Analysis of The Performance of Three Main Roads in Cilegon When Controlling The Transportation During The Covid-19 Pandemic for The Prohibition of Homecoming for Eid Al-Fitr 2021

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Article Info

ABSTRACT

The Covid-19 Handling Task Force, along with government officials, has announced the release of the Circular Letter of the Chief of the Covid-19 Handling Task Force No. 13 of 2021 regarding the Elimination of Homecoming for Eid Al-Fitr in 1442 H during 6 - 17 May 2021. This policy aims to anticipate a surge in the flow of domestic tourists which can protect the public from the transmission of the covid-19 virus. This research was conducted to determine traffic performance on the three main roads of Cilegon City during the homecoming control period. Based on survey data conducted for three days, an analysis of the traffic movements that occurred and the level of road service was carried out by calculating the degree of saturation (DJ) and free flow speed. The results showed that the highest movement occurred on weekdays with the highest vehicle volume of 4429 vehicles, with the highest destination occurring in the direction of the city of Serang and the highest type of vehicle being a motorcycle, then for the average Degree of Saturation of the three main roads of Cilegon City by 0,46 and an average free flow speed of 50.75 km/hour, it can be concluded that the level of service for the three main roads of the city of Cilegon is in category A, namely good service conditions where vehicles can run smoothly even though they are sometimes hampered by low traffic volume and density. Because there are roadblocks that limit people's movements and reduce the volume of vehicles.

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1. INTRODUCTION

Homecoming is a tradition of Muslims in Indonesia on religious holidays, especially Eid al-Fitr. Mudik can be interpreted as "going home" even though it comes from the word "udik = village", so the meaning of Mudik can be translated as "going home," which is always done by Indonesian people before the Eid al-Fitr celebration happens[1]. However, at this time there was a Covid-19 virus

pandemic which resulted in the imposition of restrictions on community activities, which abolished going home and implemented a homecoming control policy. A pandemic in Indonesia has resulted in significant changes in human life. All sectors without exception, were affected by the economy, business, transportation, and many others. The impact of Covid-19 has reduced people's activities outside the home because they are afraid of being exposed to this virus. Most community activities are carried out at home, such as employees doing work from home, school children studying at home, or with an online system[2].

Based on the experience of long holidays in 2020, there is a trend of increasing new cases after long holidays, whose numbers vary from 37 percent to 119 percent. Each spike in cases is also followed by an increase in the death rate. Older people are more at risk of being exposed to Covid-19 and have many times the risk of death than younger people. In addition, people with comorbidities (high risk) also have a greater risk of death. There is a significant increase in cases, and the potential for new Corona virus variants to emerge in other countries such as India, Argentina, Turkey, and several European countries is also very worrying. Increasing population mobility, especially on a large scale such as the current Eid homecoming, has the potential to increase the transmission of Covid-19. Moreover, Eid homecoming is accompanied by the habit of the community letting go of longing to meet the family. However, during the current pandemic, the risk of transmission of Covid-19 is high. [3]

The Covid-19 Handling Task Force, together with related government officials including the Ministry of Transportation and the National Police, have announced the release of the Circular of the Head of the Covid-19 Handling Task Force No. 13 of 2021 concerning the elimination of going home during the month of Ramadan and Eid al-Fitr 1442 Hijri during 6 - 17 May 2021 [4]. This policy aims to anticipate a surge in the flow of domestic tourists who can protect the public from the transmission of the Covid-19 virus. Then one of the reasons behind the existence of a circular letter prohibiting going home in 2021 is point 1 according to the results of a survey conducted by the post-stipulation of the elimination of going home that there will be people who will go home in 2021 before Eid al-Fitr 2021 at the H- 7 and H + 7 the implementation of the elimination of going home. As well as in point 3 of the prohibition letter number 13 of 2021 that the Eid al-Fitr holiday will potentially increase the risk of the transmission rate of Covid-19 in religious and family activities, this regulation is made [5].

Homecoming restrictions were also enforced in the city of Cilegon. Cilegon City is one of the cities in Banten province which is located on the western tip of Java Island. The city of Cilegon is included in the National Road Route 3 which is a network of national roads located on the islands of Java, Sumatra, Bali, Kalimantan, and Sulawesi. This road connects Cilegon City in the north with Panimbang and Pandeglang Regency in the south[6]. This route is part of the Pansela Route (South Coast of Java), which is the homecoming route to the south of Java Island.

Even though there have been regulations prohibiting homecoming activities, in reality, there are people who do not understand the rules of prohibiting going home. Another problem was the people who had already gone home before the regulations were passed and the people who were desperate to break through the blocking points in several areas [7]. This can happen because the policies issued by the Government regarding homecoming also confuse the community and are very dynamic. However, since the beginning of the COVID-19 pandemic, the Government of Indonesia has continued to encourage the public not to go homecoming in order to break the chain of transmission of COVID-19 [8].

With the homecoming control policy, the authors are interested in conducting research that aims to find out whether the performance of Cilegon City roads has a good level of service during the homecoming period with the homecoming control policy. This research is supported by previous research, namely the performance of roads in the city of Cilegon on weekdays, namely the research

title analysis of the performance of the three main roads of the City of Cilegon by Tito Eki Permana in 2015 [9] The similarities between this research and the research that will be carried out are the research locations in the same city and the methods used to analyze the performance of the roads. And the difference lies in the conditions for collecting research data, and the results of this study do not compare with the transportation policies that will be used in this study and research on road performance during a pandemic with the research title The Effect of the Covid-19 Pandemic on Road Performance and Vehicle Speeds on Roads in Cities Surabaya by Hera Widyastuti and Wahyu Satyaning Budhi 2021 [10] The similarity of this research with the research that will be conducted is at the time of the research implementation, which was carried out during the Covid-19 pandemic and the methods used to analyze the performance of the roads. And the difference lies in the research locations being tested. The research location took place on three main roads in Cilegon City, there are Sudirman street, Ahmad Yani street, and Cilegon Raya street.

2. METHODS

2.1 Movement Characteristics
Movement Characteristics with a comparison of the Q value on each segment is carried out to determine the decrease or increase in the number of vehicles on each segment, because each segment is directly connected without any signal lights or segment separators, this comparison will produce actual data on differences in the number of vehicle volumes on each segment and the factors that influence the difference in the number of vehicle volumes on each segment.

2.2 Road Performance
Road performance is the ability of a road segment to serve the needs of traffic flow according to its function which can be measured and compared with road level of service standards. Road performance is determined by capacity, degree of saturation, average speed and travel time[11].

2.2.1 Side Barriers
Side barriers are activities beside road segments that affect traffic performance, such as pedestrians (weight=0.5), public vehicles/other vehicles stopping (weight=1.0), vehicles entering/exiting the side of the road (weight=0 .7) and slow vehicles (weight = 0.4). Side friction was grouped into five classes as a function of the frequency of occurrence of side friction used in the analysis.

2.2.2 Capacity
Capacity is defined as the maximum traffic flow in units of cur/hour that can be maintained along a certain road segment under certain conditions, namely those covering geometric, environmental and traffic.
$$C = C_0 \text{ x } FC_{LJ} \text{ x } FC_{PA} \text{ x } FC_{HS} \text{ x } FC_{UK} \tag{1}$$

2.2.3 Degree of Saturation
The degree of saturation (DJ) is defined as the ratio between traffic flow to capacity and the main measure used to determine the performance level of a road segment.
$$D_J = Q/C \tag{2}$$

2.2.4 Free Flow Speed
Free flow speed (VB) is defined as a vehicle that is not affected by the presence of other vehicles, namely the speed at which the driver feels comfortable moving in geometric, environmental and traffic control conditions that exist on a road segment without other traffic (km/h).
$$V_B = (V_{BD} + V_{BL}) \text{ x } FV_{BHS} \text{ x } FV_{BUK} \tag{3}$$

2.2.5 Level of Service
Minister of Transportation Regulation Number 96 of 2015 concerning traffic management and engineering, explains that the level of service is a quantitative and qualitative measure that describes traffic operational conditions.[12]

2.3 Research methodology

The research location is on 3 arterial roads in Cilegon City, there are Sudirman street, Ahmad Yani street and Cilegon Raya street. At the time of data collection, it can be obtained for 3 days, namely on 8, 11, 15 May 2021 to be taken at 07.00 WIB - 09.00 WIB, 11.00 – 13.00 WIB, and 16.00 – 18.00 WIB.

Figure 1. Research Location Map
Source: Badan Pusat Statistik Kota Cilegon, 2021

The data used in this study are primary and secondary data. The data include traffic survey results, population numbers, and location maps. Traffic analysis was carried out using the Pedoman Kapasitas Jalan Indonesia (PKJI).

In the analysis stage, the processing and analysis of the primary data that has been obtained are carried out in this study, namely the analysis of the characteristics of the flow movement and the performance of the road sections and then compared with the influence of the homecoming control policy.

3. RESULTS AND DISCUSSION

This comparison was made to see the characteristics of vehicle movements that occur on the main sections in Cilegon City in accordance with the direction of movement of existing vehicles, because each of the sections studied is one unit or connected to each other without any separators.

3.1 Characteristics of Holiday and Work Movement

3.1.1 Comparison of holiday vehicle volumes
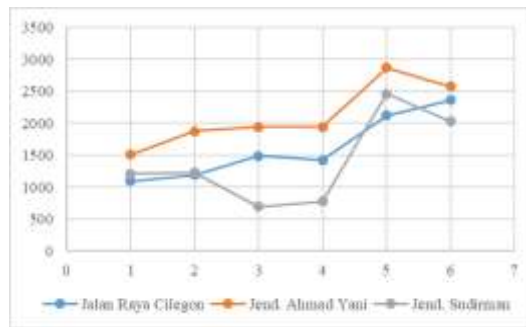
Figure 2. Traffic volume/flow data for the direction of Merak – Serang 15 May 2021
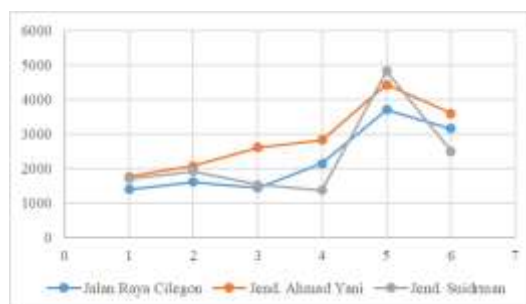
The results obtained where the high average movement occurred at 16.00 WIB or at 4 in the afternoon were 2484.7 vehicles, while the highest activity was on Ahmad Yani street and the lowest was on Sudirman street, in the data above there are also differences in the characteristics of the movement found at 11.00 to 13.00 WIB, where there are differences in the total number of vehicles that are different compared to other times.
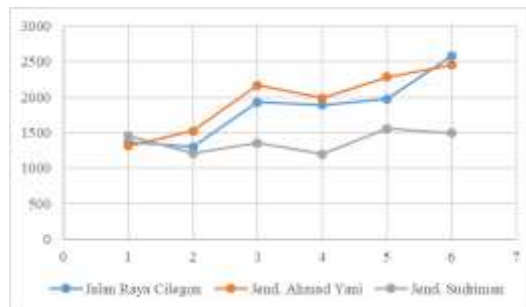
Figure 3. Traffic volume/flow data for the direction of Serang – Merak 15 May 2021

The results obtained where the high average movement occurred at 17.00 WIB or at 5 in the afternoon as many as 2176 vehicles, while the highest activity was on Ahmad Yani street and the lowest was on Sudirman street, in the data above there is there are also differences in movement characteristics at 12.00 and 16.00 WIB, where there are differences in total vehicles that are different compared to other times and for Sudirman street starting at 11.00 WIB the volume of vehicles is far compared to the other two roads.

3.1.2 Comparison of the volume of vehicles on weekdays

Figure 4. Traffic volume/flow data for the direction of Merak – Serang 11 May 2021

The results obtained where the high average movement occurred at 16.00 WIB or at 4 in the afternoon were 4315.7 vehicles, while the highest activity was on Ahmad Yani street and the lowest was on Cilegon Raya street, in the data above there are also differences in the characteristics of the

movement found at 11.00 to 13.00 WIB, where there are differences in the total number of vehicles that are different compared to other times.
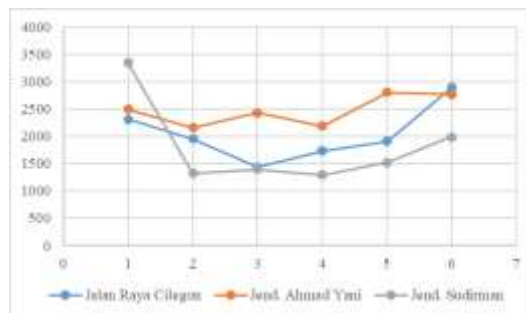

Figure 5. Traffic volume/flow data for the direction of Serang – Merak 11 May 2021

The results obtained where the high average movement occurred at 07.00 WIB or at 7 in the morning as many as 2721 vehicles, while the highest activity was on Ahmad Yani street and the lowest was on Sudirman street, in the data above there is there are also differences in movement characteristics at 11.00 WIB and 16.00 WIB, where there are differences in the total number of vehicles that are different compared to other times.

3.2 Comparison of total vehicle types at each segment point

Table 1. Total unit of the vehicle per class 15 May 2021 direction Serang

Class	Vehicle volume in the direction of Serang		
	Jend. Sudirman	Jend. Ahmad Yani	Jalan raya Cilegon
1	3142	7302	5138
2	3351	4603	3931
3	324	604	315
4	136	147	187
5a	26	37	51
5b	9	13	7
6a	10	0	27
6b	19	3	20
7a	0	0	1
7b	0	0	0
7c	6	0	0
Total	7023	12709	9677

Table 2. Total unit of the vehicle per class May 15 2021 direction Merak

Class	Vehicle volume in the direction of Merak		
	Jend. Sudirman	Jend. Ahmad Yani	Jalan raya Cilegon
1	5407	6770	6055
2	2365	3978	4379
3	336	855	365
4	96	87	156
5a	14	8	29
5b	2	15	4
6a	18	13	32
6b	17	6	13
7a	1	0	2
7b	0	0	0
7c	19	1	0
Total	8275	11733	11035

From the results of the data obtained, the types of vehicles used on the main road in the city of Cilegon on May 15 2021 were dominated by class. 1 (motorcycles) is due to safety factors that allow users to keep their distance from other people to reduce the risk of contracting the Covid-19 virus. But it's different for Jend. Sudirman in the direction of the city of Serang, this road is dominated by class. 2 (cars) due to the closure of the East Cilegon Toll Road[13], causing people to switch to Cilegon City via the West Cilegon Toll Road.

Table 3. Total unit of the vehicle per class 11 May 2021 direction Serang

Class	Vehicle volume in the direction of Serang		
	Jend. Sudirman	Jend. Ahmad Yani	Jalan raya Cilegon
1	7903	10768	8122
2	3566	5112	4539
3	259	1117	445
4	205	164	166
5a	66	77	49
5b	18	19	28
6a	27	26	86
6b	22	9	16
7a	9	0	0
7b	1	0	0
7c	4	0	0
Total	12080	17292	13451

Table 4. Total unit of the vehicle per class May 11 2021 direction Merak

Class	Vehicle volume in the direction of Merak		
	Jend. Sudirman	Jend. Ahmad Yani	Jalan raya Cilegon
1	4551	9576	7403
2	2823	3921	4673
3	369	1087	513
4	224	198	216
5a	22	10	22
5b	5	8	14
6a	15	45	110
6b	21	11	16
7a	64	4	0
7b	1	0	0
7c	56	0	1
Total	8151	14860	12968

The results of the data obtained show that the types of vehicles used on the main roads in the city of Cilegon on May 11 2021 are dominated by Class. 1 (motorcycle)This is due to safety factors that allow users to keep their distance from other people to reduce the risk of contracting the Covid-19 virus and there is a social distancing policy.

3.3 Road Performance
Road performance is the ability of a road segment to serve the needs of traffic flow according to its function which can be measured and compared with road level of service standards. Road performance can be determined by capacity, degree of saturation, and average speed.

3.3.1 Sudirman street

i. Capacity
Sudirman street is a road section that has 2 lanes per direction, consisting of two directions and separated by a median. Sudirman street has a road width of 3.25 meters per lane with very low average side barriers. The population of Cilegon City is 434,896 people. The capacities of Sudirman street are as follows:

- Basic Capacity (C_o)   = 2 x 1650 skr/hour = 3300 skr/hour
- Path Effective Width Factor (FC_{LJ})   = 0.96
- Directional Separating Factor (FC_{PA}) = 1
- Side Barrier Factor (FC_{HS})   = 1.03
- City Size Factor (FC_{UK})   = 0.90
- Capacity (C) = C_0 x FC_{LJ} x FC_{PA} x FC_{HS} x FC_{UK}
  = 3300 x 0.96 x 1 x 1.03 x 0.90 = 2936.8 skr/hour for 1 direction

ii. Degree of Saturation
The capacity of Sudirman street was found to be 2936.8 skr/hour. The peak hour volume on Sudirman street section is obtained from the product of the number of vehicles at peak hours with the vehicle equivalent value. Thus, the value of the Degree of Saturation (D_J) on Sudirman street is as follows:

- D_J May 8th   = 806.575/2936.8 = 0.27
- D_J May 11th   = 1013.604/2936.8 = 0.34
- D_J May 15th   = 771.621/2936.8 = 0.26

iii. Free Flow Speed
The speed of Sudirman street is as follows:
- Basic Free Flow Speed (Vo)   = 55 km/hour

- Path Effective Width Factor (VBL)   = -2 km/hour
- Side Barrier Factor (FVBHS)   = 1.04
- City Size Factor (FVUK)   = 0.93
- $V_B = (V_{B0} + V_{BL})$ x FV_{BHS} x FV_{UK} = (55+(-2)) x 1.04 x 0.93 = 51.26 km/hour

iv. Level of Service
One of the road performance factors is the degree of saturation, the degree of saturation can see whether the level of road service is good or not.
- D_J May 8th   = 0.27 = A
- D_J May 11th   = 0.34 = A
- D_J May 15th   = 0.26 = A

3.3.2 Jalan Jenderal Ahmad Yani

i. Capacity
Ahmad Yani street is a road segment that has 2 lanes per direction, consisting of two directions and separated by a median. Sudirman street has a road width of 3.25 meters per lane with low average side barriers. The population of Cilegon City is 434,896 people. The capacity of Ahmad Yani street is as follows:
- Basic Capacity (C_o)   = 2 x 1650 skr/hour = 3300 skr/hour
- Path Effective Width Factor (FC_{LJ})   = 0.96
- Directional Separating Factor (FC_{PA})   = 1
- Side Barrier Factor (FC_{HS})   = 1.02
- City Size Factor (FC_{UK})   = 0.90
- Capacity (C) = C_0 x FC_{LJ} x FC_{PA} x FC_{HS} x FC_{UK}
  = 3300 x 0.96 x 1 x 1.02 x 0.90 = 2908.224 skr/hour for 1 way

ii. Degree of Saturation
The capacity of the Ahmad Yani street section was found to be 2908,224 skr/hour. The peak hour volume on Sudirman street section is obtained from the product of the number of vehicles at peak hours with the vehicle equivalent value. So, the value of the Degree of Saturation (D_J) on the Ahmad Yani street section is as follows:
- D_J May 8th   = 1278.85/2908.224   = 0.44
- D_J May 11th   = 1411.317/2908.224   = 0.48
- D_J May 15th   = 1237.833/2908.224   = 0.42

iii. Free Flow Speed
The speed of Ahmad Yani street is as follows:
- Basic Free Flow Speed (V_o)   = 55 km/hour
- Path Effective Width Factor (V_{BL})   = -2 km/hour
- Side Barrier Factor (FV_{BHS})   = 1.03
- City Size Factor (FV_{UK})   = 0.93
- $V_B = (V_{BD} + V_{BL})$ x FV_{BHS} x FV_{BUK} = (55+(-2)) x 1.03 x 0.93 = 50.77 km/hour

iv. Level of Service
One of the road performance factors is the degree of saturation, the degree of saturation can see whether the level of road service is good or not.
- D_J May 8th   = 0.44 = A
- D_J May 11th   = 0.48 = A
- D_J May 15th   = 0.42 = A

3.3.3 Jalan Raya Cilegon

i. Capacity

Cilegon Raya street is a road section that has as many as 2 lanes per direction, consisting of two directions and separated by a median. Cilegon Raya street has a road width of 3.25 meters per lane with moderate average side barriers. The population of Cilegon City is 434,896 people. The capacity of Cilegon Raya street is as follows:

- Basic Capacity (C_o) = 2 x 1650 skr/hour = 3300 skr/hour
- Path Effective Width Factor (FC_{LJ}) = 0.96
- Directional Separating Factor (FC_{PA}) = 1
- Side Barrier Factor (FC_{HS}) = 1.00
- City Size Factor (FC_{UK}) = 0.90
- Capacity (C) = C_0 x FC_{LJ} x FC_{PA} x FC_{HS} x FC_{UK}
  = 3300 x 0.96 x 1 x 1 x 0.90 = 2851.2 skr/hour for 1 direction

ii. Degree of Saturation

The capacity of Cilegon Raya street was found to be 2851.2 skr/hour. The peak hour volume on Cilegon Raya street is obtained from the product of the number of vehicles at peak hours with the vehicle equivalent value. Thus, the value of the Degree of Saturation (D_J) on Cilegon Raya street is as follows:

- D_J May 8th =1498.221/2581.2 = 0.58
- D_J May 11th = 1221.158/2581.2 = 0.47
- D_J May 15th = 1029.437/2581.2 = 0.40

iii. Free Flow Speed

The speed of Sudirman street is as follows:

- Basic Free Flow Speed (V_o) = 55 km/hour
- Path Effective Width Factor (V_{BL}) = -2 km/hour
- Side Barrier Factor (FV_{BHS}) = 1.02
- City Size Factor (FV_{UK}) = 0.93
- $V_B = (V_{BD} + V_{BL})$ x FV_{BHS} x $FV_{BUK} = (55+(-2))$ x 1.02 x 0.93 = 50.28 km/hour

iv. Level of Service

One of the road performance factors is the degree of saturation, the degree of saturation can see whether the level of road service is good or not.

- D_J May 08th = 0.58 = A
- D_J May 11th = 0.47 = A
- D_J May 15th = 0.40 = A

3.4 Recommendation

Seen from the results of research conducted, the average level of service on the three main roads of the city of Cilegon is known to be A, this is because the Government has imposed road restrictions by setting up blocking posts. Based on a source statement from Deputy Governor of Banten Andika Hazrumy, the Provincial Government of Banten itself together with the Banten Regional Police, Polda Metro Jaya 4 Korem 064/ Maulana Yusuf and Korem 052 Wijayakrama are blocking the ban on going home in 2021 which includes 19 locations in Banten province including at the Cikupa Toll Gate and Merak Toll Gate. Blocking was also carried out on arterial roads, including Citra Raya Gate, Pasar Kemis, Kronjo, Tigaraksa, Jayanti, Solear (Tangerang Regency), Simpang Asem (Cikande), and at Simpang Pusri (Serang City). The blocking on the next arterial road was carried out in Gayam (Pandeglang Regency), [14] so that it is increasingly difficult for people to travel between cities, intercity transportation services have also been temporarily suspended such as the Merak - Lampung crossing and buses such as AKAP buses and AKDP buses, then for the homecoming control policy the police suggest companies not to give Eid holidays to their employees

[15] so that they cannot go home and enforce the open and close system at the toll gate. This is what makes the homecoming restriction policy work well.

However, if what happens is the level of service is low or bad, then the traffic flow conditions are unstable. The density is high because there are still many people who violate it by recklessly going home and people who are still carrying out activities outside their homes, so what must be done is more road blocking. Inspections at every route in and out of the city of Cilegon were even more stringent.

4. CONCLUSION

Based on the research that has been carried out by the authors, this study can draw the following conclusions:

1. The movement characteristics obtained show that the characteristics of vehicle movements that occur on the three roads under review are that the highest movement occurred on the working day of May 11, 2021 due to the policy of controlling homecoming, the police suggest that companies not give Eid leave to their employees so that some people still work obtained an average total vehicle volume of 3531 vehicles at the highest peak hours at 16.00 - 17.00 with the highest destination is the direction of Serang City. For weekdays with the highest level of movement, this occurs because on the May 15 2021 holiday, the Government is tightening policies so that there are many blockages that limit people's movement which causes a reduction in vehicle volume.

2. Analysis of the performance of the sections on each section studied has a level of service that is in category A with an average degree of saturation of 0.39, namely good service conditions where vehicles can run smoothly even though they are sometimes hampered, low traffic volume and density with an average side resistance of 195.5 event/hour/200m and an average free flow speed of 50.15 km/hour.

3. The level of service of roads in the city of Cilegon during the homecoming control period was carried out at the level of service in category A, this concluded that the homecoming control policy was successful in the city of Cilegon. The policy was successful because the Government had made every effort to ensure that the homecoming control policy went well in ways such as road blocking. However, if the level of service is low or bad, then the traffic flow conditions are unstable, and the density is high, so what needs to be done is more roadblocks and more stringent checks on every route in and out of the city of Cilegon.

REFERENCES

[1]   B. B. Soebyakto, "Mudik Lebaran (Studi kualitatif)," *J. Ekon. Pembang.*, pp. 61–67, 2011, [Online]. Available: https://ejournal.unsri.ac.id/index.php/jep/article/view/5001/2724.

[2]   S. Katjo, M. Harum, and R. Magfirah, "Analisis Kinerja Jalan Arteri Ruas Jalan Jendral Sudirman Di Era Covid 19 Di Kota Majene," vol. 3, no. 2, pp. 2–3, 2021, [Online]. Available: https://ojs.unsulbar.ac.id/index.php/bjce/article/view/1167.

[3]   Departemen Kementrian Perhubungan, "Pengendalian Moda Transportasi saat Larangan Mudik Lebaran," *Kementrian Perhubungan*, 2021. https://portal.dephub.go.id/post/read/pengendalian-moda-transportasi-saat-larangan-mudik-lebaran (accessed Feb. 16, 2023).

[4]   Badan Nasional Penanggulangan Bencana, *Addendum SE Satgas Nomor 13 tahun 2021 tentang Peniadaan Midik Hari Raya Idulfitri Tahun 1442 Hijriah dan Upaya Pengendalian Penyebaran COVID-19 Selama Bulan Suci Ramadhan 1442 Hijriah*. 2021, pp. 1–5.

[5]   F. Walyudin, "Strategi Komunikasi Polresta Bogor Kota Terhadap Larangan Mudik Idul Fitri 2021 dalam Upaya Pengendalian Covid-19," *Komunikologi J. Pengemb. Ilmu Komun. dan Sos.*, vol. 5, no. 2, p. 138, 2021, doi: 10.30829/komunikologi.v5i2.9971.

[6] Departemen Perhubungan Direktorat Jenderal Perhubungan Darat, *Peraturan Direktur Jenderal Perhubungan Darat Nomor: Sk.930/Aj.401/Drjd/2007 Tentang Penetapan Nomor Rute Jalan Nasional Di Pulau Jawa Direktur*, no. 8. 2005.

[7] M. Idris, "Masih Banyak yang Gagal Paham Larangan Mudik Pemerintah," *kompas.com*, 2020. https://money.kompas.com/read/2020/05/07/170809226/masih-banyak-yang-gagal-paham-larangan-mudik-pemerintah?page=all.

[8] Putri, M. A., Atmaja, R. M. S., Febrianti, A. N., Alan, M., Dwiputri, C., & Triandini, K. E., "Pengaruh Pandemi Covid-19 Terhadap Tradisi Mudik Masyarakat Indonesia," *J. Dev. Soc. Chang.*, vol. 4, no. 1, pp. 18–32, 2021.

[9] M. F. Pradana and R. T. Bethary, "Analisis Kinerja Tiga Ruas Jalan Utama Kota Cilegon," *Fondasi J. Tek. Sipil*, vol. 5, no. 1, pp. 46–56, 2016, doi: 10.36055/jft.v5i1.1246.

[10] H. Widyastuti and W. S. Budhi, "Pengaruh Pandemi Covid-19 Terhadap Kinerja Jalan Dan Kecepatan Kendaraan Pada Ruas Jalan Di Kota Surabaya," *J. Apl. Tek. Sipil*, vol. 19, no. 2, pp. 99–106, 2021.

[11] Departemen Kementrian Pekerjaan Umum, "Pedoman Kapasitas Jalan Indonesia," *Kementrian Pekerj. Umum*, pp. 1–63, 2014.

[12] Departemen Kementrian Perhubungan, *Peraturan Menteri Perhubungan Republik Indonesia No PM 96 Tahun 2015 Tentang Pedoman Pelaksanaan Kegiatan Manajemen dan Rekayasa Lalu Lintas*. Jakarta: Menteri Perhubungan, 2015, p. 45.

[13] M. Iqbal, "Polisi Tutup 2 Gerbang Tol di Cilegon Cegah Wisatawan ke Anyer," *detik.com*, 2021. https://news.detik.com/berita/d-5570822/polisi-tutup-2-gerbang-tol-di-cilegon-cegah-wisatawan-ke-anyer (accessed Jun. 15, 2022).

[14] Dewa, "Wagub Andika Lapor ke Pusat, Banten Laksanakan Penyekatan Mudik dan Perpanjang Lagi PPKM Mikro," *Bantenraya.com*, 2021. https://www.bantenraya.com/pemprov-banten/pr-1271102868/wagub-andika-lapor-ke-pusat-banten-laksanakan-penyekatan-mudik-dan-perpanjang-lagi-ppkm-mikro (accessed Jun. 18, 2022).

[15] Y. Deslatama, "Tak Ingin Jebol seperti di Karawang, Polisi Cilegon Perketat Penjagaan Pos Penyekatan," *liputan6.com*, 2021. https://www.liputan6.com/regional/read/4555415/tak-ingin-jebol-seperti-di-karawang-polisi-cilegon-perketat-penjagaan-pos-penyekatan (accessed Jun. 15, 2022).