



THE COMMUNITY SATISFACTION OF TRANSPORTATION FACILITY SERVICE: A CASE OF BENGKONG AREA, BATAM

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ARTICLE INFO	ABSTRACT
Published: December 21st, 2022 Keywords: Transportation user, Convenience, Road performance This work is licensed under CC BY-SA 4.0 	<i>Bengkong is a densely populated area where most choose private vehicles over public transportation. This analysis aims to see the interests and performance of transportation users on the Bengkong road. High road use can affect road performance and traffic management, significantly affecting driving Comfort. The physical condition of the road must also be considered so that road users can drive well on the road. The results show that roads in Bengkong need to improve road conditions and the availability of public transport as this can affect travel effectiveness. Data showed an average interest of 3.46 and an average performance of 3.36, and the gap that was obtained was 0.05. Safety while driving holds the highest gap value, with a value of 2.00. While parking lot condition holds the lowest value at -0.54. The data shows that road conditions and driving safety should be improved in this area. At the same time, parking availability and road performance have good results and must maintain their performance.</i>

INTRODUCTION

The development of transportation in the world in recent years has dramatically helped the performance process in human life (Van Mierlo, 2018). The majority of people do their daily activities involving transportation in it. The dense population in an area significantly affects the function and effects of transportation (Reed, 2019). The higher the need for human transportation, the more it must be balanced with traffic performance (Rinkevich, 2019). This traffic performance will accommodate the intensity of vehicles. If traffic performance cannot keep up with vehicle intensity, then traffic performance still needs to be improved for the safety of drivers and the surrounding environment (Akhtar & Moridpour, 2021).

In India, more than 9000 people are injured every week due to traffic accidents. This country has overtaken China, with the highest death rate due to accidents worldwide (Singh, 2017). We can see that the high traffic performance intensity significantly affects drivers' health and safety and the surrounding environment (Goel, Sharma, & Rathore, 2021). Indonesia has similarities in terms of population density, where Indonesia is ranked 4th after the United States. Likewise with transportation, in Indonesia, many people still prefer private transportation to public transportation, which can increase the intensity of traffic performance (Sulaiman, Sulaeman, Mustikasari, Nursyamsi, & Syakir, 2019).

The Community Satisfaction of Transportation Facility Service: A Case of Bengkong Area, Batam

In Indonesia, motorized vehicles are in great demand by users of private transportation modes. 149,707,895 motorcycles were recorded in Indonesia, which is very high compared to large countries such as China and India (Chen, Wang, & Huang, 2021). The density of private transportation significantly affects traffic performance. Congestion also affects health and the surrounding environment as a result of emissions generated by vehicles. Besides affecting the congested environment, it also reduces time efficiency and increases expenses due to wasted fuel (Fouladgar, Parchami, Elmasri, & Ghaderi, 2017).

Batam is one of the regencies of the Riu Islands Province, which has the nickname of the city of industry. How can local Indonesian and foreign companies be involved (Purba & Saputra, 2018). Therefore, many residents from the village plains come to the city of Batam to work. This affects traffic performance where the population in Batam is getting denser, and some companies do not provide special transportation for workers. For traffic performance. Batam is almost the same as the old market in the city of Bekasi, which tends to be high at 06.00 and 17.00 - 18.00 (Isradi, Nareswari, Rifai, & Prasetijo, 2021).

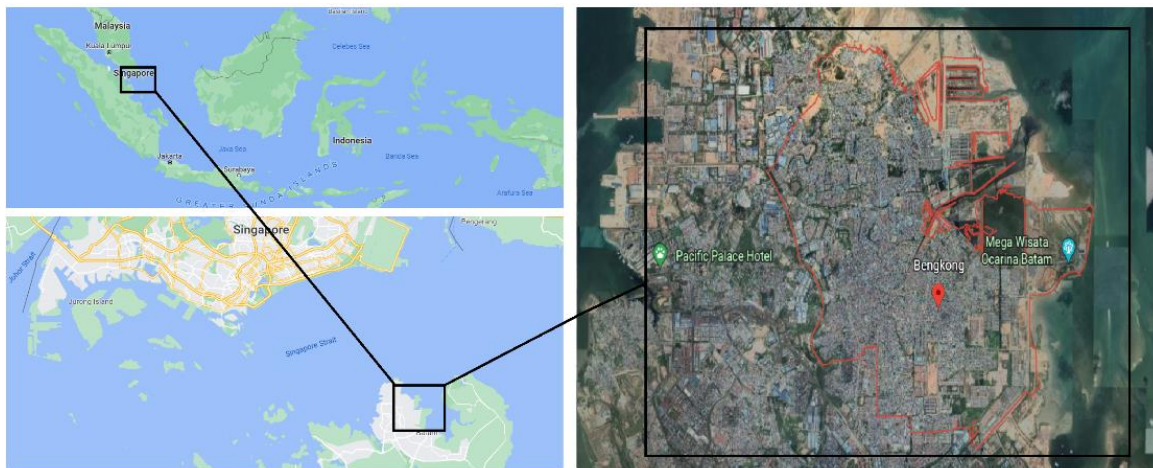


Figure 1. Bengkong Location

Bengkong District has an area of 14.00 km² with a dense population. Based on the Central Statistics Agency (BPS), the total population in Batam is 117,643 people with a population density of 8,403 km / soul². Therefore, an increase in high vehicle volume should be followed by an increase in road volume to improve traffic performance (Andika, Rifai, Isradi, & Prasetijo, 2022). Parking is also a problem in the Bengkong District. The use of road bodies as parking areas (on the street) hampers traffic performance. With a high population density and relatively narrow area, the Bengkong sub-district must have good traffic performance to avoid traffic accidents (NAINGGOLAN, 2018). Thus, this analysis aims to analyze the influence and impact of modes of transportation users, especially in the Bengkong sub-district, Batam City. By collecting data using a questionnaire and directly observing the field in the hope of helping traffic performance in Bengkong District.

LITERATURE REVIEW

Road Performance

Highways are public roads that are used for the benefit of residents, especially in transportation, be it with four wheels, two wheels, and even heavy equipment (Archer, 2020). Another thing that supports smooth road performance, in general, is the volume and type of vehicles being traversed (Macioszek & Kurek, 2021). So highways need to be able to serve traffic flow needs (Zhang, Liang, Yu, & Xie, 2017). Good road performance can improve the welfare of residents around the area (Ali, Haque, Zheng, Washington, & Yildirimoglu, 2019).

On the road, performance can use multiple parameters. For example, for intersections, delays or residual capacity can be used. If traffic accident data is available, then the data is used in system effectiveness in performance (Vyolita & Mahardi, 2020). Road performance problems generally occur on main roads, which are included in arterial roads.

Problems in road performance must continually be reviewed because they can damage the road itself and interfere with driver comfort (Kulkarni & Shinde, 2017). Therefore, it is better for vehicles that are allowed to pass on the highway to have certification according to standard provisions set by the government (Krisp & Keler, 2019). The road that is made must also be adequate according to the volume of vehicles in the area. Given road performance's importance, we must also pay attention to the surrounding environment because the environment can affect the smoothness and Comfort of driving.

In this journal, road performance is needed, given the importance of the stability of the traffic lanes that residents will pass. Furthermore, the volume of vehicles going through traffic lanes can increase due to the high population data. The high number of private vehicle owners also supports this. So the authorities need to pay attention to the condition of road performance.

Parking

Parking is a situation where the vehicle is stationary and not moving, which is temporary (Shoup, 2018). Therefore, vehicle users prefer parking areas that are close to their destination of vehicle users (Scheck, Pfeffer, & Schick, 2022). Parking facilities are divided into two, namely on-street parking and off-street parking. In Bengkong District, it tends to use off-street parking areas.

The need for on-street parking facilities is due to the narrowness of the Bengkong area. As a result of the high volume of private vehicles, the use of off-street parking has become uncontrollable, thus disturbing the Comfort of road users (Biswas, Chandra, & Ghosh, 2017). In addition, the parking area tends to adjust to the volume of the surrounding vehicles. This affects the surrounding area, which has a reasonably dense population with many private vehicle owners (Levin, Wong, Nault-Maurer, & Khani, 2020).

This needs to be considered considering the high population with private vehicles in Bengkong District. Parking areas can become a crisis and affect traffic performance due to vehicles parked on-street (Sabir & Anjum, 2017). Procurement of off-street parking facilities requires significant land costs and does not have great potential in Bengkong District. Using on-street

The Community Satisfaction of Transportation Facility Service: A Case of Bengkong Area, Batam

parking facilities involves a manageable cost and space, so this option helps the development of the District.

However, as time passed, on-street facilities were not accommodated, which became a bad thing for Bengkong District. The high traffic performance created several brief jams caused by on-street parking. In addition, the narrow traffic lane worsens the Comfort of driving while in Bengkong District. This can also increase the potential for traffic accidents if not appropriately accommodated.

Traffic Management

Smooth traffic must be supported by good traffic management. This can reduce the number of traffic accidents. Traffic can be interpreted as infrastructure media used by vehicle users to drive vehicles, people, and goods from one location to another. Traffic is one of the needs needed by humans because they have a habit of moving from one location to another for their daily needs (De Souza, et al., 2017).

Traffic Management is the main factor determining drivers' success in traffic. Traffic management aims to create order, improve safety, and expedite the traffic of vehicle users. The application of traffic management policies must also be considered according to road conditions.

Seeing the traffic conditions in the Bengkong District, vehicle users are often trapped in high traffic volumes, which cause traffic performance to be hampered or even stopped. An intersection with no red light is an example of a lack of traffic management. In addition, four-wheeled vehicles hamper traffic performance (Luan, Wang, De Schutter, Lodewijks, & Corman, 2018).

Traffic management is needed to save travel time and effectiveness on the way. Smooth traffic performance can be achieved with sound traffic management. The number of accidents will also decrease if traffic performance is smooth. Traffic performance will run smoothly if traffic drivers have good ethics and are innovative.

METHOD

Data is one of the main strengths in compiling research and scientific modeling (Rifai, Hadiwardoyo, Correia, Pereira, & Cortez, 2015). The writing method applied in this journal is a descriptive method with a qualitative and quantitative approach. This analysis will be carried out in Batam City, specifically in Bengkong District. Data from a questionnaire in November 2022 will support this analysis. The questionnaire will be filled into the people of Bengkong District with an age range of 18 years and over according to the terms and conditions for having a driver's license. Questionnaire data will be processed using the IPA method.

A systematic scientific research process must begin with identifying the right problem (Rifai, Hadiwardoyo, Correia, & Pereira, 2016). The process of selecting research indicators was determined through the results of literature related to journals related to indicators of transport service indicators, and then several indicators were selected to be considered as influences on the Comfort of users of modes of transportation. The indicators chosen in this study are road conditions

The Community Satisfaction of Transportation Facility Service: A Case of Bengkong Area, Batam

(Satrya, Isya, & Sugiarto, 2019), road sidewalk (Fadly, 2021), parking space availability (Ariani, Utomo, & Miladan, 2022), parking lot conditions (Meirisky, 2018), Road Performance (Awom, Amiruddin, & Purnomo, 2017), comfort while driving (DENI, 2019), safety while driving (Yohana, 2021), the effectiveness of travel and travel time (Sugasta, Widodo, & Mayuni, 2017), availability of public transportation. The following are the average and gap results of the questionnaires that were distributed.

RESULT AND DISCUSSION

In Indonesia, the Provisions for Own Roads have been regulated under the Law of the Republic of Indonesia Number 38 of 2004 concerning Roads which reads "that roads as one of the transportation infrastructures are an important element in the development of national and state life, in fostering the unity and integrity of the nation, the territory of the state, and community functions as well as in promoting public welfare as referred to in the Preamble to the 1945 Constitution of the Republic of Indonesia" and Government Regulation Number 34 of 2006 concerning Roads Which reads "Road management is an activity that includes regulation, guidance, construction and supervision of roads".

From taking data through questionnaires using google forms, the data above was obtained through a questionnaire filled with 140 respondents, of which 130 people had driven on Bengkong.

Table 1. Data on respondent's gender

Measure	Item	Frequency	Percentage (%)
Gender	Male	87	62.14
	Female	53	37.86
	Total	140	100.00

Based on the data taken, it can be concluded that most drivers in Bengkong are men, with a total of 62.14%, rather than women, by 37,86%, with a total of 140 responses.

Table 2. Data of respondent's age

Measure	Item	Frequency	Percentage (%)
Age	<17	2	1.43
	18–25	51	36.43
	26–30	21	15.00
	31–35	27	19.29
	36–40	14	10.00
	41-50	16	11.43
	>51	9	6.43
	Total	140	100.00

The Community Satisfaction of Transportation Facility Service: A Case of Bengkong Area, Batam

Based on data taken in the age group, it was concluded that the average driver in Bengkong was aged 18-25 years with a presentation of 36.42%, followed by ages 31-35 years with a presentation of 19.25%.

Table 3. Data of respondent's profession

Measure	Item	Frequency	Percentage (%)
Profession	Government employees	11	7.86
	Entrepreneur	25	17.86
	Unemployment	17	12.14
	House wife	9	6.43
	Private employees	29	20.71
	Student	49	35.00
	Total	140	100.00

This data shows that the majority of drivers on the Bengkong road are students, with a 35% presentation, followed by private employees, with a 20.71 % presentation.

Table 4. Data of respondent's Personal Vehicle

Measure	Item	Frequency	Percentage (%)
Vehicle	Car	28	13.53
	Motorcycle	150	72.46
	Bicycle	20	9.66
	None	9	4.35
	Total	207	100.00

It can be concluded that the number of 9 people not having private vehicles that the average private vehicle user is 93.57%. Not only that, but the data also shows the number 150 in the motorcycle section, which indicates that some people have 2-4 private vehicles. This dramatically affects road performance

Table 5. Average and gap of performance and importance

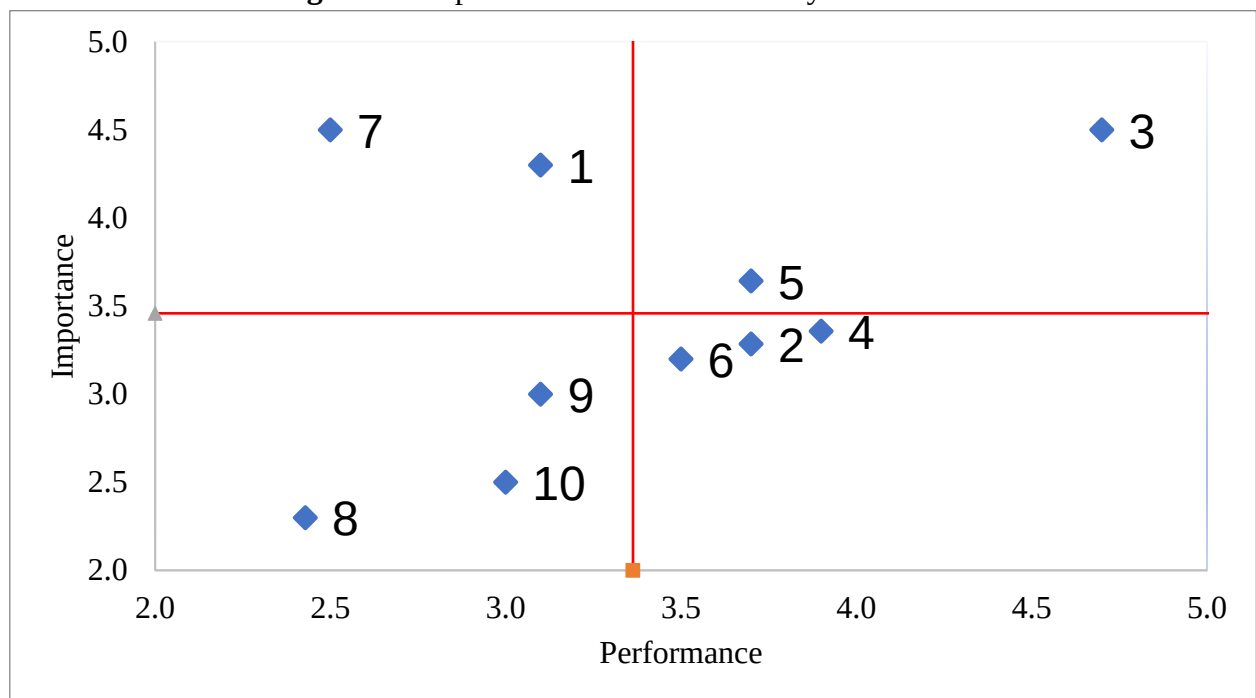
Variables	Performance	Importance	Gap
1. Road conditions	3.1	4.3	1.20
2. Road sidewalk	3.7	3.3	-0.41
3. Parking space availability	4.7	4.5	-0.20
4. Parking lot conditions	3.9	3.4	-0.54
5. Road Performance	3.7	3.6	-0.06
6. Comfort while driving	3.5	3.2	-0.30
7. Safety while driving	2.5	4.5	2.00

The Community Satisfaction of Transportation Facility Service: A Case of Bengkong Area, Batam

8. Effectiveness of travel	2.4	2.3	-0.13
9. Travel Time	3.1	3.0	-0.10
10. Availability of public transportation	3.0	2.5	-0.50
Average	3.36	3.46	-0.05

According to the acquired data, the average value of performance is 3.42. In the meantime, the mean value of significance is 3.48. Based on the calculations above, we can see that variable 7 holds the highest gap value, which is 2.00. While point number 4 holds the lowest value at -0.54. The total average for the gap result is -0,05. Variable 7 has a high value on a gap, which means that this variable has a level of importance that a performance must accompany. Meantime, variable 4 has a low value on a gap, which means that this variable has a high level of performance, but low importance makes this variable. e likely to overkill.

Diagram 1. Importance Performance Analysis Matrix



Quadrant A (Concentrate Here) is an area that needs to be improved because road users feel it is not optimal and needs to be upgraded so that it can help road users. Variables 1 and 2 need to be improved. Quadrant B (Keep up the Good Work) is an area where road users are satisfied with the performance provided. Variables 3 and 5 are suitable and need to be maintained. Quadrant C (Low Priority) is an area that is not too important for road users and will only be valid if it is upgraded. Quadrant D (Possible Overkill) is an area that is not important for road users; if it is raised, it can cause problems.

The Community Satisfaction of Transportation Facility Service: A Case of Bengkong Area, Batam

CONCLUSION

The purpose of this analysis is to be able to determine the population's response to roads and transportation users in Bengkong. Transport users must accompany the large number of residents in Bengkong is greatly assisted by the excellent road conditions and good performance provided. Based on the data taken, it can be seen that the average performance has 3.36 and the average interest has 3.46, and the gap that is obtained is -0.05. Safety while driving has a high value on a gap of 2.00, indicating this variable has the potential to be increased for the benefit of drivers in Bengkong. Meantime Parking lot condition has a low gap of -0.54, indicating that this variable does not have the potential to affect the interests of drivers in Bengkong. Road sidewalks, Parking lot conditions, and Comfort while driving in the possible overkill area indicate that this variable has little interest from beveled drivers, which makes this variable unimportant, but the authorities provide high performance. This has a negative impact on the view of the rider. Traffic jams should not be a big problem for road users because good road conditions support them. It is better to avoid developments that are not so important for road users. Safety in driving needs to be considered to reduce the accident rate in this area. Road users should also maintain the facilities that have been provided to help improve the quality of driving

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