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THREE ARM UNSIGNALIZED INTERSECTION ON JALAN PERJUANGAN – JALAN KALIABANG BABELAN, NORTH BEKASI

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ABSTRACT

The intersection of Jalan Perjuangan - Jalan Kaliabang Babelan, North Bekasi is experiencing high traffic flow. It is because the intersection area is a shopping area and a residential area so that traffic jams often occur during busy traffic jams. This research aims to see the degree of saturation and delay at the research location. This research was conducted using a method based on MKJI 1997. The results of the analysis in the morning, the maximum flow that occurs on weekdays is 5533.7 pcu / hour, the minimum flow on holidays is 3982.2 pcu / hour with the degree of saturation on working day in the morning is equal to 1.18, and the degree of saturation in morning on holidays is 1.30 with a delay in morning in holidays is 36.1 sec / pcu, the delay in morning on working day is 5.7 sec / pcu. The results of the analysis during the day that the maximum flow occurs on holidays is 3905.6 pcu / hour, the minimum flow on working day is 3551.9 pcu / hour with the degree of saturation on holiday is 1.11, the degree of saturation on weekdays in the afternoon is 0.83 with a delay on holiday is 26.97 sec / pcu, a delay on working day is 13.48 sec / pcu. The results of the analysis in the afternoon the maximum flow occurs on weekdays of 6304.8 pcu / hour, the minimum flow on holidays is 5869.1 pcu / hour with the degree of saturation on working day is 1.84, the degree of saturation on holidays is 1.55 with a delay on working day is 0.74 sec / pcu, and delay on holidays is 1.08 sec / pcu

Keywords: *T-intersection, road capacity, degree of saturation*

1. PRELIMINARY

The development of transportation in the city of Bekasi has an impact on increasing the flow of people, goods, and services. It also demands an increase in transportation facilities and infrastructure in the city of

Bekasi. The increase in the number of vehicles that is not matched by the development of infrastructure will lead to conflicts on roads, especially at intersections or roundabouts. Now days, on the road to downtown Bekasi at busy hours there is often a traffic rush that influence the road performance.

Bekasi is part of the Jabodetabek Metropolitan Area, with a population of Bekasi in 2020 of 3,083,644 people (Central Statistics Agency Report 2020).

The intersection is a critical area on a road, which is a point of conflict and place of congestion due to the meeting of two or more segments.

The T-intersection of Jl. Perjuangan – Jl. Kaliabang Babelan, Bekasi Utara is the meeting point of the road segments among Jl. Perjuangan / Musholla Nurul 2 lines from the North, Jl. Kaliabang / Kenzi Motor 2 lines from the East to the West, Jl. Lingkar Utara / Bintang Sport Center 2 lines from the East to the West. Its parts of Bekasi regency that connect to the city centre. At the peak hours often occurs delays and vehicle queue because there is no sidewalk for pedestrian and people use driving to do the commuting activities.

Based on the situation, T-intersection at Jl. Perjuangan – Jl. Kaliabang needs attention by providing road infrastructure that help to solve traffic problems with the degree of saturation >0,85 (saturated) to avoid conflicts and reduce the number of accidents that occur at the intersection. One of the efforts is to reduce the width of the shoulder of the road, to widen the road segment. The other's alternative is using the traffic signal on the T-intersection at Jalan Perjuangan – Jalan Kaliabang Babelan, North Bekasi.

Therefore, it is necessary to conduct the research that specifically discuss about the unsignalized T-intersection of Jalan Perjuangan - Jalan Kaliabang to determine the performance of the intersection. So, it is expected that the T-intersection can serve traffic flow optimally and the road users who pass at the intersection will feel safe.

2. THEORETICAL BASIS

Intersection is roads meeting from a transverse direction where vehicles intersect. The problems that exists at intersection are the capacity of roads and flow of vehicle. It is because increases the volume of vehicles and other road users such as pedestrians, sidewalks, vehicle parking and buildings. The intersection requires regulation in order to avoid and minimize conflicts or problems that may arise in the intersection area.

There are several terms used for unsignalized intersections, namely:

Geometric conditions

In sketching a good geometric pattern, an intersection should be described clearly and in detail with information about curbs, road widths, shoulder widths, and medians. At the intersection of the major road approach, the road that is considered the most important, for example the road with the highest functional classification, is given the notation A and B, and for the minor road approach given the notation C and D and made clockwise.

Environmental conditions

Environmental conditions are adjusted to the real facts that will affect the performance of an intersection. Environmental conditions consist of City Size Class, Road Environment Type and Side Barrier Class.

Traffic conditions

Traffic condition input data consists of three parts, including describing traffic conditions, traffic flow sketches and traffic input variables which are inputted into the USIG I form as described below:

1. Periods and questions (alternative).
2. A sketch of the traffic flow depicting the various movements. Traffic flow in units of vehicles/hour. If traffic flow is in Daily Traffic or Average Annual traffic, the factor for convection to hourly flows must be recorded.
3. Traffic composition is recorded.
4. The flow of non-motorized vehicles is recorded.

3. RESEARCH METHOD

The method used in this research are guided by the 1997 Indonesian Road Capacity Manual (MKJI) method. In this study at the location of the Unsignalized T-Intersection on Jalan Boulevard – Jalan Kaliabang Babelan, North Bekasi, that connecting Bekasi Regency with Bekasi city center which has been clarified in UU No. 22 of 2009 that concern about road traffic and transportation has a strategic role in supporting development and national integration as part of efforts to promote public welfare. Use of traffic lights to reduce accidents on vehicles at unsignalized intersections so it become signalized intersections.

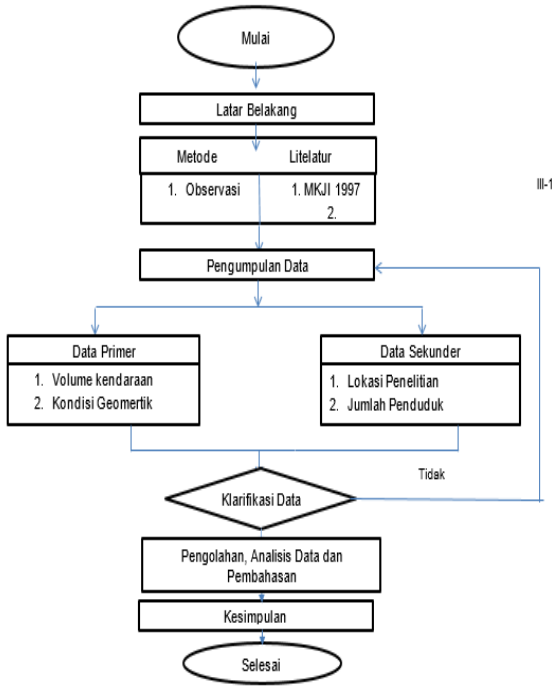

Figure 1. Flowchart of the study

This research was conducted in 3 zones, the direction of the Nurul Ghoir Mosque, Kenzi Motor and the Bintang Sport Center which is a mall, office, and dining area that has been equipped with shop houses and parking lots for both motorbikes and cars.

Based on the data that will be obtained from the survey, includes:

1. Traffic Volume
2. Geometric Condition
3. Environmental Conditions

The data that will be taken at the research site, then processed into Microsoft Excel format so that it can be stored and understood into the form of tables and graphs for analysis.

The steps are as follows:

1. Data on traffic volume are tabulated with 15 minutes intervals, then converted to units of pcu/hour.
2. Data on geometric conditions at the research location as discussed.
3. Data on environmental conditions as discussed.
4. The data that has been obtained is arranged in the form of tables and analyzed using Microsoft Excel application to find out the percentage of capacity, adjustment factors, degrees of saturation, delays, and queuing opportunities at the location.

The effective time that has been determined in conducting the research is Monday, Thursday, and Saturday, for the implementation at the research site to be carried out in October 2020. Those days were chosen because they represent working days I & II and holidays. Data collection at the research site includes the morning activities of people working and in the afternoon is taken because the community has finished carrying out work and other activities.

Quantitative Analysis Techniques is a technique used to analyze quantitative information (data that can be measured, tested and informed in the form of equations and tables).

4. RESULTS AND DISCUSSION

Site observations were carried out in three sections of Jalan Perjuangan / Musholla Nurul Ghoir to the north, approach, and exit. Jalan Kaliabang / Kenzi Motor to the east, approach, and exit. North Ring Road/Bintang Sport Center to the west, approach, and exit.

Geometric data collection of roads, vehicle volume in the morning, afternoon, and evening at 06.00-08.00 WIB, 11.30-13.30 WIB, and 16.00-19.00 WIB, and environmental conditions.

General Data and Geometric Condition of Urban Roads

1. Province : West Java
2. Regency : Bekasi
3. District : Babelan
4. Population: 3.083 million in 2020 based on the Central Statistics Agency (BPS) Bekasi City 2020.
5. Road lines: four-divided (4/2D).
6. Road segments: Jalan Perjuangan / Musholla Nurul Ghoir to the north, approach, and exit. Jalan Kaliabang / Kenzi Motor to the east, approach, and exit. North Ring Road/Bintang Sport Center to the west, approach, and exit.
7. Segment length: 100 meters
8. Road Section Width: 6.9 meters to the north, 12.2 meters to the east and 14.7 meters to the west.

Volume of vehicle data

The survey is carried out to determine the volume of vehicles that pass through three sections Jalan Perjuangan / Musholla Nurul Ghoir to the north, approach, and exit. Jalan Kaliabang / Kenzi Motor to the east, approach, and exit. North Ring Road/Bintang Sport Center to the west, approach, and exit. Geometric data collection of roads, vehicle volume in the morning, afternoon, and evening at 06.00-08.00 WIB, 11.30-13.30 WIB, and 16.00-19.00 WIB.

The major road is the part of the approach of the intersection that has a larger traffic flow, and the minor road is the part of the approach of the intersection that has a smaller traffic flow. In this study, the classification of major roads is in the west and east directions while the classification of minor roads is in the north.

Table 1. Volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Waktu	Arah	JENIS KENDARAAN/15MENIT			
		MC	LV	HV	UM
6.00 - 06.1	BELOK KIR	31	16	0	0
	LURUS	-	-	-	-
	LOK KANA	54	17	0	3
6.15 - 06.3	BELOK KIR	45	11	0	0
	LURUS	-	-	-	-
	LOK KANA	62	24	0	2
6.30 - 06.4	BELOK KIR	50	14	0	0
	LURUS	-	-	-	-
	LOK KANA	76	15	0	2
6.45 - 07.0	BELOK KIR	85	13	0	0
	LURUS	-	-	-	-
	LOK KANA	86	17	0	2
7.00 - 07.1	BELOK KIR	55	8	0	0
	LURUS	-	-	-	-
	LOK KANA	83	28	0	0
7.15 - 07.3	BELOK KIR	57	10	0	0
	LURUS	-	-	-	-
	LOK KANA	77	29	0	0
7.30 - 07.4	BELOK KIR	48	4	0	0
	LURUS	-	-	-	-
	LOK KANA	83	24	2	0
7.45 - 08.0	BELOK KIR	57	7	0	0
	LURUS	-	-	-	-
	LOK KANA	81	25	0	1

Source: Analysis results

Table 2. Total volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Waktu	JENIS KENDARAAN/15MENIT			SMP/15MENIT				SMP/JA
	MC	LV	HV	0.5	1	1.3	JUMLAH	
06.00 - 06.15	145	33	0	72.5	33	0	105.5	
06.15 - 06.30	107	35	0	53.5	35	0	88.5	
06.30 - 06.45	126	29	0	63	29	0	92	
06.45 - 07.00	171	30	0	85.5	30	0	115.5	401.5
07.00 - 07.15	138	36	0	69	36	0	105	401
07.15 - 07.30	134	39	0	67	39	0	106	418.5
07.30 - 07.45	131	28	2	65.5	28	2.6	96.1	422.6
07.45 - 08.00	138	32	0	69	32	0	101	408.1
JUMLAH	1090	262	2	545	262	2.6	809.6	2051.7

Source: Analysis results

Figure 2. Total volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Based on Table 2 and Picture 4.6, traffic flow on Jalan Perjuangan / Musholla Nurul Ghoir towards North approach is highest at 06.45 – 07.45 with 422.6 pcu/hour and the lowest at 06.00 – 07.00 with 401 pcu/hour.

Table 3. Volume of vehicle on Jalan Perjuangan/Musholla Nurul Ghoir

Waktu	Arah	JENIS KENDARAAN/15MENIT			
		MC	LV	HV	UM
11.30 - 11.4	BELOK KIR	35	12	0	0
	LURUS	-	-	-	-
	LOK KANA	78	16	0	1
11.45 - 12.0	BELOK KIR	31	10	0	0
	LURUS	-	-	-	-
	LOK KANA	87	17	0	0
12.00 - 12.1	BELOK KIR	44	10	0	0
	LURUS	-	-	-	-
	LOK KANA	72	17	0	2
12.15 - 12.3	BELOK KIR	65	13	0	0
	LURUS	-	-	-	-
	LOK KANA	62	22	1	0
12.30 - 12.4	BELOK KIR	46	3	0	0
	LURUS	-	-	-	-
	LOK KANA	73	13	0	0
12.45 - 13.0	BELOK KIR	20	12	0	0
	LURUS	-	-	-	-
	LOK KANA	74	21	0	0
13.00 - 13.1	BELOK KIR	45	10	0	0
	LURUS	-	-	-	-
	LOK KANA	77	17	0	0
13.15 - 13.3	BELOK KIR	48	10	0	0
	LURUS	-	-	-	-
	LOK KANA	76	15	0	0

Source: Analysis results

Table 4. Total volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Waktu	MIS KENDARAAN/15MEI			SMP/15MENIT				SMP/JA
	MC	LV	HV	0.5	1	1.3	JUMLAH	
11.30 - 11.45	113	28	0	56.5	28	0	84.5	
11.45 - 12.00	118	27	0	59	27	0	86	
12.00 - 12.15	116	27	0	58	27	0	85	
12.15 - 12.30	127	35	1	63.5	35	1.3	99.8	355.3
12.30 - 12.45	119	16	0	59.5	16	0	75.5	346.3
12.45 - 13.00	94	33	0	47	33	0	80	340.3
13.00 - 13.15	122	27	0	61	27	0	88	343.3
13.15 - 13.30	124	25	0	62	25	0	87	330.5
JUMLAH	933	218	1	466.5	218	1.3	685.8	1715.7

Source: Analysis results

Figure 3. Total volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Based on Table 4 and Figure 3, traffic flow on Jalan Perjuangan / Musholla Nurul Ghoir towards North approach is highest at 11.30 – 12.30 with 355,3 pcu/hour and the lowest at 12.30 – 13.30 with 330,5 pcu/hour.

Table 5. Volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Waktu	Arah	JENIS KENDARAAN/15MENIT			
		MC	LV	HV	UM
15.00 - 16.1	BELOK KIR	59	4	0	0
	LURUS	-	-	-	-
	LOK KANA	81	12	0	2
15.15 - 16.3	BELOK KIR	37	5	0	0
	LURUS	-	-	-	-
	LOK KANA	115	16	0	1
15.30 - 16.4	BELOK KIR	70	9	0	0
	LURUS	-	-	-	-
	LOK KANA	123	30	0	0
15.45 - 17.0	BELOK KIR	36	8	0	0
	LURUS	-	-	-	-
	LOK KANA	201	22	0	1
17.00 - 17.1	BELOK KIR	77	11	0	0
	LURUS	-	-	-	-
	LOK KANA	109	22	0	3
17.15 - 17.3	BELOK KIR	80	6	0	0
	LURUS	-	-	-	-
	LOK KANA	95	10	0	0
17.30 - 17.4	BELOK KIR	59	14	0	0
	LURUS	-	-	-	-
	LOK KANA	167	19	0	0
17.45 - 18.0	BELOK KIR	37	15	0	0
	LURUS	-	-	-	-
	LOK KANA	153	20	0	0
18.00 - 18.1	BELOK KIR	55	6	0	0
	LURUS	-	-	-	-
	LOK KANA	84	13	0	0
18.15 - 18.3	BELOK KIR	62	10	0	0
	LURUS	-	-	-	-
	LOK KANA	75	20	0	0
18.30 - 18.4	BELOK KIR	33	6	0	0
	LURUS	-	-	-	-
	LOK KANA	118	12	0	0
18.45 - 19.0	BELOK KIR	46	11	0	0
	LURUS	-	-	-	-
	LOK KANA	110	6	0	0

Source: Analysis results

Table 6. Total volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Waktu	MIS KENDARAAN/15MEI			SMP/15MENIT				SMP/JA
	MC	LV	HV	0.5	1	1.3	JUMLAH	
16.00 - 16.15	140	16	0	70	16	0	86	
16.15 - 16.30	152	21	0	76	21	0	97	
16.30 - 16.45	193	39	0	96.5	39	0	135.5	
16.45 - 17.00	237	30	0	118.5	30	0	148.5	467
17.00 - 17.15	186	33	0	93	33	0	126	507
17.15 - 17.30	175	16	0	87.5	16	0	103.5	513.5
17.30 - 17.45	226	33	0	113	33	0	146	524
17.45 - 18.00	190	35	0	95	35	0	130	505.5
18.00 - 18.15	139	19	0	69.5	19	0	88.5	468
18.15 - 18.30	137	30	0	68.5	30	0	98.5	463
18.30 - 18.45	151	18	0	75.5	18	0	93.5	410.5
18.45 - 19.00	156	17	0	78	17	0	95	375.5
JUMLAH	2082	307	0	1041	307	0	1348	4234

Source: Analysis results

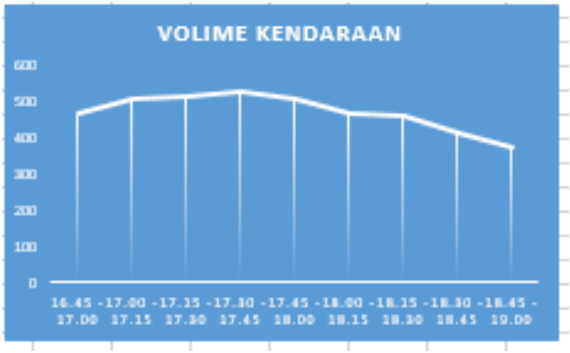

Figure 4. Total volume of vehicle on Jalan Perjuangan / Musholla Nurul Ghoir

Based on Table 6 and Figure 4 traffic flow on Jalan Perjuangan / Musholla Nurul Ghoir towards North approach is highest at

16.30 – 17.30 with 513,5 pcu/hour, and the lowest at 18.00 – 19.00 with 375,5 pcu/jam.

Side Obstacles Analysis

Determining the class of side obstacles can be seen from the four types that effect the side obstacles. Its occurrences in every 200 meters per hour as follows:

Tabel 7. Side obstacle

no	Jenis Hambatan Samping	Jumlah
1	Pejalan Kaki	245
2	Kendaraan Berhenti	142
3	Kendaraan Keluar Masuk	76
4	Kendaraan Lambat	56

SFC = PED x 0,5 + PSV x 1,0 x ELV x 0,7 x SMV x 0,4

SFC = (245 x 0,5) + (142 x 1,0) + (76 x 0,7) + (56 x 0,4)

SFC = 340

Table 8. Class of Side Obstacles

Kelas Hambatan Samping (SFC)	Kode	Jumlah berbobot kejadian per 200 meter per jam (dua sisi)	Kondisi khusus
Sangat Rendah	VL	<100	Daerah Pemukiman : jalan dengan jalan samping
Rendah	L	100 – 299	Daerah pemukiman :beberapa kendaraan umum
Sedang	M	300 – 499	Daerah Industri : Beberapa toko di sisi jalan
Tinggi	H	500 – 899	Daerah Komersil : Aktifitas sisi jalan Tinggi
Sangat Tinggi	VH	>900	Daerah Komersil : Dengan aktifitas

Source: MKJI, 1997.

The results of the side obstacles analysis obtained the value of SFC = 340, the frequency of the weights was between the values of 300-499 for the side resistance class which was at the service level M, which was Medium.

Traffic Flow at the Intersection

The traffic flow on weekdays at the intersection Jalan Perjuangan – Jalan Kaliabang Babelan, North Bekasi in the morning.

Tabel 9. Total volume of approach vehicles at unsignalized intersection on Working Day I.

PAGI													
Kaki Simpang	Belok Kiri (Kend/jam)				Lurus (Kend/jam)				Belok Kanan (Kend/jam)				Total
	MC	LV	HV	UM	MC	LV	HV	UM	MC	LV	HV	UM	
Utara	245	35	0	0	-	-	-	-	329	98	2	2	711
Timur	-	-	-	-	2,417	896	24	14	248	737	16	6	4358
Barat	219	559	23	6	1730	635	24	14	0	-	-	-	3210
Total	464	594	23	6	4147	1531	48	28	577	835	18	8	8279

Table 10. Traffic flow data of the unsignalized intersection on the Working Day I.

KOMPOSISILALULINTAS	ARAH	LV%		HV%		MC%		Faktor-smp		Faktor-k	Ko
ARUS LALULINTAS		Kendaraan ringan LV		Kendaraan ringan LT		Kendaraan ringan LT		Sepeda Motor MC			
Pendekat		emp	1	emp	1,3	emp	0,5	Kendaraan bermotor total MV			be
		kendfjam	smpfjam	kendfjam	smpfjam	kendfjam	smpfjam	kendfjam	smpfjam	Rasio belok	Ka
		3	4	5	6	7	8	9	10	11	
Jl.Minar Utara	LT	35	35	0	0	245	122.5	280	157.5	0.37269	
	ST	-	-	-	-	-	-	-	-		-
	RT	98	98	2	2.6	329	164.5	429	265.1	0.62731	
	Total	133	133	2	2.6	574	287	709	422.6		
Jl.Mayar Timur	LT	-	-	-	-	-	-	-	-		-
	ST	896	896	24	31.2	2417	1208.5	3337	2135.7		
	RT	737	601	16	20.8	248	124.0	1,001	745.8	0.26	
	Total	1633	1497	40	52	2665	1332.5	4338	2881.5		
Jl.Mayar Barat	LT	559	559	23	29.9	219	109.5	801	698.4	0.31324	
	ST	635	635	24	31.2	1730	865	2389	1531.2		
	RT	-	-	-	-	0	0	-	-		-
	Total	1194	1194	47	61.1	1949	974.5	3190	2229.6		
Jl. Mayar Total Timur + Barat		2827	2691	87	113.1	4614	2307	7528	5111.1		
Mayar + Minar	LT	594	594	23	29.9	464	232	1081	855.9	0.15467	
	ST	1531	1531	48	62.4	4147	2073.5	5726	3666.9		
	RT	835	699	18	23	577	289	1,430	1,011	0.18	
Mayar + Minar Total		2960	2824	89	115.7	5188	2594	8237	5533.7		
				Rasio Jl. Minar (Jl. Utama + Minar) Total						0.07637	UM/MV

Based on the research results, the traffic flow (Q) of the unsignalized intersection on the Working Day I is 5533.7 pcu/hour.

Capacity of unsignalized intersection on Jalan Perjuang – Jalan Kaliabang Babelan, North Bekasi for the working day I

The total capacity for all intersection arms is the product of the basic capacity (Co), namely the capacity under certain conditions (ideal), adjustment factors (F) and the effect of site conditions on capacity.

The form of the capacity model as follows:

C=Co x Fw x FM x FCS x FRSU x FLT x FRT x FMI

Table 11. Base capacity at unsignalized intersection

Pilihan	Kapasitas Dasar	Faktor Penyesuaian Kapasitas (F)							Kapasitas
		Lebar Pendekat Rata Rata	Median Jalan	Ukuran Kota	Hambatan Samping	Belok Kiri	Belok Kanan	Rasio Arus Minor	
Senin Pagi	CO	FW	FM	FCS	FRSU	FLT	FRT	FMI	C
	smp/jam								smp/jam
	12	13	14	15	16	17	18	19	20
	Tabel 2.11	Gambar 2.1	Tabel 2.13	Tabel 2.14	Tabel 2.15	Gambar 2.2	Gambar 2.3	Gambar 2.4	Rumus 2.2
	3200	0.9896	1.05	1.05	0.94	1.089019463	0.92156843	1.4256344	4685.49

Based on the results, the capacity value (C) at the unsignalized intersection is 4,685.49 pcu/hour.

Table 12. Approach width and type of intersection

PILIHAN	JUMLAH LENGAN SIMPANG	Lebar Pendekat (meter)							Jumlah Lajur		Tipe Simpang
		Jalan Mayar			Jalan Minar			Rata-Rata WR	Jalan Minar	Jalan Mayar	
		WA	WC	WAC	WB	WD	WBD				
	1	2	3	4	5	6	7	8	9	10	11
1	3	7.35	6.1	6.725	3.3	0	1.65	4.1875	2	4	324

Degree of Saturation (DS) at the unsignalized intersection of Jalan Perjuangan – Jalan Kaliabang Babelan in North Bekasi on the working day I.

The degree of saturation (DS) can be calculated as follows:

DS = Qsmp/C

= 5,533.7/4,685.49

= 1,81

Based on the results of the research, the degree of saturation (DS) at the unsignalized intersection is 1.81. It means that the traffic performance has delays on the intersection with the level of service is E, which is an unstable flow condition. The traffic performance at the intersection is at level of service F that the traffic flow is hampered.

Tabel 13. Traffic performance

PAGI											
PILIHAN	Arus LaluLintas (Q)	Derajat Kejenuhan	Sasaran	LOS (Level of Service) dengan Derajat Kejenuhan	Tundaan Lalu Lintas Simpang	Tundaan Jalan Mayor	Tundaan Jalan Minor	Tundaan Geometrik	Tundaan Simpang	LOS (Level of Service) dengan Tundaan simpang	Peluang Antrian
		DS = Q/C			DT1	DTMA	DTMI	(DG)	(D)		QP%
	smp/jam				det/smp	det/smp	det/jam	det/smp	det/smp		%
	21	22	23	24	25	26	27	28	29	30	31
		Rumus 2.4		Tabel 2.18	Gambar 2.5	Gambar 2.6	Rumus 2.5	Rumus 2.6	Rumus 2.7	Tabel 2.17	Gambar 2.7
Senin	5533.7	1.18	DS > 0.85	F	32.15952383	17.11698004	214.09038	4	36.15952383	E	56-183

Table 14. Recapitulation of the vehicles flow at the intersection of Jalan Perjuang – Jalan Kaliabang Babelan, North Bekasi in the morning.

PAGI											
PILIHAN	Arus LaluLintas (Q)	Derajat Kejenuhan	Sasaran	LOS (Level of Service) dengan Derajat Kejenuhan	Tundaan Lalu Lintas	Tundaan Jalan Mayor	Tundaan Jalan Minor	Tundaan Geometrik	Tundaan Simpang	LOS (Level of Service) dengan Tundaan simpang	Peluang Antrian
		DS = Q/C			DT1	DTMA	DTMI	(DG)	(D)		QP%
	smp/jam				det/smp	det/smp	det/jam	det/smp	det/smp		%
	21	22	23	24	25	26	27	28	29	30	31
		Rumus 2.4		Tabel 2.18	Gambar 2.5	Gambar 2.6	Rumus 2.5	Rumus 2.6	Rumus 2.7	Tabel 2.17	Gambar 2.7
Senin	5533.7	1.18102806	DS > 0.85	F	32.15953	17.11698	214.0904	4	36.15953	E	56-183
Kamis	5329.8	1.54510414	DS > 0.85	F	1.00143	1.098245	0.585877	4	5.00143	B	102 - 341
Sabtu	3982.2	1.3030956	DS > 0.85	F	1.710471	1.814999	1.363971	4	5.710471	B	70 -229

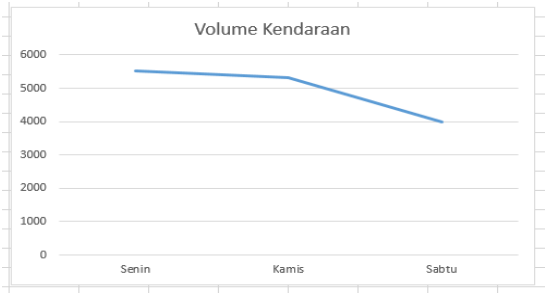

Figure 5. Recapitulation of the vehicles flow

The peak traffic flow at the intersection of Jalan Perjuang – Jalan Kaliabang Babelan, North Bekasi in the morning, occurred on Working day I at 5533.7 pcu/hour, while the lowest was on holidays at 3982.2 pcu/hour.

5. CONCLUSION

1. The value of the degree of saturation (DS) for the maximum flow on the working day I in the morning is 1.18. Based on the value of the degree of saturation (DS), the traffic performance on urban road has level of service F with obstructed flow, low speed, volume below the capacity, long queues, and long obstacles.
2. The delays on the intersection for the maximum flow on the working day I in the morning is 36.1 sec/pcu. The minimum flow in the morning on the holiday is 5.7 sec/pcu.
3. The probability of queuing for the maximum flow on the working day I in the morning is 56 – 183%. The probability of queuing for the minimum flow in the morning on the holiday is 70 – 229 %

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