Falani AZ, 2023; Syaiful E et.al, 2023).

This concept includes three main pillars: economic, social, and environmental. Sustainable transportation is not only related to cost efficiency, but also how the system can provide equal accessibility for all levels of society and minimize environmental impacts (Pratama FA et.al, 2023; Syaiful S et.al, 2023; Syaiful S et.al, 2023). The transportation system must minimize energy use and reduce dependence on fossil fuels. This can be achieved by promoting the use of low-emission fuel vehicles, such as electric cars, as well as increasing energy efficiency in mass transportation modes such as trains. One of the main goals of sustainable transportation is to reduce greenhouse gas emissions, which contribute to climate change. This can be achieved by reducing the number of private vehicles on the road through policies on the use of public transportation or alternative modes of transportation such as cycling and walking (Syaiful S, Suherman S, 2024).

Sustainable transportation must ensure that all communities, including those in remote areas or the economically disadvantaged, have access to safe and affordable transportation. This means that policies must include developing transportation networks in rural areas and ensuring affordable fares for low-income communities (Syaiful S, Anggi M, 2024). Sustainable transportation policies must also consider the impact on public health. By reducing air pollution and noise from vehicle traffic, these policies can improve air quality and overall public health. In addition, promoting walking and cycling as alternative modes of transportation also has significant health benefits (Syaiful S et.al, 2024). Several developed countries have succeeded in implementing effective sustainable transportation policies. In countries such as Germany, the Netherlands, and Japan, public transportation plays a major role in national mobility systems. Modern infrastructure, extensive transportation networks, and integration between various modes of transportation make public transportation the main choice for the community (Syaiful S, Rusfana H, 2022; Syaiful S, Hariyadi D, 2019).
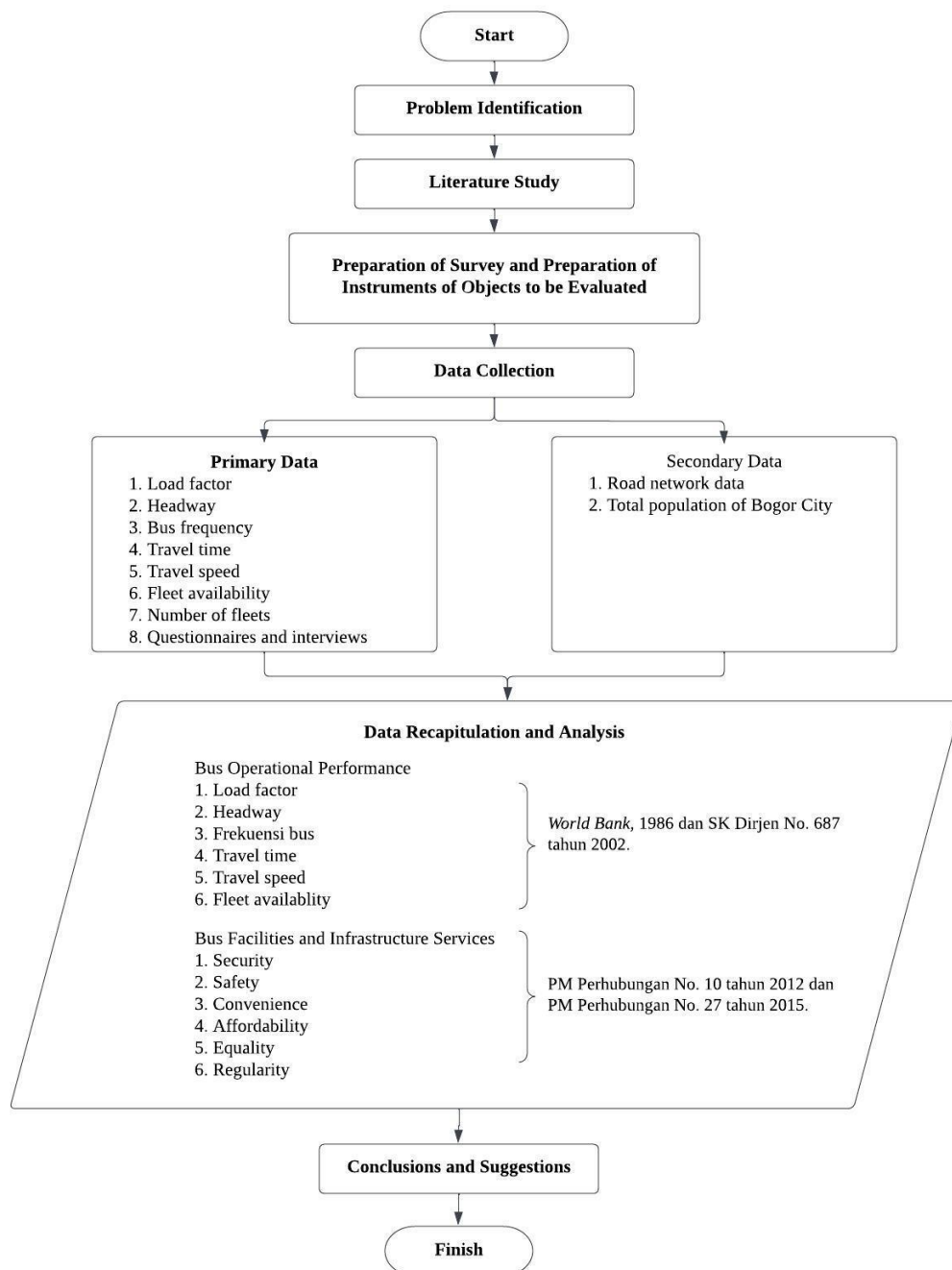
RESEARCH METHODS
Time and Location

The research survey of the BisKita Trans Pakuan Corridor 1 service network analysis of the Bubulak Terminal - Cidangiang route was carried out on three weekdays, namely on Monday, Tuesday and Thursday, and one weekend on Saturday at 06.00 to 18.00 WIB. In collecting dynamic survey data, the research was carried out on the BisKita Trans Pakuan Corridor 1 route, namely the Bubulak Bus Station - Cidangiang route. The static survey data collection was carried out at one location at the Kebun Raya Shelter. The research location is shown in Figure 1.
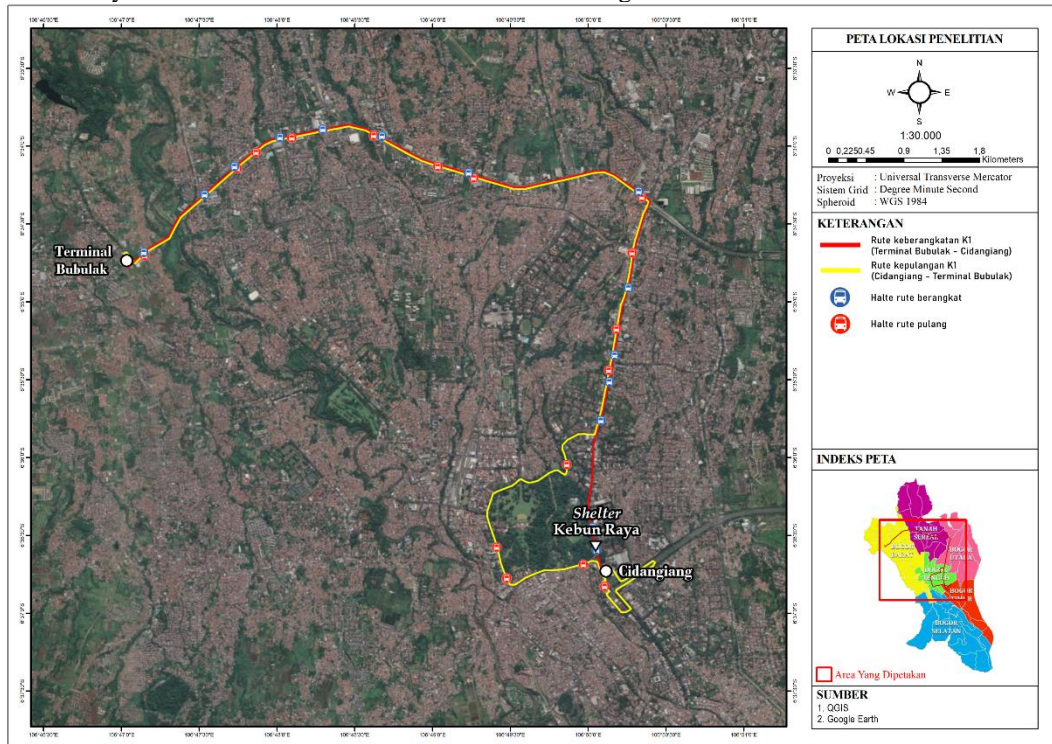
Figure 1. Research location

Methods

This research uses a quantitative method, which is a method that requires data in the form of numbers with certain instruments or measuring tools to validate this research. In order for this research to achieve the objectives of analyzing the study area, several stages are considered necessary. To facilitate the reader in analyzing the research process more quickly, the steps and procedures of the research are shown in the form of a flow chart in Figure 2.

Figure 2. Research flow chart

Primary data collection was carried out by 2 survey methods, namely dynamic surveys (on board surveys) where dynamic surveys are needed to collect load factor data, travel time, and bus travel speed, as well as static surveys conducted at 1 bus stop location to collect headway data, bus frequency, and fleet operations. User assessment of BTP Corridor 1 facilities and infrastructure services was obtained by distributing questionnaires and interviews directly to users of BTP Corridor 1 services.

Analysis

Data processing in this study used Microsoft Excel software and IBM SPSS Statistic 25, then the parameters contained in the regulations were compared with the field conditions. After that, the final value can be drawn from whether the operational performance of BisKita Trans Pakuan Corridor 1 has met the public service standards following the World Bank Policy Study, 1986, and SK Direktorat Jendral Perhubungan No. SK: SK.687/AJ.206/DRJD/2002.

RESULTS AND DISCUSSIONS
Data Analysis

Operational performance data analysis is obtained from survey results which are divided into 4 survey days, namely Monday, Tuesday, Thursday as weekday representatives and Saturday as weekend representatives. Bus operational performance surveys were conducted during peak hours, namely in the morning and evening time periods and during non-peak hours, namely during the day. Analysis of bus operational performance includes load factor, headway, frequency, travel time, travel speed, and bus fleet availability. While the data analysis of the level of service of bus facilities and infrastructure is obtained from the results of distributing questionnaires and interviews directly to users of the BTP Corridor 1 bus service. Analysis of the level of service of bus facilities and infrastructure includes aspects of security, safety, comfort, affordability, equality, and regularity.

Load Factor

Load factor is the division between existing demand and available transportation capacity. The load factor can be a clue to know whether the number of available fleets is still lacking, sufficient or exceeds the needs of a public transport route. The load factor value is obtained by counting passengers on the BTP Corridor 1 bus starting from the first bus stop to the last bus stop. The results of the BTP Corridor 1 load factor analysis shown in the following graph:
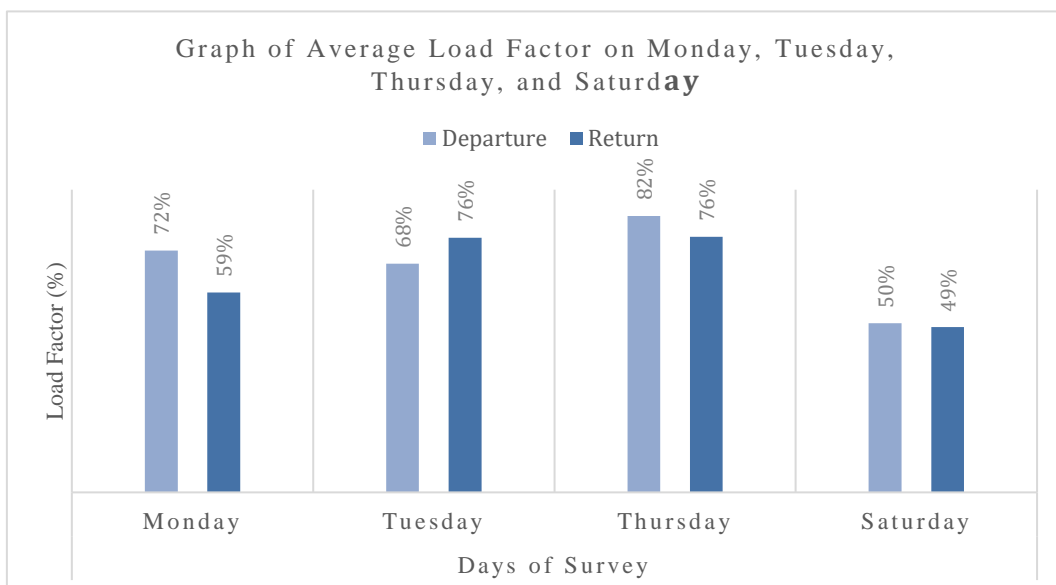

Figure 3. Average load factor graph on the day Monday, April 3, 2023 to Saturday, April 8, 2023

Headway and Frequency

Headway is the time between the departing bus and the bus coming while the bus frequency is the number of fleets passing in a certain unit of time. Data collection was carried out on the four survey days Monday, April 3, 2023 to Saturday, April 8, 2023 at one observation point passed by the BTP Corridor 1 bus route, namely at the Kebun Raya Shelter. The data taken is the arrival time of each bus so that headway and bus frequency data are obtained. The results of the headway and frequency analysis of the BTP Corridor 1 bus are displayed in the following graph:
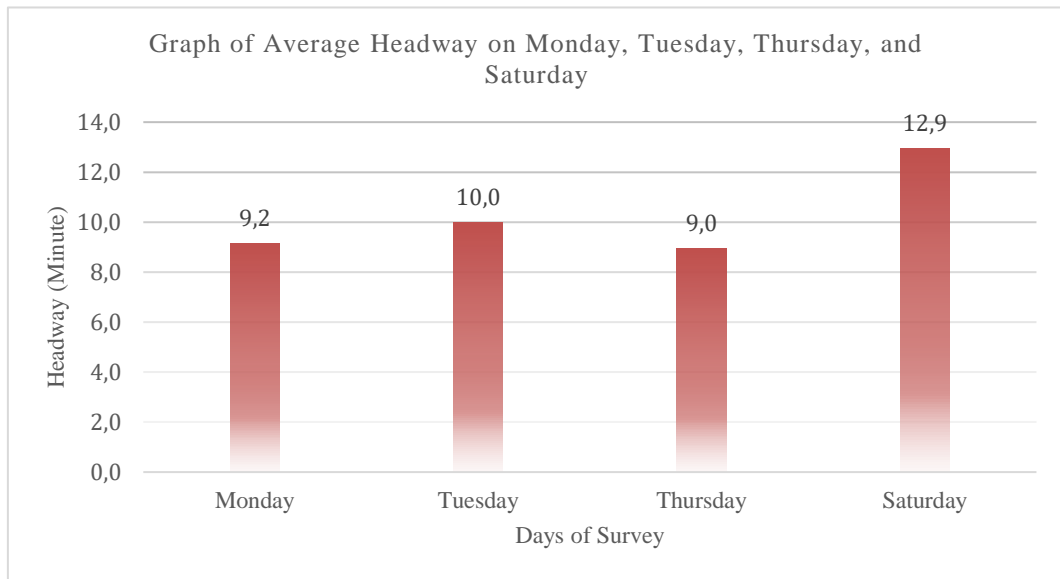
Figure 4. Average headway graph on Monday, April 3, 2023 to Saturday, April 8, 2023
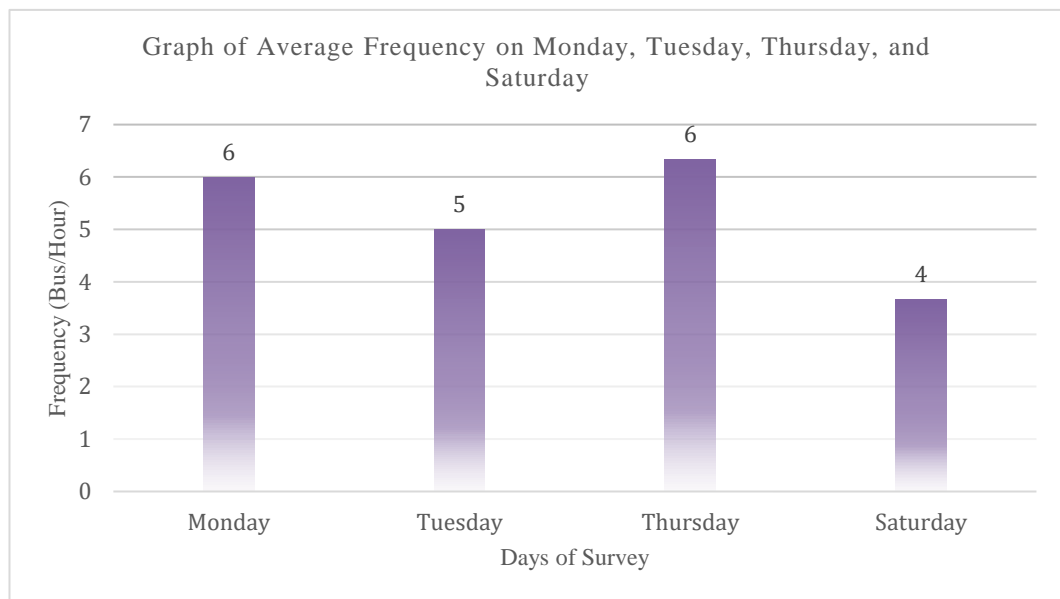
Figure 5. Average bus frequency graph on Monday, April 3, 2023 to Saturday, April 8 2023

Travel Time

Travel time is the time it takes for a bus to travel. The length of travel time is very relative because it is influenced by bus speed, route length, and traffic conditions. Travel time is calculated from the first bus stop to the last bus stop and back again to the first bus stop. The distance from Bubulak Terminal - Cidangiang is 11.54 km while the distance from Cidangiang - Bubulak Terminal is 16.21 km. The results of the BTP Corridor 1 bus travel time analysis displayed in the following graph:
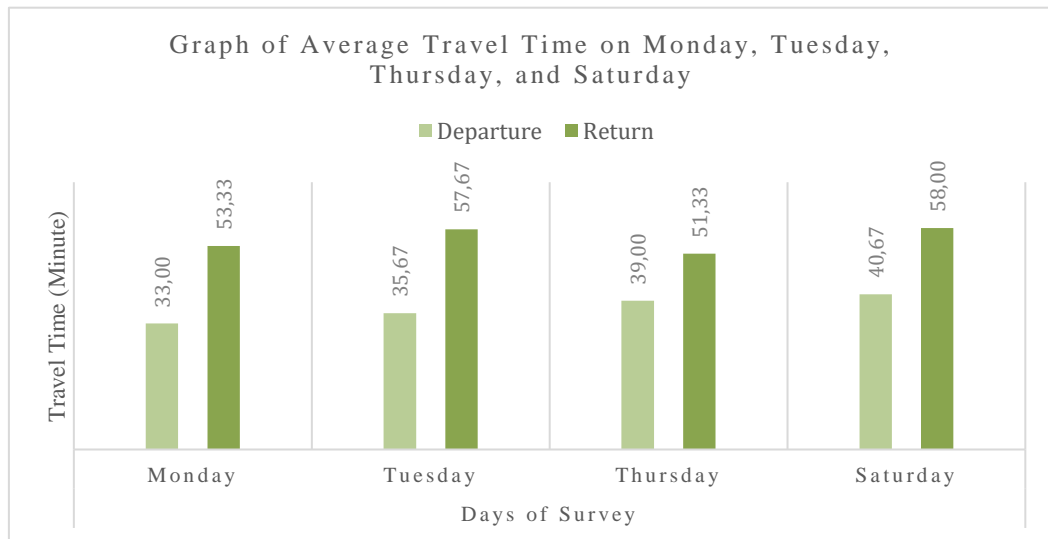
Figure 6. Average travel time graph on Monday, April 3, 2023 to Saturday, April 8, 2023

Travel Speed

Bus speed is the amount of distance traveled by the bus in a certain unit of time, describing the time required by transportation service users to reach their destination. The faster the travel speed, the better the bus operational performance. The speed is obtained from the calculation of the distance from shelter A to shelter B divided by the time required from shelter A to shelter B. The results of the analysis of the speed of travel of the BTP Corridor 1 bus are shown in the following graph:
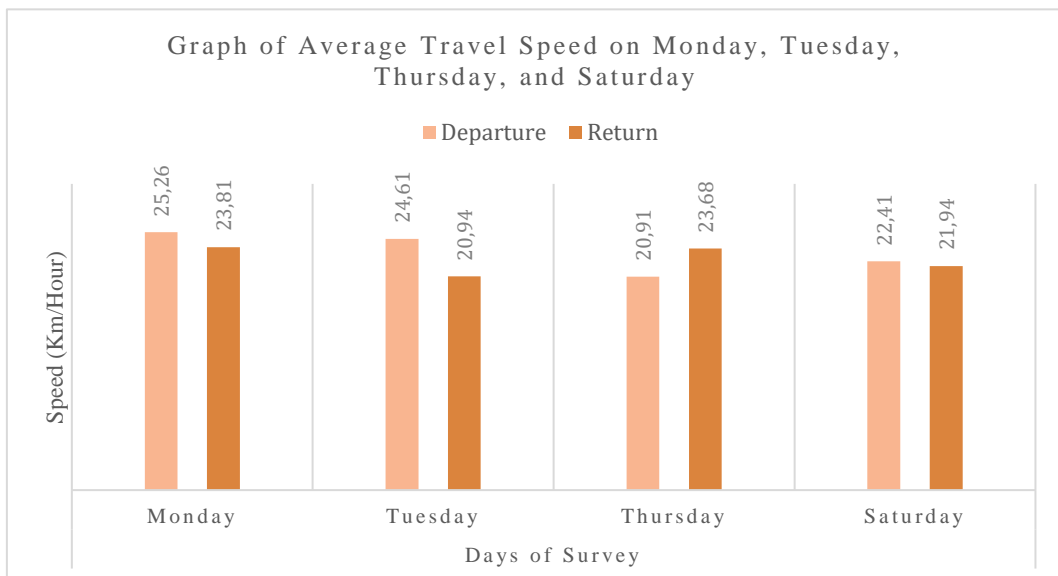

Figure 7. Graph of average travel speed on Monday, April 3, 2023 to Saturday, April 8, 2023

Fleet Availability

Bus fleet availability is the ratio of the number of operating fleets to the total number of existing fleets. The availability of the BTP Corridor 1 bus fleet on Monday, April 3, 2023 to Saturday, April 8, 2023 is shown in the following table:

Table 1. Bus fleet availability on Monday, April 3, 2023 to Saturday, April 8, 2023

No	Number of Fleets	Operating Fleet	Availability
1		TP-037	
2		TP-038	
3		TP-039	
4		TP-040	
5		TP-041	
6		TP-042	
7	13	TP-043	92%
8		TP-044	
9		TP-045	
10		TP-046	
11		TP-048	
12		TP-049	

Source: Analysis result, 2023

Operational Performance Evaluation Results

The results of the evaluation of the operational performance of the BTP Corridor 1 bus include load factor, headway, frequency, travel time, travel speed and availability of the bus fleet obtained from field surveys and then compared with standard parameters using the reference of and SK Direktorat Jendral Perhubungan No. SK: SK.687/AJ.206/DRJD/2002 concerning technical guidelines for the Implementation of Public Passenger Transport in Urban Areas on Fixed and Regular Routes. The results of the evaluation of the operational performance of the BTP Corridor 1 bus are summarized in the following table:

Table 2. Results of operational performance analysis on Monday, April 3, 2023 to Saturday, April 8, 2023

Survey Day/Date	Indicator	Unit	Analysis Result	SK. Dirjen Standart	Description
Monday, 3 April 2023	Load Factor (Departure)	%	72	70	Fullfil
	Load Factor (Return)	%	59	70	Does not fullfil
	Headway	minutes	9,2	5-10	Fullfil
	Frequency	bus/hour	6	4-6	Fullfil
	Travel Time (Departure)	minutes	33,00	60-90	Fullfil
	Travel Time (Return)	minutes	53,33	60-90	Fullfil
	Speed (Departure)	km/ hour	25,26	10-30	Fullfil
	Speed (Return)	km/ hour	23,81	10-30	Fullfil
	Fleet Availability	%	92	80-90	Fullfil
Tuesday, 4 April 2023	Load Factor (Departure)	%	68	70	Does not fullfil
	Load Factor (Return)	%	76	70	Fullfil
	Headway	minutes	10,0	5-10	Fullfil
	Frequency	bus/hour	5	4-6	Fullfil
	Travel Time (Departure)	minutes	35,67	60-90	Fullfil
	Travel Time (Return)	minutes	57,67	60-90	Fullfil
	Speed (Departure)	km/ hour	24,61	10-30	Fullfil
	Speed (Return)	km/ hour	20,94	10-30	Fullfil
	Fleet Availability	%	92	80-90	Fullfil

Survey Day/Date	Indicator	Unit	Analysis Result	SK. Dirjen Standart	Description
Thursday, 6 April 2023	Load Factor (Departure)	%	82	70	Fullfil
	Load Factor (Return)	%	62	70	Does not fullfil
	Headway	minutes	9,0	5-10	Fullfil
	Frequency	bus/hour	6	4-6	Fullfil
	Travel Time (Departure)	minutes	39,00	60-90	Fullfil
	Travel Time (Return)	minutes	51,33	60-90	Fullfil
	Speed (Departure)	km/ hour	20,91	10-30	Fullfil
	Speed (Return)	km/ hour	23,68	10-30	Fullfil
	Fleet Availability	%	92	80-90	Fullfil
Saturday, 8 April 2023	Load Factor (Departure)	%	50	70	Does not fullfil
	Load Factor (Return)	%	49	70	Does not fullfil
	Headway	minutes	12,9	5-10	Does not fullfil
	Frequency	bus/hour	4	4-6	Fullfil
	Travel Time (Departure)	minutes	40,67	60-90	Fullfil
	Travel Time (Return)	minutes	58,00	60-90	Fullfil
	Speed (Departure)	km/ hour	22,41	10-30	Fullfil
	Speed (Return)	km/ hour	21,94	10-30	Fullfil
	Fleet Availability	%	92	80-90	Fullfil

Source: Analysis result, 2023

Characteristics of Respondents of Users of Bus Service Facilities and Infrastructure BisKita Trans Pakuan Corridor 1

The percentage of gender of respondents in this study is 29% male users and 71% female users. The age of most respondents is in the range of 20-30 years, as many as 50%, this indicates that users of the BTP Corridor 1 bus service are in the productive age range. The highest percentage of the last education is D4 / S1, which is 54%. The majority of respondents work as students, namely 30% of the total number of respondents, then private employees with a percentage of 12.8%, housewives with a percentage of 12.3%, entrepreneurs with a percentage of 8.5%, civil servants/TNI/police with a percentage of 7.5%, teachers / lecturers / academics with a percentage of 5.5%, retired civil servants/military/police with a percentage of 0.3%, and others by 2.0%. Detailed data of the respondents' characteristics are shown in the following table:

Table 3. Respondent characteristics users of BisKita Trans Pakuan Corridor 1 facilities and infrastructure services

Respondent Characteristics		Respondents	Total Respondents	Percentage
Gender	Men	118	400	29,5%
	Women	282		70,5%
Age	< 15	16		4,0%
	15 – 20	67		16,8%
	20 – 30	199	400	49,8%
	30 – 40	49		12,3%
	40 – 50	49		12,3%
	> 50	20		5,0%

| Respondent Characteristics		Respondents	Total Respondents	Percentage
Last Education	Elementary School	7		1,8%
	Junior High School	17		4,3%
	Senior High School	119		29,8%
	D1/D2/D3	27	400	6,8%
	D4/S1	217		54,3%
	S2/S3	13		3,3%
Type of Job	Civil Servant /Military/Police	30		7,5%
	Retired civil servants/ Military/ Police	1		0,3%
	Private/SOE Employee	51		12,8%
	Entrepreneur/ Selfemployed	34	400	8,5%
	Student	205		51,3%
	Housewife	49		12,3%
	Teacher/Lecturer/Academic	22		5,5%
	More	8		2,0%

Source: Analysis result, 2023

Importance and Satisfaction of Biskita Trans Pakuan Corridor 1 Bus Facilities and Infrastructure Services Based on User Perceptions

The performance of BTP Corridor 1 bus facilities and infrastructure based on the perception of user expectations and satisfaction is divided into several aspects, namely in terms of security, safety, convenience, affordability, equality, and regularity summarized from the minimum service standards for mass public transportation based on the reference of the Minister of Transportation Regulation No. 10 of 2012 which was updated in the Minister of Transportation Regulation No. 27 of 2015.

The percentage of importance and satisfaction with BTP Corridor 1 bus stop services based on user perceptions is shown in the following graphs:

a. Importance level of security aspects in bus stop services

b. Satisfaction level of security aspects in Bogor City bus stop services
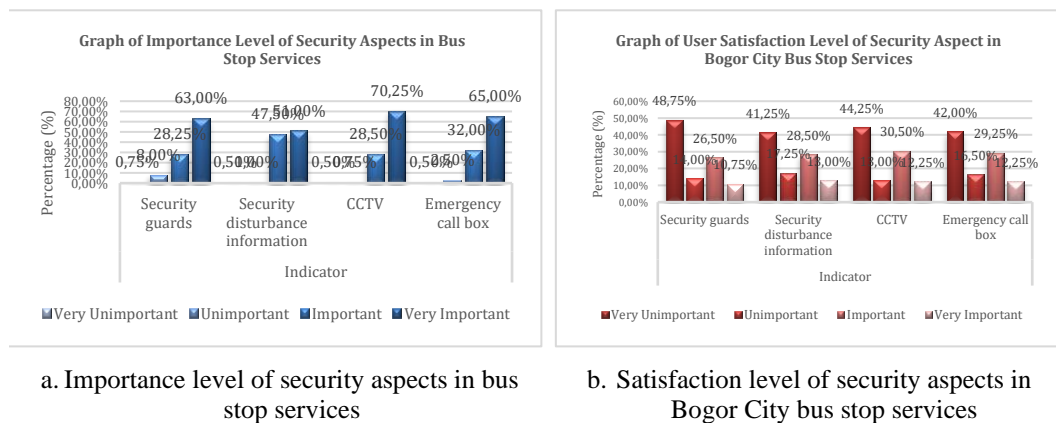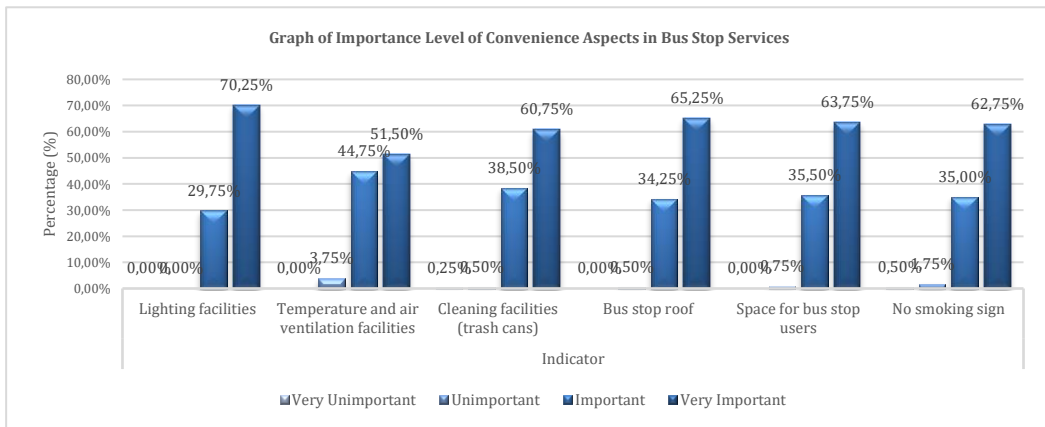
Figure 8. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus stop services in the aspect of security
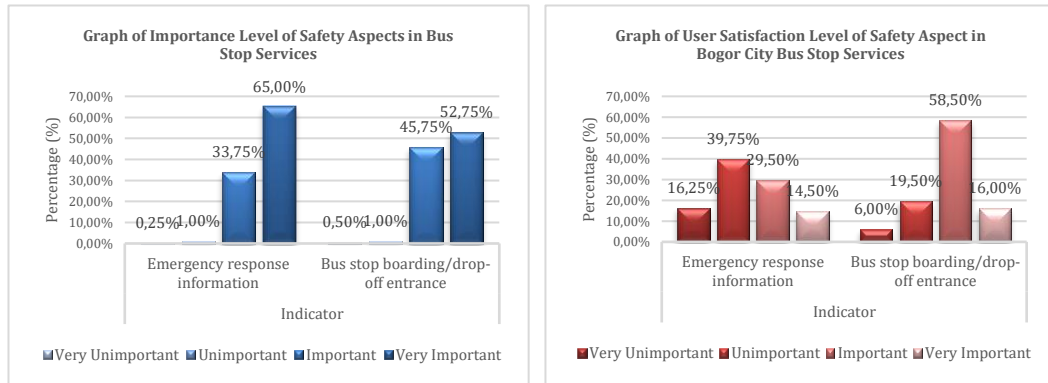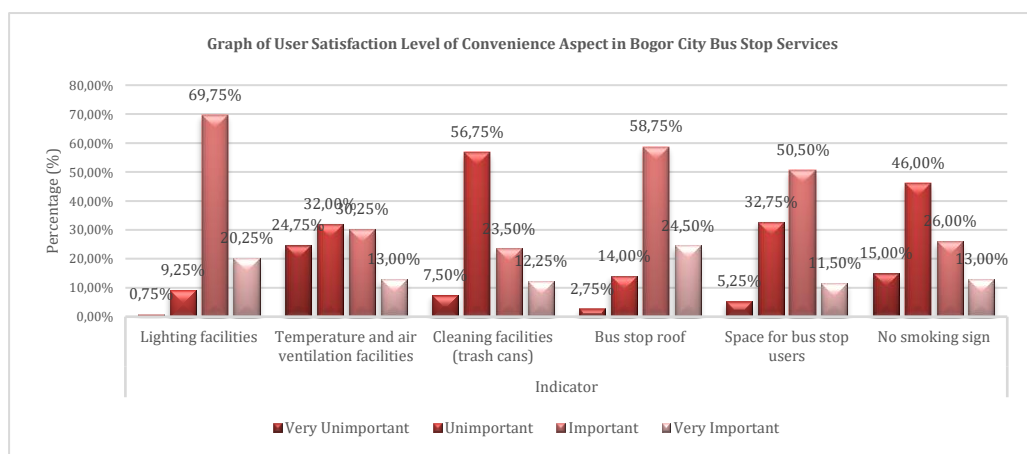
a. Importance level of safety aspects in bus stop services

b. Satisfaction level of safety aspects in Bogor City bus stop services

Figure 9. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus stop services in safety aspects
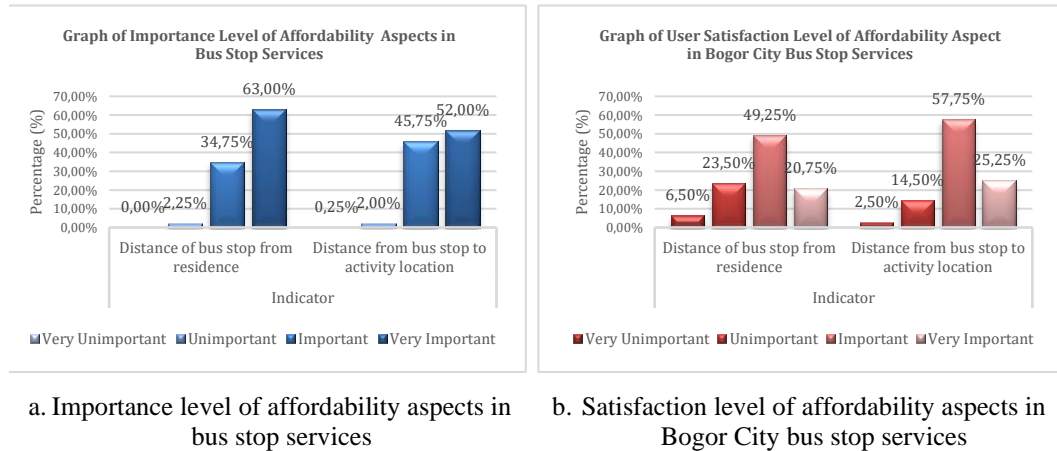

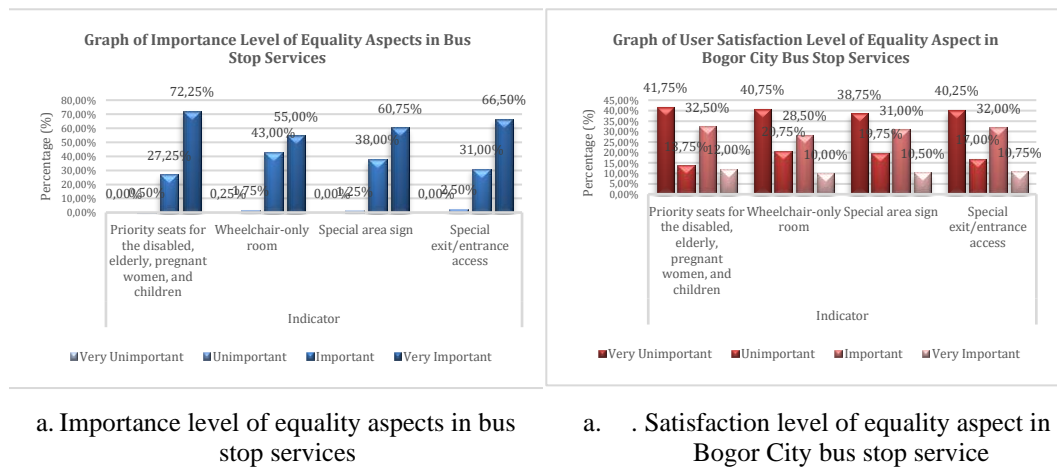a. Importance level of convenience aspects in bus stop services

b. Satisfaction level of convenience aspects in Bogor City bus stop services

Figure 10. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus stop services in the aspect of convenience
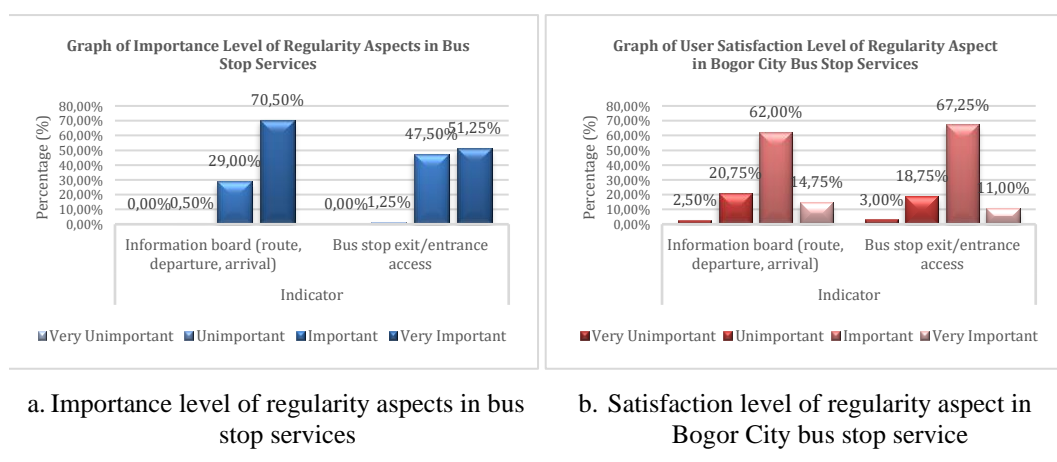
a. Importance level of affordability aspects in bus stop services

b. Satisfaction level of affordability aspects in Bogor City bus stop services

Figure 11. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus stop services in the aspect of affordability

a. Importance level of equality aspects in bus stop services

a. . Satisfaction level of equality aspect in Bogor City bus stop service
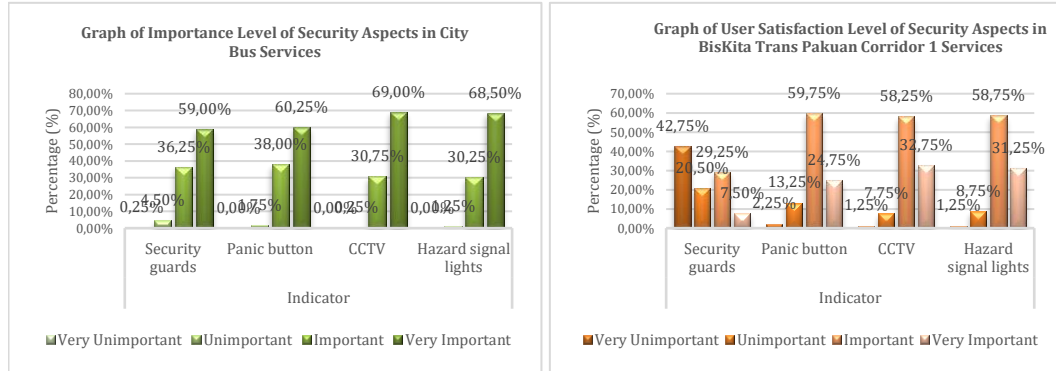
Figure 12. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus stop services in the aspect of equality

a. Importance level of regularity aspects in bus stop services

b. Satisfaction level of regularity aspect in Bogor City bus stop service

Figure 13. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus stop services in the aspect of regularity
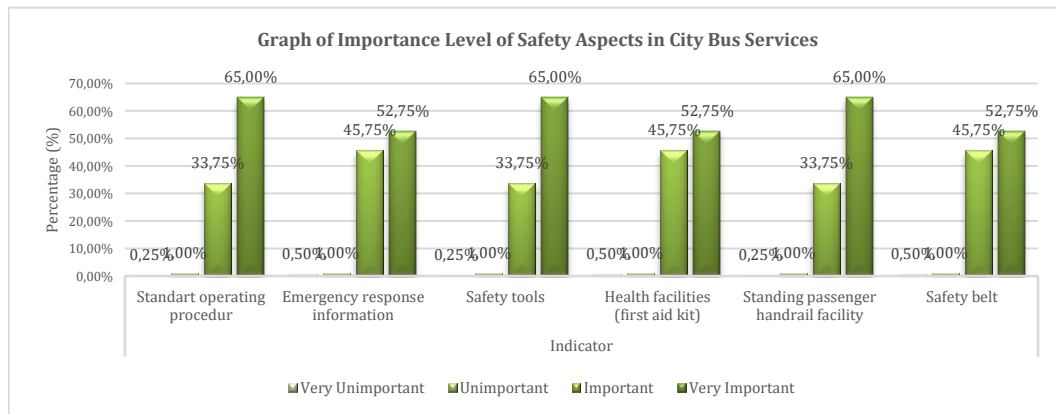
The percentage of importance and satisfaction with the BTP Corridor 1 bus service based on user perceptions is shown in the following graphs:

a. Importance level of security aspects in city bus services

b. Satisfaction level of safety aspects in BTP Corridor 1 bus services

Figure 14. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus services in the aspect of safety
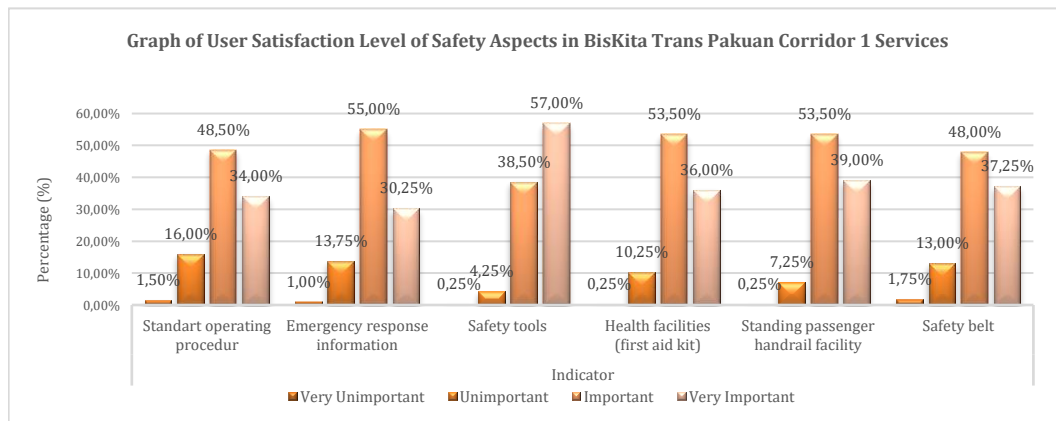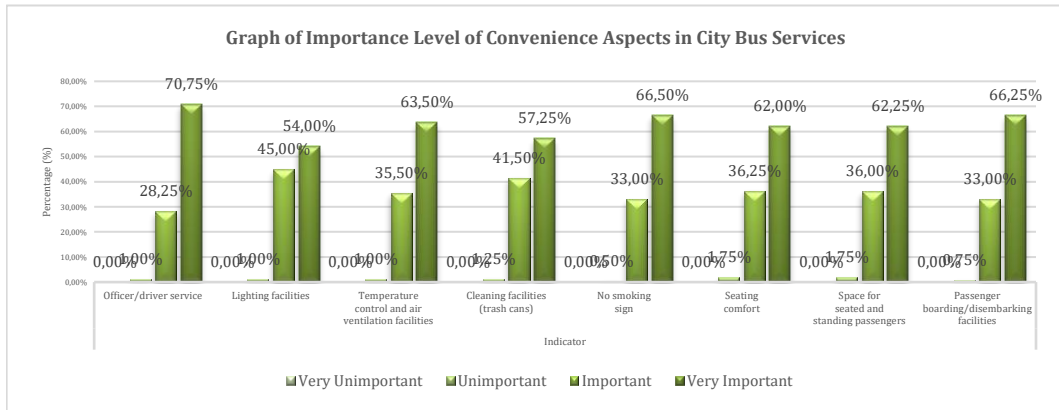

a. Importance level of safety aspects in city bus services

b. Satisfaction level of safety aspects in BTP Corridor 1 bus services

Figure 15. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus services in safety aspects

a. Importance level of convenience aspects in city bus services

b. Satisfaction level of convenience aspects in the BTP Corridor 1 bus service

Figure 16. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus services in the aspect of convenience

a. Importance level of affordability aspects in city bus services

b. Satisfaction level of affordability aspects in BTP Corridor 1 bus services

Figure 17. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus services in the aspect of affordability

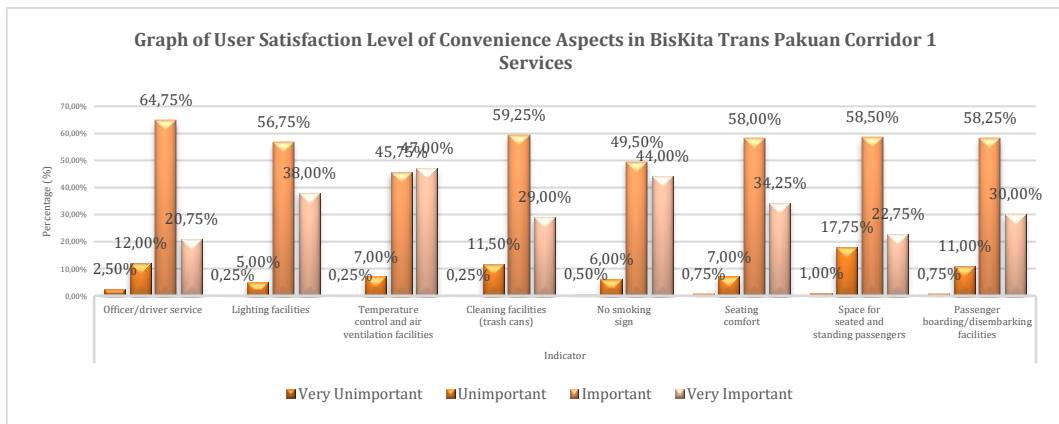a. Importance level of equality aspects in city bus services

b. Satisfaction level of equality aspect in BTP Corridor 1 bus service

Figure 18. User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus services in the aspect of equality

a. Importance level of regularity aspects in city bus services

Graph of User Satisfaction Level of Regularity Aspects in BisKita Trans Pakuan Corridor 1 Services

b. Satisfaction level of regularity aspect in BTP Corridor 1 bus service

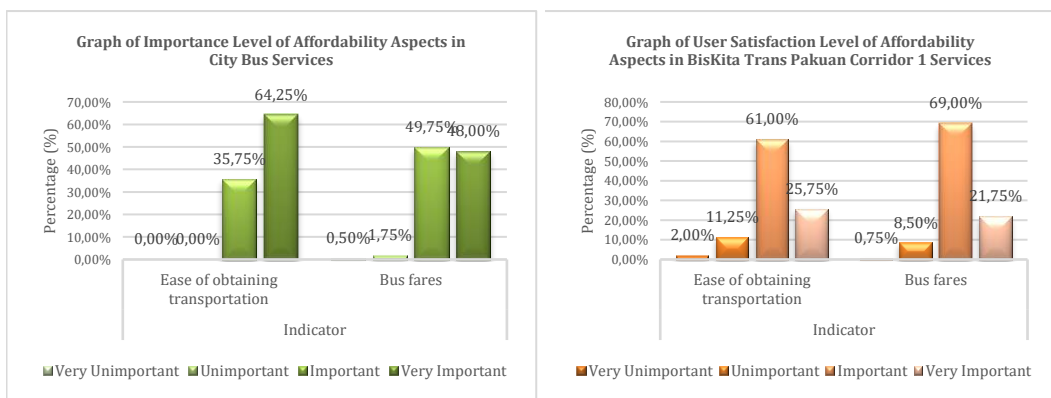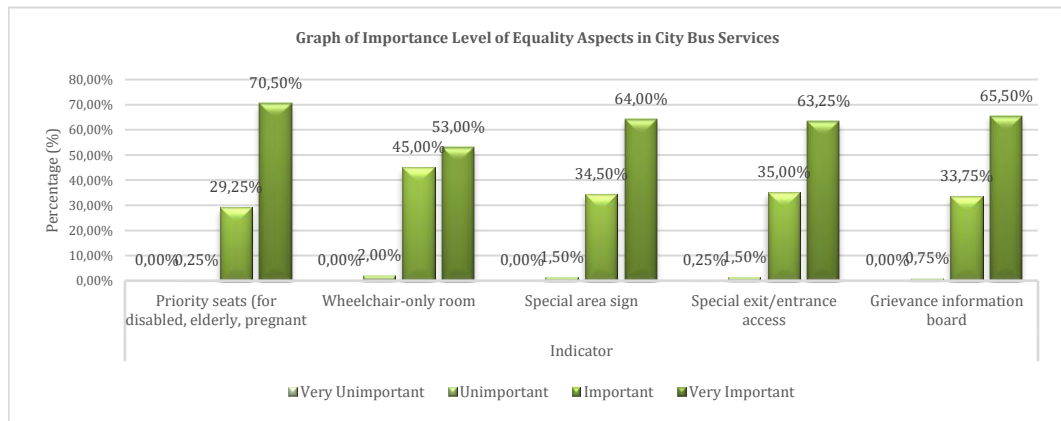**Figure 19.** User perceptions of the importance and satisfaction of BisKita Trans Pakuan Corridor 1 bus services in the aspect of regularity
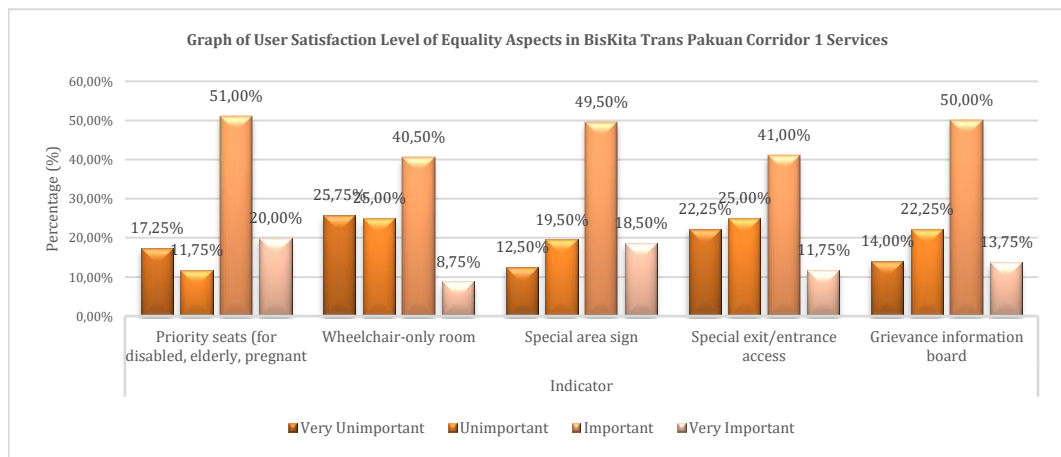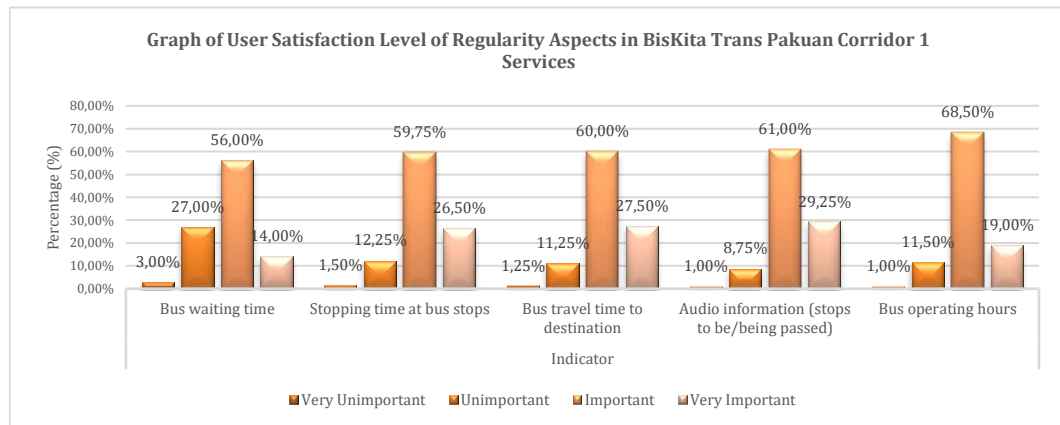
Validity and Reliability Test

The validity test is used to determine the feasibility of the items in a list of questions in defining a variable using a measuring tool in the form of a computer program, namely SPSS, if a measuring instrument has a significant correlation between the item score and the total score, it is said that the score tool is valid. The validity test is carried out by comparing the calculated r number and the r value, if r count is greater than the r value then the variable is said to be valid and vice versa The results of the validity test of the questionnaire regarding the level of importance and the level of user satisfaction with bus facilities and infrastructure services in Bogor City are shown in the following tables:

Table 4. Results of the validity test of the questionnaire on the level of importance of bus stop services

Indicator	r count	r table	Description
Security			
Security guards	0,472	0,098	Valid
Security disturbance information	0,584	0,098	Valid
CCTV	0,649	0,098	Valid
Emergency call box	0,619	0,098	Valid
Safety			
Emergency response information	0,577	0,098	Valid
Bus stop boarding/drop-off entrance	0,565	0,098	Valid
Convenience			
Lighting facilities	0,607	0,098	Valid
Temperature and air ventilation facilities	0,448	0,098	Valid
Cleaning facilities (trash cans)	0,490	0,098	Valid
Bus stop roof	0,575	0,098	Valid
Space for bus stop users	0,625	0,098	Valid
No smoking sign	0,557	0,098	Valid
Affordability			
Distance of bus stop from residence	0,500	0,098	Valid
Distance from bus stop to activity location	0,505	0,098	Valid
Equality			
Priority seats for the disabled, elderly, pregnant women, and children	0,500	0,098	Valid
Wheelchair-only room	0,505	0,098	Valid
Special area sign	0,613	0,098	Valid

Indicator	r count	r table	Description
Special exit/entrance access	0,552	0,098	Valid
Regularity			
Information board (route, departure, arrival)	0,540	0,098	Valid
Bus stop exit/entrance access	0,497	0,098	Valid

Source: Analysis result, 2023

Table 5. Results of the validity test of the questionnaire on user satisfaction in bus stop services in Bogor City

Indicator	r count	r table	Description
Security			
Security guards	0,826	0,098	Valid
Security disturbance information	0,848	0,098	Valid
CCTV	0,855	0,098	Valid
Emergency call box	0,856	0,098	Valid
Safety			
Emergency response information	0,790	0,098	Valid
Bus stop boarding/drop-off entrance	0,574	0,098	Valid
Convenience			
Lighting facilities	0,436	0,098	Valid
Temperature and air ventilation facilities	0,830	0,098	Valid
Cleaning facilities (trash cans)	0,620	0,098	Valid
Bus stop roof	0,303	0,098	Valid
Space for bus stop users	0,610	0,098	Valid
No smoking sign	0,696	0,098	Valid
Affordability			
Distance of bus stop from residence	0,378	0,098	Valid
Distance from bus stop to activity location	0,166	0,098	Valid
Equality			
Priority seats for the disabled, elderly, pregnant women, and children	0,858	0,098	Valid
Wheelchair-only room	0,863	0,098	Valid
Special area sign	0,871	0,098	Valid
Special exit/entrance access	0,852	0,098	Valid
Regularity			
Information board (route, departure, arrival)	0,354	0,098	Valid
Bus stop exit/entrance access	0,503	0,098	Valid

Source: Analysis result, 2023

Table 6. Results of the validity test of the questionnaire on the level of importance of city bus services

Indicator	r count	r table	Description
Security			
Security guards	0,417	0,098	Valid
Panic button	0,571	0,098	Valid
CCTV	0,645	0,098	Valid
Hazard signal lights	0,639	0,098	Valid
Safety			
Standart operating procedur	0,605	0,098	Valid
Emergency response information	0,615	0,098	Valid
Safety tools	0,613	0,098	Valid
Health facilities (first aid kit)	0,628	0,098	Valid
Standing passenger handrail facility	0,624	0,098	Valid
Safety belt	0,514	0,098	Valid
Convenience			

Indicator	r count	r table	Description
Officer/driver service	0,655	0,098	Valid
Lighting facilities	0,559	0,098	Valid
Temperature control and air ventilation facilities	0,602	0,098	Valid
Cleaning facilities (trash cans)	0,612	0,098	Valid
No smoking sign	0,629	0,098	Valid
Seating comfort	0,628	0,098	Valid
Space for seated and standing passengers	0,560	0,098	Valid
Passenger boarding/disembarking facilities	0,680	0,098	Valid
Affordability			
Ease of obtaining transportation	0,521	0,098	Valid
Bus fares	0,491	0,098	Valid
Equality			
Priority seats (for disabled, elderly, pregnant women, and children)	0,676	0,098	Valid
Wheelchair-only room	0,636	0,098	Valid
Special area sign	0,641	0,098	Valid
Special exit/entrance access	0,600	0,098	Valid
Grievance information board	0,661	0,098	Valid
Regularity			
Bus waiting time	0,578	0,098	Valid
Stopping time at bus stops	0,622	0,098	Valid
Bus travel time to destination	0,629	0,098	Valid
Audio information (stops to be/being passed)	0,607	0,098	Valid
Bus operating hours	0,592	0,098	Valid

Source: Analysis result, 2023

Table 7. The results of the validity test of the questionnaire on user satisfaction in the BisKita Trans Pakuan Corridor 1 service

Indicator	r count	r table	Description
Security			
Security guards	0,042	0,098	Valid
Panic button	0,383	0,098	Valid
CCTV	0,581	0,098	Valid
Hazard signal lights	0,595	0,098	Valid
Safety			
Standart operating procedur	0,305	0,098	Valid
Emergency response information	0,440	0,098	Valid
Safety tools	0,571	0,098	Valid
Health facilities (first aid kit)	0,572	0,098	Valid
Standing passenger handrail facility	0,587	0,098	Valid
Safety belt	0,596	0,098	Valid
Convenience			
Officer/driver service	0,395	0,098	Valid
Lighting facilities	0,680	0,098	Valid
Temperature control and air ventilation facilities	0,650	0,098	Valid
Cleaning facilities (trash cans)	0,647	0,098	Valid
No smoking sign	0,610	0,098	Valid
Seating comfort	0,616	0,098	Valid
Space for seated and standing passengers	0,504	0,098	Valid
Passenger boarding/disembarking facilities	0,686	0,098	Valid
Affordability			
Ease of obtaining transportation	0,489	0,098	Valid
Bus fares	0,529	0,098	Valid
Equality			

Indicator	r count	r table	Description
Priority seats (for disabled, elderly, pregnant women, and children)	0,411	0,098	Valid
Wheelchair-only room	0,221	0,098	Valid
Special area sign	0,466	0,098	Valid
Special exit/entrance access	0,306	0,098	Valid
Grievance information board	0,440	0,098	Valid
Regularity			
Bus waiting time	0,450	0,098	Valid
Stopping time at bus stops	0,575	0,098	Valid
Bus travel time to destination	0,603	0,098	Valid
Audio information (stops to be/being passed)	0,665	0,098	Valid
Bus operating hours	0,639	0,098	Valid

Source: Analysis result, 2023

Reliability test is a measure of the stability and consistency of respondents in answering things related to question constructs which are the dimensions of a variable and are arranged in a questionnaire form, the test is carried out with SPSS software version 25. The reliability test compares the Cronbach alpha number with the provisions of the minimum Cronbanch alpha value is 0.6. If the Cronbach alpha obtained from the SPSS calculation is greater than 0.6, it is concluded that the questionnaire is reliable, otherwise if the Cronbach alpha is smaller than 0.6, it is concluded that it is not reliable. The results of the reliability test of the questionnaire regarding the level of importance and level of satisfaction with the services of the BTP Corridor 1 bus facilities and infrastructure are shown in the following tables:

Table 8. Reliability test results of the questionnaire on the level of importance of bus stop services

Cronbach Alpha	Terms	Description
0,911	0,6	Reliable

Source: Analysis result, 2023

Table 9. Reliability test results of questionnaires on user satisfaction in bus stop services in Bogor City

Cronbach Alpha	Terms	Description
0,948	0,6	Reliable

Source: Analysis result, 2023

Table 10. Results of the reliability test of the questionnaire on the level of importance of city bus services

Cronbach Alpha	Ketentuan	Keterangan
0,948	0,6	Reliable

Source: Analysis result, 2023

Table 11. The results of the questionnaire reliability test on user satisfaction in the *BisKita* Trans Pakuan Corridor 1 service

Cronbach Alpha	Terms	Description
0,910	0,6	Reliable

Source: Analysis result, 2023

CONCLUSIONS

Based on the results of data analysis and processing that has been carried out, it can be concluded that the operational performance of the *Biskita* Trans Pakuan bus in Bogor City Corridor 1 route line Bubulak Bus Station - Cidangiang still does not meet the standards because the average load factor on weekdays on the return route is 66% (below the 70% standard) and the load factor on the departure and return routes on weekends is 50% and 49% (below the 70% standard), the average headway on weekends is 12.90 (standard 5-10 minutes) minutes which means it also does not meet

the standards. Based on the results of respondents regarding the level of importance and satisfaction with the services of BTP Corridor 1 facilities and infrastructure on the Bubulak Terminal - Cidangiang route, it was found that the respondents' responses to the performance of *BisKita* Trans Pakuan Corridor 1 facilities and infrastructure services, the majority stated that they were very dissatisfied with bus stop services in Bogor City, especially in the aspects of security and equality, while for bus services the majority stated that they were satisfied with the current existing conditions. Thus, it is necessary to make efforts to attract public interest in using BTP Corridor 1 bus services by improving the operational performance of bus services to meet standard values, conducting socialization, push and pull policies and so on. As well as the need to improve the performance of BTP Corridor 1 facilities and infrastructure services, especially for bus stop facilities in the aspects of security, safety, comfort, affordability, equality, and regularity by equipping bus stops with surveillance cameras, cleaning facilities, special facilities for disabilities, the elderly, pregnant women and children, increasing passenger waiting seats, and others.

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